Salutations Ms. Hall,

Please read and forward to Mr. Crandell, Ms. Owen, Ms. Pyska, Mr Rasmussen, and Mr. Sabatier, our Board of Supervisors, just in case my emails do not get through.

You are receiving another plea to deny the permit for the biochar plant on prime AG land in Upper Lake. My first attempt at addressing your attention to this fraudulent travesty was greeted with care to the point where I received a phone call. Someone from your office informed me that my email was received and questioned if I would like it read out loud at the next board meeting. After giving the answer yes to your office, I was informed my letter was never read. I called your office to inquire why it was never read. The conversation left me understanding that no emails are read out loud and that the offer had been a mistake. However, she could attach my letter to the agenda minutes. I have no idea if my letter was ever reviewed by any of you because that was the only response I received. With this interaction I am not only left questioning your office now, as well as the planning department from the very beginning with their incompetent permit approval.

My last email pointed out how our planning department did not perform simple Google researchs to confirm the biochar permit application had validation. After an Upper Lake resident did their own research they found multiple fraudulent claims in the permit application.

Installation of an industrial zoned complex on prime AG zone land and fraudulent claims on a permit application should be reasons alone to halt this project and re-examine if this industry is worth a massive loss to your residents.

I state massive loss because I see how this lie that is supposed to create products that most farms, or ag producers are not using currently will pollute our Town and County. I work on the lake Monday through Thursday and have witnessed how one control burn can pollute the entire Lake area. It causes a massive thick fog like cloud of smoke that covers the lake and gets locked in by the surrounding mountains. As one of the county CTA's, I brag about our County listed in the top 10 counties in the nation for clean air. This biochar plant will put at risk our quality of air and views. That is a massive loss.

Recently I attended the Cliss Class Science Symposium. These informative classes educated the public on the Middle Creek restoration project. Your constituents that attended these classes were excited to learn that this project was in motion to help restore the lake. The biochar plant puts this plan at risk, and that's a massive loss.

Increasing of trucking traffic, noise, and pollution along with industrial noise, traffic, and pollution on highway 20 that the Cliss Class advertised as a scenic highway to attract tourists to driving destinations such as the Middle Creek restoration, Berryessa Snow Mountain National monument, Rodman Slough Clearlake Oaks Water restoration project, John T. Claus Park, and all the smaller parks with boat launches on the entire stretch of highway 20. The cause of the increased traffic and noise would be a detriment to tourist traveling, and the Biochar industrial complex sticking out like a sore thumb polluting on the side of our most attractive highway is a MASSIVE LOSS.

I could continue and list so many massive losses on the approval of this permit such as transferring plant diseases, pollution into the two creeks that run adjacent of this AG property that spills into Rodman Slough and the lake, a unit that is burning roughly 70

hours a week in a town that does not have a fully opened functioning fire station, to the pollution it will create only a stone throw away from an elementary, Junior high, and high School, etc. etc. I could go on and if you would like to review more massive losses please feel free to contact me and I can continue, otherwise I think you understand my point. I hope I have captured your ear and you recognize zoning and proper applications are priorities. I hope you can visualize the massive losses that this plant could cause to our entire town and County, and deny its permit application for installation in Upper Lake on our prime AG land.

I believe in jobs and industry, but let's put industry on industrial land, and not the land that is being reclaimed for environmental restoration.

Kind Regards, Your constituent, Holly Hansen

My husband and I live almost across the highway from this five acre parcel. I've research and read about the plans and what plant is supposed to do. I've read an independent report from another local professional Lake county engineer who pointed out many things that were either not true about this plant proposal or incorrect about the plans.

Since then, after learning this information, I research other places that already have biochar plants and how the people living near them wish they didn't have them in their neighborhoods.

Now, I'm worried upmost about the unhealthy dust that it will produce during the process.

I saw this website in my research explaining how unhealthy the dust is: https://pmc.ncbi.nlm.nih.gov/articles/PMC3925498/

This site explains about the chemicals/toxins in this dust that can lead to different types of cancers. Besides the chemicals in the dust I wonder what it would smell like. They say they won't be burning open fires but if the did what about smoke. How would all the dust affect our eyes, too?

I found another website that had interviews of people who lived in, usually, rural country areas where these plants were built. They are now trying to stop these plants from working because more and more of the local people who live there are getting sick from getting resperatory diseases and other sicknesses relating to this dust.

How would this kind of dust affect agricultural products like grapes, pears, cattle feed grown hay, grazing cattle and strawberries.

Here is the website about those interviews:

Youtube.com Break Big Biomass Webinar

After learning what this plant does that will be so close to where we, as homeowners live, life will never be the same for us, our agriculture neighbors, the families who live nearby, the childrens' schools and our little tourist/visitor town of Upper Lake.

We get breezes and a lot of wind that blows through our area every day so, if this plant is in action at least five days a week from 7am to 7pm like was stated in the plans we're going to have a lot of this dust blowing around just like pollen. What's more, besides the dust from the plant processing, there will be big trucks, tractors and processing machines making a lot of dirt dust, too, along with causing continuous noises that we will, also, hear.

The Running Creek Casino is very close. I wonder how all the loud sounds will affect their business.

I'm use to variable traffic noise on the highway. In the the summer we hear occasional outdoor, weekend rock band music from the Running Creek Casino and occasional marching band music in the fall from the high school, but hearing all these regular day to day noises happening from this plant which is right in the center of what is my beautiful country landscape, valley view, I think I'll go nuts and be very depressed. I consider this much different than being near agricultural activity. This will be like living in an industrial zone

Which I never expected.

I heard that they will be using a lot of water in their processing or wetting down the dirt dust. Will they be using the town public water or will they put in a well. I know that during hot drought seasons there's a problem getting well water. If they have to wet the dirt down or when it rains, the piles of this fertilizer product can leach some of its chemicals into the ground water streams that go to bigger tributaries into the lake which could possibly feed the lake algae.

Our small historic country town attracts outside Lake County visitors/tourists who stay at our wonderful historic Tallman Hotel along with eating dinner at the Blue Wing restaurant next door and on weekends they have wonderful live music. My son, husband and I have had a small gallery shop almost across the street from the hotel for over 14 years and get regular sales from their visiting guests like the other small shops here. There's a new Mexican restaurant now along with a popular coffee shop and at least 10 other small businesses in our small town. Many of our businesses depend on outside visitors and tourists who drive on highway 20 to come to our town. I feel that the industrial sounds and dust they will have to drive by can be a visual and unbreathable turn off, especially if the town starts to get dusty looking itself.

We'll get more of a reputation as the dusty biochar town which could be a reputation to deter visitors.

There could be serious traffic accidents caused by the large trucks coming from the east on Hwy 20 at 45mph having to slow down around a blind corner to turn into the property. There will definitely have to be some slow down flashing lights to warn drivers that there might be an almost stopped truck ahead or there could be regular rear-end traffic collisions. If trucks need to make left hand turns coming from the other direction this will definitely stop traffic behind them unless caltrans puts in a separate left hand turn out lane and right now there's not much room for that.

Again, I'm worried about fire hazzards there with all these piles of processed wood chips sitting in the sun during our sometimes 90° to 100° weather in the summer. Besides the plants piles of processes bochar much of the 42 acres there has years growth of blackberry bushes that could catch fire caused from a plant fire. A fire in this area could spread rapidly with the regular wind we have every afternoon and could easily spread to the neighbors nearest to the plant on one side and possible the casino on the other besides, our property and all our neighbors' property across the highway at a fast speed.

Because the possibility of this plant being a fire Hazzard we might lose our fire insurance.

We were thinking that this home we live in was going to be our last forever home because we like this location nearthe town of Upper Lake, on three and a half acres on a hillside with fantastic views of the whole valley. Because of this proposed plant being near us right in our view our property could lose its value from being so close to this plant for many of my described reasons above and make it difficult to make the money on the sale of our house if this plant would make us want to move away from it. I'm sure everyone who lives near where this plant would be taking a loss on their property values.

After, reading what I've written, I hope you can see why my husband and I are personally against have this type of plant so close to us on that property.

I still don't think that many people who live in Upper Lake have a clue about this approved plant or would understand how it would affect them until after it was built and up and running.

Those of us who found out and are aware have tried to share this information to as many people as possible, to literally save our town by appealing this approval of this plant. A lot of us want to save our town from future heartache, health problems, noise issues, safety issues and economic losses by stopping this project before it gets built.

I honestly, after knowing what I know, wouldn't want these kind of plants to be built anywhere else in our clean air beautiful county. I pray every day that they aren't.

Sincerely, Sherry Harris Hello Johanna,

I am writing you to appeal the Biochar plant going forward at adress 755 hwy 20 upper lake. This will cause harm to the environment. Our lungs and there is a preschool nearby. Please stop this from happening.

Thank you, Stacy

This is not an appropriate location for the proposed project. There are a number of significant, community impacting issues which have been glossed over, not addressed or simply omitted from the public discussion. No mention of anything other than an experimental/prototype BioChar plant has been mentioned, on a 5 acre pad. Said BioChar finished product shall "be temporarily stored within the project area". What constitutes the temporary time period and where does this storage occur, another building or tank? This will be along with the 500 gallon diesel tank and the 55 gallon drums of various materials that will be stored, to service the plethora of industrial equipment which has been identified as necessary. What exactly are the "various salable wood products, firewood, landscaping products, intermediate products used for down stream production of fuel pellets, engineered wood and various other wood based products ". These things have been overlooked, as focus has been directed towards the BioChar issue. Discussion regarding trucks accessing the site has underplayed what that entails. In order to approach the plant itself from the south, (per the plan), more than 5 acres will be necessary. The fact that the entire parcel of some 40 acres is being offered for rental use, has not been transparently disclosed. Logistics suggest that use of both of the existing entrances will be required. The impact of Hwy 20 traffic will be significant, creating an additional increase in traffic congestion and risk of accidents. The size of the trucks has not been adequately discussed. Classes 6 is the smallest size by gross weight and is a school bus, a single axel truck or a beverage truck. 2 Class 7 is a tractor trailer, a large delivery or waste management truck. Class 8 is a very heavy tractor trailer, dump truck, cement mixer, semi or refuse truck. This would create a version of the same type of traffic congestion/wear and tear, as the Lakeport transfer Recology station experience. Without dedicated turn lanes, this corridor comes a death trap for motorists, to be rear ended at speed. The proposed facility location is NOT consistent with the surrounding development of the existing town of Upper Lake. I strongly urge you to reconsider your decision to move forward with this project in this location. It is clearly industrial in nature and an ill conceived quick fix approach to implement it, is incredibly inconsistent with sound Community planning and development processes. Only a portion of the project has received the in depth focus and not all of the town has been offered opportunities to examine the project ramifications. You owe the people of Upper Lake in particular and Lake County at large, to overturn your decision and search for a better, more suitable location for this project. It would be to the benefit of a few, at the expense of the many who reside here and call this home. Lorrie Larsen Sent from my iPhone

Hi- Im writing because I am alarmed about the proposal to allow a "biochar" project in that location- right off the freeway. I dont understand how a project like that could even be proposed in that area. I surely hope you will vote AGAINST this project in this area. We want people to visit and come to Lake County for all the good reasons. We need to preserve habitat, We need to protect our AIR, and not have excessive sound, trucks, traffic etc... and numerous other reasons. ITS JUST THE WRONG PLACE FOR IT. Be well Lynne Kary-Rana Resident of Upper Lake, CA Business owner in Nice. CA

Dear Supervisor,

I am writing to you in regard to the "AG Forest Wood Processing Bioenergy Project" (UP23-05, IS 23-10). This project is an industrial project being placed on land zoned agricultural preserve under the guise of being a "power plant". This is not a power plant, no power is being sold, transferred to the grid or used off-site. It is an industrial wood chipping plant. This facility will be the central wood chip processing facility for six other bioenergy locations to be located around Lake County. In addition, wood products will be manufactured to sell. THIS IS AN INDUSTRIAL OPERATION. This project is also a biochar manufacturing site. Please understand that this is not a small project. This is part of something much larger. For this reason, we believe this project, in its entirety, calls for an EIR.

1. This is an industrial operation that will be used to "kickstart a local industry around forest thinning."

The following are quotes from the grant funding application and a breakdown of intended revenue from this project (see Attachment A). We believe these quotes show this is not a small project. This is a long-term industrial operation that is part of something much larger. This project should be located on land zoned for industrial use.

Quote from Attachment A, page 2:

"Proposed Project.

SVBPI, in collaboration with the County, proposes to allocate a five-acre segment of a County-owned parcel located near the intersection of Old Lucerne Rd. and Highway 20 in Upper Lake, to develop a new woody biomass processing depot. The proposed biomass depot will serve as a central processing system for forest thinning biomass collected in Lake County. The site, which will include sorting, grinding / chipping, processing, firewood splitting and bundling, and on-site bioenergy/ biochar production equipment, will transform incoming biomass into a form that is ready for sale under multiple, economically resilient downstream uses. These will include production of firewood, pellet based fuels, engineered woods, and bioenergy production. Once fully constructed and operational, the biomass depot will connect forest biomass material collection efforts to downstream markets for

wood products. Specifically, by transforming incoming, low-value biomass into saleable mid-stream wood products, the proposed facility will help to kickstart a local industry around forest thinning and fire protection. Moreover, the proposed system will produce biochar, which is of great interest to water quality advocates for its use as a filtration medium, and would be of benefit to future wetland restoration efforts south of the project site as part of the ongoing Middle Creek Restoration Project."

Quote from Attachment A, page 7 - 8:

"The project will strongly support both revenue generation and jobs development. Specifically, the fully operational project is expected to directly generate approximately \$1.9 million per year in total revenues for the Tribe, including the following elements:

Biochar: \$340,065/yr

Bundled Firewood: \$750,000/yr

Other Bioenergy Based Fuel: \$261,645/yr

Decorative Wood Chips: \$26,786/yr

Compost Mulch: \$50,000/yr

Intermediate Wood Products: \$475,000/yr

Total: \$1,903,496/yr

These revenues conservatively reflect an operational throughput of 20 tons per day. Net income is estimated at approximately \$605,000 per year for the facility, at a throughput of 20 tons per day. The facility as designed will have the potential to handle up to 40 tons per day of material, enabling the facility to handle increased amounts of wood and thereby increased revenue during peak season and/or as additional wood becomes available as the regional industry develops and grows. Ultimately, gross revenues could reach \$3.2 million/yr total / \$1.0 million/yr net with concurrent increases in jobs development above and beyond that shown below. These revenues will be of substantial benefit to the SVBPI and will support reinvestment in other regional projects including duplication of the project at other sites, and provide programmatic support and benefits to SVBPI members."

"Importantly, the project will also serve as a regional catalyst for the development of an effective forest thinning management industry, and downstream wood products production and usage. In this manner, the project's economic impact will extend well beyond the physical boundaries of the project site and will support regional economic development in addition to Tribal revenue generation."

2. This is not the right location for this project.

We do not oppose this project; we oppose this location for this project. This site is under Williamson Act contract, it was purchased with grant funds from the Department of Water Resources for the purpose of wildlife ehnancement and flood mitigation (see Attachment B), and should be protected from industrial use.

The lease for this property is not for the 5 acres proposed in the application, it is for the entire parcel of 42.6 acres of prime agricultural land for \$100/year for 15+ years! The lease does not put any prohibitions on how the tenant may use the property. The tenant could apply for additional use permits or expand the existing use permit.

The permittee has stated throughout the application that only 5 acres is leased. Laura Hall stated this as well. This is not true. The property description on the lease agreement (see Attachment C) matches the property description on the deed for the full 42.6 acres (see Attachment D).

In this report I would like to address some very disturbing findings with this application, including the misinformation and misrepresentation of facts, as well as the way this project was presented to the community of Upper Lake.

First, under 'Project Location' on the Mitigated Negative Declaration form completed by Senior Planner Laura Hall in May 2024 (see Attachment E), all of the public schools in the Upper Lake Unified School District were omitted. Upper Lake Middle School is approximately 1850 feet from the project site. Laura Hall only mentions the Generations Early Childhood Education Center (preschool), but ALL OF THE SCHOOLS IN UPPER LAKE ARE WITHIN 3000 FEET OF THIS PROJECT! Excluding this information is harmful to the children in our community and other sensitive receptors.

Wood dust can irritate the eyes, nose, and throat (see <u>Attachment F</u>). **Industrial** wood chipping plants and biomass plants release microparticles into the air that contain dust, chemicals, fungi, and odors that worsen asthma and cause

significant respiratory issues, as well as lung cancer 1234567. This site is located within 3000 feet of FOUR SCHOOLS and will be the central wood processing site for Lake County for the next 15+ years! The wood will be processed outdoors, in the open, with dangerous micro-particles flying whatever way the wind blows - near our homes, schools, and community.

3. Major components of the project were excluded from the application and the CEQA report, leading to an unstable project description and difficulty understanding impacts on the community and environment. We believe this was intentional to downplay how burdensome the dust and constant noise will be from 7am to 7pm, Monday through Friday, for the next 15+ years.

Additionally, the project description fails to mention the industrial nature of the project and omits details about the wood processing equipment (e.g., chainsaw, wood chipper, hammer mill, etc.) that will be used to break down the trunks, logs and branches. See Attachment G page. 3 for wood processing equipment listed in NEPA documents that were excluded from the application for the Use Permit. The sound analysis excluded multiple sensitive receptors, including the Habematolel Tribal Leadership offices located 600 feet away from the project site. Emails obtained through a PRA show the Project Manager, Steve Rumbaugh, manipulated the project description (like removing the word "chipping") before Senior Planner Laura Hall sent the application to the Public Health Department for review (see Attachment H). The project description

¹ Wood Dust Health Effects. Canadian Centre for Occupational Health and Safety. https://www.ccohs.ca/oshanswers/chemicals/wood_dust.html

² Alonso-Sardon, M., Chamorro, A., Hernandez-Garcia, I. et al. <u>Association Between Occupational Exposure to Wood Dust and Cancer: A Systematic Review and Meta-Analysis</u>. *PLoS One*. 2015. 10(7):e0133024.

³ Hancock, D., Langley, M., Chia, K., Woodman, R., and E. Shanahan. <u>Wood Dust Exposure and Lung Cancer Risk: A Meta-Analysis</u>. *Occupational and Environmental Medicine*. 2015. 72(12):889-98.

⁴ Vallieres, E., Pintos, J., Parent, M., and J. Siemiatycki. <u>Occupational Exposure to Wood Dust and Risk of Lung</u> Cancer in Two Population-Based Case-Control Studies in Montreal, Canada. *Environmental Health*. 2015. 14:1.

⁵ Holm, S., and J. Festa. <u>A Review of Wood Dust Longitudinal Health Studies: Implications for an Occupational Limit Value</u>. *Dose Response*. 2019.

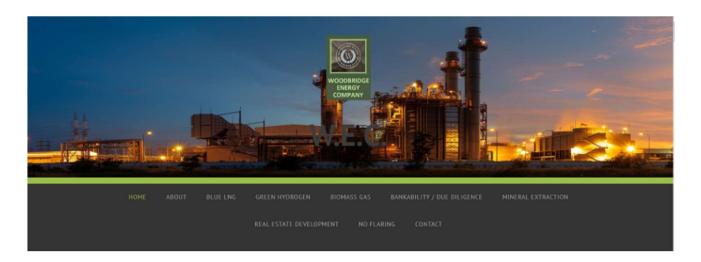
⁶ Shankar, A., Dubey, A., Saini, D. et al. <u>Environmental and Occupational Determinants of Lung Cancer</u>. *Translational Lung Cancer Research*. 2019. 8(Suppl 1):S31-S49.

⁷ Centers for Disease Control and Prevention. The National Institute for Occupational Safety and Health (NIOSH). Wood Dust. Updated 11/29/18.

states the wood will be chipped by Donahoo trucking at 8605 Bottle Rock Road, but a call to Donahoo trucking confirmed they have not operated that site since April 2024. An email from Laura Hall shows Donahoo does not have a permit for this operation (see Attachment I).

4. The plans for the wood processing site and the electrical system for syngas and biochar production were not created by a registered design professional, licensed professional engineer or electrical engineer. The plans are full of errors and violate multiple Business and Professions Codes.

Our next findings are quite disturbing as well. **Project Manager Steve Rumbaugh created the project plans, although he is not a licensed professional engineer.** He does not have a current license, and we could not find any evidence that he has ever been a licensed professional engineer. Steve Rumbaugh's latest energy company (he's had many!) is **Woodbridge Energy Company LLC** (WEC). WEC has a fancy website full of false information.



HOME ABOUT BLUEING GREEN HYDROGEN BIOMASSIGNS BANKABILITY / DUE DILIGEN

REAL ESTATE DEVELOPMENT NO FLARING CONTAC

Steve Rumbaugh

President



Mr. Rumbaugh has been in the engineering and construction business for over 40 years. He has engineered 100's of millions of dollars in construction for major companies and governmental agencies such as, AT&1 Bechtel, United Technologies, State of Oregon, U.S. Government. Mr. Rumbaugh has held key leadership positions in construction, engineering, real estate, and high-tech companies. As an expert in designing complex systems, he is called upon to provide key assistance by our clients in the renewable energy and communication industries. He holds 9 patents in wireline, powerline and wireless communication, error correction, surround sound audio, real-time transmission, and lighting systems.

His major focus is on Environmental Life Cycle of Biomass, Water, CO2, CO, H2, SNG, RNG and Energy. His relationships within the renewable industry has allowed him develop projects around the United States. Companies around the world have teamed and co-developed projects with Steve. Steve has also taken the lead on multiple developments from site acquisition to NTP to COD. He has traveled extensively the world, engineering, sourcing, partnering and managing projects.

Rumbaugh was Engineering Manager of Aydin Systems (E.&W) Electronic Warfare Division leading a group that delivered, installed, and trained the Military Allies and testing of battlefield communications. This included microware, satellite and radio comms. In addition to comms, his division provided equipment or software on almost every missile, aircraft or weapons systems in the western world that included, airborned.

In January 2025, we reached out to some of Steve Rumbaugh's "colleagues" who were listed on the Woodbridge Energy Company "About" page (see <u>Attachment J</u>). We found that Steve Rumbaugh used others' names, photos, and credentials on the Woodbridge Energy Company website without their knowledge or permission.

Click on each of the following names to see where Steve Rumbaugh copied their photos and biographies off the internet, without their permission. Then, click on their fake positions at WEC to see the stolen profiles:

 <u>Lindi Von Mutius</u> was listed as the <u>"V.P. of Environmental Relations"</u> on the Woodbridge Energy Company (WEC) website. When we contacted Lindi asking if she would recommend Steve Rumbaugh or WEC she said:

"I think this is a scam or hoax. I've never heard of this company, and am not affiliated with them in any way. I will be investigating why they are using my name, as I did not consent to this. - Lindi"

REAL ESTATE DEVELOPMENT

Lindi von Mutiu

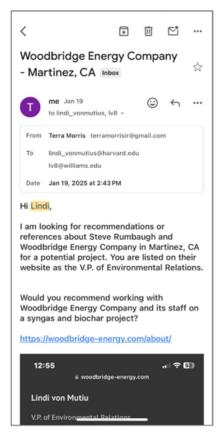
V.P. of Environmental Relations

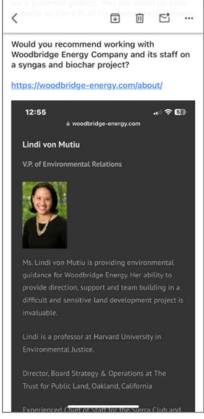


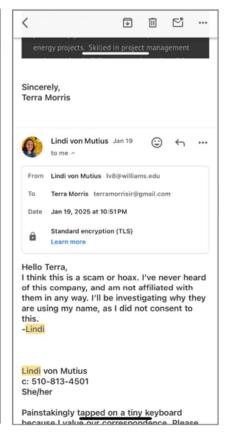
Ms. Lindi von Mutiu is providing environmental guidance for Woodbridge Energy. Her ability to provide

Director, Board Strategy & Operations at The Trust for Public Land, Oakland, California

and corporate law can provide key guidance in the development of energy projects. Skilled in project change processes around strategic planning, culture, and equity, and pro-bono, corporate bankruptcy, and

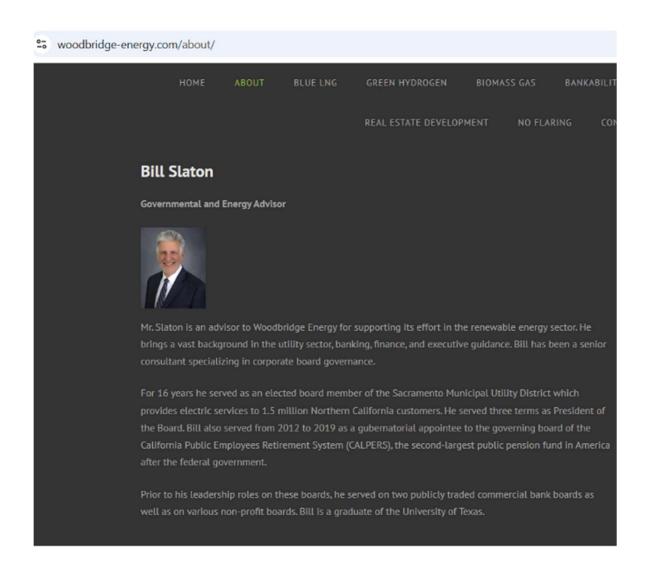


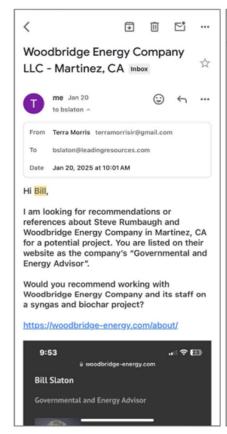


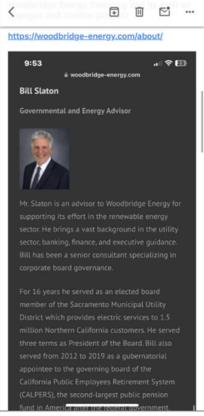


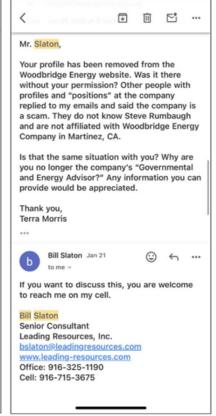
 <u>Bill Slaton</u> was listed as the <u>"Governmental and Energy Advisor"</u> on the Woodbridge Energy Company website. We emailed Bill Slaton regarding Steve Rumbaugh and WEC. The next day Bill Slaton's profile was removed from the WEC website.

Mr. Slaton spoke with us by phone and confirmed that he was not affiliated with Woodbridge Energy Company, and he did not know his information was being used on the WEC website. He used the "Contact" form on the website and asked for his profile to be removed from the site.



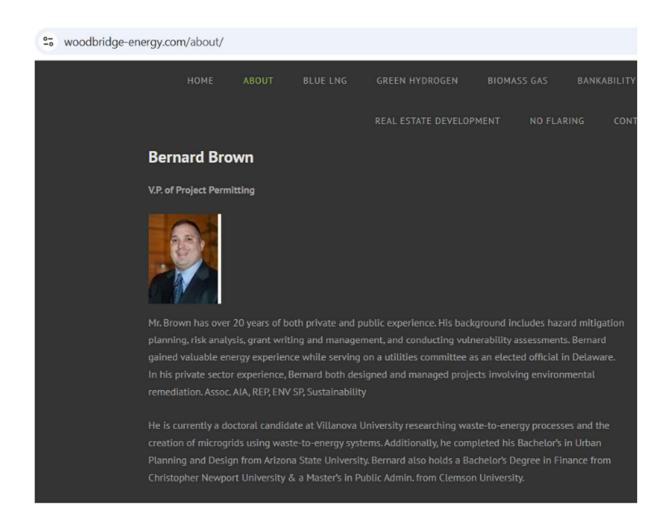






Bernard Brown was listed as the <u>"V.P. of Project Permitting"</u> and <u>Andrew Campbell</u>
(Bernard Brown's business partner at Sustainery Solutions Corporation) was listed
as the <u>"Senior Project Development Officer - Site Assessment and Mitigations"</u> on
the Woodbridge Energy Company website.

Bernard Brown and Andrew Campbell said they are not affiliated with Steve Rumbaugh or Woodbridge Energy Company, have never worked for WEC, and did not know they were listed on the WEC website.



GREEN HYDROGEN

REAL ESTATE DEVELOPMENT

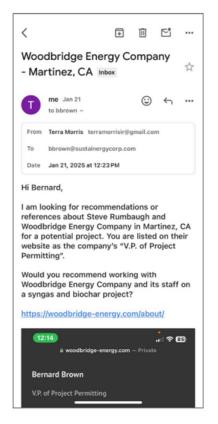
Andrew Campbell

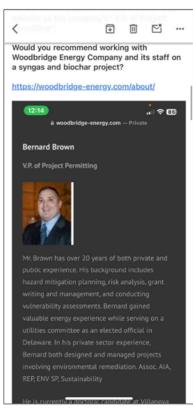
Senior Project Development Officer - Site Assessment and Mitigations

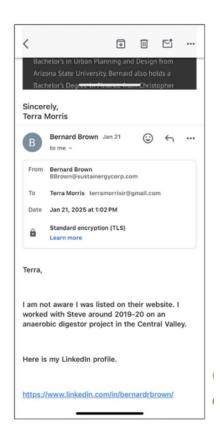


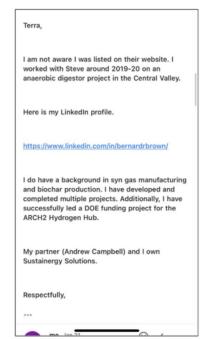
petroleum storage facilities. Andrew's background includes 10 years of developing and managing federal, state, and commercial contracts using time-and-expenses, firm fixed price, and performance-based payment structures.PE, Principal Engineer

He holds a Master's Degree – Civil Engineering from the University of Colorado and a Bachelor's Degree – engineering, scientific guidance, practice references and then successfully implementing them in real-world

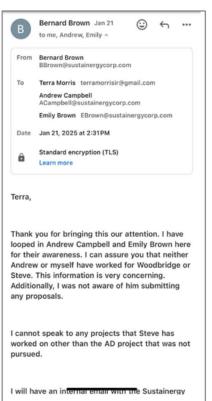




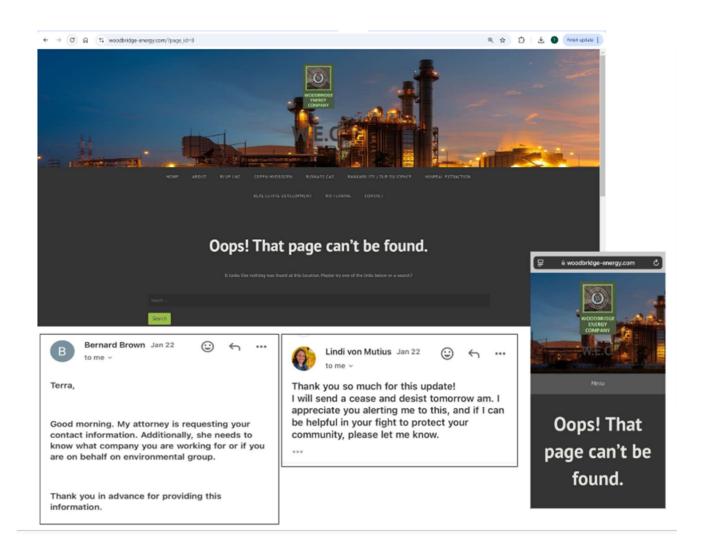




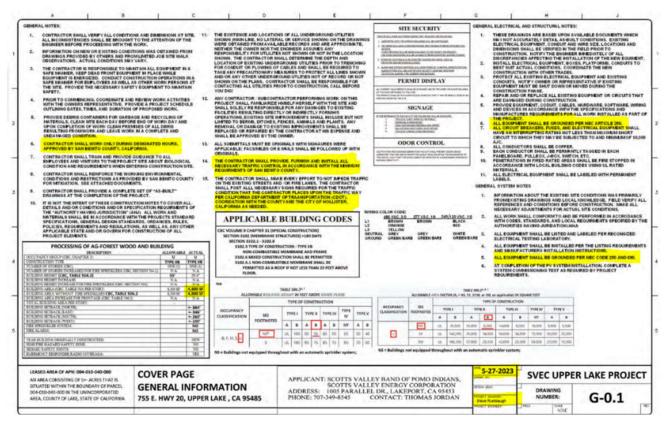




In late January 2025, the "About" page on the Woodbridge Energy Company website went offline. The site remained offline until May 2025. We believe the site was reactivated in preparation for the May 20, 2025 appeal hearing before the Board of Supervisors, and still contains profiles for people who are not affiliated with Steve Rumbaugh and Woodbridge Energy Company.



Another disturbing issue is that the site plans (created by Steve Rumbaugh of Woodbridge Energy Company) were copied from an unrelated solar project in San Benito County and another project in British Columbia. The first page of the plans mention San Benito County multiple times, and the City of Hollister (see below). Another page in the site plans is from a project in British Columbia, with the measurements in metric units, while the rest of the measurements in the plans are in English units. Steve Rumbaugh copied and pasted these plans from other projects, just like he copied and pasted the profiles for his fake team on the WEC website.



The following figure shows a closeup of the project plans for Upper Lake, which reference San Benito County and Hollister:

APPROVED BY SAN BENITO COUNTY, CALIFORNIA.

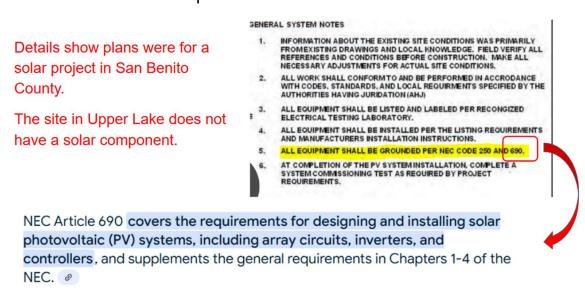
7. CONTRACTOR SHALL TRAIN AND PROVIDE GUIDANCE TO ALL EMPLOYEES AND VISIT ORS TO THE PROJECT SITE ABOUT BIOLOGICAL CONDITION AND REQUIREMENTS WHEN ENTERING CONSTRUCTION SITE.

8. CONTRACTOR SHALL REINFORCE THE WORKING ENVIRONMENTAL CONDITIONS AND RESTRICTIONS AS PROVIDED BY SAN BENITO COUNTY FOR MITIGATION. SEE ATTACHED DOCUMENTS.

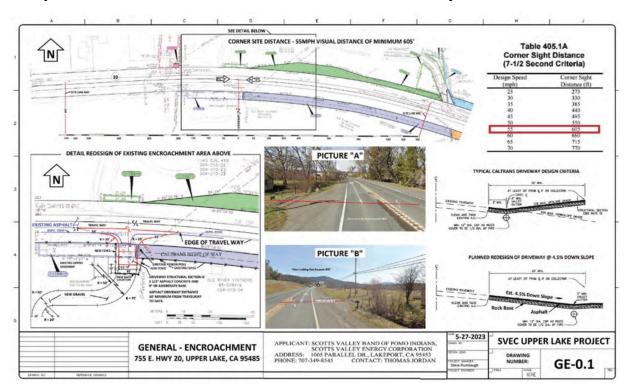
CONTRACTOR SHALL WORK ONLY DURING DESIGNATED HOURS.

- CONTRACTOR SHALL PROVIDE A COMPLETE SET OF "AS-BUILT" DRAWINGS AT THE COMPLETION OF THE PROJECT.
- 10. IT IS NOT THE INTENT OF THESE CONSTRUCTION NOTES TO COVER ALL
 DETAILS AND/OR CONDITIONS AND/OR SPECIFICATION REQUIRMENTS OF
 THE "ALITHORITY MANIMAL HISIODETICAL" (ALIT MADE) AND
- ALL SUBMITTALS MUST BE ORIGINALS WITH SIGNAURES WERE APPLICABLE; FACSIMILES OR E MAILS SHALL BE FOLLOWED UP WITH ORIGINALS.
- 4. THE CONTRACTOR SHALL PROVIDE, FURNISH AND INSTALL ALL
 NECESSARY TRAFFIC CONTROL IN ACCORDANCE WITH THE MINIMUM
 REQUIRMENTS OF SAN BENITO COUNTY.
- THE CONTRACTOR SHALL MAKE EVERY EFFORT TO NOT IMPEDE TRAFFIC ON THE EXISTING STREETS AND /OR FIRE LANES. THE CONTRACTOR SHALL POST ALLI NECESSARY SIGNS REQUIRED FOR THE TRAFFIC CONDITION THAT THE CONTRACTOR PLACES UPON THE TRAFFIC WAY PER CALIFORNIA DEPARTMENT OF TRAANSPORTATION (CDOT). COORIDATION WITH THE COUNTY AND THE CITY OF HOLLISTER, CALIFORNIA AS NEEDED.

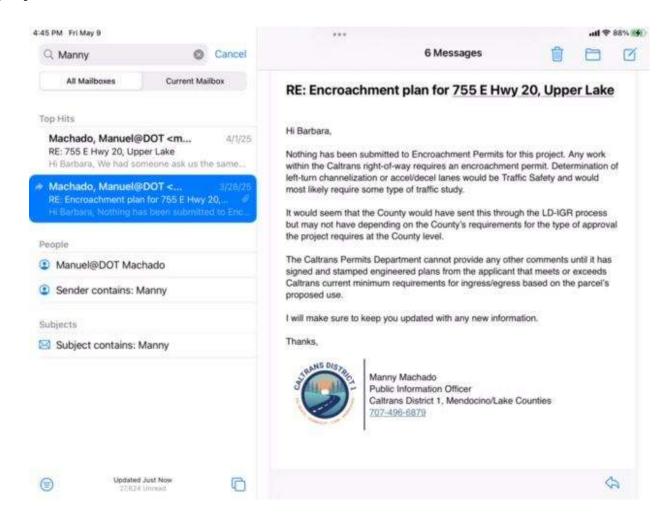
The site plans also state, "All equipment shall be grounded per NEC Code 250 and 690." NEC Article 690 is for designing and installing solar systems. The project in Upper Lake does not have a solar component.



Steve Rumbaugh's site plans also include an "Encroachment Plan" copied and pasted from an old CalTrans Eminent Domain map.



According to Manny Machado, Public Information Officer for CalTrans in Lake/Mendocino County, **Caltrans has never received any information on this project**. Please see the email below.



Furthermore, there is no license, stamp or signature on any of the project plans or construction documents. California Building Code "Section 107 Construction Documents A107.1 General" states, "The construction documents shall be prepared by a registered design professional."

Professional Engineer - Brian Hall's Report

The Community Development Department (CDD) is <u>required</u> to verify licensure and signatures for all architectural, engineering and land <u>surveying documents</u> as a condition of approval for any permit including preliminary and conceptual planning and design documents.

This is not discretionary.

The CDD cannot ensure that the plans and specifications for this project are safe for the public and the environment if the plans are not prepared or reviewed by properly licensed design professionals.

Project plans include at least 9 Business and Professions Code (BPC) violations:

- 1. BPC 5536
- 2. BPC 5536.1
- 3. BPC 5536.2
- 4. BPC 6735
- 5. BPC 6735.3
- 6. BPC 6735.4
- 7. BPC 6787
- 8. BPC 8726
- 9. BPC 8792

Conclusions:

- The architectural, civil engineering, electrical engineering, mechanical engineering and land surveying
 notes, plans, details and specifications for this project have not been prepared by a single licensed
 professional and contain significant errors and omissions that pose a threat to the environment
 and public safety.
- In addition, since the documents were not prepared by licensed design professionals, they are likely
 not covered by professional liability insurance for errors and omissions since insurance
 companies only insure licensed design professionals for the planning and design of construction
 projects.
- The proposed location is not a suitable spot for what appears to be a pilot project for future bio-char facilities in other locations.
- If approved, I believe hard lessons will be learned from this project at the expense of the environment and the local community.

5. The project plans and CEQA fail to accurately describe the environmentally sensitive nature of this location by excluding the blueline stream that runs down the west side of the property and drains into Rodman Slough.

I want to start my next finding by first stating that there are two blueline water streams that run on the East and West borders of this property straight to Rodman Slough. If you come to the site, it is readily apparent where these streams are. The streams are intermittent and run from the beginning of the rainy season for roughly 6-7 months each year. The blueline stream on the west side of the property closest to the project site was omitted from the CEQA report and all maps in the application, except the drainage map.

The legal description of the property that appears in the deed (<u>Attachment D</u>) and lease agreement (<u>Attachment C</u>) states the property line runs through the "center of creek."

EXHIBIT "A"

LEGAL DESCRIPTION

For APN/Parcel ID(s): 004-010-040-000 and 004-013-180-000

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE UNINCORPORATED AREA, COUNTY OF LAKE. STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

Parcel One:

Beginning at the Northwest corner of the Northeest quarter of Section 18, Township 15 North, Range 9 West, M.D.B.8 M.; thence running North 13° East 13.40 chains to the center of creek; thence following the meanders of said creek North 3° East 5 chains; thence North 34° 30° East 6.33 chains; thence North 12° East 4.87 chains; thence North 18° East 1.86 chains; thence North 6° 30° East 4 chains to the County Road; thence East 25.08 chains to the quarter corner between Sections 7 and 8 of said Township and Range; thence South along the Section line 15.11 chains; thence West 20 chains; thence South 24.89 chains to the North line of said Section 18; thence West 20 chains to the place of beginning.

Excepting therefrom all that portion thereof lying Northerly of the Southerly line of State Highway 20.

Also excepting therefrom all that portion conveyed to the State of California by Deed recorded February 10, 2009, Instrument No. 2009-001937, of Official Records.

APN: 004-010-040-000

Parcel Two:

Parcel A, as shown on a map filed in the office of the County Recorder of said Lake County on April 24, 1985, in Book 26 of Parcel Maps at Page 32, being a portion of Section 18, Township 15 North, Range 9 West, M.D.M.

APN: 004-013-180-000

Biologist Lawrence Ray, who conducted the CEQA biological survey, stated the western waterway could "not be found" and stated⁸:

"A delineation of waters of the U.S. was not conducted due to the lack of water, hydric soil and wetlands plants not present on the parcel. -Lawrence Ray, biologist" (Source: IS/MND, page 96)

⁸ It should be noted that Lawrence Ray worked for the Applicant/Stakeholders from 2011-2013.

Emails from Senior Planner Laura Hall (obtained through a PRA) reveal there were conversations during the initial study about the presence of this waterway (see Attachment K). In an email to Biologist Lawrence Ray, Laura Hall questioned the location of the "irrigation ditch," which could have "sediment runoff" if there was grading done nearby, and how no aquatic plants were found, yet a survey of aquatic plants was done.

The proximity of the west blueline stream relative to the project site and access road is downplayed in the NEPA Environmental Narrative (<u>Attachment G</u>, page 13) by stating the "ag drainage" is <u>not</u> "within the project site" and is located "on the opposite side of the access road." However, photos in the Environmental Narrative show the project site and access road are feet from the west waterway (see <u>pages 5, 12, 14, 15</u>).

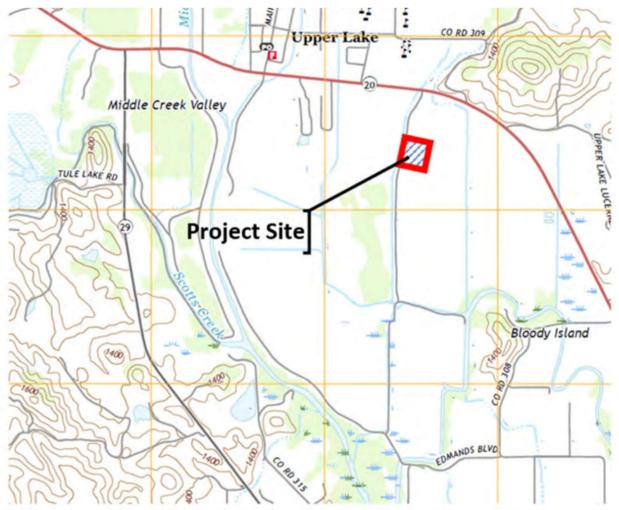


Figure 2. Project site topo map (USGS 7.5 minute topo map for Upper Lake County, 2018).

The west blueline stream is located where the plants and thistle can be seen in these photos, roughly 10 feet from the access road (source NEPA Environmental Narrative).



Figure 8. Western edge of the project site facing offsite to the northwest, showing adjacent agricultural use. Top of nearby casino (red-brown roof) can be seen in the far right, in the distance.



Figure 9. Adjacent to the western edge of the project site, from the access road, facing northwest and showing the offsite agricultural drainage ditch that is located west of the project site, across the existing access road.



Figure 10. Project site access road along the western edge of the project site, facing south. The offsite agricultural drainage ditch is shown to the right, covered in vegetation, and the project site is to the left of the road with no drainages on the eastern side of the access road.



Figure 11. National Wetlands Inventory map³ for the project site (red outline) and vicinity. An existing agricultural ditch that is considered potentially jurisdictional is located on the opposite side of the access road from the project site. It is classified as a freshwater emergent wetland (see text).

The project is would not include any activities that would interfere with or impact the existing agricultural drainage. All project related activities would take place to the east of the existing

² Available at: https://www.fws.gov/wetlands/data/Mapper.html Accessed January 9, 2022.

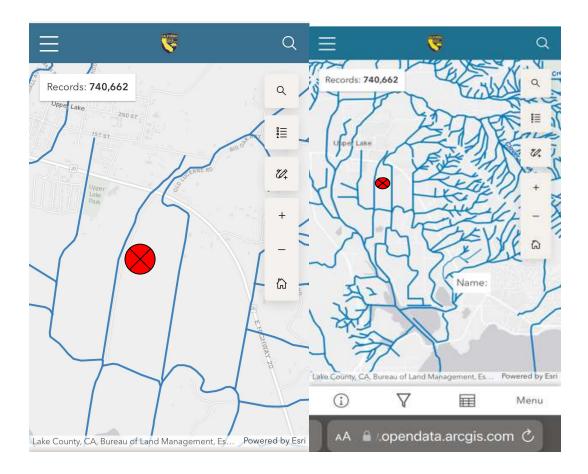
The Project Developer, Thomas Jordan, states this waterway will not be impacted by the project as "the water channel is located outside of the leased area" (see Attachment L). The blatant dismissal of this sensitive environmental area is another example of why an EIR should be conducted. This blueline stream runs directly into Rodman Slough. It is 10 feet from the access road that will be graded and widened for this project.

The NEPA Environmental Narrative states "all project construction activity would be located at least 100 feet east of the existing drainage ditch" (page 16-17); however, the plans used to obtain the use permit for this project omit this waterway and do not include a setback as required to grade the access road.

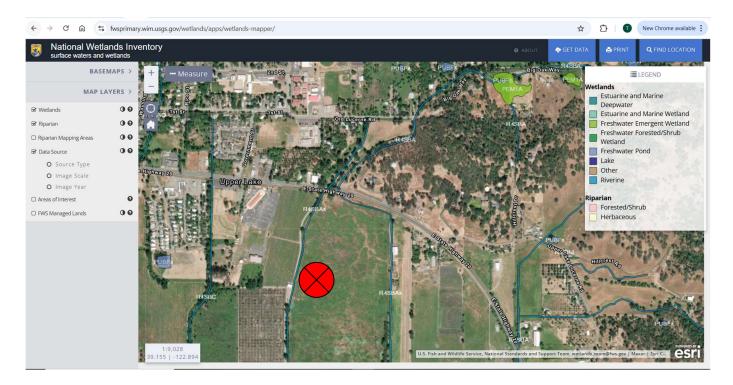
The following maps, photographs, and drone footage show undeniable evidence of a waterway that runs down the western border of the parcel (near the project site) and contains aquatic plants.

Evidence of Blueline Streams Onsite

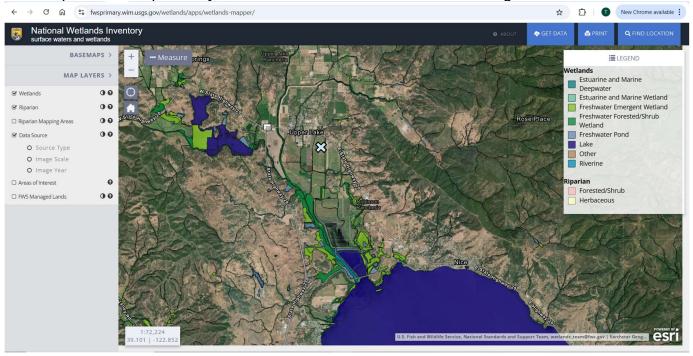
The following maps show the blueline streams run along the west and east property lines; the red X indicates where the project site is relative to the streams.



Evidence of Blueline Streams Onsite



This map shows the proximity of the blueline stream to Rodman's Slough and Clear Lake.



Evidence of Blueline Streams and Aquatic Plants Onsite

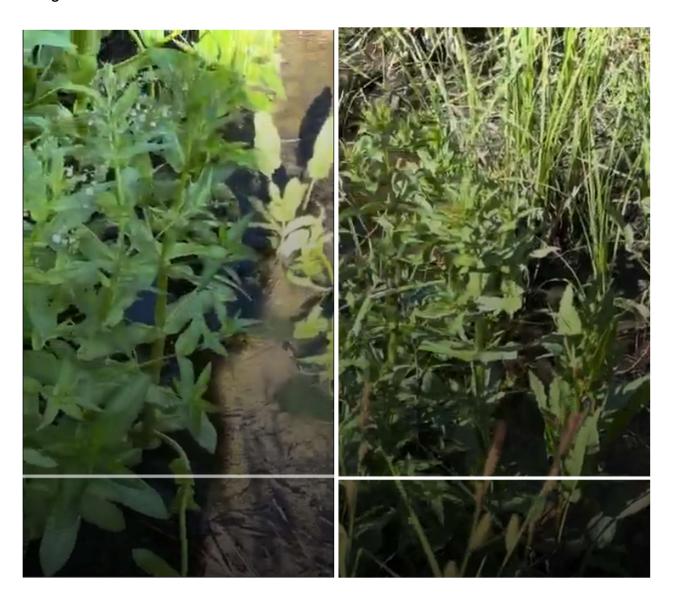
Pictured below is the waterway / blueline stream that runs along the entire west side of the property from Highway 20 to Rodman Slough. This blueline stream is located 10 feet to the west of the access road that will be graded and widened for this project. The County's Grading Ordinance (Chapter 30) requires a setback from waterways to avoid contamination from sediment in the water. The site plans and CEQA report excluded this waterway and did not include the required setback to grade the road.

<u>Click here to view drone footage</u> of the streams and how they connect to Rodman Slough. The images below show evidence of this waterway located next to the project site and access road.

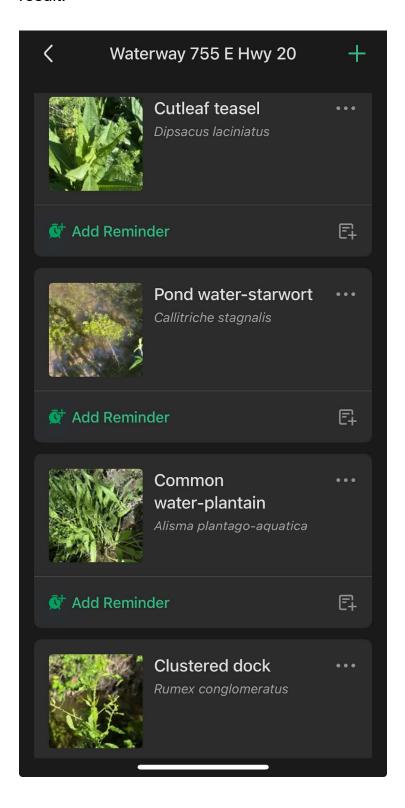




<u>Click here to view video evidence of the aquatic plants</u> in the west stream. The following images are screenshots taken from this video.



I took these pictures on May 13, 2025 of plants in the waterway along the west side of the parcel. The photos were uploaded into a plant identification app with the following result:



6. Noise: The sound analysis in the application for the use permit IS/MND was not conducted by an expert. The analysis excluded the closest sensitive receptors after the Ag Building, the Habematolel Tribal Leadership offices located ~600 feet from the project site. An independent noise expert found the calculations in the report are incorrect. A report from Dale La Forest, a noise expert, will be presented at the appeal.

At the September 2024 Western Regional Town Hall meeting, Steve Rumbaugh and Thomas Jordan played a recording of the gasifier in operation and claimed that was all the noise we would hear. Rumbaugh and Jordan failed to mention the constant noise from the chainsaws, wood chippers, other wood processing equipment, and backup alarms on the front loaders operating outdoors from 7AM to 7PM, Monday through Friday for the next 15+ years.

In a memo obtained through a PRA, Steve Rumbaugh directs Laura Hall to remove the word "chipping" from the entire document and suggests they call it "milling or grinding" (see <u>Attachment H</u>).

The application for the use permit excludes a list of the wood processing equipment that will be used on-site. The NEPA documents we obtained through the Freedom of Information Act did include a list of the equipment that may be used on-site (see Attachment G, .

7. Air Quality: While Thomas Jordan tries to use a "site specific study" conducted by San Joaquin APCD (study based on different equipment than what will be used in Upper Lake) to answer questions and concerns about air quality and biochar production, he deflects from the main air quality issue- the wood dust that will be generated from the wood processing site.

The impact of the dust on the air quality and agricultural resources was one of the main concerns in the Red Hills Bioenergy lawsuit (see <u>Attachment M</u>, <u>Attachment N</u>, and <u>Attachment O</u>).

In a memo obtained through the PRA, Laura Hall calls for a GHG report with Health assessment (see <u>Attachment P</u>). Whatever happened to that?

The dust from the chipping of forest wood can spread pests, pathogens, and fungi through the air and waterways and have negative effects on surrounding agricultural resources and plants like oak trees exposed to Sudden Oak Death fungus. Please look at the following link for best practices in handling raw forest biomass and SUDDEN OAK DEATH:

https://drive.google.com/file/d/1kQgmFQ8zPHPvW1MhrBguwsig42DB5kXT/view?usp=drive link

8. WILDLIFE CORRIDOR: The purpose of the grant used to purchase this land was to "enhance wildlife values." In no way will this noisy, disruptive project do this. There are many animal tracks and pathways to the waterway on the westside stream by the proposed site.

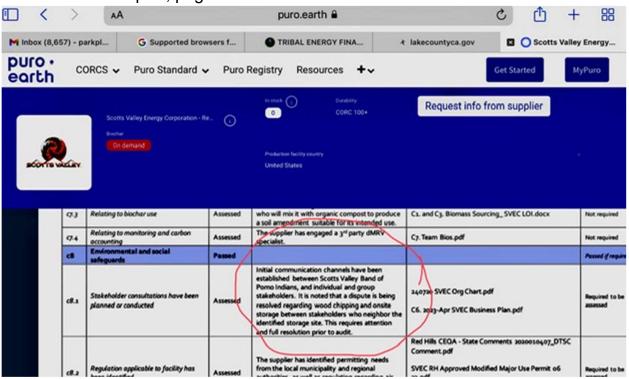
In a memo received through a PRA, Thomas Jordan expressed worry about the 300 ft setback from nesting birds imposed by the Dept. of Fish and Wildlife. Steve Rumbaugh replied that they walked the site and found no nests. THIS IS IMPOSSIBLE! This land cannot be walked, it is too thick with blackberries and debris, and has been since the county purchased it.



9. Why here? Why is this the right location for this project? It isn't but it is part of an agreement to settle the Red Hills Bioenergy lawsuit. The lawsuit started in October 2020 and was finally dismissed in court July 2023, after almost three years a settlement was reached.

Originally this project was to be located at 7130 Red Hills Rd. But, because it was so noisy and dusty there was a lawsuit brought against Thomas Jordan, County of Lake, and the Board of supervisors by the Concerned Citizens for Environmental Protection and Responsible Planning (mainly Beckstoffer and Shannon Ridge wineries) (see Attachment). But let it be noted that Red Hills residents, including members of the SVBPI ("stakeholders"), complained about dust and noise.

See PuroEarth report, page 7:



This lawsuit lasted 2 1/2 years and was settled in closed session in April 2023. The Writ of Mandate cited noise, dust and agricultural damage as the main complaints (see Attachment M, Attachment N, and Attachment O).

The link contains all of the documents we have collected on this lawsuit: https://drive.google.com/drive/folders/1VDdNxqYmXlfaTntZIEsEKz9_JlqPqnC_?usp=drivelink

October 2020- Lawsuit is brought against the Red Hills Bioenergy project August 2022-NEPA review for funding from EDA starts for Upper Lake site April 2023- Red Hills lawsuit settled in closed session

June 2023- The Red Hills Bioenergy project Use Permit was amended, eliminating 28,000 square feet of wood processing area.

June 2023- Site plans for a central wood processing facility in Upper Lake were created

We believe this ongoing lawsuit was settled by the county offering this 42-acre site in Upper Lake for the wood processing activities that were so troublesome in Red Hills. The lease between Lake Co Watershed Protection District and SVEC for this site is \$100 per year for 15+ years. See Attachment C for the lease agreement.

All the same problems will still exist that were in Red Hills, primarily dust, noise and possible agricultural damage to the vineyard and pear orchard directly adjacent, but now on a much more environmentally sensitive site in Upper Lake. The site in Upper Lake is closer to schools, the community, and waterways that run directly into Rodman Slough and Clear Lake.

This is not the right location for a 15-year "pilot" project using prime ag preserve zoned land for industrial use. This use permit is for the entire 42.6 acres of APZ land for industrial activity.

Please come to this site and see for yourself:

- 1. The waterways are obvious and cannot be missed by a biologist.
- 2. The entire site is impossible to walk on, let alone search for nesting birds.
- 3. This project will not be temporary once the 1000 foot long by 15 ft wide road is built and 5-acre work area is graveled, and large concrete slab is poured for the water tank.

This prime agricultural land is located in an area with the highest water table in the County and capable of year-round dry farming. If this project is permitted, it will be gone forever! I urge you to deny the use permit and save this land.

This is not the right location for this project!

-Barbara Morris

Attachment A

OMB Number: 0610-0094 Expiration Date: 11/30/2021



ED-900 – General Application for EDA Programs

| A. Applicant Information | |
|---|--|
| A.1. EDA Application Identifier (if available): | |

A.2. Please identify all applicants for this project:

| | Name | SAM.gov CAGE Code | SAM.gov Registration Expiration Date | Fiscal Year End Date (mm/dd) |
|----------------|---------------------------------------|----------------------|--|------------------------------------|
| Lead Applicant | Scotts Valley Band of Pomo Indians | 4PXZ5 | 02/18/2022 | 06/30 |
| Co-Applicant 1 | | | | |

B. Project Information

B.1. Provide a geographical definition of the region to be served by the investment (project), including the specific geographic location of the project within the region.

The project site is located on five acres, situated 1,000 feet southwest of the intersection of SR 20 with Old Lucerne Rd., immediately southeast of the community of Upper Lake in central Lake County, CA. The project will serve the Scotts Valley Band of Pomo Indians (SCBPI; Applicant) and Lake County, CA, with a specific focus on the central and northern areas of Lake County including the communities of Lucerne, Nice, Upper Lake, North Lakeport, and Lakeport, as well as rural areas of Lake County generally north of these communities. A map of the project site is attached to this application. Coordinates for the site are: 39°09'28.7"N 122°54'07.4"W.

Note that the SCBPI--which has been federally recognized since 1999--is a landless Tribe. Nonetheless, the majority of its members reside within Lake County and the immediately surrounding areas.

B.2. Describe and outline the scope of work for the proposed EDA investment, including a list of tasks to be undertaken.

Problem.

Catastrophic wildfires—stemming from forest management practices that caused excess fuel buildup, and from the effects of climate change—increasingly threaten lives and livelihoods in Lake County (County) and the surrounding region. Policymakers and staff from both the Scotts Valley Band of Pomo Indians (SVBPI) and the County recognize the magnitude and potential of this critical threat, particularly in the context of the last five years.

These threats have been exacerbated by the effects of COVID-19, which have significantly complicated the management of wildfire refugees--and by

elevated levels of poverty / unemployment and low incomes among SVBPI Tribal members, and across much of Lake County in general. For example, those experiencing low income or unemployment are often most strongly impacted by the direct and indirect effects of catastrophic wildfires and the coronavirus pandemic.

The United States Forest Service (USFS) and the Bureau of Land Management (BLM), in coordination with state officials, have developed Risk Reduction Plans to address the threat of catastrophic wildfires. These plans seek to reduce fuel loads by removing forest understory. Unfortunately, when left unprocessed, this forest material has little to no commercial value; hence there is no incentive for contractors to bid on its removal, and fire risk levels remain high. While burning in place and chipping are technically feasible alternatives, burning releases excessive amounts of greenhouse gas emissions—further contributing to climate change—while chipping and spreading in place, according to USFS staff, negatively changes the symbiotic relationship between the forest floor and canopy. Moreover, both overlook the potential value of understory biomass, when adequately processed. Such revenues could substantially benefit SVBPI and the County.

Proposed Project.

SVBPI, in collaboration with the County, proposes to allocate a five-acre segment of a County-owned parcel located near the intersection of Old Lucerne Rd. and Highway 20 in Upper Lake, to develop a new woody biomass processing depot. The proposed biomass depot will serve as a central processing system for forest thinning biomass collected in Lake County. The site, which will include sorting, grinding / chipping, processing, firewood splitting and bundling, and on-site bioenergy/biochar production equipment, will transform incoming biomass into a form that is ready for sale under multiple, economically resilient downstream uses. These will include production of firewood, pellet based fuels, engineered woods, and bioenergy production. Once fully constructed and operational, the biomass depot will connect forest biomass material collection efforts to downstream markets for wood products. Specifically, by transforming incoming, low-value biomass into saleable mid-stream wood products, the proposed facility will help to kickstart a local industry around forest thinning and fire protection. Moreover, the proposed system will produce biochar, which is of great interest to water quality advocates for its use as a filtration medium, and would be of benefit to future wetland restoration efforts south of the project site as part of the ongoing Middle Creek Restoration Project.

To this end, SVBPI proposes to install a 600 linear-foot chain link fence to surround an approximately 200' x 100' biomass processing area enclosure. This enclosure will house all biomass processing equipment including a proposed grinder/shredder, trommel screen, rotary shear mill, orbital screen, firewood processor and bundler, conveyors, biochar / bioenergy production equipment, a chip van, water truck, trailer, wheel loader, tracked grapple loader, and a Bobcat loader. Equipment will be stored in a hoop tent storage area, comprised of shipping container sides that double as locked storage, along with an arched hoop tent structure mounted on top of the shipping containers to provide protection from the elements. The equipment would be stored and operated within the biomass processing area

and/or the hoop tent storage area, while incoming feedstock and processed materials would be stored in adjacent areas on the 5-acre project site. Biomass will be hauled to and from the site via truck from upstream suppliers, while maintenance of equipment, as well as periodic maintenance and upkeep for the proposed hoop tent and fence, would be completed intermittently as needed during project operation. Note that facility operations will be outdoors, which will help to minimize the potential spread of COVID-19, a critical concern for SVBPI.

Scope of Work.

The project will deploy the following scope of work:

Task 1. Administration and Management. SVBPI staff--led by project

manager / lead administrator Thomas Jordan--will act as the single point of

contact with EDA and oversee and administer all elements of the project

including: bid creation and circulation / selection (federally compliant),

contracting, budget management, schedule management, team oversight, staff,

contractor management, procurement, and day to day project management /

implementation. SCBPI staff will rely on additional contractor support to

complete cultural monitoring and documentation for the project, EDA

required reporting, benefits tracking and evaluation, and final reporting

as required.

- Task 2. Construction. SVBPI will retain (bid process) a construction contractor to complete all site construction work and removal of blackberry bushes from the site. The retained contractor will then execute the construction work, and SCVPI's cultural resources specialists will provide construction monitoring as warranted.
- Task 3. Procurement. SVBPI will complete procurement of all proposed equipment for the project site, including bidding (Task 1), order placement, and delivery timing/management to ensure all equipment is acquired and arrives on site in accordance with the proposed schedule.
- Task 4. Commissioning and Start Up. Once the equipment is delivered and construction is complete, SVBPI will initiate a commissioning and start-up period. This period is needed to fine tune equipment and ensure that all system elements operate as per manufacturer specification, and will be supported/facilitated through agreements with equipment providers to ensure that engineers are available, as warranted, to support the commissioning / start up process.

B.3. Economic development needs

B.3.a. Does the region in which the project will be located have a Comprehensive Economic Development Strategy (CEDS)?

| $oxed{\boxtimes}$ Yes | If Yes, what is the source? |
|-----------------------|---|
| | Lake County Partners Comprehensive Economic Development Strategy https://www.lakecountypartners.com/ceds/ |
| □No | If No, then please check one: |
| | ☐ B.3.a.i. An alternate strategic planning document that governs this investment is attached. |
| | Add Attachment Delete Attachment View Attachment |
| | ☐ B.3.a.ii. This investment is to develop a "strategy grant" to develop, update or refine a CEDS |
| □ N/A | - Not Applicable |

B.3.b. Describe the economic conditions of your region. Define the economic development need to be addressed by the proposed EDA investment and explain how the proposed investment will address that need.

SVBPI is a landless tribe situated in Lake County, California. SVBPI's members have historically and continue to endure significant challenges and barriers to economic development, including a lack of land/land in trust and social / socioeconomic barriers. Among SVBPI's 308 members, current unemployment rates are 45 to 47%, while 90% of SVBPI's members' incomes are below 80% of statewide low-to-medium income (LMI). Without land in trust, economic opportunity for SVBPI as an institution is limited, and the Tribe relies extensively on federal and state grants to fund the education, health, and social services for its members. SVBPI has also been heavily affected by COVID-19, wherein Native Americans are five times more likely to be hospitalized as a result of contracting the disease, in comparison to whites. Houselessness in particular has advanced as a result of job loss due to COVID-19. Presently, more than 6% of SVBPI members are homeless or receiving housing aid from federally-funded programs administered by SVBPI--a number that is embarrassingly 15 times higher than California's statewide homelessness rate of 0.4%.

While the Tribe is working to acquire land in trust, it has recently initiated a program to support economic development through the emerging forestry and renewable energy/products industry. To this end, SVBPI is collaborating with other regional tribes, forest managers, and other commercial enterprises to develop a local industry around forest materials, bioproducts, and bioenergy. The project will vastly accelerate this process and advance SVBPI's economic development efforts by linking available forest resources to downstream markets for processed wood and wood based products. It will generate at least \$1.9 million/yr (gross) in new revenue for the Tribe, plus an estimated 32 direct and indirect jobs total including 10 long term operational jobs associated with the facility. Historic injustices endured by the Tribe also bear heavily on its members. Of note, the project site is located 0.5 mile from Bloody Island, the site of an infantry-led massacre of 80+ Pomo Indians in the 1850s. The project will ultimately support Lake County's goals of restoring much of the area surrounding Bloody Island as a marsh/wetland by providing biochar for the restoration process. Moreover the project represents a new economic and

employment opportunity for the Tribe, supporting what the Tribe hopes will be an increasing shift in economic development that will provide multiple economic, cultural, and safety benefits to the Tribe and to all residents of the Lake County region.

SVBPI has designed the project to benefit not only Tribal members, but also the Lake County population at large. Lake County, situated just 80 miles north of technological and economic hubs in the San Francisco Bay Area, has a median per capita income of \$27,362--only 73% of the statewide value of \$36,955 and a poverty rate of 15.9%, which is 38% higher than the statewide average (USCB data, https://www.census.gov/quickfacts/fact/table/lakecountycalifornia,CA/INC910219). The county also has annual unemployment rate of 9.6% (2020 data, the last full year available from the Bureau of Labor Statistics for Lake County).

Additionally, 85%+ of Lake County's land area is classified as having high or very high fire severity risk, an issue brought to light by catastrophic fires that burned 4+ million acres in California in 2021 alone. Fire risk is greatly exacerbated by historic forest management that focused on suppression. Lake County has also been hit especially hard by COVID-19. During the summer 2021 surge, for example, Lake County's COVID-19 case rate reached nearly 3 times the statewide average. The project will help address these issues by providing new jobs, supporting development of a new forest biomass industry that is COVID-resilient due to its outdoor nature, and reducing wildfire risk by economically incentivizing effective forest management.

B.4. Applicant's capability

Briefly describe the applicant's capability to administer, implement, and maintain the project.

The SVBPI carries strong experience in grant administration and has successfully executed and managed multiple grant-funded projects. SVBPI's Tribal Administrator, Thomas Jordan, will serve as the project manager and lead administrator. Thomas has over 30 years of experience providing administrative and management support for the SVBPI, and has successfully completed multiple grant funded projects to support the purchase of facilities and equipment, as well as program development and implementation to support SVBPI. Thomas will be supported by Terre Logsdon, who has 10+ years' experience providing environmental, cultural, and administrative support for Tribal projects, including multiple successful grant funded projects. SVBPI anticipates that need for management and administrative support will average approximately 30 hours per month during year 1 of the project, and up to approximately 10 hours per month during year 2 of the project. Thomas and Terre will be available and have allocated this amount of time to support the project. SVBPI has a cultural monitor on staff to support the construction / monitoring phase of the project, and also plans to retain a consultant to support project execution, oversight of the construction/procurement process, and completion of reporting required by EDA.

During Year 2 of the project, SVBPI will complete all hiring of operational staff needed to support the project. SVBPI is committed to long term operation of the project, and revenues from the sale of wood products and intermediate wood products from the facility will support its long term

operation. Initially (but separate from the EDA funded elements of the project), Thomas Jordan and Terre Logsdon will continue to provide ongoing management and administration support for operation of the facility. After this time, SVBPI expects to hire an administrator / manager to oversee the facility's ongoing operation, staffing, finances, and other elements of the facility's operation.

With respect to maintenance, SVBPI commits to completing all scheduled maintenance for all proposed equipment in line with the manufacturers' suggested maintenance schedules. Regular maintenance for all equipment will be planned and budgeted as an ongoing element of project operations, and will be funded by facility revenues.

B.5. List and describe the strategic partners and organizations to be engaged in this project

The Applicant has engaged the Lake County Water Resources Department (LCWRD) to support the project. The LCWRD has provided a letter of commitment for the project (attached) and is in the process of finalizing a long-term lease with SVBPI for the project site. LCWRD also expects to use a portion of the biochar produced on site for future wetland restoration.

B.6. Describe the investment (project) impact and fit with EDA funding priorities

The project will align with EDA investment / funding priorities as follows:

1. Equity. The project will directly and substantially benefit Indigenous and Native American persons by generating at least \$1.9 million/yr (gross; or \$605,000+/yr net) or more in new income for the SVBPI. Long term revenues will exceed \$38M gross / \$12.9M net over the project's 20 year lifetime. SCBPI is committed to the well being of its members, and will reinvest project revenues in member support programs and strategic economic development to further improve its members' social and economic status, and help balance existing inequities that currently burden Tribal members. The project will also be located in a rural area of Lake County and will directly benefit rural Lake County. At least 55% of direct and indirect jobs created by the project will be located in rural areas. The project will also support the County's longer-term restoration efforts to restore wetlands / marsh to the areas surrounding Bloody Island--a key historic/cultural resource for SVBPI.

- 2. Recovery and Resilience. The project will help to alleviate economic strain associated with the COVID-19 pandemic and its effects on Tribal members and other Lake County residents by providing revenue to SVBPI to support social and health-oriented programs, by generating new jobs that are primarily located outdoors and are therefore COVID-resilient, and by helping to diversify the local economy by initiating development of a new industry surrounding forest thinning/management and effective processing and sale of the resulting wood products.
- 3. Workforce Development. Direct jobs development associated with the project will include worker training to provide all needed skills for the targeted jobs. Workers will also receive additional training on effective forest management practices, including thinning practices that preserve the ecological integrity of the region's forests. Jobs generated by the project will also be well-paying, living wage jobs with full benefits.
- 4. Manufacturing. The project will generate intermediate wood products

which will be sold to downstream manufacturing for engineered woods and other wood products, indirectly supporting the expansion of existing manufacturing and additional jobs development downstream of the project.

- 5. Technology-Based Economic Development. The project will include biochar / bioenergy production as an element of its business model, thereby supporting the future replication of this use at other future potential biomass management sites elsewhere in Lake County and the surrounding region.
- 6. Environmentally-Sustainable Development. Currently, the forest thinning needed to reduce catastrophic wildfires in Lake County and the state are proceeding slowly because they are uneconomic. Forest thinnings are simply mulched or burned in place, where mulch interferes with the forest's ecology and burning simply converts forest biomass into carbon emissions, further contributing to climate change. The project will develop an economically profitable and ecologically sound industry that will economically incentivize forest thinning, avoid most GHG emissions, create marketable wood products, and substantially reduce fire risk.
- 7. Exports and FDI. While the project will not directly generate exports, its business model is applicable to forested areas outside of the US and could be readily exported to such regions. For example, Canada has also experienced a recent surge of catastrophic wildfires because historic fire suppression, combined with the effects of climate change, has greatly increased wildfire risk. Several of the specialty biomass management equipment types proposed for the project are manufactured in the US. These technologies will be readily exportable particularly once their use for economically effective forest thinning / forest management is successfully achieved by the project.

B.7. Identify the proposed time schedule for the project

SVBPI will complete the project during a 2-year period as follows:

April to June (Q2), 2022: Complete initial planning, site permitting /
compliance, initiate procurement

July to September (Q3) 2022: Continue procurement, initiate construction

(force installation) and other site work (placement of temperary structure)

July to September (Q3) 2022: Continue procurement, initiate construction (fence installation) and other site work (placement of temporary structure and appurtenances)

October to December (Q4) 2022: Continue procurement, finalize all site work January to March (Q1) 2023: Finalize all procurement, initiate the equipment commissioning and equipment setup process

April (Q2) 2023 to April (Q3) 2024: complete equipment commissioning and setup; validate initial operation; complete hiring and track project benefits; complete all remaining reporting and administration

B.8. Economic impacts of the project

B.8.a. Please describe the economic impacts of the project:

The project will strongly support both revenue generation and jobs development. Specifically, the fully operational project is expected to directly generate approximately \$1.9 million per year in total revenues for the Tribe, including the following elements:

Biochar: \$340,065/yr

Bundled Firewood: \$750,000/yr

Other Bioenergy Based Fuel: \$261,645/yr

Decorative Wood Chips: \$26,786/yr

Compost Mulch: \$50,000/yr

Intermediate Wood Products: \$475,000/yr

Total: \$1,903,496/yr

These revenues conservatively reflect an operational throughput of 20 tons per day. Net income is estimated at approximately \$605,000 per year for the facility, at a throughput of 20 tons per day. The facility as designed will have the potential to handle up to 40 tons per day of material, enabling the facility to handle increased amounts of wood and thereby increased revenue during peak season and/or as additional wood becomes available as the regional industry develops and grows. Ultimately, gross revenues could reach \$3.2 million/yr total / \$1.0 million/yr net with concurrent increases in jobs development above and beyond that shown below. These revenues will be of substantial benefit to the SVBPI and will support re-investment in other regional projects including duplication of the project at other sites, and provide programmatic support and benefits to SVBPI members.

The project itself will directly generate new jobs as follows, based on a 20 tons per day throughput on site:

6 temporary implementation / construction period jobs: procurement (1), design/consultants (1), site construction workers (2), electrician (1), manager (1)

Long term/permanent operations period jobs (10): Supervisor/Manager (1), Equipment Operators (2), Site Labor (3), Firewood Production (3), Administrative (1).

Importantly, the project will also serve as a regional catalyst for the development of an effective forest thinnings management industry, and downstream wood products production and usage. In this manner, the project's economic impact will extend well beyond the physical boundaries of the project site and will support regional economic development in addition to Tribal revenue generation.

To provide at least 20 tons per day of feedstock to the site, the project will indirectly support development of at least 8 additional jobs including laborers, equipment operators, and truck drivers. Meanwhile sale of intermediate wood products will also support downstream industry development, where quality, consistently sized wood chips produced on site can be used to produce high value engineered woods and related products. These elements will support the downstream development of at least 8 additional downstream jobs including manufacturers / fabricators, vehicle and equipment operators, and supervisors/administrators. Specific locations for jobs development will depend on upstream and downstream partner organizations and sites. Total jobs numbers are summarized below.

B.8.b. Please identify the total estimated jobs and private investment that is expected to be generated by this project:

| Estimated Jobs Created | Estimated Jobs Retained | Estimated Private Investment |
|------------------------|-------------------------|------------------------------|
| 32 | | |

| Comparison to Simil | ar Projects | | | |
|--|---|---|----------------------------|--------------------------------|
| Other Method (spec | fy below) | | | |
| | | | | |
| | | | | |
| Beneficiaries of the p | roiect | | | |
| | | | | |
| | | | | |
| Beneficiary N | NAICS Code | Estimated Jobs Created | Estimated Jobs Retained | Estimated Private Investmen |
| belieficiary N | arrie Code | Created | Netaineu | Filvate ilivestilleri |
| | | | | |
| | - | | | |
| 3.10.a. Are all non-ED | or the project A funds committed to the in any way that would No (explain | preclude their use | | |
| . Non-EDA funding for all non-EDA or encumbered project? | A funds committed to the in any way that would No (explain | below) | e consistent with | |
| . Non-EDA funding for all non-EDA or encumbered project? | A funds committed to the in any way that would | below) | e consistent with | |
| . Non-EDA funding for all non-EDA or encumbered project? | A funds committed to the in any way that would No (explain | below) | e consistent with | |
| . Non-EDA funding for all non-EDA or encumbered project? | A funds committed to the in any way that would No (explain | below) | e consistent with | |
| . Non-EDA funding for B.10.a. Are all non-EDA or encumbered project? Yes 3.10.b. Identify the sou | A funds committed to the in any way that would No (explain ree, nature and amoun | below) of all non-EDA f | e consistent with | the purpose of the |
| . Non-EDA funding for all non-EDA or encumbered project? | A funds committed to the in any way that would No (explain | oreclude their use below) of all non-EDA f | e consistent with | |

B.10.d. Please attach documentation confirming non-EDA (matching or cost share) funding:

| | Add Attachment Delete Attachment View Attachment |
|---------------------------|--|
| B.11. Justification for s | ole source procurement |
| Will you contract wor | k to complete part or all of this project? |
| ☐ B.11.a. No | |
| ⊠ B.11.b. Yes | If yes, will contracts be awarded by competitive bid? |
| | ⊠ B.11.b.i. Yes |
| | ☐ B.11.b.ii. No |
| | be awarded by competitive bid, please provide a justification. A cost analysis will adequate price competition is lacking, and for sole source procurements. |
| | and quarte price components to the many grant for color countries procession. |
| | |
| B.12. Equipment | |
| Will any funds be use | ed to purchase equipment? |
| ☐ B.12.a. No | |
| ⊠ B.12.b. Yes | If yes, will project funding be used to install the equipment? |
| | □ No |
| • | ncluding cost, description, purpose, and estimated useful life of any e purchased as a part of this project. |
| 1234-Equipment | List.pdf Add Attachment Delete Attachment View Attachment |
| | |

C. Regional Eligibility

C.1. Region

Define the area/region that is the basis for the applicant's claim of eligibility. EDA will review and evaluate documentation submitted by the applicant to verify and determine eligibility.

SVBPI is a federally recognized Indian Tribe and is therefore an eligible applicant for the project.

The area/region that is the basis of the Applicant's claim is located in Lake County, California and, more specifically, includes focuses on the central and northern areas of Lake County including the communities of Lucerne, Nice, Upper Lake, North Lakeport, and Lakeport, as well as rural areas of Lake County generally north of these communities. A map of the project site is attached to this application. Coordinates for the site where the proposed construction and equipment will be located are: 39° 09'28.7"N 122°54'07.4"W.

| C.2. Economic Distress |
|---|
| Check all that apply in establishing regional eligibility (see NOFO for more details): |
| |
| ⊠ C.2.B. Per capita income |
| C.2.C. Special need, including: |
| Substantial out-migration or population loss; |
| Underemployment; that is, employment of workers at less than full-time or at less skilled tasks than their training or abilities permit; |
| Military base closure or realignment, defense contractor reductions-in-force, or U.S. Department of Energy defense-related funding reductions; |
| Natural or other major disasters or emergencies; |
| Extraordinary depletion of natural resources; |
| ☐ Closing or restructuring of an industrial firm or loss of other major employer; |
| Negative effects of changing trade patterns; or |
| oximes Other circumstances set forth in the applicable NOFO (please explain below). |
| As discussed in Sections B.3.b and B.6, the project is located in an area that has suffered economic injury from the Coronavirus pandemic. |
| If the project does not meet any of the criteria above, is it located in an Economic Development District (EDD), and will it provide substantial direct benefit to residents of an area within that EDD that does meet the distress criteria? |
| Which Economic Development District? |
| Please explain how the proposed project will provide a substantial direct benefit to this geographic area within the EDD. |
| C.4. Source of data provided for regional eligibility determination |
| |
| Check the box denoting what data source you used to establish eligibility: |
| □ C.4.a. The most recent ACS data published by the U.S. Census Bureau. |
| ☐ C.4.b. The most recent Bureau of Labor Statistics Data. |
| C.4.c. The most recent other federal data for the region in which the project is located (e.g., U.S. Census Bureau or the Bureaus of Economic Analysis, Labor Statistics, Indian Affairs, etc.). |
| C.4.d. If no federal data are available, the most recent data available through the state government for the region in which the project is located. |

| Please attach a co | opy of the documentati | on used to suppor | t your claim of elig | ibility: |
|--|--|--|---|---|
| 1235-USCB Da | ta on Lake Coun | Add Attachment | Delete Attachment | View Attachment |
| . Budget and St | affina | | | |
| • | oplicants for non-const | ruction assistance | only | |
| .1. Budget justifica | • | | , | |
| /A, but see att | ached budget narr | rative | | |
| | | | | |
| .2. Indirect costs | | | | |
| /A not included | | | | |
| | | | | |
| | | | | |
| | | | | |
| .3. Key applicant st /A but see atta | aff ched budget narra | ative for deta | ils | |
| A but see atta Administrative | ched budget narra | | | e civil rights |
| A but see atta Administrative 1. Civil rights E.1.a. Does the a | ched budget narra | nd agree to comply | | e civil rights |
| A but see atta Administrative 1. Civil rights E.1.a. Does the a | e Requirements pplicant understand arns (see 13 C.F.R. § 30 | nd agree to comply | | e civil rights |
| Administrative 1. Civil rights E.1.a. Does the a requiremen | e Requirements pplicant understand arns (see 13 C.F.R. § 30 | nd agree to comply 02.20)? | | e civil rights |
| Administrative 1. Civil rights E.1.a. Does the a requirement Yes E.1.b. Do identific save fiftee with all ap | e Requirements pplicant understand arns (see 13 C.F.R. § 30 | nd agree to comply 02.20)? explain below) listed in question E sult of the EDA pro uirements under 13 | with all applicable 3.9.), businesses the spect, understand as a C.F.R. § 302.20, | hat will create and and agree to comp including the |

| Will you be able to comply with federal | requirements regarding lo | obbying? | |
|---|---------------------------|--------------------|-----------------|
| | (explain below) | | |
| | | | |
| | | | |
| E.3. Compliance with Executive Order 12 | 2372 State Single Point | of Contact (SPO) | <u> </u> |
| • | | • | • |
| Does the state in which the project will submission to a Single Point of Contact | | review process th | at requires |
| ☐ E.3.a. No. Go to Question E.4 | | | |
| ⊠ E.3.b. Yes | | | |
| If Yes, does this request for EDA inves established by the state? | tment assistance meet the | e SPOC process | |
| ☐ E.3.b.i. No ⊠ E.3.b.ii. Yes | | | |
| Please explain why not | | | |
| Tiodoc explain why her | | | |
| | | | |
| If Yes, were SPOC comments/clea | arance received? | | |
| ☐ E.3.b.ii.a. Yes | | | |
| Please attach the comments/cle | earance: | | |
| | Add Attachment | Delete Attachment | View Attachment |
| _ | | | |
| ☐ E.3.b.ii.b. No. The review period | d has expired and no comi | ments were receiv | ed. |
| | been requested but the re | view period has no | ot yet expired. |
| Please attach evidence of your | request for comments: | | |
| 1236-SPOC_CA.pdf | Add Attachment | Delete Attachment | View Attachment |

E.4. Single Audit Act Requirement

| E.4.a | a. Does the applicant under 200 regarding federal a | | nents of subpart F of 2 C.F.R. par |
|-------------|--|----------------------------------|------------------------------------|
| \boxtimes | Yes | ☐ No | |
| E.4.b | . Is the applicant currently | y audited under the Single Audit | Act? |
| | E.4.b.i. No | | |
| | E.4.b.ii. Yes, If yes: | | |
| | E.4.b.ii.a. What is the | date of the most recent audit? | |
| | E.4.b.ii.b. Was this au | dit submitted to the Federal Aud | it Clearinghouse? |
| | ☐ Yes ☐ | No | |

F. Requirements for Non-Governmental Applicants (Excluding Public Universities and Certain District Organizations)

As indicated below, non-governmental applicants (excluding public universities and district organizations) must also provide a copy of the following items, either using the Attachments form that is part of the application package downloaded from www.Grants.gov or providing a hard copy.

| F.1. | . Non-profit organizations must provide a current Certificate of Good Standing from the State in which they are incorporated. |
|------|--|
| | Add Attachment Delete Attachment View Attachment |
| F.2. | New non-profit organization applicants must provide their Articles of Incorporation and By-Laws. Non-profits with an active EDA grant must either provide a) a revised copy of their Articles of Incorporation or By-Laws if these have been amended or b) a statement certifying that there has been no change in the organization's Articles of Incorporation or By-Laws. Add Attachment Delete Attachment View Attachment |
| F.3. | Non-profit organizations must provide a resolution passed by a general purpose political subdivision of a State (e.g., local government entity) or a letter signed by an authorized representative of a local government acknowledging that the applicant is acting in cooperation with officials of the political subdivision. EDA may waive this requirement for certain projects of significant regional or national scope (see 13 CFR § 301.2(b)). Add Attachment Delete Attachment View Attachment |
| F.4. | If applying for a construction or RLF investment, an applicant must afford the appropriate general purpose governmental authority a minimum of 15 days to review and comment on the proposed project (13 CFR § 302.9(a)). |
| | Will the applicant be able to provide these comments? |
| | ⊠ Yes |
| | $\hfill \square$ Not applicable, because the applicant is not applying for a construction or RLF grant |
| | $\hfill \square$ Not applicable, because this requirement has been satisfied under an existing RLF plan |
| | ☐ No, for another reason (explain below) |
| | |

Instructions for Form ED-900

A. Applicant Information

- A.1. EDA Application Identifier If EDA has previously provided an identifier for your proposal/application, please enter that identifier here. Otherwise, leave blank.
- A.2. Please identify all applicants for this project:

The Lead Applicant should be the party who is responsible for handling disbursement of funds and reporting to EDA.

Note that Sam.gov registration is required of all EDA applicants and awardees. Please list the relevant CAGE Code and SAM.gov expiration data for all applicants and co-applicants (if any).

B. Project Information

B.1. Provide a geographical definition of the region to be served by the investment (project), including the specific geographic location of the project within the region.

Clearly and concisely describe the region where the project will be located, including the specific geographic location of the project within the region, as well as background on the assets of the area, which may include clusters, and workforce, physical, educational and financial infrastructure.

B.2. Describe and outline the scope of work for the proposed EDA investment, including a list of tasks to be undertaken.

List specific activities that will be undertaken and the specific deliverables that will be produced as a result of this investment. The description of the proposed project must include a clear statement of the overall purpose of the project.

Applicants for construction assistance (including design and engineering assistance) should also include a statement of project components. Indicate if the proposed project involves the construction of a new facility or facilities or the enlargement, expansion, renovation, or replacement of an existing facility or facilities. Describe the existing facility and proposed project components in terms of dimensions, capacities, quantities, etc.

Applicants for Partnership Planning Assistance should provide a narrative on the economic development activities that will be undertaken including managing and maintaining the CEDS process.

Applicants for Short Term Planning Assistance should provide a narrative explaining how the proposed scope of work will enhance economic development planning capacity of the identified region. Include any relationship or collaboration with other public and private entities. Please explain how the strategy will expand the capacity of public officials and economic development organizations to work effectively with employers and enable the region to plan and coordinate the use of available resources to support economic recovery and the development of a regional economy and/or develop innovative approaches to economic revitalization in the region.

Applicants for State Planning Assistance should provide a narrative outlining the proposed scope of work for the project. Include the relationship to any existing CEDS or similar planning processes in the region and the goals and objectives of the proposed project.

B.3. Economic development needs

Except for grants to fund developing, updating or refining a CEDS as described in 13 C.F.R. § 303.7, the region in which Public Works or Economic Adjustment projects will be located must have a CEDS with which the project is consistent.

B.3.a. Does the region in which the project will be located have a Comprehensive Economic Development Strategy (CEDS)?

If Yes, what is the source? Note: If you are unsure if your region has a CEDS, please contact your local District Organization. In areas without a District Organization, CEDS may also be obtained at the City, County, or State level.

If No, then please check one of the indicated options:

- B.3.a.i. There is an alternate strategic planning document that will govern this investment. Please identify the strategy and provide a copy of this planning document, either by attaching the document to this application or submitting a hard copy.
- B.3.a.ii. This investment is to create a strategy plan to develop, update or refine a CEDS. Please explain how the strategy will expand the capacity of public officials and economic development organizations to work effectively with employers and enable the region to plan and coordinate the use of available resources to support economic recovery and the development of a regional economy and/or develop innovative approaches to economic revitalization in the region.
- B.3.b. Briefly describe the economic conditions of the region described in B.1, as well as the economic adjustment problems or economic dislocations the region has experienced (or is about to experience) and the regional impact of these conditions. How does the project address the economic development needs of the region and the goals and objectives of the CEDS for the region or the alternate strategic planning document described in section b below? See 13 C.F.R. part 303.

B.4. Applicant's capability

Briefly describe the applicant's capability to administer, implement, and maintain the project.

B.5. List and describe strategic partners and organizations to be engaged in this project

Describe existing regional partnerships (if any) that are directly engaged in supporting the proposed project, including a discussion of the extent of participation of government agencies, private sector interests, education providers, non-profits, community and labor groups, workforce boards, utilities, etc.

B.6. Describe the investment (project) impact and fit with EDA funding priorities

Concisely document how the proposed project aligns with one or more of EDA's investment priorities. Applicants that propose projects that do not align with EDA's investment priorities will not be as competitive as those that do. Applicants are strongly encouraged to review EDA's investment priorities, as outlined in the applicable Notice of Funding Opportunity (NOFO) announcement on www.Grants.gov.

B.7. Proposed time schedule for the project

Provide a proposed time schedule for completion of the project, including when (month/year) the project will begin and end. Explain any potential issues that could affect project implementation.

B.8. Economic impacts of the project

Provide a clear and compelling justification for the long-term potential economic impact of the proposed project, through anticipated job creation or retention, private investment leveraging, number of businesses or collaborations supported, or other appropriate measures. All job and private investment estimates should reflect the anticipated impact within nine years of the potential EDA investment. Applicants must attach letters of commitment from any identified beneficiaries.

For all other measures, applicants should clearly identify the expected time frame. In all cases, applicants must document the benefit and provide third-party data or information available to support these claims.

B.9. Beneficiaries of the project

If applicants have identified specific private sector employers that are expected to create and/or save jobs as a result of the project, applicants should list those beneficiaries in the table provided. All job and private investment estimates should reflect the anticipated impact within nine years of the potential EDA investment.

NAICS Code: The NAICS code for the major industry category of the beneficiary company (see www.naics.com for a searchable list).

Jobs Created: The number of jobs that the company expects to create as a result of the project.

Jobs Retained: The number of jobs that the company expects to retain as a result of the project.

Private Investment: The amount of private investment that the company expects to make in its business/community as a result of the project.

Form ED-900B must be completed by each beneficiary that expects to create and/or save fifteen or more jobs as a result of the project.

B.10. Non-EDA funding for the project

Select the appropriate response to each question. Applicants should identify the source, nature and amount of all non-EDA funds, including in-kind contributions (non-cash contributions of space, equipment, services, or assumptions of debt). Explain the status of all funding commitments, including the date the funds will be available from each source, and describe any conditions or restrictions on the use of such funds. If in-kind contributions are included, explain the basis on which they are valued. If so, please describe the source, amount and any terms and conditions of the funding, and when the funding will be available for use by the applicant. Please attach evidence of commitment from all funding sources. For example, if bonds are contemplated as match, counsel opinion of the applicant's bonding authority and eligibility of the bonds for use as match, along with full disclosure of the type of bonds and the schedule of the applicant's intended bond issue, are required.

B.11. Justification for sole source procurement

Select the appropriate response to each question.

B.12. Equipment

Select the appropriate response to each question.

C. Regional Eligibility

Public Works and Economic Adjustment Assistance projects must satisfy regional eligibility requirements (see NOFO for more details). This section will assist EDA in determining if the proposed project satisfies these eligibility requirements.

Planning and Technical Assistance applications: although meeting specific distress criteria is not a prerequisite for funding under these programs, the economic distress level of the region impacted by a project serves as the basis for establishing the EDA share of the total cost of the project and can inform competitiveness.

Please answer all questions completely and accurately and attach explanations and supporting documentation where applicable.

C.1. Region

Clearly define the area/region that is the basis for your claim of eligibility.

C.2. Economic Distress

Check all that apply in establishing regional eligibility (see NOFO for more details):

- **C.2.A. Unemployment rate**: The project is located in a region that has an unemployment rate that is, for the most recent 24-month period for which data are available, at least one percentage point above the national unemployment rate.
- **C.2.B. Per capita income**: The project is located in a region that has a per capita income that is, for the most recent period for which data are available, 80 percent or less of the national average per capita income.
- C.2.C. Special need: The project is located in a region that has experienced or is about to experience a "Special Need" (as defined in 13 C.F.R. § 300.3) arising from actual or threatened severe unemployment or economic adjustment problems resulting from severe short-term or long-term changes in economic conditions, including: Substantial out-migration or population loss; Underemployment, that is, employment of workers at less than full-time or at less skilled tasks than their training or abilities permit; Military base closure or realignment, defense contractor reductions-inforce, or U.S. Department of Energy defense-related funding reductions; Natural or other major disasters or emergencies; Extraordinary depletion of natural resources; Closing or restructuring of an industrial firm or loss of other major employer; Negative effects of changing trade patterns; or other circumstances set forth in the applicable NOFO.

C.3. Substantial Direct Benefit

A project located within an Economic Development District (EDD) that is located in a region that does not meet the economic distress criteria set forth in section C.2 above, is also eligible for EDA investment assistance if EDA determines that the project will be of "substantial direct benefit" to a geographic area within the EDD that meets the distress criteria set forth in question C.2 above by providing significant employment opportunities for unemployed, underemployed, or low-income residents of the distressed geographic area within the EDD. If applicable, identify the EDD in which the proposed project will be located, as well as the geographic area within the EDD that meets the economic distress criteria detailed in section C.2., and explain how the proposed project will provide a substantial direct benefit to this geographic area within the EDD. (See NOFO for more details.)

C.4. Source of data provided for regional eligibility determination

Check the appropriate box denoting what data source you used to establish eligibility. Please attach data used to establish eligibility.

D. Budget and Staffing

To be completed by applicants for non-construction assistance only

D.1. Budget justification

Provide a clear budget justification that identifies how funds in each line item of the budget will be utilized to support the proposed project. Explain the proposed use of any amounts budgeted for "Equipment," "Contractual," or "Other," if any, on Form SF-424A, Budget Information - Non-Construction Programs.

D.2. Indirect costs

Explain the types of indirect costs, if any, on Form SF-424A. If there are any indirect costs, please submit a copy of the current Indirect Cost Rate Agreement that your organization has with its cognizant Federal agency. Alternatively, applicants must provide supplemental documentation such as: a certificate of indirect costs and acknowledgment letter from the cognizant agency, a cost allocation plan, an indirect cost rate proposal and/or other acceptable documents under Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance) as set forth in 2 C.F.R. part 200 or relevant procurement regulations.

D.3. Key applicant staff

Identify key applicant staff who will undertake and complete project activities. Include a description of the knowledge, organizational experience, and expertise of individual staff members. In addition, explain how organizational resources will be used to complete project activities. For National Technical Assistance, Training and Research and Evaluation projects, specify which positions will be charged to the federal and non-federal portion of the project budget.

E. Administrative Requirements

E.1. Civil rights

Select the appropriate response, providing an explanation if "no."

E.2. Lobbying certifications

All applicants for federal financial assistance must certify that federal funds have not been used and will not be used for lobbying in connection with this request for federal financial assistance (Form CD-511). If non-federal funds have been or are planned to be used for lobbying in connection with this request for federal financial assistance, Form SF-LLL also must be completed. Applicants must comply with 13 C.F.R. § 302.10 regarding attorneys' and consultants' fees and the employment of expediters. This regulation requires that applicants identify and disclose the amount of fees paid to anyone engaged to assist the applicant in obtaining assistance under the Public Works and Economic Development Act of 1965 (PWEDA), as amended.

E.3. Compliance with Executive Order 12372, State Single Point of Contact (SPOC)

Select the appropriate response to each question, please attach any comments that have been received. If the comment period has not yet expired or comments were not received, attach evidence of your request for comments.

E.4. Single Audit Act Requirement

Select the appropriate response to each question.

F. Requirements for Non-Governmental Applicants (Excluding Public Universities and Certain District Organizations)

As indicated, non-governmental applicants must also provide a copy of the requested items, either using the Attachments form that is part of the application package downloaded from www.Grants.gov or submitting a hard copy. Public Universities and Certain District Organizations may be exempt from this requirement, please contact your Regional Office to determine the requirements applicable to your organization.

Attachment B

STATE OF CALIFORNIA THE RESOURCES AGENCY DEPARTMENT OF WATER RESOURCES AGREEMENT BETWEEN THE STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES AND LAKE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT UNDER THE FLOOD PROTECTION CORRIDOR PROGRAM

THIS AGREEMENT, made in quintuplicate, on August 28, 2003, is entered into by and between the Department of Water Resources of the State of California (hereinafter called the State), and Lake County Flood Control and Water Conservation District (hereinafter called the District). The State and the District hereby agree as follows:

1. PURPOSE

The purpose of this Agreement is to utilize funds from the Flood Protection Corridor Program sub-account to acquire interests in real property from willing sellers to protect or enhance flood protection corridors while preserving or enhancing wildlife values of the real property. Funds from the Flood Protection Corridor Program grant will be used to acquire interest in real property for flood damage reduction while preserving wildlife value as provided by the California Water Code, section 79037(b) (4), for properties located at the north end of Clear Lake in the area bounded by State Highway 20 and Rodman Slough in Lake County. The District agrees to use the grant funds received in accordance with the terms specified in this Agreement and pursuant to the Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Act, (California Water Code section 79035 et seq., Division 26, Chapter 5, Article 2.5).

2. STATE ASSISTANCE

Subject to the availability of funds, the State shall provide assistance in the amount not to exceed \$5,214,000 to the District for the financing of the acquisition of real estate rights shown in Exhibit A and the financing of a portion of the Middle Creek Flood Damage Reduction and Ecosystem Restoration Project to be carried out as described in Section 3 below. The dollar value of property rights to be acquired shall be determined through an appraisal or appraisals prepared by a qualified independent appraiser in accordance with standard appraisal practices. Each appraisal shall be approved by DWR and, if necessary, the California Department of General Services prior to the acquisition of the property addressed in the appraisal.

Because the Middle Creek Project is a flood management project subject to a cost-sharing formula imposed by the U.S. Army Corps of Engineers, the funding provided by the State pursuant to this agreement for costs creditable toward the

federal project shall count toward the cost-sharing obligation of the State and the local agency sponsor, with the ratio of such sharing of credit to be the same ratio determined pursuant to Water Code section 12585.7. Project activities shall be reviewed in advance by the State for the purpose of directing State funds provided pursuant to this agreement toward activities and costs that achieve maximum credit toward meeting State and local cost share obligations.

3. THE DISTRICT'S RESPONSIBILITIES

- Α. The District shall develop and execute a plan for onsite work and to acquire fee title to properties identified in Exhibit A within the Middle Creek Flood Damage Reduction and Ecosystem Restoration Project (Middle Creek Project) to allow flooding and to preserve wildlife value. The Middle Creek Project will restore the hydraulic connection between historic Robinson Lake and Scotts and Middle Creek watersheds, and reduce flooding on State Highway 20. The District's Project Manager shall develop the acquisition plan with the assistance of the Project Manager of the State. The plan shall include a cooperative effort between the District and the State to fulfill the environmental review and documentation requirements of the California Environmental Quality Act, and for fee title acquisitions shall include a phase 1 investigation of the potential for hazardous material spills or deposition on the site, with provision for cleaning up any hazardous materials found prior to or as part of the acquisition process. The work plan includes the Scope of Work (attached as Exhibit B) and Budget and Timeline (attached as Exhibit C). The Scope of Work will include a management plan for ongoing maintenance of the fee title acquisitions including expenditure of interest from any maintenance trust fund set up using funds provided by this agreement for that purpose.
- B. The District shall develop a program to acquire fee title to the targeted properties from willing sellers, and restore wetland habitats and adjacent riparian and upland areas and improve water quality entering Clear Lake. Development of the site management and restoration program is provided for in Exhibit B.
- C. The District agrees to faithfully and expeditiously perform or cause to be performed all project work, to apply State funds received only to eligible project costs and to expeditiously commence, and to continue efficient and economical operation of the project in accordance with applicable provisions of the law.
- D. The District, its contractors, subcontractors, and their respective agents and employees that perform any work in connection with the project, shall act in an independent capacity and not as officers, employees or agents of the State.

- E. The District is responsible for design, construction, operation and maintenance of the project. Review or approval of plans, specifications, bid documents, or other construction documents by the State is solely for the purpose of proper administration of the funds by the State and shall not be deemed to relieve or restrict the parties responsibility.
- F. The District shall complete the requirements and provide the information to the State that is necessary for payments to and closure of each land transaction escrow account. Information Necessary for Escrow Processing and Closure is attached as Exhibit D and by this reference incorporated herein.
- G. The District shall be responsible for any and all disputes arising out of its contracts for work on the project, including but not limited to bid disputes and payment disputes with District contractors and subcontractors. The State will not mediate disputes between the District and any other entity concerning responsibility for the performance of work.
- H. All contracts let for project design or construction shall be let by competitive bid procedures that assure award of the contract to the lowest responsible bidder, except as may be otherwise authorized under the District's enabling authority or approved by the State.
- I. Procurement of necessary supplies or equipment shall be undertaken in such a manner as to encourage fair and competitive treatment of potential suppliers.
- J. Provided that funding is obtained as anticipated in Exhibit B and the property owners agree to do so, the acquisitions shall be completed no later than August 28, 2006.
- K. If and when the target properties are acquired by the District using State funds as anticipated, the District shall not sell, abandon, lease, transfer, exchange, mortgage, hypothecate, or encumber in any manner whatsoever, all or any portion of the subject properties without prior permission of the State.
- L. Where the District acquires an easement under this Agreement, the District agrees to monitor and enforce the terms of the easement, unless the easement is subsequently transferred to another land management or conservation organization or entity with State permission, at which time monitoring and enforcement responsibilities will transfer to the new easement owner.
- M. Where the District acquires property in fee title or funds improvements to property already owned in fee by the District using grant funds provided

through this Agreement, an appropriate easement providing for non-structural flood benefits and wildlife habitat preservation shall be simultaneously conveyed to a regulatory or trustee agency or conservation group acceptable to the State. An example of such an easement is attached as Exhibit E.

N. Without limiting the foregoing, the District shall keep informed of and take all measures necessary to ensure compliance with Labor Code requirements, including but not limited to Section 1720 et seq. of the Labor Code regarding public works, limitations on use of volunteer labor (Labor Code Section 1720.4) and payment of prevailing wages for work done under this agreement.

4. TERM OF AGREEMENT

The term of this Agreement will begin on August 28, 2003 and shall terminate three years after that date, except that the provisions of this Agreement relating to maintenance, operation, monitoring, and reporting, which shall continue to bind the District (or its successor as approved fee owner or easement holder) to the extent indicated herein. The term may be amended only by agreement of both parties, and must be in writing.

5. PROJECT MANAGERS

The Project Manager for the State is Bonnie Ross. The Project Manager and the person designated to submit the claims for the District is Robert Lossius, Assistant Public Works Director. Parties may change project managers from time to time by providing written notice of the change to the other party. The District shall be responsible for work related to this Agreement and for persons or entities working to acquire the anticipated property interests, including, but not limited to, subcontractors, suppliers and providers of services. The District shall give personal supervision to any work required for the acquisition of interest in real property or employ a competent representative with the authority to act on behalf of the District.

6. FUNDS MANAGEMENT

The District shall account for the money disbursed separately from all other agency funds. The District shall maintain audit and accounting procedures that are in accordance with generally accepted accounting principles and practices, consistently applied. The District shall keep complete and accurate records of all receipts, disbursements, and interest earned on expenditures of such funds for at least three years after term of project completion. The District shall require its contractors or subcontractors to maintain books, records, and other documents pertinent to this Agreement in accordance with generally accepted accounting

principles and practices. Records are subject to inspection by the State at any and all reasonable times.

7. COMPLIANCE

Prior to disbursement of property acquisition funds under this Agreement and prior to implementing any topographical changes or changes in vegetation that would affect the flow of floodwaters or surface storm water runoff on the properties acquired with State funds pursuant to this agreement, the District shall develop subject to State approval a plan to minimize the impacts to adjacent landowners (California Water Code section 79041, Division 26, Chapter 5, Article 2.5), and comply with all applicable requirements of all applicable federal, State and local laws, rules and regulations.

The District shall be responsible for obtaining any and all permits, licenses and approvals required for the acquisition of interest in or modifications to real property funded by this agreement. The District shall also be responsible for observing and complying with any applicable federal, State and local laws, rules or regulations affecting any such acquisition or work activity, specifically those including, but not limited to, environmental, procurement and safety laws, rules, regulations and ordinances.

The District, its contractors and subcontractors, shall comply with the provisions of the Fair Employment and Housing Act (Government Code, Section 12900 et. seq.), the regulations promulgated there under (California Code of Regulations, Title 2, Section 7285.0 et. seq.), the provisions of Article 9.5, Chapter 1, Part 1, Division 3, Title 2 of the Government Code (Government Code, Sections 11135-11139.5) and the regulations or standards adopted by the awarding State agency to implement such article. The District, its contractors and subcontractors, shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement. The District shall include the nondiscrimination and compliance provisions of this clause in all contracts and subcontracts let for the construction of the project.

The District agrees, unless exempted, to comply with the nondiscrimination program requirements of Government Code, Section 12990, Title 2, California Code of Regulations, Section 8103.

The District agrees to indemnify the State and its officers, agents, and employees against and to hold the same free and harmless from any and all claims, demands, damages, losses, costs, expenses, or liability due or incident to, either in whole or in part, and whether directly or indirectly, arising out of the acquisition.

The State shall indemnify, defend (upon the District's written request), protect, and hold the District, and the District's officers, employees, and agents harmless against all liabilities, claims, demands, damages, and costs (including reasonable attorneys' fees) that arise from the acts or omissions of the State or its officers, employees, or agents in connection with the State's performance under this Agreement.

The District, its contractors or subcontractors agree to comply with the requirements of the Drug-Free Workplace Act of 1990 (Government Code Section 8350 et seq.) and have or will provide a drug-free workplace.

The District agrees to comply with the American with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.), which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to ADA.

REPORT

During the period this agreement remains in effect, annual programmatic progress reports shall be submitted by the District to the State summarizing project acquisition and work activities and describing progress achieved towards acquisition plan and Scope of Work completion. Such annual progress reports shall include a status report on the MA 17 Maintenance Trust Fund established in Section 15, and shall be due on the anniversary date of the Agreement until the Agreement expires.

A final written programmatic report shall be submitted by the District upon completion of the project. The final report shall describe the results of the acquisition and work activities, and include photographs of the properties acquired (or on which easements are acquired) and any improvements added or removed. The final report will be due on or before October 27, 2006, or within 60 days of escrow closure following acquisition of the final property shown on Exhibit A, whichever comes first.

Progress reports shall be submitted by the District with each invoice. Each progress report shall document the activities completed for the reporting period, the amount of funds expended and the purpose for these expenditures.

Interim financial reports documenting incurred eligible costs shall be submitted by the District within 60 days of completion of the acquisition of real property.

For any construction activity undertaken pursuant to and funded by this agreement, upon completion of the project the District shall provide for a final inspection and a written certification by a California Registered Civil Engineer that the project has been completed in accordance with final plans and specifications and any modifications thereto. Such certification shall be

submitted to the State with a copy of the final report of project expenditures required in the paragraph below.

The District shall keep on file, for the useful life of the project, as-built plans and specifications for the project. Such documents shall be made available for inspection by the State upon reasonable notice.

A Final financial report documenting total project expenditures shall be submitted by the District by October 27, 2006.

9. PROJECT OVERSIGHT

The State may inspect the project at any reasonable time to ensure it is being carried out in accordance with the work plan and that it is being properly maintained. During the administration of this contract, the State may also direct the District to provide additional available technical, financial, hydrologic, bioengineering, soil and water quality, environmental, water rights, legal analyses and justifications, and other relevant information to ensure the project is being carried out in accordance with this Agreement.

Pursuant to Government Code Section 8546.7, the contracting parties shall be subject to the examination and audit of the State for a period of three years after project completion. All the District's records or those of the District's subcontractors related to this agreement shall be retained for at least three years after project completion.

During regular office hours, each of the parties hereto and their duly authorized representatives, shall have the right to inspect and to make copies of any books, records, or reports of either party pertaining to the project. Each of the parties hereto shall maintain and shall make available at all times for such inspection accurate records of all its costs, disbursements, and receipts with respect to this project.

The State reserves the right to, at the State's expense, conduct an audit at any time between the execution of this letter agreement and the completion of the acquisitions of interest in real property.

The State shall have the right to inspect the work being performed at any and all reasonable times during this project. This right shall extend to any subcontracts. The District shall include provisions ensuring such access in all their contracts or subcontracts entered into for completion of the acquisition.

10. METHOD OF PAYMENT

The District shall submit invoices on a quarterly basis for non-capital costs as reimbursement after the costs have been expended, or after the work being

billed has been completed, and on an as-needed basis for capital costs. All payments will be made to the District upon receipt of an original invoice and three copies by the State of California, Department of Water Resources, 3310 El Camino Avenue, Sacramento, California, 95821, to the attention of Earl Nelson, Flood Protection Corridor Program Manager. Invoices should include SAP contract number and work plan element identification. For real property acquisition payments, see Section 16 of this agreement, and Exhibit D.

Within a period of 60 days from project completion, the District shall remit to the State any unexpended funds that were disbursed that were not needed to pay eligible costs.

All money disbursed for this project shall be deposited, administered, and accounted for pursuant to the provisions of law applicable to the District.

11. PAYMENT RETENTION

The State may withhold up to 10 percent of non-capital eligible costs from each invoice until it is satisfied that the portion of the acquisition of interest in real property being financed by withheld funds is completed. The amount of the funds withheld will be determined by the State based upon its determination of the amount needed to assure completion of the project. It is understood that such retentions, if any, may be withheld until the District has completed and filed with the State a report summarizing project results and the State has found it satisfactory.

At the end of the project, the State shall withhold 10 percent of the total non-capital project funding until the audit report, required in Item 8, is received and accepted by the State.

12. STANDARD CLAUSES

Exhibit F, Standard Clauses – Contracts with Public Entities, is attached and by this reference incorporated herein. The reference to "Contractor" in the Standard Clauses exhibit means the District.

13. SCOPE OF WORK

Exhibit B is attached and by this reference incorporated herein. Items included are in the attached Budget and Timeline (attached as Exhibit C) and designated for funding by DWR.

14. MAINTENANCE OF PROPERTY OWNED IN FEE

Within their respective ownership of land rights, the District agrees to use, manage, and maintain the property acquired, developed, rehabilitated or

restored with the grant funds provided in this Agreement consistent with the purposes of the program. Specific maintenance activities are outlined in Exhibit G (attached) and by this reference incorporated herein. The District or its successors may, with the approval of the State, transfer this responsibility to use, manage, and maintain the property acquired as discussed in Paragraph 3L. Such title transfer will occur in a way that binds the new owner to the same obligations.

15. MAINTENANCE TRUST FUND

- A. <u>TITLE OF FUND</u>. There is hereby established within the District an endowment fund, designated the MA 17 Maintenance Trust Fund (hereinafter referred to as the "Trust Fund") to receive contributions in the form of money and to administer the same.
- B. <u>PURPOSE</u>. The purpose of the fund shall be to pay for maintenance of the properties acquired pursuant to this agreement as specified in the District's Maintenance Plan attached as Exhibit G. Eligible maintenance costs shall include (a) costs of maintaining on- and off-site facilities necessary to protect the property against flooding until such time as the flood prevention facilities are no longer needed, and (b) the payment of annual property assessments established to fund such flood prevention facility maintenance.
- C. <u>FUNDING</u>. An amount equivalent to 20 percent of the purchase price of each property acquired pursuant to this agreement shall be provided by the State to the District for deposit in the Trust Fund at the time of each property purchase, until the total amount of grant funds provided for in this agreement have been expended.
- D. <u>INVESTMENT OF FUNDS</u>. The District shall have all powers necessary or in its sole discretion desirable to carry out the purposes of the Trust Fund, including, but not limited to, the power to retain, invest, and reinvest the Trust Fund and the power to commingle the assets of the Trust Fund with those of other funds for investment purposes.
- E. <u>COSTS OF THE FUND</u>. It is understood and agreed that the Trust Fund shall share a fair portion of the total investment and administrative costs of the District. Those costs annually charged against the Trust Fund shall be determined in accordance with the then current fee schedule identified by the District as applicable to funds of this type.
- F. <u>NOT A SEPARATE TRUST</u>. The Trust Fund shall be component part of the District. All money and property in the Trust Fund shall be held as general assets of the District and not segregated as trust property of a separate trust.

- G. <u>DISTRIBUTION</u>. The annual earnings allocable to the Trust Fund, net of the fees and expenses set forth in Paragraph E above, shall be committed, granted or expended solely for the purposes described in Paragraph B above. If the annual return of the Trust Fund is not sufficient to fund the committed obligations of the fund, the fund itself may be used to meet current obligations, until the fund has been completely expended. For budgeting purposes, annual expenditures from the fund should not exceed an amount projected to completely exhaust the Trust Fund at the same time all properties in the Middle Creek Project have been acquired by the District, and flood protection facility maintenance is no longer necessary.
- H. <u>ADMINISTRATIVE PROVISIONS</u>. Notwithstanding anything herein to the contrary, the District shall hold the Trust Fund, and all contributions to and earnings of the Trust Fund, subject to the provisions of California laws and the regulations and approvals that led to the establishment of the District. The District Board shall monitor the distribution of the Trust Fund.

16. PROPERTY RIGHTS ACQUISITIONS

The District is coordinating the acquisition of real property rights (Exhibit A attached hereto) for the purpose of the protection, restoration, and enhancement of the flood corridor by combining an effective and low-cost means of flood control protection with the preservation and enhancement of natural environmental values. The acquisition of any real property interest in these properties with State funds must comply with the following:

- A. The District must provide escrow documents and information as described in Exhibit D including a preliminary fitle report, vesting documents, and a fully conformed appraisal report to the State. Appraisals must be prepared and signed by a qualified general appraiser, who is licensed by the California Department of Real Estate Appraisers and demonstrates compliance with the Uniform Standards for Professional Appraisal Practices. Any and all appraisal reports shall be submitted to the State for approval, including if necessary, the Department of General Services prior to disbursal of funds for the acquisition. For low value property interests, the State, in its sole discretion, may waive any of the foregoing submittal requirements.
- B. The property rights shall be acquired from a willing seller as promulgated in Water Code section 79037 (b) (4), Division 26, Chapter 5, Article 2.5, and in compliance with current laws governing acquisition of properties by public agencies.

- C. The District shall provide sufficient notice to adjacent landowners and other members of the public to enable public input on interests that may be affected by the acquisition and changes in land use.
- D. The District shall use, manage, and maintain the property in a manner consistent with the purpose of the acquisition until the State determines that maintenance is no longer necessary. The District further assumes all management and maintenance costs associated with the acquisition, including the costs of ordinary repairs and replacements of a recurring nature, and costs of enforcement of regulations. The State shall not be liable for any cost of such management or maintenance. The District will, prior to the acquisition of the historic Robinson Lake floodplain interests, develop a monitoring and maintenance plan and determine who will be responsible for it and submit it to the State for approval.
- E. The District shall identify all riparian water rights that would be affected by a real property acquisition and propose appropriate treatment of such rights.
- F. Method of payment. Funds provided by the State for real property acquisitions shall be deposited by the State with an escrow holder acceptable to the State and with escrow instructions regarding funding and disbursal to be approved by the State. If the escrow does not close by the date set forth in the State's escrow instructions, or such other date as may be agreed to by the parties, the funds provided by the State shall be returned to State.
- G. The District shall supply a copy of any recorded vesting documents to the State after close of escrow.

IN WITNESS WHEREOF, the following authorized representatives have executed this Agreement as of the date first above written and approved as to Legal form and sufficiency.

LAKE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

ATTEST:

KELLY F. COX

Clerk to the Board

Chair, Board of Oirectors

· 53 -01

APPROVED AS TO FORM: CAMERON L. REEVES **County Counsel**



STATE OF CALIFORNIA, DEPARTMENT OF WATER RESOURCES

By

Date:

Approved as to Legal Form and Sufficiency

NARDY, Chief Counsel

Date:

MAY 0 4 2004

Attachments

List of Exhibits:

Exhibit A - Real Estate Rights to Be Acquired

Exhibit B - Scope of Work

Exhibit C – Budget and Timeline

Exhibit D – Information Necessary for Escrow Processing and Closure

Exhibit E - Model Floodway and Conservation Easement

Exhibit F – Standard Clauses for Contracts with Public Entities

Exhibit G - Maintenance Provisions

EXHIBIT A

FLOOD PROTECTION CORRIDOR PROGRAM MIDDLE CREEK FLOOD DAMAGE REDUCTION AND ECOSYSTEM RESTORATION PROJECT

POTENTIAL PROPERTIES FOR ACQUISITION

Ninety-nine parcels have been identified as needing acquisition in fee, purchase of overflow easements or in need of hydraulic mitigation, see attached map and list of properties. Because funds provided (\$5.214 million) are not adequate to acquire all required property, we have established priorities for this funding. Priorities are as follows:

- Eighteen (18) properties have residential structures that are subject to significant flood depths in the event of levee failure. These properties will receive the highest priority for purchase. Acquisition priority will be based the depth of flooding at each residential parcel.
- Eight parcels are owned by the United States of America, which are held In-Trust for the Robinson Rancheria of Pomo Indians of California. Hydraulic mitigation (elevation of facilities above flood elevation) and purchase of overflow easement have been identified for implementation on portions of these parcels. Provided that issues related to transfer of the "In-Trust" from these properties are resolved, these properties will receive the second priority. If the "In-Trust" issues have not been resolved at the time all priority one properties have been acquired, then the District may proceed directly to priority three.
- In the event that funds are available, third priority will be given to the remaining parcels based on the depth of flooding on each parcel. This essentially means acquisition will begin in the southern parcels and proceed northward.
- As funds become limited towards the end of the acquisition process, the District reserves the right to "bypass" properties that have values greater than the remaining funds available.

All properties will be acquired according to local, State, and federal laws and regulations, including the Uniform Relocation Assistance and Real Properties Acquisition Policies Act of 1970, Public Law 91-646, as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 CFR Part 24.

FLOOD PROTECTION CORRIDOR PROGRAM MIDDLE CREEK FLOOD DAMAGE REDUCTION AND ECOSYSTEM RESTORATION PROJECT POTENTIAL PROPERTIES FOR ACQUISITION EXHIBIT A

| Parcel No. | Owner Information | Property Address | | Floodprone Residence |
|-----------------------|--|---|----|--|
| 00402203 | BAMBERGER MYRA R TRUSTEE | 7450 RECLAMATION RD | UL | Y |
| 00402224 | BOBST GLEN L & BEVERLY | 7385 RECLAMATION RD | UL | Ϋ́ |
| 00401633 | CHRISTIANSON, JR ALBERT M & HELGA | 8220 SAILOR AVE | UL | Y |
| 00402128 | CONLEY MARVIN B & LYNN I | 1370 RECLAMATION CUTOFF | UL | Y |
| 00401635 | DEMLER LANCE E & LINDA R | 8120 SAILOR AVE | UL | Y |
| 00402131 | ESTATE OF REED JAMES INGALLS JR & INGALLS DAWN | 1405 RECLAMATION CUTOFF | UL | Y |
| 00402121 | FINCH JAMES | 1280 RECLAMATION CUTOFF | UL | Y |
| 00402122 | FINCH JAMES FRANCIS | 1320 RECLAMATION CUTOFF | UL | · Y |
| 00402130 | GOULD DWIGHT E | 1305 RECLAMATION CUTOFF | UL | Y |
| 00402125 | HANSTEN ROBERT E & DOROTHY G | 7950 RECLAMATION RD | ŲĹ | Y |
| 00401631 | IRWIN JOHN JR | 8340 RECLAMATION RD | UL | Y |
| 00402120 | MCCARTHY SYLVIA A | 1350 RECLAMATION CUTOFF | UL | Y |
| 00402124 | MORRILL KEVIN R & ESTHER M | 7998 RECLAMATION RD | UL | Y |
| 00402127 | MURDERS LEON & CHERI | 7500 RECLAMATION RD | UL | Y |
| 00401513 | PIERSON MICKEY E & JOYCE M | 1235 E STATE HWY 20 | UL | Ý |
| 00401620 | ROONEY PHILIP M & MARCIA D | 8050 SAILOR AVE | ÜL | Ÿ |
| 00401634 | STERLING ROBERT W | 8230 SAILOR AVE | ÜL | Y |
| 00/10/1602 | TORRENCE NANCY | 8240 EZRA AVE | UL | Ÿ |
| 0 406 | BOBST GLEN L & BEVERLY | 8223 RECLAMATION RD | ÜL | · · · · · · · · · · · · · · · · · · · |
| 00401920 | BOBST GLEN L & BEVERLY | 8051 RECLAMATION RD | ÜL | |
| 00401921 | BOBST GLEN L & BEVERLY | 8053 RECLAMATION RD | UL | |
| 00401922 | BOBST GLEN L & BEVERLY | 8055 RECLAMATION RD | ÜL | , |
| 00402012 | BOBST GLEN L & BEVERLY | 7415 RECLAMATION RD | UL | |
| 00402118 | BOBST GLEN L & BEVERLY | 7945 RECLAMATION RD | UL | |
| 00402119 | BOBST GLEN L & BEVERLY | 7575 RECLAMATION RD | UL | |
| 00402201 | BOBST GLEN L & BEVERLY | 7525 RECLAMATION RD | UL | |
| 00402202 | BOBST GLEN L & BEVERLY | 7527 RECLAMATION RD | UL | |
| 00401606 | CARL ERNEST | 8485 RECLAMATION RD | UL | |
| 00401420 | CHRISTIANSON AL | 8465 RECLAMATION RD | UL | |
| 00402234 | CLARK STANLEY E & JACKLYN A JR | 1675 E STATE HWY 20 | UL | 1 |
| 20101001 | CLARK STANLEY E JR & JACKLYN A | 1845 E STATE HWY 20 | UL | |
| 00401502 | DIPLOUDIS SIMEON & VIRGINIA S | 1055 E STATE HWY 20 | UL | |
| 00401605 | EDMANDS RECLAIMED LAND CO | 8475 RECLAMATION RD | UL | |
| 00401003 | EDMANDS RECLAMATION DIST | 8345 RECLAMATION RD | UL | |
| 00401404 | EDMANDS RECLAMATION DIST | 8221 RECLAMATION RD | UL | |
| | EDMANDS RECLAMATION DIST | 8035 RECLAMATION RD | UL | |
| 00401902 | FLOYD BRAD & MARY LOU | 8250 RECLAMATION RD | UL | |
| 00401419 | FRYE CARRIE M | 1375 E STATE HWY 20 | UL | 1 |
| 00401829 | GARD LARRY W | 557 E STATE HWY 20 | UL | - |
| 00401317 | GILLETT ROBERT & FRANCES TRUSTEE | 975 E STATE HWY 20 | UL | |
| 00401018 | GILLETT ROBERT & FRANCES TRUSTEE | 941 E STATE HWY 20 | UL | |
| 00401309 | IRWIN JOHN JR | 8300 RECLAMATION RD | UL | |
| 00401632 | IRWIN WILLIAM S | 8335 RECLAMATION RD | UL | |
| 00401319 | <u> </u> | | UL | + |
| | IRWIN WILLIAM S | 8325 RECLAMATION RD 8217 RECLAMATION RD | UL | |
| <u>0(</u> <u>'311</u> | KOKER THOMAS B & DONNA M | 1021/ RECLAIMATION RD | UL | |

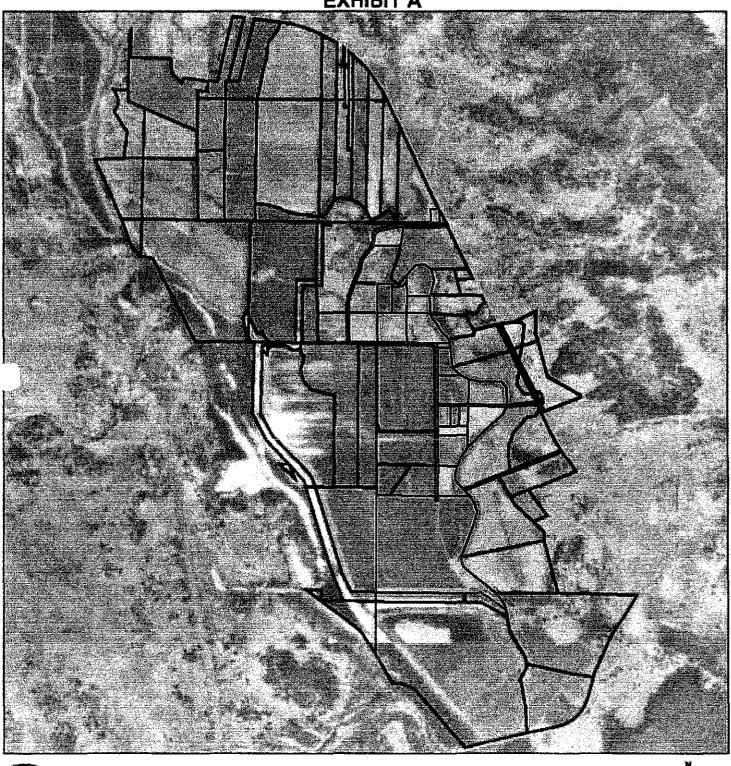
FLOOD PROTECTION CORRIDOR PROGRAM MIDDLE CREEK FLOOD DAMAGE REDUCTION AND ECOSYSTEM RESTORATION PROJECT POTENTIAL PROPERTIES FOR ACQUISITION EXHIBIT A

| Parcel No. | Owner Information | Property Address | | Floodprone Residence |
|---------------------|---|--------------------------|------|--|
| 00401415 | LAKE COUNTY MOSQUITO ABATEMENT DIST | 8155 RECLAMATION RD | UL | |
| 00401611 | MARTELL FLORA MAE | 1347 E STATE HWY 20 | UL. | |
| 00402129 | MCCARTHY EDWARD T | 7600 RECLAMATION RD | UL | |
| 00401603 | MENDOZA JESUS & ELVA | 8100 SAILOR AVE | UL | |
| 00401512 | MONTGOMERY PAUL L & HANSEN MARJORIE ALICE | 1175 E STATE HWY 20 | ÜL | |
| 00305509 | NARVAEZ GREGORY A | 8950 BRIDGE ARBOR NORTH | UL | |
| 00401302 | NARVAEZ GREGORY A | 8924 BRIDGE ARBOR NORTH | UL | |
| 20101002 | NICHOLSON LEWIS F & ANNE | 1757 E STATE HWY 20 | UL | |
| 03103109 | OBRYANT LARRY L & KATHLEEN E | 2200 POINT LAND FARMS DR | NICE | |
| 03104132 | OBRYANT LARRY L & KATHLEEN E | 1830 NICE-LUCERNE CUTOFF | NICE | |
| 00401004 | OLD RIVER VINTNERS | 755 E STATE HWY 20 | UL | |
| 00401318 | OLD RIVER VINTNERS | 737 E STATE HWY 20 | UL | |
| 00401029 | OLDHAM MELVYN W & WINIFRED J CO TRUSTEE | 725 E STATE HWY 20 | UL | |
| 00401315 | OLDHAM MELVYN W & WINIFRED J CO TRUSTEE | 735 E STATE HWY 20 | UĻ | |
| 00401018 | OSBORNE JANELLE | 895 E STATE HWY 20 | UL | |
| 00401019 | OSBORNE JANELLE | 883 E STATE HWY 20 | UL | |
| 00401020 | OSBORNE JANELLE | 873 E STATE HWY 20 | UL | |
| 00101306 | OSBORNE JANELLE | 879 E STATE HWY 20 | UL | |
| C /1312 | OSBORNE JANELLE | 881 E STATE HWY 20 | UL | |
| 00401623 | PARKINSON BARRY | 1425 E STATE HWY 20 | UL | |
| 00402010 | RECLAMATION DIST 2070 | 7425 WESTLAKE RD | UL | |
| 00402207 | RECLAMATION DIST 2070 | 7035 RECLAMATION RD | UL | |
| 00402221 | RECLAMATION DIST 2070 | 7015 RECLAMATION RD | UL | ************************************** |
| 00401618 | ROBINSON MATILDA J TRUSTEE | 8490 RECLAMATION RD | UL | |
| 00402108 | ROBINSON RANCHERIA | 1645 E STATE HWY 20 | UL | |
| 00402115 | RÓBINSON RANCHERIA | 1555 RECLAMATION CUTOFF | UL | |
| 00402208 | ROBINSON RANCHERIA | 1745 E STATE HWY 20 | ÜL | |
| 00401034 | ROGERS LAWRENCE A | 635 E STATE HWY 20 | UL | |
| 00401316 | ROGERS LAWRENCE A | 555 E STATE HWY 20 | UL | |
| 00401412 | SACRAMENTO & SAN JOAQUIN DRAINAGE DIST | 8001 RECLAMATION RD | UL | |
| 00401414 | SACRAMENTO & SAN JOAQUIN DRAINAGE DIST | 8027 RECLAMATION RD | UL | |
| 00401919 | SACRAMENTO & SAN JOAQUIN DRAINAGE DIST | 8043 RECLAMATION RD | UL | |
| 00401010 | SAECHAO OUYERN & MEUYTHAO | 935 E STATE HWY 20 | UL | |
| 00401308 | SAECHAO OUYERN & MEUYTHAO | 937 E STATE HWY 20 | UL | |
| 00401417 | SANTOS JOE D TRUSTEE | 8190 RECLAMATION RD | UL | |
| 00401045 | SEELY ERIC | 9214 BRIDGE ARBOR NORTH | UL | |
| 00402304 | SINO-AMERICAN BUDDHIST ASSOC | 6980 WESTLAKE RD | UL | |
| 00402501 | SINO-AMERICAN BUDDHIST ASSOC | 1430 NICE-LUCERNE CUTOFF | NICE | |
| 00401614 | U S A - IN TRUST | 1495 E STATE HWY 20 | UL | |
| 00401643 | U S A - IN TRUST | 1494 E STATE HWY 20 | ÜL | |
| 00402134 | U S A - IN TRUST | 1570 E STATE HWY 20 | UL | <u> </u> |
| 00402136 | U S A - IN TRUST | 1650 E STATE HWY 20 | ÜĹ | |
| 00402139 | U S A - IN TRUST | 1585 E STATE HWY 20 | UL | |
| 00 102 1 0 0 | U S A - IN TRUST | 1545 E STATE HWY 20 | UL | |
| (1642 | U S A IN TRUST | 1498 E STATE HWY 20 | ÜL | |

FLOOD PROTECTION CORRIDOR PROGRAM MIDDLE CREEK FLOOD DAMAGE REDUCTION AND ECOSYSTEM RESTORATION PROJECT POTENTIAL PROPERTIES FOR ACQUISITION EXHIBIT A

| Parcel No. | Owner Information | Property Address | ľ | Floodprone Residence |
|------------|-----------------------------|-------------------------|----|-------------------------|
| 00402135 | U S A IN TRUST | 1580 E STATE HWY 20 | UL | |
| 00401005 | WALTER III HARRISON | 825 E STATE HWY 20 | UL | |
| 00401305 | WALTER III HARRISON | 877 E STATE HWY 20 | UL | |
| 00304110 | WEGER INTERESTS LTD | 8920 BRIDGE ARBOR NORTH | UL | |
| 00304210 | WEGER INTERESTS LTD | 8930 BRIDGE ARBOR NORTH | UL | |
| 00401310 | WEGER INTERESTS LTD | 8922 BRIDGE ARBOR NORTH | UL | |
| 00401411 | WEGER INTERESTS LTD | 8219 RECLAMATION RD | UL | |
| 00402212 | WILCOX DONALD T & DOLORES J | 2255 E STATE HWY 20 | UL | |
| 00401613 | WILLS THOMAS E | 1485 E STATE HWY 20 | UL | |

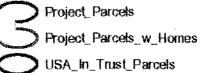
FLOOD PROTECTION CORRIDOR PROGRAM MIDDLE CREEK FLOOD DAMAGE REDUCTION AND ECOSYSTEM RESTORATION PROJECT POTENTIAL PROPERTIES FOR ACQUISITION EXHIBIT A



3,000

1,500

4,500





6,000 Feet

EXHIBIT B

FLOOD PROTECTION CORRIDOR PROGRAM MIDDLE CREEK FLOOD DAMAGE REDUCTION AND ECOSYSTEM RESTORATION PROJECT

SCOPE OF WORK

The Middle Creek Flood Damage Reduction and Ecosystem Restoration Project (Project) is one step in the process of restoring damaged habitat and the water quality of the Clear Lake watershed. Reconnection of this large previously reclaimed area, as a functional wetland is anticipated to have a significant effect on the watershed health and the water quality of Clear Lake. The Project will also eliminate flood risk to 18 residential structures, numerous outbuildings and approximately 1,400 acres of agricultural land.

In June 1999, the U.S. Army Corps of Engineers began a Feasibility Study that evaluated six alternatives, including the No Action, three restoration alternatives, a non-structural, and a structural flood damage reduction alternative. The restoration alternatives all include reconnecting the area adjacent to Clear Lake and Rodman Slough, with the primary difference being the northern limit of the Project area. The pure flood damage reduction alternatives were not cost effective. During the Feasibility Study that reviewed flood damage reduction, habitat, and other benefits, it was determined that the most beneficial project would be full restoration of the Project area. Full restoration requires all property in the Project area, 1,650 acres, be purchased in fee. Purchased lands will be restored to near natural conditions and the levees will be breached. Environmental review as required by the National Environmental policy Act and the California Environmental Quality Act was conducted concurrent with the Feasibility Study. The Final Feasibility Study/Environmental Impact Statement/Environmental Impact Report was issued in September 2002.

The purpose of this scope of work is to begin with acquisition of properties necessary to implement the Project. Acquisition will be made from willing sellers only. As total land, easement and relocation costs are in excess of \$13 million, this scope of work emphasizes acquisition of properties that have residential dwellings, as this will reduce the most potential for flood damages and reduce the risk to life of residents. Because not all land protected by the levees will be purchased, full restoration will be delayed until all properties are purchased, allowing restoration activities and decommissioning of the levee system.

Ninety-nine parcels have been identified as needing acquisition in fee, purchase of overflow easements or in need of hydraulic mitigation (see Exhibit A). Because funds provided (\$5.214 million) are not adequate to acquire all required property, we have established priorities for this funding. Priorities are as follows:

Flood Protection Corridor Program, Scope of Work, Exhibit B Middle Creek Flood Damage Reduction and Ecosystem Restoration Project

Page 2

- 1. Eighteen properties have residential structures that are subject to significant flood depths in the event of levee failure. These properties will receive the highest priority for purchase. Acquisition priority will be based the depth of flooding at each residential parcel. This essentially means acquisition will begin in the southern parcels and proceed northward.
- 2. Eight parcels are owned by the United States of America, which are held In-Trust for the Robinson Rancheria of Pomo Indians of California. Hydraulic mitigation (elevation of facilities above flood elevation) and purchase of overflow easement have been identified for implementation on portions of these parcels. Provided that issues related to transfer of the "In-Trust" from these properties are resolved, these properties will receive the second priority. If the "In-Trust" issues have not been resolved at the time all priority one properties have been acquired, then the District may proceed directly to Priority 3.
- 3. In the event that funds are available, third priority will be given to the remaining parcels based on the depth of flooding on each parcel. This essentially means acquisition will begin in the southern parcels and proceed northward.

As funds become limited toward the end of the acquisition process, the District reserves the right to bypass or skip over properties that have values greater than the remaining funds available and acquire the properties that can be acquired with the available funds.

All properties will be acquired according to local, State, and federal laws and regulations, including the Uniform Relocation Assistance and Real Properties Acquisition Policies Act of 1970, Public Law 91-646, as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 CFR Part 24.

After the properties are acquired, improvements, such as homes, outbuildings and associated infrastructure will be removed and/or abandoned on site in accordance with local, State, and federal laws. Properties will be rezoned as Open Space and no future building will be permitted on the properties.

Task 1: Administration

This task includes administration of the grant and coordination of activities associated with acquisition of the properties. Administrative costs include District/County staff time expended throughout the project. Staff includes, but is not limited to, the Assistant Director of Public Works, Water Resources Engineer, County Surveyor, Right-of-Way Agent and County Counsel.

Property acquisition will be in accordance with local and State regulations. Property acquisition will also be consistent with federal guidelines in order for the acquisition to

Flood Protection Corridor Program, Scope of Work, Exhibit B Middle Creek Flood Damage Reduction and Ecosystem Restoration Project

Page 3

count as local match for implementation of the Middle Creek Flood Damage Reduction and Ecosystem Restoration Project. A General Plan Conformity Report will be presented to the County Planning Commission for approval prior to commencing acquisition. At least one additional public meeting will be held after the contract is awarded to advise property owners of the acquisition process. Outreach materials will be prepared and provided to all potentially affected property owners.

After purchase, all properties will have a deed restriction, such as a flood easement recorded. After all properties are purchased, the County will initiate a rezone of the purchased parcels to change the zoning to Open Space.

Task 2: Relocation, Demolition and Cleanup Expenses

Because this is part of a larger federal project, federal requirements will apply to land purchase under the Flood Protection Corridor Program (FPCP) Program. Federal law (PL 91-646) requires relocation assistance be provided for residents that are displaced by federal projects. Relocation expenses, including moving expenses, are included under this task.

Since the primary emphasis of this scope of work is to acquire flood prone homes and the associated property, the structures and associated utilities will be removed and/or abandoned in place. Residential structures and accessory structures will be completely removed from the property. Paved sidewalks and driveways will also be removed. Unpaved areas will be re-vegetated as required. Revegetation is temporary until the full Project is implemented. Items such as septic systems and water wells will be abandoned in accordance with local and state laws. All other utilities will be removed from the purchased parcels.

Fencing to prevent trespass may be installed along the perimeter of the parcels to prevent trespass and off road vehicular use. Fencing will only be installed if trespass and off road vehicular activity becomes a problem.

Task 3: Acquisition Costs

Acquisition costs include all costs associated with purchase, including appraisals, inspections, purchase price, title insurance, and closing costs. Staff time associated with negotiations is included within Task 1: Administration. Subtasks include:

- 1. Obtain legal descriptions of parcels or surveyed descriptions for partial purposes.
- 2. Obtain an appraisal for the acreage and estate from an acceptable appraiser.
- 3. Obtain State approval of the appraised amount.
- 4. Make offers at not less than fair market value as provided in the appraisal.
- 5. Upon agreement of purchase price, enter escrow period, make appropriate inspections and close escrow.

Flood Protection Corridor Program, Scope of Work, Exhibit B Middle Creek Flood Damage Reduction and Ecosystem Restoration Project

Page 4

Task 4: Hydraulic Mitigation on USA-In-Trust Parcels

There are eight parcels held by the United States in trust for the Robinson Rancheria. The Middle Creek Project will induce flooding on these parcels. Corps policy will not allow activities on the USA-In-Trust properties, therefore, a "ring levee" to protect the USA-In-Trust parcels was proposed in the Feasibility Study. The Robinson Rancheria is opposed to the ring levee and has proposed an alternative of transferring the trust status of two parcels to other parcels, elevating the parking lot above the 100-year floodplain, elevating a portion of the flood prone property, and selling overflow easements on the parcels west of Highway 20. The Corps has prepared an alternative that includes the Rancheria's proposal, however, it cannot be implemented until the trust is transferred.

Provided that the trust is transferred in a timely manner, this task will include the hydraulic mitigation (elevation of flood prone facilities) and acquisition of an overflow/conservation easement in the former trust properties west of Highway 20.

- Elevation of the facilities will require development of engineered plans and specifications, competitive bidding for a construction contract, and construction of the improvements. All construction will be subject to the appropriate local, state and federal regulations.
- Overflow-conservation easements will be acquired utilizing the same procedure described in Task 3.

Task 5: Property Maintenance

When the District purchases the properties as described above, the District will assume maintenance responsibility for the properties. Exhibit G describes the maintenance costs associated with ownership of the properties within the proposed Middle Creek Project area. We anticipate these costs will be ongoing for several years before the Middle Creek Project is fully implemented. Because the Middle Creek Project has not been authorized, nor has the CEQA/NEPA been fully approved, we cannot accurately determine the length of time that the properties must be maintained prior to full project implementation. Therefore, a full 20 percent of the acquisition cost will deposited in a trust fund to pay for the maintenance of the properties. As expenses are likely to be greater than the interest on the trust fund, the balance of the trust fund will likely decrease over time.

Any balance in the trust fund that remains when the Middle Creek Project is fully implemented will remain in the trust fund and be utilized for long term operation, maintenance and monitoring of the full Project.

A detailed budget and timeline is included in Exhibit C.

EXHIBIT C

FLOOD PROTECTION CORRIDOR PROGRAM MIDDLE CREEK FLOOD DAMAGE REDUCTION AND ECOSYSTEM RESTORATION PROJECT

DETAILED BUDGET AND TIMELINE

The purpose of this budget and timeline is to define the approximate costs and schedule for acquisition of properties necessary to implement the Flood Protection Corridor Program portion of the Middle Creek Flood Damage Reduction and Ecosystem Restoration Project (Project). Acquisition will be made from willing sellers only. As total land, easement and relocation costs are in excess of \$13 million, this scope of work emphasizes acquisition of properties that have residential dwellings, as this will reduce the most potential flood damages and reduce the risk to life of residents.

Budget

Currently, the Lake County Flood Control and Water Conservation District (District) does not have accurate estimates of the individual values of the parcels within the Project area. The District has prepared this budget based on the gross appraisal prepared by the Corps of Engineers in 2000 and our experience with property acquisition. Because the District does not have individual appraisals, the estimates will be by task only.

Task 1: Administration

This task includes administration of the grant and coordination of activities associated with acquisition of the properties. Administrative costs include District/County staff time expended throughout the project. Staff includes, but is not limited to, the Assistant Director of Public Works, Water Resources Engineer, County Surveyor, Right-of-Way Agent and County Counsel. Administrative costs are based on salaries, benefits, and overhead. Overhead includes building rental, utilities, supplies, travel and miscellaneous expenses.

Task 2: Relocation, Demolition and Cleanup Expenses

Because this is part of a larger Federal project, Federal requirements will apply to land purchase under the FPCP Program. Federal law (PL 91-646) requires relocation assistance be provided for residents that are displaced by Federal projects. Relocation expenses, including moving expenses, are included under this task.

Structures and associated utilities will be removed and/or abandoned in place for each property. Residential structures and accessory structures will be completely removed from the property. Paved sidewalks and driveways will also be removed. Unpaved

Flood Protection Corridor Program, Detailed Budget and Timeline, Exhibit C Middle Creek Flood Damage Reduction and Ecosystem Restoration Project August 26, 2003
Page 2

areas will be revegetated as required. Items such as septic systems and water wells will be abandoned in accordance with local and state laws. All other utilities will be removed from the purchased parcels. Fencing to prevent trespass may be installed along the perimeter of the parcels to prevent trespass and off road vehicular use.

Because the District does not have detailed estimates, the estimates are for the entire task.

Task 3: Acquisition Costs

All costs associated with the purchase, include appraisals, inspections, purchase price, title insurance, and closing costs. Staff time associated with negotiations is included within Task 1: Administration. Because the District does not have individual appraisals, the estimates are for the entire task.

Task 4: Hydraulic Mitigation on USA-In-Trust Parcels

Provided that the trust is transferred in a timely manner, this task will include the hydraulic mitigation (elevation of flood prone facilities) and acquisition of an overflow-conservation easement in the former trust properties west of Highway 20. The estimate is broken down into two sections, hydraulic mitigation and overflow-conservation easements: (1) Hydraulic Mitigation: Elevation of the facilities will require development of engineered plans and specifications, competitive bidding for a construction contract, and construction of the improvements. All construction will be subject to the appropriate local, state and federal regulations. All costs, including preliminary and construction engineering, and construction are included; (2) Overflow-conservation easements: Easements will be acquired utilizing the same procedure described in Task 3.

Task 5: Property Maintenance

A full twenty percent of the acquisition cost will be deposited in a trust fund to pay for the maintenance of the properties. Because the District does not have individual appraisals, the estimates are for the entire task.

Timeline

The timeline identifies milestones on a general basis. Because multiple parcels are involved, individual timelines for each parcel purchase are not provided.

FLOOD PROTECTION CORRIDOR PROGRAM MIDDLE CREEK FLOOD DAMAGE REDUCTION AND ECOSYSTEM RESTORATION PROJECT DETAILED BUDGET AND TIMELINE EXHIBIT C

| TASK | DESCRIPTION | START ¹ | COMPLETE |
|------|--|--------------------|----------|
| 1 | Administration | | |
| | Letter to Property Owners | 0.5 | 0.5 |
| | Public Meeting | 1 | 1 |
| | Administration | 0 | 36 |
| 2 | Relocation, Demolition and Cleanup | | |
| | Relocation | 3 | 36 |
| | Demolition and Cleanup | 4 | 36 |
| 3 | Acquisition | | |
| | Appraisals | 2 | 36 |
| | Negotiations | 3 | 36 |
| | Escrow Period | 4 | 36 |
| 4 | Hydraulic Mitigation of USA-In-Trust Lands | | |
| | Negotiate Transfer of Trust ² | Ongoing | Ongoing |
| | Elevate Facilities ² | Ongoing | 36 |
| | Acquire Easement ² | Ongoing | 36 |
| 5 | Property Maintenance | 4 | Ongoing |

¹ Schedule is months after fully executed agreement (Authorization to Proceed)

² Transfer of Trust has been negotiated with the Robionson Rancheria since 2002 and agreement on legislation was made in March 2004. The Board of Supervisors requested Congressman Thompson include the transfer of the Trust in the Water Resources Development Act (WRDA) that also authorizeds the Project. The start date for hydraulic mitigation will depend on when WRDA is approved and signed into law.

Information Needed for Escrow Processing and Closure

Name and Address of Title Company Handling the Escrow

Escrow Number

Name of Escrow Officer

Escrow Officer's Phone Number

Dollar Amount Needed to Close Escrow

Legal Description of Property Being Acquired

Assessor's Parcel Number(s) of Property Being Acquired

Copy of Title Insurance Report

Entity Taking Title as Names Insured on Title Insurance Policy

Copy of Escrow Instruction in Draft Form Prior to Recording for Review Purposes

Copy of Final Escrow Instructions

Verification that all Encumbrances (Liens, Back Taxes, and Similar Obligations) have been Cleared Prior to Recording the Deed to Transfer Title

Copy of Deed for Review Purposes Prior to Recording

Copy of Deed as Recorded in County Recorder's Office

Copy of Escrow Closure Notice

Exhibit E

Conservation and Flood Easement Deed

| RECORDING REQUESTED BY | BY | TED | UES | REQ | NG | RD | ECO | R |
|------------------------|----|-----|-----|-----|----|----|-----|---|
|------------------------|----|-----|-----|-----|----|----|-----|---|

WHEN RECORDED MAIL TO:

DEPARTMENT OF WATER RESOURCES
Division of Land and Right of Way
Real Estate Branch
1416 9th Street, Room 425
Sacramento, California 95814

WITH A CONFORMED COPY TO:

[Easement Grantor]
[at Mailing Address]
Attention: [Contact Person]

Space Above This Line for Recorder's Use

| CONSERVATION AND FLOOD EASEMENT I | DEED Parcel No. |
|---|---|
| (Corporation) | File No. |
| | |
| The | real property situated in the County of particularly described on Exhibit A |
| Recita | <u>[s</u> |
| WHEREAS, Grantor [previously owned through grants of fun specifically, the California Department of Wate State Proposition 13 funds to Grantor to [acqu | ling provided by the State of California; r Resources (the DWR")]. DWR awarded |

| easement on][and] to carry out stewardship and management |
|---|
| easement on] [and] to carry out stewardship and management activities on _(same), including maintenance, monitoring, and [ecosystem |
| restoration][wildlife-friendly farming practices]. The DWR determined the |
| acquisition and/or easement conveyance would implement the |
| purposes of the Grantor and DWR by (1) (2) providing |
| opportunities to restore riparian habitat; and (3) |
| |
| WHEREAS, in addition, DWR awarded California Proposition 13 funds to Grantor |
| to contribute to the cost of Grantor [acquiring fee title] [conveying an easement] |
| to DWR determined that [acquisition] [continued ownership] of |
| by Grantor, Grantor's continued management and use of |
| as a [transient storage area] [flood corridor] for floodwater |
| |
| overflow or conveyance from the _(water body) and for [wildlife |
| habitat] agricultural land] preservation purposes, and Grantor's intention to [integrate] |
| [continue to manage] the property [into] [as part of] Grantor's existing holdings |
| encompassing the, will preserve land, protect wildlife habitat, and |
| protect it's floodplain area from inappropriate or incompatible development and maintain |
| its availability for flood management purposes, consistent with the purposes of the |
| Flood Protection Corridor Program described in Water Code section 79035 et seq |
| |
| WHEREAS, the contractual agreement which provides for the transfer of grant |
| funds by the DWR to Grantor for Grantor's [acquisition of] [conveyance of an easement |
| deed to], acknowledges the multiple and complementary benefits the |
| [property] provides to the State of California for: (1) agricultural land |
| preservation [if applicable]; (2) wildlife habitat protection [if applicable]; (3) protection of |
| a floodplain area from potential inappropriate and incompatible development; and (4) |
| potential role in future flood management and water management improvements |
| (hereafter "Multiple and Complementary Benefits"). |
| |
| WHEREAS, Grantor and the DWR further acknowledge that the [County] [City] of |
| is evaluating the need for floodway improvements in the |
| watershed. The [County's] [City's] evaluation of alternatives for |
| such floodway improvements in the area may include use of all or a |
| portion of the Conservation Area for future flood management projects or activities. |
| |
| WHEREAS, it is the intent of the Grantee and Grantor, as parties to this |
| Conservation and Flood Easement Deed, to protect each of the existing Multiple and |
| Complementary Benefits of property and to cooperate in the |
| implementation of any flood management project or activity on the |
| property that may evolve from the [County's] [City's] flood |
| management planning efforts. |
| 는 사람들이 되었다. 그는 사람들은 사람들이 되었다. 그는 사람들이 가는 사람들이 가장 함께 되었다. 그는 사람들이 되었다. 그는 사람들이 함께 함께 |
| NOW, THEREFORE, for good and valuable consideration provided in whole or in |
| part by DWR, the receipt and sufficiency of which is hereby acknowledged, based on |
| the common law and the California law of easements, including Section 815 et seq of |

the Civil Code, Grantor forever grants to the [easement grantee], its successors and

assigns, a conservation and flood easement, in over and across the Property ("the Conservation and Flood Easement"), subject to the terms and conditions hereinafter set forth describing the uses which may be made of the Property, and the parties agree as follows:

- 1. Purposes. The Property possesses significant [ecological and habitat values] [agricultural production capability]. These natural resources are of aesthetic, ecological, educational, historical, recreational, and scientific value to the people of the State of California. These natural resources are of great importance to both grantor and grantee. The purposes of this Conservation and Flood Easement are to preserve and protect each of the Multiple and Complementary Benefits of the Property. In so doing, it is also the purpose of this Conservation and Flood Easement to encourage and promote wildlife habitat, wetlands, transitory storage of floodwaters, agricultural use [if applicable] and wildlife-friendly practices on the Property.
- 2. <u>Grantee's Rights and Obligations.</u> The rights conveyed by this Conservation and Flood Easement to the Grantee include, but are not limited to, the following:
 - A. Grantee shall promptly record this instrument in the official records of

 County, California, and may re-record it at any time as may be required to preserve its rights in this Easement.
 - B. The Conservation Area Steward may identify, monitor, research, preserve and protect forever the natural, ecological, environmental, agricultural [if applicable] and wildlife features of the Property, to the extent necessary to effectuate the express purposes of this Conservation and Flood Easement.
 - C. The Conservation Area Steward is hereby granted the rights of access, for itself and its agents and contractors to enter upon the Property, using appurtenant easements and rights of way, if any, and may enter upon the Property at any and all reasonable times, with reasonable prior notice to Grantor, to inspect, study and make scientific and engineering observations of the Property, to the extent necessary to effectuate the express purposes of this Conservation and Flood Easement, and to determine whether Grantor's activities are in compliance with the terms hereof. The Conservation Area Steward shall not unreasonably interfere with the use and quiet enjoyment of the Property by Grantor, its successors in interest, and Grantor's guests, invitees, licensees, lessees, tenants and permitees and any other legally recognized occupants of the Property.
 - D. The Conservation Area Steward may enjoin any activity or use of the Property that is in consistent with the purposes of this Conservation and Flood Easement, and may enforce the restoration of such areas or

features of the Property that may be damaged by any activity or use of the Property that is inconsistent with the terms of this Conservation and Flood Easement.

- E. The Conservation Area Steward may assign all or any part of its interests in the Conservation and Flood Easement without the consent of the Grantor, provided that (I) the Conservation Area Steward shall provide Grantor with reasonable notice of the [easement grantee's] intention to effect such assignment and afford Grantor the opportunity to confer with the Conservation Area Steward respecting an assignee that would be acceptable to Grantor, (2) the Conservation Area Steward shall provide to Grantor written notice of such transfer within thirty (30) days of such transfer, and (3) any such assignment shall be to a governmental agency or political subdivision or non-profit group or foundation with authority to own property (such as the County for flood management purposes). Any assignee shall assume responsibility for enforcement of and be subject to all the provisions of this Conservation and Flood Easement.
- F. In furtherance of the Multiple and Complementary Benefits, the above-described rights shall be exercised in a which is in harmony with, and does not materially interfere with, any of the Multiple and Complementary Benefits.
- G. Because this Conservation and Flood Easement was purchased at least in part by funds provided by the DWR Division of Flood Management, the Conservation and Flood Easement is intended to be consistent with any present or future flood management project or activity implemented on the Property, and any flood control easement recorded against the Property, that may evolve from the City's or County's flood management planning efforts. In that regard, any such flood management project or activity or future flood control easement shall be a permitted use of the Property pursuant to the terms of this Conservation and Flood Easement, and the necessary property rights to implement future flood management plans and activities on the Property including rights to construct floodway improvements and rights of access for construction, inspection, and maintenance purposes shall be provided by Grantor and Grantee to the Flood Management Agency having jurisdiction for flood protection on the Property at no cost to the Flood Management Agency.
- H. Upon request by Grantor, Grantee shall within 15 days execute and deliver to Grantor any document, including an estoppel certificate, which certifies Grantor's compliance with any obligation of Grantor contained in this Easement and otherwise evidences the status of this Easement, as may be requested by Grantor.

3. **Grantor's Rights and Obligations.**

A. Grantor shall undertake all reasonable actions to prevent the unlawful entry and trespass by persons whose activities may degrade or harm the Multiple and Complimentary Benefits of the Conservation Area. In addition, Grantor shall undertake all necessary actions to perfect Grantee's rights under Section 2 of this Easement.

| В. | Grantor shall be permitted to conduct [agricultural practices] [habitat development and passive recreation] on in a manner consistent with the preservation or enhancement of the Multiple and Complementary Benefits. Notwithstanding the foregoing, Grantor may, without obtaining the consent of the Grantee, fallow areas within consistent with sound agricultural practices or convert formerly agricultural land to wildlife habitat, whether terrestrial or aquatic. |
|----|--|
| C. | Grantor shall comply with all applicable federal, State and local laws, statutes, rules, regulations and ordinances (collectively, the "Laws") that apply to Grantor respecting Grantor's acquisition, ownership and operation of and obtain any other permits, approvals, and licenses that Grantor is required to obtain under any law that is applicable to Grantor respecting Grantor's acquisition, ownership and operation of Upon the request of DWR, Grantor shall deliver to DWR a copy of any requested final permit, license or approval obtained by Grantor in connection with Grantor's acquisition, ownership and operation of |
| D. | Grantor agrees to indemnify and hold the Conservation Area Steward harmless for any damage suffered by the Grantee as a result of Grantor's activities on; provided, that such damage shall not have been caused by the gross negligence or willful misconduct of the Conservation Area Steward. |
| | |

E. Grantor shall assume all management, operation and maintenance costs associated with its ownership of the Property, including the costs of ordinary repairs and replacements of a recurring nature and costs associated with Grantor's compliance with any and all laws that are applicable to Grantor in connection with Grantor's ownership and operation of the Property. DWR, County, City, flood management district and the Grantee shall not be liable for any costs associated with the management, operation and maintenance of the Property, including flood management, except and to the extent of those costs associated with any flood management project or activity that is undertaken on the property in the future by DWR, County, City, flood management district, or the Conservation Area Steward.

- F. Grantor shall not engage in any dumping, releasing or other disposal of non-compostable refuse, trash, unsightly, toxic or other hazardous material on the Property; except to the extent such activities are conducted in connection with those agricultural operations and activities that are permitted under this Conservation and Flood Easement and are consistent with good farming practices and wildlife habitat management practices conducted in the general area and in a manner that is in compliance with all laws that are applicable to such activities.
- G. Grantor shall not explore for or extract minerals, hydrocarbons, soils, or other materials on or below the surface of the property except as needed to fulfill and implement the resource conservation purposes of this easement, and shall not change the topography of the Property without first obtaining the written consent of the Conservation Area Steward, including, without limitation, any topographical change resulting from any mining activity or levee or berm construction, except that any topographical changes resulting from any permitted agricultural activities conducted on the Property by Grantor or permitted wildlife habitat enhancement activities on the Property conducted by Grantor shall be permitted under this Conservation and Flood Easement without obtaining the consent of the Conservation Area Steward.
- H. Grantor may not manipulate, divert, or otherwise control or alter the natural watercourses or other bodies of water on the Property or adjacent property, except in connection with any permitted flood control activities, agricultural activities conducted on the Property by Grantor or permitted wildlife habitat enhancement activities on the Property conducted by Grantor, or engage in any activity that would pollute or degrade the surface or subsurface waters, except in connection with the permitted agricultural operations on the Property or as may be expressly permitted elsewhere herein. Grantee may not install wells or extract groundwater except to benefit the Conservation Area in amounts as may be reasonably required for conservation purposes on the property.
- I. Grantor shall pay all applicable real property taxes, assessments, fees and charges of whatever kind levied or assessed on the underlying fee interest in the Property. If Conservation Area Steward ever pays any taxes, assessments, fees or charges on the underlying fee interest that are the responsibility of Grantor, Grantor shall promptly reimburse the Conservation Area Steward for the same.
- J. Grantor shall be permitted to apply herbicides, pesticides or fungicides on the Property only in connection with permitted agricultural or wildlife enhancement activities conducted by Grantor on the Property in full

- compliance with all applicable laws and consistent with good farming practices conducted in the general area of the Property.
- K. Grantor reserves all rights respecting the Property that are not expressly prohibited by this Conservation and Flood Easement and which are not inconsistent with the purposes of this Conservation and Flood Easement.
- L. Grantor shall include appropriate acknowledgment of DWR's and other cost-sharing entities' financial support in any written or other media describing Grantor's acquisition and management of ______
- M. Grantor shall not use, or allow any portion of the Property to be used, for mitigation to compensate for adverse environmental impacts not on the Property, without the express written consent of DWR.
- N. Grantor agrees to incorporate the terms of this Easement in any deed or other legal instrument by which Grantor divests itself of any interest in all or a portion of the Conservation Area, including without limitation, a leasehold interest. Grantor further agrees to give written notice to the Grantee and the DWR at least fifteen (15) days prior to the date of any Conservation Area transfer. The failure of Grantor to perform any act required by this paragraph shall not impair the validity of this Easement or limit its enforceability in any way.

5. General Provisions.

The following provisions apply to the Conservation and Flood Easement:

- A. Both Grantee and Grantor agree to work together to accomplish the preservation and protection of the Conservation Area.
- B. The parties agree that they do not intend, and this Conservation and Flood Easement shall not be construed, to create any obligations on the part of DWR or the Conservation Area Steward: (a) as an owner or operator, as those words are defined in any federal, State or local statute, regulation, ordinance, order or requirement relating to environmental conditions or hazardous materials, including, without limitation, the Comprehensive Environmental Response, Compensation and Liability Act, as amended (42 U.S.C. Sections 9601, et seq.); (b) as a person described in 42 U.S.C. 9607(a)(3); (c) as purchaser, with any obligation to investigate or remediate any hazardous materials associated with the Property; or (d) as a person with any control over Grantor's ability to investigate and remediate any hazardous materials associated with the Property. For the purposes of this Conservation and Flood Easement, the term "hazardous materials" shall mean any flammable, explosive or radioactive materials.

hazardous materials, hazardous wastes, hazardous or toxic substances or related materials as defined in any law.

- The parties agree that enforcement of this Conservation and Flood C. Easement is essential to achieve its purposes. Therefore, the parties agree that any breach of the Conservation and Flood Easement may not be adequately compensated for by the recovery of damages, and that in addition to all other remedies available at law and equity, the parties shall be entitled to the remedy of injunction to restrain any actual or threatened violation or breach of this Conservation and Flood Easement and to compel the restoration of any portion of the Property affected by any unauthorized activity committed or permitted that is contrary to the purposes of this Conservation and Flood Easement. Except when an ongoing or imminent violation could significantly diminish or impair the purpose of the Conservation and Flood Easement, the Conservation Area Steward shall give Grantor written notice of any violation and 30 days to correct such violation or if it cannot be cured within such 30 day period. 30 days to commence such cure before filing any legal or equitable action. Grantor shall not be responsible for any extraordinary damage caused primarily by any event that can reasonably be called an "Act of God." The prevailing party in any litigation shall recover the cost of suit, including reasonable attorneys' fees.
- D. The terms "Grantor", "Conservation Area Steward" and "DWR," whenever used herein, and any pronouns used in place thereof, shall be held to mean and include the above-named Grantor, its successors, heirs and assigns, the [easement grantee] and its successors, heirs, and assigns, and DWR, its successors and assigns.
- E. The Grantor and Conservation Area Steward intend to create through this Conservation and Flood Easement real covenants and equitable servitudes running with the land. The covenants, terms conditions and restrictions of this Conservation and Flood Easement shall run with the land and burden and benefit the interests included in the Conservation and Flood Easement and the underlying fee of the Property (reserved interests of the Grantor), and shall be binding on and inure to the benefit of the Grantor and the Conservation Area Steward and their respective successors, heirs and assigns. If the Conservation Area Steward or its successors, heirs, and assigns become defunct and unable to fulfill the easement grantee responsibilities, the California Department of Fish and Game shall replace the easement grantee, and shall assume all rights, interests, duties and responsibilities associated with being the grantee of the aforementioned conservation and flood easement.

- F. Grantor agrees to reference this Conservation and Flood Easement in any subsequent deeds or other legal instruments, which are used to convey fee interests in all or any portion of the Property.
- G. Any notice required by this Conservation and Flood Easement shall be in writing and shall be personally delivered or sent by prepaid first class mail, or by other commercially acceptable means to Grantor and Conservation Area Steward respectively at the following addresses, unless a party has been notified by the other of a change of address.

With an additional copy to:

To DWR:

Property Management Section Division of Land and Right-of-Way 1416 Ninth Street, Room 421 Sacramento, CA 95814.

With an additional copy to:

Chief Counsel
Department of Water Resources
1416 Ninth Street, Room 1118
Sacramento, CA 95814

- H. The parties may execute this instrument in two or more counterparts, which shall, in the aggregate, be signed by both parties; each counterpart shall be deemed to be an original instrument as against any party who has signed it. In the event of any disparity between the counterparts produced, the recorded counterpart shall be controlling.
- If any provision of this Conservation and Flood Easement is found to be invalid or inapplicable to a particular entity, the remainder of the provisions of the Conservation and Flood Easement shall not be affected thereby.
- J. The provisions of this Conservation and Flood Easement shall be liberally construed to effectuate its conservation purposes.
- K. This Conservation and Flood Easement shall be interpreted pursuant to the laws of California, resolving any ambiguities and questions of the validity of specific provisions so as to give maximum effect to its conservation purposes.

- L. Enforcement of the terms of this Easement shall be at the discretion of the respective parties, and any forbearance by Grantor or Grantee to exercise their rights under this easement shall not be deemed or construed as a waiver by Grantor or Grantee of such term or of any subsequent breach of the same or any other term of this Easement of any of their rights under this Easement. No delay or omission by Grantor or Grantee in the exercise of right or remedy upon any breach by Grantor or Grantee shall impair such right or remedy or be construed as a waiver.
- M. Nothing contained in this Easement shall be construed to entitle any party to bring any action against Grantor or Grantee for any injury to or change in the Conservation Area resulting from causes beyond their control, including, without limitation, fire, drought, flood, storm, and earth movement, or from any prudent action taken by Grantor under emergency conditions to prevent, abate, or mitigate significant injury to the Conservation Area and downstream property owners from such causes.
- N. This instrument sets forth the entire agreement of the parties with respect to the Conservation Area, and supersedes all prior discussions, negotiations, understandings, or agreements related to this easement except for the funding agreement between DWR and the Grantee or Grantor by which funds are provided to acquire in whole or in part the property rights related to the Conservation Area which remains in effect for the duration of its term.
- O. In the event the Conservation Area fee title and this Easement are ever owned by the same entity, there shall be no express or implied merger by operation of law or otherwise. If any party should claim such a merger, the parties agree that any and all terms and conditions of this Easement shall be deemed covenants and restrictions upon the Conservation Area, which shall run with the land according to California and/or other applicable law and otherwise exist in perpetuity.
- P. Grantor and Grantee hereby waive, solely as to each other any defense of laches, estoppel, or prescription.
- Q. A party's rights and obligations under this Easement terminate upon transfer of the party's interest in the Easement or Property, except that liability for acts or omissions occurring prior to transfer shall survive transfer.

| This Conservation and Flood Easement may be amended only with the wr | itten consent |
|--|---------------|
| of DWR, Grantor and Conservation Area Steward, in the form of an Amend | bet |
| Conservation and Flood Easement, which shall be recorded in the Official | Records of |
| County. Any such amendment shall be consister | |
| TABLE IN A | |

IN WITNESS WHEREOF, the undersigned have executed this Conservation and Flood Easement as of the dates set forth besides such party's respective name.

| | | GRANTOR: |
|---------|--------|--------------------------------|
| | | [Name of grantor organization] |
| Date: _ | , 2001 | Ву: |
| | | Name:Title: |
| | | GRANTEE: |
| | | [Name of grantee organization] |
| Date: _ | , 2001 | Ву: |
| | | Name:Title: |

| The Reso | ırces Agency |
|---------------|--------------|
| Agreement No. | 4600003318 |
| Exhibit | F |

STANDARD CLAUSES -CONTRACTS WITH PUBLIC ENTITIES

Workers' Compensation Clause. Contractor affirms that it is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and Contractor affirms that it will comply with such provisions before commencing the performance of the work under this contract.

Claims Dispute Clause. Any claim that Contractor may have regarding the performance of this agreement including, but not limited to, claims for additional compensation or extension of time, shall be submitted to the Director, Department of Water Resources, within thirty days of its accrual, State and Contractor shall then attempt to negotiate a resolution of such claim and process an amendment to this agreement to implement the terms of any such resolution.

Nondiscrimination Clause. During the performance of this contract, the recipient, Contractor and its subcontractors shall not deny the contract's benefits to any person on the basis of religion, color, ethnic group identification, sex, age, physical or mental disability, nor shall they discriminate unlawfully against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, mental disability, medical condition, marital status, age (over 40), or sex. Contractor shall insure that the evaluation and treatment of employees and applicants for employment are free of such discrimination. Contractor shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 12900 et seq.), the regulations promulgated thereunder (California Administrative Code, Title 2, Sections 7285.0 et seq.), the provisions of Article 9.5, Chapter 1, Part 1, Division 3, Title 2 of the Government Code (Government Code Sections 11135 - 11139.5), and the regulations or standards adopted by the awarding State agency to implement such article. Contractor or recipient shall permit access by representatives of the Department of Fair Employment and Housing and the awarding Sate agency upon reasonable notice at any time during the normal business hours, but in no case less than 24 hours' notice, to such of its books, records, accounts, other sources of information and its facilities as said Department or Agency shall require to ascertain compliance with this clause. Recipient, Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement. The Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

Availability of Funds. Work to be performed under this contract is subject to availability of funds through the State's normal budget process.

Audit Clause. For contracts in excess of \$10,000, the contracting parties shall be subject to the examination and audit of the State Auditor for a period of three years after final payment under the contract. (Government Code Section 8546.7).

Payment Retention Clause. Ten percent of any progress payments that may be provided for under this contract shall be withheld per Public Contract Code Sections 10346 and 10379 pending satisfactory completion of all services under the contract.

Reimbursement Clause. If applicable, travel and per diem expenses to be reimbursed under this contract shall be at the same rates the State provides for unrepresented employees accordance with the provisions of Title 2, Chapter 3, of the California Code of Regulations. Contractor's designated headquarters for the purpose of computing such expenses shall be; Lakeport, CA

Termination Clause. The State may terminate this contract without cause upon 30 days' advance written notice. The Contractor shall be reimbursed for all reasonable expenses incurred up to the date of termination.

Drug-Free Workplace Certification. By signing this contract, the Contractor or grantee hereby certifies under penalty of perjury under the laws of the State of California that the Contractor or grantee will comply with the requirements of the Drug-Free Workplace Act of 1990 (Government Code Section 8350 et seq.) and will provide a drug-free workplace by taking the following actions:

- 1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations.
- 2. Establish a Drug-Free Awareness Program to inform employees about all of the following:
 - (a) The dangers of drug abuse in the workplace,
 - (b) The person's or organization's policy of maintaining a drug-free workplace,
 - (c) Any available counseling, rehabilitation and employee assistance programs, and
 - (d) Penalties that may be imposed upon employees for drug abuse violations.
- 3. Every employee who works on the proposed contract or grant:
 - (a) Will receive a copy of the company's drug-free policy statement, and
 - (b) Will agree to abide by terms of the company's statement as a condition of employment on the contract or grant.

This contract or grant may be subject to suspension of payments or termination, or both, and the Contractor or grantee may be subject to debarment if the department determines that; (1) the Contractor or grantee has made a false certification, or (2) the Contractor or grantee violates the certification by failing to carry out the requirements noted above.

Americans With Disabilities Act. By signing this contract, Contractor assures the State that it complies with the Americans With Disabilities Act (ADA) of 1990, (42 U.S.C. 12101 et seq.), which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to the ADA.

Conflict of Interest. Current State Employees: a) No State officer or employee shall engage in any employment, activity or enterprise from which the officer or employee receives compensation or has a financial interest and which is sponsored or funded by any State agency, unless the employment, activity or enterprise is required as a condition of regular State employment. b) No State officer or employee shall contract on his or her own behalf as an independent contractor with any State agency to provide goods or services.

Former State Employees: a) For the two-year period from the date he or she left State employment, no former State officer or employee may enter into a contract in which he or she lagged in any of the negotiations, transactions, planning, arrangements or any part of the decision-making process relevant to the contract while employed in any capacity by any State agency. b) For the twelve-month period from the date he or she left State employment, no former State officer or employee may enter into a contract with any State agency if he or she was employed by that State agency in a policy-making position in the same general subject area as the proposed contract within the twelve-month period prior to his or her leaving State service.

EXHIBIT G

FLOOD PROTECTION CORRIDOR PROGRAM MIDDLE CREEK FLOOD DAMAGE REDUCTION AND ECOSYSTEM RESTORATION PROJECT

PROPOSED MAINTENANCE ACTIVITIES

The Project consists of purchasing flood prone property for future implementation of the Middle Creek Flood Damage Reduction and Ecosystem Restoration Project (Middle Creek Project). No facilities will be constructed as part of this Project that will require maintenance by the Lake County Flood Control and Water Conservation District (District). The District will own numerous properties in fee and will be responsible for their upkeep. As structures and improvements will be demolished, relocated and/or abandoned, and temporary erosion control measures will be implemented, maintenance is anticipated to be minimal. Maintenance activities proposed until full implementation of the Middle Creek Project include:

- 1. Properties will be controlled and inspected on an as needed basis to ensure damage is not done to the lands by illegal dumping of garbage, off-road vehicle use, etc. Fencing will be provided on an as needed basis.
- 2. Grass and weeds will be managed on the properties in order to prevent damage to neighboring properties. This may be by mowing or disking the perimeter of the property.
- 3. Payment of the Maintenance Area No. 17 (MA-17) annual assessment on the purchased properties.

All costs for maintenance will be paid from the maintenance trust fund. In the event the land is leased for agricultural purposes that are consistent with the goals of the Flood Protection Corridor Program, maintenance costs could be significantly reduced.

Costs are estimated as follows:

- Regular inspections and cleanup as needed: \$1,000 per year
 Barb wire fence construction: three (3) miles at \$5,000 per mile, O&M cost \$500 per year
- 2. Area to be mowed annually is seven (7) acres. Estimated cost of \$1,000 per year.
- 3. Estimated cost of MA-17 assessments
 Eighteen (18) residential properties:
 MA-17: \$19,017
 - MA-17 Assessment calculated based on required revenues of \$132,124 (2004 required revenue) per year and a 6%(normal County) delinquency factor. This assumes essentially all property owners pay their assessments.

 Reclamation District 2070: \$3,354

ander var en skriver i stift en de skrivet<u>er</u> en en en en en beginne het beskrivet beskrivet beskrivet beskrivet De skrivet beskrivet Flood Protection Corridor Program, Proposed Maintenance Activities, Exhibit G Middle Creek Flood Damage Reduction and Ecosystem Restoration Project August 26, 2003 Page 2

Reclamation District 2070 assessment calculated based on 2002-2003 assessments.

Potential agricultural properties:

MA-17: \$22,604.36

These are the three properties south of the Highline Slough. MA-17 Assessment calculated based on required revenues of \$132,124 (2004 required revenue) per year and a six percent (normal County) delinquency factor. This assumes essentially that all property owners pay their assessments.

AMENDMENT 1

STATE OF CALIFORNIA THE RESOURCES AGENCY DEPARTMENT OF WATER RESOURCES FIRST AMENDMENT TO THE FUNDING AGREEMENT BETWEEN THE STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES AND THE LAKE COUNTY WATERSHED PROTECTION DISTRICT UNDER THE FLOOD PROTECTION CORRIDOR PROGRAM

On August 28, 2003, the State of California Department of Water Resources (hereinafter called the State), and the Lake County Watershed Protection District (formerly Lake County Flood Control District, hereinafter called the District). entered into a grant funding agreement for the purpose of acquiring interests in real property from willing sellers to protect or enhance flood protection corridors while preserving or enhancing wildlife values of the real property. The overall project includes acquisition of flooding rights and habitat restoration within a target area flood plain encompassing 1,600 acres. Of the 10 properties targeted for acquisition, the District has acquired in fee title four of the real properties and accomplished relocation of those owners requiring relocation assistance.

The State and the District desire to amend the original Agreement by extending the term of the Agreement by 3 years to provide the opportunity for the District to continue negotiations for the purchase of properties representing similar value.

The August 28, 2003 agreement is hereby amended by this instrument, Amendment No. 1, executed in quintuplicate to be effective August 28, 2006. This amendment is necessary to fulfill the intent and purpose of the August 28, 2003 agreement. Following this amendment, funds from the Flood Protection Corridor Program grant will continue to be used to acquire interest in real property for flood damage reduction while preserving wildlife value as provided by the California Water Code, section 79037(b) (4), for properties located at the north end of Clear Lake in the area bounded by State Highway 20 and Rodman Slough in Lake County.

This amendment includes a budget increase of \$500,000 to be obtained from funds made available by budget reductions in other FPCP projects. The purpose of this budget increase for the Middle Creek project is to cover the appreciation of land and relocation costs that have occurred since the original funding agreement budget was developed.

The State and the District hereby agree as follows:

The original Agreement dated August 28, 2003 remains binding with the following modifications:

- 1. The term of this Agreement which began on August 28, 2003 is hereby amended as of August 28, 2006 to extend the term until August 28, 2009. The provisions of this Agreement relating to maintenance, operation, monitoring, and reporting, shall continue to bind the District (or its successor as approved fee owner or easement holder) to the extent indicated herein.
- 2. Wherever the date August 28, 2006 appears in the Agreement, it shall be replaced with August 28, 2009.
- 3. Wherever the date October 27, 2006 appears in the Agreement, it shall be replaced with October 27, 2009.
- 4. The original budget shall be replaced by the amended budget (Exhibit C) attached and by this reference incorporated herein, showing remaining funds available for project administration and property acquisitions not to exceed \$3,871,713.

All other terms and conditions of the August 28, 2003 agreement remain unchanged.

Date: 12/11/06

IN WITNESS WHEREOF, the following authorized representatives have executed this Agreement as of the date first above written.

| COUNTY OF LAKE |
|---|
| Chair Book of Divisions |
| Chair, Board of Directors |
| ATTEST: KELLY COX Clerk to the Board |
| By: Mirey Miney |
| APPROVED AS TO FORM: ANITA GRANT County Counsel By: |
| STATE OF CALIFORNIA, DEPARTMENT OF WATER RESOURCES |
| By: Lester A. Snow, Director |
| Date: 12/28/04 |
| Approved as to Legal Form and Sufficiency |
| By: David Sandino, Chief Counsel |

| ASK O. | CATEGORY | Sub-Categories | ORIGINAL BUDGET | Expenditure to Date 8/28/06 | REMAINING BUDGET AFTER EXPENDITURE (Original Budget) | BUDGET ADJUSTMENT 8/28/2006 | Revised Budget 8/28/06 | REMAINING BUDGET (Revised Budget) | PROJECTED COMPLETION DATE |
|-----------|--|---------------------------------|---------------------------------------|--|--|--|--|--------------------------------------|---------------------------|
| 1 | Administration | | \$244,072 | ## ## \$112 /202 | \$131,870 | \$54,842 | \$298,913 | \$186,712 | Aug-09 |
| | | Flood Control Staff | | \$16,439 | | | | | |
| | | ROW Agent | | \$25,208 | | | | \$38,293 | |
| | | County Counsel | | \$50 | | | | \$36,222 | |
| | | Winzler & Kelly - Environmental | | | | ****** | | | |
| | | Review | | \$7,702 | | | · | | |
| | | Alameda County | | \$62,803 | | | | \$112,196 | |
| | | | | | | 7 | | | |
| | Sub Total | | | | | | | (\$0) | |
| | Relocation, Demolition & Clean- | | - | | | ······································ | | · | |
| | ир | | \$675,000 | \$0 | \$675,000 | (\$34,000) | \$641,000 | \$641,000 | Mar-09 |
| 3 | | Direct Moving Expense | · | | 7 - 1000 | (45.,1000) | Ψ01,000 | \$97,320 | IVIAI-US |
| | | Hazard Material Clean-up | | | | | | \$82,305 | |
| | | Well Closing | | | | | | \$70,000 | |
| | | Demolition Costs | | | | · | | \$223,838 | |
| | | Asbestos Testing & Removal | | | | | | \$5,787 | |
| | | Moving Expenses - Renters | | | | | | \$0 | |
| | | Rent Differential | | - | | | | \$161,750 | |
| | Sub Total | | | | | | | \$0 | |
| | | | | | | | | 40 | |
| | Acquisition Costs | | \$3,090,000 | \$1,730,157 | \$1,359,843 | \$1,054,000 | \$4,144,000 | \$2,413,843 | Dec-08 |
| | | Relocation Costs | | | | | | \$0 | |
| | | Finch Baumberger | | \$0 \$250,433 | · | | <u> </u> | | |
| | | Ware | | \$34,673 | | | | | |
| | **** | Bobst | | \$164,260 | | | | | |
| | | Property Purchase Price | | Ψ104,200 | | | | \$1,870,000 | |
| | | Finch | | \$379,014 | | | | \$1,670,000 | |
| | | Baumberger | | \$323,667 | | | | | |
| | | Ware | | \$218,469 | | | | | |
| | | Bobst | | \$359,642 | | | | | |
| | | Escrow Costs | • | 1 | | | <u> </u> | \$30,000 | |
| | | Purchase Differential | | | | | | \$513,843 | |
| | | | | | | | | | |
| | Sub Total | | | | | | | (\$0) | |
| | Hydraulic Mitigation on USA-in-Trust | | | | | | | | |
| | Lands | | \$605,000 | \$0 | \$605,000 | (\$605,000) | \$0 | \$0 | |
| | Sub Total | | | | | | | \$0 | |
| | Property | | | | | , | | | 7-1-1 |
| | maintenance | · | \$600,000 | \$0 | \$600,000 | \$30,158 | \$630,158 | \$630,158 | Mar-09 |
| | | 20% of Purchase Price | | | | | | \$630,158 | |
| | | | | | | | | | |
| | Sub Total | | · · · · · · · · · · · · · · · · · · · | | | | | \$0 | |
| | | | | | | | | | |
| | NET TOTALS | | \$5,214,072 | \$1,842,359 | \$3,371,713 | \$500,000 | \$5,714,072 | \$3,871,713 | |
| | FPCP Granting Funding Total (previous expenditure + remaining budget) Expenditure incurred prior to 8/28/06 but paid after 8/28/06 Note: This amendment increases the original project allocation of \$5,214,072 by \$500,000 for a new total come from budget reductions in other Flood Protection Corridor Program projects. | | | | | 2. The additional fu | \$5,714,072 nds | | · |

AMENDMENT 2

STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
SECOND AMENDMENT TO THE FUNDING AGREEMENT
BETWEEN THE STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES
AND THE LAKE COUNTY WATERSHED PROTECTION DISTRICT
UNDER THE FLOOD PROTECTION CORRIDOR PROGRAM

On August 28, 2003, the State of California Department of Water Resources (hereinafter called the State), and the Lake County Watershed Protection District (hereinafter called the District), entered into a grant funding agreement for the purpose of acquiring interests in real property from willing sellers to protect or enhance flood protection corridors while preserving or enhancing wildlife values of the real property.

The State and the District desire to amend the original Agreement by extending the term of the Agreement by an additional 5 years to provide the opportunity for the District to continue negotiations for the purchase of properties as outlined in the original agreement. This amendment also includes a budget increase of \$7,000,000 to be obtained from funds made available by Proposition 84 and Proposition 13. The revised budget and timeline allows for continued execution of tasks as specified in Exhibit C of the original agreement. Task 3 is revised to allow the District to be reimbursed in arrears for properties purchased with District funds. In addition to the tasks contained in the original agreement, this amendment will allow for a new task – Task 6 – to provide partial funding for the local share of the U.S. Army Corps of Engineers (USACE) design costs.

The State and the District desire to amend the original Agreement by extending the term of the Agreement by an additional 5 years to provide the opportunity for the District to continue negotiations for the purchase of properties as outlined in the original agreement. This amendment also includes a budget increase of \$7,000,000 to be obtained from funds made available by Proposition 84 and Proposition 13. The revised budget and timeline allows for continued execution of tasks as specified in Exhibit C of the original agreement. Task 3 is revised to allow the District to be reimbursed in arrears for properties purchased with District funds. In addition to the tasks contained in the original agreement, this amendment will allow for a new task – Task 6 – to provide partial funding for the local share of the U.S. Army Corps of Engineers (USACE) design costs.

The August 28, 2003 Agreement as amended effective August 28, 2006, is hereby amended by this instrument, Amendment No. 2, executed in quintuplicate to be effective August 28, 2009. This amendment is necessary to fulfill the intent and purpose of the August 28, 2003 Agreement. Following this amendment, funds from the Flood Protection Corridor Program grant will continue to be used to acquire interest in real property for flood damage reduction while preserving wildlife value as provided by the California Water

Code, section 79037(b) (4), for properties located to the North of Clear Lake in the area bounded by State Highway 20 and Rodman Slough in Lake County.

The State and the District hereby agree as follows:

The original Agreement dated August 28, 2003, remains binding with the following modifications:

- 1. The term of this Agreement which began on August 28, 2003, and as amended as of August 28, 2006, is hereby amended to extend the term until August 28, 2014. The provisions of this Agreement relating to maintenance, operation, monitoring, and reporting, shall continue to bind the District (or its successor as approved fee owner or easement holder) to the extent indicated herein.
- 2. Wherever the date August 28, 2009, appears in the Agreement as amended, it shall be replaced with August 28, 2014.
- Wherever the date October 27, 2009, appears in the Agreement as amended, it shall be replaced with October 27, 2014.
- 4. The original budget shall be replaced by the amended budget (Exhibit C) attached and by this reference incorporated herein, showing remaining funds available for project administration and property acquisitions not to exceed \$8,047,508.47. The amended budget reflects the \$7,000,000.00 budget increase and brings the total approved budget including expenditures to a grand total of \$12,714,000.00.
- 5. Task 3: The property rights acquisition clause is hereby revised as follows:

16. Property Rights Acquisition

F. Method of Payment. Funds provided by the State for real property acquisitions shall be deposited by the State with an escrow holder acceptable to the State and with escrow instructions regarding funding and disbursal to be approved by the State when State funds are available. When funds are not available from the State at the time of escrow, the District may purchase property from documented willing sellers in the project area at their own expense, in which case, the State will directly reimburse the District in arrears at the State's discretion provided all other State requirements are met including, but not limited to a property appraisal approved by the State. If the State provides funds with an escrow holder and escrow does not close by the date set forth in the State's escrow instructions, or such other date as may be agreed to by the parties, the funds provided by the State shall be returned to the State.

6. Task 6 Design Cost: Amendment 2 will provide \$390,000.00 for the local cost share of design costs between the U.S. Army Corp of Engineers (USACE) and the District.

All other terms and conditions of the August 28, 2003 Agreement remain unchanged.

EXHIBIT C - REVISED

Flood Protection Corridor Program Middle Creek Flood Damage Reduction and Ecosystem Restoration Project Proposed Budget, Amendment 2

| Task | Category | Orig Budget | Amend 1 Adjust | Amend 1 Budget | Amend 2 Adjust | Amend 2 Budget | Expenditures | Remaining |
|------|----------------------------------|-------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------|
| 1 | Administration | \$244,000 | \$54,842 | \$298,842 | \$511,158 | \$810,000 | \$ (298,842.00) | \$511,158 |
| 2 | Relocation, Demolition & Cleanup | \$675,000 | (\$34,000) | \$641,000 | \$379,000 | \$1,020,000 | \$ (478,956.78) | \$541,043 |
| 3 | Acquisition Costs | \$3,090,000 | \$1,054,000 | \$4,144,000 | \$5,015,000 | \$9,159,000 | \$ (3,405,552.75) | \$5,753,447 |
| 4 | Hydraulic Mitigation | \$605,000 | (\$605,000) | \$0 | \$0 | \$0 | \$0 | \$0 |
| 5 | Property Maintenance | \$600,000 | \$30,158 | \$630,158 | \$704,842 | \$1,335,000 | \$ (483,140.00) | \$851,860.00 |
| 6* | Design | \$0 | \$0 | \$0 | \$390,000 | \$390,000 | \$ - | \$390,000.00 |
| | | | | | | | | |
| | Total | \$5,214,000 | \$500,000 | \$5,714,000 | \$7,000,000 | \$12,714,000 | \$ (4,666,491.53) | \$8,047,508.47 |

*Task 6: Design Costs- A new task that will provide money for 50% of the local share. A portion of Invoice #3 is being withheld as retention (\$54,571.73).

IN WITNESS WHEREOF, the following authorized representatives have executed this Agreement as of the date first above written.

| COUNTY OF LAKE | |
|---------------------------|--|
| In Courts | |
| Chair, Board of Directors | |

ATTEST:

KELLY COX

Clerk to the Board

By: Miseya Misses

* COUNTY OF

APPROVED AS TO FORM:

ANITA GRANT County Counsel

By: At Pot

STATE OF CALIFORNIA, DEPARTMENT OF WATER RESOURCES

By: Mark W. Cowin, Director

Date: 4/1/2011

Approved as to Legal Form and Sufficiency

Albathr 6/23/11

Ву: _______

Cathy Crothers, Acting Chief Counsel

Date: 5-23-1/

The within instrument is a correct copy of the Document on file in this office.

ATTEST: 06-07-2011

KELLY F. COX

Clerk of the Board of Supervisors of the State of California in and for the County of Lake.

By Nurup humel



AMENDMENT 3

STATE OF CALIFORNIA CALIFORNIA NATURAL RESOURCES AGENCY DEPARTMENT OF WATER RESOURCES THIRD AMENDMENT TO THE FUNDING AGREEMENT BETWEEN THE STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES AND THE LAKE COUNTY WATERSHED PROTECTION DISTRICT UNDER THE FLOOD PROTECTION CORRIDOR PROGRAM

On August 28, 2003, the State of California Department of Water Resources (hereinafter called the State), and the Lake County Watershed Protection District (hereinafter called the District), entered into a grant funding agreement for the purpose of acquiring interests in real property from willing sellers to protect or enhance flood protection corridors while preserving or enhancing wildlife values of the real property.

The State and the District desire to amend the original Agreement by extending the term of the Agreement by an additional 34 months to provide the opportunity for the District to complete property acquisition and demolition as outlined in the original agreement. The revised timeline allows for continued execution of tasks as specified in Exhibit C of the original agreement.

The August 28, 2003 Agreement was amended in 2006 and 2011, is hereby amended by this instrument, Amendment No. 3, executed in quintuplicate to be effective August 28, 2014. This amendment is necessary to fulfill the intent and purpose of the August 28, 2003 Agreement. Following this amendment, funds from the Flood Protection Corridor Program grant will continue to be used to acquire interest in real property for flood damage reduction while preserving wildlife value as provided by the California Water Code, section 79037(b) (4), for properties located to the North of Clear Lake in the area bounded by State Highway 20 and Rodman Slough in Lake County.

The State and the District hereby agree as follows:

The original Agreement dated August 28, 2003, remains binding with the following modifications:

1. The term of this Agreement which began on August 28, 2003, and as amended as of August 28, 2006 and March 20, 2011, is hereby amended to extend the term until June 30, 2017. The provisions of this Agreement relating to maintenance, operation, monitoring, and reporting, shall continue to bind the District (or its successor as approved fee owner or easement holder) to the extent indicated herein.

- 2. Wherever the date August 28, 2014, appears in the Agreement as amended, it shall be replaced with June 30, 2017.
- 3. Wherever the date October 27, 2014, appears in the Agreement as amended, it shall be replaced with August 31, 2017.

All other terms and conditions of the August 28, 2003 Agreement remain unchanged.

IN WITNESS WHEREOF, the following authorized representatives have executed this Agreement as of the date first above written.

COUNTY OF LAKE

ATTEST:

MATT PERRY

Clerk to the Board

APPROVED AS TO FORM:

ANITA GRANT County Counsel

STATE OF CALIFORNIA, DEPARTMENT OF WATER RESOURCES

By:

Keith E. Swanson, Chief, Division of Flood Management

8-26-14

Date: 8/29/14

Approved as to Legal Form and Sufficiency

By:

Robin E. Brewer, Acting Chief Counsel

Date: 8-76-14

Attachment C

RECORDING REQUESTED BY:

Johanna Pelany, Asst. Clerk

WHEN RECORDED MAIL TO:

Johanna ReLong 255 N. Forbes Street Lakeast, CA, 95453

Doc # 2024004646

Page 1 of 25 Date: 5/7/2024 12:40P

Filed by: LAKE CO
Filed & Recorded in Official Records
of COUNTY OF LAKE
RICHARD A. FORD
COUNTY RECORDER
Fee: \$0.00

THIS SPACE FOR RECORDER'S USE ONLY

TITLE OF DOCUMENT

Lease Agreement

No fee for recording pursuant to Government Code Section 27383 and 27388,1

LEASE AGREEMENT

THIS AGREEMENT is entered into this __23rd_day of ____April 2024, by and between the LAKE COUNTY WATERSHED PROTECTION DISTRICT, (the "DISTRICT") and the SCOTTS VALLEY ENERGY CORPORATION, a wholly tribally owned company established under the Scotts Valley Band of Pomo Indians of California's Tribal Business Corporation Code, ("SCOTTS VALLEY") for the lease of real property more particularly described herein-below (the "Leased Property").

I. THE LEASED PROPERTY

DISTRICT hereby leases to SCOTTS VALLEY and SCOTTS VALLEY hereby leases from DISTRICT on the terms and conditions herein set forth, the following described real property situated in the County of Lake, State of California, to wit:

A Parcel Beginning at the Northwest corner of the Northeast quarter of Section 18, Township 15 North, Range 9 West, M.D.B.& M.; thence running North 13° East 13.40 chains to the center of creek; thence following the meanders of said creek North 3° East 5 chains; thence North 34° 30' East 6.33 chains; thence North 12° East 4.87 chains; thence North 43° East 11.66 chains; thence North 6° 30' East 4 chains to the County Road; thence East 25.08 chains to the quarter corner between Sections 7 and 8 of said Township and Range; thence South along the Section line 15.11 chains; thence West 20 chains; thence South 24.89 chains to the North line of said Section 18; thence West 20 chains to the place of beginning.

II. LEASE TERM AND COMPENSATION

Subject to Section III herein-below, the term of this Lease Agreement shall be for a maximum term of fifteen (15) years for a rental amount of one hundred dollars (\$100.00) per year. The lease may be renewed for an additional term pursuant to the terms and

conditions mutually agreed upon by the parties and memorialized in writing. This Lease Agreement is of benefit to the DISTRICT because it reduces the maintenance burden for the DISTRICT and maintains a mutually beneficial government-to-government relationship between the DISTRICT and SCOTTS VALLEY. The biomass processing depot will increase fire fuel reduction efforts by serving as a central processing system for forest thinning biomass collected throughout Lake County. Moreover, the proposed system will produce biochar, which has potential to provide environmental benefits such as increasing soil carbon sequestration, crop yield, and soil fertility while reducing greenhouse gas emissions and nitrogen leaching. The biochar produced from this facility will also greatly improve water quality with its use as a filtration medium.

III. TERMINATION

This agreement may be terminated as follows:

- (a) By mutual consent of the parties,
- (b) By the Director of Water Resources thirty (30) days after delivery of written notice to the other party.

In the event this agreement is terminated, SCOTTS VALLEY at its sole expense shall remove such structures or improvements from said property as it may have erected thereon and shall return the leased property to the same conditions existing at the time this Lease Agreement was entered into within ninety (90) days of such termination.

IV. PERMISSIBLE USE OF LEASED PROPERTY

SCOTTS VALLEY may use said property for the following purposes only:

 The establishment, maintenance and operation of a biochar production and wood / biomass processing facility which may include storage and operation of heavy equipment, wood staging facility and equipment,

- materials for the biochar unit and products from the biochar unit and wood processing equipment.
- 2. Construction of additional facilities within the designated area providing that all such construction, development plans, lay-out plans, construction plans, alteration of land or improvements for the area are approved in advance in writing by the DISTRICT. Trees or shrubbery in the project area may be removed or destroyed only if the DISTRICT has expressly approved such removal and/or destruction in writing and marked or otherwise designated those that may be removed or destroyed.
- 3. EXCEPT AS SPECIFIED HEREIN BELOW, SCOTTS VALLEY is prohibited from using, storing, or placing on the Lease Property for any length of time any materials deemed to be "Hazardous Materials" as defined by California Health and Safety Code section 25115 or 25117 and California Administrative Code of Regulations, Title 22, Chapter 11; or the Code of Federal Regulations, Title 40, Sections 261.31 through 261.33.
- 4. SCOTTS VALLEY shall be permitted to store diesel fuel on the Leased Property in the form of an above-ground container with a volume no greater than fifty (50) gallons. SCOTTS VALLEY shall install and maintain a spill containment and prevention area where said diesel fuel is stored is satisfactory to the DISTRICT.

Throughout the term of this Lease Agreement, all fuel storage containers and/or tanks shall be securely fixed and so situated to reduce their visual impacts. Said containers/tanks shall not leak and must have effective

filling and venting arrangements. Such containers/tanks must be isolated and/or insulated from engines and other equipment and must have easily-accessible means of shutting off the fuel supply.

V. COMPLIANCE WITH ALL FEDERAL, STATE, AND LOCAL LAWS

- 1. SCOTTS VALLEY shall, at its sole cost and expense, comply with all requirements of all County, State and Federal authorities now in force, or which may hereafter be in force, pertaining to said premises, and shall faithfully observe in the use of the premises all County ordinances and State and Federal Statutes now in force or which may hereafter be in force.
- 2. SCOTTS VALLEY shall be solely responsible for ensuring that all environmental compliance requirements of state and federal law are met, and SCOTTS VALLEY's use of the Leased Property shall be subject to meeting all permit and environmental compliance requirements.

VI. ASSUMPTION OF RISK AND WAIVER OF CLAIMS

SCOTTS VALLEY, hereby expressly assumes any and all risks associated with its use of the Leased Property and, as a material part of the consideration to be rendered to DISTRICT, hereby waives all claims against DISTRICT, County of Lake, State of California, and their agents for damages to property in, upon or about said premises and for injuries to SCOTTS VALLEY, its agents, or third persons in or about the premises from any cause arising at any time.

VII. HOLD HARMLESS

SCOTTS VALLEY shall indemnify, defend, protect, and hold harmless DISTRICT and DISTRICT's officers, employees, and agents against all liabilities, claims, demands, damages, and costs (including attorneys' fees and litigation costs) to the extent caused by

the negligent or intentional acts or omissions of SCOTTS VALLEY or SCOTTS VALLEY's officers, employees, or agents. SCOTTS VALLEY's obligation under this Section covers, but is not limited to liabilities, claims, demands, damages, and costs arising from injury to or death of any person (including SCOTTS VALLEY's and DISTRICT's officers, employees and agents), and from damage to or destruction of any property (including SCOTTS VALLEY's and DISTRICT's real and personal property). SCOTTS VALLEY is not obligated, however, to the extent that the negligent or intentional acts or omissions of DISTRICT or DISTRICT's officers, employees and agents cause such liabilities, claims demands, damages, or costs. SCOTTS VALLEY's obligation under this Section shall survive this Agreement.

VIII. INSURANCE REQUIREMENTS

SCOTTS VALLEY further agrees to obtain and continue in force at all times during the term of this agreement comprehensive public liability insurance. The certification of insurance shall contain a provision that coverage afforded under the policies will not be cancelled until at least twenty (20) days prior written notice has been give to DISTRICT. Certification evidencing the insurance described herein shall be filed with the DISTRICT within ten (10) days after the date of execution of this lease by SCOTTS VALLEY.

SCOTTS VALLEY's expense during the term hereof, Comprehensive Public Liability Insurance, both bodily injury and property damage, in an amount of not less than (five hundred thousand) \$500,000 combined single limit coverage per occurrence, including but not limited to endorsements for the following coverages: personal injury, premises-operations, products and completed operations, blanket contractual, and independent contractors' liability. SCOTTS VALLEY shall deliver to DISTRICT an "Additional Insured

Endorsement" naming DISTRICT, its officers, employees and agents and the County of Lake, its officers, employees, and agents as additional insureds.

IX. ASSIGNMENT

SCOTTS VALLEY shall not assign this Agreement or any interest therein; and shall not sublet the said premises or any part thereof, or any right or privilege appurtenant thereto, or suffer any other person (the agents and servants of SCOTTS VALLEY excepted) to occupy or use the said premises or any potion thereof, without the written consent of DISTRICT first had and obtained, and a consent to one assignment, subletting, occupation or use by another shall not be deemed to be a consent to any subsequent assignment, subletting, occupation or use by another person. Any such assignment or subletting without such consent shall be void, and shall, at the option of DISTRICT, terminate this agreement.

X. ADVERTISING SIGNAGE PROHIBITED

No advertising, price lists, signs or billboards may be displayed by SCOTTS VALLEY without the approval of DISTRICT.

XI. LIMITED PUBLIC ACCESS

SCOTTS VALLEY covenants and agrees that the general public shall have the right to limited access to the Leased Premises from time to time under such reasonable conditions and days and times as determined by SCOTTS VALLEY to be appropriate.

XII. COUNTY, DISTRICT, STATE RIGHT OF INGRESS AND EGRESS

The officers, agents, employees and permittees of the County of Lake, the DISTRICT, and the State of California shall at all times and places, have the right to full ingress to, passage over, and egress from, all of said lands for the purpose of carrying on operations of the County of Lake, the DISTRICT and the State of California.

XIII. MAINTENANCE OF PREMISES

SCOTTS VALLEY shall:

- Be responsible for securing and remitting payment for, and maintaining all utilities, insurance, licenses, use permits, and all other regulatory costs, and all other expenses in connection with the operation of the activities herein referred to.
- 2. Exercise due diligence in protecting from damage the land and property of DISTRICT, covered by and used in connection with the permitted use of the Leased Property, and shall pay to the DISTRICT the full and complete cost for all damages resulting from SCOTTS VALLEY's negligent or willful misconduct, including in its performance of this Lease Agreement actions or from the violation of the terms of this Agreement, or the violation of any law or regulation applicable to these particular Public Lands, by SCOTTS VALLEY, which shall include, but not be limited to actions by its agents, employees, and officials, Be responsible for the daily and continuous maintenance of the Leased Property and shall keep the same clean and in good order, as directed by DISTRICT.
- 3. Maintain the improvements and premises to standards of repair, sanitation, and safety acceptable to the DISTRICT.

XIV. UTILITIES

SCOTTS VALLEY shall maintain and be responsible for establishing, maintaining, operating, any water, power, sewer or other desired or needed utility on the parcel necessary to the safe operation of the Biochar facility. Unless another agreement exists, the SCOTTS VALLEY will bear the cost of any needed utility for the biochar facility.

Any utility established shall be approved by the DISTICT prior to commencing and notification of status of utilities shall be provided to the DISTRICT monthly.

XV. NO COUNTY COMMITMENT TO APPROVE ANY PROJECT ASSOCIATED WITH THE USE OF THE LEASED PROPERTY

Although the County of Lake may be deemed a third-party beneficiary of Sections V, VI, and VIII of this Lease Agreement, the parties understand and agree that entering into this Lease Agreement does not in any way obligate and/or commit the County of Lake to approve any project application submitted by Scotts Valley relating to its use of the Leased Property as described herein. The County of Lake retains and shall exercise its police power authority, including the authority to exercise its independent judgment to approve, approve with conditions or deny any such project application.

XVI. LIMITED WAIVER OF SOVEREIGN IMMUNITY

SCOTTS VALLEY hereby expressly and irrevocably waives its sovereign immunity (and any defense based thereon) in favor of the DISTRICT as to any dispute which arises out of or relates to this Lease Agreement. SCOTTS VALLEY hereby consents to the jurisdiction of the Superior Court of the State of California, County of Lake (hereinafter "Superior Court"), for the limited purpose of adjudicating any dispute arising out of this Lease Agreement. SCOTTS VALLEY and the DISTRICT agree that the venue of any action arising in any way out of the obligations of the parties under this Lease Agreement shall be, if in State Court, in the Superior Court and, if in Federal Court, in the Northern District Court in San Francisco, California.

XVII. MISCELLANEOUS PROVISIONS

SCOTTS VALLEY further agrees that it shall do the following:

- Immediately report any violations of the law which come to the attention of SCOTTS VALLEY to the Lake County Sheriff.
- 2. Refrain from representing to the public in any manner that it is an agent

or employee of the DISTRICT.

3. No camping or overnight occupancy is allowed.

XVIII. ADDITIONAL PROVISIONS

This agreement shall be governed by the laws of the State of California. It constitutes the entire agreement between the parties regarding its subject matter. This agreement supersedes all proposals, oral and written, and all negotiations, conversations, or discussions heretofore and between the parties related to the subject matter of this agreement. Executed at Lakeport, California, on the day and year first written above.

| PROTECTION DISTRTICT | SCOTTS VALLEY ENERGY CORPORATION |
|---|---|
| Chairman, Board of Directors | Council Chair |
| ATTEST: SUSAN PARKER Clerk of the Board By: | SHAWN DAVIS |
| APPROVED AS TO FORM: LLOYD GUINTIVANO County Counsel By: | OF SUPERVISOR AND |

CALIFORNIA ACKNOWLEDGMENT

| | erdiciosides de la companiente del companiente de la companiente del companiente de la companiente de |
|---|---|
| A notary public or other officer completing this certificate verifito which this certificate is attached, and not the truthfulness, | ries only the identity of the individual who signed the document accuracy, or validity of that document. |
| State of California | |
| County of Lake | |
| - | Johanna DeLang, Wotary Public, Here Insert Name and Title of the Officer |
| personally appeared | |
| ^ | Name(s) of Signer(s) |
| who proved to me on the basis of satisfactory evidence to the within instrument and acknowledged to me that authorized capacity(ies), and that by his/her/their signal upon behalf of which the person(s) acted, executed the | ature(s) on the instrument the person(s), or the entity |
| JOHANNA RENEE DELONG Notary Public - California Lake County Commission # 2470005 My Comm, Expires Nov 7, 2027 | I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct. WITNESS my hand and official seal. |
| Disease Nations Considerable Statement About | Signature of Notary Public |
| Place Notary Seal and/or Stamp Above | ONAL Signature of Notary Public |
| Completing this information can d | deter alteration of the document or form to an unintended document. |
| Description of Attached Document Title or Type of Document: | |
| Document Date: | Number of Pages: |
| Signer(s) Other Than Named Above: | |
| Capacity(ies) Claimed by Signer(s) Signer's Name: | Signer's Name: |
| □ Corporate Officer Title(s): | □ Corporate Officer – Title(s): □ Partner – □ Limited □ General |
| ☐ Partner — ☐ Limited ☐ General ☐ Individual ☐ Attorney in Fact | ☐ Individual ☐ Attorney in Fact |
| ☐ Trustee ☐ Guardian or Conservator | ☐ Trustee ☐ Guardian or Conservator |
| Other: | ☐ Other:Signer is Representing: |
| Signer is Representing: | algher is representing. |
| | 1810-1776 CARBO ROUNDIBERBARENGA O E COLO PARENCIARA E NO FEARENCA (PARENCIAR PROPERTIENTO FEARENCE |

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

Signature _

| validity of that document. | | |
|--|--|--|
| State of California County ofALAMEDA | , | _) |
| On04/30/2024 | | ARMAN AKRAM KHAN, NOTARY PUBLIC (insert name and title of the officer) |
| subscribed to the within instrumen his/her/their authorized capacity(is | satisfactory e nt and acknow ss), and that b | evidence to be the person(s) whose name(s) is/are wledged to me that he/she/they executed the same in by his/her/their signature(s) on the instrument the ne person(s) acted, executed the instrument. |
| I certify under PENALTY OF PER paragraph is true and correct. | JURY under t | the laws of the State of California that the foregoing |
| WITNESS my hand and official se | al. | ARMAN AKRAM KHAN Notary Public - California Alameda County Commission # 2394452 My Comm. Expires Mar 18, 2026 |

(Seal)

Attachment D



Fidelity National Title Company

377 Lakeport Blvd., Lakeport, CA 95453 Phone: (707)263-0127 | FAX: (707)263-0901

FINAL BUYER'S STATEMENT

Settlement Date: October 22, 2015

Escrow Number: FSON-0301-FSNX-3011400337

Disbursement Date: October 22, 2015

stober 22, 2015 Escrow Officer: Sharon Salvador

Buyer: Lake County Watershed Protection District, a public entity

255 N. Forbes St. Lakeport, CA 95453

Seller: Robinson Lake Vineyard, LLC, a California limited liability company who acquired title as

Robinson Lake Vineyard, LLC

2042 Pine Acres Conroe, TX 77384

Property: 755 and 737 E. State Hwy 20

Upper Lake, CA

Parcel ID(s): 004-010-040-000 004-013-180-000

| | | | \$ DEBIT | \$ CREDIT |
|--|------------------------------|--|--------------|--------------|
| FINANCIAL CONSIDERATI | ON | | | |
| Contract sales price | | | 1,510,000.00 | |
| Buyer's funds to close | | Lake County Watershed Protection District, a public entity | | 1,529,906.82 |
| PRORATIONS/ADJUSTME | NTS | | | |
| Relocation of personal prope equipment | rty and | | 17,354.94 | |
| County taxes | 07/01/15 to 10/22/15 | (\$7,171.93 / 180 X 111 days) | | 4,422.69 |
| TITLE & ESCROW CHARG | ES | | | |
| Escrow Fee RE: Commercial | Fidelity | National Title Company | 2,350.00 | |
| Owner's title insurance Policies to be issued: Owners Policy | Fidelity | National Title Company | 3,408.00 | |
| Coverage: \$1,510,000.00 | Premium: \$3,408.00 Ve 19 | rsion: CLTA Standard Coverage Polic 90 | су | |
| MISCELLANEOUS CHARG | BES | | | |
| refund of excess funds | Departn | nent of Water Resources | 1,216.57 | |
| Subtotals | | | 1,534,329.51 | 1,534,329.51 |
| TOTALS | | | 1,534,329.51 | 1,534,329.51 |

SAVE THIS STATEMENT FOR INCOME TAX PURPOSES

FSnx 301140033755

Recording Requested By:

Lake County Watershed Protection District

And When Recorded Mail To:

Board of Directors Lake County Watershed Protection District Courthouse – 255 N. Forbes Street Lakeport, CA 95453

Documentary Transfer Tax \$ Exempt County of Lake

Recording Fee \$0.00

Govt. Code 27383



Doc # 2015013886

Page 1 of 4

Date: 10/22/2015 09:03A

Filed by: FIDELITY NATIONAL TITLE

Filed & Recorded in Official Records
of COUNTY OF LAKE

RICHARD A. FORD

COUNTY RECORDER

Fee: \$0.00

004-010-040

Space Above This Line For Recorder's Use

GRANT DEED

ROBINSON LAKE VINEYARD, LLC, a California limited liability company who acquired title as ROBINSON LAKE VINEYARD, LLC

do(es) hereby GRANT to the

LAKE COUNTY WATERSHED PROTECTION DISTRICT, a public entity, the following described real property in the County of Lake, State of California;

FOR DESCRIPTION, SEE EXHIBIT "A" ATTACHED HERETO:

ROBINSON LAKE VINEYARD, LLC, a California limited liability company

BY:

Katherine Mims, Manager

BY:

Kevin Mims, Manager

(Signatures must be notarized)

A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

| Cexas 1 |
|--|
| State of California () |
|) ss |
| County of Markgoney) |
| On Quant 3, 2015, 2015 before me, Whole Picaken, Notary Public, personally appeared Katherine minus, Manay who proved to me on the basis of satisfactory evidence to be the person |
| Katherine minus, Managy who proved to me on the basis of satisfactory evidence to be the person |
| whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his |
| authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which |
| the person goted executed the instrument |

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



EXHIBIT "A"

LEGAL DESCRIPTION

For APN/Parcel ID(s): 004-010-040-000 and 004-013-180-000

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE UNINCORPORATED AREA, COUNTY OF LAKE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

Parcel One:

Beginning at the Northwest corner of the Northeast quarter of Section 18, Township 15 North, Range 9 West, M.D.B.& M.; thence running North 13° East 13.40 chains to the center of creek; thence following the meanders of said creek North 3° East 5 chains; thence North 34° 30' East 6.33 chains; thence North 12° East 4.87 chains; thence North 43° East 11.66 chains; thence North 6° 30' East 4 chains to the County Road; thence East 25.08 chains to the quarter corner between Sections 7 and 8 of said Township and Range; thence South along the Section line 15.11 chains; thence West 20 chains; thence South 24.89 chains to the North line of said Section 18; thence West 20 chains to the place of beginning.

Excepting therefrom all that portion thereof lying Northerly of the Southerly line of State Highway 20.

Also excepting therefrom all that portion conveyed to the State of California by Deed recorded February 10, 2009, Instrument No. 2009-001937, of Official Records.

APN: 004-010-040-000

Parcel Two:

Parcel A, as shown on a map filed in the office of the County Recorder of said Lake County on April 24, 1985, in Book 26 of Parcel Maps at Page 32, being a portion of Section 18, Township 15 North, Range 9 West, M.D.M.

APN: 004-013-180-000

CERTIFICATE OF ACCEPTANCE

This is to certify that the interest in real property conveyed by the Grant Deed dated April 30, 2015, from Robinson Lake Vineyard, LLC, a California limited liability company who acquired title as Robinson Lake Vineyard, LLC to the LAKE COUNTY WATERSHED PROTECTION DISTRICT, a public entity, is hereby accepted by order of the Board of Directors on 67/21/2015, and the grantee consents to recordation thereof by its duly authorized officer.

DATED: 07/21/2015

COUNTY OF LAKE
MATT PERRY
Clerk of the Board

By: Wy W

Government Code 27281

Attachment E

Notice of Completion & Environmental Document Transmittal

| Project Title: | | |
|--|---|--------------------------------|
| Lead Agency: | | |
| Mailing Address: | Phone: | |
| City: | Zip: County: | |
| | | |
| Project Location: County: | | |
| Cross Streets: | | Zip Code: |
| Longitude/Latitude (degrees, minutes and seconds):° | | |
| | | |
| Assessor's Parcel No.: | | |
| Within 2 Miles: State Hwy #: | Waterways: | |
| Airports: | Railways: Scho | ols: |
| | | |
| Document Type: | NEDA - D NOT - C : | |
| CEQA: NOP Draft EIR | NEPA: NOI Other: | Joint Document |
| ☐ Early Cons ☐ Supplement/Subsequent EI | | Final Document |
| Neg Dec (Prior SCH No.) Mit Neg Dec Other: | Draft EIS ☐ FONSI | Other: |
| Mit Neg Dec Other: | | |
| Local Action Type: | | |
| General Plan Update Specific Plan | Rezone | ☐ Annexation |
| General Plan Amendment Master Plan | Prezone | Redevelopment |
| General Plan Element Planned Unit Developme | — | Coastal Permit |
| Community Plan Site Plan | Land Division (Subdivision, etc.) | |
| | | |
| Development Type: | | |
| Residential: Units Acres | | |
| Office: Sq.ft. Acres Employees_ | Transportation: Type | |
| Commercial:Sq.ft Acres Employees_ | | |
| Industrial: Sq.ft. Acres Employees | | MW |
| Educational: | | MGD |
| Recreational: | Hazardous Waste:Type | |
| Water Facilities: Type MGD | Other: | |
| | | |
| Project Issues Discussed in Document: | | |
| Aesthetic/Visual Fiscal | Recreation/Parks | Vegetation |
| Agricultural Land Flood Plain/Flooding | Schools/Universities | Water Quality |
| Air Quality Forest Land/Fire Hazard | Septic Systems | Water Supply/Groundwate |
| Archeological/Historical Geologic/Seismic | Sewer Capacity | Wetland/Riparian |
| ☐ Biological Resources ☐ Minerals ☐ Coastal Zone ☐ Noise | ☐ Soil Erosion/Compaction/Grading ☐ Solid Waste | Growth Inducement |
| ☐ Coastal Zone ☐ Noise ☐ Drainage/Absorption ☐ Population/Housing Bala | | ☐ Land Use☐ Cumulative Effects |
| ☐ Drainage/Absorption ☐ Population/Housing Balat ☐ Economic/Jobs ☐ Public Services/Facilities | | Other: |
| | | |
| | | |

Reviewing Agencies Checklist

| one: | | | |
|---|---|--|--|
| ntact: | Address: City/State/Zip: Phone: | | |
| ty/State/Zip: | | | |
| ldress: | | | |
| nsulting Firm: | Applicant: | | |
| ad Agency (Complete if applicable): | | | |
| arting Date | Ending Date | | |
| cal Public Review Period (to be filled in by lead age | ncy) | | |
| Native American Heritage Commission | | | |
| Housing & Community Development | Other: | | |
| Health Services, Department of | Other: | | |
| General Services, Department of | | | |
| Forestry and Fire Protection, Department of | Water Resources, Department of | | |
| Food & Agriculture, Department of | Toxic Substances Control, Department of | | |
| Fish & Game Region # | Tahoe Regional Planning Agency | | |
| Energy Commission | SWRCB: Water Rights | | |
| Education, Department of | SWRCB: Water Quality | | |
| Delta Protection Commission | SWRCB: Clean Water Grants | | |
| Corrections, Department of | State Lands Commission | | |
| Conservation, Department of | Santa Monica Mtns. Conservancy | | |
| Colorado River Board | San Joaquin River Conservancy | | |
| Coastal Commission | San Gabriel & Lower L.A. Rivers & Mtns. Conservancy | | |
| Coachella Valley Mtns. Conservancy | S.F. Bay Conservation & Development Comm. | | |
| Central Valley Flood Protection Board | Resources Recycling and Recovery, Department of | | |
| Caltrans Planning | Resources Agency | | |
| Caltrans Division of Aeronautics | Regional WQCB # | | |
| Caltrans District # | Public Utilities Commission | | |
| California Highway Patrol | Pesticide Regulation, Department of | | |
| California Emergency Management Agency | Parks & Recreation, Department of | | |
| Boating & Waterways, Department of | Office of Public School Construction | | |
| D | | | |

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

Attachment F



Chemicals and Materials

Wood Dust - Health Effects

On this page

Why is wood dust a health concern?

What activities are likely to produce wood dust?

What are examples of the health issues associated with wood dust?

What occupations are at increased risk for exposure to wood dust?

How can exposure to wood dust be controlled?

What is the American Conference of Governmental Industrial Hygienists (ACGIH®) recommended exposure limit for wood dusts?

If required, what respirators are recommended?

Why is wood dust a health concern?

Exposure to wood dust has been associated with health issues due to the natural chemicals in wood or substances in the wood, such as bacteria, moulds, or fungi.

Wood dust is considered carcinogenic to humans (Group 1) according to the International Agency for Research on Cancer (IARC). IARC states that wood dust causes cancer of the nasal cavity (nose area) and paranasal sinuses (spaces in and around the nasal cavity) and of the nasopharynx (upper part of the throat, behind the nose).

Wood dust is also associated with toxic effects, irritation of the eyes, nose and throat, dermatitis, and respiratory system effects which include decreased lung capacity and allergic reactions.

NOTE: This document focuses on the health concerns associated with wood dust from untreated wood. Wood dust is also a safety concern because it can cause a fire or explosion. Please see the OSH Answers on <u>Combustible Dusts</u> for more information.

What activities are likely to produce wood dust?

Wood dust is created during all stages of wood processing such as sawing, routing, sanding and other operations. Workers can also be exposed when the dust becomes airborne such as when removing dust from furniture, maintenance activities, or when cleaning equipment (e.g., emptying the bag from a dust extraction system or vacuum).

What are examples of the health issues associated with wood dust?

Irritation, coughing or sneezing are caused by the dust itself. Exposure to excessive amounts of wood dust may irritate the eyes, nose, and throat. Workers may also experience shortness of breath, dryness and sore throat, conjunctivitis (inflammation of the mucous membranes of the eye), and rhinitis (runny nose).

<u>Dermatitis</u> is common and may be caused by the chemicals in the wood. For dermatitis, the skin may become red, itchy, dry, or blister. <u>Allergic contact dermatitis</u> may also develop.

Respiratory system effects include decreased lung capacity, and allergic reactions in the lungs such as hypersensitivity pneumonitis (inflammation of the walls of the air sacs and small airways), and <u>occupational asthma</u>. Hypersensitivity pneumonitis may develop within hours or days following exposure and is often confused with cold or flu symptoms because it begins with headaches, chills, sweating, nausea, breathlessness, etc. Tightness of the chest and breathlessness can be severe, and the condition can worsen with continued exposure. Some hypersensitivity pneumonitis conditions may be caused by moulds that grow on the wood (and not by the wood itself). Occupational asthma may also develop. Western red cedar is a wood that has a clear association with the development of asthma.

Toxic effects are specific to the species of wood. The chemicals in the wood may be absorbed into the body through the skin, lungs, or digestive system. When the body absorbs the chemical, the chemical may cause headaches, loss of weight, breathlessness, giddiness, cramps and irregular heartbeat.

While many species of trees have been associated with health effects, table 1 summarizes the health effects from some common types of wood.

| Table 1: Health Effects Reported with Various Types of Woods [Adopted from Work Safe Alberta (2009)] | | | | |
|--|---|--|--|--|
| Wood Type Health Effects | | | | |
| Alder (common, black, red) | Dermatitis (black alder); decrease in lung function (red alder) | | | |
| Aspen | No health effects reported | | | |
| Beech | Dermatitis (wood cutter's disease) due to lichens growing on the bark of beech trees, rhinitis, asthma, nasal cancer | | | |
| Birch | Irritant dermatitis | | | |
| Cedar (western red) | Asthma, allergic contact dermatitis, sensitizer, decrease in lung function, eye irritation and conjunctivitis, rhinitis | | | |
| Douglas Fir | Contact eczema, decrease in lung capacity | | | |
| Fir (grand, balsam, silver, alpine) | Skin irritation, dermatitis, rhinitis, asthma, possible decrease in lung function | | | |
| Hemlock | Skin irritation, decreased lung function | | | |
| Larch (European, western) | Allergic dermatitis from European larch; no reports with western larch | | | |
| Mahogany | Dermatitis, sensitizer | | | |
| Maple | Rhinitis, asthma, Maple Bark Stripper's disease (mould spores in bark) | | | |
| Oak | Nasal cancer | | | |
| Pine (white, lodgepole, jack) | Skin irritation, contact dermatitis, Wood-pulp worker's disease (mould in bark), rhinitis, asthma | | | |
| Poplar | Contact dermatitis, sensitizer | | | |
| Rosewood | Eczema, allergic contact dermatitis | | | |
| Spruce | Skin irritation, Wood-pulp worker's disease (mould spores in bark), decrease in lung function | | | |
| Teak | Toxic, dermatitis, sensitizer | | | |
| Walnut (black) | Skin irritation, rhinitis, possible asthma | | | |
| Yew | Irritation of skin, dermatitis, toxic | | | |

Be aware that other products used on or in wood may also have hazards. Resins, pesticides, paint, paint strippers, glues, adhesives, waterproofing compounds, lacquers, varnishes, sealants, dyes, and other products are examples. Always read and understand the safety data sheet associated with these products to make sure they are being used, handled, and stored appropriately.

What occupations are at increased risk for exposure to wood dust?

Some of the occupations at increased risk for exposure to wood dust include the following:

- Workers employed in logging, sawmills, furniture, and cabinet making
- Carpenters
- Cleaning or maintenance staff activities where wood dust is generated or reintroduced
- · Construction workers
- Shipbuilding workers

Fine dust that results from the processes such as shaping, routing and sanding are associated with higher exposure levels. Hardwoods generally produce more dust than softwoods when worked in similar conditions. Dry wood tends to produce more dust.

National Institute for Occupational Safety and Health (NIOSH) notes that the chemicals associated with allergic reactions are usually found in the inner parts of a tree, e.g., the heartwood. The workers most often showing reactions are those who do secondary wood processing (e.g., carpenters, joiners, and finishers).

How can exposure to wood dust be controlled?

- Know which type of wood is being used and all hazards associated with that wood.
- Substitute with another type of wood with no or fewer known health effects, where possible.
- Reduce dust generation. For example, reduce the need to cut or shape the wood.
- Use an appropriately designed <u>industrial ventilation system</u>, including local ventilation exhaust and the use of high-efficiency particulate (HEPA) filters. The design of the ventilation system will depend on the equipment being used (sanders, shapers, routers, saws, etc.).
- Use on-tool extraction systems.
- Keep tools and blades sharp. As tools dull, they may release more dust into the air.

- Be aware that significant exposure can happen when cleaning (e.g., emptying dust bags) or maintaining equipment.
- Practice good housekeeping. Keep surfaces and floors clear.
- Use cleaning methods that reduce re-introducing the dust into the air. Use wet clean-up methods (e.g., wipe surfaces with a wet rag or mop) or use a vacuum with a HEPA filter.
- Read, understand, and follow health and safety information on the safety data sheet (where available and applicable).
- Provide appropriate education and training that informs employees about the hazards of wood dust exposure, safe work procedures, how to identify when a ventilation system is working appropriately, and the importance of control measures.
- Wear respiratory protection when appropriate.
- Use protective clothing and gloves to reduce skin exposure.
- Practice good personal hygiene (e.g., wash or shower to remove dust from the skin). Wash hands and face when finished a task, and before eating, drinking or smoking. Clean clothes by washing or using a vacuum when washing facilities are not available.
- Bag and seal dust waste to prevent dust from re-entering the air.
- DO NOT use compressed air to blow the dust off of furniture, equipment or clothing.
- To prevent a combustible dust explosion, DO NOT allow wood dust to accumulate, including on ledges, ceiling beams, light fixtures, hidden areas, etc.

What is the American Conference of Governmental Industrial Hygienists (ACGIH®) recommended exposure limit for wood dusts?

ACGIH® TLV® - Western Red Cedar TWA: 0.5 mg/m3 (I), DSEN, RSEN, A4

ACGIH® TLV® – All other species TWA: 1 mg/m³

ACGIH® Carcinogenicity: Oak and beech = A1; Birch, mahogany teak, walnut = A2; All other wood dusts = A4

Exposure Guideline Comments: TLV® = Threshold Limit Value. TWA = Time-Weighted Average. (I) = Inhalable particulate matter. DSEN = Dermal sensitization. RSEN = Respiratory sensitization. A1 = Confirmed human carcinogen. A2 = Suspected human carcinogen. A4 = Not suspected as a human carcinogen.

If required, what respirators are recommended?

Use respirators as part of a <u>personal protective equipment program</u>. The National Institute for Occupational Safety and Health (NIOSH) recommends the following:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus.

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter. Any appropriate escape-type, self-contained breathing apparatus.

APF = Assigned Protection Factor

Recommendations apply only to National Institute for Occupational Safety and Health (NIOSH) approved respirators. Refer to the <u>NIOSH Pocket Guide to Chemical Hazards</u> for more information.

Fact sheet first published: 2017-08-03 Fact sheet last revised: 2023-03-28

Disclaimer

Although every effort is made to ensure the accuracy, currency and completeness of the information, CCOHS does not guarantee, warrant, represent or undertake that the information provided is correct, accurate or current. CCOHS is not liable for any loss, claim, or demand arising directly or indirectly from any use or reliance upon the information.

Attachment G

Environmental Narrative

Revised June 2021. Please check EDA's website before using this template to confirm that you are using the latest version. As of the date of this version, the current template can be found at the bottom of the "Funding Opportunities" page at EDA.gov.

Environmental Narrative Requirements

The National Environmental Policy Act (NEPA) requires Federal agencies to assess the potential environmental impacts associated with proposed federal actions, including financial assistance. Applicants are encouraged to contact their designated Economic Development Representative or the applicable EDA Regional Environmental Officer with questions regarding this template and/or the appropriate level of documentation (please see the EDA website or the applicable Federal Funding Opportunity for contact information). Resources of available information are listed in many of the sections. If you are using a locally saved copy of this template, please check EDA's website to confirm this is the current version.

For further information regarding EDA's obligations under NEPA, please refer to the regulations for implementing NEPA at 40 C.F.R. 1500-1508. The Council on Environmental Quality's 2007 guidance document "A Citizen's Guide to the NEPA" is another resource available online.

Several issues discussed in the environmental narrative below may require consultation with other State or Federal agencies at a later date (for example, the State Historic Preservation Office, the U.S. Fish and Wildlife Service, or the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS)). While EDA does not require that applicants complete such consultations before submitting an initial application, applicants should be aware that in the event their project is selected for further evaluation for funding, EDA may delegate these consultations to the applicant and expect them to be completed in an expeditious manner and prior to approval of an award.

Applicants must provide information on the following items in the environmental narrative. For any area in which the applicant asserts that an item is not applicable to a project, provide an explanation.

A. PROJECT DESCRIPTION

1. Beneficiaries

Identify any existing businesses or major developments that will benefit from the proposed project, and those that will expand or locate in the area because of the project.

The project will directly benefit the Scotts Valley Band of Pomo Indians (Tribe, Applicant) as the developer and owner of the proposed facility, to be located at the project site. It will indirectly benefit regional businesses that will supply wood feedstock to the facility, regional businesses that purchase / offtake wood products from the facility, and regional businesses that supply consumables such as fuel to the site. It will also temporarily benefit equipment suppliers to the project as a result of equipment purchase.

2. Proposed Construction

As an exhibit to this Narrative, provide a topographical map of the project area and a site map (with legend and north arrow) displaying the project location and boundaries, existing and proposed project components and location of all sites and/or companies benefitting from the proposed project. The documents should be of sufficient clarity for adequate interpretation of the Applicant's intentions.

Describe the project construction components in detailed, quantifiable terms. Describe the project location, proposed construction activities (e.g., grading, trenching), and schedule. It is sufficient to simply reference the Preliminary Engineering Report (PER) here if a PER containing this information has been submitted or will be submitted concurrently. See the mock example below for the level of specificity expected by EDA:

The project site is located 1,000 feet southwest of the intersection of SR 20 with Old Lucerne Rd., immediately southeast of the community of Upper Lake in central Lake County, CA (Figure 1). The project site is flat, ranging from 1,334 feet above mean sea level (msl) in the northwestern corner to 1,330 ft msl along the southern side of the overall 5-acre site (Figure 2). The site was historically used for farming (vineyard), and is already flat and level.

The Applicant proposes to construct an approximately 600 linear-foot chain link fence to form an approximately 200' x 100' biomass processing area enclosure, with access gates. Ground disturbance for fence installation be limited to the digging of approximately sixty 4" holes, set approximately 10' apart. Within the fenced area, the Applicant also proposes to install a temporary, 5,000 square-foot (sf) structure composed of four shipping containers and a hoop tent, where the containers will serve both as walls for the hoop tent shelter and as on site storage. No foundation or earthwork will be required for placement of this proposed structure. These structures would be installed / constructed over an approximately 3 month period from June to August, 2022. Construction would involve removal of existing blackberry bushes from the site, fence installation limited to holes needed for fence posts, and placement of the proposed shipping containers and hoop tent onto the site. Total construction related land disturbance would be approximately 0.46 acre or less. No further construction is proposed.

Separate from project construction, the Applicant would procure under the project the equipment shown in the table below. This equipment would be stored and operated within the biomass processing area and/or the hoop tent storage area. Ultimately, when fully operational, the project would transform wood derived from forest thinnings from multiple locations across Lake County into various saleable wood products including firewood, landscaping products, biochar, and intermediate products used for the downstream production of fuel pellets, engineered wood, and various other wood based products. Raw and processed biomass would be temporarily stored within the overall larger project area, which encompasses a total of 5 acres including the fenced processing area. Biomass would be hauled to and from the site via truck along an existing, unnamed road immediately west of the project site. Maintenance of equipment, as well as periodic maintenance and upkeep for the proposed hoop tent and fence, would be completed intermittently as needed during project operation.

During site operation, vehicles will enter through a gate in the processing area, located near the southern edge of the processing area, and will access this gate via an existing gravel pad that is located along the southern edge of the project area. Incoming vehicles will proceed through the gate to be weighed, then proceed forward for loading, turnaround, and weighing on their way out of the facility.

| Equipment Type | Application |
|---|--|
| Grinder / Shredder (SSI Shredder M85 Electric) | Biomass processing |
| Wheel Loader (Cat 914, 2.5 cubic yard) | Biomass handling |
| Tracked Grapple Loader (John Deere 337E and Rotobec | Biomass handling |
| 6007 grapple with RT-222 Rotator) | |
| Skid-steer / articulated loader (Bobcat S590 loader with 62" | Biomass handling |
| industrial grapple bucket) | |
| Trommel Screen (McCloskey International 512A) | Biomass processing |
| Crumbler Feed Bin (20 cu yd) | Biomass processing |
| Rotary Shear Mill (Crumbler P24 System) | Biomass processing |
| Orbital Screen System (BM&M Super Screen, 2 deck, 5x12) | Biomass processing |
| Firewood Processor (Multitek 1610 w/electric drive) | Biomass processing (firewood) |
| Firewood Bundler (Multitek wrapper/bundler) | Biomass processing (firewood) |
| Conveyors (fixed and movable) | Biomass processing |
| Biochar handling and packaging | Biomass processing |
| Chip van (120 cu yd, 48 ft trailer, 4) | Biomass transport |
| 48 ft flatbed trailer | Biomass transport |
| Fuel tank | Site equipment |
| Truck Scale, non-permanent (Optima Scale OP-100 Truck | Biomass inhaul / outhaul and product |
| Scale) | measurement |
| Fabric Membrane Structure (5,000 sf hoop tent with storage container sides) | Equipment non-permanent housing |
| Generator Set (2G Energy) | Biomass processing / on site energy |
| V .; II .; (O ; D. | production |
| Artis Units (Omni Bioenergy) | Biomass processing / on site energy production |
| Artis Power Electronics Upgrade (Omni Bioenergy) | Biomass processing / on site energy |
| Arus Power Electronics Opgrade (Onnii Bioenergy) | production |
| Shipping | Equipment procurement / setup |
| Equipment assembly, integration, and testing | Equipment procurement / setup |
| Mobile office trailer (20' length) | Site operation support / administration |
| Water Truck | Biomass processing / dust management |
| Table 1. Equipment proposed for use on site. | |

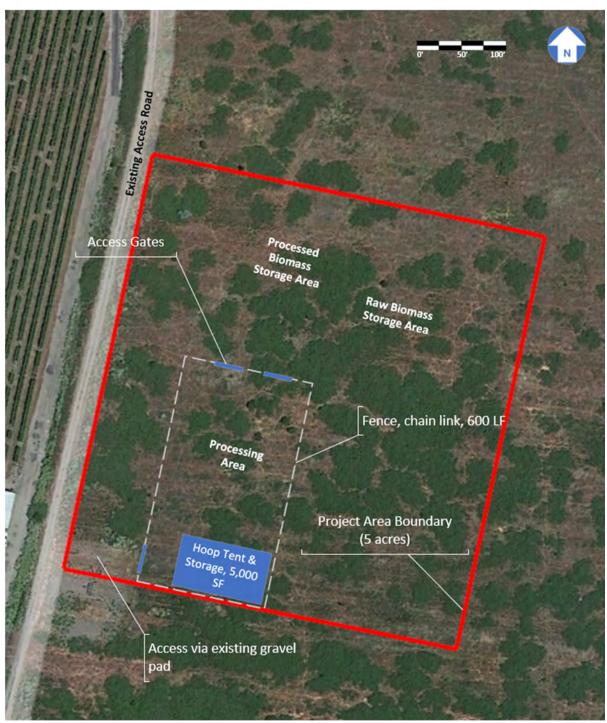


Figure 1. Project site.

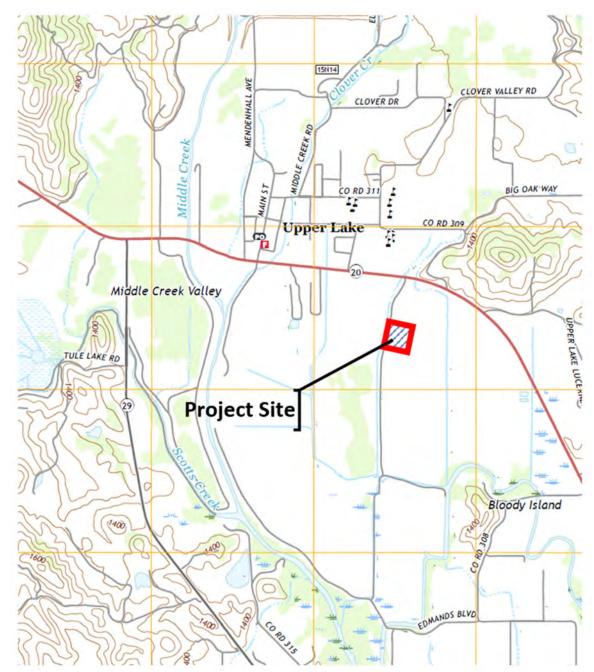


Figure 2. Project site topo map (USGS 7.5 minute topo map for Upper Lake County, 2018).

3. Need and Purpose

Provide a brief summary of the underlying need and purpose of the proposal for EDA funding.

Need for the project is founded in multiple critical Tribal and regional factors, including the following:

 Economic opportunities for the Tribe and its members have been limited due to inequities in the distribution of government support and economic opportunity in the Lake County region, particularly for Tribal members.

- Reliable and viable sources of revenue, economic development, and well-paying jobs are
 needed by the Tribe to support its economic development goals and to help reduce poverty
 and improve living standards among its members.
- Increased economic activity and new, well-paying jobs are needed across Lake County to
 improve existing unemployment conditions and low median incomes—wherein Lake County
 has the lowest median income of any county in the state.
- Insufficient forest management practices and historic fire suppression have allowed excessive amounts of understory growth to remain in forests. As a result, the forests in Lake County carry excessive fuel, greatly increasing the likelihood of catastrophic wildfire.
- Efforts to remove excess fuel from forests in Lake County are hampered by regional
 economic constraints: downstream markets are available for chipped wood and other wood
 products, but the equipment needed to process the wood from forest thinnings is
 prohibitively expensive.
- Unprecedented, catastrophic wildfires have destroyed more than 4 million acres of land statewide 2021 alone—leading to critical safety hazards, community loss, and economic distress for many areas of the county.
- The COVID-19 virus has exacerbated difficult economic conditions, disproportionately affected Tribal members, low-income earners, and jobless across the county, and has also increased the difficulty of providing aid to those affected by catastrophic wildfires.

The **purpose** of the project is to fund equipment purchase and limited construction needed to deploy a multi-product forest biomass processing facility. The facility will provide a viable use case for Lake County forest thinnings, transforming removed biomass into multiple products including firewood, landscaping products, biochar, and intermediate products for the downstream production of engineered wood, fuel pellets, and other high value wood products. When operational, the project will open up local markets for forest thinning biomass, greatly increase the speed of existing upstream forest thinning operations, generate revenue for the Tribe, generate jobs for the Tribe and local industry, reduce fire risk in the region, and improve regional economic conditions. Moreover, as an outdoor facility, its operation would be resilient to shutdowns and other disruptions related to COVID-19.

4. Alternatives to the Proposed Project

Based in the Need and Purpose summary above, provide a detailed description of alternative actions that were considered during the project planning but were not selected (e.g., alternative locations, designs, scopes, other projects having similar benefits, and a "no project" alternative). Explain why this project/site was selected as the preferred alternative. Provide detail on why other alternatives were rejected (e.g. did not meet the purpose and need of the project, implicated more environmental receptors, had greater climate impacts or were at greater risk to climate change than the proposed action). If the selected project would impact wetlands or floodplains, please provide a detailed description of alternatives to those proposed impacts.

Alternative 1: No Project Alternative.

The No Project Alternative would not include any facility construction, equipment procurement, or development on the parcel targeted under the proposed project, or elsewhere. The No Project Alternative would not create a new biomass processing facility for forest thinnings, and therefore it would not address needs for improved forest management practices or for reduced wildfire risk. The No Project Alternative would not generate any new jobs, nor would it result in a new source of income for the Tribe. Therefore, because the No Project Alternative would not meet the needs identified for the proposed project, it was not considered further.

Alternative 2: Southern Project Site Location.

Alternative 2 would deploy the same facilities and equipment as the proposed project but at a different location – approximately 0.4 mile south of the proposed project site. This site was chosen because it is also located on county land and could be made available by the county to support the proposed facility. Similar to the proposed project, the Alternative 2 site is also flat and previously graded, and was historically used for agriculture. However, the Alternative 2 site, as shown in Figure 3, is located within a 100-year flood zone. Therefore, risk of flooding for this site is substantially elevated in comparison to the proposed project site. Moreover, the Alternative 2 site is located in closer proximity to Bloody Island, a valuable historic / cultural resources site. Therefore, while this site would meet all of the needs identified for the project, it would place the proposed facilities and equipment at risk for flooding, and therefore was not investigated further.

Alternative 3: Alternative Use: Retail Development.

Under Alternative 3, the Tribe would shift the project site north, immediately adjacent to the southern side of SR 20. In lieu of installing the biomass processing facility proposed under the proposed project, the Tribe would instead complete a retail / commercial development. The site would serve the community of Upper Lake, as well as Nice, Lucerne, Clearlake Oaks, North Lakeport, and Lakeport. The retail development alternative would include approximately 52,000 square feet of retail floor space, along with 500 parking spaces. The Tribe would target a specialty foods anchor, along with restaurants / cafes, medical services, and other retail.

The retail development alternative is estimated to generate \$1.45/sf per month of finished floor area based on regional commercial property rental costs, equivalent to \$908,800/yr of gross revenue, less development costs, loan repayment, and other costs estimated at \$696,540/yr would result in net revenue generation of approximately \$212,000/yr. This project would contribute to the Tribe's need to develop new sources of revenue generation. It would also contribute temporary new construction jobs and could result in overall long term jobs growth by providing a new location for businesses to enter and expand into. However, the project would not address wildfire risk in the region, and would not increase regional safety or improved economic stability through reduced wildfire risk. During operation, it would support primarily low-wage retail job development, and many of the jobs associated with the retail operation could be subject to closure or other restrictions in the event of a significant COVID-19 flare up or similar pandemicrelated issue. Finally, the targeted parcel, which is owned by the County, would require a zoning change, and the feasibility of such a change is unknown. Note that locating the project off of county property would significantly increase cost, due to a need for land purchase. Therefore, while this alternative was considered, it would not meet the needs for the project surrounding COVID resilience or improved forest biomass management / reduced threat of wildfires, and was therefore not considered further.



Figure 3. Alternative 2: Southern Project Site Location.

B. <u>HISTORIC/ARCHEOLOGICAL RESOURCES</u>

Identify any known historic/archeological resources within the project site(s) or area of potential effect that are either listed on the National Register of Historic Places or considered to be of local or State significance and perhaps eligible for listing on the National Register. In many states, the State Historic Preservation Office (SHPO) maintains GIS databases of historic properties and cultural resources. Delineate an Area of Potential Effect (APE) for the project. The APE is the geographic area or areas within which a proposal may cause changes in the character or use of historic properties, which would include (but is not limited to) any new development or renovation by the beneficiary facilitated by the proposed EDA project. Discuss the potential impacts of the project on culturally significant resources and provide a determination as to whether there will be: no historical properties/cultural resources adversely affected; or historical properties/cultural resources adversely affected.

Note that the applicant is not required to contact the SHPO until directed to do so by EDA. If comments from the SHPO have already been received, they should be attached along with copies of the information provided to the SHPO. If you wish to initiate early consultation, please consult the website of the appropriate SHPO for instructions on required information.

To support this application, the Tribe completed a review of its internal records and contacted key representatives from other area tribes to identify potential historic, archaeological, or cultural resources within the area of potential effect (APE) for the project site. The APE is defined as the 5-acre project area, which is outlined in red on Figure 1. To date, no relevant on site historic, archaeological, or cultural resources were identified through these methods as being located with the project's APE. Note, however, that a significant historic and cultural site is located approximately 0.6 mile southeast of the project site (Figure 3). The Battle of Bloody



Figure 4. California historical marker for Bloody Island.

Island site was listed as a California Historical Resource in March, 1949. Located on private property, the site is marked with a historical marker plaque located approximately ½ mile from the site at the intersection of SR 20 and Reclamation Rd., 1.7 mile southeast of the community of Upper Lake. The site is the location of a military attack on the Clear Lake Pomo in retribution for the death of two landholders who had gravely mistreated the Pomo. Historical records indicate that 40 or more Pomo were killed, most of whom were women and children.

Based on communications with local registered professional archaeologist Dr. John Parker, dead from the event were burned / buried on the east side of the

creek that winds around the east side of the island. Soil, including levee soil located in close proximity to the island could contain cultural material. The levees in question are located at least 0.5 mile from the project's APE, and the project is not expected to affect these sensitive areas. Nonetheless, there remains some level of potential for cultural materials to be located on site. As a result, and to ensure that any such resources—even if heretofore unknown—would not be

impacted by the project, the Tribe proposes to complete cultural monitoring on site during the construction process, and will implement Mitigation Measures CUL-1 and CUL-2. Attachment A provides additional information on the Bloody Island site and events that occurred there.

C. <u>AFFECTED ENVIRONMENT</u>

For the resource areas identified below, indicate potential direct and indirect impacts from proposed project activities and specify proposed measures to mitigate probable impacts. Direct impacts are caused by the proposed action and occur at the same time and place. Indirect impacts are those that are caused by a proposed action, but that may occur later in time or farther removed in distance, relative to the primary impacts of the proposed action (40 C.F.R. Section 1508.8) Development induced by the proposed project would be an example of an indirect impact.

1. Affected Area

Describe the general project area, including topography, historic land usages, unique geological features, and economic history. Provide site photographs if available. Identify native vegetation and wildlife found in the project area or its immediate vicinity. Describe the amount and type of vegetation in the project area and indicate the impact to vegetation if removed (e.g., 1.2 acres of early successional native hardwood forest). Identify any designated State and National Parks, National Wildlife Refuges, or National Game Preserves located on or in the vicinity of the proposed project activities. Identify any Wilderness Areas, as designated or proposed under the Wilderness Act, or wild or scenic rivers, as designated or proposed under the Wild and Scenic Rivers Act, or other lands protected under state or federal law that are located on or in the vicinity of the proposed project activities.

- 1. Please describe any direct effects
- 2. Please describe any indirect effects

The project site is located 1,000 feet southwest of the intersection of SR 20 with Old Lucerne Rd., immediately southeast of the community of Upper Lake in central Lake County, CA (Figure 1). The area, formerly a lake bottom and/or wetlands prior to historic land reclamation, is generally flat with a very gradual downslope from north to south. The project site itself ranges in elevation from 1,334 feet above mean sea level (msl) in the northwestern corner to 1,330 ft msl along the southern side of the overall 5-acre site. Historically, following its reclamation, the site was used for farming, most recently as a vineyard until the property was purchased by the County in 2014. What were historic farming areas have been left fallow since the transfer of ownership to the County. A small portion of the project site, along its southern edge, is currently used to store agricultural equipment. No fuel storage, agricultural chemical storage, or similar items were identified on site or in its immediate vicinity based on a site reconnaissance completed in November 2021 and a Phase 1 Site Assessment completed in 2013, prior to the transfer of ownership to the county. There are no unique geologic features located on site. Vegetation on site reflects historic farming practices as well as ruderal / non-native vegetation, with a proliferation of invasive Himalayan blackberry. There is an existing agricultural drainage that runs along the western side of the access road to the site—i.e., on the side opposite the road from the site. Refer to Section 6, Endangered Species for a discussion of potential for occurrence of wildlife and other sensitive resources on site. Site photographs are shown below.

Nearby land use is primarily agricultural including agricultural areas immediately west of the parcel where the project site is located, as well as to the south and east of that parcel. SR-20 lies approximately 0.2 mi north of the project site, while the Running Creek Casino is located 0.2 mi northwest of the project site. Other surrounding land uses include current and historic agricultural lands to the east, interspersed with rural residential land use to the east and north

across SR-20. The nearest residence is located 0.28 mi west of the project site in a small single family residential subdivision.



Figure 5.Project site facing east; foreground shows existing on site vegetation including mustard (*Brassica spp.*), Himalayan blackberries (*Rubus armeniacus*), and other ruderal vegetation on the site, which was previously used as a vineyard.



Figure 6. Project site along access road facing northeast.



Figure 7. Project site along access road facing southeast and showing ag equipment currently being stored along southern edge of property site. Bloody Island is in the background behind the center piece of farm equipment.



Figure 8. Western edge of the project site facing offsite to the northwest, showing adjacent agricultural use. Top of nearby casino (red-brown roof) can be seen in the far right, in the distance.

There are no designated state or national parks, national wildlife refuges, or national game preserves located on or in the immediate vicinity of the project area. Moreover, there are no designated wilderness areas, wild and scenic rivers, or other lands protected under state or federal law that are located on site or in the vicinity of the project area.

Direct Effects. The project would remove blackberry from the approximately 0.46 acre processing area (Figure 1). Equipment operation would be focused in this area and would also

result in impacts to but not full removal of low-growing non-native grass/ruderal vegetation in the 0.46 acre processing area.

Indirect Effects. The project would not induce growth, require or result in a substantial increase in demand for utility or public services, or other similar effects. The project would help to facilitate the removal of excess forest biomass from regional forests. This is viewed as a net positive impact (e.g., a benefit) to regional forest health, resulting in reduced potential for catastrophic wildfire in the region.

2. Coastal Zones

Indicate whether the project is located within a designated coastal zone subject to the Coastal Zone Management Act. Information on coastal zone boundaries is available on the NOAA's website. Identify any shorelines, beaches, dunes, or estuaries within or adjacent to the project site(s) and explain how the proposed project is consistent with the state's Coastal Zone Management Plan. If state concurrence is required, identify the state's Coastal Zone Management Agency.

There are no coastal zones subject to the Coastal Zone Management Act located anywhere in Lake County, CA. The nearest coastal zones to the project site are located more than 30 miles west of the project site. Therefore, there is no designated coastal zone on site, and no state concurrence would be required.

3. Wetlands

Identify any wetlands within or adjacent to the project site(s). If available, provide an on-site wetland/waters delineation performed in accordance with the 1987 (or current version) USACE Wetland Delineation Manual, as amended. Provide any correspondence from USACE, including any jurisdictional determination or permit documents.

- 1. Provide a determination of direct and indirect effects including the amount of jurisdictional waters affected by type (e.g. 1.1 acres of palustrine emergent wetlands would be impacted by the proposed project).
- 2. If any wetlands would be impacted by the project, provide an analysis of alternatives to wetland impact in this section or in the Alternatives to the Project section above.
- 3. Describe any mitigation plans here or in Section D below.

Also indicate if there are any proposed overwater structures that could impact navigable waters as defined in 33 CFR part 329.

If wetlands, streams, or navigable waters may be impacted, it is recommended that Applicants contact USACE concerning any jurisdictional waters resources.

The project site, which was historically cleared and used for agricultural land use, is flat and moderately to well-drained. While a wetland delineation has not been conducted on site, based on a site visit completed in November 2021, no wetland vegetation was noted on site, and no wetland areas were identified on site. Moreover, there are no agricultural drainages or swales identified within the project site, including flanking the access road along the western edge of the project area. There is, however, a potentially jurisdictional ag drainage located on the opposite side of the site access road—on the western side of the road. Vegetation associated with that swale can be viewed in Figures 9 and 10. The feature is also shown on the US Fish and Wildlife Service's National Wetlands Inventory (NWI) mapper, as shown on Figure 11.

Based on data provided by the NWI mapper, the offsite drainage is classified as follows:

A Palustrine System, which includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2.5 m (8.2 ft) at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt.

Emergent (EM) Class: Characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.

Persistent (1) Subclass: Dominated by species that normally remain standing at least until the beginning of the next growing season.

Seasonally Flooded (C) Water Regime: Surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.



Figure 9. Adjacent to the western edge of the project site, from the access road, facing northwest and showing the offsite agricultural drainage ditch that is located west of the project site, across the existing access road.

_

¹ Available at: https://www.fws.gov/wetlands/data/Mapper.html Accessed January 9, 2022.



Figure 10. Project site access road along the western edge of the project site, facing south. The offsite agricultural drainage ditch is shown to the right, covered in vegetation, and the project site is to the left of the road with no drainages on the eastern side of the access road.



Figure 11. National Wetlands Inventory map² for the project site (red outline) and vicinity. An existing agricultural ditch that is considered potentially jurisdictional is located on the opposite side of the access road from the project site. It is classified as a freshwater emergent wetland (see text).

The project is would not include any activities that would interfere with or impact the existing agricultural drainage. All project related activities would take place to the east of the existing

² Available at: https://www.fws.gov/wetlands/data/Mapper.html Accessed January 9, 2022.

agricultural drainage ditch, as shown in Figure 1. Moreover, to ensure that no impacts to the drainage would occur, all project construction activity would be located at least 100 ft east of the existing drainage ditch (Figure 1). Additionally, all biomass storage areas, which are located outside of the processing area, would also be set back at least 100 ft from the drainage. Access to the project site would be via an existing gravel pad that is located along the southern edge of the project site to avoid the need for additional land disturbance in close proximity to the agricultural ditch. Refer to Section A for additional information on vehicle ingress/egress.

4. Floodplains

Please state whether the project is located within a mapped 100- or 500-year floodplain. Provide a FEMA floodplain map (with the map number and effective date) displaying the project location and boundaries, existing and proposed project components, and location of all sites and/or companies benefiting from the proposed project. The document should be of sufficient clarity for adequate interpretation of the applicant's intentions.

Floodplain maps can be viewed and printed from FEMA's website. If FEMA floodplain maps do not exist in the project area, provide a letter from a Professional Engineer regarding the presence or absence of a 100-year floodplain.

- i) Describe direct and indirect effects to 100-year floodplains, if any.
- ii) If any 100-year floodplains would be impacted by the project, provide an analysis of alternatives to floodplain impact in this section or in the Alternatives to the Project section above.
- iii) Indicate whether the Applicant's community participates in the National Flood Insurance Program.
- iv) Indicate if a critical action (e.g., emergency response facility, hospital, wastewater treatment plant) is being located within the 500-year floodplain.

The project site would not be located within a 100-year flood zone or within a 500-year flood zone, although the boundary of the 500-year floodplain is located in close proximity to the southern boundary of the project area, as shown in Figure 12. The project would not cause or directly or indirectly result in any placement of fill, use, or other activities in a FEMA-delineated floodplain. As a result, the project would not be affected by, nor would it affect, a 100-year or a 500-year floodplain. While Lake County does participate in the National Flood Insurance Program, the project would not be required to purchase flood insurance. Additionally, no critical action, emergency response facility, hospital, wastewater treatment plant, or other physical facility or building would be located within a 500-year floodplain as a result of the project. No impact would occur and no mitigation is warranted.



Figure 12. FEMA-defined 100-year (blue) and 500-year (orange) floodplains are in close proximity to but do not intersect the project site.

5. Climate Change

Identify any current or potential risks to the project due to climate change (e.g., flooding, wildfires, sea level rise, severe weather), utilizing federal resources, including the National Climate Assessment. Describe any steps taken in the planning and design of the project to mitigate those risks, including utilizing federal resources such as the U.S. Climate Resilience Toolkit. Identify any ways in which the project may contribute to future climate risks, such as by increasing flood risks, and any potential measures for mitigating those contributions. Describe any steps taken to reduce the project's immediate and future carbon footprint (e.g., use of renewable building materials, incorporation of energy-efficient design features).

Drawing on information provided in the National Climate Assessment including FEMA's National Risk Index,³ Lake County and the census tract where the project is proposed (06033000100) score in the Relatively High category for risks, including those affected by climate change. More specifically, this area is expected to suffer a relatively high expected annual loss, with a relatively moderate social vulnerability and relatively low community resilience. Key risk categories that contribute to the Relatively High determination include the following: drought (score of 28.22), earthquake (37.8), and wildfire (30.40). Climate change has the potential to contribute to / exacerbate both drought and wildfire incidence. The project requires limited volumes of water to operate and would not be substantially affected by drought, nor would it

18

³ Available at: https://hazards.fema.gov/nri/map accessed January 9, 2022.

result in excessive consumption or use of water, and therefore would not exacerbate the local effects of drought.

The project would potentially be susceptible to wildfire. However the project is designed to help mitigate wildfire threat within the Lake County region. As discussed previously, the project would help to advance forest thinning / fuel reduction efforts regionally within Lake County, resulting in reduced forest fire risk for thinned areas that are able to be processed by the facility. As discussed previously, the project will help to create new demand for wood harvested during forest thinning, thereby resulting in improved economics for local / regional forest thinning efforts. Moreover, the project will also result in the generation of renewable bioenergy on site as a coproduct during the production of biochar. 100% renewable bioenergy will be generated using a portion of the incoming biomass, and the electricity generated will be used to operate on site equipment and, if sufficient electricity is available, it will be sold back onto the grid as renewable power. Moreover, all stationary equipment will be operated using electricity rather than fossil fuels, which will help to reduce the GHG emissions footprint of project operations. Forest thinning related reductions in wildfire risk also have vast and significant potential to reduce GHG emissions by reducing potential for additional catastrophic wildfires in Lake County, which to date have already released millions of tons of carbon dioxide and other air pollutants. Therefore, the project is expected to result in a net benefit with respect to potential impacts of climate change, and will, by design, contribute to an incremental net reduction in climate related impacts.

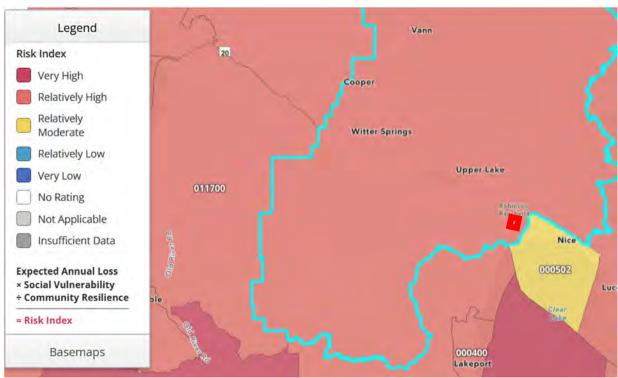


Figure 13. FEMA National Risk Index by census tract,⁴ for census tract 06033000100. The project site is shown as a red square. Risk index is Relatively High, which is consistent with most of the remaining areas of Lake County (see text).

_

⁴ Available at: https://hazards.fema.gov/nri/map accessed January 9, 2022.

6. Endangered Species

Provide a list of all threatened, endangered, and candidate species located in or near the project area, including any proposed development by the beneficiary, and the immediate vicinity. Identify these species' potential or existing habitat, and critical habitat designations in the project area. Identify the potential for direct or indirect impacts on these species. Critical habitat designations, lists of protected species by county, and information on effect determinations are available on the FWS website. The FWS' web-based Information, Planning, and Conservation System (IPaC) may also be useful for the early planning stage of a project. If an Effect Determination or Biological Assessment has been completed for any of the species listed, please provide. Attach any correspondence with FWS that exists related to their proposal. For projects with possible impacts to fisheries and marine/coastal species, provide any correspondence with NMFS.

A search of the FWS' IPaC system identified the following special status species that could potentially occur within the project area (Table 2).

| Species | Status | Description |
|----------------------------|------------|--|
| California Red-legged Frog | Threatened | This species occurs from sea level to |
| (Rana draytonii) | | elevations of about 1,500 meters (5,200 |
| | | feet). It has been extirpated from 70 |
| | | percent of its former range and now is |
| | | found primarily in coastal drainages of |
| | | central California, from Marin County, |
| | | California, south to northern Baja |
| | | California, Mexico. Potential threats to the |
| | | species include elimination or degradation |
| | | of habitat from land development and land |
| | | use activities and habitat invasion by non- |
| | | native aquatic species. |
| Burke's Goldfields | Endangered | No description available |
| (Lasthenia burkei) | | |

California red-legged frogs have been observed using a variety of habitat types, including various aquatic, riparian, and upland habitats. They include, but are not limited to, ephemeral ponds, intermittent streams, seasonal wetlands, springs, seeps, permanent ponds, perennial creeks, manmade aquatic features, marshes, dune ponds, lagoons, riparian corridors, blackberry (Rubus spp.) thickets, nonnative annual grasslands, and oak savannas. They are found in both natural and manmade aquatic habitats, and inhabit areas of diverse vegetation cover. The ephemeral agricultural drainage located adjacent to the project site could potentially serve as low-quality habitat for this species. While the project would not impact, alter, or affect the existing drainage, implementation of **Mitigation Measure BIO-1** would ensure that no damage to California red-legged frogs would occur.

Burke's goldfields is a small annual herb that grows in vernal pools and swales. Most occurrences have been found in the Santa Rosa Plain area of Sonoma County, but population records also exist from Napa, Lake, and Mendocino Counties. As of 2021, the California Natural Diversity Database reported 28 occurrences of this species that are presumed to still exist, however many of these occurrences have not been observed in several years. Populations of vernal pool plants such as Burke's goldfields are typically discontinuous and fragmented due to differences in

climate, substrate, and topography, and are often restricted to very specific habitats and locations. These factors, coupled with urbanization and the conversion of land for agriculture, endanger many California vernal pool species with extinction. The biggest threat to Burke's goldfields continues to be urban development and conversion of land to viticulture or other intensive land uses, and the resulting habitat fragmentation. Burke's goldfields is also sensitive to land use changes that cause variations in hydrology and the duration of vernal pool inundation. Burke's goldfields is threatened by increased runoff, frequent disking of land, breaking of the vernal pool hardpan, and activities that allow competing plant species to become established. As a former agricultural area that has been previously graded and extensively tilled, there is no existing vernal pool habitat within the project area. Therefore, habitat needed for this species does not occur on site and the species' presence is not anticipated within the project area. No further mitigation is warranted.

7. Land Use and Zoning

Describe the present formal zoning designation and current land use of the project site and adjacent land parcels. The areas include: the site of construction activities, adjacent areas, and areas affected by the primary beneficiaries. Land uses to be considered include, but are not limited to, industrial, commercial, residential, agriculture, recreational, woodlands, mines/quarries, and open spaces. Please indicate whether the project is located entirely within a city limit.

Identify agriculture land parcels designated as "prime/unique agriculture lands" by the U.S. Department of Agriculture (USDA) under the Federal Farmlands Protection Act or a local equivalent. Additional information may be found at the USDA's Natural Resources Conservation Service website.

Land use on site was historically agricultural, although the area has been left fallow since the County's purchase of the project site eight years ago. Adjacent land use to the east, west, and south is primarily agricultural or formerly agricultural and currently fallowed. Other land uses in the general vicinity of the project site include commercial (a casino and office buildings), single family residential, and open space. SR-20 is located approximately 0.2 mi north of the project site. With respect to zoning, based on the attached letter of commitment from Lake County, the targeted parcel's existing zoning is consistent with the proposed use (see proposal attachments). No mitigation is warranted.

8. Solid Waste Management

Indicate the types and quantities of solid wastes to be produced by the project facilities and primary beneficiary. Describe local solid waste collection and disposal methods and the expected useful life of the disposal facility. Indicate if recycling or resource recovery programs are currently being used or will be used in the future.

The project would generate limited amounts of solid waste during operation. Solid waste generated on site would be limited to non-wood / non-biomass items contained in the incoming feedstock—although such items are expected to be very limited because the project will target forest thinnings. This source of biomass is typically quite clean and is generally free of reject items. Other sources of solid waste would include limited packaging materials used to supply equipment maintenance and upkeep, office waste, and incidental employee related solid waste / trash. No other solid waste would be generated. Less than 3 yards of solid waste is expected to be generated on site each week. All locally recyclable materials, including paper, paperboard, aluminum and other metals, and recyclable plastics, would be recycled through appropriate local channels. All solid waste would be landfilled in an appropriate landfill. No further mitigation is warranted.

9. Hazardous or Toxic Substances

Describe any toxic, hazardous, or radioactive substances that will be utilized or produced by the proposed project facilities and primary beneficiaries. Describe the manner in which these substances would be stored, used, or disposed. Complete and sign one "Applicant Certification Clause" for each co-applicant (see Appendix A). Indicate if hazardous or toxic substances have been or must be remediated prior to construction, demolition, or renovation. If a recent Phase I or Phase II Environmental Site Assessment has been performed, please provide a copy of the executive summary (a full copy may be requested at a later date).

The project would result in storage of up to 500 gallons of petroleum diesel fuel on site using a proposed on-site diesel storage tank. The tank would be located aboveground with double walls and/or secondary containment sufficient to hold the entire volume of the tank when full. The tank will adhere to / comply with all local, state, and federal requirements and regulations relevant to the on site temporary storage of diesel fuel. The project would also store minor amounts of lubricant oil (up to 55 gallons) for use in the equipment proposed for the project site. All spent oil would be immediately recycled. Handling of lubricant oil and diesel would be subject to and would adhere to all local, state, and federal regulations, and would be subject to standard operating procedures to ensure worker safety as well as minimize potential for spill or release of these pollutants into the environment. No further mitigation would be warranted.

10. Water Resources

Describe surface and underground water resources at or near the proposed project site(s) and any impacts of the project to these. If groundwater will be used, is the aquifer in overdraft and / or adjudicated? If there will be discharges to surface water, is the receiving surface water body listed on the U.S. Environmental Protection Agency's (EPA) Section 303(d) list of impaired waters? Is a National Pollution Discharge Elimination System (NPDES) permit required for any discharges to surface waters? Indicate if the proposed project is located within an area mapped by the EPA as sole source aquifer recharge area (maps and further information are available on EPA's website). Describe any induced changes in local surface water runoff patterns, and the status of storm water discharge permit processes (if applicable).

As noted previously, the project site and its vicinity are underlain by groundwater resources. Nearby Clear Lake also provides a valuable water resource. As noted previously, the project would draw limited volumes of water to support project operations—approximately 1.3 acre-feet per year. This volume is equivalent to the volume of water used by approximately two California households during a single year. This volume of water use would not impact or noticeably affect or deplete any locally available water supply. No mitigation is warranted.

11. Water Supply and Distribution System

Indicate the source, quality, and supply capacity of local domestic and industrial/commercial water resources, and the amount of water that project facilities and primary beneficiaries are expected to utilize. Note whether the water that is being supplied is in compliance with the Safe Drinking Water Act, and if not, what steps are being taken to ensure compliance.

Water is provided to the project site via agricultural supply systems that use groundwater pumped from offsite. The project would not connect to a municipal water supply or distribution system. Water use on site daily would be up to approximately 1,500 gallons per day during peak water demand periods in the summer, and would be used primarily for dust suppression on site, and for

operation of the biochar/electricity production equipment. Demand during wet winter months would be lower and, as a result, the project is expected to require only approximately 1.3 acre-feet per year of water for ongoing operations. Potable water for employee use would be trucked in and supplied as bottled water. No further compliance measures are required.

12. Wastewater Collection and Treatment Facilities

Describe the wastewater treatment facilities available for processing the additional effluent including usage by the beneficiary(s). Indicate design capacities and current loading (both daily average and peak), and adequacy in terms of degree and type of treatment required. Describe all domestic class or process wastewater or other discharges associated with the proposed project facilities and its primary beneficiaries, and the expected composition and quantities to be discharged either to a municipal system or to the local environment. Indicate all discharges that will require on-site pre-treatment. Note whether the wastewater treatment plant is in violation of the Clean Water Act, and if so, what steps are being taken to ensure compliance. If local treatment and sewer systems are or will be inadequate or overloaded, describe the steps being taken for necessary improvements and their completion dates.

The project would not generate wastewater. The biochar/bioenergy facility would recycle water internally and would not result in water emissions. Water used for dust suppression would be off-hauled in wood products or evaporated. No wastewater collection or treatment facilities would be required.

13. Environmental Justice (Executive Order 12898)

Describe whether the proposed project will result in disproportionate adverse human health or environmental impacts relative to minority and low income populations. Sufficient detail should be provided to enable EDA to determine whether the project will comply with Executive Order 12898.

As discussed elsewhere, the project would not result in substantial environmental impacts. With respect to environmental justice, the project would provide a net benefit to both the Tribe—through economic and jobs related impacts—and to many of Lake County's residents who are potentially susceptible to hazards, economic damage, and potential displacement associated with catastrophic forest fires. The County, which has the lowest median household income of any county in California, has been disproportionately affected by wildfires, which have been disproportionately detrimental to low income and other underserved groups within the region. By providing a new source of revenue, jobs growth, and a reduction in forest fire potential, the project will serve to substantially reduce existing environmental justice and equity related issues in affected areas of Lake County.

14. Transportation (Streets, Traffic and Parking)

Briefly describe the local street/road system serving the project site(s) and describe any new traffic patterns that may arise because of the proposed project. Indicate if land use in the vicinity, such as residential, hospital, school, or recreational, would be affected by these new traffic patterns. Indicate if any existing capacities of these transportation facilities would be exceeded as a direct or indirect result of this project implementation, particularly in terms of car and truck traffic, and what the new Level of Service designation would be.

Direct access to the project site is provided by a gravel road that connects the project site and other lands to the south of the project site to SR-20. Regionally, SR-20 provides the primary access route to the project site, along with SR-29. Construction of the project would require minimal on site activity for a limited duration during the installation of the proposed fence and transport and placement of the proposed hoop tent structure and associated storage. Equipment

delivery would also occur during this period and would require one to two semi trucks per piece of equipment. During operations, the project site would process up to truckloads of material per day, with up to two truckloads per day of processed material exported from the site, for a total of approximately 8 new one-way semi truck trips per day. Operation would also require up to approximately 15 new light duty vehicle trips per day for facility workers and deliveries, for a total of approximately 23 new vehicle trips per day to the site. These increases would not noticeably alter traffic along SR-20 or SR-29. Daily vehicle trips along SR-20, based on the most recent Caltrans data at the intersection of SR-20 and the Nice-Lucerne cutoff (2.6 mi southeast of the project site) are 21,800 vehicle trips per day,⁵ and the project would represent a negligible 0.106% increase in traffic along SR-20. No change in level of service would occur, and no mitigation would be warranted.

15. Air Quality

Indicate types and quantities of air emissions (including odors) to be produced by the proposed project facilities and its primary beneficiaries, and any measures proposed to mitigate adverse impacts. Indicate the impact that the project would have on greenhouse gas emissions. Is the proposed project site within an area classified as a "non-attainment" for any criteria pollutants? If so, what are those pollutants? Indicate any local topographical or meteorological conditions that hinder the dispersal of air emissions.

The project site is located within the jurisdiction of the Lake County Air Quality Management District (LCAQMD), within the Lake County Air Basin. The Basin is listed as being in attainment for all federal and state air quality pollutant standards, and has maintained this status since 1990.

During project **construction**, the project would require very minor use of equipment on site to remove blackberries in targeted locations, to dig holes for the proposed fence, and to place equipment on site. These activities would require minimal use of diesel and gasoline powered vehicles and equipment and would generate emissions that would be well below applicable emissions thresholds.

During project **operation**, the equipment shown in Table 2 would be operated for up to 9 hours per day, 5 days per week. The equipment shown in Table 4 would generate emissions from the combustion of petroleum or biomass based fuel. Other equipment not listed here would either operate using electricity or would not require fuel or electricity for operation.

| Equipment Type | Fuel |
|--|-------------------------|
| Wheel Loader (Cat 914, 2.5 cubic yard) | Diesel |
| Tracked Grapple Loader (John Deere 337E and Rotobec | Diesel |
| 6007 grapple with RT-222 Rotator) | |
| Skid-steer / articulated loader (Bobcat S590 loader with 62" | Diesel |
| industrial grapple bucket) | |
| Chip van (120 cu yd, 48 ft trailer, 4) | Diesel |
| Generator Set (2G Energy) | Biogas produced on site |
| Artis Units (Omni Bioenergy) | Biomass |
| Water Truck | Diesel |
| Table 2. Equipment proposed for use on site. | |

⁻

⁵ Caltrans Traffic Census Program, 2020. 2020-AADT. Available at: https://dot.ca.gov/-/media/dot-media/programs/traffic-operations/documents/census/aadt/2020-traffic-volumes.xlsx accessed January 8, 2022.

The Applicant has planned the project to utilize electric only equipment for all elements of the project where such equipment is available, and commits to utilizing only EPA Tier IV final emissions standards or better for all equipment on site that requires fuel for operation. Based on the current attainment status of the Lake County Air Basin, limited emissions associated with Tier IV engines, and the relatively low fuel consumption rate anticipated on site, emissions are anticipated to be well under relevant impact thresholds. Moreover, facility operation will require a permit to operate from the LCAQMD. That permitting process will review and anticipated and actual emissions in detail, and will apply additional mitigation as warranted to ensure that emissions associated with the project would be less than applicable impact thresholds.

With respect to greenhouse gas (GHG) emissions, the project will consume an estimated 7,800 gallons of diesel per year, resulting in an estimated 79.4 metric tonnes of carbon dioxide equivalent GHG emissions per year. However, the project will also generate up to approximately 500 kW of 100% renewable electricity derived from wood waste biomass, for use on site and to export to the grid. This new, renewable electricity will offset fossil based generation elsewhere on the grid. Finally, the project will indirectly result in a net reduction in potential forest fire related emissions. According to an analysis completed by the California Air Resources Board, wildfire emissions from forest fires in California totaled more than 110 million metric tons of CO₂e in 2020 alone. By reducing potential for catastrophic forest fire, the project will have significant potential to reduce GHG emissions over the mid to long term.

16. Noise

Would operation of project facilities or primary beneficiaries' facilities increase local ambient noise levels? If yes, indicate the estimated levels of increase, and the areas and sensitive receptors (e.g., residences, wildlife) to be affected.

The project would include operation of the proposed equipment during normal working hours (8am to 5pm), five days per week. Equipment to be operated is summarized in the table below.

| Equipment Type | Noise level at 50 ft (dBA) |
|--|----------------------------|
| Grinder / Shredder (SSI Shredder M85 Electric) | 85 |
| Wheel Loader (Cat 914, 2.5 cubic yard) | 80 |
| Tracked Grapple Loader (John Deere 337E and Rotobec | 80 |
| 6007 grapple with RT-222 Rotator) | |
| Skid-steer / articulated loader (Bobcat S590 loader with 62" | 72 |
| industrial grapple bucket) | |
| Trommel Screen (McCloskey International 512A), electric | 78 |
| Crumbler Feed Bin (20 cu yd) | N/A |
| Rotary Shear Mill (Crumbler P24 System), electric | 80-83 |
| Orbital Screen System (BM&M Super Screen, 2 deck, 5x12) | 65 |
| Firewood Processor (Multitek 1610 w/electric drive) | 75 |
| Firewood Bundler (Multitek wrapper/bundler) | 60-62 |
| Conveyors (fixed and movable) | 65-70 |
| Biochar handling and packaging | 72 |
| Chip van (120 cu yd, 48 ft trailer, 4) | 72-76 |
| 48 ft flatbed trailer | N/A |
| Fuel tank | N/A |
| Truck Scale, non-permanent (Optima Scale OP-100 Truck | N/A |
| Scale) | |

| Equipment Type | Noise level at 50 ft (dBA) |
|--|----------------------------|
| Fabric Membrane Structure (5,000 sf hoop tent with storage | N/A |
| container sides) | |
| Generator Set (2G Energy), includes soundproofed housing | 55 |
| Artis Units (Omni Bioenergy) | 65-70 |
| Artis Power Electronics Upgrade (Omni Bioenergy) | N/A |
| Mobile office trailer (20' length) | N/A |
| Water Truck | 70-75 |
| Table 3. Equipment proposed for use on site. | |

The loudest equipment on site would be the proposed grinder / shredder, which would produce 85 dB at 50 ft, and the rotary shear mill, which could generate up to 83 dB at a distance of 50 ft. Other equipment on site would generate noise in the range of 55 to 80 dB at 50 ft. These levels are in range for typical large scale agricultural equipment including tractors, combines, and other equipment, which can generate noise levels in the range of 65 to 85 dB at a distance of 50 ft. Note that large scale agricultural equipment is used on adjacent parcels as an element of existing farming practices.

The nearest sensitive receptors to the project site are shown in Table 4, and include office buildings, single family residences, and a casino. Maximum operational period sound levels at these locations will be less than 59 dB or less for all residences, where acceptable noise levels for constant exposure at residences—the most sensitive nearby land use—is limited to 68 dB or below. Anticipated sound levels at the project fall within this range, and no additional mitigation is warranted.

| Sensitive Receptor | Distance and Direction to Project | Max effective dB |
|--------------------------|-----------------------------------|-------------------------|
| | Boundary | anticipated at distance |
| Farm/ag office building | 780 ft east | 62 dB |
| Single Family Residences | 1,070 ft east | 59 dB |
| Office building | 560 ft west | 64 dB |
| Single family residence | 1,010 ft west | 59 dB |
| Single family residences | 1,310 ft west | 57 dB |
| Casino | 880 ft northwest | 60 dB |

Table 4. Anticipated noise levels at nearest sensitive receptor locations; distances measured from edge of project site.

17. Permits

Identify any Federal, State, or local permits of an environmental nature needed for the project (e.g., USACE, US Environmental Protection Agency (EPA), Coastal Zone Management/Shoreline Management, Air Quality, State Environmental Policy Act, NPDES) and the status of any such permits. Attach copies of any such permits and all associated correspondence, including the permit applications.

The project would require a **permit to operate** from the Lake County Air Quality Management District. Construction of the proposed fence would require a **county building permit**.

No other permits would be required. Specifically, the project would disturb less than 1 acre of land area and therefore would not require compliance with the California Generation Construction NPDES Permit for stormwater. Moreover, the project would not result in any

water discharges and therefore would not require a discharge permit. The proposed on-site aboveground diesel storage tank would have a capacity of 500 gallons or less and therefore would not require permitting. The project would not result in disturbance to sensitive biological resources and therefore would not require any US EPA or other wildlife or endangered species permitting. Moreover, the project would not result in the placement of fill in any wetlands or any waters of the US, and would not require a USACE permit. Placement of the proposed temporary structure and the proposed equipment would not require a permit. No other permits would be required.

18. Public Notification/Controversy

Provide evidence of the community's awareness of the project, such as newspaper articles or public notification and/or public meetings, as applicable. If a formal public hearing has been held, attach a copy of the minutes. Fully describe any public controversy or objections which have been made concerning this proposed project and discuss steps taken to resolve such objections.

The Tribe, in coordination with the County, is in the process of completing additional public outreach and notification for the project. Generally, the project is anticipated to be noncontentious. It will be placed onto existing county land, and its operations will be consistent with historic agricultural uses on site and existing / ongoing agricultural uses in surrounding areas including with respect to noise and usage of equipment on site. To date, the Tribe is not aware of any objections surrounding the project, and the County's general plans for restoration and development of the overall property to the south—which this project will support by producing biochar for wetland restoration—have been perceived positively by the public.

19. Cumulative Effects

Please list projects (public and private, whether or not directly related to the proposed project described above) that have occurred or will occur in the past, present, and reasonably foreseeable future in and around the project area that could result in significant cumulative impacts when considered in aggregate with the proposed EDA project. Cumulative impacts result from the incremental impacts of a proposed action when added to other past, present and reasonable foreseeable future actions (40 C.F.R. Section 1508.7). In other words, cumulative impacts can result from individually minor but collectively significant impacts. Based on the direct and indirect impacts identified in Sections C1-18, identify which resources, ecosystems, and human communities are affected; and which effects on these resources are important from a cumulative effects perspective.

The geographic scope of the project considers all projects located in and within a 5-mile radius of the community of Upper Lake, CA, as well as all biomass management projects located within Lake County. Based on conversations with County planning staff on January 11, 2022, projects in the cumulative effects area are extremely limited. One apartment complex was proposed within the past year in Upper Lake, CA, but the application was recently withdrawn from consideration. Additionally, one additional biomass management facility—a wood waste to electricity production facility with a capacity of 200 kW, is located at the Red Hills project outside of Kelseyville, CA, at 7130 Red Hills Rd., Kelseyville. This facility would utilize wood biomass to generate electricity, potentially including forest biomass from other sources in Lake County. Other projects in Lake County include various residential and commercial development projects, and at least one geothermal to energy project. However, these potential projects are located outside of the identified cumulative effects area.

The cumulative scenario considers all potential cumulative projects identified above. Potential for the project to contribute to a cumulatively considerable impact on the various resources considered are as follows:

- Coastal zones. There are no coastal zones in Lake County and therefore no potential cumulative scenario impact was identified.
- Wetlands. The project would not directly or indirectly impact or affect an existing wetland.
 Moreover the project would not contribute to growth related impacts that could result in loss
 or degradation of wetlands. Therefore, the project would not contribute to a cumulatively
 considerable impact.
- Floodplains. The project would not be located in, nor would it directly or indirectly affect an existing floodplain through the direct or indirect placement of fill, location of facilities, or induction of growth-related impacts. Therefore, the project would not contribute to a cumulatively considerable impact.
- Climate Change. As noted previously, the project would mitigate potential increases in fire risk associated with climate change. The Big Valley project would also contribute an incremental net benefit to forest fire reduction in Lake County, by supporting regional forest thinning. Therefore the project would support a cumulative scenario benefit related to climate change, and would not contribute to a cumulatively considerable deleterious impact.
- Endangered Species. As discussed previously, the project is unlikely to affect endangered species, and has been designed and sited to avoid all potential impacts to endangered species. Additional mitigation has been incorporated to provide further assurance that related impacts will be avoided. Therefore the project would not contribute to a cumulatively considerable impact.
- Land use and Zoning. The project would be consistent with existing land use and zoning, and would not result in the conversion of any off site land or other off site changes in land use, directly or indirectly. Therefore the project would not contribute to a cumulatively considerable impact.
- Solid Waste Management. Direct impacts of the project would include generation of a minor volume of solid waste. Available capacity at the Eastlake Sanitary Landfill is currently 5 to 6 years, but an expansion to support increasing the lifespan of the landfill by 22 years is in process. Therefore, sufficient capacity is anticipated to be available in the landfill, and the project would not contribute to a cumulatively considerable impact.
- Hazardous and Toxic Substances. The project would include a <500 gallon diesel storage
 tank on site, and would utilize diesel fuel and lubrication oils for equipment. These activities
 would not result in the release of substantial volumes of hazardous or toxic substances, and
 would not meaningfully contribute to increased regional hazards associated with fuel use or
 toxic / hazardous substances. Therefore the project would not contribute to a cumulatively
 considerable impact.
- Water Resources. The aquifer underlying the project site is not considered depleted or in overdraft, and the project would require only a limited volume of water for ongoing operation. Moreover, it would not induce growth or otherwise indirectly cause the development of other new uses that would increase water use in the region. Therefore the project would not contribute to a cumulatively considerable impact.
- Water Supply and Distribution System. The project would not rely on a municipal water supply or distribution system, nor would it induce growth or otherwise indirectly cause an increase in water use or reliance on an existing municipal water supply or distribution system. Therefore the project would not contribute to a cumulatively considerable impact.

- Wastewater Collection and Treatment Facilities. The project would not rely on or require
 wastewater treatment, nor would it induce growth or indirectly cause an increase in other land
 uses. Therefore the project would not contribute to a cumulatively considerable impact.
- Environmental Justice. The project would have a net positive impact on environmental justice, and would not contribute to a cumulatively considerable impact on this category.
- Transportation. The project would result in minimal increases in traffic along SR-20, in an
 area that at present is not substantially congested and has an acceptable level of service. Other
 cumulative scenario projects would not meaningfully contribute to traffic in this area.
 Therefore, no cumulatively considerable impact would occur.
- Air Quality. The project would contribute an incremental increase in air emissions. However,
 the Lake County Air Basin is currently in attainment status for all applicable air quality
 pollutant categories. The cumulative scenario projects would not meaningfully increase
 emissions in the basin, such that a cumulative scenario impact on air quality would occur.
 Therefore, no cumulative scenario impact is anticipated.
- Noise. The project would result in a minor increase in noise in the vicinity of the project site as discussed for direct impacts. However, cumulative scenario projects would not result in new facilities or activities that would add to this increase in noise. Therefore, the incremental residual impacts of the project related to noise would not combine with other cumulative scenario impacts and therefore no cumulative scenario noise impact would occur.

D. <u>MITIGATION</u>

Describe methods to be employed to reduce impacts to any and all adverse impacts identified in Section C. List all mitigation measures that would be implemented to minimize impacts to environmental resources from project implementation.

Mitigation Measure BIO-1. Prior to project implementation, the Applicant shall retain a qualified biologist to complete a survey for the presence of California red legged frog and its suitable habitat. If the species or reasonably suitable habitat is found to be present, such that project construction could result in impact to the species, the Applicant shall adhere to the following measures:

- Project construction activities in potential red-legged frog habitat shall be restricted to the period between July 1 and October 15.
- Additional permitting and mitigation measures may be warranted in the event that red legged frogs are identified on site. Additional measures would be identified following the site survey and could include, but would not be limited to:
 - O Prior to the onset of any project-related activities, the approved biologist must identify appropriate areas to receive red-legged frog adults and tadpoles from the project areas. These areas must be in proximity to the capture site, contain suitable habitat, not be affected by project activities, and be free of exotic predatory species (i.e. bullfrogs, crayfish) to the best of the biologist's knowledge.
 - O A qualified biologist shall survey the project site at least two weeks before the onset of construction activities. If red-legged frogs are found in the project area and these individuals are likely to be killed or injured by work activities, the biologist will allow sufficient time to move them from the site before work activities resume. Only qualified biologists will participate in activities with the capture, handling, and monitoring of red-legged frogs.

- O Prior to the onset of project construction, a qualified biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the red-legged frog and its habitat, the importance of the red-legged frog and its habitat, the general measures that are being implemented to conserve the red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.
- A qualified biologist shall be present at the work site until such time as removal of red-legged frogs, instruction of workers, and habitat disturbance has been completed. The biologist shall have the authority to halt construction as warranted.

Mitigation Measure CUL-1. Cultural Resources Construction Monitoring. During all ground work (e.g. installation of fence posts), a certified cultural monitor--a member of Scotts Valley Band of Pomo Indians (monitor), shall be continuously present onsite, to observe disturbance areas. The monitor shall halt work in the immediate vicinity if artifacts, exotic rock, shell or bone are uncovered during the construction. In the event such cultural resources are unearthed during ground-disturbing activities, and the monitor is not in that location, the project operator shall cease all ground-disturbing activities within 50 feet of the find and immediately contact the monitor. Work shall not resume until the potential resource can be evaluated by the monitor. The monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the find until the qualified monitor has evaluated the find, determined whether the find is culturally sensitive, and designed an appropriate short-term and long-term treatment plan. The significance of the find shall be determined by the monitor, in consultation with the Scotts Valley and Habematolel Bands of Pomo Indians. If determined to be significant the archaeologist shall prepare a treatment plan in consultation with local experts, Native American Representatives, and the County Planning & Development Services Department.

Mitigation Measure CUL-2. Discovery of Unknown Resources. The project applicant shall continuously comply with the following requirement: In the event that unanticipated cultural or tribal cultural resources are encountered during the course of ground work or construction, the project operator/contractor shall cease any ground-disturbing activities within 50 feet of the find. Cultural and/or tribal cultural resources may include prehistoric archaeological materials such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock, as well as historic materials such as glass, metal, wood, brick, or structural remnants. A certified cultural monitor shall evaluate the resource in consultation with the Scotts Valley and Habematolel Bands of Pomo Indians, and recommend treatment measures, as appropriate.

E. <u>LIST OF ATTACHMENTS</u>

The following checklist is a list of required and optional attachments to the Environmental Narrative as described in the sections above. The items listed in the optional section may be required by EDA at a later date to complete the project review and selection process, so it is recommended that you provide them now if they are currently available. While the documents listed below are the most frequently required for scoping determinations, EDA reserves the right to request additional items that are not listed below when necessary.

Applicants are not required to contact other governmental agencies for environmental or historical resources consultation until directed by EDA, though any interagency coordination letters that may be currently available should be provided. **EDA expects that all Applicants whose projects are selected for further evaluation will proceed with consultations in an expeditious manner.** As such, Applicants should have the required information prepared for submission immediately upon notification of selection by **EDA**. If you determine prior to application that your project may affect environmental or historical resources, you may contact the appropriate Regional Environmental Officer to determine if early interagency consultation is appropriate.

Please refer to the applicable Federal Funding Opportunity for unique requirements for each individual grant competition and a list of documents required for submittal with the application.

Checklist of Optional Environmental Documents that should be submitted with Application if available (will expedite review and selection process):

- o SHPO/THPO and Tribal leader comments and copy of submittals (see Section B)
- o Site photographs (see Section C1)
- o Coastal Zone consistency determination (see C2)
- o Wetland delineation and/or Jurisdictional Determination (see C3)
- o Preliminary wetland info (see C3)
- o U.S. Army Corps of Engineers comments, Section 404 Permit, Section 10 Permit, and/or Water Quality Certification (401 approval) (see C3)
- o Biological Assessment and/or survey for federally protected species (see C5)
- o Correspondence with US Fish and Wildlife Service and/or National Marine Fisheries Service (see C5)
- o Natural Resources Conservation Service determination of Prime Farmland, Form AD-1006, if applicable (see C6)
- o Phase I and II Environmental Site Assessment (seeC8)
- o Sole Source Aquifer review by US Environmental Protection Agency, if applicable (see C9)
- o Other federal, state and local environmental permits (see C16)
- o Copies of public notices, public hearing minutes, etc. (see C17)

Attachment A. Tribal / Archaeological Comments and History of Bloody Island

THE KELSEY BROTHERS: A CALIFORNIA DISASTER

Talk presented at the 2012 November meeting of the Lake County Historical Society.

2012 John Parker

Contents

| INTRODUCTION | |
|--------------------------------------|-----|
| We Begin in Kentucky and Missouri | |
| Meanwhile in California | |
| Kelsey Brothers Move West | 5 |
| Vallejo's California | |
| Stone & Kelsey Move to Clear Lake | (|
| Stone & Kelsey Atrocities | |
| The Last Straw | |
| STONE & KELSEY KILLING | 13 |
| Benson's Version | 1 |
| | |
| Upee's Version | 1/ |
| Chief Augustine's Version | 1 |
| | |
| Major Ed Sherman's Version | |
| William and Mary Noble's Version | |
| Analysis: | 10 |
| Pomo Get a Few Months of Rest | |
| Sam and Ben Kelsey Take Revenge | 16 |
| MILITARY ATTACK AT BADONNAPOTI | |
| 1881 and 1949 County History Version | 17 |
| Jim Benson's Version | |
| Chief Augustine's Version | |
| Captain Nathaniel Lyon's Version | |
| Major Ed Sherman's Version | 23 |
| Analysis | 23 |
| 1111aty 515 | |
| WHAT HAPPENED TO SAM AND BEN KELSEY? | 24 |
| BIBLIOGRAPHY | 2.6 |
| ~-~ | |

INTRODUCTION

Although this is a detailed review of the events surrounding the Kelsey Brothers and their place in Lake County history, the reader should keep in mind that this is not an exhaustive research paper. Due to time constraints, it is likely that there may be references that weren't found and are not presented herein.

History: From the words "his"-"story". Someone's version of how events occurred in the past as seen from their own bias, wishful thinking, or ego. Not necessarily what actually happened. (definition by John Parker)

In my 40 years of research, I have never seen as many different versions of the exact same events as I discovered while researching this talk.

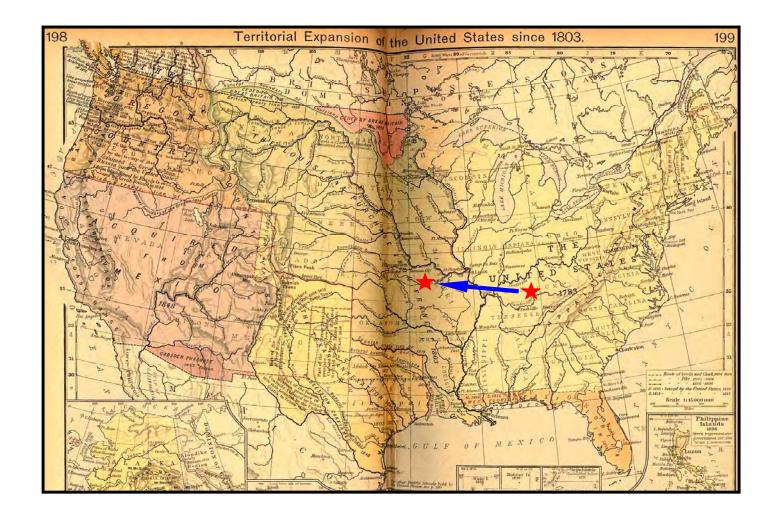
We Begin in Kentucky and Missouri

1821: Sam and Susan (Cozzort) Kelsey gave birth to Andrew Kelsey. He already has two brothers (Sam Jr. born 1816 and Benjamin born 1813. They move to Missouri (National History Company 1883).

1830's: Brothers Zedidiah (David), Ben, Sam Jr., and Andrew Kelsey illegally try to secure the pre-emption land claims of neighbors in Hoffman Bend, Missouri. They were "invited" to leave and moved up river (National History Company 1883).

1838: Sam Kelsey, Jr. is indicted for assault with intent to kill by the state of Missouri. After defaulting on his 1st court date, he later appears and moves to quash the indictment. Court agrees (National History Company 1883).

1841: Andrew Kelsey and Charles Beale are sued for trying to secure pre-emptive land rights of their neighbors in Henry County, Missouri (National History Company 1883).



Meanwhile in California

1820: Clear Lake's 10 Native American communities and political centers are busy living as they have for several thousand years. Their shell-bead money economy, fishing, fowling, hunting, grain and acorn processing technologies are serving them well (Parker 1994).





1822: Mexico wins independence from Spain and Mariano Vallejo is made commander of Mexico's Northern Frontier. He immediately makes all Native Americans his subjects (Palmer 1881).

1834: Mariano Vallejo is Commandant of the San Francisco Presidio and is told by the Mexican governor to move his garrison to Sonoma (Palmer 1881).

1834: Mariano Vallejo and his brother Salvador move to Sonoma, marry sisters, befriend the Suisun Indians and have them build La Casa Grande (Vallejo's Sonoma complex) (Palmer 1881).

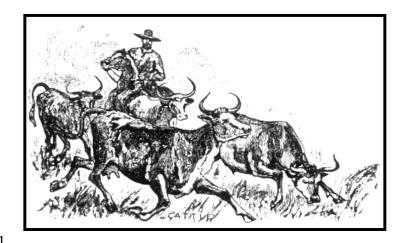




Dr. John Parker Page 3 12/1/2012

1839: Vallejo builds a log house and corral in Big Valley just north of present-day Kelseyville. He runs cattle in the valley with a Mexican majordomo and 10 Pomo vaqueros (Palmer 1881, Mauldin nd.).

The valley is soon overrun with Vallejo cattle (mostly gone wild) (Palmer 1881).



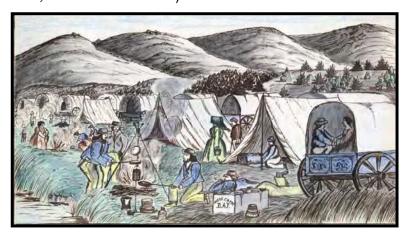
1842: George Simpson visits General

Vallejo and describes his treatment of Indians: "about 300 in number... are badly clothed, badly lodged, and badly fed... they vegetate rather than live." (Heizer et al 1971)



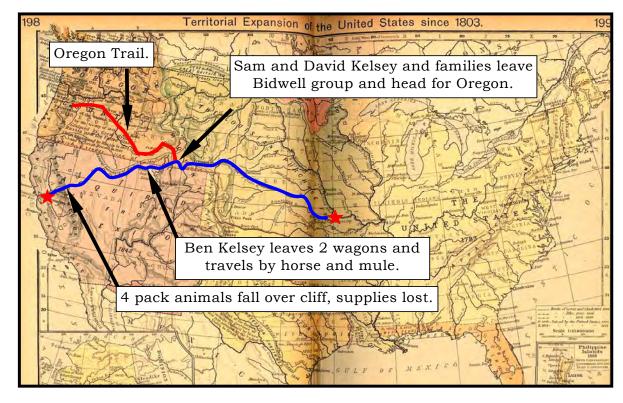
Kelsey Brothers Move West

1841: Ben, Samuel, David and Andy Kelsey join the Bidwell-Bartleson Wagon Train to California. Though the Oregon Trail had been established, this was the first overland trip from Independence Missouri to California. Ben is traveling with his wife and child, Sam with his wife and 5 children and David is with his wife (National History Company 1883, Branscomb 2009, Nunes 1991, Bigler 2012, Christalen 1997).



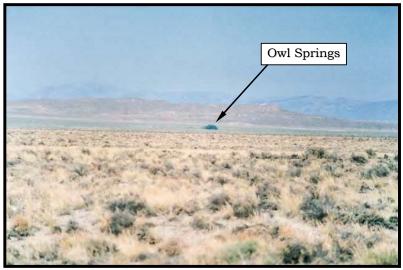


At Soda Springs, Sam and David Kelsey and their families leave the Bidwell-Bartleson group to head for Oregon (National History Company 1883, Branscomb 2009, Nunes 1991, Bigler 2012, Christalen 1997). Andy, Ben and wife Nancy remain with the Bidwell party to California.



At Owl Springs Ben Kelsey must abandon his wagons as the oxen are too weak from lack of grass (National History Company 1883, Branscomb 2009, Nunes 1991, Bigler 2012, Christalen 1997).

After the 170-day trek, the Bidwell party arrive barefoot and hungry at the John Marsh Rancho near San Francisco Bay (National History Company 1883, Branscomb 2009, Nunes 1991, Bigler 2012, Christalen 1997).

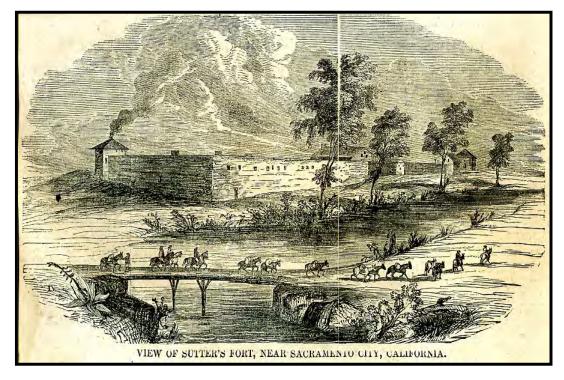


Ben's wife Nancy Kelsey is the first woman to travel overland to California. She is later credited with sewing the flag for the California Bear Revolt.

The group had to get passports from the Mexican government in order to remain in the territory. Initially Mariano Vallejo refused and fourteen were jailed until John Marsh vouched for them.

In December, the Kelseys travel with Bidwell up the Sacramento River to Sutter's Place (Christalen 1997, Heath 1937).





1846: James Clyman visits Sutter and writes that his "600-800 Indians are in a complete state of slavery." He feeds them from "10 to 15 troughs, 3 to 4 feet long... like so many pigs." They must eat with their hands (Heizer et al 1971).

Vallejo's California

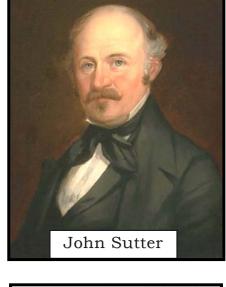
1843: Mariano's brother, Salvador Vallejo is General of the Mexican Garrison at Sonoma. He is in need of a large labor force to harvest his wheat and barley crop (Sherman nd.).

Like most Mexican landowners, Salvador Vallejo believes that all Native Americans on his land belong to him (as do the cattle, wildlife, trees, etc.).

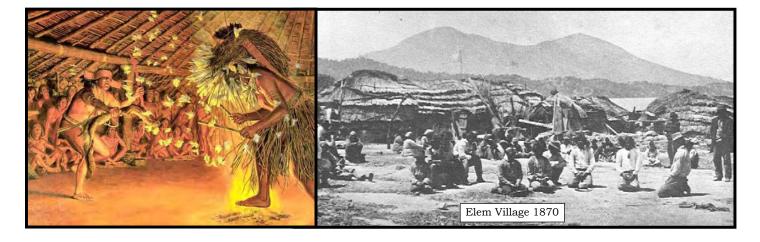
1843: Salvador Vallejo leads a group of 80 ranchers into Lake County to round up Indians to work at the Sonoma Rancho. They trade with the Koi on Indian Island. The Koi chief joins them as an interpreter. Next they stop at Rattlesnake Island to ask the Elem to move to Sonoma (no luck) (Heizer 1973).

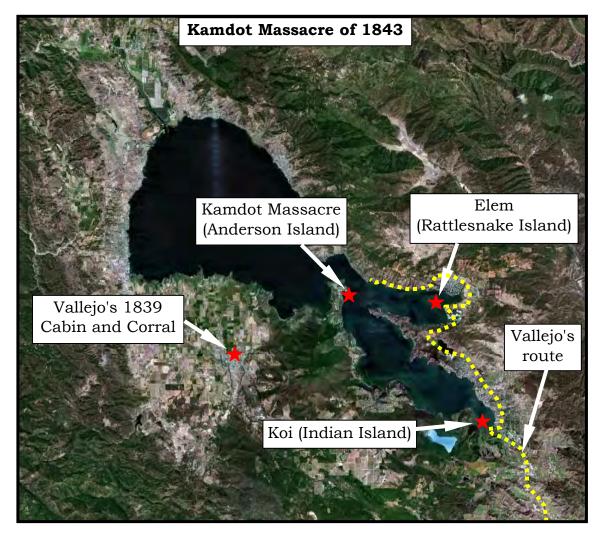
They finally visit the village of Kamdot on Anderson Island and when the villagers refuse to leave to go to Sonoma, they kill the chief and set the village dance house on fire with most of the villagers inside (Sherman nd., Heizer 1973).

This expedition is listed as taking place in March 1843, May 1842, summer 1841, or fall 1835 depending on the reference used (Heizer 1973).







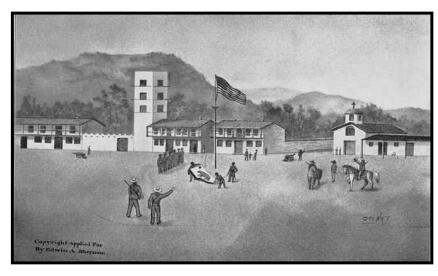


1843: Andy, Ben and Nancy Kelsey travel to Oregon where they meet up with brothers Sam and David (National History Company 1883).

1844: All return to California with a herd of cattle. David settles at French Camp, gets smallpox and dies (1845) (National History Co. 1883). The rest settle in the Napa Valley and become friends with Salvador Vallejo (Heath 1937).

1845: Ben Kelsey builds a cabin about 1 mile south of the current location of Calistoga.

1846: Ben Kelsey and his brothers join John C. Fremont to take over Vallejo's Casa Grande home in Sonoma and declare California's independence from Mexico (the Bear Flag Revolt). After several hours of visiting and drinks, it is decided that the Vallejos should be taken as "prisoners" to Sutter's Fort where



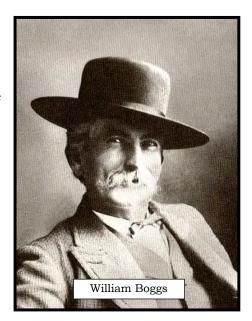
they are treated like guests (Heath 1937).

1847: Vallejo is no longer in command of a garrison of troops. Added to this are the bad feelings the Clear Lake Pomo now have for Vallejo.

Vallejo wisely decides to move his cattle out of Big Valley and into the Napa Valley and tries to sell off his Clear Lake land holdings which he calls the Laguna de Lup-Yome "land grant". He hopes Governor William Boggs might buy the land (Palmer 1881).

1847: After Vallejo moved his domestic cattle out of the Lake Basin, Clear Lake's Native American community considered that the wild cattle left behind belonged to them (Upee/Mauldin nd). After the Kamdot Massacre,

no white men want to enter the Clear Lake Basin (Hanrahan 1949).



Stone & Kelsey Move to Clear Lake

1847: Vallejo is happy to sell off his remaining wild stock at Clear Lake to Charles Stone, Mr. Shirland, Andy and Ben Kelsey. Estimates of the number of head range from 800 to 15,000 cattle and up to 2,500 horses (Palmer 1881, Sherman/Mauldin nd.). He also gives them the right to graze in Big Valley.

Andy Kelsey and Charles Stone move to Big Valley to manage

the herd. They have the Indians build them a 15 foot wide and 40 foot long, 2-room adobe next to Kelsey Creek along with a large corral. It takes 400 – 500 Pomo working 2 months to build the adobe. To feed them, they allow the slaughter of one steer a day (Palmer 1881).

The Native Americans resent the fact that Stone and Kelsey are claiming the Clear Lake cattle. These were the cattle that Vallejo had left for the Pomo. Stone and Kelsey were even forcing the Pomo vaqueros to round up the cattle so they could be driven out of the area (Mauldin nd.).

Upee (wife of Chief Augustine) reports that when Stone and Kelsey first arrived, they were welcomed by the Pomo and relations were pleasant. It was then that many of the Pomo moved their homes near the



adobe and gave their hunting implements to Stone and Kelsey as they wouldn't need them anymore (Mauldin nd.).

Once the Pomo were disarmed, Stone and Kelsey's attitude changed.

Stone & Kelsey Atrocities

Outside visitors to the ranch mentioned that Stone and Kelsey would entertain guests by shooting Indians just to see them jump and by lashing them as recreation (Palmer 1881, The Journal 2008).

Upee was 15 when she and another girl were forced to live with Stone and Kelsey. If a father or mother was asked to bring their daughter to the adobe and didn't obey, they were whipped and hung by the hands (Mauldin nd.).

The Pomo working for Stone and Kelsey were given no pay and only 4 cups of wheat a day as a ration. All were

starving. They had been paid much better when they worked for Vallejo (Palmer 1881), (Mauldin nd.).

Both Pomo and white visitors report that the typical punishment (for complaining about work or hunting on the ranch) was to be whipped or, with hands tied, hoisted off the ground by a rope over a tree limb for hours. These occurred 2 to 3 times a week (Palmer 1881, Mauldin nd.).

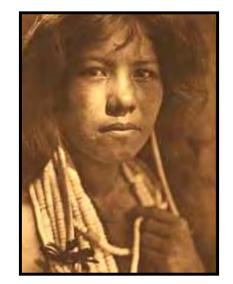
Upee's nephew asked her for extra wheat for

his starving mother. Upee gave him some. When Stone found out, he shot the boy (Mauldin nd.).

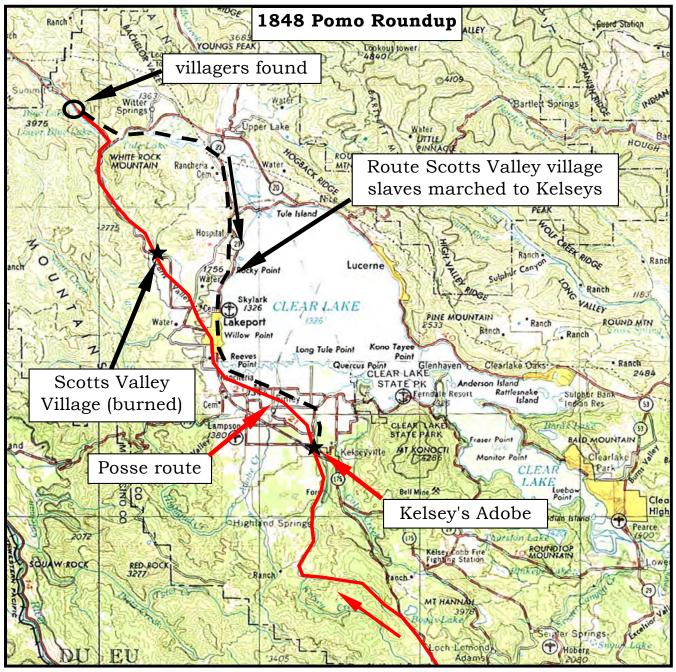
One Indian worker, who let a raccoon ruin some of the ranch watermelons, was killed for his negligence (The Journal 2008).

1848: The mistreated Pomo surrounded the adobe with Stone and Kelsey inside. A friendly Indian traveled to Sonoma and told Ben and Sam Kelsey who put together a "posse" of 7 to confront the Pomo (Palmer 1881).

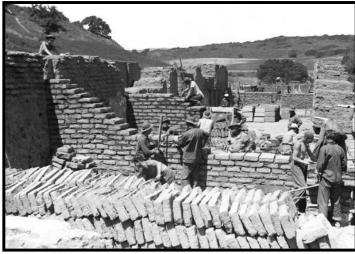
After the posse broke up the siege, the Kelseys organized 144 Pomo to fight the Scotts Valley band suspected of stealing cattle. No Pomo were found in Scotts Valley. But one was found in Blue Lake Canyon. He was tortured and led the group to the villagers in the hills above Blue Lake. They were rounded up and marched to the Kelsey Ranch as slaves and their village was burned (Palmer 1881).







1848: Ben Kelsey took 172 Pomo from Clear Lake to Sonoma for 2 months to build adobes. Chief Augustine (Augustine was "Chief" of the Big Valley Kulanapo tribe) was also taken but escaped and returned to Clear Lake. As punishment, Stone and Kelsey tied him up in a standing position in a sweat lodge for a week with only bread and water (Palmer 1881, Heizer 1973).



1849: Ben Kelsey took 26 Clear Lake Pomo on a 1-month trip to the gold fields on the Feather River. They mined a bag of gold for Kelsey "as large as a man's arm" (Heath 1937, Heizer 1973). All returned safely and were paid a "pair of overalls, a hickory shirt, and handkerchief" for their efforts (Heizer 1973). Kelsey used the gold to buy 1,000 head of cattle.

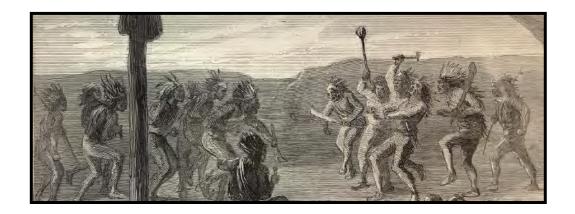
1849, fall: With a \$12,000 investment by Governor Boggs, Ben Kelsey put together a second gold expedition. He picked 100 Pomo from Big Valley and took them to

Sonoma for the expedition. With him were brother Sam, William Boggs, Salvador Vallejo, and 4 other whites. This time he also took a herd of sheep. The Pomo were not fed on the trip and 2 died on the trail (Heath 1937, Heizer 1973).

Kelsey decided it would be more profitable to sell his supplies to other miners. He made \$16,000. Malaria broke out among the whites and



Indians. Kelsey had to be carried home on a bed. The Pomo were left in the Sierras, in Colusa Indian territory (enemies of the Pomo). Between the malaria, the harsh winter, and enemies, only 3 Pomo made it back alive (Palmer 1881, Heizer 1973).



According to Pomo accounts, this is when Stone and Kelsey buy the rest of Vallejo's cattle in the Lake Basin (Heizer 1973).

1849, winter: Stone and Kelsey plan to march all old and non-workable Pomo to Sacramento so only the strong and young would remain at Clear Lake. To tie the group together for the march, they force the Pomo to work on making ropes for 2 weeks (Palmer 1881, Heizer 1973).



The Last Straw

It is difficult to determine what finally triggered the killing of Stone and Kelsey. Any of the previous atrocities listed could have been the driving force. My guess is that the 3 most likely were:

- 1. The plan to drive all the elders and children down to Sacramento (Palmer 1881, Heizer 1973).
- 2. The deaths of the Pomo taken to the gold fields (Heizer 1973).
- 3. Two years of starvation, whippings, torture, and abuse (Mauldin nd.).

STONE AND KELSEY KILLING

Benson's Version (Mauldin nd.)

1849, December: Some of the starving families hired Xasis and Shuk to obtain cattle for food. They borrowed Kelsey's horse and rounded up a few head. While trying to rope one of the steers, the cattle and horses got spooked and ran off.

Back at Xasis house, the families that hired him recommend that they pay Stone and Kelsey 16,000 beads (\$100) as payment for the missing horse. No one agrees 1.

It is then suggested that they tell them the horses were stolen. No one agrees.

Shuk and Xasis suggest killing Stone and Kelsey. No one agrees.

Xasis band (Ma Loxa Qe Tue) is joined by Ba-Tus, and Kra-Nas.

They tell the house servants to take all weapons out of the house at night.

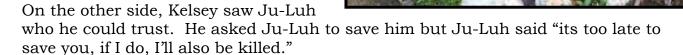
Next morning, as usual, Stone brought a cast iron pot of coals out of the house to light the fire under the large servants pot of wheat.

Dr. John Parker Page 13 12/1/2012

 $^{^{\}scriptscriptstyle 1}$ Community agreement over a community plan of action is a crucial aspect of traditional decision-making among the Pomo.

Five Pomo were waiting outside and Oka-Nas took Shuk's bow and shot Stone. Stone pulled out the arrow and ran for the house swinging the cast iron pot, breaking one man's arm.

Andrew Kelsey opened the door and was charged. He was stabbed twice in the back, broke loose and ran for the creek. Xasis shot Kelsey in the back with an arrow. Kelsey pulled it out, dove into the creek and swam across.



Ju-Luh and "Big Jim" had Kelsey by the arms (weak from blood loss). Big Jim said to Da-Pi-Tauo (his wife), this is the man who killed our son, here's your chance for revenge. He gave her a spear and she stabbed Kelsey in the heart.

Kelsey's body was left there for the covotes.

Meanwhile back at the adobe, Xasis and Ora-Nas followed Stone's blood trail up the stairs and found him dead in the loft.

Upee's Version (Upee/Mauldin nd.)

In preparation for the cattle drive out of the valley, Stone and Kelsey gave the Pomo 2 steers for a feast and dance. Upee and the other girl got permission to attend the dance where they were instructed about the plan.

That night, one held the guns out the door of the adobe while the other poured water in the barrels.

Next morning, one girl waved a signal from the door of the eating house and a group of Pomo rushed the building. Stone and Kelsey got out of the building, but one was knocked down and hit in the head with a rock. The other made it to the adobe, got a rifle, but it wouldn't fire. He was killed in the adobe. Both men were buried in the creek bank.

Chief Augustine's Version (Palmer 1881, Heizer 1973)

Stone and Kelsey's guns were stolen the night before. The attack happened early in the morning. Through the adobe window, Kelsey was shot in the back with an arrow. He ran out, crossed the creek and an old Indian struck him in the head with a stone killing him.

Stone ran into a small building to hide. The Indians cut the door fastenings and Stone ran out waving a large knife to get through the crowd. Someone stepped on his long-tailed coat tripping him. He was trampled and his throat cut with his own knife. Though he made it to the adobe, he died in the loft. The Indians buried Kelsey in the creek bank where he fell. Stone was buried near the house.

When the soldiers came, they dug up both bodies and buried them together.

1881 History of Lake County Version (Palmer 1881)

While Stone and Kelsey were out with vaqueros tending cattle for the drive, Upee poured water in their guns.

Next morning at breakfast, the Pomo charged the adobe and killed Kelsey with an arrow. Stone escaped into the loft, jumped out an upper window and ran to the creek hiding in a willow thicket.

The whole ranch of Pomo searched, found him and killed him by striking him in the head with a rock. Both men were buried in the sand of the creek bank.

Major Ed Sherman's Version (Sherman nd.)

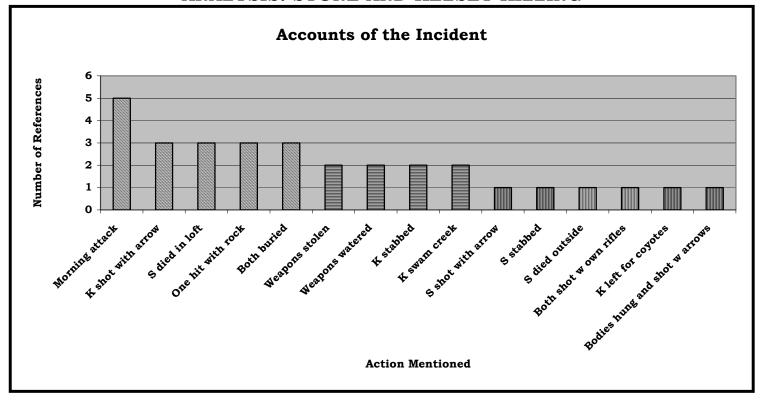
Stone and Kelsey befriended the Clear Lake Pomo and paid them well for their service as vaqueros. The Pomo had ample food and ate at the same table, after their employers were done.

One morning in 1850, while eating breakfast, Prieto (Prieto was the "Chief" of the Habenapo) and George treacherously murdered Stone and Kelsey by shooting them with their own rifles.

William and Mary Nobles Version:

The bodies of Stone and Kelsey were hung in a tree and shot with arrows before being taken down and buried by the soldiers (Wolfe 1935).

ANALYSIS: STONE AND KELSEY KILLING



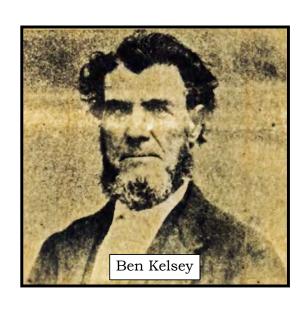
Although there is no way of knowing for sure what happened during the killing of Charles Stone and Andrew Kelsey, the best approximation can be obtained by graphing the various activities mentioned by the number of accounts that discuss those activities. Based on the accounts listed in this report, it is unlikely that any of the activities that are mentioned by only one person actually took place (see the 6 bars to the right). There seems to be agreement among most of the story-tellers concerning the details represented by the 5 bars on the left. The remaining bars depict events that may or may not have happened.

Pomo Get a Few Months of Rest

Though they expected immediate retaliation, none happened. Feeling like free men once more, most Pomo returned to their old villages in Scotts Valley and Upper Lake. The Pomo placed lookouts at the Lower Lake trail, the west side of Big Valley, and the 8-mile Valley trail (from Ukiah). Two to three weeks passed with no whites being seen (Mauldin nd., Heizer 1973).

Sam and Ben Kelsey Take Revenge

1850, February: Learning of the death of their brother, Ben Kelsey called on the Troops and then



organized a group of armed settlers who rode off and murdered "a large number of Indians" in the lower part of the Napa Valley. They asked whites to separate their own Indian slaves from "strange" Indians. The "strange" ones were then brutalized, shot, or burned to death by Kelsey and company (The Journal 2008).

Another party of 40-50 armed settlers, "headed by Samuel Kelsey and a Mormon named Joseph Smith," start near Yountville and burned and killed

their way south, pausing long enough in Sonoma to announce that they would "hunt and kill every Indian, male and female, found in the country." They became known as the Sonoma Raiders" (The Journal 2008).

Finally, in March 1850, a Napa rancher filed a complaint and the next day Sam Kelsey and six others were arrested and jailed at Benicia. Several others were named but not charged, while a third group, including Ben Kelsey, was "admitted to bail."

The "Sonoma Seven" were incarcerated on the *USS Savannah* while their case was argued before the California Supreme Court (the first case ever heard by the California State Supreme Court).

MILITARY ATTACK AT BADONNAPOTI

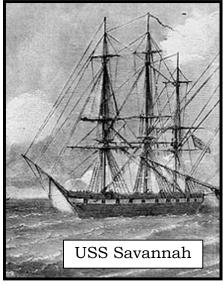
1881 and 1949 County History Version (Palmer 1881, Hanrahan 1949)

1850, Spring: General Smith ordered Lieutenant Stoneman to lead a company to punish the Clear Lake Pomo for the Stone and Kelsey deaths. On arriving, they found no Pomo in the area. They exhumed Stone and Kelsey's remains and reburied them together on Pinea Hill.

Finally, at the north end of the lake, they discovered the Indians at the village of Badonnapoti on an island surrounded by tule marsh.

From their shore location, Stoneman's rifles were out of range. Stoneman sent to Benicia for reinforcements.







Lieutenant Lyon led 2 more companies of reinforcements, obtained two whale boats loaded with supplies (strapped to wagon running gear) and two mountain howitzers. These were trailed to Lower Lake.

By this time, many Napa residents had joined the group and all met at Anderson's Ranch at Lower Lake. Part of the soldiers, cannon, and whale boats headed up the lake. Stoneman led the mounted soldiers and volunteers around the west side of the lake.

Both groups met at Robinson Point just south of the island.

During the night, the volunteers and cannon were put in position north of the Island. In the morning a few shots (still falling short) attracted the attention of the villagers.

Meanwhile, the boats with soldiers came up on the opposite side of the Island. At the signal, the cannon blew canister shot into the village sending the Pomo running south over the Island where a line of soldiers rose up from the tule and dispensed a volley of musket fire.



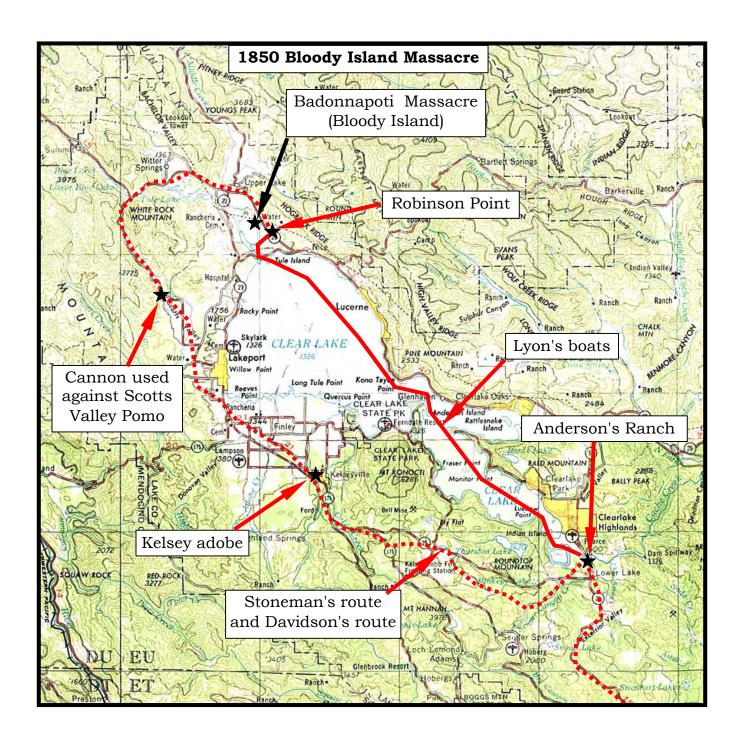


As many as could, ran into the lake, waded through the tule and escaped into the hills.

The soldiers killed women and children, even following them into the water shooting, stabbing, and clubbing them with their guns and oars.

When finished at the island village, the military traveled up to Potter Valley and then back through the Ukiah Valley (where they attacked another village), down the Russian River to Santa Rosa, Sonoma, and then to Benicia. The expedition had taken more than a month.





Jim Benson's Version (Mauldin nd.)

Lake watchers saw a boat coming around the point (Buckingham). Lookouts posted on Konocti saw boats with red cloth on a pole on the bow (flag) and each with 10-15 men. Smoke signals were given.



Trail watchers on Ash Hill saw the infantry coming around the Lakeport side and also sent up signals.

The infantry shot off the big guns a few times in Scotts Valley. They ended up camping on Emerson Hill by Upper Lake.

The whites took the boats to the Island where the Pomo met them in peace, but the whites were determined to kill.

Ge Wi Lih threw up his hands and said "no harm, me good man". He was shot in the arm and the Pomo next to him was shot dead.

Most ran and hid in the tules but 4 or 5 fought back and another was shot in the shoulder.

Many women and children were killed. One woman reports seeing two white men with guns held in the air with a little girl hanging from their bayonets. They threw her into the water. Two more did the same, this time with a little boy. A wounded mother with a baby were both stabbed and thrown into the lake.

It took 4-5 days to pick up all the dead. It was discovered that all children had been stabbed to death as were most women. All the dead were burned on the east side of the creek.

The whites had caught a Pomo during the march through Scotts Valley. They had hung him in their camp and built a fire under him. Another was tied to a tree and burned to death.



Chief Augustine's Version (Palmer 1881, Heizer 1973)

1850, Spring: Soldiers came to Kelsey's ranch and then around the lake by way of Scotts Valley. Here they found an Indian whom they killed. The rest escaped into the brush. They discovered the Indians on an island near Upper Lake. They sent for 4 boats and cannon and went to Lower Lake where they got Indian guides to show them the way to the Upper Lake island.

The rest of the soldiers went around the lake by land taking the cannon with them. In Scotts Valley the Indians had one of Kelsey's rifles and fired it at the soldiers. The soldiers fired their cannon twice into the brush but did not kill any Indians.

The two parties met at the point near Robinson's place. In the morning, the soldiers killed their two Indian guides (one shot and one hung). The party with the cannon went around to the head of the lake (north of the Island). Those with the boats went

into the slough on the south side of the Island.

The soldiers began firing their guns and 5 Indians went out to give battle (one with a sling, the others with bows). The cannon weren't fired at all. The Indians took to the tules and water, keeping out of the way of the soldiers.

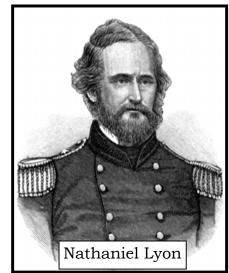
Only 16 were killed.

The soldiers then went over to Potter Valley and Yokia Valley. They had a fight with the Yokias. The Indians fought well, considering their arms, but many were killed (over one hundred at least).

Captain Nathaniel Lyon's Version (Lyon 1850)

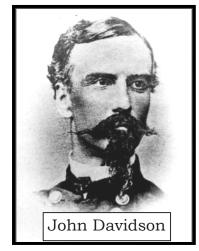
Writing to Major Canby in Monterey from Anderson's Rancho at Lower Lake, Captain Lyon describes the expedition as follows:

We "left Benicia the 6th, arrived at Anderson's on the 11th.



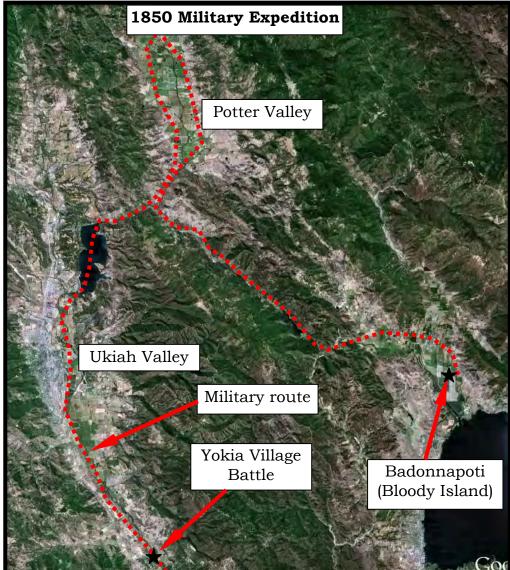
On the 12^{th} , Lieutenant Davidson took the mounted detachment and howitzers around the west side of the lake. We proceeded by water up the lake arriving in position on the 14th.

Davidson's detachment attacked a rancheria (in Scotts Valley) killing 4 and taking the chief." "Early on the morning of the 15th, the landing on the island was effected under strong opposition from the Indians, who took flight in every direction, plunging into the water among the heavy growth of tule that surrounds the island." I saw no alternative but to pursue them into the tule... with most gratifying results; the number killed... not less than 60 and doubt little, extended to 100 and upwards." "The Indians were suppose to number about 400. No injury to the command occurred. The village was burned along with a large amount of stores..."



"Being satisfied that the tribes of the Russian River had participated in the murders of Stone and Kelsey and were harbouring... tribes known to be the most guilty, I proceeded to the headwaters (Potter Valley) seeking the village of Chief Chapo."

"Finding the village deserted, (we) proceeded 22 miles down river to a tribe called Yohaihak, among whom was Prieto and his tribe..." (Prieto was the "Chief" of the Habenapo) "The morning of the 19th... (we had them) completely surrounded (on an island in the river that) became a



perfect slaughter pen." "The number killed, not less than 75... (maybe) double that."

"During our passage down river, an Indian was taken captive who communicated... that some Spanish citizens had instigated the Indians against the Americans... confirming... hints previously thrown out to me by several persons." "These (Spaniards) were living on the road to Sonoma. I dispatched Lieut. Davidson to Sonoma to obtain the information..." "Leaving the ...Russian River, I proceeded across the mountains... and arrived at this place (Anderson's Ranch) after 2 days march."

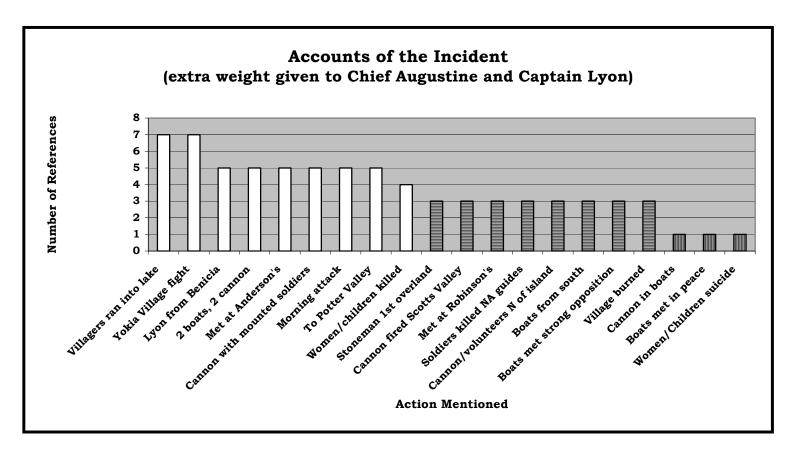
Major Ed Sherman's Version (Sherman nd.)

"Lyons attack on the Island of 400 warriors was by good strategy and courage. Many squaws and children jumped into the lake and drowned. Other women and children committed suicide in fear while the soldiers fought with the bucks and burned the village."

At least 400 warriors were killed. Another 400 squaws and children died by drowning or suicide.

Then the company crossed into the Russian River where another hostile tribe of the same size was encountered and "wiped out of existence."

ANALYSIS: ATTACK AT BADONNAPOTI



Although there is no way of knowing for sure what happened during the battle at Bloody Island, the best approximation can be obtained by graphing the various activities mentioned by the number of accounts that discuss those activities. Based on the accounts listed in this report, it is unlikely that any of the activities that are mentioned by only one person actually took place (see the 3 bars at far right). There seems to be agreement among most of the story-tellers concerning the details represented by the 9 bars top the left). It is also likely that remaining bars depict events that actually happened (center bars).

WHAT HAPPENED TO SAM AND BEN KELSEY?

In its first ever decision, the Calif. Supreme Court released the Sonoma Seven (charged with arson and murder) on a \$10,000 bond (The Journal 2008).

There was a problem; Calif. was not yet a state and there were no jails, legal system, or clearly defined laws. However, they were to appear in Sonoma District Court to stand trial for murder (The Journal 2008).

Two days after their release on bond, a news article appeared reporting "For Trinity Bay, the Fast Sailing Schooner Ryerson." At least 3 of the Sonoma Seven jumped bail and boarded the Ryerson (The Journal 2008).

Upon arriving at the newly discovered Humboldt Bay, the group formed the "Union Company", established the town called "Union" (later to become Arcata). Ten of the 33 members of the Union Company had been implicated in the Sonoma/Napa Indian attacks (including Joseph Smith and Sam Kelsey's father-in law). They started claiming ownership of land up and down the east coast of Humboldt Bay (The Journal 2008).

Within one year of their arrival, they had murdered several Indians and burned two Wiyot villages (The Journal 2008).

I850, August: Ben Kelsey sold the Clear Lake stock and received \$13,000 down. The buyer never paid the balance. Ben, wife Nancy and Sam traveled to Humboldt Bay overland. On the trip Ben killed a tribal chief (The Journal 2008, Heath 1937).

Though they had impressive holdings and built fancy homes, both Sam and Ben Kelsey defaulted on their loans and lost their Arcata land (The Journal 2008).

Sam moved to San Bernardino County in 1861 and formed a band of Confederate sympathizers. A warrant was issued for his arrest in 1862 and he disappeared from the historical record (The Journal 2008).

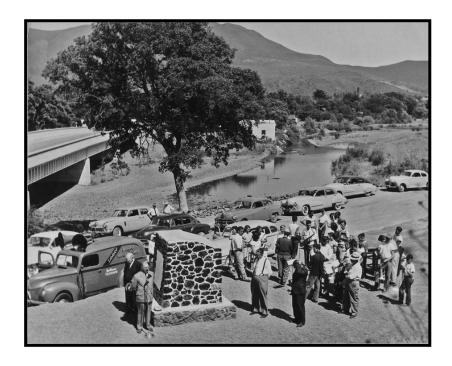
Ben and Nancy moved to Mexico in 1859 and then to Texas (The Journal 2008).

In 1861, while Ben was out hunting, Nancy, a neighbor woman and their children were raided by Comanche. Though all were in hiding, the Indians managed to find and scalp the 12-year old Kelsey girl. She survived but was "deranged" (Heath 1937).

They moved back to California where Ben died in 1888. Nancy died in 1896 (The Journal 2008).

1950: Due to problems with looting and vandalism, a decision was made to exhume Stone and Kelsey's remains and rebury them beneath a newly planned historical marker.

Henry Mauldin, Bert Smith, and a Roads Department helper removed the remains. They had originally been buried in a 4-foot deep hole measuring 4-feet wide by 6-feet long. Hewn oak sides were discovered lining the hole. It was discovered that one man was very large and one was average size. Distant relative Dan Sylar indicated that Kelsey's family was small.





H.H. Bancroft writes:

The Kelsey's were "rough men often in trouble with the law." "Kelsey and Stone were men (who could never) use conciliatory methods with "Injuns and such varmint", and they were both killed as they well deserved to be."

BIBLIOGRAPHY

Bigler, David

2012 Bidwell-Bartleson Party, Utah History Encyclopedia online publication.

Branscomb, Ernie

2009 The Kelseys: "Bad Guys", Online Publication.

Christalen,

1997 Online Description of Bidwell Party

Hanrahan, Virginia

1949 Historical Napa Valley, Mauldin 596

Heath, Minnie Beatrice

1937 The First Pioneer Woman to Cross the Plains, in **The Grizzly Bear**.

Heizer, Robert F.

1973 The Collected Documents on the Causes and Events in the Bloody Island Massacre of 1850, Anthropological Research Facility, U.C. Berkeley.

Heizer, Robert F. and Alan F. Almquist

1971 **The Other Californians**, University of California Press.

Lyon, Nathaniel

1850 letter to Major Canby concerning the Clear Lake Expedition.

Margolin, Malcom

1981 Five Views: an Ethnic Historic Site Survey for California, **News From Native California**, Heyday Press.

Mauldin, Henry

nd. Upee's description of events. Upee, wife of Chief Augustine and forced to live with Kelsey. Mauldin 3-50

nd. William Benson's description of Stone and Kelsey events as told by his parents, Benson was a Big Valley Native American 1862-1937. Mauldin 88

nd. Captain John's description of events as told to Kelseyville's George Piner. Mauldin 711

nd. Bill Gilbert's account of the Ben Kelsey gold expedition, son of one of the Pomo who made it back from the Gold mining trip. Mauldin 854

National Historical Company

1883 *History of Henry and St. Clare Counties, Missouri*, St. Joseph Steam Printing Co., St. Joseph, Missouri.

Wolfe, Linnie (Marsh)

1935 Memories of Pioneer Life in Lake County, as told by William and Marry Ellen Nobles, Papers Relating to California Pioneers and to California History, Vol. 1, Bancroft Library.

Nunes, Doyce

1991 The Bidwell-Bartleson Party: 1841 California Emigrant Adventure.

Dr. John Parker Page 26 12/1/2012

- Palmer, L.L. 1881 *History of Napa and Lake County*, Slocum, Bowen & Co., San Francisco.
- Parker, John 1994 **Dots on a Map**, Dissertation Research, UMI, Ann Arbor, MI.
- Sherman, Edwin nd. Clear lake Expedition of 1850 Mauldin 680
- The Journal 2008 The Sonoma Gang: Remembering the Genocidal Scum who Built Arcata.

Attachment B. 2013 Phase 1 Environmental Site Assessment



Transmittal

June 17, 2013

| То | County of Lake | | Your ref: | Your ref: | | |
|---|--|-----------|--------------------------------|-------------------|------------------------|---------------|
| | Public Works Department 255 N. Forbes Street Lakeport, CA 95453 | | | Job no. | 02075-8410067 | |
| | | | | From | Cristina Goulart | |
| Attention | Attention Tom Smythe, P. E. | | Ξ. | GHD tel | 707-523-1010 | |
| Project | roject Middle Creek Flood Damage Reduction | | GHD fax | 707-527-8679 | | |
| Subject | Final repo | ort subm | ittal | Email | Cristina.Goulart@ghd.c | om |
| Drawing no./ Issue Document ref. | | Issue | Description/Title | | | No. of copies |
| | | | Hard Copy Final Phase I Envir | onmental Site As | ssessment Middle Creek | 2 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| ISSUED FOR ✓ your information □ construction □ quotation □ your approval/comments □ for re-submission □ returned to you | | | | | | |
| Sent by | Sent by □ GHD messenger □ Receiver's messenger □ Mailed under separate cover ✓ Mail enclosed | | | | | |
| REMARK | S Enclose | ed please | find the above mentioned docur | ment for your rec | ords. | |
| Thank y | ou. | | | | | |



PHASE I ENVIRONMENTAL SITE ASSESSMENT MIDDLE CREEK FLOOD DAMAGE REDUCTION AND ECOSYSTEM RESTORATION PROJECT LAKE COUNTY, CALIFORNIA

June 2013

PHASE I ENVIRONMENTAL SITE ASSESSMENT

MIDDLE CREEK FLOOD DAMAGE REDUCTION AND ECOSYSTEM RESTORATION PROJECT UPPER LAKE, LAKE COUNTY, CALIFORNIA 95485

Project No. 02075-8410067

Prepared for: Mr. Thomas R. Smythe Water Resources Engineer County of Lake 255 N. Forbes Street Lakeport, California 95453

Prepared by:

Cristina S. Goulart, EA Water Resources Specialist

Reviewed by:

Elizabeth Cargay, PG, EA Senior Project Geologist



GHD Inc. 2235 Mercury Way Suite 150 Santa Rosa CA 95407 USA T 1 707 523 1010 F 1 707 527 8679 E santarosa@ghd.com W www.ghd.com

Revised June 17, 2013



PROFESSIONAL CERTIFICATION

I declare that to the best of my professional knowledge and belief, I meet the definition of an Environmental Professional as defined in §312.10 of 40CFR Part 312 and I have the specific qualifications based on education, training, and experience to assess a Property of the nature, history, and setting as the Property. I have performed to the standards and practices set forth in 40CFR Part 312.

Cristina S. Goulart, EA Water Resources Specialist

Cristina Soulart

GHD Inc.



TABLE OF CONTENTS

| 1.0 | | cutive Summary | |
|-----|-------|--|----|
| 2.0 | Intro | duction | 3 |
| | 2.1 | Purpose | 3 |
| | 2.2 | Detailed Scope of Services | 3 |
| | 2.3 | Significant Assumptions | 3 |
| | 2.4 | Limitations and Exceptions | 4 |
| | 2.5 | Special Terms and Conditions | |
| | 2.6 | Qualification Statement of Environmental Professional | 4 |
| | 2.7 | User Reliance | 5 |
| 3.0 | Prop | perty Description | |
| | 3.1 | Location and Legal Description | |
| | 3.2 | General Characteristics of the Subject Property and Vicinity | |
| | 3.3 | Descriptions of Structures, Roads, and Other Improvements on the Subject | |
| | 0.4 | Property (Utilities) | |
| 4.0 | 3.4 | Current Uses of the Adjoining Properties | |
| 4.0 | | r-Provided Information | |
| | 4.1 | Title Records | _ |
| | 4.2 | Deed Restrictions Due to Environmental Concerns | |
| | 4.3 | Valuation Reduction for Environmental Issues | |
| | 4.4 | Owner, Property Manager, and Occupant Information | 7 |
| | 4.5 | Reason for Performing Phase I ESA | |
| 5.0 | | ords Review | |
| | 5.1 | Standard Environmental Record Sources | |
| | | 5.1.1 On Site | |
| | | 5.1.2 Off Site | |
| | 5.2 | Liens | |
| | 5.3 | Additional Environmental Record Sources | |
| | 5.4 | Physical Setting Source(s) | |
| | 5.5 | Historical Use Information on the Subject Property | |
| | | 5.5.1 Historical Aerial Photographs | |
| | | 5.5.2 Topographic Maps | |
| | | 5.5.3 Sanborn Maps | |
| | | 5.5.4 Historical City Directories | 11 |
| 6.0 | Site | Reconnaissance | 11 |
| | 6.1 | Methodology and Limiting Conditions | 11 |
| | 6.2 | General Site Setting | 12 |
| | 6.3 | Observations | |
| 7.0 | Inter | views | |
| | 7.1 | Interview with Owner | 24 |
| | 7.2 | Interview with Occupants | 24 |
| | 7.3 | Interviews with Local Government Officials | 24 |
| 8.0 | Find | lings | 24 |
| | 8.1 | Asbestos and Lead-Based Paint | 24 |
| | 8.2 | On-Site Wells | |
| | 8.3 | Septic System | 24 |



TABLE OF CONTENTS (CONT'D)

| 8.4 Stained Soils | . 25 |
|-------------------------|------|
| 8.5 Hazardous Materials | |
| Conclusions | |
| Deviations | |
| Additional Services | |

ATTACHMENTS:

Figures:

Figure 1 – Vicinity Map

Figure 2 – Overall Site Location Map

Figure 3-16 Site Maps

Appendices:

Appendix A - Site Photographs

Appendix B – EDR DataMap™ Area Study

Appendix C – GeoTracker Database Information

Appendix D – Historical Research Documentation

Appendix E – Agency Correspondence



1.0 EXECUTIVE SUMMARY

This Phase I Environmental Site Assessment (Phase I ESA) was conducted by GHD Inc. for the County of Lake (the Client) in anticipation of a commercial real estate transaction involving several Assessor's Parcel Numbers (APNs) located in the vicinity of Upper Lake in Lake County, California (Figure 1). A list of addresses and parcels is presented below. The purpose of the land purchase is to use the purchased property for wetlands restoration.

The combined acreage of all of the parcels included in this study (Subject Property), total approximately 762 acres of rural residential and agricultural property. The area surrounding the Subject Property is mostly rural residential and agricultural, with Clear Lake located approximately 1.2 miles to the south.

The Subject Property which is included in the current study consists of 26 parcels, mostly agricultural with some rural residential uses. The primary uses of the properties are for agriculture, including row crops, such as alfalfa, rice, orchards, and vineyards; and pastureland for grazing sheep, cattle, and goats.

Historical research and interviews with owners indicates that portions of the Subject Property have been used for agriculture for approximately 100 years. Prior uses appear to be undeveloped land.

During the site reconnaissance visits conducted by GHD personnel on August 27 and September 27, 2012, there were small quantities of hazardous materials observed on various parcels of the Subject Property, which are typically associated with agriculture.

Aboveground storage tanks (ASTs) for diesel fuel were observed on several parcels, the fuel being used to power pumps and tractors. Small quantities of gasoline and pesticides were also observed. There was soil staining observed in a few locations, including beneath diesel ASTs and on earthen barn floors where farm vehicles are stored.

The Subject Property is generally unpaved, and accessed by dirt roads. The Subject Property is not developed with sewer, storm sewers, or with City potable water infrastructure. Most of the individual properties are served by septic systems, and several also are served by wells.

Reviews of regulatory records indicate that the Subject Property is not listed on any of the searched environmental database record lists. A review of the State Water Resources Control Board (SWRCB) GeoTracker on-line database also did not reveal listings of any of the Subject Property parcels. Current property owners with historical knowledge of the Subject Property have stated there have been no underground storage tanks (USTs) at the Subject Property.

Several Leaking Underground Storage Tank (LUST) sites and one Spills, Leaks, Investigations, and Cleanups (SLIC) site were listed as being located within 1/4-mile of the Subject Property. The SLIC case is located adjacent to one of the Subject Property parcels. Two of the reported LUST sites are active cases which were listed on the Environmental Data Resources Inc. (EDR) DataMapTM Area Study's (EDR Report) "orphan summary" as they were not mapped. Based on Google aerial mapping and surface drainage, both of these active LUST sites are located approximately ½-mile upgradient from the Subject Property with respect to anticipated groundwater flow direction. The distance of these LUST cases from the Subject Property make it unlikely that they would impact the Subject Property. The other three LUST sites have been granted case closure. The SLIC site case is listed in the EDR Report as being inactive, but still open. This SLIC site is located adjacent to the Subject Property. This property is located at 7385 Reclamation Road. GHD (then Winzler & Kelly) conducted soil sampling at



the site and later remediation of impacted soils. The impact did not reach groundwater and therefore is unlikely to affect the current Subject Property.

This Phase I ESA has revealed no evidence of recognized environmental conditions (RECs) in connection with the Subject Property; however, did reveal some *de minimis* conditions as well as potential RECs as follows.

De Minimis conditions:

- There were many barns and storage sheds observed throughout the Subject Property where vehicles, including tractors are stored. Minor soil staining was observed in some. The soil surface was not readily observable in all of the barns due to it being obscured by vehicles, equipment, and other storage items obscuring the soils. It is recommended that the earthen floored barns be emptied of vehicles and materials and the soil observed for staining. Should there be staining, the petroleum stained soil should be excavated and properly disposed. This particularly applies to the Irwin and Weger properties.
- The properties observed which are occupied by residents are served by septic systems. Those systems should be properly closed prior to site redevelopment.
- There are wells on several of the parcels pertaining to the Subject Property Wells that will not continue to be used should be properly destroyed.
- The Wilcox property reportedly operated a sewer pond on-site for the former summer camp.
 The sewer pond was reportedly abandoned in 2001. This sewer pond would have been used for
 domestic sewage as opposed to commercial or industrial sewage. The pond has been
 abandoned for approximately 11 years. Therefore, the presence of the previous sewer pond is
 considered a de minimus condition.

Data Gaps:

- The potable well water on the Weger residential parcel reportedly has an unpleasant taste. It is advisable to sample and analyze the well water for potential contaminants.
- Small Diesel and gasoline ASTs were observed on most of the properties. Some of the ASTs did not have secondary containment or leak catchment containers at the dispenser nozzle location.
 - It is recommended that the stained soil beneath the location of the AST dispenser nozzles be dug out and properly disposed and then a soil sample collected to be analyzed for diesel or gasoline to determine if there has been any substantive release to the soil around the tank. The tanks need to be fully emptied and properly disposed of. Any stained soil beneath the tanks should be excavated and properly disposed of.
- Many structures located throughout the Subject Property could have lead-based paint or asbestos-containing building materials. Structures which are planned for demolition should be given pre-demolition lead-based paint and asbestos-containing materials surveys.
- It is unknown if persistent pesticides were historically used at the Subject Property.
 Dichlorodiphenyltrichloroethane (DDT) was used extensively after the mid-1940s as an
 insecticide. It was later found DDT and other related pesticides may cause cancer and that its
 agricultural use was a threat to wildlife, particularly birds. DDT was eventually banned in the US
 in 1972. DDT is highly persistent in the environment. Due to the historical use of the property for



agriculture, it is possible that DDT or other organochlorine pesticides were historically used onsite. If so, there is a possibility the soil contains residues of DDT or its derivatives. Though the Subject Property is not intended for use for schools, daycare, or other sites where sensitive populations would be exposed, if such pesticides were in the soil, it is planned to be used for increasing wildlife habitat. Persistent pesticides or heavy metals, such as mercury, which is a legacy pollutant in Clear Lake, could possibly impact wildlife, if they should be present.

It is recommended that representative sampling be completed to see if persistent pesticides and heavy metals are present in the soils on the Subject Property.

GHD conducted this Phase I ESA in conformance with the American Society for Testing and Materials (ASTM) Standard No. E1527-05 at the Subject Property located at several parcels totaling 762 acres of agricultural and rural residential land in the vicinity of the city of Upper Lake, Lake County, California. The Federal All Appropriate Inquiries Standard for Brownfields is not met as the asking price for the various parcels comprising the Subject Property was not evaluated.

2.0 INTRODUCTION

2.1 PURPOSE

This Phase I ESA was conducted for the Client in anticipation of a commercial real estate transaction. The purpose of a Phase I ESA is to develop information to assist lenders, property owners, and prospective buyers in evaluating adverse RECs involving the Subject Property, within the scope of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

2.2 DETAILED SCOPE OF SERVICES

The Phase I ESA investigation consisted of the following components:

- Conducting a site reconnaissance to observe the environmental conditions at the Subject Property and identify property uses and improvements;
- Observing the surrounding land use;
- Reviewing an environmental database search for the Subject Property and surrounding areas for federal, state, and local environmental or hazardous chemical usage listings;
- Reviewing appropriate state and local agency files on nearby sites with environmental concerns;
- Performing a review of available historical aerial photographs, historical topographical maps, and reverse city directories;
- Performing telephone and/or personal interviews, where appropriate and available; and
- Summarizing and presenting the data obtained in a Phase I ESA Report.

The scope of this Phase I ESA did not include testing for hazardous materials, polychlorinated biphenyls (PCBs) in electrical transformers, lead-in-paint, asbestos-containing building materials, or mold.

2.3 SIGNIFICANT ASSUMPTIONS

GHD makes the assumption that all information from third party sources, including interviews with government agency representatives and property owners, reports, etc., are accurate.



2.4 LIMITATIONS AND EXCEPTIONS

There were no historical Sanborn Maps available for the Subject Property. Aerial photo coverage for 2005 was incomplete.

No private residential dwellings were entered.

Many of the storage buildings, including those used for vehicle parking or storage, had earthen floors which were not comprehensively observed due to the floors being obscured by the vehicles and other items contained in the structures.

The following property owners did not provide access to their parcels:

- Joe Santos
- Gregory Norvaez

The McCarthy parcel was overgrown with dense vegetation and made access impractical.

Title documents were excluded from the scope of this study.

No Valuation of the parcels was completed.

2.5 SPECIAL TERMS AND CONDITIONS

Professional judgment was exercised in gathering and analyzing the information obtained, and we commit ourselves to the usual care, thoroughness, and competence being practiced in this profession at the time of this work. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. Thus, we cannot guarantee that the investigations completely define the potential for any contamination by hazardous or otherwise harmful substances described in this Phase I ESA or, if no such contamination is found, its absolute absence.

2.6 QUALIFICATION STATEMENT OF ENVIRONMENTAL PROFESSIONAL

GHD states that this Phase I ESA was performed under an Environmental Professional's (EP) direct supervision, and has been reviewed and approved, and that the methods and procedures utilized in the development of this report conform to the minimum industry standards using ASTM Standard E1527-05 and the United States – Environmental Protection Agency (USEPA) Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) as guidelines. GHD certifies that the employees are properly licensed and/or certified to conduct Phase I ESAs.

GHD declares that, to the best of their professional knowledge and belief that the definition of an EP as defined in 40 CFR Part 312. The EP who prepared and certified this assessment possesses the specific qualifications based upon education, training and experience to assess a property for the nature, history, and setting of the subject site.

This Phase I ESA is not a legal opinion. It does not necessarily comply with all requirements defined in any environmental law to qualify the Client to meet the liability protection of a bonafide prospective purchaser, such as the "innocent landowner defense" or "due diligence inquiry." Only legal counsel retained by the property owners is competent to determine the legal implications of any information or conclusions in this Phase I ESA for the property owners.



GHD is not responsible for any effect upon the legal rights, obligations, or liabilities of any party or for any effect on the financeability, marketability, or value of the property investigated in the study or for the occurrence or non-occurrence of any transaction involving the Subject Property.

2.7 USER RELIANCE

GHD is not liable for any action arising out of the reliance of any third party on the information contained within this Phase I ESA.

3.0 PROPERTY DESCRIPTION

3.1 LOCATION AND LEGAL DESCRIPTION

The Subject Property consists of several agricultural and rural parcels in the vicinity of Upper Lake, Lake County, California (Figure 1), as listed in the table below.

Table 1 Property Identification

| APN | Owner | Use | Address |
|------------|-----------------------------|-------------------------|--------------------------------------|
| 004-021-19 | Bobst, Glen L and Beverly | Agriculture | Reclamation Road* |
| 004-019-14 | Bobst, Glen L and Beverly | Agriculture | Reclamation Road* |
| 004-019-22 | Bobst, Glen L and Beverly | Agriculture | Reclamation Road* |
| 004-019-21 | Bobst, Glen L and Beverly | Agriculture | Reclamation Road* |
| 004-014-06 | Bobst, Glen L and Beverly | Agriculture | Reclamation Road* |
| 004-021-18 | Bobst, Glen L and Beverly | Agriculture | Reclamation Road* |
| 004-020-11 | Bobst, Glen L and Beverly | Agriculture | Reclamation Road* |
| 004-019-20 | Bobst, Glen L and Beverly | Agriculture | Reclamation Road* |
| 004-020-12 | Bobst, Glen L and Beverly | Agriculture | Reclamation Road* |
| 004-022-02 | Bobst, Glen L and Beverly | Agriculture | Reclamation Road* |
| 004-022-01 | Bobst, Glen L and Beverly | Agriculture | Reclamation Road* |
| 004-022-12 | Wilcox, Donald T and | Undeveloped/Lake | 2255 E. Highway 20 |
| | Delores | | - |
| 004-021-29 | McCarthy, Edward T. | Fallow Agriculture | 7600 Reclamation Road |
| 004-014-17 | Santos, Joe D. Trustee | Residential/Agriculture | 8190 Reclamation Road |
| 004-014-19 | Floyd, Brad L and Mary Lou | Residential/Agriculture | 8250 Reclamation Road |
| | Trustees | | |
| 004-016-32 | Irwin, John R | Residential/Agriculture | 8300 Reclamation Road |
| 004-016-31 | Irwin, John R | Residential/Agriculture | 8340 Reclamation Road |
| 004-016-18 | Robinson, Matilda J Trustee | Agriculture | 8490 Reclamation Road |
| 003-041-10 | Weger Interests Ltd | Residential/Agriculture | 8920 Bridge Arbor Road |
| | | | North |
| 003-042-10 | Weger Interests Ltd | Agriculture | 8922, 8930 Bridge Arbor |
| | | | Road North |
| 004-013-10 | Weger Interests Ltd | Agriculture | 8930 Bridge Arbor Road |
| | | | North |
| 004-014-11 | Weger Interests Ltd | Agriculture | Bridge Arbor Road North ¹ |
| 003-055-09 | Narvaez, Gregory A | Residential/Agriculture | 8924 Bridge Arbor Road |
| | | | North |

¹ Information provided to GHD by the client indicates that the one of the site addresses is 8219 Reclamation Road; however, that address does not appear to correspond to the site parcel locations.



| APN | Owner | Use | Address |
|---|--------------------------------|-------------|---------------------------------|
| 004-013-02 | Narvaez, Gregory A | Agriculture | 8950 Bridge Arbor Road North |
| 004-013-15 | Oldham, Melvin W II | Agriculture | 735 E. State Highway 20 |
| 004-013-18 | Robinson Lake Vineyard, LLC | Agriculture | 737 E. State Highway 20 |
| * Street numbers associated with the Bobst parcels include 8223, 8051, 8053, 8055, 7415 | | | |

Street numbers associated with the Bobst parcels include 8223, 8051, 8053, 8055, 7415, 7945, 7575, 7525, and 7527 Reclamation Road.

3.2 GENERAL CHARACTERISTICS OF THE SUBJECT PROPERTY AND VICINITY

The combined parcels addressed in this study total 762 acres of rural residential and agricultural property. The area surrounding the Subject Property is mostly rural residential and agricultural. According to property information viewed on the County website, there are several zoning designations applied to the various parcels which comprise the Subject Property, including designations for wetlands, agriculture, and combining districts. The County of Lake plan is to purchase these parcels for a habitat restoration and flood control project. Photographs of the Subject Property and adjacent properties are presented in Appendix A.

3.3 DESCRIPTIONS OF STRUCTURES, ROADS, AND OTHER IMPROVEMENTS ON THE SUBJECT PROPERTY (UTILITIES)

Generally, the parcels comprising the Subject Property are not served by municipal sewer, but rather have individual on-site septic systems. Potable water for the parcels is generally from individual, on-site wells. Because these parcels are rural residential or agricultural, drainage is via unpaved ditches, generally draining into creeks or sloughs. Electricity is provided to many of the parcels by Pacific Gas & Electric Company (PG&E), though in some cases there is an on-site diesel generator. Those are described in the site description of the individual parcels in Section 6.0.

3.4 CURRENT USES OF THE ADJOINING PROPERTIES

Table 2 below indicates the site uses of all of the parcels. Because the Subject Property parcels are mostly contiguous, most of the parcels are adjacent to other site parcels. As a whole, the Subject Property is surrounded by agricultural fields, fallow fields, and rural residential properties.

Although the adjacent properties were observed from a close distance, none of the adjoining properties were thoroughly inspected during this investigation.

4.0 USER-PROVIDED INFORMATION

4.1 TITLE RECORDS

Review of Title Records is outside the scope of this study.

4.2 DEED RESTRICTIONS DUE TO ENVIRONMENTAL CONCERNS

There are no current deed restrictions, according to the EDR database search, conducted for the EDR Report (Appendix B).

4.3 VALUATION REDUCTION FOR ENVIRONMENTAL ISSUES

There are no known valuation reductions to the Subject Property due to environmental issues.



4.4 OWNER, PROPERTY MANAGER, AND OCCUPANT INFORMATION

The Subject Property parcels are owned by several different owners, as is presented above in Table 1. Table 2 below summarizes the length of current ownership.

Table 2 Ownership and Occupancy

| Length of | | | |
|------------|------------------------------------|-------------|--|
| APN | Owner | current | |
| | | ownership | |
| 004-021-19 | Bobst, Glen L and Beverly | 30 years | |
| 004-019-14 | Bobst, Glen L and Beverly | 30 years | |
| 004-019-22 | Bobst, Glen L and Beverly | 30 years | |
| 004-019-21 | Bobst, Glen L and Beverly | 30 years | |
| 004-014-06 | Bobst, Glen L and Beverly | 30 years | |
| 004-021-18 | Bobst, Glen L and Beverly | 30 years | |
| 004-020-11 | Bobst, Glen L and Beverly | 30 years | |
| 004-019-20 | Bobst, Glen L and Beverly | 30 years | |
| 004-020-12 | Bobst, Glen L and Beverly | 30 years | |
| 004-022-02 | Bobst, Glen L and Beverly | 30 years | |
| 004-022-01 | Bobst, Glen L and Beverly | 30 years | |
| 004-022-12 | Wilcox, Donald T and Delores J | 50+ | |
| 004-021-29 | McCarthy, Edward T. | Unknown | |
| 004-014-17 | Santos, Joe D. Trustee | Unknown | |
| 004-014-19 | Floyd, Brad L and Mary Lou Trustee | 12-15 years | |
| 004-016-32 | Irwin, John R | 20 years | |
| 004-016-31 | Irwin, John R | 20 years | |
| 004-016-18 | Robinson, Matilda J Trustee | 55 years | |
| 003-041-10 | Weger Interests Ltd | 90+ years | |
| 003-042-10 | Weger Interests Ltd | 90+ years | |
| 004-013-10 | Weger Interests Ltd | 90+ years | |
| 004-014-11 | Weger Interests Ltd | 90+ years | |
| 003-055-09 | Narvaez, Gregory A | Unknown | |
| 004-013-02 | Narvaez, Gregory A | Unknown | |
| 004-013-15 | Oldham, Melvin W II | 60+ years | |
| 004-013-18 | Mims | 4+ years | |

4.5 REASON FOR PERFORMING PHASE I ESA

This Phase I ESA was conducted for the Client in anticipation of a commercial real estate transaction involving the Subject Property.

5.0 RECORDS REVIEW

5.1 STANDARD ENVIRONMENTAL RECORD SOURCES

EDR compiled a report detailing a search of federal, state, and local environmental records for the Subject Property and neighboring properties within the ASTM-specified radii for each database. Refer to Appendix B for the EDR Report detailing the type of records searched.



5.1.1 On Site

Review of the EDR Report indicated that the parcels comprising the Subject Property do not appear on any of the listed environmental database record lists.

Title documents were not part of the scope of work for this study.

5.1.2 Off Site

The EDR Report was reviewed for potential environmental impacts to the Subject Property from off-site sources. These sites are located on the map located in Appendix B and are identified by an EDR Map ID number.

 485 Highway 20 E, Former Cal 20 Village Service Station, and former P.D.K. Service Station EDR Map ID #3

Case closed 5/11/2011

According to the EDR Report, this site is located east of the Subject Property. However, street numbering would suggest that the site is located north of the Subject Property. Review of the closure documents, which are uploaded onto the GeoTracker website, revealed a site map which places the site approximately ½-mile north of the Subject Property.

According to information obtained from the SWRCB on-line GeoTracker database, the contaminants in groundwater beneath the site were TPH-, TPH-g, and MTBE. Investigations indicated that the MTBE was migrating on-site from a nearby LUST site, and monitoring is ongoing at two on-site wells by the Responsible Parties for the nearby site, Poppie's, which is believed to be the source of the MTBE. Groundwater flow direction has been measured at variable directions. The case was closed on May 11, 2011.

This case is unlikely to be of concern to the Subject Property due to the low levels of contaminants and the distance from the Subject Property. According to the case closure memorandum dated March 15, 2011, levels of MTBE had dropped to 8.7 to 12 ug/L from 200 ug/L and the plume was not expanding. The Minimum Cleanup Levels for MTBE is 5 to 13 μ g/L. Please see Appendix C for further information about this case.

7385 Reclamation Road, Bobst Property, EDR Map ID #5

According to the EDR Report, this site is an open, but inactive SLIC site. This site is located adjacent to the west of the Subject Property, adjacent to 004-022-12.

According to documents downloaded from the State GeoTracker database, this case is open but was deemed inactive as of August 1, 2008.

There is no available information in the EDR Report nor on the SWRCB on-line GeoTracker database regarding the cause of the leak, the substance, how reported, who reported, or the responsible party. However, Winzler & Kelly (now known as GHD) conducted a soil sampling and remediation project at the same property in 2005-2007. In March of 2005, Winzler & Kelly conducted soil sampling at the property in locations of diesel ASTs and farm vehicle maintenance areas. Diesel fuel and other forms of petroleum hydrocarbons above the allowable regulatory limit were detected in various locations of the site. Recommendations were made for the excavation of impacted soils and proper disposal.

Because the impact to soil was localized, it is unlikely to impact the current Subject Property.



Orphan Sites

The "orphan summary" is comprised of sites for which EDR was not able to assign a map location.

- 220 Highway 20, Poppie Residence active LUST site, approximately ½-mile to the northwest, and likely upgradient.
 - Contaminants are gasoline and MTBE in groundwater.
 - Depth to groundwater at the site was measured at 6.1 to 7.2 feet below ground surface during a June 2012 sampling event.
 - According to the GeoTracker summary, the contaminated plume remains undefined. Although the groundwater plume is still undefined, the site is located at a distance which makes it unlikely to impact the current Subject Property parcels.
- 107 Highway 20, Highway Quick Market, case closed, located approximately ½-mile to the northwest.
 - According to the SWRCB GeoTracker database, the case status is completed; closed on January 29, 1997. It is located at a distance which also makes it unlikely to impact the current subject Property parcels.
- 1285 Highway 20, Last Chance Texaco, cased closed, located approximately ¾-mile to the northwest of the Subject Property.
 - Status completed case closed on May 18, 1991 according to the SWRCB GeoTracker database, and therefore it is located at a distance which makes it unlikely to impact the current subject Property parcels.
- 675 Clover Valley Road, Upper Lake High School, Active Cleanup Site, located approximately ½-mile to the north of the subject.
 - Contaminants at the site are TPHd, gasoline, and BTEX in groundwater.
 - This site is currently undergoing assessment and remediation. It does not appear that the groundwater plume has migrated off site; therefore, impact to the Subject Property is unlikely.

Several other sites were listed on the "orphan summary"; however, based on their distances from the Subject Property (as found with Internet mapping) and/or based on their status, they are likely not of concern.

There were no other sites identified to be a potential concern within a 1-mile radius by the EDR Report.

5.2 LIENS

According the EDR report, there were no Federal Superfund liens, State Environmental liens, CERCLA liens, nor deed restrictions found associated with the Subject Property.

5.3 ADDITIONAL ENVIRONMENTAL RECORD SOURCES

Information pertaining to the above-listed LUSTs obtained from the State GeoTracker database is presented in Appendix C and referenced above.



5.4 Physical Setting Source(s)

The United States Geological Survey's 1996 Upper Lake Quadrangle 7.5-Minute topographic map was reviewed for the Subject Property and surrounding area's physical setting characteristics. The Subject Property is located at an elevation of approximately 1,324-1,330 feet above mean sea level and is located in a historically marshy area with Rodman Slough being the prominent feature. The Subject Property is located west and south of Highway 20 where it meets Highway 29, and east of the Rodman Slough. Several unnamed creeks and drainage channels are located throughout the site parcels and nearby properties. Based on site topography, surface water flows in a generally south and southeasterly direction into creeks, the slough, and on to drain into Clear Lake. There was no information located during the course of the study that provided information regarding the depth-to-groundwater beneath the property. According to information obtained for nearby sites, groundwater depth in the area is shallow and ranges from approximately 3 to 21 feet below ground surface.

5.5 HISTORICAL USE INFORMATION ON THE SUBJECT PROPERTY

Historical aerial photographs were reviewed for the Subject Property and surrounding areas. The following is a summary of the findings from reviewing these photographs:

5.5.1 Historical Aerial Photographs

- 1957: The site parcels appear to be occupied by agricultural fields. The parcels appear to be used for row crops with the exception of the Narvaez and Weger parcels, which appear to be occupied by orchards. There are very few structures in the vicinity. The photograph is black and white and of fair quality.
- Several structures are now visible on the Floyd and Irwin parcels. High voltage electric transmission lines were clearly visible traversing the Weger property. The pump house adjacent to the Bobst southern-most parcel is now visible. The Oldham parcel appears to be occupied by an orchard, as it is now. Several structures are now visible on adjacent and nearby parcels. The parcel adjacent to the east of the Wilcox parcel has been developed with several structures. This is consistent with interview information indicating a camp for children had been developed in that location.
- The Property looks generally the same as in 1972. The photograph appears to have been taken during a time of high water. Part of the Bobst parcel (004-020-12) appears to be partly flooded. An orchard appears to have been planted on the Santos parcel, 004-014-17. Increased development was visible along Highway 20 to the north of the property.
- 1993 The Property looks generally unchanged from the 1983 photo.
- 1998 What could be a vineyard appears to have been planted on the Mims parcel.
- 2005 The Property looks generally unchanged from the 1998 photo.
- The Property looks generally unchanged from the 2005 photo; however, only a portion of the property parcels are visible in this photo.

5.5.2 Topographic Maps

Historical Lakeport Quadrangle 15-minute topographic maps and Upper Lake Quadrangle 7.5-minute maps were reviewed. Copies of the historical aerial photographs and topographic maps are included in Appendix D.



- 1938 The 1938 topographic map indicates that the Subject Property and vicinity were largely undeveloped and largely as they are now with the exception of the Rodman Slough being wider than it is now. The slough's marshy area extended further north than it currently does, occupying the southern portion of parcel 004-014-11. Two of the Weger parcels (004-019-14 and 004-020-11) are indicated as marshland and slough. Several small and sparsely placed structures were indicated along Reclamation and Bridge Arbor Roads. The town of Upper Lake is located approximately ½-mile to the north and northwest (15-minute topographic map).
- There is now a high voltage electric line shown to be traversing the site in a northwest to southeasterly direction. Bloody Island and Bloody Island Massacre Site Historical Marker are now indicated. The town of Upper Lake appears more densely developed (15-minute topographic map). Robinson Rancheria is now indicated approximately ¼-mile west of the Subject Property.
- A structure is newly indicated at the southeastern boundary of parcel 004-020-12. An orchard is indicated on parcels 003-055-09, 004-013-02, and 003-041-10 as well as on parcels adjacent to the Subject Property and located along Highway 20 to the north. Streams and drainages are depicted traversing several Subject Property parcels and adjacent properties (7.5-minute and 15-minute topographic maps).
- 1975 The Subject Property and adjacent properties are generally unchanged from the 1958 map. A trailer park is now indicated ¼-mile north of the Subject Property. A cluster of structures and short access roads were now indicated adjacent to the south of parcel 004-016-18 (Robinson parcel). A cluster of structures is now indicated on Irwin parcels 004-016-31 and 004-016-32 (7.5-minute topographic map).
- 1991 The Subject Property and immediate vicinity generally appeared unchanged from the previous topographic map.
- 1996 The Subject Property and immediate vicinity generally appeared unchanged from the previous topographic map.

5.5.3 Sanborn Maps

There were no Sanborn maps available for the Subject Property or vicinity.

5.5.4 Historical City Directories

There were no historical city directories available for the Property.

6.0 SITE RECONNAISSANCE

6.1 METHODOLOGY AND LIMITING CONDITIONS

Ms. Cristina Goulart, Water Resources Specialist and Environmental Assessor with GHD, visited various parcels of the Subject Property on two separate days: August 27 and September 27, 2012. Ms. Goulart was accompanied by various property owners as is described below under each parcel description. Some of the property owners did not return calls to GHD to schedule site visits. GHD attempted contact twice to three times. Without owner's permission, GHD did not enter properties.



6.2 GENERAL SITE SETTING

A Vicinity Map and a Site Map for the Subject Property are provided as Figures 1 and 2. The Subject Property is located in the area southeast of the junction of Highways 20 and 29. The southern-most parcel is located adjacent to the north of Mackie and Reclamation Roads. The Subject Property is located south of the community of Upper Lake in Lake County, California, in an area of agricultural and rural residential. The Subject Property totals 762 acres of agricultural and rural residential property.

6.3 OBSERVATIONS

During GHD's site visit, the environmental conditions at the Subject Property were observed and property improvements and uses were identified. Photographs taken of the Subject Property and the surrounding properties are provided in Appendix A. Refer to the Site Maps, Figures 3-16 for site orientation and the layout of on-site buildings. Field observations are described below.

The table below summarizes the parcels and provides acreage per APN.

| Address | | Owner | APNs | Acres |
|---------|---------------------|----------|------------|-------|
| 8223 | Reclamation Road | Bobst | 004-014-06 | 9.0 |
| | Reclamation Road | Bobst | 004-019-14 | 8.3 |
| 8051 | Reclamation Road | Bobst | 004-019-20 | 72.2 |
| 8053 | Reclamation Road | Bobst | 004-019-21 | 54.1 |
| 8055 | Reclamation Road | Bobst | 004-019-22 | 30.4 |
| | Reclamation Road | Bobst | 004-020-11 | 14.5 |
| 7415 | Reclamation Road | Bobst | 004-020-12 | 50.7 |
| 7945 | Reclamation Road | Bobst | 004-021-18 | 55.9 |
| 7575 | Reclamation Road | Bobst | 004-021-19 | 22.4 |
| 7525 | Reclamation Road | Bobst | 004-022-01 | 8.0 |
| 7527 | Reclamation Road | Bobst | 004-022-02 | 11.9 |
| 7600 | Reclamation Road | McCarthy | 004-021-29 | 2.9 |
| 8190 | Reclamation Road | Santos | 004-014-17 | 9.4 |
| 8250 | Reclamation Road | Floyd | 004-014-19 | 8.5 |
| 8490 | Reclamation Road | Robinson | 004-016-18 | 27.7 |
| 8300 | Reclamation Road | Irwin | 004-016-31 | 5.0 |
| 8340 | Reclamation Road | Irwin | 004-016-32 | 14.5 |
| 8219 | Reclamation Road | Weger | 004-014-11 | 100.1 |
| 8920 | Bridge Arbor North | Weger | 003-041-10 | 24.5 |
| 8930 | Bridge Arbor North | Weger | 003-042-10 | 5.7 |
| 8922 | Bridge Arbor North | Weger | 004-013-10 | 36.8 |
| 8924 | Bridge Arbor North | Norvaez | 003-055-09 | 14.3 |
| 8950 | Bridge Arbor North | Norvaez | 004-013-02 | 22.5 |
| 2255 | E. State Highway 20 | Wilcox | 004-022-12 | 37.1 |
| 735 | E. State Highway 20 | Oldham | 004-013-15 | 40.6 |
| 737 | E. State Highway 20 | Mims | 004-013-18 | 74.9 |



Bobst Parcels: Reclamation Road; 337 acres

Including APNs:

004-014-06

004-021-19

004-019-14

004-019-22

004-019-21

004-021-18

004-020-11

004-019-20

004-020-12

004-022-02

004-022-01

On August 27, 2012, Ms. Goulart visited the Bobst parcels and was accompanied by Mr. Steve Jones who rents the Bobst parcels for growing rice.

Mrs. Beverly Bobst, owner, was also interviewed by phone. According to Mrs. Bobst, Mr. Glen Bobst, also listed as property owner, passed away in March 2012. According to Mrs. Bobst, there are no structures located on any of the Bobst parcels which are part of the Subject Property. She stated that the Bobst family used to farm the parcels; however, they currently rent the parcels to Mr. Steven Jones who currently farms rice there. Mrs. Bobst stated that there are no hazardous materials and no wells located on the parcels. Mr. and Mrs. Bobst have owned these parcels for approximately 30 years.

Mrs. Bobst stated that they had owned a parcel with a farm house and other structures, but that the parcel has already been sold and is not one of the parcels of this study.

Mr. Jones drove Ms. Goulart in a vehicle along the dirt roads surrounding and bisecting the Subject Property parcels. There were no paved access roads observed on the parcels. Locked gates were observed at the entrance to the access roads. There was no fencing along most of the parcel boundaries. At the time of the site reconnaissance, it appeared that a home appliance and been dumped illegally on one of the parcels.

The parcels are generally flat in topography. There is no sewer, storm water, or potable water infrastructure developed on the parcels.

At the time of the site reconnaissance, the rice crop had been recently harvested. There were no structures observed. Power line poles were observed traversing parcel 004-021-19 and along Reclamation Road adjacent to the east of the parcel. There appeared to be electrical transformers on one of the on-site power poles. Mr. Jones confirmed that there are no wells and no hazardous materials on site. He further stated that he does not apply pesticides to his rice crop. There were no USTs or ASTs observed on the parcels from the roadways. At the time of the reconnaissance there were large numbers of wild birds observed on the fields.

Because of the condition of the fields and the size of the parcels, the site reconnaissance was limited to areas accessible by Mr. Jones' truck.

A slough was located along the southern border of parcel 004-020-12. According to Mr. Jones, that water body is an extension of Clear Lake, which floods the rice fields. The fields are allowed to flood as a form of irrigation for the rice crop. When irrigation is not needed, an electric pump, which was



observed along the slough and on the parcel boundary, draws water back into the Lake, according to Mr. Jones. It is uncertain whether this pump would be associated with the sale of this parcel as it appeared to be located on the parcel line.

Adjacent North: Agricultural fields, rural residential, (Santos 004-014-17) Edmonds Boulevard

Adjacent South: Rice fields, sloughs and water ways, Whalen Way

Adjacent West: Sloughs, wetlands, Whalen Way

Adjacent East: Rice fields, rural residential, fallow agricultural land (McCarthy parcel

004-021-29), Reclamation Road

Floyd Parcel; 8250 Reclamation Road; 8.5 acres

APN 004-014-19

On August 27, 2012, Ms. Goulart visited the Floyd parcel and was accompanied by Mrs. Mary Lou Floyd, owner and occupant of the parcel.

The parcel is occupied by a manufactured home, which was not entered, as it is the current residence of Mr. and Mrs. Floyd. In addition to the manufactured home, there was also a barn, several out buildings, and a two-story garage on site. A propane tank is located on the parcel for residential use. According to Mrs. Floyd, there are no USTs or ASTs on site with the exception of the propane gas tank.

There are two wells on site; an irrigation well and a potable well. Mrs. Floyd stated that the field surrounding the well house was infested with ticks; therefore, Ms. Goulart did not view the well house from a close vantage point. A photo of the well house is included in this report.

At the time of the site reconnaissance, access to the parcel was via a dirt driveway. The site was largely unpaved. The northern portion of the parcel was used for grazing pygmy goats. Several buildings were observed in addition to the residence. These included:

- A barn which was observed to contain hay. The barn was of simple wood construction with a tin roof:
- A former hog barn which was observed to be wood-framed on cinder block, with a corrugated tin roof. The hog barn is now used for storage;
- A chicken coop which was of wood-frame construction with a corrugated tin roof; and
- A wood-frame tack shed was observed to contain 1-5 gallon gasoline containers for fueling the lawn mower and 4-wheel recreational all-terrain vehicles (ATVs).

A raised septic tank was observed on a cinder block foundation.

Mr. Floyd stated that she and her husband have lived on the property for approximately 5 years. They have owned it for approximately 12-15 years.

The property is surrounded by wood and wire fencing. The goat pasture is divided from the remainder of the parcel by fencing as well.

The northern portion of the parcel is generally flat in its topography, while there is an area of higher elevation south of the house. The western boundary is slightly higher in elevation than the main portion of the property. There is no sewer, storm water, or potable water infrastructure at the parcel.



Power line poles were observed along Reclamation Road adjacent to the west of the parcel. Mrs. Floyd stated there are no hazardous materials on the property aside from the gasoline used to power the ATVs. There were no USTs or ASTs observed on the parcel, with the exception of the propane gas tank.

A slough or drainage appeared to flow under reclamation road from the northwest and cross the parcel at the extreme southwestern corner.

Adjacent North: The Irwin parcels (agriculture and residential)

Adjacent South: The Santos parcel orchard, residential

Adjacent West: Across Reclamation Road to the west is a tree cutting business. Stacks of hay

and piles of wood were visible from the road

Adjacent East: Rural residential, orchard trees

McCarthy Parcel; 7600 Reclamation Road; 3 acres

APN 004-021-29

On August 27, 2012, Ms. Goulart visited the McCarthy parcel. She was unaccompanied.

Mr. McCarthy, owner, was interviewed by phone. According to Mr. McCarthy, the property is currently lying unused and fallow. In previous years the land was leased to farmers who raised animals. A barn was previously located on the property, according to Mr. McCarthy but the barn was demolished. He further stated that the barn structure's building materials are still on site.

Mr. McCarthy stated that there had been no hazardous materials and no USTs on site to his knowledge. A 60-foot deep well was dug on the property. The on-site power poles carry the electricity used to pump the well. He did state that the water table beneath the site is very shallow and therefore any installed septic system would have to be aboveground. He has not known the parcel to have flooded in past years.

At the time of the site reconnaissance, the parcel was densely vegetated with 5- to 6-foot tall dense, thorny vegetation. The western boundary of the parcel was lined with tall, thick, blackberry bushes. Barbed wire fencing could be seen through the blackberry bushes in a few locations; however, due to the dense vegetation it was not discernible whether the barbed wire fencing along the western boundary of the parcel was continuous.

A gated access road entrance was observed at the western boundary of the parcel; however, the road was obscured by vegetation. Due to the density of vegetation, the parcel was not accessible. Observations of the parcel were made from the boundary.

The parcel appeared to be generally flat in topography. According to Mr. McCarthy, there is no sewer or storm water infrastructure at the parcels. What appeared to be a drainage ditch was observed along the western boundary of the parcel. What appeared to be the remnants of a tar sheet roof were observed near the entrance of the parcel.

Adjacent North: Undeveloped/ possibly previously farmed land

Adjacent South: Undeveloped land in much the same condition as the subject parcel

Adjacent West: Reclamation Road, rice fields, also part of the Subject Property (Bobst parcels)

Adjacent East: Agricultural field, a slough



Robinson Parcel; 8490 Reclamation Road; 28 acres APN 004-016-18

On August 27 and September 27, 2012, Ms. Goulart visited the Robinson parcel and made observations of the site from various vantage points adjacent. She was unaccompanied.

Mr. Fred Robinson, owner, was interviewed by phone. According to Mr. Robinson, the property is currently used for cattle grazing and hay production. Mr. Robinson stated there is no well on site.

The site was observed to be largely occupied by grazing cattle, free roaming on the parcel. The property appeared to be occupied by pasture and generally flat in topography. Electric power lines traverse the site in a north to south direction. Dense blackberry bushes were observed alongside the Reclamation Road boundary and appeared to be obscuring a barbed wire fence. A wooden gate was observed on the northern boundary which provided access to the site across a wooden bridge over the drainage ditch which runs along the northern parcel boundary.

What appeared to be a drainage ditch was observed along the western and southern boundaries of the parcel along Reclamation Road. There appeared to be no infrastructure on site.

According to Mr. Fred Robinson, the parcel has been in his family since 1958 and has always been used for pastureland. He further stated that there have not been any USTs or ASTs or wells on the parcel since his family has owned it.

A small shed was observed on the western boundary of the parcel. Mr. Robinson stated that there is a pump within it which is used to pump water from the adjacent slough to the site for irrigation.

Adjacent North: Reclamation Road, rural residential, agricultural field

Adjacent South: A slough, rural residential, agriculture

Adjacent West: A slough, agricultural and rural residential, the parcels adjacent west are the

Irwin parcels, also a part of the Subject Property

Adjacent East: Historical memorial marker and associated public parking area

Mims Parcel; 737 E. State Highway 20; 75 acres

APN 004-013-18

On August 27, 2012, Ms. Goulart visited the Mims parcel and was accompanied by Mr. Jonathon Walters, Vineyard Manager. Mr. Walters and Ms. Goulart walked the area surrounding the residence and drove on a dirt road along the western boundary of the parcel. They also walked along the southern boundary of the parcel.

The above listed parcel is owned by Mr. Michael Mims. The parcel is used for grape growing. Mr. Walters, the Vineyard Manager, lives in a residential dwelling located along Highway 20. This dwelling is not part of the parcel being considered for purchase by the County. Mr. Walters stated that he has been working and living at this parcel for four years.

The property use is agricultural. Most of the property is planted with grapevines, although one section of it is used for growing alfalfa and another section was fallow. A pump house and a barn were observed along the southern parcel boundary. The pump house contained a water filtration system for the water pumped from the slough. According to Mr. Walters, this is a sand filtration system, used to prepare the pumped slough water for potable use. The pump house was also being used for storage of pesticides,



which were found to be in closed containers, mostly sitting directly on a plywood floor. A barn, used for storage, was locked at the time of the reconnaissance. Mr. Walters stated that there are no hazardous materials stored in the barn.

A diesel fuel AST was also observed in the area along the southern boundary of the parcel. The AST was reportedly installed approximately nine months before the date of the site reconnaissance. The AST was not placed in secondary containment and there was no leak catchment container located in the area beneath the dispenser nozzle. There was minor soil staining observed beneath the dispenser nozzle of the AST. According to Mr. Mims and Mr. Walters, there are no USTs or wells on the property.

Mr. Walter stated that pesticides are used as necessary on the vines. Ms. Goulart reviewed and took photos of a permit issued to Mr. Walters for pesticide application on the vineyard. The permit was issued by the County of Lake Department of Agriculture and was current. Although not readily found, Mr. Walters stated that he also has obtained a burn permit from the County. There is no garbage burned on site; the burn permit is for the burning of vine prunings.

All of the buildings observed were one-story structures.

The parcel is unpaved. The property is accessed via an entrance at Highway 20. There was no soil staining observed other than minor staining beneath the diesel AST.

The property is generally flat in its topography. There is no sewer or storm water infrastructure at the parcels. Electricity is provided to the property by PG&E.

Adjacent North: Agriculture (vineyard)

Adjacent South: Slough, agricultural fields beyond

Adjacent West: Orchard (Oldham parcel)

Adjacent East: Slough, rural residential property, possible agriculture

Oldham Parcel; 735 E. State Highway 20; 41 acres

APN 004-013-15

On August 27 and September 27, 2012, Ms. Goulart visited the Oldham parcel. Mr. Melvyn Oldham, the owner, was interviewed during the first site reconnaissance. Ms. Goulart drove along the east boundary of the parcel, along the north side of the on-site slough which traverses the lower part of the parcel, and along a portion of the western boundary. Ms. Goulart was unaccompanied during most of her site visits.

The parcel is used for agriculture: a pear orchard and a small vineyard. Mr. Oldham stated that his father planted the pear trees in the 1960s and the grapevines in the 1970s. He stated that prior to the orchard and vineyard the parcel was used for row crops, mostly barley. The property has been in the family for three generations.

A diesel-operated pump, powered by a diesel engine, was observed in the southern portion of the parcel, immediately north of the slough. A permit to operate the pump was posted and was issued by the Lake County Air Quality Management District. The permittee was listed as Melvyn Oldham II. The pump draws water from the on-site slough for site irrigation. A diesel AST was housed within secondary containment and was about 400 gallons in volume. There was a 55-gallon drum observed adjacent to the AST; however, the drum was empty. According to Mr. Oldham, there are no USTs on site.



There were no structures observed on site. Most of the machinery, pesticides and diesel used in the operation of the farm were located in the parcel immediately to the north of the Subject Property parcel. The adjacent parcel is also owned by Mr. Oldham.

There is no sewer or storm water infrastructure on site. Storm water drains naturally into the surrounding sloughs and streams. A portable toilet closet was observed on the north adjacent property. The property is irrigated with water from the on-site slough.

The site topography is generally flat. The site is unpaved; vehicles travel on dirt roads along the site boundaries. There was one vehicle access road observed and that was from the north, off E. Highway 20.

A locked gate was observed at the vehicle entrance to the property. There was no fence dividing the Oldham property from the Mims property, adjacent east. The southern boundary was not accessed. The southern portion of the site, occupied by a vineyard, was observed from across the on-site slough and was observed to be developed with grapevines.

Mr. Oldham stated that pesticides are used as necessary. Ms. Goulart reviewed a binder filled with farming documents kept in a barn located north of the portion of the Oldham property, which is part of this study. There was a current permit for the application of pesticides in the binder, issued by the Lake County Department of Agriculture and which was valid through December 31, 2013.

The parcel is unpaved. The property is accessed via an entrance at Highway 20. There was diesel fuel observed on the exterior of the diesel pump and AST. The soil in the vicinity was wet, and therefore it was not readily discernible if there was fuel staining as well, though it appeared there was not.

The property is generally flat in its topography. There is no sewer or storm water infrastructure at the parcels.

Adjacent North: Agriculture (also owned by Oldham)
Adjacent South: Agriculture / pasture (Weger parcel)

Adjacent West: Agriculture

Adjacent East: Agriculture (Mims parcel)

Irwin Parcels; 8300, 8340 Reclamation Road; 19 acres

APNs 004-016-32 004-016-31

On September 27, 2012, Ms. Goulart visited the two Irwin parcels and was accompanied by Mr. John Irwin, owner and occupant of the two parcels.

A private home, barns, and other farm related buildings were observed on the property. The property use is rural residential and agricultural. According to Mr. Irwin, hay is grown on site for commercial sale. Mr. Irwin also conducts bee keeping on site.

The structures located on the property are located in the northwestern portion of the property. Hay fields are located in the northeastern portion of the property and most of the southern half of the property. A constructed pond was observed in the northeastern portion of the southern parcel. Constructed bee hives were observed at the southwestern corner of the site.



All of the structures were observed and entered when possible, with the exception of the private residence. Ms. Goulart and Mr. Irwin walked the perimeter of the property as well as walked along the berm surrounding the on-site pond.

Mr. Irwin stated there are no USTs on the property. He stated that there were two diesel fuel ASTs and two septic tanks. According to Mr. Irwin, he has owned the property for 20 years and that all of the structures currently located on the property already existed when he purchased the property. Mr. Irwin stated that the property was formerly an operating ranch used for educational purposes.

The following structures were viewed on site:

- One private residence, used as the family residence, was observed on site and not entered;
- A one-story hay barn of wood-frame construction with a corrugated tin roof. The barn was fitted with what appeared to be horse stalls; however, it was being used to store hay;
- A small building, of wood-frame construction on concrete slab, formerly a bathroom was observed. According to Mr. Irwin this was a public bathroom previous to his ownership of the property when it was an educational farm. The paint on the exterior of the structure was peeling;
- A hog pen, of wood-frame and concrete slab construction was no longer being used;
- Chicken coops:
- Feed storage shed;
- Eastern-most barn, used for hay and storage of miscellaneous household items and furniture. This is of wood-frame construction;
- Dog kennel, concrete slab floor, wood and wire construction. The kennel appeared to have been recently painted; and
- The remnants of a burned shed were observed. Mr. Irwin stated the shed had burned in a fire 17 years ago.

All of the buildings observed were one-story structures.

The parcels are unpaved. Two unpaved driveways, which provide access to the property, were observed at the western property boundary. The site surface is of hard-packed earth, hay fields, and natural vegetation. A constructed pond, reportedly constructed prior to Mr. Irwin having purchased the property, was observed in the northeast corner of the southern parcel (APN 004-016-32). There was no soil staining observed.

Several vehicles and a tractor were observed on site. Mr. Irwin stated that beyond changing oil, there is no vehicle repair or maintenance conducted on site. Used oil is taken from the property to the local hazardous materials drop-off location. A few 1- to 5-gallon containers of fuel and oil were observed to be stored in secondary containment outside one of the barns.

A diesel AST was observed. Mr. Irwin stated that it is empty and when hit, the tank did echo as though empty. There was no staining beneath the AST.

Mr. Irwin stated that he used to spray pesticides for weed control, but had discontinued the practice five years before.

There is a potable water well on site for domestic use. A well house and pump house were located at the eastern boundary of the northern parcel.



The property is generally flat in its topography. There is no sewer or storm water infrastructure at the parcels. Electricity is provided to the property by PG&E. Barbed wire fencing was observed along the western and northern boundaries of the property. Wire fencing was observed separating portions of the property. Mr. Irwin hauls household garbage off-site to the landfill. A propane tank, used for domestic heating, was observed adjacent to the residence.

Several 55-gallon drums were observed in the hay fields. Mr. Irwin stated that they were used for his daughters to practice horse dressage. Several horses and mules were observed on site.

A slough or drainage appeared to flow along the eastern boundary of the property.

Adjacent North: Reclamation Road and rural residential land beyond

Adjacent South: Rural residential (Floyd parcel and adjacent rural residential and agricultural

property)

Adjacent West: Reclamation Road and rural residential Adjacent East: A slough, pasture (Robinson parcel)

Weger Parcels; 8920, 8930, 8922 Bridge Arbor Road North, 8219 Reclamation Road; 167 acres

APNs

003-041-10

003-042-10

004-013-10

004-014-11

On September 27, 2012, Ms. Goulart visited the Weger parcels and was accompanied by Ms. Lisa Weger, owner of the parcels as well as Mr. Lopez the on-site farm foreman, employee of Ms. Lisa Weger. Ms. Weger and Ms. Goulart walked the area surrounding the residence and walked in the orchard to observe the irrigation structures. Ms. Weger, Ms. Goulart, and Mr. Lopez also drove in a vehicle along the western levee. The area of the sheep shearing barn and corrals was accessed on foot.

The above listed Weger parcels are owned by Ms. Lisa Weger, who lives off-site. Mr. Lopez lives on site in a private residence. In addition to the private home, several barns and sheds were observed on the property. The property use is rural residential and agricultural. According to Ms. Weger, the farm produces walnuts, hay from alfalfa, and wool from a herd of sheep raised on site. There are also a few cattle kept on the property.

All of the structures were observed, and entered when possible, with the exception of the private residence. According to Ms. Weger, the house is approximately 50 years old. The house is heated by a propane tank, observed during the site reconnaissance. She further stated that the house is on a septic system and that the household garbage generated is hauled off site.

There is a drinking water well near the house; however, the water reportedly does not taste good. Ms. Weger does not know when the well was dug. The property is irrigated with water from nearby streams which flow along the property's boundaries.

Ms. Weger stated there are no USTs on the property. Two ASTs were observed: a 250-gallon diesel AST and an approximately 400-gallon gasoline AST. There were propane ASTs previously on site, but they are no longer able to receive deliveries and so small propane tanks are kept on site instead. There



was no secondary containment or leak capture containment beneath the ASTs; however, there was no soil staining observed beneath the ASTs.

According to Ms. Weger, the property has been in the family for nearly 100 years. Ms. Weger was not sure of the date of construction of the various structures on site; however, she believed that most of them were 50 years old or older. Ms. Weger knows of no hazardous materials stored on site with the exception of the fuel in the ASTs. She knows of no spills, leaks, or dumping of fuel or other hazardous materials on site nor of any contamination in soil or groundwater at the property. According to Ms. Weger, the Farm Bureau tests the water quality of the creeks to which the property drains and has not reported any concerns to her.

A barn located at the western boundary of the property was observed to have an earthen floor. Farm vehicles were observed inside and minor soil staining was observed which appeared to be oil drippings from the vehicles. The floors of the storage barns were not thoroughly observed as the vehicles and various storage items were obscuring most of the ground surface.

There were several tractors and vehicles observed on the property. The vehicles reportedly go to Lakeport for maintenance and repairs. Vehicle maintenance is not performed on site.

One concrete block building was not entered and the contents were not observed as the structure was locked and the key was not immediately located. Ms. Weger stated that the structure was at least 50 years old and was being used for furniture storage. Ms. Weger stated there are no hazardous materials stored there.

A wood-framed sheep shearing and hay barn as well as wood fenced corrals were observed. The barn appeared to be filled with feed hay. The paint on the barn and corral fencing was in poor condition and peeling off in areas. There were no hazardous materials observed in the hay barn.

A herd of sheep and four heifers (young cows) were observed in the pasture at the southwest portion of the site.

High voltage electric transmission lines were observed crossing the property at its southwestern boundary. What appeared to be a pole-mounted electrical transformer was observed in the vicinity of the residence.

Ms. Weger stated that they pesticides are not regularly applied at the property. She recalled that approximately two or three years ago, there was a pesticide applied due to an insect infestation. She further stated that the pesticides were purchased legally and a permit filed with the County of Lake Department of Agriculture. They have not applied pesticides since then.

Ms. Weger stated that illegal dumping is not a problem on their property due to the barbed wire fencing and locked gates which keep unwanted vehicles out. They did have some intruders plant marijuana in recent years; the police were called and the plants removed.

The following structures were viewed on site:

- One private residence, used as the family residence, was observed on site and not entered;
- A tractor barn with earthen floor;
- A shearing and hay barn, of wood-frame construction on an earth floor; and
- A concrete block storage shed



All of the buildings observed were one-story structures.

Two electric pumps were observed on site. According to Ms. Weger, a pump located in the northeastern portion of the property is an irrigation pump and a pump located in the southwestern portion of the pasture is a de-watering pump, in the case of flooding.

The parcels are unpaved. The property is accessed via an entrance at North Arbor Road. There was no soil staining observed other than minor staining in the tractor barn.

The property is generally flat in its topography. There is no sewer or storm water infrastructure at the parcels. Electricity is provided to the property by Pacific Gas and Electric Company.

Adjacent North: Rural residential, agriculture (APNs 003-055-09 and 004-013-10)

Adjacent South: N. Bridge Arbor Road, slough, undeveloped land beyond

Adjacent West: Middle Creek, N. Bridge Arbor Road, undeveloped land, and agricultural crop

beyond

Adjacent East: Agricultural fields

Wilcox Parcels; 7305 Red Hill Lane; 37 acres

APN 004-022-12

The Wilcox parcel is owned by multiple Wilcox family members. Mrs. Dolores Wilcox was interviewed by phone about the parcel and Mrs. Phyllis Wilcox was interviewed at the time of the site visit.

Mrs. Dolores Wilcox stated by phone that there are no hazardous materials stored or used at the parcel, and no USTs, ASTs or any structures there. Mrs. Dolores Wilcox further stated that there had been a sewer pond on the Wilcox property which served the camp, but that the sewer pond had been abandoned when the camp was closed. The abandoned sewer pond appeared to be located east of Wilcox Lake and within the parcel boundaries, based on aerial photography.

On August 27, 2012, Ms. Goulart visited the Wilcox property. Ms. Goulart had had an appointment to be accompanied by Mr. Gordon Wilcox to the above referenced parcel; however, when Ms. Goulart arrived for the appointment, Mr. Wilcox was not available. When Ms. Goulart arrived, Mrs. Phyllis Wilcox stated that Mr. Wilcox had decided to do volunteer work that day and directed Ms. Goulart to visit the parcel unaccompanied.

Mr. Gordon and Mrs. Phyllis Wilcox live in a home on a nearby parcel, which they also own. The parcel which is included in this study, as well as some adjacent parcels, was historically used for a camp for disabled children, operated by the Wilcox family. They operated the camp for approximately 50 years, closing it in 2001.

Ms. Goulart followed Mrs. Wilcox's directions to reach the parcel; however, a heavy tree branch had fallen across the dirt road, blocking vehicle access. Ms. Goulart made multiple attempts to drive overland; however, she deemed it unsafe to proceed in the vehicle. Ms. Goulart proceeded on foot and made observations of the parcel from a vantage point where the abandoned camp buildings are located. The subject parcel is nearly entirely occupied by Wilcox Lake.

There were several dilapidated buildings observed near the subject parcel; however, these buildings were not located on the parcel which is part of this study.



The subject parcel appeared to be unpaved. Access appeared to be from an unpaved road accessed from Red Hill Lane.

The parcel's eastern portion has a slope downward toward the lake, which is generally flat in its topography.

According to the Central Valley Regional Water Quality Control Board, the sewer pond has not been decommissioned.

According to Wastewater Treatment System Order No. 97-10-DWQ-R5006, issued by the Central Valley Regional Water Quality Control Board on August 19, 1999, the sewer pond was of unlined construction. According to the order, during operation wastewater was:

"discharged from a gravity sewer collection system to a septic tank and/or 300,000 gallon oxidation pond for ultimate treatment and disposal. The septic system [was] used as the primary treatment for the kitchen and dining facilities, but effluent from the cabins [was] discharged directly to the wastewater pond."

Please see Appendix E for a copy of the Order.

Adjacent North: Northern half of the Wilcox Lake

Adjacent South: Undeveloped rural

Adjacent West: Slough, rice fields beyond

Adjacent East: Additional Wilcox land; abandoned children's summer camp

Santos Parcel; 8190 Reclamation Road; 9.4 acres

APN 004-014-17

Ms. Goulart called Mr. Santos on several occasions to ask for an appointment to visit his parcel; however, Mr. Santos did not return her calls to schedule an appointment.

Observations of the parcel were made from outside the property.

Observations made of the parcel from the road indicated that the site is occupied by an orchard and a structure which could have been a barn or house. A portion of the interior of the property is enclosed by tall fencing, obscuring that portion of the property from the road. The southern and western boundaries of the parcel were lined with thick blackberry bushes.

Adjacent North: Rural residential (Floyd, 004-014-19)

Adjacent South: Edmonds Blvd, and rice fields beyond (Bobst) beyond

Adjacent West: Reclamation Road and rural residential beyond

Adjacent East: Rural residential, grazing

Norvaez Parcels; 8924 and 8950 Bridge Arbor North; 37 acres

APNs 003-055-09 004-013-02



Ms. Goulart called Mr. Norvaez on several occasions to ask for an appointment to visit his parcel; however, Mr. Norvaez did not return her calls to schedule an appointment. On September 27, 2012, Ms. Goulart called from near the Norvaez property to request a site visit. Someone did answer the phone, stated that Mr. Norvaez was ill and hung up without further discussion. Mr. Norvaez later left a message and was apparently very ill. It was not possible to schedule a site visit due to his illness.

The Norvaez parcels are not visible from the public road; therefore, observations of the parcels were not made from outside the property.

7.0 INTERVIEWS

7.1 INTERVIEW WITH OWNER

The current owners of the property parcels were interviewed by phone or during site visits. Information obtained during the interviews is included in the site descriptions for each of the parcels in Section 6.0.

7.2 INTERVIEW WITH OCCUPANTS

The occupants of the parcels were interviewed by phone or during site visits, as possible or appropriate. Information obtained during occupant interviews is included in the site descriptions for each of the parcels in Section 6.0.

7.3 INTERVIEWS WITH LOCAL GOVERNMENT OFFICIALS

Mr. Tom Smythe, representatives of the Lake County Water Resources Department and of the Middle Creek Restoration Project was interviewed throughout the course of the project. Mr. Smythe did indicate that there have been other properties in the nearby vicinity with similar uses which have been found to contain asbestos-containing materials, and which had petroleum impacted soils due to farm operations.

8.0 FINDINGS

8.1 ASBESTOS AND LEAD-BASED PAINT

Based on the ages of the on-site buildings, it is likely that lead-based paint and asbestos-containing materials are present in on-site structures, particularly in the on-site house. Lead-based paint and asbestos-containing materials surveys and sampling should be conducted of the on-site structures prior to demolition.

8.2 ON-SITE WELLS

All of the properties observed are served by wells. All wells should be properly abandoned or destroyed according to Lake County regulatory requirements if they are not to be used.

8.3 SEPTIC SYSTEM

All of the properties observed are served by on-site septic systems should be properly closed prior to site redevelopment.

The Wilcox property reportedly operated a sewer pond on-site for the former summer camp. The sewer pond was reportedly abandoned in 2001. Though the sewer pond was reportedly no longer used after 2001, the pond has not been decommissioned according to applicable regulations.



8.4 STAINED SOILS

Minor soil staining was observed in the following locations:

- Weger property: tractor barn; and
- Mims, minor soil staining was observed beneath the diesel AST.

8.5 HAZARDOUS MATERIALS

 The fuel ASTs did not have secondary containment nor did they have leak containment at the location of the fill nozzle at the Mims property.

9.0 CONCLUSIONS

We have performed this Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-05 at the Subject Property located at several parcels totaling 762 acres of agricultural and rural residential land in the vicinity between the city of Upper Lake, Lake County, California. Any exceptions to, or deletions from, this practice is described in Sections 2.4 and 10.0 of this Phase I ESA.

De Minimis Conditions

- Diesel and gasoline ASTs were observed on most of the properties. Some of the ASTs did not
 have secondary containment or leak catchment containers at the dispenser nozzle location. It is
 recommended that the soil beneath the location of the AST dispenser nozzles be dug out and
 properly disposed. The tanks need to be fully emptied and properly disposed of. Any stained
 soil beneath the tanks should be excavated and properly disposed of.
- There were many barns and storage sheds observed throughout the Subject Property where vehicles, including tractors are stored. Minor soil staining was observed in some. The soil surface was not readily observable in all of the barns due to it being obscured by vehicles, equipment and other storage items obscuring the soils. It is recommended that the earthen floored barns be emptied of vehicles and materials and the soil observed for staining. Should there be staining, the petroleum stained soil should be excavated and properly disposed. This particularly applies to the Irwin and Weger properties.
- The properties observed which are occupied by residents, are served by septic systems. Those systems should be properly closed prior to site redevelopment.
- The Wilcox property reportedly operated a sewer pond on-site for the former summer camp.
 The sewer pond was reportedly abandoned in 2001. This sewer pond would have been used for
 domestic sewage as opposed to commercial or industrial sewage. The pond has been
 abandoned for approximately 11 years. Therefore, the presence of the previous sewer pond is
 considered a de minimus condition.

Data Gaps:

- The potable well water on the Weger residential parcel reportedly has an unpleasant taste. It is advisable to sample and analyze the well water for potential contaminants.
- Small Diesel and gasoline ASTs were observed on most of the properties. Some of the ASTs did not have secondary containment or leak catchment containers at the dispenser nozzle location.



It is recommended that the stained soil beneath the location of the AST dispenser nozzles be dug out and properly disposed and then a soil sample collected to be analyzed for diesel or gasoline to determine if there has been any substantive release to the soil around the tank. The tanks need to be fully emptied and properly disposed of. Any stained soil beneath the tanks should be excavated and properly disposed of.

- Many structures located throughout the Subject Property could have lead-based paint or asbestos-containing building materials. Structures which are planned for demolition should be given pre-demolition lead-based paint and asbestos-containing materials surveys.
- It is unknown if persistent pesticides were historically used at the Subject Property. Dichlorodiphenyltrichloroethane (DDT) was used extensively after the mid-1940s as an insecticide. It was later found DDT and other related pesticides may cause cancer and that its agricultural use was a threat to wildlife, particularly birds. DDT was eventually banned in the US in 1972. DDT is highly persistent in the environment. Due to the historical use of the property for agriculture, it is possible that DDT or other organochlorine pesticides were historically used onsite. If so, there is a possibility the soil contains residues of DDT or its derivatives. Though the Subject Property is not intended for use for schools, daycare, or other sites where sensitive populations would be exposed, if such pesticides were in the soil, it is planned to be used for increasing wildlife habitat. Persistent pesticides or heavy metals, such as mercury, which is a legacy pollutant in Clear Lake, could possibly impact wildlife, if they should be present.

It is recommended that representative sampling be completed to see if persistent pesticides and heavy metals are present in the soils on the Subject Property.

The Wilcox sewer pond should be decommissioned according to regulatory requirements. This
will entail working with the Central Valley Regional Water Quality Control Board staff to develop
a workplan for site investigation and site closure. Any further effort related to the former sewer
pond will be reported under a separate Phase II report.

10.0 DEVIATIONS

The Federal All Appropriate Inquiries Standard for Brownfields is not met, as GHD did not seek to evaluate whether the asking price for the Subject Property is consistent with the asking price of like properties in the region.

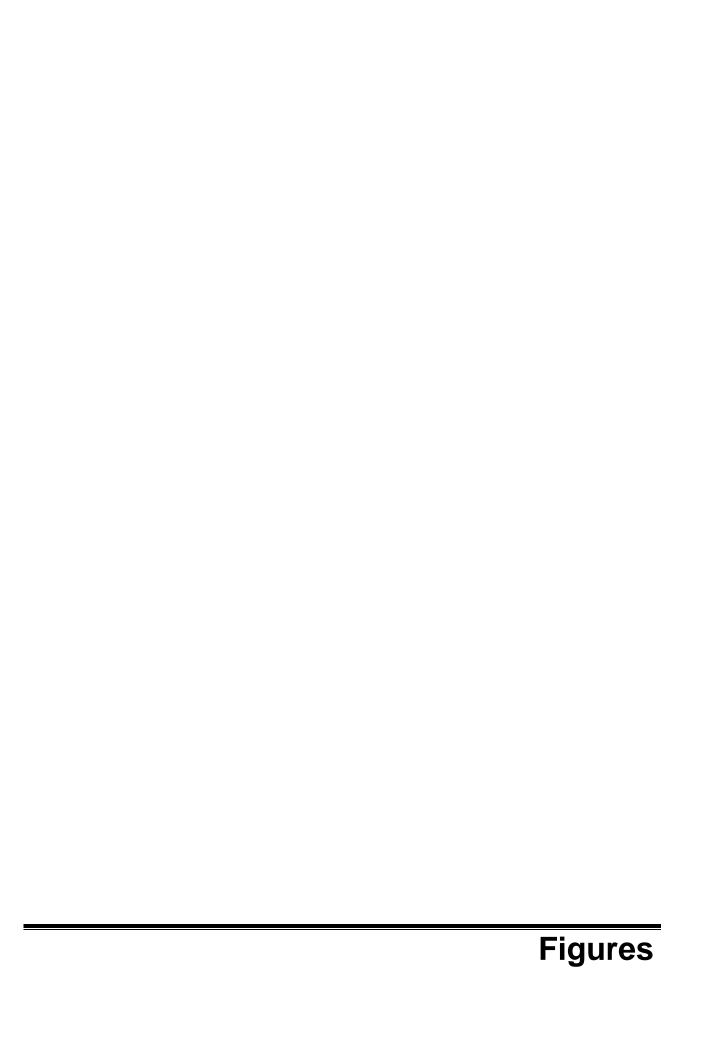
11.0 ADDITIONAL SERVICES

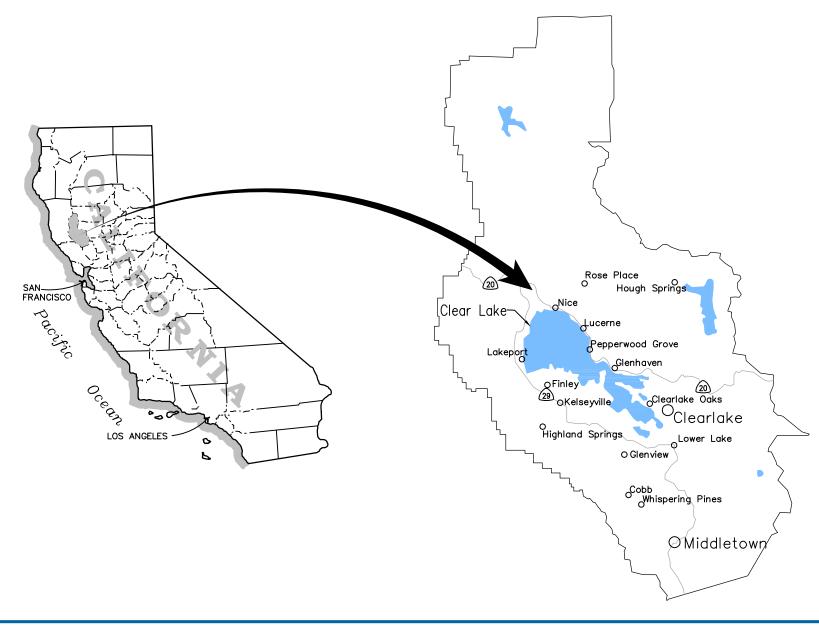
There were no additional services contracted for in relation to the Subject Property.

GHD Inc. 2235 Mercury Way Suite 150 Santa Rosa CA 95407 USA T 1 707 523 1010 F 1 707 527 8679 E santarosa@ghd.com W www.ghd.com

© GHD Inc. 2013

This document is and shall remain the property of GHD. The document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorized use of this document in any other form whatsoever is prohibited.





NOT TO SCALE





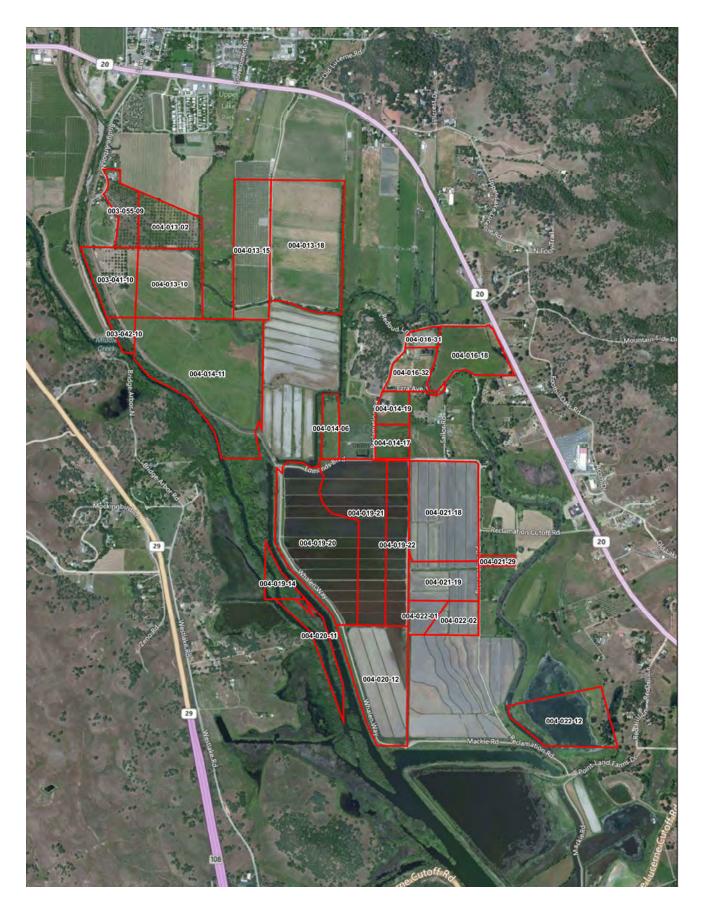
County of Lake Middle Creek Phase 1 ESA

Vicinity Map

Job Number | 8410067 Revision Date Nov 2012

Figure 1

2235 Mercury Way Suite 150 Santa Rosa California 95407 USA **T** 1 707 523 1010 **F** 1 707 527 8679 **W** www.ghd.com









Overall Site Location Map

Job Number | 8410067 Revision Date Nov 2012
Figure 2









Job Number | 8410067 Revision Date Jan 2013

Site Plan - Narvaez





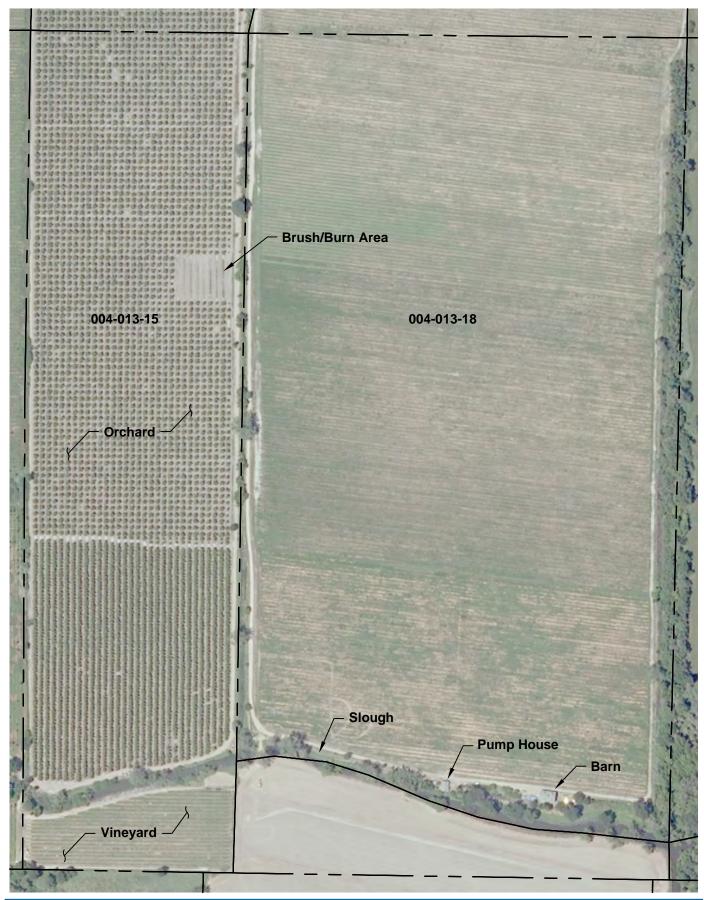




Job Number | 8410067 Revision

Date Jan 2013

Site Plan - Weger Interests Ltd





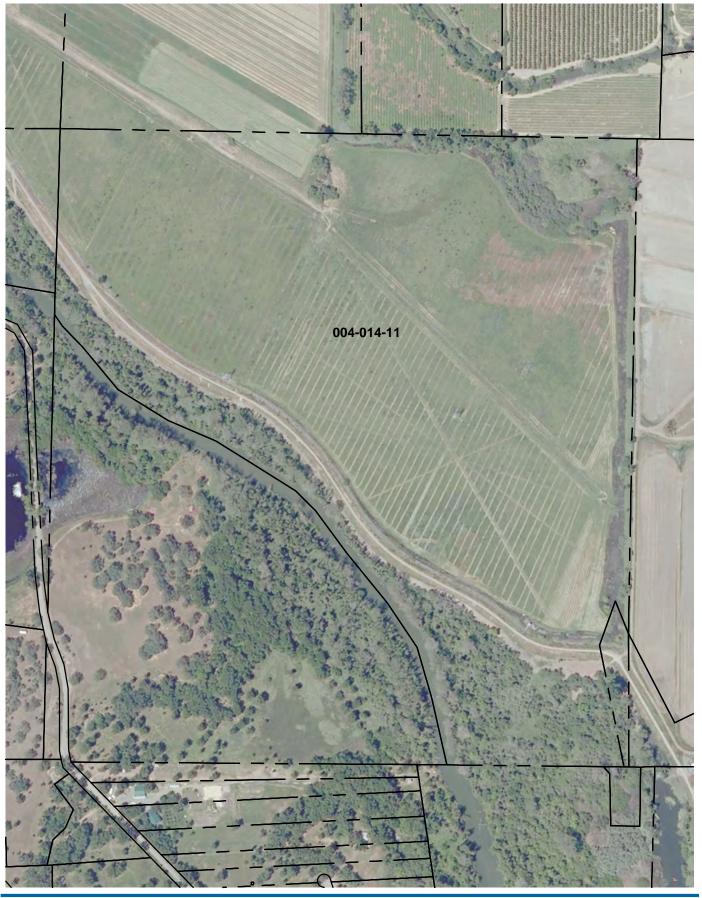




Site Map Oldham and Robinson Lake Vineyards

Job Number | 8410067 Revision

Date Jan 2013









Job Number | 8410067 Revision

Date Jan 2013

Site Map - Weger Interests Ltd

Figure 6

718 Third Street Eureka California 95501 USA T 1 707 443 8326 F 1 707 444 8330 W www.ghd.com







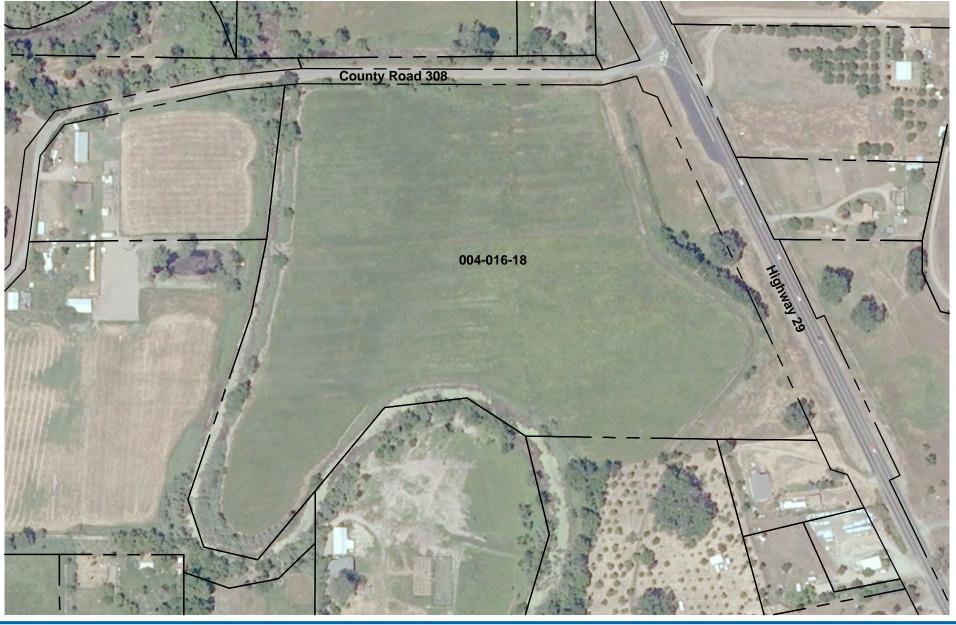


Job Number | 8410067 Revision

Date Jan 2013 Figure 7

Site Plan - Irwin

2235 Mercury Way Suite 150 Santa Rosa California 95407 USA T 1 707 523 1010 F 1 707 527 8679 W www.ghd.com









Job Number | 8410067 Revision | Date | Jan 2013

Figure 8

Site Plan - Robinson

2235 Mercury Way Suite 150 Santa Rosa California 95407 USA **T** 1 707 523 1010 **F** 1 707 527 8679 **W** www.ghd.com









Site Map Santos and Floyd Job Number | 8410067 Revision | Jan 2013





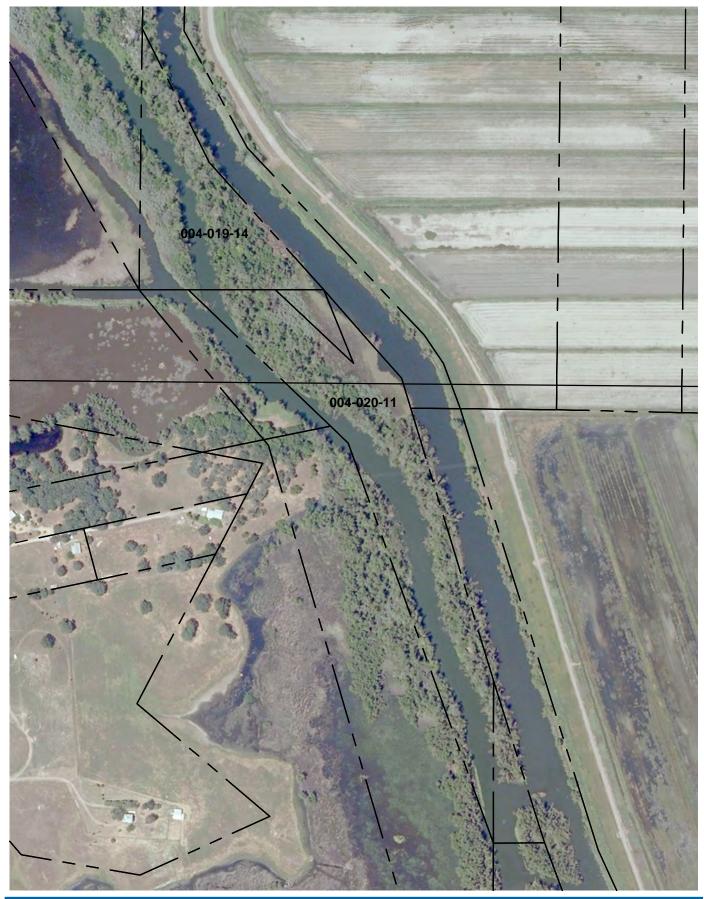




Site Map - Bobst

Job Number | 8410067 Revision

Date Jan 2013



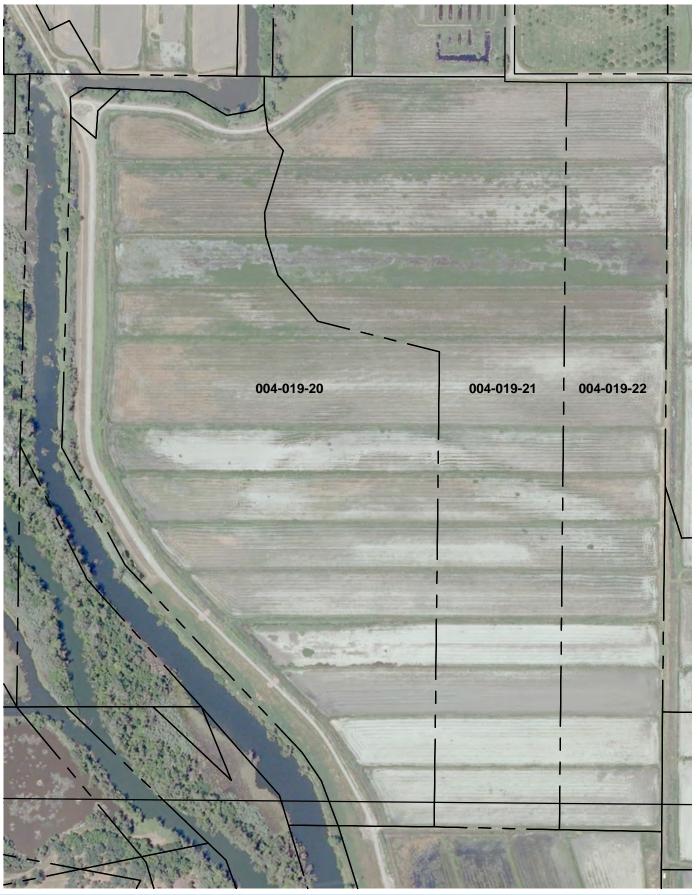






Site Map - Bobst

Job Number | 8410067 Revision Date Jan 2013









Site Map - Bobst

Job Number | 8410067 Revision Date Jan 2013









Site Map Bobst and McCarthy Job Number | 8410067 Revision | Date | Jan 2013









Site Map - Bobst

Job Number | 8410067

Revision Date Jan 2013









Site Map - Bobst

Job Number | 8410067 Revision | Date | Jan 2013









Job Number | 8410067 Revision

Date Jan 2013

Site Plan - Wilcox





Bobst Property View Facing West



Bobst Property View at North Entrance



Bobst Property View Facing South



Bobst Property Pump House



Bobst Property Photos

Job Number | 8410067 Revision | Date | Jan 2013



Floyd Property Entrance Gate and Propane Tank



Floyd Property Hay Barn and Hog Shed (in foreground)



Floyd Property Raised Septic



Floyd Property Well House



Floyd Property Photos

Job Number | 8410067 Revision Date Jan 2013



Irwin Property Hay and Storage Barn



Irwin Property Home



Irwin Property Pasture



Irwin Property Storage Barn with Gasoline Cans (in foreground)



Irwin Property Burned Shed Remnants



Irwin Property Photos

Job Number | 8410067 Revision Date Jan 2013



Irwin Property Dilapidated Shed



Irwin Property Empty Diesel AST Next to Former Bathroom



Irwin Property Hay Barn



Irwin Property Horses



Irwin Property Photos

Job Number | 8410067 Revision Date Jan 2013





McCarthy Property West Boundary

McCarthy Property View Facing Northeast



McCarthy Property Gate Roof Remnants (in foreground)



McCarthy Property Gate Note the Dense Foliage up to Gate



Job Number | 8410067 Revision Date Jan 2013

McCarthy Property Photos



Mims Property Diesel AST (Note soil staining)



Mims Property Pesticide Storage



Mims Property Sand Filter System



Mims Property Slough, South Boundary



Mims Property Vineyard from West Boundary



Mims Property Photos

Job Number | 8410067 Revision

Date Jan 2013



Oldham Property Burn Pile



Oldham Property Diesel Motor



Oldham Property Pear Orchard View Facing North from Slough



Oldham Property View to Adjacent East Property



Oldham Property View to Adjacent West Parking



Oldham Property Diesel Tank and Empty Drum



Oldham Property Photos

Job Number | 8410067 Revision Date Jan 2013



Oldham Property Diesel Machinery North Bank of Slough



Oldham Property Diesel Staining On On-Site Equipment



Oldham Property On-Site Slough View Facing South



Oldham Property On-Site Slough



Oldham Property Road Along East Boundary



Oldham Property View of Western Boundary



Oldham Property Photos

Job Number | 8410067 Revision Date Jan 2013



Robinson Property View from North Boundary



Robinson Property View of Southeast Corner with Businesses in Background



Robinson Property View of the Adjacent Property to the North



Job Number | 8410067 Revision

Date Jan 2013



Santos Property View Facing Northeast



Santos Property View Facing Northeast Close Up View





Weger Property View of West Boundary



Weger Property Foreman Residence



Weger Property Fuel ASTs



Weger Property Pasture View Facing Southeast



Weger Property Sheep Corral and Pasture



Weger Property Sheep Corral and Walnut Orchard



Weger Property Photos

Job Number | 8410067 Revision Date Jan 2013



Weger Property View of West Boundary



Weger Property Tractor Barn (Note minor soil staining)



Weger Property Walnut Orchard



Weger Property Well



Weger Property Sheep Shearing Barn



Job Number | 8410067 Revision

Date Jan 2013 Figure 28



Wilcox Property View of Adjacent Property



Wilcox Property View Facing Northwest



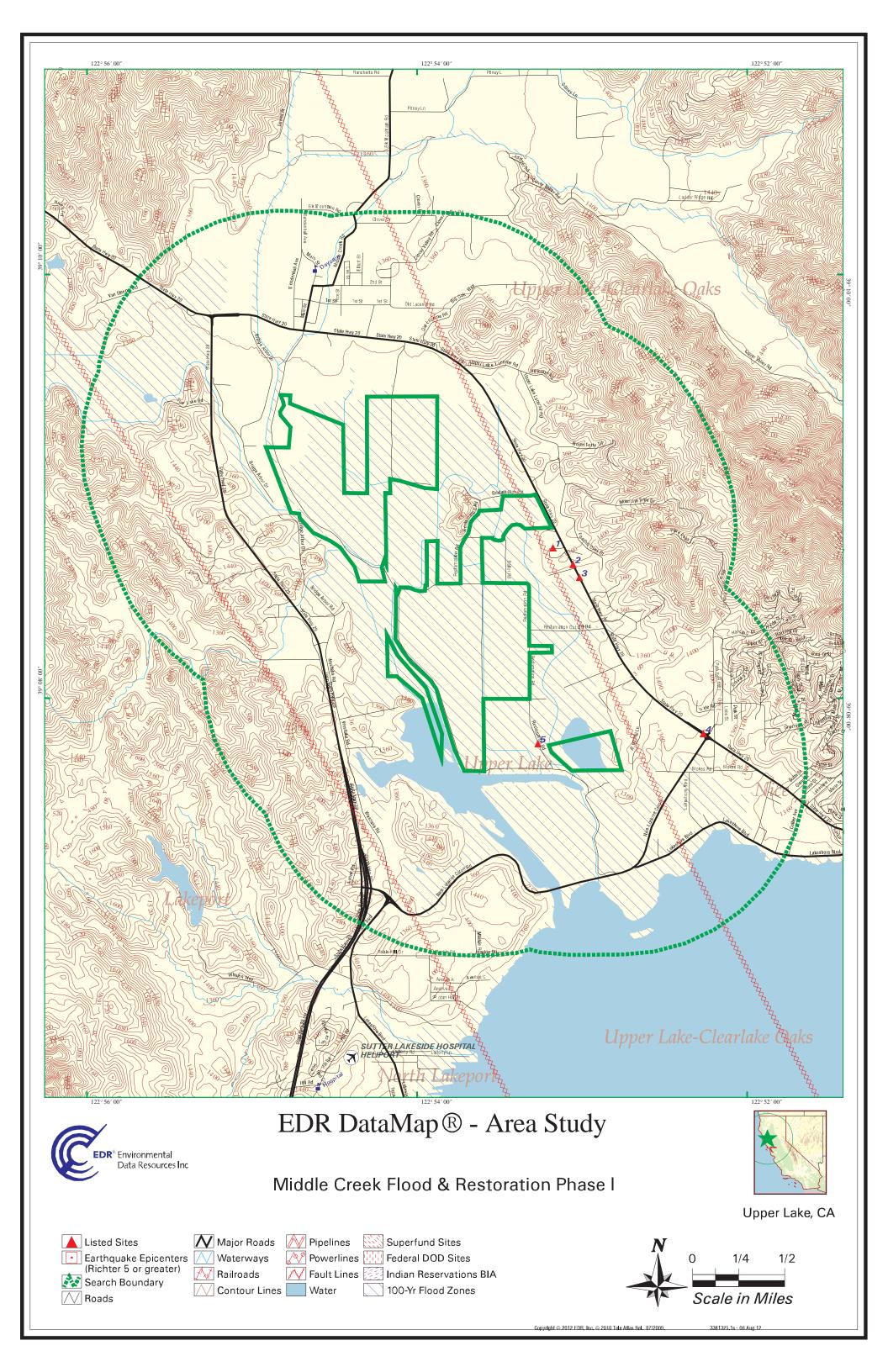
Wilcox Property View Facing West



Wilcox Property Photos

Job Number | 8410067 Revision | Date | Jan 2013





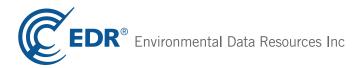
Middle Creek Flood & Restoration Phase I

Upper Lake, CA 95485

Inquiry Number: 3381325.1s

August 06, 2012

EDR DataMap™ Area Study



Thank you for your business. Please contact EDR at 1-800-352-0050 with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2006 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

TARGET PROPERTY INFORMATION

ADDRESS

UPPER LAKE, CA 95485 UPPER LAKE, CA 95485

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records within the requested search area for the following databases:

| NDI N. C. LD. S. LL. | |
|--|---|
| NPLNational Priority List | |
| Proposed NPL Proposed National Priority List Sites | |
| Delisted NPL National Priority List Deletions | |
| NPL LIENS Federal Superfund Liens | |
| CERCLIS | n |
| CERC-NFRAPCERCLIS No Further Remedial Action Planned | |
| LIENS 2 CERCLA Lien Information | |
| CORRACTS Corrective Action Report | |
| RCRA-TSDFRCRA - Treatment, Storage and Disposal | |
| RCRA-LQGRCRA - Large Quantity Generators | |
| RCRA-SQGRCRA - Small Quantity Generators | |
| RCRA-CESQGRCRA - Conditionally Exempt Small Quantity Generator | |
| RCRA-NonGenRCRA - Non Generators | |
| US ENG CONTROLS Engineering Controls Sites List | |
| US INST CONTROL Sites with Institutional Controls | |
| ERNS Emergency Response Notification System | |
| HMIRS Hazardous Materials Information Reporting System | |
| DOT OPS Incident and Accident Data | |
| US CDL Clandestine Drug Labs | |
| US BROWNFIELDS A Listing of Brownfields Sites | |
| DOD Department of Defense Sites | |
| FUDS Formerly Used Defense Sites | |
| LUCISLand Use Control Information System | |
| CONSENT Superfund (CERCLA) Consent Decrees | |
| ROD Records Of Decision | |
| UMTRA Uranium Mill Tailings Sites | |
| ODIOpen Dump Inventory | |
| DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations | |
| MINES Mines Master Index File | |
| TRIS Toxic Chemical Release Inventory System | |
| TSCA | |
| FTTSFIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide | |

ICIS..... Integrated Compliance Information System

PADS..... PCB Activity Database System MLTS..... Material Licensing Tracking System RADINFO...... Radiation Information Database

FINDS..... Facility Index System/Facility Registry System RAATS....... RCRA Administrative Action Tracking System

Potentially Responsible Parties

EPA WATCH LIST..... EPA WATCH LIST

US FIN ASSUR..... Financial Assurance Information FEDERAL FACILITY..... Federal Facility Site Information listing PCB TRANSFORMER...... PCB Transformer Registration Database US HIST CDL..... National Clandestine Laboratory Register

SCRD DRYCLEANERS...... State Coalition for Remediation of Drycleaners Listing COAL ASH EPA..... Coal Combustion Residues Surface Impoundments List

STATE AND LOCAL RECORDS

HIST Cal-Sites Historical Calsites Database CA BOND EXP. PLAN..... Bond Expenditure Plan

SCH..... School Property Evaluation Program Toxic Pits...... Toxic Pits Cleanup Act Sites

SWF/LF..... Solid Waste Information System

UIC...... UIC Listing

WDS...... Waste Discharge System NPDES Permits Listing

WMUDS/SWAT..... Waste Management Unit Database

Cortese_____ "Cortese" Hazardous Waste & Substances Sites List

CA FID UST..... Facility Inventory Database UST..... Active UST Facilities LIENS_____ Environmental Liens Listing SWEEPS UST...... SWEEPS UST Listing

CHMIRS..... California Hazardous Material Incident Report System

LDS..... Land Disposal Sites Listing MCS..... Military Cleanup Sites Listing

AST..... Aboveground Petroleum Storage Tank Facilities

Notify 65..... Proposition 65 Records DEED...... Deed Restriction Listing

VCP......Voluntary Cleanup Program Properties DRYCLEANERS......Cleaner Facilities

WIP..... Well Investigation Program Case List

ENF..... Enforcement Action Listing CDL..... Clandestine Drug Labs RESPONSE...... State Response Sites HAZNET..... Facility and Manifest Data EMI..... Emissions Inventory Data ENVIROSTOR..... EnviroStor Database

HWP..... EnviroStor Permitted Facilities Listing MWMP..... Medical Waste Management Program Listing HWT...... Registered Hazardous Waste Transporter Database

PROC..... Certified Processors Database

TRIBAL RECORDS

EDR PROPRIETARY RECORDS

Manufactured Gas Plants..... EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in **bold italics** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STATE AND LOCAL RECORDS

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there is 1 HIST CORTESE site within the searched area.

| Site | Address | Map ID | Page |
|--------------------|--------------|--------|------|
| P.D.K. SS (FORMER) | 485 HWY 20 E | 3 | 5 |

SWRCY: A listing of recycling facilities in California.

A review of the SWRCY list, as provided by EDR, and dated 06/11/2012 has revealed that there is 1 SWRCY site within the searched area.

| Site | Address | Map ID | Page |
|--------------------|-------------------|--------|------|
| ROBINSON RANCHERIA | 1545 E HIGHWAY 20 | 4 | 14 |

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 06/14/2012 has revealed that there is 1 LUST

site within the searched area.

| Site | Address | Map ID | Page |
|---------------------------------|--------------|--------|------|
| P.D.K. SS (FORMER) | 485 HWY 20 E | 3 | 5 |
| Status: Completed - Case Closed | | | |

SLIC: SLIC Region comes from the California Regional Water Quality Control Board.

A review of the SLIC list, as provided by EDR, and dated 06/14/2012 has revealed that there is 1 SLIC site within the searched area.

| Site | Address | Map ID | Page |
|----------------------------------|-----------------------|--------|------|
| BOBST PROPERTY | 7385 RECLAMATION ROAD | 5 | 14 |
| Facility Status: Open - Inactive | | | |

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 2 HIST UST sites within the searched area.

| Site | Address | Map ID | Page |
|--------------------|------------------|--------|------|
| LAKE CO VAN & STG. | 1400 E HGWY 20 | 1 | 4 |
| SEELY ORCHARD | 400 E HIGHWAY 20 | 2 | 4 |

Please refer to the end of the findings report for unmapped orphan sites due to poor or inadequate address information.

MAP FINDINGS SUMMARY

| | Database | Total Plotted |
|-----------------|--------------------------------|------------------|
| FEDERAL RECORDS | | |
| | ND | |
| | NPL Proposed NPL | 0 0 |
| | Delisted NPL | Ö |
| | NPL LIENS | 0 |
| | CERCLIS | 0 |
| | CERC-NFRAP LIENS 2 | 0 0 |
| | CORRACTS | 0 |
| | RCRA-TSDF | 0 |
| | RCRA-LQG | 0 |
| | RCRA-SQG | 0 |
| | RCRA-CESQG RCRA-NonGen | 0 0 |
| | US ENG CONTROLS | Ö |
| | US INST CONTROL | 0 |
| | ERNS | 0 |
| | HMIRS DOT OPS | 0 0 |
| | US CDL | 0 |
| | US BROWNFIELDS | Ō |
| | DOD | 0 |
| | FUDS LUCIS | 0 0 |
| | CONSENT | 0 |
| | ROD | 0 |
| | UMTRA | 0 |
| | ODI | 0 |
| | DEBRIS REGION 9 MINES | 0 0 |
| | TRIS | 0 |
| | TSCA | Ō |
| | FTTS | 0 |
| | HIST FTTS | 0 |
| | SSTS ICIS | 0 0 |
| | PADS | Ö |
| | MLTS | 0 |
| | RADINFO | 0 |
| | FINDS RAATS | 0 0 |
| | FEMA UST | 0 |
| | COAL ASH DOE | Ö |
| | 2020 COR ACTION | 0 |
| | PRP | 0 |
| | EPA WATCH LIST US FIN ASSUR | 0 0 |
| | FEDERAL FACILITY | 0 |
| | PCB TRANSFORMER | 0 |

MAP FINDINGS SUMMARY

| | Database | Total Plotted |
|--------------------|--|---|
| | US HIST CDL SCRD DRYCLEANERS COAL ASH EPA | 0 0 0 |
| STATE AND LOCAL RE | CORDS | |
| | HIST Cal-Sites CA BOND EXP. PLAN SCH Toxic Pits SWF/LF UIC WDS NPDES WMUDS/SWAT Cortese HIST CORTESE SWRCY LUST CA FID UST SLIC UST HIST UST LIENS SWEEPS UST CHMIRS LDS MCS AST Notify 65 DEED VCP DRYCLEANERS WIP ENF CDL RESPONSE HAZNET EMI ENVIROSTOR HAULERS FINANCIAL ASSURANCE HWP MWMP HWT PROC | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| TRIBAL RECORDS | | |
| | INDIAN RESERV INDIAN ODI | 0 0 |

MAP FINDINGS SUMMARY

| | Database | Total Plotted |
|----------------|-------------------------|------------------|
| | INDIAN LUST | 0 |
| | INDIAN UST | 0 |
| | INDIAN VCP | 0 |
| EDR PROPRIETAR | YRECORDS | |
| | Manufactured Gas Plants | 0 |

NOTES:

Sites may be listed in more than one database

Map ID Direction Distance

Distance (ft.)Site Database(s) EPA ID Number

1 LAKE CO VAN & STG. HIST UST U001611037 1400 E HGWY 20 N/A

HIST UST:

UPPER LAKE, CA 95485

Region: STATE
Facility ID: 00000020335
Facility Type: Other
Other Type: PRIVATE
Total Tanks: 0001

Contact Name: FRED W. VOGT
Telephone: 7072752559
Owner Name: FRED W. VOGT
Owner Address: 1400 EAST HGWY 20
Owner City,St,Zip: UPPER LAKE, CA 95485

Tank Num: 001 Container Num: 1

Year Installed: Not reported
Tank Capacity: 00000550
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Tank Construction: Not reported
Leak Detection: None

2 SEELY ORCHARD 400 E HIGHWAY 20 UPPER LAKE, CA 95485

HIST UST:

Region: STATE
Facility ID: 00000035143
Facility Type: Other
Other Type: FARM
Total Tanks: 0001

Contact Name: EDWARD SEELY
Telephone: 7072752353
Owner Name: EDWARD SEELY
Owner Address: P.O. BOX 218

Owner City, St, Zip: UPPER LAKE, CA 95485

Tank Num: 001 Container Num: 1 Year Installed: 1970 Tank Capacity: 00000550 Tank Used for: **PRODUCT** Type of Fuel: **REGULAR** Tank Construction: 1/4 inches Leak Detection: Stock Inventor HIST UST U001611047 N/A

EDR ID Number

Map ID Direction Distance Distance (ft.)Site

irection EDR ID Number

stance (ft.)Site Database(s) EPA ID Number

3 P.D.K. SS (FORMER) 485 HWY 20 E UPPER LAKE, CA 95485

CORTESE:

Region: CORTESE
Facility County Code: 17
Reg By: LTNKA
Reg Id: 170085

LUST:

 Region:
 STATE

 Global Id:
 T0603300064

 Latitude:
 39.161844682

 Longitude:
 -122.907523604

 Case Type:
 LUST Cleanup Site

 Status:
 Completed - Case Closed

Status Date: 05/11/2011

Lead Agency: CENTRAL VALLEY RWQCB (REGION 5S)

Case Worker: GTM

Local Agency:

RB Case Number:

LOC Case Number:

File Location:

LAKE COUNTY

170085

Not reported

Not reported

Potential Media Affect: Well used for drinking water supply

Potential Contaminants of Concern: Diesel

Site History: The case was opened following an unauthorized release from an

underground storage tank system at the subject site. Corrective

action is underway as directed by the CVRWQCB. Corrective action may

HIST CORTESE

LUST

S102434821

N/A

consist of preliminary site investigation, planning and

implementation of remedial action, verification monitoring, or a combination thereof. A summary of the site history is available by clicking on either the "Cleanup Status History", "Regulatory Activities" or the "Site Maps/Documents" tab. For a complete site history the case file at the CVRWQCB should be consulted.

Click here to access the California GeoTracker records for this facility:

LUST:

Global Id: T0603300064

Contact Type: Regional Board Caseworker

Contact Name: GLENN T. MEEKS

Organization Name: CENTRAL VALLEY RWQCB (REGION 5S)

Address: 11020 SUN CENTER DRIVE #200

City: RANCHO CORDOVA
Email: gmeeks@waterboards.ca.gov

Phone Number: Not reported

Global Id: T0603300064

Contact Type: Local Agency Caseworker
Contact Name: MANUEL RAMIREZ
Organization Name: LAKE COUNTY
Address: Not reported
City: r5 UNKNOWN
Email: Not reported
Phone Number: Not reported

LUST:

Global Id: T0603300064

Map ID Direction Distance

Distance (ft.)Site Database(s) EPA ID Number

P.D.K. SS (FORMER) (Continued)

S102434821

EDR ID Number

Action Type: RESPONSE Date: 11/30/2008

Action: Soil and Water Investigation Workplan

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 09/15/2003

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 11/15/2003

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 07/15/2003

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 04/08/2009

 Action:
 Staff Letter

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 05/12/2011

Action: Closure/No Further Action Letter

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 10/15/2007

 Action:
 Other Workplan

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 05/05/2011

Action: Technical Correspondence / Assistance / Other

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 11/23/2005

 Action:
 Staff Letter

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 10/25/2002

Action: Site Visit / Inspection / Sampling

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 04/16/2008

Action: Site Visit / Inspection / Sampling

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 04/15/2004

Map ID Direction Distance

Distance (ft.)Site Database(s) EPA ID Number

P.D.K. SS (FORMER) (Continued)

S102434821

EDR ID Number

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 04/08/2004

 Action:
 Other Workplan

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 08/18/2003

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 04/15/2004

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 07/23/2009

 Action:
 Staff Letter

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 03/15/2004

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 10/15/2004

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 11/15/2004

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 08/15/2006

 Action:
 Other Workplan

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 06/30/2008

Action: Well Installation Report

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 10/30/2007

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 09/30/2007

Action: Monitoring Report - Quarterly

Map ID Direction Distance

Distance (ft.)Site Database(s) EPA ID Number

P.D.K. SS (FORMER) (Continued)

S102434821

EDR ID Number

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 03/26/2003

 Action:
 File review

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 03/25/2003

 Action:
 File review

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 04/20/2004

 Action:
 13267 Requirement

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 09/25/2008

Action: Clean Up Fund - 5-Year Review Summary

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 12/23/2010

Action: Clean Up Fund - 5-Year Review Summary

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 10/18/2007

 Action:
 Staff Letter

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 12/31/2009

Action: Risk Assessment Report

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 06/15/2009

 Action:
 Other Workplan

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 02/15/2004

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 10/13/2009

 Action:
 Verbal Enforcement

Action: Verbal Enforcement

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 06/30/2008

Action: Monitoring Report - Quarterly

Global Id: T0603300064
Action Type: ENFORCEMENT

Map ID
Direction
Distance

Distance (ft.)Site Database(s) EPA ID Number

P.D.K. SS (FORMER) (Continued)

S102434821

EDR ID Number

Date: 06/14/2006 Action: Staff Letter

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 12/31/2010

 Action:
 Request for Closure

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 11/05/2009

 Action:
 Verbal Enforcement

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 09/14/2009

 Action:
 Verbal Enforcement

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 01/15/2006

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 06/30/2008

Action: Soil and Water Investigation Report

 Global Id:
 T0603300064

 Action Type:
 Other

 Date:
 01/01/1950

 Action:
 Leak Reported

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 10/03/2000

 Action:
 Staff Letter

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 03/12/2008

 Action:
 Staff Letter

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 12/31/2010

Action: Fact Sheets - Public Participation

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 03/15/2005

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 02/15/2005

Action: Monitoring Report - Quarterly

Map ID Direction Distance

Distance (ft.)Site Database(s) EPA ID Number

P.D.K. SS (FORMER) (Continued)

S102434821

EDR ID Number

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 11/15/2005

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 01/15/2005

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 09/15/2005

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 10/14/2005

Action: Monitoring Report - Quarterly

Global Id: T0603300064
Action Type: RESPONSE
Date: 11/14/2005

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 07/16/2005

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 10/15/2005

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 01/15/2004

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 Other

 Date:
 01/01/1950

 Action:
 Leak Discovery

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 10/15/2002

Action: Monitoring Report - Quarterly

Global Id: T0603300064
Action Type: ENFORCEMENT
Date: 05/18/2010

Action: Notification - Public Notice of Case Closure

Global Id: T0603300064
Action Type: ENFORCEMENT

Map ID Direction Distance

Distance (ft.)Site Database(s) EPA ID Number

P.D.K. SS (FORMER) (Continued)

S102434821

EDR ID Number

Date: 03/20/2007 Action: Staff Letter

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 05/19/2008

Action: Technical Correspondence / Assistance / Other

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 04/06/2011

Action: Technical Correspondence / Assistance / Other

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 03/15/2011

Action: Technical Correspondence / Assistance / Other

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 02/27/2007

 Action:
 Staff Letter

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 02/28/2007

 Action:
 Staff Letter

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 08/30/2007

 Action:
 File review

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 12/08/2008

 Action:
 Staff Letter

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 04/15/2005

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 08/15/2005

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 07/15/2005

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 05/15/2005

Action: Monitoring Report - Quarterly

Map ID Direction Distance

Distance (ft.)Site Database(s) EPA ID Number

P.D.K. SS (FORMER) (Continued)

S102434821

EDR ID Number

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 04/29/2011

Action: Technical Correspondence / Assistance / Other

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 01/31/2011

Action: Technical Correspondence / Assistance / Other

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 07/09/2008

Action: Staff Letter - #7-9-08-170085

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 05/15/2004

Action: Monitoring Report - Quarterly

Global Id: T0603300064
Action Type: RESPONSE
Date: 07/15/2004

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 07/16/2004

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 10/15/2008

Action: Technical Correspondence / Assistance / Other

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 09/25/2008

 Action:
 Staff Letter

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 04/06/2011

 Action:
 Staff Letter

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 08/15/2006

Action: Other Report / Document

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 04/15/2006

Action: Monitoring Report - Quarterly

Global Id: T0603300064
Action Type: ENFORCEMENT

Map ID Direction Distance

Distance (ft.)Site Database(s) EPA ID Number

P.D.K. SS (FORMER) (Continued)

S102434821

EDR ID Number

Date: 11/02/2007

Action: Technical Correspondence / Assistance / Other

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 10/26/2007

Action: Site Visit / Inspection / Sampling

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 10/16/2007

Action: Technical Correspondence / Assistance / Other

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 01/13/2009

Action: Technical Correspondence / Assistance / Other

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 06/30/2010

Action: Notification - Public Notice of Case Closure

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 10/15/2006

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 04/30/2007

 Action:
 Other Workplan

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 04/30/2007

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 01/15/2007

Action: Monitoring Report - Quarterly

 Global Id:
 T0603300064

 Action Type:
 RESPONSE

 Date:
 01/30/2007

Action: Monitoring Report - Quarterly

Global Id: T0603300064
Action Type: ENFORCEMENT
Date: 07/08/2010

Action: Technical Correspondence / Assistance / Other

Global Id: T0603300064
Action Type: ENFORCEMENT
Date: 12/16/2002

Action: * Verbal Communication

Map ID Direction Distance Distance (ft.)Site

EDR ID Number

Database(s) EPA ID Number

P.D.K. SS (FORMER) (Continued)

S102434821

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 09/18/2007

 Action:
 Staff Letter

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 09/20/2000

 Action:
 Staff Letter

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 07/02/2001

 Action:
 Staff Letter

 Global Id:
 T0603300064

 Action Type:
 ENFORCEMENT

 Date:
 08/15/2000

 Action:
 Staff Letter

LUST REG 5:

Region: 5

Status: Leak being confirmed

Case Number: 170085

Case Type: Drinking water wells have been affected

Substance: DIESEL
Staff Initials: GTM
Lead Agency: Regional
Program: LUST
MTBE Code: 3

4 ROBINSON RANCHERIA 1545 E HIGHWAY 20 NICE, CA 95464

SWRCY:

Facility Phone Number: Not reported

Whether The Facility Is Grandfathered: N

Effective Date: 11/12/2002 Rural: Y As Of: 06/11/2012

As Of: 06/11/2012 Party Number: 25010

5 BOBST PROPERTY 7385 RECLAMATION ROAD UPPER LAKE, CA 95485 SLIC S109277077 N/A

SWRCY S107137784

N/A

SLIC:

Region: STATE
Facility Status: Open - Inactive
Status Date: 08/02/2008

Status Date: 08/02/2008
Global Id: T10000000143

Lead Agency: CENTRAL VALLEY RWQCB (REGION 5S)

Lead Agency Case Number: Not reported Latitude: 39.12974

MAP FINDINGS

Map ID
Direction
Distance

Distance (ft.)Site Database(s) EPA ID Number

BOBST PROPERTY (Continued)

S109277077

EDR ID Number

Longitude: -122.887769

Case Type: Cleanup Program Site

Case Worker: ZZZ

Local Agency: Not reported RB Case Number: Not reported File Location: Not reported Potential Media Affected: Not reported Potential Contaminants of Concern: Not reported Site History: Not reported

Click here to access the California GeoTracker records for this facility:

Count: 30 records

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 05/08/2012 Source: EPA
Date Data Arrived at EDR: 05/10/2012 Telephone: N/A

Number of Days to Update: 5 Next Scheduled EDR Contact: 10/22/2012
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)

Telephone: 202-564-7333

EPA Region 1 EPA Region 6

Telephone 617-918-1143 Telephone: 214-655-6659

EPA Region 3 EPA Region 7

Telephone 215-814-5418 Telephone: 913-551-7247

EPA Region 4 EPA Region 8

Telephone 404-562-8033 Telephone: 303-312-6774

EPA Region 5 EPA Region 9

Telephone 312-886-6686 Telephone: 415-947-4246

EPA Region 10

Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 03/30/2012 Source: EPA
Date Data Arrived at EDR: 04/05/2012 Telephone: N/A

Number of Days to Update: 40 Next Scheduled EDR Contact: 10/22/2012
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 03/30/2012 Source: EPA
Date Data Arrived at EDR: 04/05/2012 Telephone: N/A

Number of Days to Update: 40 Next Scheduled EDR Contact: 10/22/2012
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991 Date Data Arrived at EDR: 02/02/1994 Date Made Active in Reports: 03/30/1994

Number of Days to Update: 56

Source: EPA

Telephone: 202-564-4267 Last EDR Contact: 08/15/2011

Next Scheduled EDR Contact: 11/28/2011 Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 12/27/2011 Date Data Arrived at EDR: 02/27/2012 Date Made Active in Reports: 03/12/2012

Number of Days to Update: 14

Source: EPA

Telephone: 703-412-9810 Last EDR Contact: 07/05/2012

Next Scheduled EDR Contact: 09/10/2012 Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 12/28/2011 Date Data Arrived at EDR: 02/27/2012 Date Made Active in Reports: 03/12/2012

Number of Days to Update: 14

Source: EPA

Telephone: 703-412-9810 Last EDR Contact: 07/05/2012

Next Scheduled EDR Contact: 09/10/2012 Data Release Frequency: Quarterly

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/16/2012 Date Data Arrived at EDR: 03/26/2012 Date Made Active in Reports: 06/14/2012

Number of Days to Update: 80

Source: Environmental Protection Agency

Telephone: 202-564-6023 Last EDR Contact: 07/27/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Varies

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 08/19/2011 Date Data Arrived at EDR: 08/31/2011 Date Made Active in Reports: 01/10/2012

Number of Days to Update: 132

Source: EPA

Telephone: 800-424-9346 Last EDR Contact: 05/15/2012

Next Scheduled EDR Contact: 08/27/2012 Data Release Frequency: Quarterly

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/15/2012 Date Data Arrived at EDR: 04/04/2012 Date Made Active in Reports: 05/15/2012

Number of Days to Update: 41

Source: Environmental Protection Agency

Telephone: (415) 495-8895 Last EDR Contact: 07/02/2012

Next Scheduled EDR Contact: 10/15/2012 Data Release Frequency: Quarterly

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/15/2012 Date Data Arrived at EDR: 04/04/2012 Date Made Active in Reports: 05/15/2012

Number of Days to Update: 41

Source: Environmental Protection Agency

Telephone: (415) 495-8895 Last EDR Contact: 07/02/2012

Next Scheduled EDR Contact: 10/15/2012 Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/15/2012 Date Data Arrived at EDR: 04/04/2012 Date Made Active in Reports: 05/15/2012

Number of Days to Update: 41

Source: Environmental Protection Agency

Telephone: (415) 495-8895 Last EDR Contact: 07/02/2012

Next Scheduled EDR Contact: 10/15/2012 Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/15/2012 Date Data Arrived at EDR: 04/04/2012 Date Made Active in Reports: 05/15/2012

Number of Days to Update: 41

Source: Environmental Protection Agency

Telephone: (415) 495-8895 Last EDR Contact: 07/02/2012

Next Scheduled EDR Contact: 10/15/2012
Data Release Frequency: Varies

RCRA-NonGen: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/15/2012 Date Data Arrived at EDR: 04/04/2012 Date Made Active in Reports: 05/15/2012

Number of Days to Update: 41

Source: Environmental Protection Agency Telephone: (415) 495-8895

Last EDR Contact: 07/02/2012

Next Scheduled EDR Contact: 10/15/2012 Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 12/30/2011 Date Data Arrived at EDR: 12/30/2011 Date Made Active in Reports: 01/10/2012

Number of Days to Update: 11

Source: Environmental Protection Agency

Telephone: 703-603-0695 Last EDR Contact: 06/11/2012

Next Scheduled EDR Contact: 09/24/2012 Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 12/30/2011 Date Data Arrived at EDR: 12/30/2011 Date Made Active in Reports: 01/10/2012

Number of Days to Update: 11

Source: Environmental Protection Agency

Telephone: 703-603-0695 Last EDR Contact: 06/11/2012

Next Scheduled EDR Contact: 09/24/2012 Data Release Frequency: Varies

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 04/02/2012 Date Data Arrived at EDR: 04/03/2012 Date Made Active in Reports: 06/14/2012

Number of Days to Update: 72

Source: National Response Center, United States Coast Guard

Telephone: 202-267-2180 Last EDR Contact: 07/02/2012

Next Scheduled EDR Contact: 10/15/2012 Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 04/01/2012 Date Data Arrived at EDR: 04/03/2012 Date Made Active in Reports: 06/14/2012

Number of Days to Update: 72

Source: U.S. Department of Transportation

Telephone: 202-366-4555 Last EDR Contact: 07/02/2012

Next Scheduled EDR Contact: 10/15/2012 Data Release Frequency: Annually

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/29/2011 Date Data Arrived at EDR: 08/09/2011 Date Made Active in Reports: 11/11/2011

Number of Days to Update: 94

Source: Department of Transporation, Office of Pipeline Safety

Telephone: 202-366-4595 Last EDR Contact: 05/08/2012

Next Scheduled EDR Contact: 08/20/2012 Data Release Frequency: Varies

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 03/16/2012 Date Data Arrived at EDR: 06/12/2012 Date Made Active in Reports: 07/16/2012

Number of Days to Update: 34

Source: Drug Enforcement Administration

Telephone: 202-307-1000 Last EDR Contact: 06/04/2012

Next Scheduled EDR Contact: 09/17/2012 Data Release Frequency: Quarterly

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/27/2011 Date Data Arrived at EDR: 06/27/2011 Date Made Active in Reports: 09/13/2011

Number of Days to Update: 78

Source: Environmental Protection Agency

Telephone: 202-566-2777 Last EDR Contact: 06/25/2012

Next Scheduled EDR Contact: 10/08/2012 Data Release Frequency: Semi-Annually

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005 Date Data Arrived at EDR: 11/10/2006 Date Made Active in Reports: 01/11/2007

Number of Days to Update: 62

Source: USGS Telephone: 888-275-8747 Last EDR Contact: 07/19/2012

Next Scheduled EDR Contact: 10/29/2012 Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2009 Date Data Arrived at EDR: 08/12/2010 Date Made Active in Reports: 12/02/2010

Number of Days to Update: 112

Source: U.S. Army Corps of Engineers

Telephone: 202-528-4285 Last EDR Contact: 06/11/2012

Next Scheduled EDR Contact: 09/24/2012 Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005 Date Data Arrived at EDR: 12/11/2006 Date Made Active in Reports: 01/11/2007

Number of Days to Update: 31

Source: Department of the Navy Telephone: 843-820-7326 Last EDR Contact: 05/21/2012

Next Scheduled EDR Contact: 09/03/2012 Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/01/2011 Date Data Arrived at EDR: 01/25/2012 Date Made Active in Reports: 03/01/2012

Number of Days to Update: 36

Source: Department of Justice, Consent Decree Library

Telephone: Varies

Last EDR Contact: 06/27/2012

Next Scheduled EDR Contact: 10/15/2012 Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 02/27/2012 Date Data Arrived at EDR: 03/14/2012 Date Made Active in Reports: 06/14/2012

Number of Days to Update: 92

Source: EPA

Telephone: 703-416-0223 Last EDR Contact: 06/13/2012

Next Scheduled EDR Contact: 09/24/2012 Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012

Number of Days to Update: 146

Source: Department of Energy Telephone: 505-845-0011 Last EDR Contact: 05/29/2012

Next Scheduled EDR Contact: 09/10/2012 Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985 Date Data Arrived at EDR: 08/09/2004 Date Made Active in Reports: 09/17/2004

Number of Days to Update: 39

Source: Environmental Protection Agency

Telephone: 800-424-9346 Last EDR Contact: 06/09/2004 Next Scheduled EDR Contact: N/A

Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009 Date Data Arrived at EDR: 05/07/2009 Date Made Active in Reports: 09/21/2009

Number of Days to Update: 137

Source: EPA, Region 9 Telephone: 415-947-4219 Last EDR Contact: 07/03/2012

Next Scheduled EDR Contact: 10/08/2012 Data Release Frequency: No Update Planned

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/18/2011 Date Data Arrived at EDR: 09/08/2011 Date Made Active in Reports: 09/29/2011

Number of Days to Update: 21

Source: Department of Labor, Mine Safety and Health Administration

Telephone: 303-231-5959 Last EDR Contact: 06/05/2012

Next Scheduled EDR Contact: 09/17/2012 Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009 Date Data Arrived at EDR: 09/01/2011 Date Made Active in Reports: 01/10/2012

Number of Days to Update: 131

Source: EPA

Telephone: 202-566-0250 Last EDR Contact: 05/29/2012

Next Scheduled EDR Contact: 09/10/2012 Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006 Date Data Arrived at EDR: 09/29/2010 Date Made Active in Reports: 12/02/2010

Number of Days to Update: 64

Source: EPA

Telephone: 202-260-5521 Last EDR Contact: 06/29/2012

Next Scheduled EDR Contact: 10/08/2012 Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act) FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009 Date Data Arrived at EDR: 04/16/2009 Date Made Active in Reports: 05/11/2009

Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances

Telephone: 202-566-1667 Last EDR Contact: 05/23/2012

Next Scheduled EDR Contact: 09/10/2012 Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009 Date Data Arrived at EDR: 04/16/2009 Date Made Active in Reports: 05/11/2009

Number of Days to Update: 25

Source: EPA

Telephone: 202-566-1667 Last EDR Contact: 05/23/2012

Next Scheduled EDR Contact: 09/10/2012 Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006 Date Data Arrived at EDR: 03/01/2007 Date Made Active in Reports: 04/10/2007

Number of Days to Update: 40

Source: Environmental Protection Agency

Telephone: 202-564-2501 Last EDR Contact: 12/17/2007

Next Scheduled EDR Contact: 03/17/2008 Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006 Date Data Arrived at EDR: 03/01/2007 Date Made Active in Reports: 04/10/2007

Number of Days to Update: 40

Source: Environmental Protection Agency

Telephone: 202-564-2501 Last EDR Contact: 12/17/2008

Next Scheduled EDR Contact: 03/17/2008 Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009 Date Data Arrived at EDR: 12/10/2010 Date Made Active in Reports: 02/25/2011

Number of Days to Update: 77

Source: EPA

Telephone: 202-564-4203 Last EDR Contact: 07/27/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program

Date of Government Version: 07/20/2011 Date Data Arrived at EDR: 11/10/2011 Date Made Active in Reports: 01/10/2012

Number of Days to Update: 61

Source: Environmental Protection Agency

Telephone: 202-564-5088 Last EDR Contact: 06/21/2012

Next Scheduled EDR Contact: 10/08/2012 Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2010 Date Data Arrived at EDR: 11/10/2010 Date Made Active in Reports: 02/16/2011

Number of Days to Update: 98

Source: EPA

Telephone: 202-566-0500 Last EDR Contact: 07/19/2012

Next Scheduled EDR Contact: 10/29/2012 Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/21/2011 Date Data Arrived at EDR: 07/15/2011 Date Made Active in Reports: 09/13/2011

Number of Days to Update: 60

Source: Nuclear Regulatory Commission

Telephone: 301-415-7169 Last EDR Contact: 06/11/2012

Next Scheduled EDR Contact: 09/24/2012 Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/10/2012 Date Data Arrived at EDR: 01/12/2012 Date Made Active in Reports: 03/01/2012

Number of Days to Update: 49

Source: Environmental Protection Agency

Telephone: 202-343-9775 Last EDR Contact: 07/11/2012

Next Scheduled EDR Contact: 10/22/2012 Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 10/23/2011 Date Data Arrived at EDR: 12/13/2011 Date Made Active in Reports: 03/01/2012

Number of Days to Update: 79

Source: EPA

Telephone: (415) 947-8000 Last EDR Contact: 06/12/2012

Next Scheduled EDR Contact: 09/24/2012 Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995 Date Data Arrived at EDR: 07/03/1995 Date Made Active in Reports: 08/07/1995

Number of Days to Update: 35

Source: EPA

Telephone: 202-564-4104 Last EDR Contact: 06/02/2008

Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2009 Date Data Arrived at EDR: 03/01/2011 Date Made Active in Reports: 05/02/2011

Number of Days to Update: 62

Source: EPA/NTIS Telephone: 800-424-9346 Last EDR Contact: 06/01/2012

Next Scheduled EDR Contact: 09/10/2012 Data Release Frequency: Biennially

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010 Date Data Arrived at EDR: 02/16/2010 Date Made Active in Reports: 04/12/2010

Number of Days to Update: 55

Source: FEMA

Telephone: 202-646-5797 Last EDR Contact: 07/12/2012

Next Scheduled EDR Contact: 10/29/2012 Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005 Date Data Arrived at EDR: 08/07/2009 Date Made Active in Reports: 10/22/2009

Number of Days to Update: 76

Source: Department of Energy Telephone: 202-586-8719 Last EDR Contact: 07/16/2012

Next Scheduled EDR Contact: 10/29/2012 Data Release Frequency: Varies

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011 Date Data Arrived at EDR: 05/18/2012 Date Made Active in Reports: 05/25/2012

Number of Days to Update: 7

Source: Environmental Protection Agency

Telephone: 703-308-4044 Last EDR Contact: 05/18/2012

Next Scheduled EDR Contact: 08/27/2012 Data Release Frequency: Varies

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 02/27/2012 Date Data Arrived at EDR: 04/04/2012 Date Made Active in Reports: 05/15/2012

Number of Days to Update: 41

Source: EPA

Telephone: 202-564-6023 Last EDR Contact: 07/02/2012

Next Scheduled EDR Contact: 10/15/2012 Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 03/31/2012 Date Data Arrived at EDR: 05/17/2012 Date Made Active in Reports: 06/14/2012

Number of Days to Update: 28

Source: Environmental Protection Agency

Telephone: 617-520-3000 Last EDR Contact: 05/15/2012

Next Scheduled EDR Contact: 08/27/2012 Data Release Frequency: Quarterly

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 05/24/2012 Date Data Arrived at EDR: 06/05/2012 Date Made Active in Reports: 06/14/2012

Number of Days to Update: 9

Source: Environmental Protection Agency

Telephone: 202-566-1917 Last EDR Contact: 05/21/2012

Next Scheduled EDR Contact: 09/03/2012 Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/10/2010 Date Data Arrived at EDR: 01/11/2011 Date Made Active in Reports: 02/16/2011

Number of Days to Update: 36

Source: Environmental Protection Agency

Telephone: 703-603-8704 Last EDR Contact: 07/13/2012

Next Scheduled EDR Contact: 10/22/2012 Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011 Date Data Arrived at EDR: 10/19/2011 Date Made Active in Reports: 01/10/2012

Number of Days to Update: 83

Source: Environmental Protection Agency

Telephone: 202-566-0517 Last EDR Contact: 08/03/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007 Date Data Arrived at EDR: 11/19/2008 Date Made Active in Reports: 03/30/2009

Number of Days to Update: 131

Source: Drug Enforcement Administration

Telephone: 202-307-1000 Last EDR Contact: 03/23/2009

Next Scheduled EDR Contact: 06/22/2009 Data Release Frequency: No Update Planned

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas,

Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011 Date Data Arrived at EDR: 03/09/2011 Date Made Active in Reports: 05/02/2011

Number of Days to Update: 54

Source: Environmental Protection Agency

Telephone: 615-532-8599 Last EDR Contact: 07/19/2012

Next Scheduled EDR Contact: 11/05/2012 Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010 Date Data Arrived at EDR: 01/03/2011 Date Made Active in Reports: 03/21/2011

Number of Days to Update: 77

Source: Environmental Protection Agency

Telephone: N/A

Last EDR Contact: 06/12/2012

Next Scheduled EDR Contact: 09/24/2012

Data Release Frequency: Varies

STATE AND LOCAL RECORDS

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005 Date Data Arrived at EDR: 08/03/2006 Date Made Active in Reports: 08/24/2006

Number of Days to Update: 21

Source: Department of Toxic Substance Control

Telephone: 916-323-3400 Last EDR Contact: 02/23/2009

Next Scheduled EDR Contact: 05/25/2009 Data Release Frequency: No Update Planned

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989 Date Data Arrived at EDR: 07/27/1994 Date Made Active in Reports: 08/02/1994

Number of Days to Update: 6

Source: Department of Health Services

Telephone: 916-255-2118 Last EDR Contact: 05/31/1994 Next Scheduled EDR Contact: N/A

Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 06/13/2012 Date Data Arrived at EDR: 06/14/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 22

Source: Department of Toxic Substances Control

Telephone: 916-323-3400 Last EDR Contact: 06/14/2012

Next Scheduled EDR Contact: 08/20/2012 Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995 Date Data Arrived at EDR: 08/30/1995 Date Made Active in Reports: 09/26/1995

Number of Days to Update: 27

Source: State Water Resources Control Board

Telephone: 916-227-4364 Last EDR Contact: 01/26/2009

Next Scheduled EDR Contact: 04/27/2009 Data Release Frequency: No Update Planned

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/21/2012 Date Data Arrived at EDR: 05/22/2012 Date Made Active in Reports: 06/21/2012

Number of Days to Update: 30

Source: Department of Resources Recycling and Recovery

Telephone: 916-341-6320 Last EDR Contact: 05/22/2012

Next Scheduled EDR Contact: 09/03/2012 Data Release Frequency: Quarterly

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000 Date Data Arrived at EDR: 04/10/2000 Date Made Active in Reports: 05/10/2000

Number of Days to Update: 30

Source: State Water Resources Control Board

Telephone: 916-227-4448 Last EDR Contact: 05/15/2012

Next Scheduled EDR Contact: 08/27/2012

Data Release Frequency: No Update Planned

UIC: UIC Listing

A listing of underground control injection wells.

Date of Government Version: 12/09/2011 Date Data Arrived at EDR: 02/29/2012 Date Made Active in Reports: 04/04/2012

Number of Days to Update: 35

Source: Deaprtment of Conservation

Telephone: 916-445-2408 Last EDR Contact: 07/24/2012

Next Scheduled EDR Contact: 10/01/2012 Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 05/21/2012 Date Data Arrived at EDR: 05/22/2012 Date Made Active in Reports: 06/21/2012

Number of Days to Update: 30

Source: State Water Resources Control Board

Telephone: 916-445-9379 Last EDR Contact: 05/22/2012

Next Scheduled EDR Contact: 09/03/2012 Data Release Frequency: Quarterly

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007 Date Data Arrived at EDR: 06/20/2007 Date Made Active in Reports: 06/29/2007

Number of Days to Update: 9

Source: State Water Resources Control Board

Telephone: 916-341-5227 Last EDR Contact: 05/23/2012

Next Scheduled EDR Contact: 09/10/2012 Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 04/02/2012 Date Data Arrived at EDR: 04/03/2012 Date Made Active in Reports: 06/11/2012

Number of Days to Update: 69

Source: CAL EPA/Office of Emergency Information

Telephone: 916-323-3400 Last EDR Contact: 07/02/2012

Next Scheduled EDR Contact: 10/15/2012 Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001 Date Data Arrived at EDR: 01/22/2009 Date Made Active in Reports: 04/08/2009

Number of Days to Update: 76

Source: Department of Toxic Substances Control

Telephone: 916-323-3400 Last EDR Contact: 01/22/2009 Next Scheduled EDR Contact: N/A

Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 06/11/2012 Date Data Arrived at EDR: 06/14/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 22

Source: Department of Conservation

Telephone: 916-323-3836 Last EDR Contact: 06/14/2012

Next Scheduled EDR Contact: 10/01/2012 Data Release Frequency: Quarterly

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 06/14/2012 Date Data Arrived at EDR: 06/14/2012 Date Made Active in Reports: 06/21/2012

Number of Days to Update: 7

Source: State Water Resources Control Board

Telephone: see region list Last EDR Contact: 07/19/2012

Next Scheduled EDR Contact: 10/01/2012 Data Release Frequency: Quarterly

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003 Date Data Arrived at EDR: 09/10/2003 Date Made Active in Reports: 10/07/2003

Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)

Telephone: 530-542-5572 Last EDR Contact: 09/12/2011

Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001 Date Data Arrived at EDR: 04/23/2001 Date Made Active in Reports: 05/21/2001

Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)

Telephone: 858-637-5595 Last EDR Contact: 09/26/2011

Next Scheduled EDR Contact: 01/09/2012 Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005 Date Data Arrived at EDR: 02/15/2005 Date Made Active in Reports: 03/28/2005

Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)

Telephone: 909-782-4496 Last EDR Contact: 08/15/2011

Next Scheduled EDR Contact: 11/28/2011 Data Release Frequency: Varies

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008 Date Data Arrived at EDR: 07/22/2008 Date Made Active in Reports: 07/31/2008

Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)

Telephone: 916-464-4834 Last EDR Contact: 07/01/2011

Next Scheduled EDR Contact: 10/17/2011 Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001 Date Data Arrived at EDR: 02/28/2001 Date Made Active in Reports: 03/29/2001

Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)

Telephone: 707-570-3769 Last EDR Contact: 08/01/2011

Next Scheduled EDR Contact: 11/14/2011 Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004 Date Data Arrived at EDR: 10/20/2004 Date Made Active in Reports: 11/19/2004

Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)

Telephone: 510-622-2433 Last EDR Contact: 09/19/2011

Next Scheduled EDR Contact: 01/02/2012 Data Release Frequency: Quarterly

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005 Date Data Arrived at EDR: 06/07/2005 Date Made Active in Reports: 06/29/2005

Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)

Telephone: 760-241-7365 Last EDR Contact: 09/12/2011

Next Scheduled EDR Contact: 12/26/2011 Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004 Date Data Arrived at EDR: 02/26/2004 Date Made Active in Reports: 03/24/2004

Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)

Telephone: 760-776-8943 Last EDR Contact: 08/01/2011

Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003 Date Data Arrived at EDR: 05/19/2003 Date Made Active in Reports: 06/02/2003

Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)

Telephone: 805-542-4786 Last EDR Contact: 07/18/2011

Next Scheduled EDR Contact: 10/31/2011 Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004 Date Data Arrived at EDR: 09/07/2004 Date Made Active in Reports: 10/12/2004

Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)

Telephone: 213-576-6710 Last EDR Contact: 09/06/2011

Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994 Date Data Arrived at EDR: 09/05/1995 Date Made Active in Reports: 09/29/1995

Number of Days to Update: 24

Source: California Environmental Protection Agency

Telephone: 916-341-5851 Last EDR Contact: 12/28/1998 Next Scheduled EDR Contact: N/A

Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 06/14/2012 Date Data Arrived at EDR: 06/14/2012 Date Made Active in Reports: 06/21/2012

Number of Days to Update: 7

Source: State Water Resources Control Board

Telephone: 866-480-1028 Last EDR Contact: 07/19/2012

Next Scheduled EDR Contact: 10/01/2012 Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003 Date Data Arrived at EDR: 04/07/2003 Date Made Active in Reports: 04/25/2003

Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)

Telephone: 707-576-2220 Last EDR Contact: 08/01/2011

Next Scheduled EDR Contact: 11/14/2011 Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004 Date Data Arrived at EDR: 10/20/2004 Date Made Active in Reports: 11/19/2004

Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)

Telephone: 510-286-0457 Last EDR Contact: 09/19/2011

Next Scheduled EDR Contact: 01/02/2012 Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality

from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006 Date Data Arrived at EDR: 05/18/2006 Date Made Active in Reports: 06/15/2006

Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)

Telephone: 805-549-3147 Last EDR Contact: 07/18/2011

Next Scheduled EDR Contact: 10/31/2011 Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality

from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004 Date Data Arrived at EDR: 11/18/2004 Date Made Active in Reports: 01/04/2005

Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)

Telephone: 213-576-6600 Last EDR Contact: 07/01/2011

Next Scheduled EDR Contact: 10/17/2011 Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality

from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005 Date Data Arrived at EDR: 04/05/2005 Date Made Active in Reports: 04/21/2005

Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)

Telephone: 916-464-3291 Last EDR Contact: 09/12/2011

Next Scheduled EDR Contact: 12/26/2011 Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality

from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005 Date Data Arrived at EDR: 05/25/2005 Date Made Active in Reports: 06/16/2005

Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch

Telephone: 619-241-6583 Last EDR Contact: 08/15/2011

Next Scheduled EDR Contact: 11/28/2011 Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality

from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004 Date Data Arrived at EDR: 09/07/2004 Date Made Active in Reports: 10/12/2004

Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region

Telephone: 530-542-5574 Last EDR Contact: 08/15/2011

Next Scheduled EDR Contact: 11/28/2011 Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality

from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004 Date Data Arrived at EDR: 11/29/2004 Date Made Active in Reports: 01/04/2005

Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region

Telephone: 760-346-7491 Last EDR Contact: 08/01/2011

Next Scheduled EDR Contact: 11/14/2011 Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality

from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008 Date Data Arrived at EDR: 04/03/2008 Date Made Active in Reports: 04/14/2008

Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)

Telephone: 951-782-3298 Last EDR Contact: 09/12/2011

Next Scheduled EDR Contact: 12/26/2011 Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality

from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007 Date Data Arrived at EDR: 09/11/2007 Date Made Active in Reports: 09/28/2007

Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)

Telephone: 858-467-2980 Last EDR Contact: 08/08/2011

Next Scheduled EDR Contact: 11/21/2011 Data Release Frequency: Annually

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 07/19/2012 Date Data Arrived at EDR: 07/19/2012 Date Made Active in Reports: 08/06/2012

Number of Days to Update: 18

Source: SWRCB Telephone: 916-341-5851 Last EDR Contact: 07/19/2012

Next Scheduled EDR Contact: 10/01/2012 Data Release Frequency: Semi-Annually

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009 Date Data Arrived at EDR: 09/23/2009 Date Made Active in Reports: 10/01/2009

Number of Days to Update: 8

Source: Department of Public Health

Telephone: 707-463-4466 Last EDR Contact: 06/04/2012

Next Scheduled EDR Contact: 09/17/2012 Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county

source for current data.

Date of Government Version: 10/15/1990 Date Data Arrived at EDR: 01/25/1991 Date Made Active in Reports: 02/12/1991

Number of Days to Update: 18

Source: State Water Resources Control Board

Telephone: 916-341-5851 Last EDR Contact: 07/26/2001 Next Scheduled EDR Contact: N/A

Data Release Frequency: No Update Planned

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 03/12/2012 Date Data Arrived at EDR: 03/13/2012 Date Made Active in Reports: 04/02/2012

Number of Days to Update: 20

Source: Department of Toxic Substances Control

Telephone: 916-323-3400 Last EDR Contact: 06/25/2012

Next Scheduled EDR Contact: 09/24/2012 Data Release Frequency: Varies

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained.

The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994 Date Data Arrived at EDR: 07/07/2005 Date Made Active in Reports: 08/11/2005

Number of Days to Update: 35

Source: State Water Resources Control Board

Telephone: N/A

Last EDR Contact: 06/03/2005 Next Scheduled EDR Contact: N/A

Data Release Frequency: No Update Planned

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material

incidents (accidental releases or spills).

Date of Government Version: 03/28/2012 Date Data Arrived at EDR: 05/01/2012 Date Made Active in Reports: 05/25/2012

Number of Days to Update: 24

Source: Office of Emergency Services

Telephone: 916-845-8400 Last EDR Contact: 08/03/2012

Next Scheduled EDR Contact: 11/12/2012

Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management

units.

Date of Government Version: 06/14/2012 Date Data Arrived at EDR: 06/14/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 22

Source: State Water Qualilty Control Board

Telephone: 866-480-1028 Last EDR Contact: 07/19/2012

Next Scheduled EDR Contact: 10/01/2012 Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation

and remediation of water quality issues at military facilities.

Date of Government Version: 06/14/2012 Date Data Arrived at EDR: 06/14/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 22

Source: State Water Resources Control Board

Telephone: 866-480-1028 Last EDR Contact: 07/19/2012

Next Scheduled EDR Contact: 10/01/2012 Data Release Frequency: Quarterly

AST: Aboveground Petroleum Storage Tank Facilities

Registered Aboveground Storage Tanks.

Date of Government Version: 08/01/2009 Date Data Arrived at EDR: 09/10/2009 Date Made Active in Reports: 10/01/2009

Number of Days to Update: 21

Source: State Water Resources Control Board

Telephone: 916-327-5092 Last EDR Contact: 07/03/2012

Next Scheduled EDR Contact: 10/22/2012 Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993 Date Data Arrived at EDR: 11/01/1993 Date Made Active in Reports: 11/19/1993

Number of Days to Update: 18

Source: State Water Resources Control Board

Telephone: 916-445-3846 Last EDR Contact: 06/21/2012

Next Scheduled EDR Contact: 10/08/2012 Data Release Frequency: No Update Planned

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 06/11/2012 Date Data Arrived at EDR: 06/12/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 24

Source: Department of Toxic Substances Control

Telephone: 916-323-3400 Last EDR Contact: 06/12/2012

Next Scheduled EDR Contact: 09/24/2012 Data Release Frequency: Semi-Annually

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 06/13/2012 Date Data Arrived at EDR: 06/14/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 22

Source: Department of Toxic Substances Control

Telephone: 916-323-3400 Last EDR Contact: 06/14/2012

Next Scheduled EDR Contact: 08/20/2012 Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 01/19/2012 Date Data Arrived at EDR: 01/19/2012 Date Made Active in Reports: 02/21/2012

Number of Days to Update: 33

Source: Department of Toxic Substance Control

Telephone: 916-327-4498 Last EDR Contact: 06/27/2012

Next Scheduled EDR Contact: 09/24/2012 Data Release Frequency: Annually

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009 Date Data Arrived at EDR: 07/21/2009 Date Made Active in Reports: 08/03/2009

Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board

Telephone: 213-576-6726 Last EDR Contact: 06/27/2012

Next Scheduled EDR Contact: 10/15/2012 Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 08/15/2011 Date Data Arrived at EDR: 08/23/2011 Date Made Active in Reports: 10/03/2011

Number of Days to Update: 41

Source: State Water Resoruces Control Board

Telephone: 916-445-9379 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/12/2012

Data Release Frequency: Varies

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2011 Date Data Arrived at EDR: 02/14/2012 Date Made Active in Reports: 02/21/2012

Number of Days to Update: 7

Source: Department of Toxic Substances Control

Telephone: 916-255-6504 Last EDR Contact: 08/06/2012

Next Scheduled EDR Contact: 10/15/2012 Data Release Frequency: Varies

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 06/13/2012 Date Data Arrived at EDR: 06/14/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 22

Source: Department of Toxic Substances Control

Telephone: 916-323-3400 Last EDR Contact: 06/14/2012

Next Scheduled EDR Contact: 08/20/2012 Data Release Frequency: Quarterly

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2011 Date Data Arrived at EDR: 06/22/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 14

Source: California Environmental Protection Agency

Telephone: 916-255-1136 Last EDR Contact: 07/16/2012

Next Scheduled EDR Contact: 10/29/2012 Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2008 Date Data Arrived at EDR: 09/29/2010 Date Made Active in Reports: 10/18/2010

Number of Days to Update: 19

Source: California Air Resources Board

Telephone: 916-322-2990 Last EDR Contact: 06/29/2012

Next Scheduled EDR Contact: 10/08/2012 Data Release Frequency: Varies

HAULERS: Registered Waste Tire Haulers Listing A listing of registered waste tire haulers.

Date of Government Version: 05/10/2012 Date Data Arrived at EDR: 05/10/2012 Date Made Active in Reports: 05/25/2012

Number of Days to Update: 15

Source: Integrated Waste Management Board

Telephone: 916-341-6422 Last EDR Contact: 06/27/2012

Next Scheduled EDR Contact: 09/03/2012 Data Release Frequency: Varies

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 06/13/2012 Date Data Arrived at EDR: 06/14/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 22

Source: Department of Toxic Substances Control

Telephone: 916-323-3400 Last EDR Contact: 06/14/2012

Next Scheduled EDR Contact: 08/20/2012 Data Release Frequency: Quarterly

PROC: Certified Processors Database A listing of certified processors.

Date of Government Version: 06/11/2012 Date Data Arrived at EDR: 06/14/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 22

Source: Department of Conservation

Telephone: 916-323-3836 Last EDR Contact: 06/14/2012

Next Scheduled EDR Contact: 10/01/2012 Data Release Frequency: Quarterly

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/31/2012 Date Data Arrived at EDR: 06/01/2012 Date Made Active in Reports: 07/31/2012

Number of Days to Update: 60

Source: Department of Toxic Substances Control

Telephone: 916-323-3400 Last EDR Contact: 06/01/2012

Next Scheduled EDR Contact: 09/10/2012 Data Release Frequency: Quarterly

FINANCIAL ASSURANCE 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 05/23/2012 Date Data Arrived at EDR: 05/24/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 43

Source: California Integrated Waste Management Board

Telephone: 916-341-6066 Last EDR Contact: 05/21/2012

Next Scheduled EDR Contact: 09/03/2012 Data Release Frequency: Varies

FINANCIAL ASSURANCE 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 03/01/2007 Date Data Arrived at EDR: 06/01/2007 Date Made Active in Reports: 06/29/2007

Number of Days to Update: 28

Source: Department of Toxic Substances Control

Telephone: 916-255-3628 Last EDR Contact: 08/03/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Varies

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 04/11/2012 Date Data Arrived at EDR: 04/12/2012 Date Made Active in Reports: 05/08/2012

Number of Days to Update: 26

Source: Department of Toxic Substances Control

Telephone: 916-440-7145 Last EDR Contact: 07/17/2012

Next Scheduled EDR Contact: 10/29/2012 Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 06/01/2012 Date Data Arrived at EDR: 06/12/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 24

Source: Department of Public Health Telephone: 916-558-1784 Last EDR Contact: 06/11/2012

Next Scheduled EDR Contact: 09/24/2012 Data Release Frequency: Varies

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater

than 640 acres.

Date of Government Version: 12/31/2005 Date Data Arrived at EDR: 12/08/2006 Date Made Active in Reports: 01/11/2007

Number of Days to Update: 34

Source: USGS

Telephone: 202-208-3710 Last EDR Contact: 07/19/2012

Next Scheduled EDR Contact: 10/29/2012 Data Release Frequency: Semi-Annually

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998 Date Data Arrived at EDR: 12/03/2007 Date Made Active in Reports: 01/24/2008

Number of Days to Update: 52

Source: Environmental Protection Agency

Telephone: 703-308-8245 Last EDR Contact: 08/03/2012

Next Scheduled EDR Contact: 11/19/2012 Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in New Mexico and Oklahoma.

LOS IS OII IIIdian land in New Mexico and Oklahor

Date of Government Version: 09/12/2011 Date Data Arrived at EDR: 09/13/2011 Date Made Active in Reports: 11/11/2011

Number of Days to Update: 59

Source: EPA Region 6 Telephone: 214-665-6597 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 12/14/2011 Date Data Arrived at EDR: 12/15/2011 Date Made Active in Reports: 01/10/2012

Number of Days to Update: 26

Source: EPA Region 4 Telephone: 404-562-8677 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Semi-Annually

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/18/2011 Date Data Arrived at EDR: 08/19/2011 Date Made Active in Reports: 09/13/2011

Number of Days to Update: 25

Source: EPA Region 8 Telephone: 303-312-6271 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/26/2012 Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 05/07/2012 Date Data Arrived at EDR: 05/08/2012 Date Made Active in Reports: 07/10/2012

Number of Days to Update: 63

Source: EPA Region 10 Telephone: 206-553-2857 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 02/07/2012 Date Data Arrived at EDR: 02/17/2012 Date Made Active in Reports: 05/15/2012

Number of Days to Update: 88

Source: EPA Region 7 Telephone: 913-551-7003 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 05/25/2012 Date Data Arrived at EDR: 05/25/2012 Date Made Active in Reports: 07/16/2012

Number of Days to Update: 52

Source: Environmental Protection Agency

Telephone: 415-972-3372 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/12/2012 Date Data Arrived at EDR: 05/09/2012 Date Made Active in Reports: 07/10/2012

Number of Days to Update: 62

Source: EPA Region 1 Telephone: 617-918-1313 Last EDR Contact: 08/03/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 11/28/2011 Date Data Arrived at EDR: 11/29/2011 Date Made Active in Reports: 01/10/2012

Number of Days to Update: 42

Source: EPA Region 9 Telephone: 415-972-3368 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/18/2011 Date Data Arrived at EDR: 08/19/2011 Date Made Active in Reports: 09/13/2011

Number of Days to Update: 25

Source: EPA Region 8 Telephone: 303-312-6137 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 05/07/2012 Date Data Arrived at EDR: 05/08/2012 Date Made Active in Reports: 07/16/2012

Number of Days to Update: 69

Source: EPA Region 10 Telephone: 206-553-2857 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 12/14/2011 Date Data Arrived at EDR: 12/15/2011 Date Made Active in Reports: 01/10/2012

Number of Days to Update: 26

Source: EPA Region 4 Telephone: 404-562-9424 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Semi-Annually

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011 Date Data Arrived at EDR: 05/11/2011 Date Made Active in Reports: 06/14/2011

Number of Days to Update: 34

Source: EPA Region 6 Telephone: 214-665-7591 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 02/28/2012 Date Data Arrived at EDR: 02/29/2012 Date Made Active in Reports: 05/15/2012

Number of Days to Update: 76

Source: EPA Region 5 Telephone: 312-886-6136 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 02/07/2012 Date Data Arrived at EDR: 02/17/2012 Date Made Active in Reports: 05/15/2012

Number of Days to Update: 88

Source: EPA Region 7 Telephone: 913-551-7003 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/12/2012 Date Data Arrived at EDR: 05/02/2012 Date Made Active in Reports: 07/16/2012

Number of Days to Update: 75

Source: EPA, Region 1 Telephone: 617-918-1313 Last EDR Contact: 08/03/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 02/17/2012 Date Data Arrived at EDR: 04/03/2012 Date Made Active in Reports: 05/15/2012

Number of Days to Update: 42

Source: EPA, Region 1 Telephone: 617-918-1102 Last EDR Contact: 07/02/2012

Next Scheduled EDR Contact: 10/15/2012 Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008 Date Data Arrived at EDR: 04/22/2008 Date Made Active in Reports: 05/19/2008

Number of Days to Update: 27

Source: EPA, Region 7 Telephone: 913-551-7365 Last EDR Contact: 04/20/2009

Next Scheduled EDR Contact: 07/20/2009 Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A

Number of Days to Update: N/A

Source: EDR, Inc. Telephone: N/A Last EDR Contact: N/A

Next Scheduled EDR Contact: N/A

Data Release Frequency: No Update Planned

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 04/03/2012 Date Data Arrived at EDR: 04/04/2012 Date Made Active in Reports: 05/08/2012

Number of Days to Update: 34

Source: Alameda County Environmental Health Services

Telephone: 510-567-6700 Last EDR Contact: 06/27/2012

Next Scheduled EDR Contact: 10/15/2012 Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 04/03/2012 Date Data Arrived at EDR: 04/04/2012 Date Made Active in Reports: 05/08/2012

Number of Days to Update: 34

Source: Alameda County Environmental Health Services

Telephone: 510-567-6700 Last EDR Contact: 06/27/2012

Next Scheduled EDR Contact: 10/15/2012 Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 06/13/2012 Date Data Arrived at EDR: 06/14/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 22

Source: Contra Costa Health Services Department

Telephone: 925-646-2286 Last EDR Contact: 08/06/2012

Next Scheduled EDR Contact: 11/19/2012 Data Release Frequency: Semi-Annually

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing Kern County Sites and Tanks Listing.

> Date of Government Version: 08/31/2010 Date Data Arrived at EDR: 09/01/2010 Date Made Active in Reports: 09/30/2010

Number of Days to Update: 29

Source: Kern County Environment Health Services Department

Telephone: 661-862-8700 Last EDR Contact: 06/15/2012

Next Scheduled EDR Contact: 08/27/2012 Data Release Frequency: Quarterly

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009 Date Data Arrived at EDR: 03/31/2009 Date Made Active in Reports: 10/23/2009

Number of Days to Update: 206

Source: EPA Region 9 Telephone: 415-972-3178 Last EDR Contact: 06/21/2012

Next Scheduled EDR Contact: 10/09/2012 Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 03/29/2012 Date Data Arrived at EDR: 05/29/2012 Date Made Active in Reports: 06/21/2012

Number of Days to Update: 23

Source: Department of Public Works

Telephone: 626-458-3517 Last EDR Contact: 07/16/2012

Next Scheduled EDR Contact: 10/26/2012 Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 04/23/2012 Date Data Arrived at EDR: 04/24/2012 Date Made Active in Reports: 05/25/2012

Number of Days to Update: 31

Source: La County Department of Public Works

Telephone: 818-458-5185 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/05/2012 Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009 Date Data Arrived at EDR: 03/10/2009 Date Made Active in Reports: 04/08/2009

Number of Days to Update: 29

Source: Engineering & Construction Division

Telephone: 213-473-7869 Last EDR Contact: 05/21/2012

Next Scheduled EDR Contact: 09/03/2012 Data Release Frequency: Varies

Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 12/29/2011 Date Data Arrived at EDR: 02/02/2012 Date Made Active in Reports: 02/21/2012

Number of Days to Update: 19

Source: Community Health Services Telephone: 323-890-7806 Last EDR Contact: 07/17/2012

Next Scheduled EDR Contact: 11/05/2012 Data Release Frequency: Annually

City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 04/26/2012 Date Data Arrived at EDR: 05/01/2012 Date Made Active in Reports: 05/24/2012

Number of Days to Update: 23

Source: City of El Segundo Fire Department

Telephone: 310-524-2236 Last EDR Contact: 07/17/2012

Next Scheduled EDR Contact: 11/05/2012 Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003 Date Data Arrived at EDR: 10/23/2003 Date Made Active in Reports: 11/26/2003

Number of Days to Update: 34

Source: City of Long Beach Fire Department

Telephone: 562-570-2563 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Annually

City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 07/12/2012 Date Data Arrived at EDR: 07/23/2012 Date Made Active in Reports: 08/02/2012

Number of Days to Update: 10

Source: City of Torrance Fire Department

Telephone: 310-618-2973 Last EDR Contact: 07/12/2012

Next Scheduled EDR Contact: 10/29/2012 Data Release Frequency: Semi-Annually

MARIN COUNTY:

Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 05/22/2012 Date Data Arrived at EDR: 05/29/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 38

Source: Public Works Department Waste Management

Telephone: 415-499-6647 Last EDR Contact: 07/23/2012

Next Scheduled EDR Contact: 10/22/2012 Data Release Frequency: Semi-Annually

NAPA COUNTY:

Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011 Date Data Arrived at EDR: 12/06/2011 Date Made Active in Reports: 02/07/2012

Number of Days to Update: 63

Source: Napa County Department of Environmental Management

Telephone: 707-253-4269 Last EDR Contact: 06/04/2012

Next Scheduled EDR Contact: 09/17/2012 Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008 Date Data Arrived at EDR: 01/16/2008 Date Made Active in Reports: 02/08/2008

Number of Days to Update: 23

Source: Napa County Department of Environmental Management

Telephone: 707-253-4269 Last EDR Contact: 12/05/2012

Next Scheduled EDR Contact: 09/17/2012 Data Release Frequency: No Update Planned

ORANGE COUNTY:

List of Industrial Site Cleanups

Petroleum and non-petroleum spills.

Date of Government Version: 05/01/2012 Date Data Arrived at EDR: 05/17/2012 Date Made Active in Reports: 06/11/2012

Number of Days to Update: 25

Source: Health Care Agency Telephone: 714-834-3446 Last EDR Contact: 05/15/2012

Next Scheduled EDR Contact: 08/27/2012 Data Release Frequency: Annually

List of Underground Storage Tank Cleanups

Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 05/01/2012 Date Data Arrived at EDR: 05/18/2012 Date Made Active in Reports: 06/21/2012

Number of Days to Update: 34

Source: Health Care Agency Telephone: 714-834-3446 Last EDR Contact: 05/15/2012

Next Scheduled EDR Contact: 08/27/2012 Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 05/01/2012 Date Data Arrived at EDR: 05/17/2012 Date Made Active in Reports: 05/24/2012

Number of Days to Update: 7

Source: Health Care Agency Telephone: 714-834-3446 Last EDR Contact: 05/15/2012

Next Scheduled EDR Contact: 08/27/2012 Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 06/12/2012 Date Data Arrived at EDR: 06/13/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 23

Source: Placer County Health and Human Services

Telephone: 530-889-7312 Last EDR Contact: 06/11/2012

Next Scheduled EDR Contact: 09/24/2012 Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 04/23/2012 Date Data Arrived at EDR: 04/24/2012 Date Made Active in Reports: 05/25/2012

Number of Days to Update: 31

Source: Department of Environmental Health

Telephone: 951-358-5055 Last EDR Contact: 06/25/2012

Next Scheduled EDR Contact: 10/08/2012 Data Release Frequency: Quarterly

Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 07/18/2012 Date Data Arrived at EDR: 07/19/2012 Date Made Active in Reports: 08/06/2012

Number of Days to Update: 18

Source: Department of Environmental Health

Telephone: 951-358-5055 Last EDR Contact: 06/25/2012

Next Scheduled EDR Contact: 10/08/2012 Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/07/2012 Date Data Arrived at EDR: 04/16/2012 Date Made Active in Reports: 05/08/2012

Number of Days to Update: 22

Source: Sacramento County Environmental Management

Telephone: 916-875-8406 Last EDR Contact: 07/13/2012

Next Scheduled EDR Contact: 10/22/2012 Data Release Frequency: Quarterly

Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 02/02/2012 Date Data Arrived at EDR: 04/17/2012 Date Made Active in Reports: 05/08/2012

Number of Days to Update: 21

Source: Sacramento County Environmental Management

Telephone: 916-875-8406 Last EDR Contact: 07/13/2012

Next Scheduled EDR Contact: 10/22/2012 Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/30/2012 Date Data Arrived at EDR: 05/31/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 36

Source: San Bernardino County Fire Department Hazardous Materials Division

Telephone: 909-387-3041 Last EDR Contact: 05/15/2012

Next Scheduled EDR Contact: 08/27/2012 Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/09/2010 Date Data Arrived at EDR: 09/15/2010 Date Made Active in Reports: 09/29/2010

Number of Days to Update: 14

Source: Hazardous Materials Management Division

Telephone: 619-338-2268 Last EDR Contact: 06/15/2012

Next Scheduled EDR Contact: 09/24/2012 Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2011 Date Data Arrived at EDR: 11/04/2011 Date Made Active in Reports: 12/13/2011

Number of Days to Update: 39

Source: Department of Health Services

Telephone: 619-338-2209 Last EDR Contact: 07/26/2012

Next Scheduled EDR Contact: 11/12/2012

Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010 Date Data Arrived at EDR: 06/15/2010 Date Made Active in Reports: 07/09/2010

Number of Days to Update: 24

Source: San Diego County Department of Environmental Health

Telephone: 619-338-2371 Last EDR Contact: 06/11/2012

Next Scheduled EDR Contact: 09/24/2012 Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008 Date Data Arrived at EDR: 09/19/2008 Date Made Active in Reports: 09/29/2008

Number of Days to Update: 10

Source: Department Of Public Health San Francisco County

Telephone: 415-252-3920 Last EDR Contact: 05/15/2012

Next Scheduled EDR Contact: 08/27/2012 Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010 Date Data Arrived at EDR: 03/10/2011 Date Made Active in Reports: 03/15/2011

Number of Days to Update: 5

Source: Department of Public Health

Telephone: 415-252-3920 Last EDR Contact: 05/15/2012

Next Scheduled EDR Contact: 08/27/2012 Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/25/2012 Date Data Arrived at EDR: 06/27/2012 Date Made Active in Reports: 07/31/2012

Number of Days to Update: 34

Source: Environmental Health Department

Telephone: N/A

Last EDR Contact: 06/21/2012

Next Scheduled EDR Contact: 10/08/2012 Data Release Frequency: Semi-Annually

SAN MATEO COUNTY:

Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 04/09/2012 Date Data Arrived at EDR: 04/09/2012 Date Made Active in Reports: 05/08/2012

Number of Days to Update: 29

Source: San Mateo County Environmental Health Services Division

Telephone: 650-363-1921 Last EDR Contact: 06/17/2012

Next Scheduled EDR Contact: 10/01/2012 Data Release Frequency: Annually

Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 06/19/2012 Date Data Arrived at EDR: 06/20/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 16

Source: San Mateo County Environmental Health Services Division

Telephone: 650-363-1921 Last EDR Contact: 06/18/2012

Next Scheduled EDR Contact: 10/01/2012 Data Release Frequency: Semi-Annually

SANTA CLARA COUNTY:

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005 Date Data Arrived at EDR: 03/30/2005 Date Made Active in Reports: 04/21/2005

Number of Days to Update: 22

Source: Santa Clara Valley Water District

Telephone: 408-265-2600 Last EDR Contact: 03/23/2009

Next Scheduled EDR Contact: 06/22/2009 Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 06/04/2012 Date Data Arrived at EDR: 06/08/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 28

Source: Department of Environmental Health

Telephone: 408-918-3417 Last EDR Contact: 06/04/2012

Next Scheduled EDR Contact: 09/17/2012 Data Release Frequency: Annually

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 05/15/2012 Date Data Arrived at EDR: 05/15/2012 Date Made Active in Reports: 05/25/2012

Number of Days to Update: 10

Source: City of San Jose Fire Department

Telephone: 408-535-7694 Last EDR Contact: 05/15/2012

Next Scheduled EDR Contact: 08/27/2012 Data Release Frequency: Annually

SOLANO COUNTY:

Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/18/2012 Date Data Arrived at EDR: 06/21/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 15

Source: Solano County Department of Environmental Management

Telephone: 707-784-6770 Last EDR Contact: 06/15/2012

Next Scheduled EDR Contact: 10/01/2012 Data Release Frequency: Quarterly

Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 06/18/2012 Date Data Arrived at EDR: 06/22/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 14

Source: Solano County Department of Environmental Management

Telephone: 707-784-6770 Last EDR Contact: 06/15/2012

Next Scheduled EDR Contact: 10/01/2012 Data Release Frequency: Quarterly

SONOMA COUNTY:

Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/05/2011 Date Data Arrived at EDR: 04/06/2011 Date Made Active in Reports: 05/12/2011

Number of Days to Update: 36

Source: Department of Health Services

Telephone: 707-565-6565 Last EDR Contact: 06/27/2012

Next Scheduled EDR Contact: 10/15/2012 Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 06/11/2012 Date Data Arrived at EDR: 06/12/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 24

Source: Sutter County Department of Agriculture

Telephone: 530-822-7500 Last EDR Contact: 06/11/2012

Next Scheduled EDR Contact: 09/24/2012 Data Release Frequency: Semi-Annually

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 03/30/2012 Date Data Arrived at EDR: 05/25/2012 Date Made Active in Reports: 07/06/2012

Number of Days to Update: 42

Source: Ventura County Environmental Health Division

Telephone: 805-654-2813 Last EDR Contact: 05/21/2012

Next Scheduled EDR Contact: 09/03/2012 Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011 Date Data Arrived at EDR: 12/01/2011 Date Made Active in Reports: 01/19/2012

Number of Days to Update: 49

Source: Environmental Health Division

Telephone: 805-654-2813 Last EDR Contact: 07/03/2012

Next Scheduled EDR Contact: 10/22/2012 Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008 Date Data Arrived at EDR: 06/24/2008 Date Made Active in Reports: 07/31/2008

Number of Days to Update: 37

Source: Environmental Health Division

Telephone: 805-654-2813 Last EDR Contact: 05/21/2012

Next Scheduled EDR Contact: 09/03/2012 Data Release Frequency: Quarterly

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 03/30/2012 Date Data Arrived at EDR: 05/04/2012 Date Made Active in Reports: 05/25/2012

Number of Days to Update: 21

Source: Ventura County Resource Management Agency

Telephone: 805-654-2813 Last EDR Contact: 07/30/2012

Next Scheduled EDR Contact: 11/12/2012 Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 06/27/2012 Date Data Arrived at EDR: 06/29/2012 Date Made Active in Reports: 07/31/2012

Number of Days to Update: 32

Source: Environmental Health Division Telephone: 805-654-2813 Last EDR Contact: 06/27/2012

Next Scheduled EDR Contact: 10/01/2012 Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 06/29/2012 Date Data Arrived at EDR: 07/09/2012 Date Made Active in Reports: 08/02/2012

Number of Days to Update: 24

Source: Yolo County Department of Health

Telephone: 530-666-8646 Last EDR Contact: 06/21/2012

Next Scheduled EDR Contact: 10/08/2012 Data Release Frequency: Annually

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 05/21/2012 Date Data Arrived at EDR: 05/22/2012 Date Made Active in Reports: 05/31/2012

Number of Days to Update: 9

Source: Department of Energy & Environmental Protection

Telephone: 860-424-3375 Last EDR Contact: 05/22/2012

Next Scheduled EDR Contact: 09/03/2012 Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 07/20/2011

Date Made Active in Reports: 08/11/2011

Number of Days to Update: 22

Source: Department of Environmental Protection

Telephone: N/A

Last EDR Contact: 07/19/2012

Next Scheduled EDR Contact: 10/29/2012 Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/01/2012 Date Data Arrived at EDR: 05/09/2012 Date Made Active in Reports: 06/14/2012

Number of Days to Update: 36

Source: Department of Environmental Conservation

Telephone: 518-402-8651 Last EDR Contact: 05/09/2012

Next Scheduled EDR Contact: 08/20/2012 Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2010 Date Data Arrived at EDR: 04/27/2012 Date Made Active in Reports: 06/05/2012

Number of Days to Update: 39

Source: Department of Environmental Protection

Telephone: 717-783-8990 Last EDR Contact: 07/19/2012

Next Scheduled EDR Contact: 11/05/2012 Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2011 Date Data Arrived at EDR: 06/22/2012 Date Made Active in Reports: 07/31/2012

Number of Days to Update: 39

Source: Department of Environmental Management

Telephone: 401-222-2797 Last EDR Contact: 02/27/2012

Next Scheduled EDR Contact: 06/11/2012 Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2010 Date Data Arrived at EDR: 08/19/2011 Date Made Active in Reports: 09/15/2011

Number of Days to Update: 27

Source: Department of Natural Resources

Telephone: N/A

Last EDR Contact: 07/16/2012

Next Scheduled EDR Contact: 10/01/2012 Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.

Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services,

a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary

and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities Source: Department of Social Services

Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

STREET AND ADDRESS INFORMATION

© 2010 Tele Atlas North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.



| CITY | | UPPER LAKE | | UPPER LAKE | UPPER LAKE | UPPER LAKE | UPPER LAKE | |
|-----------------|-------------------------|-------------------------|---------------------------------|---------------------------|-------------------------|-------------------------------|----------------------------------|--|
| ADDRESS | 107 HWY 20 E | 1285 HWY 20 | 675 CLOVER VALLEY ROAD (AKA OLD | LUCERNE RD) | 485 HWY 20 E | 220 HWY 20 E | 1ST ST (AKA: 9470 MENDENHALL RD) | |
| CLEANUP STATUS | COMPLETED - CASE CLOSED | COMPLETED - CASE CLOSED | | OPEN - REMEDIATION | COMPLETED - CASE CLOSED | OPEN - SITE ASSESSMENT | COMPLETED - CASE CLOSED | |
| FACII SITE NAME | HIGHWAY QUIK MARKET | LAST CHANCE TEXACO | | UPPER LAKE HIGH SCHOOL | P.D.K. SS (FORMER) | POPPIE RESIDENCE | UPPER LAKE MAINTENANCE YARD | |
| GEOTRACKER ID | T0603300012 | T0603300024 | | T0603300032 | T0603300064 | T0603300077 | T0603300078 | |

Page 1 of 14

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER

UPPER LAKE HIGH SCHOOL (T0603300032) - (MAP)

675 CLOVER VALLEY ROAD (AKA OLD LUCERNE CLEANUP OVERSIGHT AGENCIES

RD)

UPPER LAKE, CA 95485

LAKE COUNTY

LUST CLEANUP SITE

CENTRAL VALLEY RWQCB (REGION 5S) (LEAD) - CASE #:

170052

CASEWORKER: GLENN T. MEEKS

LAKE COUNTY

CASEWORKER: MANUEL RAMIREZ

CUF Claim #:

CUF Priority Assigned:

CUF Amount Paid:

16422 B

PRINTABLE CASE SUMMARY

\$375,603

Regulatory Profile

CLEANUP STATUS - DEFINITIONS

OPEN - REMEDIATION AS OF 3/28/2012 - CLEANUP STATUS HISTORY

POTENTIAL CONTAMINANTS OF CONCERN

OTHER SOLVENT OR NON-PETROLEUM

HYDROCARBON

FILE LOCATION

POTENTIAL MEDIA AFFECTED

AQUIFER USED FOR DRINKING WATER

SUPPLY

BENEFICIAL USE

SW - FRESHWATER REPLENISHMENT, SW -COMMERCIAL AND SPORT FISHING, SW -

NAVIGATION, SW - SPAWNING,

REPRODUCTION, AND/OR EARLY DEVELOPMENT, GW - INDUSTRIAL SERVICE

WATER SUPPLY (IND), GW - AGRICULTURAL

SUPPLY, SW - WETLAND HABITAT, SW -

WILDLIFE HABITAT, SW - WATER QUALITY ENHANCEMENT, GW - INDUSTRIAL PROCESS

SUPPLY (PROC), GW - MUNICIPAL AND

DOMESTIC SUPPLY, SW - MUNICIPAL AND DOMESTIC SUPPLY, SW - AGRICULTURAL

SUPPLY, GW - FRESHWATER

REPLENISHMENT, GW - GROUNDWATER

RECHARGE, SW - WATER CONTACT

RECREATION

GROUNDWATER MONITORING FREQUENCY

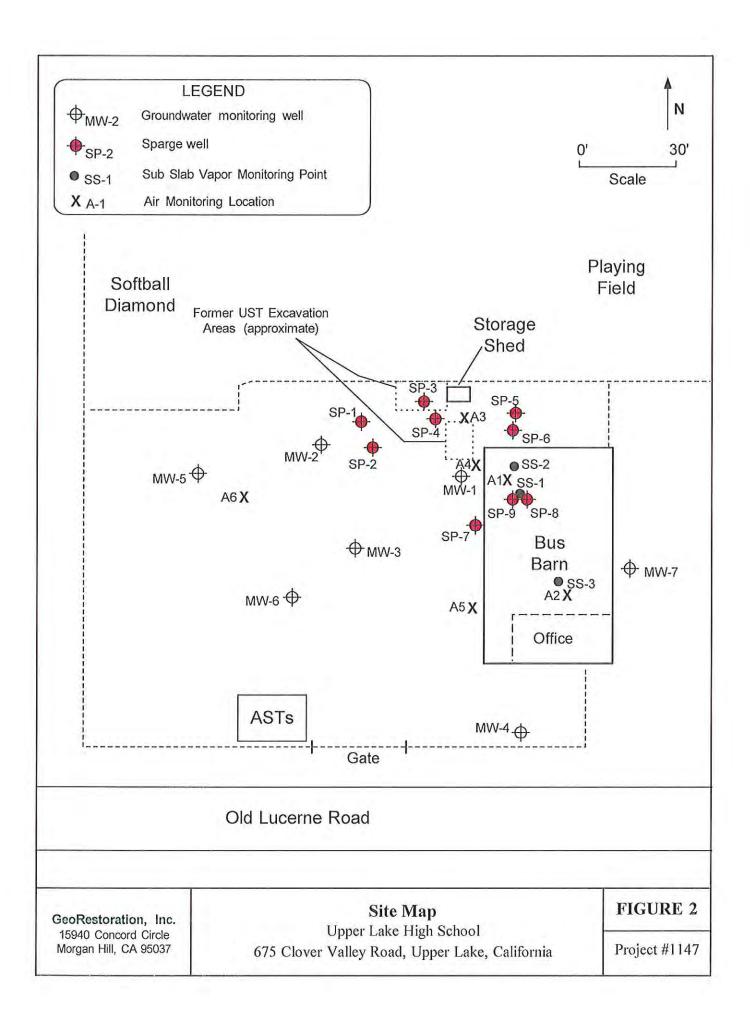
OF WELLS MONITORED - QUARTERLY: 7

REASONS FOR QUARTERLY OR MONTHLY OR OTHER GROUNDWATER MONITORING:

Well Being Sampled During Remedial Action for Progress Assessment - Ozone Injection to be implemented at the

Site History

The case was opened following an unauthorized release from an underground storage tank system at the subject site. Corrective action is underway as directed by the CVRWQCB. Corrective action may consist of preliminary site investigation, planning and implementation of remedial action, verification monitoring, or a combination thereof. A summary of the site history is available by clicking on either the "Cleanup Status History", "Regulatory Activities" or the "Site Maps/Documents" tab. For a complete site history the case file at the CVRWQCB should be consulted.



STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER

POPPIE RESIDENCE (T0603300077) - (MAP)

220 HWY 20 E UPPER LAKE, CA 95485 LAKE COUNTY LUST CLEANUP SITE **CLEANUP OVERSIGHT AGENCIES**

CENTRAL VALLEY RWQCB (REGION 5S) (LEAD) - CASE #: 170098

CASEWORKER: GLENN T. MEEKS

LAKE COUNTY

CASEWORKER: MANUEL RAMIREZ

CUF Claim #:

CUF Priority Assigned:

CUF Amount Paid:

14744

\$613.234

Regulatory Profile

PRINTABLE CASE SUMMARY

CLEANUP STATUS - DEFINITIONS

OPEN - SITE ASSESSMENT AS OF 3/2/2011 - CLEANUP STATUS HISTORY

POTENTIAL CONTAMINANTS OF CONCERN

BENZENE, MTBE / TBA / OTHER FUEL OXYGENATES, GASOLINE, TOLUENE,

XYLENE, ETHYLBENZENE

FILE LOCATION

POTENTIAL MEDIA AFFECTED

WELL USED FOR DRINKING WATER SUPPLY

BENEFICIAL USE

SW - FRESHWATER REPLENISHMENT, SW COMMERCIAL AND SPORT FISHING, SW NAVIGATION, SW - SPAWNING,
REPRODUCTION, AND/OR EARLY

DEVELOPMENT, GW - INDUSTRIAL SERVICE WATER SUPPLY (IND), GW - AGRICULTURAL SUPPLY, SW - WETLAND HABITAT, SW - WILDLIFE HABITAT, SW - WATER QUALITY ENHANCEMENT, GW - INDUSTRIAL PROCESS

SUPPLY (PROC), GW - MUNICIPAL AND DOMESTIC SUPPLY, SW - MUNICIPAL AND DOMESTIC SUPPLY, SW - AGRICULTURAL

SUPPLY, GW - FRESHWATER

REPLENISHMENT, GW - GROUNDWATER RECHARGE, SW - WATER CONTACT

NECHANGE, SW - WATEN O

RECREATION

GROUNDWATER MONITORING FREQUENCY

OF WELLS MONITORED - QUARTERLY: 18

REASONS FOR QUARTERLY OR MONTHLY OR OTHER GROUNDWATER MONITORING:

Assessment Incomplete - Plume remains undefined and has impacted five domestic wells

Site History

The case was opened following an unauthorized release from an underground storage tank system at the subject site. Corrective action is underway as directed by the CVRWQCB. Corrective action may consist of preliminary site investigation, planning and implementation of remedial action, verification monitoring, or a combination thereof. A summary of the site history is available by clicking on either the "Cleanup Status History", "Regulatory Activities" or the "Site Maps/Documents" tab. For a complete site history the case file at the CVRWQCB should be consulted.



Middle Creek Flood & Restoration Phase I

Reclamation Rd Bridge Arbor North E State Hwy 20 Upper Lake, CA 95485

Inquiry Number: 3381325.5

August 21, 2012

The EDR Aerial Photo Decade Package



EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report AS IS. Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2012 by Environmental Data Resources, Inc., All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

Date EDR Searched Historical Sources:

Aerial Photography August 21, 2012

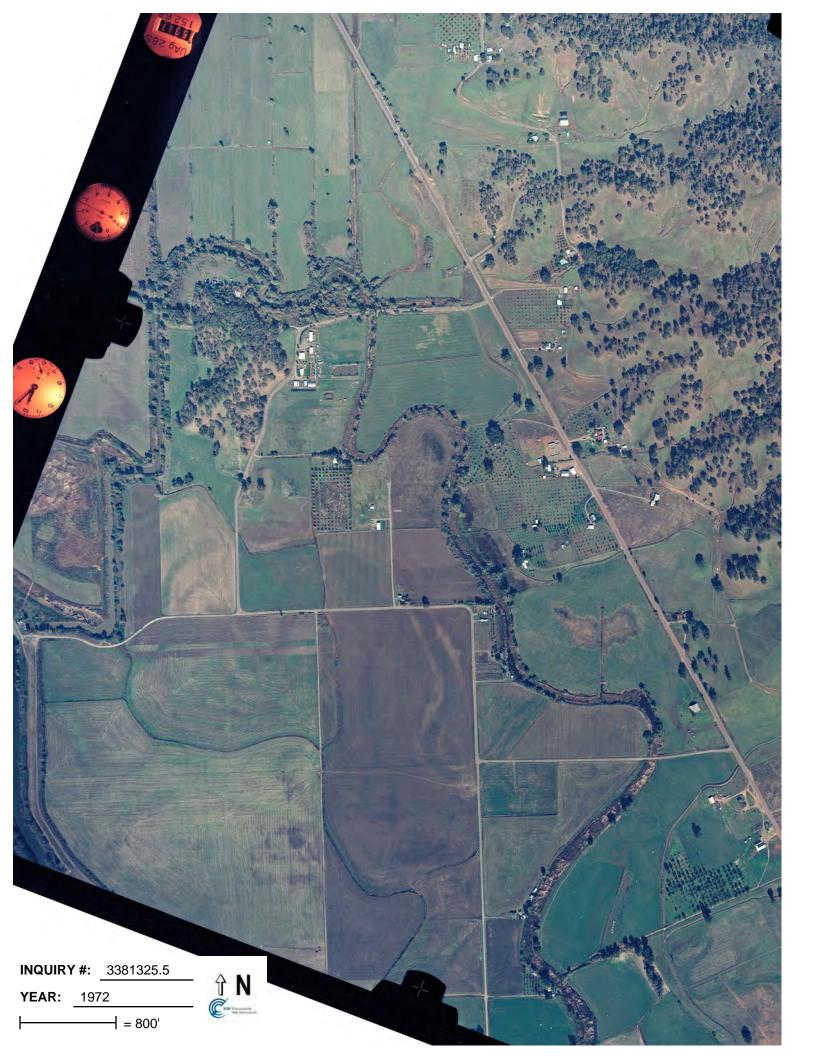
Target Property:

Reclamation Rd Bridge Arbor North E State Hwy 20 Upper Lake, CA 95485

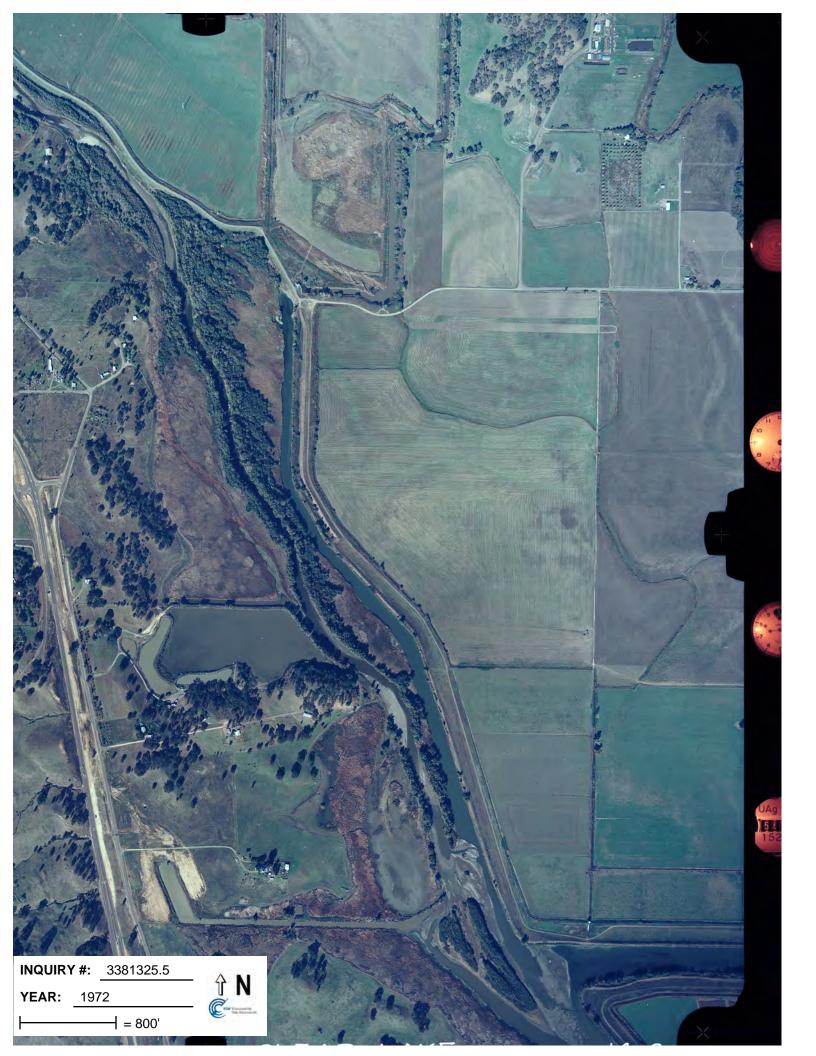
| <u>Year</u> | <u>Scale</u> | <u>Details</u> | <u>Source</u> |
|-------------|------------------------------------|---|---------------|
| 1957 | Aerial Photograph. Scale: 1"=1000' | Flight Year: 1957 | USGS |
| 1957 | Aerial Photograph. Scale: 1"=1000' | Flight Year: 1957 | USGS |
| 1972 | Aerial Photograph. Scale: 1"=800' | Flight Year: 1972 Best Copy Available from original source | Ch2MHill |
| 1972 | Aerial Photograph. Scale: 1"=800' | Flight Year: 1972 Best Copy Available from original source | Ch2MHill |
| 1972 | Aerial Photograph. Scale: 1"=800' | Flight Year: 1972 Best Copy Available from original source | Ch2MHill |
| 1972 | Aerial Photograph. Scale: 1"=800' | Flight Year: 1972 Best Copy Available from original source | Ch2MHill |
| 1983 | Aerial Photograph. Scale: 1"=1000' | Flight Year: 1983 | USGS |
| 1983 | Aerial Photograph. Scale: 1"=1000' | Flight Year: 1983 | USGS |
| 1993 | Aerial Photograph. Scale: 1"=1000' | Flight Year: 1993 | USGS |
| 1993 | Aerial Photograph. Scale: 1"=1000' | Flight Year: 1993 | USGS |
| 1998 | Aerial Photograph. Scale: 1"=500' | /Composite DOQQ - acquisition dates: 1998 | EDR |
| 1998 | Aerial Photograph. Scale: 1"=1000' | Flight Year: 1998 | USGS |
| 1998 | Aerial Photograph. Scale: 1"=1000' | Flight Year: 1998 | USGS |
| 2005 | Aerial Photograph. Scale: 1"=500' | Flight Year: 2005 | EDR |
| 2006 | Aerial Photograph. Scale: 1"=500' | Flight Year: 2006 | EDR |



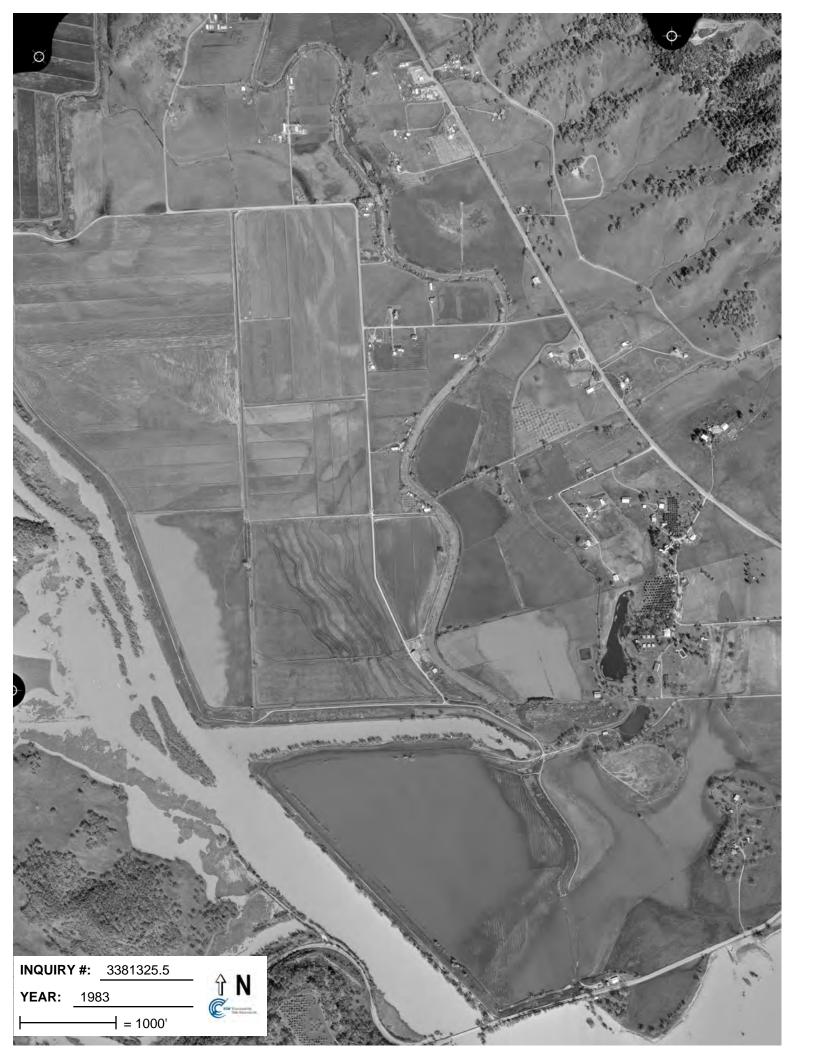




























Middle Creek Flood & Restoration Phase I

Reclamation Rd Bridge Arbor North E State Hwy 20 Upper Lake, CA 95485

Inquiry Number: 3390015.1

August 16, 2012

EDR Historical Topographic Map Report



EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

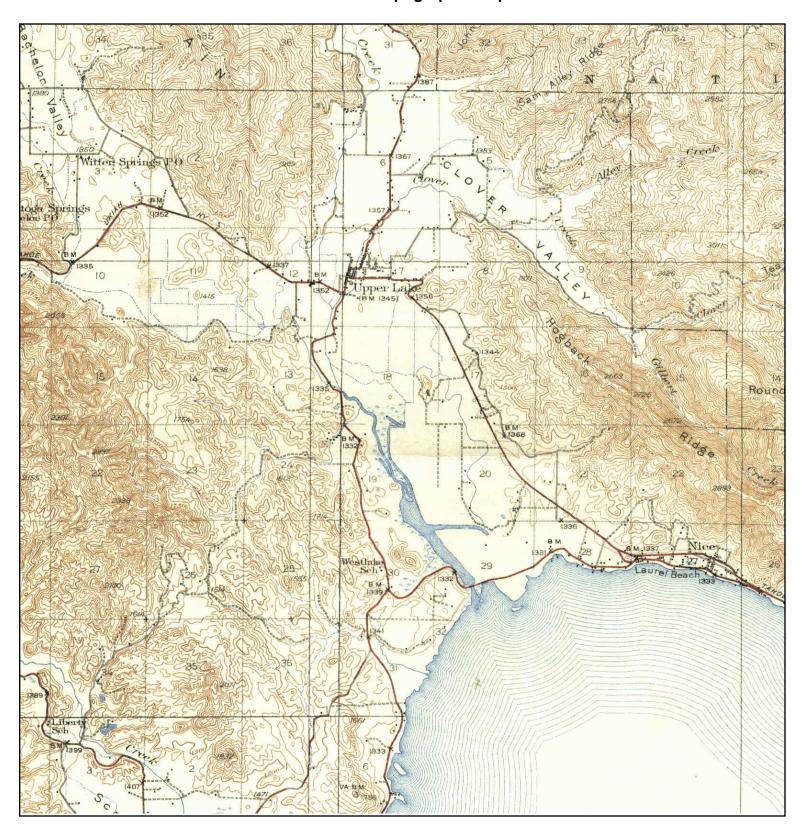
Thank you for your business.Please contact EDR at 1-800-352-0050 with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report AS IS. Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2012 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.





TARGET QUAD

NAME: LAKEPORT

MAP YEAR: 1938

SERIES: 15 SCALE: 1:62500 SITE NAME: Middle Creek Flood & Restoration

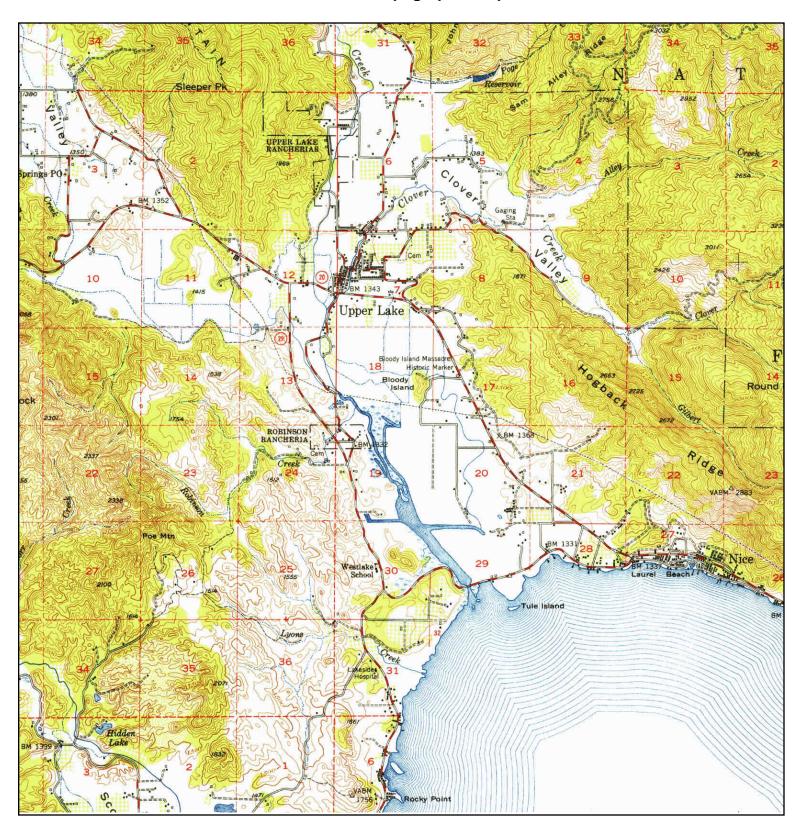
Phase I

LAT/LONG:

ADDRESS: Reclamation Rd Bridge Arbor North

E State Hwy 20

Upper Lake, CA 95485 39.1434 / -122.898 CLIENT: GHD Inc.
CONTACT: Cristina Goulart
INQUIRY#: 3390015.1





TARGET QUAD

NAME: LAKEPORT

MAP YEAR: 1951

SERIES: 15 SCALE: 1:62500 SITE NAME: Middle Creek Flood & Restoration

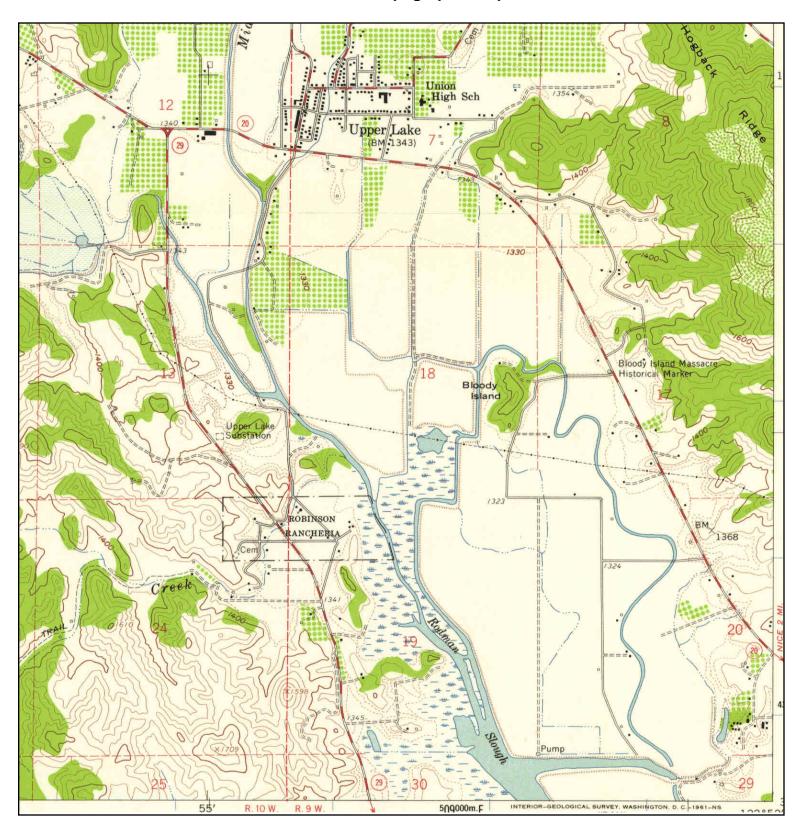
Phase I

LAT/LONG:

ADDRESS: Reclamation Rd Bridge Arbor North

E State Hwy 20

Upper Lake, CA 95485 39.1434 / -122.898 CLIENT: GHD Inc.
CONTACT: Cristina Goulart
INQUIRY#: 3390015.1





TARGET QUAD

NAME: UPPER LAKE

MAP YEAR: 1958

SERIES: 7.5 SCALE: 1:24000 SITE NAME: Middle Creek Flood & Restoration

Phase I

ADDRESS: Reclamation Rd Bridge Arbor North

E State Hwy 20

Upper Lake, CA 95485

LAT/LONG: 39.1434 / -122.898

CLIENT: GHD Inc.
CONTACT: Cristina Goulart
INQUIRY#: 3390015.1





TARGET QUAD

NAME: LAKEPORT

MAP YEAR: 1958

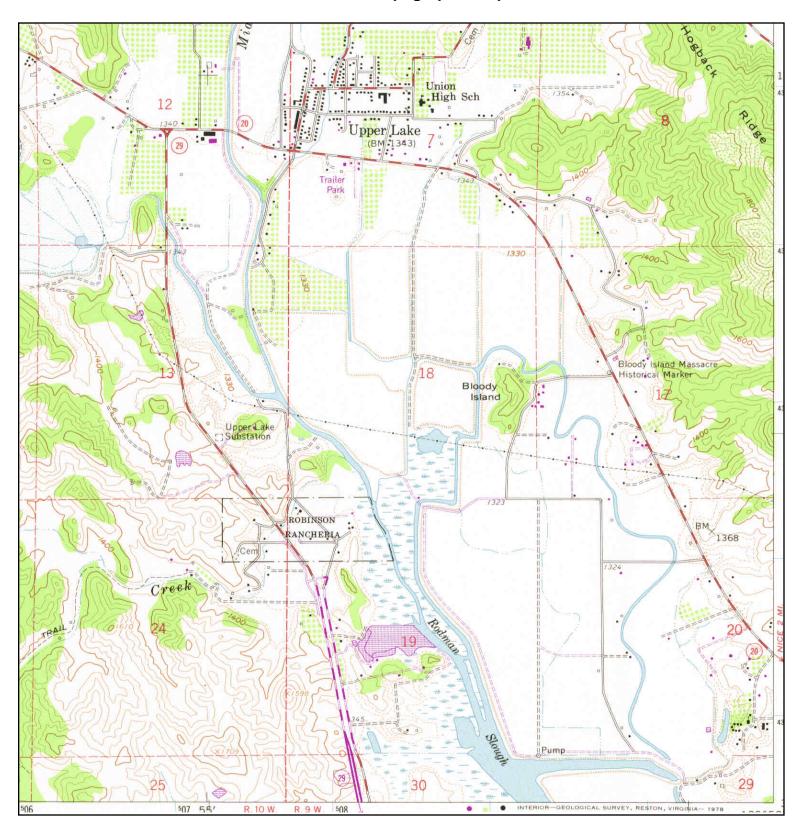
SERIES: 15 SCALE: 1:62500 SITE NAME: Middle Creek Flood & Restoration

Phase I

ADDRESS: Reclamation Rd Bridge Arbor North

E State Hwy 20

Upper Lake, CA 95485 LAT/LONG: 39.1434 / -122.898 CLIENT: GHD Inc.
CONTACT: Cristina Goulart
INQUIRY#: 3390015.1





TARGET QUAD

NAME: UPPER LAKE MAP YEAR: 1975

PHOTOREVISED FROM: 1958

SERIES: 7.5 SCALE: 1:24000 SITE NAME: Middle Creek Flood & Restoration

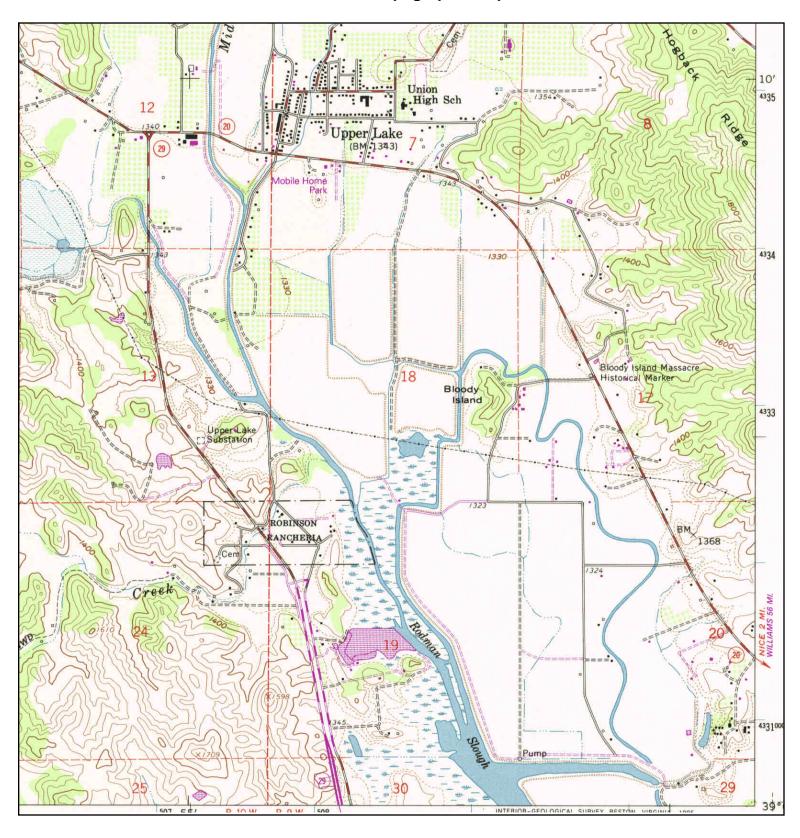
Phase I

LAT/LONG:

ADDRESS: Reclamation Rd Bridge Arbor North

E State Hwy 20

Upper Lake, CA 95485 : 39.1434 / -122.898 CLIENT: GHD Inc.
CONTACT: Cristina Goulart
INQUIRY#: 3390015.1





TARGET QUAD

NAME: **UPPER LAKE**

MAP YEAR: 1991

SERIES: 7.5 SCALE: 1:24000 SITE NAME: Middle Creek Flood & Restoration

Phase I

LAT/LONG:

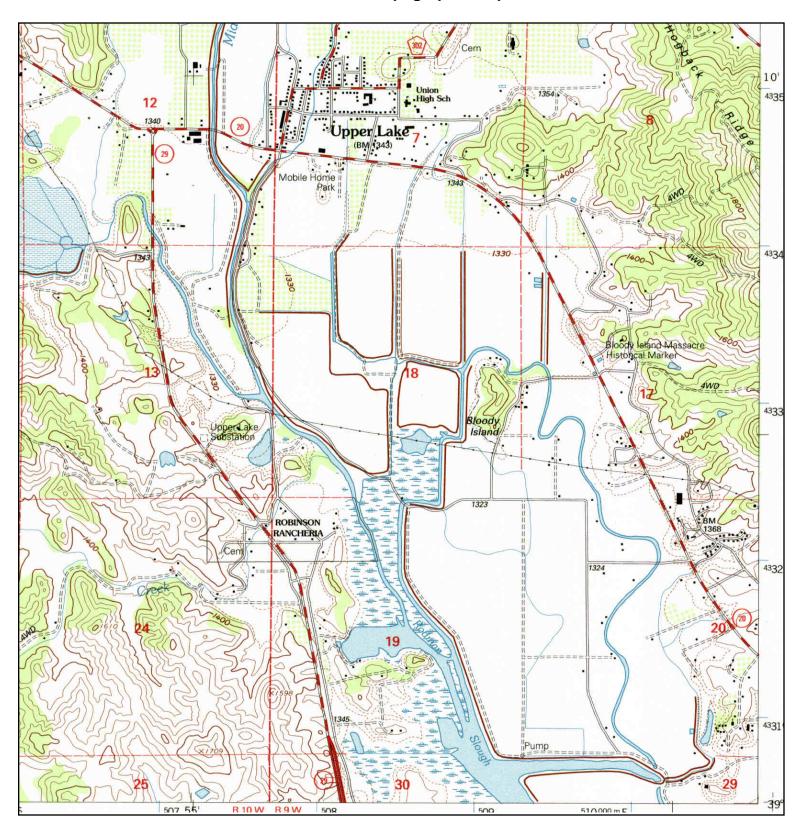
Reclamation Rd Bridge Arbor North ADDRESS:

E State Hwy 20

Upper Lake, CA 95485

39.1434 / -122.898

CLIENT: GHD Inc. CONTACT: Cristina Goulart INQUIRY#: 3390015.1





TARGET QUAD

NAME: **UPPER LAKE**

MAP YEAR: 1996

SERIES: 7.5 SCALE: 1:24000 SITE NAME: Middle Creek Flood & Restoration

Phase I

LAT/LONG:

Reclamation Rd Bridge Arbor North ADDRESS:

E State Hwy 20

Upper Lake, CA 95485

39.1434 / -122.898

CLIENT: GHD Inc. CONTACT: Cristina Goulart INQUIRY#: 3390015.1 RESEARCH DATE: 08/16/2012



California Regional Water Quality Control Board

Central Valley Region

Steven T. Butler, Chair



Sacramento Main Office

Internet Address: http://www.swrcb.ca.gov/~rwqcb5 3443 Routier Road, Suite A, Sacramento, California 95827-3003 Phone (916) 255-3000 • FAX (916) 255-3015

19 August 1999

nston H. Hickox

Secretary for Environmental

Protection

Mr. Gordon Wilcox Meteor Ranch 2255 East Highway 20 Upper Lake, CA 95485 CERTIFIED MAIL No. Z 471 427 810

NOTIFICATION OF APPLICABILITY OF GENERAL ORDER FOR WASTE DISCHARGE TO LAND BY SMALL DOMESTIC WASTEWATER TREATMENT SYSTEMS, ORDER NO. 97-10-DWQ-R5006, GORDON & PHYLLIS WILCOX AND DONALD & DOLORES WILCOX (WILCOX & WILCOX), dba METEOR RANCH, LAKE COUNTY

Gordon & Phyllis Wilcox and Donald & Dolores Wilcox (Wilcox & Wilcox), hereafter named as Dischargers, submitted a Report of Waste Discharge (RWD), received on 26 May 1998, for a waste discharge to land permit for the Meteor Ranch Wastewater Facility. In response to a Regional Board request for further information to complete the RWD, an addenda packet submitted by the Discharger was received on 10 May 1999. The Discharger intends to discharge domestic wastewater from a gravity sewer collection system to a septic tank and/or 300,000-gallon oxidation pond for ultimate treatment and disposal. Surface water drainage is to the Highland ditch canal, to Rodman Slough and then to Clear Lake.

The RWD is complete and the Discharger is subject to an Annual Fee of \$400.00 based upon a Category III, Threat to Water Quality and a Complexity Level B rating. As the Discharger has already issued a check for \$200.00 with the initial RWD, a check made out to the State Water Resources Control Board for an additional \$200.00 must be submitted to our office by 6 September 1999.

Based on information provided within your submittal, it is our determination that this project meets the required conditions to be approved under the enclosed Water Quality Order No. 97-10-DWQ, General Waste Discharge Requirements for Discharges to Land by Small Domestic Wastewater Treatment Systems (General Order). All the requirements contained within the General Order will be applicable to your project. You are hereby assigned General Order No. 97-10-DWQ-R5006 for your facility.

Enclosed are copies of Monitoring and Reporting Program No. 97-10-DWQ (MRP) and Standard Provisions, which prescribe minimum wastewater monitoring requirements for compliance with the General Order.

California Environmental Protection Agency

Mr. Gordon Wilcox Meteor Ranch Lake County

PROJECT LOCATION

The site address is in Lake County at 2255 East Highway 20, Upper Lake, California (refer to Attachment A).

PROJECT DESCRIPTION

The RWD describes the facility as providing treatment and disposal for domestic wastewater generated by a kitchen/dining room complex and seven summer camp cabins. Total flow is not to exceed 3,700 gallons per day (gpd). Wastewater is discharged from a gravity sewer collection system to a septic tank and/or 300,000-gallon oxidation pond for ultimate treatment and disposal. The septic system is used as the primary treatment for the kitchen and dining facilities, but effluent from the cabins is discharged directly to the wastewater pond. For the purposes of monitoring, the treatment and disposal system shall be considered a Septic Tank System with Unlined Pond/Basin Disposal.

GENERAL INFORMATION

- 1. The project shall be constructed and operated in accordance with the Discharger's submittal (RWD, Attachments and Addenda) and the requirements contained in the General Order.
- 2. Sludge removal and septage hauling records shall be kept and reported annually in the June monitoring report.
- 3. The required annual fee of \$400, which corresponds to threat to water quality and complexity of 3b (as specified in the annual billing you will receive from the State Water Resources Control Board), shall be submitted until this Notice of Applicability is officially revoked.
- 4. Discharge of effluent is limited to 3,700 gpd maximum of domestic wastewater. Discharge of material other than treated domestic wastewater, or the discharge of any other contaminants, is prohibited.
- 5. Recycling of wastewater, including effluent spray irrigation practices, shall not be conducted under this General Order.
- 6. Failure to abide by the conditions of the General Order and this letter authorizing applicability could result in enforcement actions as authorized by provisions of the California Water Code.

Mr. Gordon Wilcox Meteor Ranch Lake County

If you have any questions regarding this permit, please call Sherry Constancio at (916) 255-3048.

GARY M. CARLTON Executive Officer

| Approval | | | | | |
|----------|------|--|--|--|--|
| Author | | | | | |
| Senior | 4444 | | | | |

Enclosure:

General Order No. 97-10-DWQ

SKC

cc list w/ enclosure:

Mr. Martin A. Winston, Lake County Environmental Health Department, Lakeport

cc list w/o enclosure:

John Youngerman, State Water Resources Control Board, Sacramento

bcc: Della Kramer, Central Valley Regional Water Quality Control Board

c:\my documents\job files\lake\meteor\990812.go.doc

Attachment H

From: <u>Laura Hall</u>
To: <u>"Steve"</u>

Cc: <u>Mireya Turner</u>; <u>Michelle Irace</u>; <u>Thomas Jordan</u>; <u>asu.geres@gmail.com</u>

Subject: RE: [EXTERNAL] Re: Revised BioAssessment Report including review of potential drainage issue.

Date: Thursday, February 29, 2024 7:11:00 AM

Steve,

After getting a better understanding of this project, a Request for Review was sent out to the Public Health Department. As soon as we receive their comments, we can finish the CEQA analysis.

Thank you,

Laura

From: Steve <srr@woodbridge-energy.com>
Sent: Wednesday, February 28, 2024 6:44 PM
To: Laura Hall <Laura.Hall@lakecountyca.gov>

Cc: Thomas Jordan <thomas.jordan@sv-nsn.gov>; asu.geres@gmail.com

Subject: [EXTERNAL] Re: Revised BioAssessment Report including review of potential drainage issue.

Laura,

Any update on the MUP process?

Regards,

Steve

On Feb 20 2024, at 10:17 am, Steve < srr@woodbridge-energy.com> wrote:

Laura,

Larry has reviewed the issues that you brought up and has updated the Bio-Assessment reflecting that.

Please see attached,

Regards,

Steve

On Feb 20 2024, at 8:23 am, larry ray < nativeplantguy@msn.com > wrote:

Thanks Steve, those changes are all good! Larry

From: Steve < sent: Tuesday, February 20, 2024 8:19 AM
To: larry ray < nativeplantguy@msn.com>

Cc: Thomas Jordan < thomas.jordan@sv-nsn.gov; asu.geres@gmail.com < asu.geres@gmail.com >

Subject: Re: BioAssessment

Larry,

I did some reformatting of the document and changed one item at section 1.2 to reflect the modifications made after you did your first paper. I removed chipping and added shredding and milling.

I added todays date for being updated.

1.2 Proposed Project

The facility will operate as a central processing system for forest thinning biomass collected in Lake County.

The site, which will include sorting, grinding/shredding, milling, processing, and on-site bioenergy/biochar production equipment, will transform incoming biomass into a form that is ready for multiple, economically resilient downstream uses.

Please review and make sure that this is okay before i release this document to Laura today.

Thanks Steve

On Feb 15 2024, at 10:56 am, larry ray <<u>nativeplantguy@msn.com</u>> wrote:

You are welcome.

Get Outlook for iOS

From: Thomas Jordan < thomas.jordan@sv-nsn.gov Sent: Thursday, February 15, 2024 10:55:37 AM

To: larry ray <<u>nativeplantguy@msn.com</u>>; steve rumbaugh <<u>srr@woodbridge-energy.com</u>>; <u>asu.geres@gmail.com</u>

<asu.geres@gmail.com>

Subject: RE: BioAssessment

Larry, good morning and thank you for the updated report/

Tom Jordan
Economic Development Director
Scotts Valley Band of Pomo Indians

From: larry ray < nativeplantguy@msn.com Sent: Wednesday, February 14, 2024 9:23 PM

To: steve rumbaugh < srr@woodbridge-energy.com>;

Thomas Jordan < thomas.jordan@sv-nsn.gov>;

asu.geres@gmail.com
Subject: BioAssessment

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello, Attached is the edited Bioassessment for the Upper Lake parcel. Please review and let me know if you have any questions or comments.

| | Thanks, |
|--|--------------|
| | Larry Ray |
| | 707-272-2517 |

Attachment I

From: <u>Laura Hall</u>

To: "thomas.jordan@sv-nsn.gov"; "srr@woodbridge-energy.com"

Cc: <u>Michelle Irace</u>; <u>Mireya Turner</u>

Subject: Donahoo Site at 8605 Bottle Rock Road in Kelseyville:

Date: Monday, October 21, 2024 9:49:00 AM

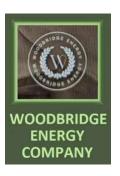
Thomas,

It has been determined that a use permit will be required for wood processing at 8605 Bottle Rock Road in Kelseyville before any forest biomass can be delivered to your site under Use Permit UP 23-05. Therefore, we will be adding a condition to UP 23-05 at the Planning Commission meeting this week. Unfortunately, because the owner at that site does not work directly with CAL FIRE and PG&E on forest clearing like the CLERC and others, a County permit is required.

Thank you,

Laura

Attachment J



W.E.C.

Menu

About

Woodbridge Energy – USA Based Technology & Global Energy Leader

We are founded on a mission to create value, provide energy to the masses and focused on renewable solutions to the world. Woodbridge is relentless in the pursuit of a sustainable future. Sustainability has always been at the forefront of our business — from our energy saving customer projects and clean energy generation assets, to workplace green initiatives and giving back to our communities.

The world is facing climate change and biodiversity loss at levels that threaten the life supporting systems of our planet for future generations. The scientific consensus is that human activity is the cause. Woodbridge takes our responsibility of protecting the environment seriously. Our business is founded on providing clean, green, and sustainable solutions that reduce greenhouse gas emissions.

Woodbridge is committed to continuing to deliver comprehensive projects that help accelerate the global transition to a negative carbon future. We are also committed to reviewing our own carbon footprint, publishing data on emissions, and preparing plans to achieve negative carbon from our direct operations.

Steve Rumbaugh

President



Mr. Rumbaugh has been in the engineering and construction business for over 40 years. He has engineered 100's of millions of dollars in construction for major companies and governmental agencies such as, AT&T, Bechtel, United Technologies, State of Oregon, U.S. Government. Mr. Rumbaugh has held key leadership positions in construction, engineering, real estate, and high-tech companies. As an expert in designing complex systems, he is called upon to provide key assistance by our clients in the renewable energy and communication industries. He holds 9 patents in wireline, powerline and wireless communication, error correction, surround sound audio, real-time transmission, and lighting systems.

His major focus is on Environmental Life Cycle of Biomass, Water, CO2, CO, H2, SNG, RNG and Energy. His relationships within the renewable industry has allowed him develop projects around the United States. Companies around the world have teamed and co-developed projects with Steve. Steve has also taken the lead on multiple developments from site acquisition to NTP to COD. He has traveled extensively the world, engineering, sourcing, partnering and managing projects.

Rumbaugh was Engineering Manager of Aydin Systems (E&W) Electronic Warfare Division leading a group that delivered, installed, and trained the Military Allies and testing of battlefield communications. This included microware, satellite and radio comms. In addition to comms, his division provided equipment or software on almost every missile, aircraft or weapons systems in the western world that included, airborne data comms for the Patriot missile defense technology and tactical air-defense radar and over the horizon radar.

Sam Sparkman

Senior VP and COO



Mr. Sparkman is the Executive and Director of Woodbridge Energy Technologies and its family of companies, providing his expertise in carbon credit markets, oil and gas, development and finance. Sam grew up around the oil and gas industry with his involvement in the family business. The family is heavily involved in the oil and gas industry. Being involved in the business at a young age led Sam to an extensive career in the energy industry, developing energy production and generation. Mr. Sparkman worked in project finance, technical evaluation, decision making as an executive and organizational structuring, acquisition & management.

Randy Pond

Director and Advisor



Mr. Pond is a director, advisor to and investor in Woodbridge Energy. He is presently at Advance Micro Devices (AMD) after being the CFO and COO at Pensando Systems, a network edge security technology provider. Just as data centers are adopting a "scale-out" approach for compute and storage systems, the networking and security elements of the data center must also adopt a scale-out services architecture, and the network, security, and visibility functions need to find a new home in this model. The ideal place to instantiate these services is at the server edge, where services such as encryption, firewall, visibility, and networking can be delivered in a scalable manner. Pensando Systems raised \$145 million in series C funding, bringing its total raised to date to \$278 million after an earlier founder-led series A of \$71mm & series B of \$62 mm.

PENSANDO SYSTEMS (Acquired by AMD for \$1.9 Billion in 2022)

Distributed Computing Company – Founded in 2017, Pensando Systems is led by Silicon Valley's legendary "MPLS" team from Cisco — Mario Mazzola, Prem Jain, Luca Cafiero, Soni Jiandani, and Randy Pond — who have an unmatched track record, having already sold multiple enterprise

companies. Pensando has raised a total of approximately \$280 Million from Lightspeed Venture Partners, HP Enterprise, Ericsson Ventures, Qualcomm Ventures, John Chambers (Cisco former CEO), Goldman Sachs, etc.

Jamie Wright

Global Business Development



Ms. Wright is a seasoned professional with over 30 years of experience in developing and implementing integrative, immersive large-scale marketing strategies, as well as launching products that have positively impacted people's lives. With a passion for renewable energy, she has been helping businesses understand the transformative potential of this technology while also improving their bottom line.

As an expert in her field, Jamie has collaborated with numerous Forbes 50 corporations to successfully launch new products into the marketplace from concept to completion.

Currently, as the Head of Global Business Development at Woodbridge Energy, she is leading the charge in bringing a portfolio of transformative technologies to the global market. Her ultimate goal is to leave a global legacy by supporting the integration of new and transformative technology into the marketplace.

Gary Brooks

V.P. of Business Economics



Mr. Brooks has spent 33 years in business and advising business owners. After an initial 8 years in wealth management and estate planning, he has spent the past 25 years in investment banking and exit planning, representing literally hundreds of owners of midsized companies. Graduated from University of California at Berkeley in 1978.

Experienced in business valuations, mergers, acquisitions, family and management buyouts, ESOPs, Private Equity, workouts, and turnarounds. I have also been successful raising capital for growing company clients. Active in all phases of the M&A process including packaging, marketing, negotiating, structuring and financing of transactions.

Skilled in project management and execution, building community and coalitions, often among unlikely partners, implementing change processes around strategic planning, culture, and equity, and pro-bono, corporate bankruptcy, and environmental law.

Zac Kennedy

V.P. of International Relations



Mr. Kennedy is experienced in international relations, organizational leadership, local government policy, carbon markets, accounting, and public speaking.

Zak's expertise in government relations was honed through years of working with various organizations that promote cross-border collaboration. Experienced in developing and managing relationships with international stakeholders and facilitating discussions between different cultures. He has also been instrumental in helping organizations navigate complex international regulatory environments, ensuring compliance with local laws and regulations. Zak has a deep understanding of local government policy, having worked with multiple local governments to help them navigate complex regulatory environments. His expertise in carbon markets has been particularly valuable in helping organizations reduce their carbon footprint and meet sustainability targets.

Lobbyist - Potts & Associates - Jan 2006 - Present, 17 years 4 months, Olympia, WA

Agricultural System Consultant - EverBright - Aug 2016 - Jul 2019, 3 years, USA

Brokerage Manager - CHS Inc. - May 2011 - Sep 2012, 1 year 5 months, Washington State

- Washington State University Master's of Science, Agriculture Sustainability & Communication, 2008 – 2010. Plus a Bachelor of Business Administration – BBA Law, 2003 – 2005
- United States Air Force Academy Physics 2001 2003

Collon Kennedy III

Legal Council – Technology, Operations & Regulatory



For nearly three decades, Collon Kennedy III has served as a senior executive and attorney with major energy and mining companies operating in North America and Chile. Kennedy's most recent experience includes serving as outside legal counsel to Ruby Canyon Engineering Inc., a Colorado environmental engineering firm, where he analyzed environmental, legal, operational challenges and incentives associated with the capture, sale and destruction of coalmine methane (CMM), a source of greenhouse gas emissions.

From 2001-2008, he served as Vice President of Peabody Natural Gas, LLC. His work has been featured in Coal Mine Methane: The True Unconventional Gas and other white papers and presentations prepared for the Environmental Protection Agency's Coalbed Methane Outreach Program. Collon was a main Participate in Arid Operations' successful permitting and sale of Mesquite Regional Landfill ("MRL") in imperial County, California, the World's Largest Waste-by-Rail Project, to the Los Angeles County Sanitation District.

Mr. Kennedy also managed Gold Fields Mining Corporation's ("Gold Fields") preparation of asset and real property inventory and transfer documents in "Gold for Coal" 1031 Exchange with Santa Fe Minerals Corporation, at the time, the largest US tax free exchange every completed – valued at over

\$500 million. He headed Gold Fields Land and Exploration Legal Groups responsible for property acquisition, management, and regulatory compliance resulting in two (2) major gold discoveries: Mesquite Mine in Southern California and Chimney Creek Mine in Western Nevada.

As Attorney and Consultant, he participated in the evaluation of CMM carbon offset projects in Wyoming, Utah and Lower Mongolia, and assisted in the verification and registration of CMM emission reduction credits ("ERCs") generated from recovery operations at Peabody's North Antelope

While Vice President of Peabody Natural Gas, LLC – Golden Colorado he was responsible for managing PNG's day-to-day oil and gas operations in the USA. He served on the legal committee for Kentucky Oil and Gas Association and Kentucky Coal Mining Association responsible for drafting CBM development legislation in Kentucky. He also developed the first US project selling ERCs resulting from the capture of methane gas at a surface mine.

• JD, University of Notre Dame Law School

Rochelle Mine in Wyoming's Powder River Basin.

• BA, Political Science, Southern Colorado State College (now Colorado State University-Pueblo)

Andrew Campbell

Senior Project Development Officer -Site Assessment and Mitigations



Mr. Campbell has over 24 years of experience in the management, treatment, containment, and disposal of specialized waste streams and land pollution. His work has also included compliance and design of petroleum storage facilities. Andrew's background includes 10 years of developing and managing federal, state, and commercial contracts using time-and-expenses, firm fixed price, and performance-based payment structures.PE, Principal Engineer

He holds a Master's Degree – Civil Engineering from the University of Colorado and a Bachelor's Degree – Biochemistry from the University of California, Davis. He holds professional engineering licenses in Arizona, California, Florida, Maryland, Nevada, New Jersey, Texas, and Washington. Andrew

is adept at researching engineering, scientific guidance, practice references and then successfully implementing them in real-world settings.

Lindi von Mutiu

V.P. of Environmental Relations



Ms. Lindi von Mutiu is providing environmental guidance for Woodbridge Energy. Her ability to provide direction, support and team building in a difficult and sensitive land development project is invaluable.

Lindi is a professor at Harvard University in Environmental Justice.

Director, Board Strategy & Operations at The Trust for Public Land, Oakland, California

Experienced Chief of Staff for the Sierra Club and non-profit executive management, coalition building and maintenance, and political advocacy. Her background in both non-profit organizations, government agencies, and corporate law can provide key guidance in the development of energy projects. Skilled in project management and execution, building community and coalitions, often among unlikely partners, implementing change processes around strategic planning, culture, and equity, and pro-bono, corporate bankruptcy, and environmental law.

Bernard Brown

V.P. of Project Permitting



Mr. Brown has over 20 years of both private and public experience. His background includes hazard mitigation planning, risk analysis, grant writing and management, and conducting vulnerability assessments. Bernard gained valuable energy experience while serving on a utilities committee as an elected official in Delaware. In his private sector experience, Bernard both designed and managed projects involving environmental remediation. Assoc. AIA, REP, ENV SP, Sustainability

He is currently a doctoral candidate at Villanova University researching waste-to-energy processes and the creation of microgrids using waste-to-energy systems. Additionally, he completed his Bachelor's in Urban Planning and Design from Arizona State University. Bernard also holds a Bachelor's Degree in Finance from Christopher Newport University & a Master's in Public Admin. from Clemson University.

Dennis Mueller

V.P. of Biomass Development



Mr. Mueller has 12 years of renewable energy system; engineering, consulting, sales, systems component design, and installation experience. Mr. Mueller has won several industry awards for technological innovation. Dennis helped launch, manage, and engineer a Dual-Axis Tracking product for JKB Energy. His previous experience includes 11 years as a mechanical / project engineer for the Trident II D5 Submarine launched ballistic missile systems program at Lockheed Missiles and Space Co. He worked for 6 years at C&K Systems.

Dennis leads Woodbridge Energy's California methane development business. The companies California business is centered around agriculture, producing Renewable Natural Gas "RNG", Synthetic Natural Gas "SNG" and capturing dairy manure methane. Generating products from Anaerobic Digester Systems and biomass gasification. Biomass to Hydrogen as our affiliate company EcoMotiv, that produces gasifiers and distributed H2 fueling station for local truck transportation fleets. Cleaning water from agriculture waste streams and generating fertilizer.

The projects Woodbridge is working on are based on 10,000 lactating cows and thousands of tons of Ag biomass waste. Waste to power, heat, gas and biochar are main components of the projects being developed.

Dennis graduated from Stanford University.

Bill Slaton

Governmental and Energy Advisor



Mr. Slaton is an advisor to Woodbridge Energy for supporting its effort in the renewable energy sector. He brings a vast background in the utility sector, banking, finance, and executive guidance. Bill has been a senior consultant specializing in corporate board governance.

For 16 years he served as an elected board member of the Sacramento Municipal Utility District which provides electric services to 1.5 million Northern California customers. He served three terms as President of the Board. Bill also served from 2012 to 2019 as a gubernatorial appointee to the governing board of the California Public Employees Retirement System (CALPERS), the second-largest public pension fund in America after the federal government.

Prior to his leadership roles on these boards, he served on two publicly traded commercial bank boards as well as on various non-profit boards. Bill is a graduate of the University of Texas.

Powered by WordPress.com.

Attachment K

 From:
 steve rumbaugh

 To:
 Laura Hall

 Cc:
 Thomas Jordan

Subject: Re: [EXTERNAL] UPDATED: Site Plan and Description - Major Use Permit (UP 23-05); Initial Study (IS 23-10) at

APN 004-010-04:

Date: Thursday, February 1, 2024 4:32:49 PM

Laura,

Sent your questions to Larry, the Biologist, for modification / adjustments per your comments.

Thank you.

Steve

On Thu, Feb 1, 2024, 7:36 AM Laura Hall < Laura. Hall@lakecountyca.gov > wrote:

Steve,

As I am working on the initial study for the project, there may be a few issues/inconsistencies in the Biological Assessment Report that needs to be revised. Also, I noticed that when your application was taken in, a Development Review application should have been included. While I will continue working on the initial study, you will need to take care of the following:

Biological Assessment Report

According to the Environmental Protection Agency's Waters GeoViewer 2.0 database, a blueline stream enters the parcel from the northwest after crossing State Highway 20 and flows along the parcel's eastern side before exiting. This waterway is tributary to other unnamed streams which are all tributary to Clearlake. A closer look at historical aerial photos, it appears that this waterway actually enters the site from the far northwest corner of the parcel and flows several hundred feet down the middle of the property before flowing over to the east side. According to the Biological Assessment Report, Section 6.0, subsection 6.2, page 33 (last paragraph):

Vegetation clearing and grading activities have the potential to result in sediment runoff to the drainage ditch.

Please clearly state where this "drainage ditch" is located and identify any blueline streams (including intermittent) that may have been rerouted through manmade channels? Also, are there any water crossings on the property?

Although the report mentions protocols used for CNDDB, it does not say whether the Biological Assessment Report follows the California Department of Fish and Wildlife's (CDFW's) protocols. Please state whether CDFW protocols were followed for both flora and fauna surveying/timing/etc.

In addition, the Biological Assessment Report Section 1.0, subsection 1.1, page 5 of the pdf (first paragraph) states the following:

A delineation of waters of the U.S. was not conducted due to the lack of water, hydric soil and wetlands plants not present on the parcel.

However, Section 6.0, subsection 6.1, page 30 (first paragraph) of the pdf, states the following:

This biological resource assessment involved the following analyses and surveys for sensitive plants and wildlife potentially occurring in the vicinity of the project:

• A delineation of waters of the U.S.

The report needs to clearly state that a delineation of water of the U.S. was not completed.

Please provide a revised Biological Assessment Report so the initial study is based on clear and accurate information.

I will continue preparing the initial study but cannot finish until this report is resubmitted. You can email an electronic copy to me.

| Lastly, I am including a Development Review application which was unfortunately missed during submittal of your application. Please submit this application along with the required fees. Please make sure to let the office assistants in front know that this should be added to UP 23-05 and let them know it goes to Laura Hall. |
|--|
| Respectfully, |
| Laura |
| From: Steve <srr@woodbridge-energy.com> Sent: Thursday, January 25, 2024 2:09 AM To: Laura Hall <laura.hall@lakecountyca.gov> Cc: Thomas Jordan <thomas.jordan@sv-nsn.gov>; asu.geres <asu.geres@gmail.com> Subject: [EXTERNAL] UPDATED: Site Plan and Description - Major Use Permit (UP 23-05); Initial Study (IS 23-10) at APN 004-010-04:</asu.geres@gmail.com></thomas.jordan@sv-nsn.gov></laura.hall@lakecountyca.gov></srr@woodbridge-energy.com> |
| Laura, |
| The Site Plan AQ-5-3 and AQ-5-1 have been updated. |
| The Project Description has been updated. (Word and pdf format) |
| Regards, |
| Steve |
| On Jan 23 2024, at 10:55 am, Laura Hall < Laura. Hall@lakecountyca.gov > wrote: |
| Steve, |
| I just wanted to check on the project description and revised site maps. |

| Thank you, |
|--|
| Laura |
| From: Steve < sent: Wednesday, January 10, 2024 7:52 PM To: William Collins < william.Collins@lakecountyca.gov Cc: Thomas Jordan < thomas.jordan@sv-nsn.gov ; Laura Hall thief800@northshorefpd.com Subject: [EXTERNAL] Major Use Permit (UP 23-05); Initial Study (IS 23-10) at APN 004-010-04: |
| Bill, |
| We can change the size of the building to $40' \times 60' (2,400sf)$ instead of $60' \times 80' (4,800sf)$. and would be under the $2,500sf$ size limitation. |
| We would move some equipment into a second canopy. We could separate the 2 units by 40 or so feet |
| I think we could work with these solutions, if that works for you and the fire district? |
| I will need to redesign the layout and change the structural drawing. |
| I have attached a general view of what it would look like. We can select a color. |
| Regards, Steve |

On Jan 10 2024, at 1:02 pm, William Collins < <u>William.Collins@lakecountyca.gov</u>> wrote:

Hi Steve and Thomas,

Below is the code section from the 2022 California Fire Code for your review ahead our meeting.

903.2.4.1 Woodworking Operations

An automatic sprinkler system shall be provided throughout all Group F-1 occupancy fire areas that contain woodworking operations in excess of 2,500 square feet (232 m2) in area that generate finely divided combustible waste or use finely divided combustible materials. [SFM] A fire wall of less than 4-hour fire-resistance rating without openings, or any fire wall with openings, shall not be used to establish separate fire areas.

Please let me know if you have any questions before the meeting.

Sincerely

Bill Collins, CBO, CASp

Chief Building Official

County of Lake

255 N. Forbes St.

Lakeport, CA 95453

707-263-2221 ex 38123 (Office)

william.collins@lakecountyca.gov

Attachment L

SERVICE FINDER

Enterprise Bio Char FAQ

Upper Lake Wood Processing Campus

Frequently Asked Questions:

What impact will there be to air quality?

According to the San Joaquin Air Pollution Control District, very little. In fact, a diesel truck driving down Main Street generates more emissions.

Has an air quality permit been issued?

Not yet. Permit applications aren't reviewed until the equipment has already been installed and is operating in its testing stage. However, based on testing that has occurred in other California air quality districts, we are confident that the county's air quality standards will be met.

Is the generated energy sold to anyone?

No. Everything generated goes to operating the site.

■ Il the operating system be loud for neighbors?

No. The units are 1,000 feet from neighbors and so the equipment will not be heard by surrounding homes.

Will there be extra traffic on Highway 20?

No. We don't expect more than a few extra cars on the road.

Will Elk Mountain Road be used to transport forest material?

No. We have stated no intention to use this road and we will be using the Forest Service's contractors to remove and transport wood chips.

Will there be lots of hazardous materials?

No. There will be some materials used for cleaning/maintenance (the same kind of cleaning materials you keep in your house) and those will be stored in fire-proof cabinets on site.

Will the plant impact the water channel nearby that is prominent to local wildlife?

No. The water channel is located outside of the area leased and used for the plant. We also only plan to fence one acre of the five acres so as to minimize as much impact on wildlife as possible.

If Upper Lake were to flood due to a levee break, would the wood chips get caught in the water and cause

blockages?

No. The processing campus is located outside of the current flood plain per GPS coordinates provided by Lake County. We also will install control barriers around wood chip piles to prevent chips from floating away in any amount that could create a blockage.

Will the processing plant negatively impact the scenic corridor?

No. The plant is located more than 1,000 feet from the highway and is outside of the corridor. The wood chip piles are also planned to not exceed 8 feet in height which is the same size as many of the brambles in the area so that they do not stand out.

Will any potential archaeological sites be affected?

We have taken steps to avoid this. Most of the equipment will be surface mounted to avoid ground disturbance with the exception of the county required 27,000-gallon tank which will have a cement foundation. We have also retained via contract the Habematolel tribe to act as cultural monitor in training personnel and on-site observations during equipment installation.

Will the gravel sink into the ground and make the area unusable in the future?

No. We will be using gravel, but we will also be installing a ground cloth underlayment which prevents gravel from sinking and will allow it to be removed at the end of the lease.

When will the proceeding campus become operational? The earliest possible date is October 2025.

No results found.

Attachment M

OCT 2 1 2020

| | KINN H | H#1 | Night. | |
|----|--------|-----|--------|--|
| BY | | 0 | ρ | |
| | Deputy | Cle | its | |

Wanger Jones Helsley PC

265 E. River Park Circle, Suite 310

Fresno, California 93720

Telephone: 3 Facsimile:

(559) 233-4800 (559) 233-9330

John P. Kinsey #215916

Attorneys for:

E-mail: ikinsey@wjhattorneys.com

CITIZENS FOR ENVIRONMENTAL

PROTECTION AND RESPONSIBLE

WALTER, an individual,

PLANNING, an unincorporated association,

CLINT NELSON, an individual and MATT

Petitioners and Plaintiffs,

COUNTY OF LAKE; THE LAKE COUNTY BOARD OF SUPERVISORS

and DOES 1 through 10, inclusive,

THOMAS JORDAN, and DOES 11

Real Parties In Interest.

through 20, inclusive,

Respondents and Defendants.

6 7

1

2

4

5

Petitioners and Plaintiffs Citizens for Environmental Protection and Responsible Planning, Clint Nelson and Matt Walter

SUPERIOR COURT OF CALIFORNIA

COUNTY OF LAKE, LAKEPORT DIVISION

8

9

10

11 12

13

14

15

16

17

18

19

20 21

22

23

24

25 26

27

28

///

{9373/002/01165554.DOCX}

VERIFIED PETITION FOR WRIT OF MANDATE AND COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

Case No.

VERIFIED PETITION FOR WRIT OF MANDATE AND COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

421326

Petitioners and Plaintiffs CITIZENS FOR ENVIRONMENTAL PROTECTION

AND RESPONSIBLE PLANNING, CLINT NELSON, an individual, and MATT WALTER, an individual (collectively, "Petitioners") submit their Verified Petition for a Writ of Mandate and

Complaint for Declaratory and Injunctive Relief (the "Petition"), stating claims against

Respondents and Defendants the COUNTY OF LAKE (the "County") and the LAKE COUNTY BOARD OF SUPERVISORS (the "Board") (collectively, "Respondents") as set forth below.

INTRODUCTION

- 1. This action challenges the September 15, 2020, decision of the Lake County Board of Supervisors (the "Board) to deny the appeal of Petitioners and approve a Mitigated Negative Declaration ("MND") for Initial Study IS 19-09, and the related approval of Major Use Permit UP 19-05, for the development of a bioenergy production facility (the "Project"). Petitioners and their members live and/or work next to the site for the Project, which seeks to bring an industrial land use—specifically, a biogas facility that includes the onsite chipping of burned trees—with significant potential environmental effects to a scenic corridor and adjacent to residences, businesses, and vineyards. Petitioners presented substantial evidence to the Board of Supervisors of a "fair argument," including extensive evidence prepared by resources experts, that the Project would result in significant environmental impacts. The County, however, did not even bother to respond to these arguments, and approved the Project. Lacking any other recourse, Petitioners were forced to bring this action challenging the Project under the California Environmental Quality Act, Pub. Resources Code, § 21000, et seq. ("CEQA").
- 2. Petitioners also seek relief under various other statutes. For example, the County's Code does not provide the County authority to approve the Project within a scenic corridor or on land zoned commercial. In addition, the Project is inconsistent with the both the General Plan and the Rivieras Area Plan, rendering the approval defective under State Planning and Zoning Law, Govt. Code, § 65000, et seq. ("PZL").
- 3. Petitioners thus seek: (1) a writ of mandate pursuant to Sections 21080 and 21080.5 of the Public Resources Code and Sections 1085 and 1094.5 of the Code of Civil Procedure setting aside certain decisions made by Respondents described below and to enforce compliance with CEQA; (2) a writ of mandate pursuant to Sections 1085 and 1094.5 of the Code of Civil Procedure due to Respondents' failure to comply with State Planning and Zoning Law; (3) a writ of mandate pursuant to Sections 1085 and 1094.5 of the Code of Civil Procedure due to Respondents' failure to comply with the County Code; (4) a declaratory judgment pursuant to Section 1060 of the Code

{9373/002/01165554.DOCX}

of Civil Procedure; and (5) injunctive relief pursuant to Sections 525-526 of the Code of Civil Procedure.

PARTIES, JURISDICTION AND VENUE

- 4. Petitioner and Plaintiff Citizens for Environmental Protection and Responsible Planning ("CEPRP") is an unincorporated non-profit association based in Lake County, California. CEPRP is dedicated to ensuring that projects carried out within Lake County, and specifically the Red Hills area, are sited, analyzed, and implemented in such a way as to avoid adverse environmental, social, and economic effects. Several of CEPRP's members are local residents and business owners in the area immediately surrounding the Project, and will be affected by the Project's impacts. At least one comment letter was submitted on behalf of CEPRP, and several of its members made objections in writing or orally prior to the close of the September 15, 2020, public hearing.
- 5. Petitioner and Plaintiff Clint Nelson is a resident of Lake County. As a result, he is directly impacted by the adverse air quality, noise, and other environmental effects associated with the Project. He appealed the Planning Commission's 3-2 vote in favor of the Project, and commented on the Project before both the Planning Commission and the Board of Supervisors.
- 6. Petitioner and Plaintiff Matt Walter is a business owner in Lake County. As a result, he and his employees are directly impacted by the adverse air quality, noise, and other environmental effects associated with the Project. He submitted comments on the Project to the County prior to its approval.
- 7. The maintenance and prosecution of this action will confer a substantial benefit on the public by protecting the public from the environmental and other harms alleged herein and by ensuring that the County abides by the procedures required under law in approving development projects like the one at issue here. Petitioners are beneficially interested in this matter because they have a direct interest in ensuring that the Respondents fulfill their duties to comply with CEOA, State law, and the County's own ordinance code.
- 8. Respondent the County of Lake is a county in the State of California responsible for administering and carrying out its laws and applicable state laws. The County is the "lead

agency" for conducting the environmental review of the proposed Project for the purposes of Public Resources Code section 21067. The County must comply with CEQA, state law, and its own ordinances.

- 9. Respondent Lake County Board of Supervisors is, and at all times herein mentioned was, the duly elected decision-making body of Respondent County of Lake. As the decision making body, the Board was charged with responsibilities under CEQA for conducting a proper review of the proposed action's environmental impacts and granting the various approvals necessary for the project.
- 10. Petitioners are also informed and believe, and based thereon allege, that Real Party in Interest Thomas Jordan is, and at all times herein mentioned was, the applicant for the approvals granted by the County for the proposed bioenergy production facility.
- Parties in Interest fictitiously named Does 1 through 20 and sues such respondents by fictitious names. Petitioner is informed and believes, and on that basis alleges, that the fictitiously named respondents and real parties in interest are also responsible for the actions described in this Petition. When the true identities and capacities of these Respondents and/or Real Parties in Interest have been determined, Petitioners will amend this petition, with leave of the court if necessary, to insert such identities and capacities.
- 12. Petitioners and/or their members have performed any and all conditions precedent to the filing of this Petition. Petitioners and/or their members, exhausted any and all administrative remedies required by law by, *inter alia*, participating in the administrative and environmental review process both in writing and orally at the public hearing evaluating the Project held by the Lake County Planning Commission on April 23, 2020, as well as the appeal of the April 23 approval heard by the Lake County Board of Supervisors on August 18, 2020, and September 15, 2020.
- 13. Petitioners complied with the requirements of Public Resources Code § 21167.5 by mailing written notice of this action to Respondents. A copy of the letter providing written notice to Respondents, and proofs of service of the letter, are attached hereto as Exhibit "A."

{9373/002/01165554.DOCX}

{9373/002/01165554.DOCX}

- 14. A copy of this Petition will be served on the Attorney General concurrently with the filing of this Petition pursuant to Section 388 of the Code of Civil Procedure.
- 15. Petitioners have complied with Public Resources Code § 21167.6 by filing a request concerning the preparation of the record of administrative proceedings relating to this action concurrently with this Petition, a copy of which is attached hereto as Exhibit "B."
- 16. Petitioners have no plain, speedy, or adequate remedy in the course of ordinary law unless this Court grants the requested writ of mandate to require Respondents to set aside their adoption of the MND and approvals for the Project. In the absence of such remedies, Respondents' approvals will remain in effect in violation of state law, and the environment, Petitioners and other residents within the vicinity of the Project will be irreparably harmed. No money damages or legal remedy could adequately compensate Petitioners and those residents and property owners for that harm.
- 17. Sections 21168 and 21168.5 of the Public Resources Code and sections 1085 and 1094.5 of the Code of Civil Procedure provide for review in this Court of actions by state agencies and officers to determine whether those actions comply with CEQA. Sections 525-526 of the Code of Civil Procedure provide for an injunction when it appears that Petitioners are entitled to the relief sought, and section 1060 of the Code of Civil Procedure provides for a judicial declaration of Petitioners' rights and Respondents' duties. Accordingly, and based on the facts stated in this Petition, this Court has jurisdiction to grant declaratory and injunctive relief and to issue a writ of mandate on the claims presented here.
- 18. Venue in Lake County Superior Court is proper pursuant to section 394 of the Code of Civil Procedure. The County and the Board that approved the Project are located within the County of Lake, and the Project at issue is located within the jurisdictional boundaries of the County of Lake.

STATEMENT OF FACTS

19. The Project site is located in an area comprised mainly of rural residential, a mix of various kinds of commercial, and agriculture uses. The site for the proposed Project is 7130 Red Hills Rd, Kelseyville, CA, approximately 6 miles east of Kelseyville, on the southeast corner of

the intersection of State Highway 29 and Red Hills Rd, approximately 900 feet south of the intersection, described as parcel APN: 009-021-07. The site is a partially developed 34.58-acre lot, split-zoned with approximately 24.5-acres zoned Rural Residential ("RR") and the remainder zoned Highway Commercial ("CH"). The Property is also in a Scenic Combining District ("SC") and a Design Review Combining District ("DR").

- 20. An RR zoning designation exists "[t]o provide for single-family residential development in a semi-rural setting along with limited agriculture." (Lake County Zoning Ordinance, Art. 8, § 21-8) One permitted use in an RR zoned area is a "power generation facility." (Lake County Zoning Ordinance, Art. 27, § 27.13(x); see also id., Table B, line (x).) A "power generation facility" is an "electrical generation facility" and is further limited by generating capacity as measured in megawatts. (Lake County Zoning Ordinance, Art. 27, § 27.13(x).) A CH zoning designation exists "[t]o provide for the location of the facilities and services needed by the traveling public along the County's major collectors, at intersections with state highways and where they can be reached conveniently and safely." (Lake County Zoning Ordinance, Art. 16, § 21-16.) A "power generation facility" is not a permitted use in a CH zoned area.
- 21. An SC designated area exists "[t]o protect and enhance views of scenic areas from the County's scenic highways and roadways for the benefit of local residential and resort development, the motoring public, and the recreation based economy in the County." (Lake County Zoning Ordinance, Art. 34, § 21-34.) SC designated areas prohibit "[u]ses predominantly utilizing outdoor storage" and "[u]nscreened outdoor storage; except supplies, products, or equipment incidental to a ranch or farm." (Id.) A DR designated area exists "[t]o insure aesthetic compatibility between uses, protect and enhance property values, protect scenic qualities, and promote community character through use of community design manuals." (Lake County Zoning Ordinance, Art. 53, § 21-53.)
- 22. Red Hills has been an approved American Viticultural Area since approximately 2004. (27 C.F.R. § 9.169) This designates an area as an appellation of origin which can be used on wine labels. Over the past several decades, the area has grown considerably as a major

¹ https://www.ttb.gov/wine/american-viticultural-area-ava {9373/002/01165554.DOCX} 6

 appellation in the wine industry, and continues to enjoy considerable success, especially as land prices in Napa and Sonoma Counties have skyrocketed. The climatic conditions in the region are particularly suited to growing high quality grapes, and the relative rarity of conditions which replicate areas like Napa and Sonoma imbues the preservation of the character of Red Hills with a greater degree of importance.

- 23. On or about February 11, 2019, Thomas Jordan filed a request for approval of a Major Use Permit with the Lake County Community Development Department. The permit request was circulated to various agencies and deemed incomplete. More information was requested. Subsequently, the Project was reduced in size, and the applicants decided to hire consultants to prepare an environmental document, pursuant to CEQA requirements.
- 24. On or about January 21, 2020, the County completed its Initial Study and Mitigated Negative Declaration ("IS/MND") IS 19-09 seeking a Major Use Permit for the Project. The IS/MND concluded that the Project, *inter alia*, would not significantly affect aesthetics in the scenic corridor due to its design features; would not significantly affect agriculture and forestry resources; air quality impacts would be mitigated through the permitting process with the Lake County Air Quality Management District, road surfacing measures, vegetation chipping, prohibitions on burning, and unspecified dust control measures; would have no impact on land use and planning; and noise impacts would be mitigated through standards set during construction and operation for acceptable decibel levels.
- 25. The IS/MND was circulated for public review and filed with the State Clearinghouse on or about January 27, 2020.
- 26. On April 23, 2020, the Planning Commission held a hearing on the Project. Mr. Nelson, members of CEPRP, and other commenting parties raised numerous concerns about the inadequacy of the environmental review and impact of the dust, noise, aesthetics, and other adverse impacts.
- 27. On April 23, 2020, despite the written and oral concerns about the Project, and Respondents' failure to comply with their obligations under CEQA, the Planning Commission adopted the MND and approved the Project on a 3-2 vote.

- Thereafter, Petitioners appealed the Planning Commission approval of the Project 28. to the Board. Counsel for Petitioners submitted a comment letter supported by substantial expert analysis detailing the reasons why the Project should be denied on the merits. Counsel also detailed the insufficiencies of the environmental review, under CEQA, conducted by the County and the applicants, should the County nonetheless wish to proceed with the Project.
- Petitioners' comments include an August 17, 2020, letter, with accompanying 29. expert reports. The letter, among other things, presented substantial evidence of a fair argument that the Project would have significant environmental effects. The County has never addressed the extensive concerns raised in the letter in any detail.
- Moreover, the County and Real Parties failed to disclose where crucial components 30. of the Project's operations would take place, such as the primary chipping process, a major concern for the local community given the potential of significant dust creation and damage to local vineyards therefrom. Further, throughout the process, Real Party in Interest and the County continued to change key components of the Project, resulting in an unstable project description.
- The Board of Supervisors conducted two public hearings on the appeal on August 31. 18, 2020, and September 15, 2020. After comment was heard, the Board unanimously denied the appeal, and moved to approve the Project.

CAUSES OF ACTION

FIRST CAUSE OF ACTION

Fair Argument of Significant Impacts in Violation of CEQA

- Petitioners re-allege and incorporate by reference the precedent paragraphs 1 to 31 32. in their entirety, as though fully set forth herein.
- CEQA was adopted by the Legislature to prevent environmental harm while providing a decent home and satisfying living for every Californian. The policies and legislative intent behind CEQA are intended to be an integral party of any public agency's decision-making process. CEQA applies to discretionary projects approved by public agencies.
- The County was the "lead agency" responsible for evaluating the Project's 34. environmental impacts under CEQA. As part of this duty, Respondents were required to

27

28

prepare an environmental impact report when substantial evidence in the record supports a "fair argument" that the Project may have a significant impact on the environment.

- 35. CEQA also required Respondents to adopt feasible mitigation measures to reduce or avoid any significant environmental impacts. If substantial evidence in the record supports a "fair argument" that a project's significant environmental impacts could not be mitigated to a less than significant level, the County is likewise required to prepare a full environmental impact report instead of a mitigated negative declaration.
- 36. Respondents' approval of a development permit constitutes a discretionary act that triggers its obligation to comply with CEQA.
- 37. Respondents violated CEQA by approving the Project because, based on the record, Respondents failed to adequately evaluate and mitigate the Project impacts that may be significant, including, but not limited to:
- 38. Noise. Substantial evidence of a fair argument exists that the Project would result in significant impacts to sensitive nearby receptors, and would result in noise levels in excess of the County Code. Respondents' noise study is also incomplete because it does not address proximate nearby sensitive receptors, and the potential impacts of the Project on those sensitive receptors. Without this analysis, the Initial Study and MND is insufficient under CEQA. (See CEQA Guidelines, Appendix G, Subd. XI(a).)
- 39. Aesthetics. Substantial evidence of a fair argument exists that the Project would result in significant aesthetic impacts. The County recognized the Project had the potential to create significant impacts to aesthetics; however, a "fair argument" exists, based on substantial evidence and expert testimony, that the purported "mitigation" recommended by the County would not reduce aesthetic impacts to a less than significant level.
- 40. Agricultural Resources. A fair argument also exists that the Project could result in significant impacts to agricultural resources. The area is populated by several vineyards. It has already been demonstrated that wood chipping from the project could result in significant amounts of windborne dust, which could negatively impact the growth of grapes in the area as well as potentially becoming a vector for the spread of windborne pathogens and fungal,

insect, and mite infestations. In addition, the mere presence of the Project—an industrial land use incompatible with the agricultural setting—could result in significant impacts to the tourism of the area, which thrives due to the bucolic, agricultural setting.

- 41. Air Quality. A fair argument also exists that the Project could result in significant impacts to air quality in the region. The impacts include dust generation and migration onto nearby properties, causing impacts to nearby agricultural fields, businesses, and residents. In fact, the record included testimony from individuals directly impacted by similar impacts from a health perspective.
- 42. Adverse Health Impacts. There is also a fair argument that the Project could result in significant adverse health impacts. The County is required to analyze the nature and magnitude of the Project's human health impacts in order to comply with the informational goals of CEQA review. (Sierra Club v. County of Fresno (2018) 6 Cal.5th 502, 523 (hereafter Friant Ranch).) The environmental document must discuss the specific health and safety problems that may occur as a result of the Project. (CEQA Guidelines, § 15126.2, subd. (a).) Bare air pollutant data will not suffice. Rather the data must be translated into adverse health impacts so that the public will be able to give full consideration to project approval, or the county must explain why such translation is not possible. (Friant Ranch, supra, 6 Cal.5th 502, 523.) The County has received evidence that adverse health consequences from the subject property have already occurred, and has failed to adequately address this issue in the Initial Study and MND.
- development project will, among other things, conflict with any land use plan, policy, or regulation of an agency with jurisdiction over a project. A fair argument exists that the Project as proposed will result in several conflicts with both the County's General Plan, the Rivieras Area Plan, and the Zoning Code. First, the Project seeks to bring an industrial land use into an area that is predominantly rural residential. This conflicts with sound land use principles, as industrial land uses are typically incompatible with residential land uses, particularly when they are adjacent

to each other. In addition, as explained below, the Project is inconsistent with several policies and programs articulated in the County's General Plan as well as the Rivieras Area Plan.

- 44. The County violated CEQA by failing to prepare an EIR for the Project when the record demonstrates that the Project may cause the potentially significant environmental impacts described above, among others, which have not been adequately disclosed, analyzed, or mitigated to a less than significant level.
- 45. Respondents prejudicially abused their discretion, and failed to proceed in a manner required by law, by approving a mitigated negative declaration despite the presence of a fair argument that the Project would have significant environmental effects. Thus, Respondents abused their discretion by failing to prepare an environmental impact report to address the significant environmental impacts.
- A6. Petitioners have a clear, present and beneficial right to performance by Respondents of their duties under CEQA, and Respondents have the duty and capacity to perform their duties under CEQA as the lead agency of the Project. Petitioners also have a clear, present, and beneficial interest in the issuance of a writ of mandate as they are and will be adversely affected by Respondents' violations of CEQA. The failure of Respondents to perform their duties under the law requires this Court to issue a writ of mandate directing them to discharge their duties under CEQA, pursuant to Sections 21080 and 21080.5 of the Public Resources Code and Sections 1085 and 1094.5 of the Code of Civil Procedure.

SECOND CAUSE OF ACTION

Failure to Analyze Cumulative Impacts Violates CEQA

- 47. Petitioners re-allege and incorporate by reference the precedent paragraphs 1 to 46 in their entirety, as though fully set forth herein.
- 48. CEQA requires an agency to prepare an EIR for a project whenever substantial evidence in the record supports a fair argument that a project may have a significant impact on the environment.
- 49. CEQA requires a significant effect on the environment be found if the possible effects of a project are individually limited, but cumulatively considerable. Cumulatively [9373/002/01165554.DOCX]

considerable effects include past, current, and probable future projects. Failure to eliminate or avoid all potentially significant environmental impacts can invalidate an MND.

- 50. The County violated CEQA when it approved the Project before failing to adequately analyze the cumulative impacts of the Project. Together with the impacts of other past, current and future projects, the impacts of the Project make an incremental contribution and create a cumulatively considerable impact in violation of CEQA and CEQA Guidelines section 15130(a).
- 51. The County failed to provide any analysis of the cumulative impacts of the Project. There was no analysis of any other past, current, or future projects which could foreseeably contribute to the cumulative impacts of the Project. No substantial evidence has been presented that the Project will not result in significant cumulative impacts to the environment.
- 52. Therefore, there is a fair argument the incremental contributions of the Project will result in a cumulatively considerable condition resulting in a significant impact.
- 53. Respondents prejudicially abused their discretion by taking the above-described actions in violation of CEQA. Respondents failed to proceed in the manner required by law, and Respondents' decisions were not supported by substantial evidence in the record. Respondents further violated CEQA by failing to independently review and analyze the effects of their actions prior to approving and implementing those actions. The failure of Respondents to perform their duties under the law requires this Court to issue a writ of mandate directing them to discharge their duties under CEQA, pursuant to Sections 21080 and 21080.5 of the Public Resources Code and Sections 1085 and 1094.5 of the Code of Civil Procedure.

THIRD CAUSE OF ACTION

Piecemealing/Segmentation of Environmental Review in Violation of CEQA

54. Petitioners re-allege and incorporate by reference the precedent paragraphs 1 to 53 in their entirety, as though fully set forth herein.

28 /

///

{9373/002/01165554.DOCX}

///

{9373/002/01165554.DOCX}

. .

55. A project for CEQA purposes is "the whole of an action." An environmental review must encompass and consider the whole of the project, rather than only pieces at a time, prior to an agency approving or implementing any portion of the project or regulation.

- 56. The County simply presumed that potential impacts of the Project would be lessened or avoided through design features and project-specific actions, but did not in its approval of the Project actually require that the Project be designed in any particular way. This and other inadequacies of the Project description, mitigation measures, and impacts analysis require that the Project be refined and changed. The approval of the Project in its current form, without the required augmentations and additions, seeks to impermissibly piecemeal or segment environmental review.
- 57. The County also violated CEQA when it failed to require the applicant to disclose the location and potential impacts of the primary chipping process, including transportation of the material to the Project. Omission of ancillary but integral parts of the project obscures important impacts from the view of the public, in derogation of the informational purposes of CEQA. (Santiago Water Dist. v. County of Orange (1981) 118 Cal.App.3d 818, 830.)
- 58. Respondents prejudicially abused their discretion by taking the above-described actions in violation of CEQA. Respondents failed to proceed in the manner required by law, and Respondents' decisions were not supported by substantial evidence in the record. Respondents further violated CEQA by failing to independently review and analyze the effects of their actions prior to approving and implementing those actions.
- 59. Petitioners also have a clear, present, and beneficial interest in the issuance of a writ of mandate by virtue of the facts set forth in this Petition, in that they are and will continue to be adversely affected by Respondents' continuing violations of CEQA. The failure of Respondents to perform their duties under the law requires this Court to issue a writ of mandate directing them to discharge their duties under CEQA, pursuant to Sections 21080 and 21080.5 of the Public Resources Code and Sections 1085 and 1094.5 of the Code of Civil Procedure.

FOURTH CAUSE OF ACTION

Inadequate and Incomplete Project Description

- 60. Petitioners re-allege and incorporate by reference the precedent paragraphs 1 to 59 in their entirety, as though fully set forth herein.
- 61. To adequately and accurately assess the potential effects of any project, CEQA requires that the lead agency prepare a project description that includes reasonably foreseeable future activities that are consequences of the project. In addition, the entire project being proposed (and not some smaller aspect of it), must be described in the environmental document. The above requirements reflects the CEQA Guideline's definition of a "project" as the "whole of an action." (CEQA Guidelines, § 15378.)
- 62. The Initial Study and MND fail to provide an accurate and stable project description. After the Initial Study and MND were circulated for public review, changes were proposed which are required to bring review of the Project in compliance with CEQA. The failure to augment the Project Description in the ways necessary to bring the environmental document into compliance rendered the Project Description inadequate and unstable.
- 63. Further, the Initial Study and MND do not describe the whole of the action, but rather a future hypothetical facility that has not been specifically proposed. The Project itself is merely the issuance of a Major Use Permit, meaning that an applicant in the future could construct a vastly expanded facility without adequate operational measures. This is of particular concern because the applicant and the County made several representations about components of the Project that would purportedly lessen environmental impacts; however, most if not all of those representations were not incorporated into the Project approvals in a legally binding manner, such as mitigation measures or conditions of approval.
- 64. Further, the Project Description and the discussion of existing conditions/baseline are insufficient to fully and accurately analyze the environmental impacts of the Project. The Initial Study and MND do not adequately analyze crucial information, such as emissions generation by equipment used in the Project and impacts of the primary chipping process, and also fail to adequately discuss the baseline conditions in relation to the impacts of the Project.

{9373/002/01165554.DOCX}

- 65. By proceeding in this manner, Respondents failed to prepare a project description that includes reasonably foreseeable future activities that are consequences of the project, and also failed to describe the entire project being proposed.
- described actions in violation of CEQA. Respondents failed to proceed in the manner required by law, and Respondents' decisions were not supported by substantial evidence in the record. Respondents further violated CEQA by failing to independently review and analyze the effects of their actions prior to approving and implementing those actions. The failure of Respondents to perform their duties under the law requires this Court to issue a writ of mandate directing them to discharge their duties under CEQA, pursuant to Sections 21080 and 21080.5 of the Public Resources Code and Sections 1085 and 1094.5 of the Code of Civil Procedure.

FIFTH CAUSE OF ACTION

Failure to Analyze/Mitigate Significant Environmental Effects

- 67. Petitioners re-allege and incorporate by reference the precedent paragraphs 1 to 66 in their entirety, as though fully set forth herein.
- 68. CEQA requires a lead agency to first determine the full extent of a project's impacts before it may apply mitigation measures to reduce those impacts. A lead agency may not avoid analysis by simply presuming a design feature will be incorporated into the project to lessen an environmental effect, without any binding commitment to ensure the design feature will be implemented.
- 69. Following a full and adequate review of a project's potential environmental effects, the lead agency must bind itself and/or the applicant to ensure mitigation will actually occur through conditions of approval, contracts, or other methods. This requirement is intended to ensure that mitigation measures will actually be implemented, not merely adopted and then ignored.
- 70. In this case, the MND simply asserted the applicant would incorporate various design features into the Project that were intended to prevent the occurrence of or minimize the significance of adverse environmental effects. The MND then relied upon these alleged design

features to assert that the Project would not result in significant impacts as to, *inter alia*, air quality, aesthetics, agricultural resources, land use planning, and noise, without discussing the severity of the impact prior to mitigation, and without incorporating the alleged design features as *binding* mitigation measures.

- 71. By proceeding in this fashion, Respondents impermissibly (i) side-stepped analysis of the Project's potentially significant environmental effects, and (ii) failed to adopt binding mitigation necessary to ensure those effects would not occur. This is impermissible under CEQA. (Lotus v. Dept. of Trans. (2014) 223 Cal.App.4th 645, 651-52.)
- 72. Respondents also failed to require enforceable mitigation, instead relying upon mere non-binding statements about features that may or may not be incorporated into the Project.
- 73. Respondents also impermissibly deferred mitigation by waiting until after Project approval to formulate solutions for the Project's potential environmental impacts, in violation of CEOA. (CEQA Guidelines, § 15126.4(A)(1)(B).)
- 74. Respondents also adopted impermissibly vague mitigation measures that do not provide any standards against which to determine the efficacy or design or the proposed mitigation, in violation of CEQA.
- 75. Respondents also impermissibly adopted mitigation that is insufficient to reduce potential environmental effects to a less than significant level, contrary to CEQA's requirements.
- 76. Respondents prejudicially abused their discretion by taking the above-described actions in violation of CEQA. Respondents failed to proceed in the manner required by law, and Respondents' decisions were not supported by substantial evidence in the record. Respondents further violated CEQA by failing to independently review and analyze the effects of their actions prior to approving and implementing those actions. Respondents' failure to perform their duties under the law requires this Court to issue a writ of mandate directing them to discharge their duties under CEQA, pursuant to Sections 21080 and 21080.5 of the Public Resources Code and Sections 1085 and 1094.5 of the Code of Civil Procedure.

27 | ///

28 | /

| 1 | |
|----|----|
| 2 | |
| 3 | |
| 4 | in |
| 5 | |
| 6 | be |
| 7 | N |
| 8 | w |
| 9 | th |
| 10 | 9 |
| 1 | |
| 12 | fi |
| 13 | (2 |
| 14 | |
| 15 | th |
| 16 | |
| 17 | |
| 18 | ĺ |
| 19 | |
| 20 | |
| 21 | |
| 22 | |
| 23 | |
| 24 | |

SIXTH CAUSE OF ACTION

Inconsistency with the Lake County General Plan

- 77. Petitioners re-allege and incorporate by reference the precedent paragraphs 1 to 76 in their entirety, as though fully set forth herein.
- 78. State planning and zoning law requires that all land-use decisions of counties must be consistent with the county's General Plan. (Govt. Code, § 65860, subd. (a); see also Corona-Norco Unif. Sch. Dist. v. City of Corona (1993) 17 Cal.App.4th 985, 994.) A "project is consistent with the general plan if, considering all its aspects, it will further the objectives and policies of the general plan and not obstruct their attainment." (Corona-Norco, supra, 17 Cal.App.4th at 994.)
- 79. "A project is inconsistent if it conflicts with a general plan policy that is fundamental, mandatory, and clear." (Endangered Habitats League, Inc. v. County of Orange (2005) 131 Cal.App.4th 777, 782.)
- 80. Despite this requirement, the Project is inconsistent with numerous provisions of the Lake County General Plan in the following ways:
 - a. The Project discourages, diminishes, and undermines agriculture and agricultural tourism, and in particular the wine industry.
 - b. The Project diminishes and undermines existing quality of life standards, particularly to nearby residents and businesses, due to noise, dust migration, aesthetic impacts, and other issues.
 - c. The Project fails to direct growth toward existing communities, thereby failing to preserve open space because it will result in an industrial use in an otherwise bucolic area.
 - d. The Project is incompatible with adjacent residential, commercial, and agricultural uses.
 - e. The Project fails to contemplate any agricultural buffers or setbacks.

///

25

26

27

28

{9373/002/01165554.DOCX}

| - 1 | | |
|-----|--------------------------|---|
| 1 | _ f . | The Project contemplates an industrial facility on land not |
| 2 | | otherwise designated for such uses. |
| 3 | g. | The Project contemplates access from a residential area. |
| 4 | h. | The Project fails to be permitted under a planned development |
| 5 | | process, though the property is over five acres in size. |
| 6 | i. | The Project is not a high-quality development that will entice |
| 7 | | visitors, businesses, and permanent residents to the area; rather, it |
| 8 | | will undermine such attractive features. |
| 9 | j. | Placing an industrial land use in the middle of vineyards and |
| 10 | | tasting rooms is inconsistent with community pride and reliance |
| 11 | | upon the continued success of the wine industry. |
| 12 | k. | The industrial facility will interfere with visual access to the |
| 13 | | hillsides, vineyards, and other distinctive natural areas. |
| 14 | 1. | The Project does not contemplate adequate screening of the |
| 15 | | facility, including visual impacts. |
| 16 | m. | There is nothing in the Project approval to ensure code |
| 17 | | enforcement will ensure any nuisances are abated. |
| 18 | n. | The Project will lessen the value of, and undermine, the Red Hills |
| 19 | | AVA. In addition, operations at the project site have already |
| 20 | | interfered with nearby commercial and residential uses. |
| 21 | o. | To the extent the Project could be considered to include an electric |
| 22 | >1 | facility, the facility would not be appropriately sited to minimize |
| 23 | | environmental and other impacts. |
| 24 | p. | The Project does not contemplate the paving of all internal roads |
| 25 | | used by trucks. In addition, there is a significant likelihood of |
| 26 | | continued dust associated with the Project. |
| 27 | q. | The Project does not contemplate adequate dust suppression |
| 28 | | measures. |
| | (0272/002/01165554 DOCY) | 19 |

VERIFIED PETITION FOR WRIT OF MANDATE AND COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

| 1 | r. | The Project would not shield residents, employees, and visitors |
|----|-------|--|
| 2 | 90 | from excessive noise. |
| 3 | S. | The Project would result in impacts to sensitive receptors that |
| 4 | | would exceed identifies thresholds. |
| 5 | t. | The Project would result in impacts to sensitive receptors that |
| 6 | | would exceed identifies thresholds. |
| 7 | u. | The Project does not include any abatement for transportation |
| 8 | | noise, including noise associated with heavy vehicles. Nor are any |
| 9 | | of the mitigation measures in this policy required to be |
| 10 | | implemented. |
| 11 | v. | The Project does not endeavor to reduce or minimize lighting |
| 12 | | impacts to nearby uses, including residential uses and tasting |
| 13 | | rooms. |
| 14 | w. | The Project does not contemplate sufficient landscaping to shield |
| 15 | | the development from the scenic roadway or nearby tasting rooms. |
| 16 | x. | Although S.R. 29 is a designated scenic roadway, the Project |
| 17 | · iii | contemplates an industrial development along the parcel abutting |
| 18 | | the roadway. |
| 19 | y. | Rather than using new technologies to curb environmental |
| 20 | | impacts, the Project relies upon wood-chipping that causes dust |
| 21 | | migration and health hazards for nearby residents. |
| 22 | z. | This energy Project would result in adverse environmental |
| 23 | | impacts. |
| 24 | aa. | No buffers have been suggested between the Project and |
| 25 | | agricultural land uses. |
| 26 | bb. | This Project contemplates the extension of utilities, including |
| 27 | | electricity generation, into agricultural areas. |
| 28 | /// | |

| cc. | It does not promote | agriculture | or | economic | development | of |
|-----|------------------------|-------------|----|----------|-------------|----|
| | agriculture in any way | | | | | |

81. Respondents prejudicially abused their discretion by taking the above-described actions in violation of CEQA and the County of Lake General Plan. Respondents failed to proceed in the manner required by law, and Respondents' decisions were not supported by substantial evidence in the record. Respondents further violated CEQA by failing to independently review and analyze the effects of their actions prior to approving and implementing those actions. Pursuant to section 65000, et seq., of the Government Code, Petitioners are entitled to petition this Court for a writ of mandate enjoining Respondents to comply with State Planning and Zoning Law.

SEVENTH CAUSE OF ACTION

Inconsistency with the Rivieras Area Plan

- 82. Petitioners re-allege and incorporate by reference the precedent paragraphs 1 to 81 in their entirety, as though fully set forth herein.
- 83. State planning and zoning law requires that all land-use decisions of counties must be consistent with the county's plan-level documents, including specific, community, and area-level plans. (See, e.g., Govt. Code, § 65860, subd. (a); see also Corona-Norco Unif. Sch. Dist. v. City of Corona (1993) 17 Cal.App.4th 985, 994.) A "project is consistent with the general plan if, considering all its aspects, it will further the objectives and policies of the general plan and not obstruct their attainment." (Corona-Norco, supra, 17 Cal.App.4th at 994.)
- 84. "A project is inconsistent if it conflicts with a general plan policy that is fundamental, mandatory, and clear." (Endangered Habitats League, Inc. v. County of Orange (2005) 131 Cal.App.4th 777, 782.) Despite this requirement, the Project is inconsistent with the Rivieras Area Plan in the following ways:
 - a. The Project contemplates an industrial land use adjacent to agricultural and agri-tourism uses, thus undermining those uses.
 - b. No buffer zones were incorporated into this Project, involving adjoining dissimilar uses, to reduce land use conflicts.

| 1 | c. | The Project is not a low density use. |
|----|--------------------------|---|
| 2 | d. | The Project is a new non-agricultural uses in an agricultural area |
| 3 | | that can interfere with normal agricultural operations and its |
| 4 | | necessary accessory uses. The Project interferes directly with |
| 5 | | those uses through dust and pathogen migration, as well as |
| 6 | | interfering with agri-tourism and tasting rooms. |
| 7 | e. | The Project fails to protect and enhance scenic resources in the |
| 8 | | Rivieras Planning Area and promote a visually appealing |
| 9 | | environment by placing an industrial facility near a scenic |
| 10 | | roadway, and in a place where it can be visible from, and on the |
| 11 | | way toward, tasting rooms. |
| 12 | f. | The Project does not maintain the rural character of the planning |
| 13 | | area. |
| 14 | g. | The Project contemplates above-ground facilities where it is |
| 15 | | feasible to construct underground utilities. |
| 16 | h. | The industrial facilities interfere with the rural vista, both from the |
| 17 | | scenic roadway, as well as nearby tasting rooms. |
| 18 | i. | The Project is not designed to relate to the dominant character of |
| 19 | | the corridor, or of the particular segment of the corridor, through |
| 20 | | regulations concerning building form, site location and density of |
| 21 | | use. |
| 22 | j. | The Project does not incorporate the highest architectural, |
| 23 | | functional, cost-effective, and environmental quality design. |
| 24 | k. | The Project does not protect the health of residents of the Rivieras |
| 25 | X | Planning Area from poor or diminished air quality. Wood |
| 26 | | chipping operations have interfered with the health of nearby |
| 27 | | residents and employees. The Project contemplates that those |
| 28 | | activities would be permitted, continue, and promoted. |
| | {9373/002/01165554.DOCX} | 21 |

VERIFIED PETITION FOR WRIT OF MANDATE AND COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

FOR DECLARATORY AND INJUNCTIVE RELIEF

3

4

5

///

and general welfare of the persons residing or working in the neighborhood of such proposed use, or be detrimental to the property and improvement in the neighborhood or the general welfare of the County." (Lake County Zoning Ordinance, Art. 51, § 21-51.4) The findings also require assurances of public safety, consistency with the General Plan, and confirmation that no code violations exist.

- 91. As a result of the various violations of CEQA, State Planning and Zoning Law, the Lake County General Plan, the Rivieras Area Plan, and the Lake County Ordinance Code, (see generally, supra) the County cannot make the findings required under its own regulations to approve the Project. The failure of the Board to fully analyze the environmental impacts of the Project precludes its ability to determine with certainty that the Project's impacts on the air quality, noise, aesthetics, land use planning, and agricultural resources will not "be detrimental to the health, safety, morals, comfort and general welfare of the persons residing or working in the neighborhood of such proposed use, or be detrimental to the property and improvement in the neighborhood or the general welfare of the County." (Id.)
- 92. Pursuant to section 65000, et seq., of the Government Code, Petitioners are entitled to petition this Court for a writ of mandate enjoining Respondents to comply with State Planning and Zoning Law.

NINTH CAUSE OF ACTION

Declaratory Relief

- 93. Petitioners re-allege and incorporate by reference the precedent paragraphs 1 to 92 in their entirety, as though fully set forth herein.
- 94. With respect to the violations of law alleged in the First through Eighth Causes of Action, there exists a clear and actual controversy between Petitioners and Respondents regarding Respondents' failures to comply with CEQA, the Lake County General Plan, the Rivieras Area Plan, and the Lake County Ordinance Code. Petitioners contend that Respondents have not complied with CEQA, the CEQA Guidelines, the Lake County General Plan, the Rivieras Area Plan, and Lake County Ordinance Code, while Respondents contend that they have done so.

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

111

| |) st | | | |
|-----|---------------------------------|------------------------|---|--|
| ĭ | 6 . | For Petitioners' attor | neys' fees under Code of Civil Procedure Section 1021,5 and | |
| 2 | other applicable authority; and | | | |
| 3 | 7. | For such other relief | that the Court deems just and proper under California law. | |
| 4 | DATED; | OCTOBER 21, 2020 | WANGER JONES HELSLEY PC | |
| 5 | | | By Part Horlankinsey | |
| 6 | | | John P. Kinsey, | |
| 7 | | | Attorney for Petitioners and Plaintiffs, Citizens for Environmental Protection and | |
| 8 | | | Responsible Planning, Clint Nelson, and Matt Walter | |
| 9 | | | intair mairici | |
| 10 | | | | |
| 11. | | (A) | | |
| 12 | | | 5 | |
| 13, | | | | |
| 14 | | | a second | |
| 15 | | | | |
| 16 | | | | |
| 1,7 | | | | |
| 18 | | | | |
| 19 | | | | |
| 20 | | | | |
| 21 | | | | |
| 22 | | | | |
| 23 | | | | |
| 24 | | | | |
| 25 | | | | |
| 26 | | | | |
| 27 | | | | |
| 28 | 1 | | | |

VERIFICATION [CCP §§ 446, 1096]

I, <u>CLIMINELSON</u>, am the <u>PRESIDENT</u> of Citizens for Environmental Protection and Responsible Planning, a petitioner and plaintiff in this action. I am authorized to execute this verification on behalf of Citizens for Environmental Protection and Responsible Planning.

I have read the foregoing Verified Petition for Writ of Mandate and Complaint for Declaratory and Injunctive Relief (the "Petition"), and am familiar with its contents.

All facts alleged in the Petition are either true of my own knowledge, or as I am informed and believe them to be true, and on that basis allege them to be true.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed this 21st day of October, 2020, in Lecsevous, California.

VERIFICATION [CCP §§ 446, 1096]

I, Clint Nelson, am a petitioner and plaintiff in this action. I have read the foregoing Verified Petition for Writ of Mandate and Complaint for Declaratory and Injunctive Relief (the "Petition"), and am familiar with its contents.

All facts alleged in the Petition are either true of my own knowledge, or as

I am informed and believe them to be true, and on that basis allege them to be true.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed this 21st day of October, 2020, in Lessantes California.

Clint Nelson

VERIFICATION [CCP §§ 446, 1096]

I, Matt Walter, am a petitioner and plaintiff in this action. I have read the foregoing Verified Petition for Writ of Mandate and Complaint for Declaratory and Injunctive Relief (the "Petition"), and am familiar with its contents.

All facts alleged in the Petition are either true of my own knowledge, or as

I am informed and believe them to be true, and on that basis allege them to be true.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed this 21st day of October, 2020, in St. Heles A California.

Matt Walter

VERIFIED PETITION FOR WRIT OF MANDATE AND COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

Exhibit "A"

WANGER JONES HELSLEY PC

265 E. RIVER PARK CIRCLE, SUITE 310 FRESNO, CALIFORNIA 83720

ÓLIVER W. WANGER TIMOTHY JONES' MICHAEL S. HELBLEY RILEY C. WALTER PATRICK D. TOOLE SCOTT D: LAIRD JOHN P. KINBEY KURT F. VOTE TROY T. EWELL JAY A. CHRISTOFFERSON MARISA L. BALCH AMANDA G. HEBESHA .. PETER M. JONES *** MICHAEL L. WILHELM ... STEVEN M. CRASS*** DEBORAH K. BOYETT STEVEN K. VOTE GIULIO A. SANCHEZ CHRISTOPHER A. LISIESKI**** BENJAMIN C. WEST HUNTER C. CASTRO IRIS C. CHIU STEPHANIE M. HOSMAN

MAILING ADDRESS
POST OFFICE BOX 28340
FRESNO, CALIFORNIA 93729

TELEPHONE (558) 233-4800 FAX (558) 233-9330



OFFICE ADMINISTRATOR

Writer's E-Mail Addrées: jkinsey@wjhatterneys.com

Website: www.wjhattorneys.com

Also educated to Weakingto
Also admitted to Idaho
GI Counce!
Also admitted to Vergenta

October 20, 2020

VIA E-MAIL johanna.peelen@lakecountyca.gov & U.S. MAIL

Board of Supervisors
COUNTY OF LAKE
c/o Johanna Peelen
Clerk to the Board of Supervisors
255 N. Forbes Street
Lakeport, CA 95453

Re: Notice of Intent to Sue: September 15, 2020 denial of appeal and approval of Mitigated Negative Declaration ("MND") for Initial Study IS 19-09, and the related approval of Major Use Permit UP 19-05

Dear Hon. Members of the Board of Supervisors:

PLEASE TAKE NOTICE that, pursuant to Section 21167.5 of the Public Resources Code, on or about October 20, 2020, Petitioners and Plaintiffs Citizens for Environmental Protection and Responsible Planning, Clint Nelson, and Matt Walter (collectively "Petitioners") will file a Petition for Writ of Mandate and Complaint (the "Petition") in Lake County Superior Court challenging the actions of Respondents and Defendants the County of Lake and the Lake County Board of Supervisors (collectively, "Respondents") pursuant to the California Environmental Quality Act, Public Resources Code section 21000 et seq. ("CEQA").

Petitioners' allegations are in regards to the September 15, 2020, decision of the Lake County Board of Supervisors (the "Board) to deny the appeal of Petitioners, adopt a Mitigated Negative Declaration ("MND") for Initial Study IS 19-09, and approve Major Use Permit UP 19-05 for a bioenergy production facility (collectively, the "Project") at the southeast corner of State Route 29 and Red Hills Road. Respondents violated CEQA by, inter alia, failing

WANGER JONES HELSLEY PC

Board of Supervisors COUNTY OF LAKE c/o Johanna Peelen October 20, 2020 Page 2

to proceed in the manner required by law, failing to support their findings by substantial evidence, and relying upon a mitigated negative declaration notwithstanding substantial evidence supporting a fair argument that the Project would result in significant environmental effects. The Petition also alleges the Project is inconsistent with multiple provisions of the Lake County General Plan, The Rivieras Area Plan, and the Lake County Zoning Ordinance.

Should you have any questions, please do not hesitate to contact me.

John P. Kinsey

Very truly yours;

JPK/jb

PROOF OF SERVICE

My business address is 265 E. River Park Circle, Suite 310, Fresno, California 93720. I am employed in Fresno County, California. I am over the age of 18 years and am not a party to this case.

On the date indicated below, I served the foregoing document(s) described as NOTICE OF INTENT TO SUE: September 15, 2020 denial of appeal and approval of Mitigated Negative Declaration ("MND") for Initial Study IS 19-09, and the related approval of Major Use Permit UP 19-05 on all interested parties in this action by placing a true copy thereof enclosed in sealed envelopes addressed as follows:

Clerk to the Board of Supervisors 255 N. Forbes Street Lakeport, CA 95453 Email: johanna.peelen@lakecountyca.gov I am readily familiar with the business' practice for collection and (BY MAIL) processing of correspondence for mailing, and that correspondence, with postage thereon fully prepaid, will be deposited with the United States Postal Service on the date noted below in the ordinary course of business, at Fresno, California. (BY PERSONAL SERVICE) I caused delivery of such envelope(s), by hand, to the office(s) of the addressee(s). (BY E-MAIL or ELECTRONIC FILING/SERVICE) C.C.P. § 1010.6 and California Rules of Court, Rule 2.251. Based upon a Court Order, Local Rules of Court, or an agreement of the parties to accept service by e-mail or electronic transmission, I caused the documents to be sent to the person(s) listed above through OdysseyeFileCA for service on the parties listed above who are signed up for electronic service. I did not receive, within a reasonable time after the transmission, any electronic message or other indication that the transmission was unsuccessful. I caused the above-referenced envelope(s) to be (BY OVERNIGHT COURIER) delivered to an overnight courier service for delivery to the addressee(s).

(STATE) -I-declare under penalty of perjury under the laws of the State of California

EXECUTED ON October 20, 2020, at Fresno, California.

that the foregoing is true and correct.

Board of Supervisors COUNTY OF LAKE c/o Johanna Peelen

Belinda Ordway

From:

Belinda Ordway

Sent:

Tuesday, October 20, 2020 1:53 PM

To:

'johanna.peelen@lakecountyca.gov'

Cc:

John Kinsey; Joshua Bailey

Subject:

Notice of Intent to Sue

Attachments:

Board. Notice of Intent to Sue (01165037).pdf

Good afternoon,

Attached please find a Notice of Intent to Sue: September 15, 2020, denial of appeal and approval of Mitigated Negative Declaration for Initial Study IS 19-09, and the relating approval of Major Use Permit UP 19-05. Should you have any questions, please contact Mr. Kinsey directly at the below number. Original letter to follow via U.S. Mail.

Belinda Ordway, Legal Assistant to: Timothy Jones John P. Kinsey Calendar Clerk WANGER JONES HELSLEY PC

265 E. River Park Circle, Suite 310

Fresno, California 93720

Phone: (559) 233-4800, Ext. 268 / Fax: (559) 233-9330

Website: www.wjhattorneys.com

This e-mail (including any attachments) is intended for use by the addressee(s) and may contain attorney-client privileged and/or company confidential information. Do not copy, forward or distribute this e-mail without permission. If you are not the intended recipient of this e-mail, you are hereby notified that any copying, forwarding or distribution of the e-mail is prohibited. If you have received this e-mail in error, please notify me immediately and permanently delete the e-mail from your computer and destroy any printout.

To ensure compliance with requirements imposed by the IRS, we inform you that any U.S. federal tax advice contained in this communication (including any attachments) is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding penalties under the Internal Revenue Code or (ii) promoting, marketing or recommending to another party any transaction or matter addressed herein.

VERIFIED PETITION FOR WRIT OF MANDATE AND COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

Exhibit "B"

| | | ************************************** | | |
|----|--|--|--|--|
| 1 | WANGER JONES HELSLEY PC 265 E. River Park Circle, Suite 310 | | | |
| 2 | Fresno, California 93720 Telephone: (559) 233-4800 | | | |
| 3 | Facsimile: (559) 233-9330 | | | |
| 4 | John P. Kinsey # 215916 | | | |
| 5 | E-mail: jkinsey@wjhattorneys.com | | | |
| 6 | Attorneys for: Petitioners and Plaintiffs Citizens for Environmental Protection and Responsible Planning, Clint Nelson and Matt Walter | | | |
| 7 | Responsible Planning, Clint I | Neison and Mait Walter | | |
| 8 | SUPERIOR COUR | RT OF CALIFORNIA | | |
| 9 | COUNTY OF LAKE, | CLEARLAKE DIVISION | | |
| 10 | | | | |
| 11 | CITIZENS FOR ENVIRONMENTAL PROTECTION AND RESPONSIBLE | Case No. | | |
| 12 | PLANNING, an unincorporated association, | NOTICE OF ELECTION TO | | |
| 13 | CLINT NELSON, an individual and MATT WALTER, an individual, | PREPARE RECORD OF ADMINISTRATIVE PROCEEDINGS | | |
| 14 | Petitioners and Plaintiffs, | Petition filed: October 21, 2020 | | |
| 15 | 1 officionors and 1 minimus, | , | | |
| 16 | V. | | | |
| 17 | COUNTY OF LAKE; THE LAKE COUNTY BOARD OF SUPERVISORS | | | |
| 18 | and DOES 1 through 10, inclusive, | | | |
| 19 | Respondents and Defendants. | 2 | | |
| 20 | | | | |
| 21 | THOMAS JORDAN, and DOES 11 through 20, inclusive, | | | |
| 22 | Real Party In Interest. | | | |
| 23 | Real Faity III Interest. | | | |
| 24 | | | | |
| 25 | · · | | | |
| 26 | | | | |
| 27 | <i> </i> | | | |
| 28 | | | | |
| | {9373/002/01164165.DOC} | Ī | | |
| | NOTICE OF ELECTION TO PREPARE RE | CORD OF ADMINISTRATIVE PROCEEDINGS | | |

Pursuant to Section 21167.6 of the Public Resources Code, Petitioners CITIZENS FOR ENVIRONMENTAL PROTECTION AND RESPONSIBLE PLANNING, CLINT NELSON, an individual, and MATT WALTER, an individual (collectively, "Petitioners") hereby notify the COUNTY OF LAKE and the LAKE COUNTY BOARD OF SUPERVISORS (collectively, "Respondents") of Petitioners' election to prepare the administrative record of proceedings in this action. WANGER JONES HELSLEY PC Dated: October 21, 2020 By: Attorneys for Petitioners and Plaintiffs Citizens for Environmental Protection and Responsible Planning, Clint Nelson and Matt Walter

Attachment N



June 08, 2023

ADDENDUM TO THE MITIGATED NEGATIVE DECLARATION IS 19-09 RED HILLS BIOENERGY PROJECT

7130 Red Hills Rd, Kelseyville, CA

CEQANET ID: https://ceqanet.opr.ca.gov/2020010407/2

PROJECT SUMMARY: The applicant, Scotts Valley Energy Corporation is proposing changes to the previously approved Initial Study IS 19-09, for Use Permit UP 19-05, which allows for the construction and operation of a small-scale bioenergy production facility using woody biomass to produce syngas and biochar, heretofore known as the "Approved Project." The revised footprint will entail the original 40' x 50' building, relocated 40 feet further east of Red Hills Road, the elimination of the 28,000 square foot outdoor biomass processing area, as well as the elimination of the section of the lane and turn around located on the east side of this processing/storage area heretofore known as the "Revised Project"

TABLE OF CONTENTS

| l. | INTRODUCTION | 1 |
|----|---|------|
| ١. | Project Information 1 PROJECT DESCRIPTION | 2 |
| | PROJECT LOCATION 2 PROJECT BACKGROUND 2 Entitlement History | 2 |
| | Description of the Approved Project Presented in the MND | 2 |
| | ADDENDUM CHARACTERISTICS 3 | |
| | Proposed Modifications | |
| | RATIONALE FOR ADDENDUM | |
| II | I. ENVIRONMENTAL IMPACT ANALYSIS | 8 |
| | AESTHETICS 9 Approved Project | 9 |
| | Revised Project | |
| | AIR QUALITY 11 | |
| | Revised Project | 12 |
| | CULTURAL RESOURCES 12 | 40 |
| | Approved Project | |
| | Revised Project | 12 |
| | GEOLOGY AND SOILS 13 Approved Project | 13 |
| | Revised Project | 13 |
| | HAZARDS AND HAZARDOUS MATERIALS 14 | |
| | Approved Project | |
| | Revised Project | 15 |
| | HYDROLOGY 15 | 4 - |
| | Approved Project | |
| | Revised Project | 16 |
| | NOISE 16 Approved Project | 16 |
| | Revised Project | |
| | TRIBAL CULTURAL RESOURCES 17 | • |
| | Approved Project | 17 |
| | Approved Project Error! Bookmark not defin | ned. |
| | Revised Project | 18 |
| | WILDFIRE 18 | |

| Approved Project | 18 |
|--|--------------------------------|
| Revised Project | 19 |
| Source: Scotts Valley Energy Corporation, 2023 | . Error! Bookmark not defined. |
| FIGURE 2. REVISED PROJECT SITE PLAN | Error! Bookmark not defined. |

LIST OF ACRONYMS

CERS California Electronic Reporting System

CEQA California Environmental Quality Act

CH Highway Commercial

D Areas of undetermined, but possible, flood hazard risk

EIR Environmental Impact Report

LED Light Emitting Diode

LCAQMD Lake County Air Quality Management District

LCEH Lake County Department of Environmental Health

MND Mitigated Negative Declaration

PG&E Pacific Gas and Electric

RL Rural Lands

RR Rural Residential

SVBPI Scotts Valley Band of Pomo Indians

SWPP Storm Water Protection Plan

SWRCB State Water Resources Control Board

USDA United States Department of Agriculture

UP Use Permit

X Areas of minimal flooding

I. INTRODUCTION

This section provides introductory information such as the Revised Project title, the applicant, and the lead agency.

The purpose of this Addendum is to address the potential environmental impacts of the relocation and reduction of the project within the previously assessed and adopted site footprint. Pursuant to Section 15164 of the State CEQA Guidelines, the lead agency or responsible agency shall prepare an addendum to a previously approved environmental document if some changes or additions are necessary but none of the conditions described in Section 15162 calling for the preparation of a new or expanded MND have occurred. The scope of this addendum focuses on the environmental effects that are associated with the reduction and minor changes in project area and activities, as well as a relocation of the project 40 feet further east of Red Hills Road or approximately 180 feet from said road.

PROJECT INFORMATION

Contact Person:

Lead Agency Name and Address: County of Lake

Community Development Department

Courthouse, 3rd Floor, 255 North Forbes Street

Lakeport, CA 95453 Katherine Schaefers,

Resource Planner

(707) 263-2221

Applicant: Scotts Valley Energy Corporation Project Location(s): 7130 Red Hills Rd, Kelseyville, CA

APN: 009-021-07

Project Name & Address: Scotts Valley Energy Corporation

1005 Parallel Drive, Lakeport, CA

General Plan Designation: RL; Rural Lands

Zoning: Split Zoned: "RR", "SC" "CH"; Rural Residential

- Scenic Combining- Highway Commercial

Supervisor District: District 5

Flood Zone: "D": Areas of undetermined, but possible, flood

hazard risk; "X" Areas of minimal flooding – not

in a special flood hazard area

Fire Hazard Severity Zone: Moderate Risk (Project Site), Very High Risk

Earthquake Fault Zone: None

Dam Failure Inundation Area: Not located within Dam Failure Inundation Area

Parcel Size: Approximately 34.58 acres

PROJECT DESCRIPTION

This section provides a detailed description of the Revised Project, including Project characteristics and environmental review requirements.

PROJECT LOCATION

The Project Site is located at 7130 Red Hills Road, approximately six miles east of the town of Kelseyville, on the southeast corner of the intersection of State Highway 19 and Red Hills Rd, approximately 900 feet south of the intersection.

PROJECT BACKGROUND

Entitlement History

Pursuant to the California Environmental Quality Act (CEQA), a Mitigated Negative Declaration was prepared for the Red Hills BioEnergy Project, UP 19-05; IS 19-09 by the published on January 27, 2020 County of Lake and https://ceqanet.opr.ca.gov/2020010407/2). The County of Lake Planning Commission approved the Project on April 23, 2020. The Project was subsequently appealed to the Lake County Board of Supervisors (AB 20-01), who then approved the Project on August 18, 2020. The Project's CEQA determination was then challenged in the Superior Court of California, wherein all parties reached an agreement that necessitated minor project changes, and additional Conditions of Approval. The applicant has resubmitted their permit for an Amendment to their Approved Project under Article 60.3 Chapter 21 of the Lake County Ordinance, with the project changes included in the project description and site plan.

Description of the Approved Project Presented in the MND

The applicant is requesting approval of a major use permit (UP 19-05) to allow for the development of a small-scale bioenergy production facility using woody biomass to produce syngas and biochar. The syngas will power the generators that run the system. Biochar is a by-product of the bioenergy process that functions as an agricultural or forestry soil amendment. The total footprint of the Project is 43,350 sf, which includes:

- Removal of 25 walnut trees (including 5 dead trees or stumps), grass and brush;
 and minor grading of ~45 cubic yards for site preparation; no import/export of soils;
- 2,000-sf (40 ft x 50 ft), six-inch deep concrete pad to house the bioenergy equipment (production plant pad), offset 140 ft from the edge of Red Hills Road (County road);
- Production Plant: two (2) fully0automated Omni BioEnergy Aris 100kW gassifiers and two (2) electrical generators fueled by the syngas generated by the plant that will operate 24 hours per day/days per week except for maintenance;
- 16-ft high, 2,000 sf metal building enclosing the production plant, with gutters and downspouts draining to a French drain system around the pad that will discharge into a rock energy dissipator in the field;

- 20-ft wide gravel road around the perimeter of the pad;
- 8-ft high chain link fence around the gravel perimeter of the pad with lockable gates on the east and south sides;
- 28,000-sf permeable outdoor storage area on the east side of the production plant to receive, process and store woody feedstock into ¼-inch wood chips, including a front-end loader, chipper, hammermill, and an enclosed-bed truck; surfaced with wood chips;
- (2) 20-ft wide lanes on two sides of the storage area with a hammerhead "T" to allow delivery trucks to turn around;
- Connection to 240v/three-phase/100-amp overhead electrical service from PG&E at utility pole located on Red Hills Road;
- Downcast, exterior LED lighting for the building; up to four (4) new light posts consistent with existing light posts on the property; and
- 2-5 deliveries of feedstock daily, Monday Friday; less frequent outgoing deliveries of biochar.

ADDENDUM CHARACTERISTICS

An Addendum has been prepared to assess the proposed minor technical changes and modifications to the MND. All information presented below represents only minor changes to the Approved Project, or helps clarify, amplify, or make insignificant minor technical modifications to the MND. As discussed in the following sections, the new information is not considered "significant" pursuant to CEQA, and recirculation or preparation of a new formal environmental document are not required (see Guidelines Section 15088.5). Aside from the proposed modifications described below, all other impact analyses and associated mitigation measures proposed within the MND would remain unchanged.

Proposed Modifications

The applicant, Scotts Valley Energy Corporation is proposing changes to the previously approved Initial Study IS 19-09 for Use Permit UP 19-05 which allows for the construction and operation of a small-scale bioenergy production facility using woody biomass to produce syngas, a fuel/gas mixture used in creating synthetic natural gas or for producing ammonia or methanol, and biochar, a by-product of the bionenergy process that functions as an agricultural or forestry soil amendment. The location of the operational facility or building will be relocated approximately 40 feet further east of Red Hills Road or at a distance of approximately 180 feet. This relocation is proposed in order to reduce sound transmission to the residential neighbor to the west, and still operate within the county established noise standards for the commercial neighbor to the east. The Project area will encompass not more than 15,000 square feet, or approximately 28, 350 square feet less than the original permitted footprint of 43,350 square feet. This reduction occurs with the elimination of the wood processing and storage area plus the elimination of the section of the lane and turn around located on the east side of this processing/storage area. The revised footprint will entail the original 40' x 50' building with a 40' open space on the north and west sides, 20' space on the south side that is set 20' back from the interior road, and around 60' on the east side. Figure I provides the location of the Approved

Project site footprint and details of the project area. Figure II provides the location of the Revised Project site footprint, and project area.

Scotts Valley Band of Fome Indians
Size Plans
Major University Size Plans
Major Univer

Figure 1. Approved Project Site Plan, 2020

Scotts Valley Energy Corporation, LLC, 2020



Figure 2. Revised Project Site Plan, 2023

Scotts Valley Energy Corporation, LLC, 2023

Location

The location of the operational facility or building will be relocated approximately 40 further east, or at a distance of approximately 180 feet from Red Hills Road

Project Area

The Revised Project area will encompass not more than 15,000 square feet or approximately 28,350 square feet less than the original permitted footprint of 43,350 square feet. This reduction occurs with the elimination of the wood processing and storage area plus the elimination of the section of the lane and turn around located on the east side of this processing/storage area. The 40' x 50' building from the Approved Project would be relocated to ensure a buffer of 40' of open space on the north and west sides, a 20' buffer of open space on the south side (and to the interior roadway), and a 60' buffer on the east side.

<u>Fencing</u>

The wood-slatted chain link fence of the Approved Project will be reduced to 500 linear feet, while still maintaining a constant 21' distance from the 40' x 50' building. The fence will no longer encompass the outdoor Biomass storage and processing area, which has been eliminated in this project revision.

Biomass Transport and Dust

In the Approved Project, 2-5 trucks/day bearing processed and unprocessed woody biomass would arrive at the site to be chipped into 1/4 -inch wood chips by a hammermill and chipper located in the 28,000-sf outdoor processing area. The chips would then be transferred to the indoor processing plant within the 40' x 50' building, where they would be converted into syngas and biochar.

In the Revised Project, with the elimination of the outdoor processing area, only indoor processing would remain. Biomass material deliveries will occur no more frequently than one truck load per day, which is a specified change from the Approved Project's approximated 2-5 deliveries of chipped and unchipped material per day. The biomass will be transported to the project site via a truck pulling a 28' trailer. The trailer will be covered in accordance with the California Motor Vehicle Code Sections 23114 and 23115 in order to prevent dust and material leaving the trailer while in transport.

Woody Biomass

Under the Revised Project, each truck trailer loaded with biomass will be backed in and material unloaded within the building's structure. The biomass will then be unloaded and transferred to the Artis unit's hopper via a pneumatic-operated system. The change from the Approved Project comes in the elimination of outdoor feedstock preparation in the form of unchipped material running through a diesel or electric-powered chipper, and then through an electric-powered hammermill before transferring to the indoor Artemis hopper. Thereafter, the Artis system's pyrolysis/gasification technology under the Approved Project remains the same.

II. RATIONALE FOR ADDENDUM

This section contains the rationale for preparing an Addendum pursuant to Section 15164 of the State CEQA Guidelines.

There are several mechanisms, and variations in environmental documents that can be tailored to different situations and intended uses of environmental review. Specifically, Section 15164 states, in part, that:

(a) The lead agency or a responsible agency shall prepare an addendum to a previously certified MND if some changes or additions are necessary but none of the conditions described in Section 15162 calling for a preparation of a subsequent MND have occurred.

- (b) An addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred.
- (c) An addendum need not be circulated for public review but can be included in or attached to the final EIR or adopted negative declaration.
- (d) The decision-making body shall consider the addendum with the final EIR or adopted negative declaration prior to making a decision on the project.
- (e) A brief explanation of the decision not to prepare a subsequent MND pursuant to Section 15162 should be included in an addendum to an MND, the lead agency's findings on the project, or elsewhere in the record. The explanation must be supported by substantial evidence.

Here, the County has opted to prepare an Addendum to assess the minor modifications of the Project that have transpired since preparation of the MND. Section 15162 of the CEQA Guidelines provides the criteria for preparing a Subsequent EIR or Negative Declaration. Specifically, a Subsequent EIR or Subsequent Negative Declaration ("ND" or "MND") is required when there are substantial changes to a project that involve new significant environmental effects or a substantial increase in the severity of previously identified effects; substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previously approved MND; or new information of substantial importance, which was not known or could not have been known with reasonable diligence at the time the previous MND was certified, show more (or more severe) significant effects, new feasible mitigation measures or alternatives are available but not adopted.

As required by subsection (e), above, substantial evidence supporting the County's decision not prepare a Subsequent EIR or new Negative Declaration pursuant to CEQA Guidelines Section 15162 is provided in Section III, Environmental Impact Analysis, of this Addendum. The environmental analysis presented in Section III evaluates the potential impacts of the proposed relocation, minor changes, and reduction in relation to the current environmental conditions and in consideration of the environmental findings for the Project.

As summarized in Section I, Project Description, and further analyzed in greater detail in Section III, Environmental Impact Analysis, the changes proposed are relatively minor and would not result in any new significant environmental impacts. The analysis contained herein demonstrates that all the impact issues previously examined in the approved MND would remain unchanged or the potential effects would be reduced even further with the proposed modifications. The reductions, minor changes, and relocation of the Project would result in little to no change with respect to the environmental impact conclusions analyzed for the Project through IS 19-09.

Therefore, as described in further detail in Section III, the analysis of the Project's relocation, minor changes and reduction supports the determination that the proposed changes would not involve new significant environmental effects or result in a substantial

increase in the severity of previously identified significant effects which would call for, as provided in Section 15162 of the State CEQA Guidelines, the preparation of a Subsequent EIR or Negative Declaration. Therefore, the County has elected to prepare this variation of an Addendum to the approved MND as the appropriate form of documentation to meet the statutory requirements of CEQA.

III. ENVIRONMENTAL IMPACT ANALYSIS

This section contains a brief summary of the environmental impacts disclosed in the prior MND for each environmental issue area. The evaluation includes an analysis of how any of the environmental factors may be altered as a result of the Revised Project.

The following analysis addresses the environmental issues that were previously analyzed in the MND for the Approved Project and determines whether the relocation of the Project's building 40 feet to the West, minor changes, and reduction in biomass deliveries and elimination of outdoor processing, creates a new significant impact or increases the severity of an environmental impact as identified in the MND. Provided below is an assessment of how the relocation, minor changes, and reduction affects the conclusions of each respective environmental issue analyzed in the MND and would not cause any new environmental effects in the following areas and that no further environmental review of these issues is necessary:

- Aesthetics. The conditions that could affect impacts to aesthetics would remain unchanged with the Project's relocation, minor changes, and reduction of daily biomass deliveries and outdoor processing. The removal of the wood processing and storage area, the extension of the fencing along the east side, plus the elimination of the section of the lane and turn around located on the east side of this processing/storage area would not change the aesthetics mitigation measure requirement that all structures use earth-tone colors and low glare building materials, as well as the requirement to maintain existing, healthy, non-hazardous vegetation.
- Air Quality. The conditions that could affect impacts to air quality would remain unchanged with the Project's relocation, minor changes, and reduction of daily biomass deliveries and outdoor processing. The removal of the wood processing and storage area, the extension of the fencing along the east side, plus the elimination of the section of the lane and turn around located on the east side of this processing/storage area would not change the construction or operational air quality emissions of the Project, alter the consistency with the air quality mitigation measures, result in an increase of any pollutants, or result in any other air quality impacts.
- Cultural Resources. The conditions that could affect impacts to cultural resources
 would remain unchanged with the Project's relocation, minor changes, and
 reduction. The relocation of the building 40 feet further east, and the removal of
 the wood processing and storage area plus the elimination of the section of the lane
 and turn around located on the east side of this processing/storage area would not
 change the mitigation requirements concerning potential discoveries of
 archaeological, paleontological, or cultural materials, nor the requirement of a
 cultural resource monitor being present during ground disturbance activities.

- Geology and Soils. The conditions that could affect impacts to geology and soils
 would remain unchanged with the Project's building moving 40 feet further east.
 The Project has not yet begun construction, and so there is no relocation of existing
 Approved Project structures. The Project's relocation, minor changes, and
 reduction would not change the existing geologic conditions of the Project Site, nor
 the engineering, best management practices, work window, retention of native
 vegetation, and monitoring requirements in the geology and soils mitigation
 measures.
- Hazards and Hazardous Materials. The conditions that could affect impacts to
 hazards and hazardous materials would remain unchanged with the Project's
 relocation, minor changes, and reduction. The Project's relocation and reduction
 would not change the storage requirements and limitations of potentially
 hazardous materials, fire, vehicle and equipment safety requirements in the
 hazards and hazardous material mitigation measures.
- Hydrology and Water Quality. The conditions that could affect impacts to hydrology and water quality remain unchanged. This would include the Project's compliance with all water quality and waste discharge requirements. Therefore, the hydrology and water quality impacts would be the same as the impacts for the Approved Project.
- Noise. The conditions that could affect impacts to noise would remain unchanged with the Project's relocation, minor changes, and reduction. The Project's relocation and reduction would further reduce the potential for significant effects fromengine warmup, construction, and operational noise limits and times of the noise mitigated in IS 19-09.
- Tribal Cultural Resources. The conditions that could affect impacts to tribal cultural resources remain unchanged. The subject property is owned by the Scotts Valley Band of Pomo Indians. The Project's relocation and reduction would not change the Tribe's monitoring for tribal cultural resources during site development activities.
- Wildfire. The conditions that could affect impacts to wildfire would remain unchanged with the Project's relocation, minor changes, and reduction. The Project's relocation and reduction would not change the requirement that a new electrical service be sited and maintained to avoid potential sources of ignition that could increase fire risk.

AESTHETICS

Approved Project

(c) Visual Character

The subject property is elevated above surrounding roadways. Red Hills Road in this location is a two-lane, rural road without paved shoulders that does not accommodate pedestrians; motorists are its primary users. Views into the property from Red Hills Road are partially obscured by woody vegetation, including walnut, oak and pine trees. Gaps in vegetation exist near the property entrance where the Project would be the most visible

to motorists. The structure housing the production plant would be located approximately 140 feet from the west edge of the roadway. The chipping and grinding area would be located on the east side of the building, partially shielded from public view. Beginning at the south property line, a row of mostly pine trees grows along the edge of Beckstoffer Vineyards on the east side of Red Hills Road, providing total screening of the Project Site from views south. Existing vegetation north and south of the Project Site limit public visibility of the Site to a few seconds while driving past the Site entrance. Although the portion of the property where the Project will be situated is not located within a Scenic Combining District, neighboring roads and properties are. Policy 3.5.2b of the Riviera Area Plan states, "The siting of structures must not only reflect appropriate setbacks, but also consider the rural vista. Building should complement and not block views." Due to the 140-ft setback between the Project development and Red Hills Road, the small scale of the building and relatively low height of the roof, the lack of recreational use of the road, and the brief period that the plant would be visible to motorists, the Project is not expected to visually degrade the area. The following mitigation measures are recommended to ensure that the brief sighting of the Project by motorists on Red Hills Road would have a less than significant impact on the quality of public views of the Site and will further ensure that the Project conforms to scenic resource policies in the General Plan and Riviera Area Plan. Less Than Significant Impact with Mitigation Incorporated. (Initial Study, IS 19-09 pg. 10)

(d) Light and Glare

Exterior lighting for the Project would consist of downcast LED lighting under the roof eaves to illuminate the building perimeter and up to four (4) additional downcast light posts to illuminate the storage area. The light posts would be the same style as those currently illuminating the driveway through the property. To ensure that light or glare is not broadcast beyond the property boundaries, Mitigation Measure AES-3 is recommended. Less Than Significant with Mitigation Incorporated. (Initial Study, IS 19-09 pg. 10)

Revised Project

The conditions that could affect impacts to aesthetics (visual resources, and light/glare) would remain unchanged and less than significant. There would be a change to the visual character of the Project Site based on the elimination of the Biomass Storage area, and lack of construction would further reduce potential impacts related to light and glare and the use of non-neutral materials. In addition, the visual character of the actual Project building would also remain unchanged from the previous analyses. Consequently, the impacts to the visual character of the Site based on the reduction of the project construction, and relocation of the building would be less than significant, and in fact, would be improved compared to the Approved Project proposed conditions.

With regard to the criteria set forth in CEQA Guidelines Section 15164(a), the changes proposed would not result in any new significant impact with respect to aesthetics.

AIR QUALITY

Approved Project

(a) Conflict with Air Quality Plan

The Project would result in temporary emissions during the 8-12 week construction period. Site preparation will include the clearing and chipping of 25 trees, and earth moving of 2,000± square feet to achieve final grades for the production pad. These activities have the potential to generate fugitive dust for a short period of time until the site is stabilized. If trees are burned, smoke can also contribute particulate emissions. The applicant plans on chipping the cleared trees and using them as the storage area base for dust and erosion control and/or as feedstock for the plant; the trees are not proposed to be open-burned. The applicant plans to use water dispersal as the primary method of dust control during construction, using either on-site water and/or application by water truck. Internal roadways are currently paved; the proposed new travel lanes will be surfaced with 1/2-inch gravel or with a new composite material consisting of dirt and cement. Stabilized road surfaces will minimize dust over the long term.

Once operational, the Project would result in up to eight additional trips (16 roundtrips) to the site per day including employee vehicles and delivery trucks, considered an insignificant increase in daily vehicle trips and resulting emissions. The bioenergy plant will use generators that will operate on syngas. The operation of internal combustion engines is subject to requirements administered by LCAQMD. Prior to the commencement of site preparation and plant operations, the applicant will be required to secure all necessary permits from LCAQMD. Implementation of mitigation measures below would further reduce air quality impacts to less than significant.

Due to the potential generation of fugitive dust associated with construction activities, construction of the Project could have a significant impact on air quality. In their letter dated March 8, 2019, the LCAQMD provided recommendations to address fugitive dust and other potential air pollutants generated by the Project. These are incorporated as Mitigation Measures AIR-1 through AIR-4. Less Than Significant with Mitigation Incorporated. (Initial Study, IS 19-09 pg. 12)

(c) Pollutant Concentrations

See response to Section III (a). Construction activities have the potential to generate short-term fugitive dust if not properly controlled. There are two on-site residences and a travel trailer located approximately 200 to 300 feet from the Project Site. The nearest offsite residence is 800± feet to the southwest. There are no schools, hospitals, or other sensitive receptors in the vicinity of the proposed Project. Less Than Significant with Mitigation Measures AIR-1 through AIR-4 Incorporated. (Initial Study, IS 19-09 pg. 13)

Revised Project

The reduction in biomass deliveries from 2-3 truckloads to one truckload per day would also reduce the potential impacts of vehicle trips even further. In addition, the elimination of the Biomass Storage area would further reduce the impacts from fugitive dust and air contaminants with the elimination of its construction and operation.

With regard to the criteria set forth in CEQA Guidelines Section 15164(a), the changes proposed would not result in any new significant impact with respect to air quality.

CULTURAL RESOURCES

Approved Project

(b) Adverse Change to Archaeological Resources

According to the applicant, "SVBPI is not aware of any flatland or lowland sites in Lake County that could not be a possible archaeological site given the existence of Native Americans in the area since 12,000 B.CE. A blanket of shattered obsidian is prevalent on the property, which is a minor indication that obsidian may have been mined at some point in time. However, during its years of ownership, SVBPI's certified cultural monitors have surveyed the property for archaeological evidence. To date no such evidence has been found. Nevertheless, SVBPI will retain one or more of its cultural monitors, as needed, during the project's site preparation and construction phases." No impacts to known archaeological resources are anticipated as a result of the Project. However, to ensure that undiscovered resources are not impacted during Project construction, CUL-1 and CUL-2 are recommended. Less Than Significant with Mitigation Incorporated. (Initial Study, IS 19-09 pgs. 15-16)

(c) Disturbing Human Remains

Disturbance of human remains is not anticipated. However, to ensure that human remains are not disturbed during Project construction, CUL-1 and CUL-2 are recommended. Less Than Significant with Mitigation Measures CUL-1 and CUL-2 Incorporated. Revised Project (Initial Study, IS 19-09 pgs. 15-16)

Revised Project

As discussed above, the Project Site has not yielded discoveries of archaeological evidence by the applicant's certified cultural monitors. In the event that archaeological resources are encountered during construction of the building and fencing 40 feet further east of the Approved Project's location, CUL-1 and CUL-2 in the MND, provided in the MND, would reduce potential impacts to less than significant.

It is possible that unknown human remains could be encountered during construction of the building and fencing 40 feet further east of the Approved Project's location. Without proper care, unknown resources could be damaged or destroyed. However, with implementation of Mitigation Measure CUL-1 and CUL-2, provided in the MND, any potential impacts to human remains would be reduced to less than significant.

Overall, these modifications would not change the existing conditions of the Project Site and would not change the impacts with respect to cultural resources. The Revised Project would implement the same mitigation measure as the Approved Project (CUL-1 and CUL-2, provided in the MND). Therefore, the impacts to archaeological resources and human remains would be less than significant, same as the Approved Project.

With regard to the criteria set forth in CEQA Guidelines Section 15162(a), the changes proposed would not result in any new significant environmental impacts upon cultural resources or result in a substantive increase in the severity of any previously identified impacts.

GEOLOGY AND SOILS

Approved Project

(b) Soil Erosion

Project grading will involve approximately 45 cubic yards (cy) to create a 2,000-sf building pad and to level the 28,000-sf outdoor storage area. The applicant estimates that the volume of cut will be equivalent to the volume of fill, resulting in no need to import or export soil. The building will be equipped with gutters and downspouts that will connect to underground drainage pipe that will outlet into the adjacent field where water will percolate into site soils. A rock energy dissipator will be installed at the pipe outlet to protect against scour. According to the applicant, site soils experience a high infiltration rate and stormwater discharge from the facility is not anticipated. Due to the scope of the grading activity, the moderate erosion hazard rating of site soils, and the lack of sensitive environmental resources on the Project Site, grading associated with the Project is exempt from a grading permit. Grading is, however, subject to the grading design standards outlined in the County Grading Ordinance. Compliance with the following mitigation measures will reduce impacts associated with soil erosion to a less than significant level. Less Than Significant Impact with Mitigation Incorporated (Initial Study, IS 19-09 pg. 18)

Revised Project

The elimination of the Biomass Storage area would reduce the potential for grading to be in excess of the grading thresholds that would trigger further CEQA analysis and found in Chapter 30 of the Lake County Code. The Revised Project would implement the same mitigation measure as the Approved Project (GEO-1 through GEO-4, provided in the MND). Therefore, the impacts to geology and soils would be less than significant, same as the Approved Project.

With regard to the criteria set forth in CEQA Guidelines Section 15162(a), the changes proposed would not result in any new significant environmental impacts upon geology and soils or result in a substantive increase in the severity of any previously identified impacts.

HAZARDS AND HAZARDOUS MATERIALS

Approved Project

(a) Disposal of Hazardous Materials

Hazardous materials associated with the Project include the use of diesel fuel and the use and storage of cleaning solvents. The loader and chipper will be fueled by a mobile fueling service. Solvents in containers of two gallons or less will be stored in a locked fireproof cabinet. The Project does not involve the routine disposal of hazardous materials. The use and storage of hazardous materials creates the opportunity for accidental releases to occur, requiring measures to prevent potential releases and to take proper action to contain, clean up and notify authorities should a release occur.

Lake County Division of Environmental Health (LCEH) provided written comments on March 13, 2019. These included, in part, "If the applicant stores hazardous materials (defined as either virgin or waste materials) equal to or greater than 55 gallons of a liquid, 500 pounds of a solid or 200 cubic feet of compressed gas, the applicant will be required to submit a Hazardous Materials Business Plan to the Environmental Health Division via the California Electronic Reporting system (CERS) and it shall be renewed and updated annually or if quantities increase. If the amount of hazardous materials is less than the above quantities, the applicant will need to complete and submit a Hazardous Materials/Waste Declaration stating the name of the material and the quantity to be stored on site. Hazardous materials shall not be allowed to leak onto the ground or contaminate surface waters. Any release of a hazardous material must be immediately reported to LCEH." Other pertinent comments from LCEH include the protection of wells from hazardous materials.

Section 41.7 of the Lake County Zoning Ordinance specifies that all uses involving the use or storage of combustible, explosive, caustic or otherwise hazardous materials shall comply with all applicable local, state and federal safety standards and shall be provided with adequate safety devices against the hazard of fire and explosion, and adequate firefighting and fire suppression equipment.

Implementation of the following mitigation measures will reduce the impact from potential releases of hazardous materials to a less than significant level. **Less Than Significant Impact with Mitigation Measures HAZ-1 and HAZ-2 Incorporated**. (Initial Study, IS 19-09 pg. 20)

(g) Exposure to Wildland Fires

The Project Site is situated in a moderate fire hazard severity zone and is within the Local Responsibility Area of the Kelseyville Fire Protection District. The Project Site is surrounded by orchards, vineyards, and residential and commercial development. The Project includes both potential ignition sources (equipment) and fuel (wood chips), which, under certain conditions, could result in fire that could spread to adjacent vegetation. Proper operation and maintenance of equipment would minimize these impacts. Less Than Significant Impact with Mitigation Measures HAZ-3 and HAZ-4 Incorporated

Revised Project (Initial Study, IS 19-09 pg. 21)

The elimination of the Biomass Storage area would further reduce the potential hazardous material on the site. The relocation of the building and fencing 40 feet further east of the Approved Project's proposed location would also not incur any additional impacts as the use, storage and quantity limits of any hazardous materials would remain the same. The Revised Project would implement the same mitigation measures as the Approved Project (HAZ-1 through HAZ-4, provided in the MND). Therefore, the impacts to hazards and hazardous material would be less than significant, same as the Approved Project.

With regard to the criteria set forth in CEQA Guidelines Section 15162(a), the changes proposed would not result in any new significant environmental impacts upon hazards and hazardous material or result in a substantive increase in the severity of any previously identified impacts.

HYDROLOGY

Approved Project

(a) Degrade Surface Ground Water Quality

Construction of the proposed Project will not generate any wastewater; therefore, there are no waste discharge requirements associated with the Project. Grading activities in preparation for the building pad have the potential to cause erosion; however, Project drainage is designed to flow as sheet flow into well-drained soils downslope of the site. Gutters and downspouts installed on the building will be connected to an underground drainage pipe that will extend downgradient 20 feet beyond the lane that will encircle the building. The pipe will release roof drainage into a rock energy dissipator to prevent surface erosion. Due to the significant acreage of land downslope of the Project Site and the well-drained soils designated by the USDA and confirmed by the applicant, sediment generated from the Project is expected to settle out on the property and not be discharged off site.

Project grading of one or more acres requires compliance with the State Water Resources Control Board (SWRCB) General Permit for Discharges Associated with Construction Activities (Construction Stormwater Permit). The area proposed for grading is 2,000 square feet for the plant production pad and some leveling in the 28,000-sf storage area; therefore, the Project does not qualify for the Construction Stormwater Permit. However,

the chipping activity may require coverage under the SWRCB General Permit for Discharges Associated with Industrial Activities (Industrial Stormwater Permit). Coverage under the Industrial Stormwater Permit would require development of a Storm Water Pollution Prevention Plan (SWPPP) and implementation of a comprehensive stormwater monitoring program for the facility. HYD-1 requires the applicant to obtain any necessary permits, which would include a permit from the SWRCB if so required, in order to protect water quality from project-related impacts.

Refer to Section VII(b) [Geology/Soils] for a discussion of impacts to water quality resulting from soil erosion. Compliance with GEO-1 through GEO-4 will mitigate impacts to water quality as a result of project-related erosion. Compliance with HAZ-1 and HAZ-2 will mitigate impacts to water quality as a result of hazardous material use and storage. Less Than Significant with Mitigation Incorporated (Initial Study, IS 19-09 pg. 22)

Revised Project

The effects of potential project grading in the 28,000 sf area previously allocated for the Biomass Storage area will be reduced with this area's elimination, which would further exempt the project from compliance with the State Water Resources Control Board (SWRCB) General Permit for Discharges Associated with Construction Activities (Construction Stormwater Permit). The Revised Project would implement the same mitigation measures (HYD-1) which would require the project to obtain any necessary permits from the State Water Resources Control Board. Therefore, the impacts to hazards and hazardous material would be less than significant, same as the Approved Project. With regard to the criteria set forth in CEQA Guidelines Section 15162(a), the changes proposed would not result in any new significant environmental impacts upon hydrology or result in a substantive increase in the severity of any previously identified impacts.

NOISE

Approved Project

(a) Increase in Ambient Noise Levels

Short-term noise levels would be increased during the construction phase of the Project. Construction-related noise may involve the use of a tractor/grader, compactor, water truck, and trucks delivering rock and concrete. Construction noise would occur over a period of approximately 8-12 weeks. For construction activities, General Plan Policy N-1.7 states, "The County shall require contractors to implement noise-reducing mitigation measures during construction when residential uses or other sensitive receptors are located within 500 feet." Compliance with NOI-1 and NOI-2 will mitigate temporary construction noise to a less than significant level.

Once Project construction is completed, noise associated with the operation would be generated by truck deliveries of feedstock, chipping equipment, and generators operating the bioenergy system on the west side of the building. The operation plan assumes 2-5

trucks daily delivering both chipped and unchipped material. To prepare feedstock, unchipped material would be run through a diesel or electric-powered chipper and then through an electric-powered hammermill before transfer to the hopper or stockpiled for later use. It is anticipated that material will be processed for no longer than 2-3 hours per day, five days per week, with the front-end loader operating 6-8 hours per day. The biochar is stored until five tons is accumulated, at which time it would be shipped to a soil amendment wholesaler located in the Central Valley. Out shipments of biochar would therefore be significantly less frequent than deliveries. Generator noise would be attenuated by full aluminum weather protection and superior sound attenuation for specific low noise applications, including a critical grade muffler. The "Level 2" housed gen-set would be located on the west side of the building, over 140 feet from Red Hills Road, over 200 feet from the nearest on-site residence, and 800± feet from the nearest off-site residence.

County noise standards require noise levels at the property line adjacent to residential and agricultural uses (west, south and east) not to exceed 55dBA between the hours of 7:00 a.m. and 10:00 p.m. and 45 dBA between the hours of 10:00 p.m. and 7:00 a.m. Where adjacent uses are commercial (north and east) noise levels must not exceed 60dBA during daytime hours and 55dBA during nighttime hours. The Project Description states that, "Based on the distance of the operation from property lines and receptors and topography, the operation is capable of complying with County noise standards." Compliance with NOI-2 and NOI-3 will ensure that permanent Project activities will not exceed County noise standards. Less Than Significant with Mitigation Incorporated. (Initial Study, IS 19-09 pgs. 24-25)

Revised Project

The elimination of the Biomass Storage area would further reduce the potential for noise levels to exceed standards found within Chapter 21 of the Lake County Code. Additionally, the Revised Project proposes all onsite generators to be enclosed. The relocation of the building and fencing 40 feet further east of the Approved Project's proposed location would also not incur any additional impacts as the Revised Project would implement the same mitigation measures (NOI-1 and NOI-2) which would require the project to adhere to the noise standards identified in Section 41.11 of Chapter 21 of the Lake County Ordinance. Therefore, the impacts to noise would be less than significant, same as the Approved Project.

With regard to the criteria set forth in CEQA Guidelines Section 15162(a), the changes proposed would not result in any new significant environmental impacts upon noise or result in a substantive increase in the severity of any previously identified impacts.

TRIBAL CULTURAL RESOURCES

Approved Project

(b) Consideration of Significant Resources to a California Native American Tribe

A Request for Review was mailed on February 14, 2019 to the following tribes: Big Valley Rancheria, Cortina Rancheria, Elem Colony, Koi Nation, Middletown Rancheria, Mishewal-Wappo of Alexander Valley, Redwood Valley, Robinson Rancheria, Upper Lake Habematolel and Yocha Dehe, in addition to the Scotts Valley Band of Pomo Indians, the applicant for the subject Project.

A response was received from Yocha Dehe, stating that the project is not within the aboriginal territories of the Yocha Dehe Wintun Nation, and declining comment.

The subject property is owned by the Scotts Valley Band of Pomo Indians. The Tribe's cultural monitors have surveyed the property for archaeological evidence, and to date have found none. Cultural monitors will be employed during site development activities. Less Than Significant with Mitigation Measures CUL-1 and CUL-2 Incorporated. (Initial Study, IS 19-09 pg. 28)

Revised Project

As discussed under Cultural Resources, the Project Site has not yielded discoveries of archaeological evidence by the applicant's certified cultural monitors. In the event that archaeological resources are encountered during construction of the building and fencing 40 feet further east of the Approved Project's location, CUL-1 and CUL-2 in the MND, provided in the MND, would reduce potential impacts to less than significant.

Overall, these modifications would not change the existing conditions of the Project Site and would not change the impacts with respect to tribal cultural resources. The Revised Project would implement the same mitigation measure as the Approved Project (CUL-1 and CUL-2, provided in the MND). Therefore, the impacts to archaeological resources and human remains would be less than significant, same as the Approved Project.

With regard to the criteria set forth in CEQA Guidelines Section 15162(a), the changes proposed would not result in any new significant environmental impacts upon tribal cultural resources or result in a substantive increase in the severity of any previously identified impacts.

WILDFIRE

Approved Project

(c) Installation and Maintenance of Infrastructure

Infrastructure exists on the property, including roads, water storage tanks and electrical service. The proposed operation will require electrical service, which will be delivered from a PG&E utility pole located on Red Hills Road. An overhead line will connect to a utility pole that will be situated on the west side of the parcel. Additionally, the applicant shall adhere to all current California Fire Codes, including 4290 and 4291 of the Public

Resource Code regulations and/or requirements. **Less Than Significant with Mitigation Incorporated.** (Initial Study, IS 19-09 pg. 30)

Revised Project

The project has been modified to comply with the requirement in Section 13-60.2 of Lake Ordinance No. 3082. Section 2, 3-26-2019. "The Vegetation/Combustible Material Abatement Ordinance" to maintain a thirty-foot defensible space around all buildings and structures on the Property, and a thirty-foot defensible space along the property line on the eastern boundary of the Property, adjacent to Eagle's Nest. The revised footprint will entail the original 40' x 50' building with 40' of open space on the north and west sides, 20' of open space on the south side that is additionally set 20' back from the interior road, and 60' of open space on the east side. These changes would further lessen the impact of fire risks found within 4290 and 4291 of the California Public Resource Code.

The Revised Project would implement the same mitigation measure as the Approved Project (FIRE-1, provided in the MND). Therefore, the impacts to wildfire material would be less than significant, same as the Approved Project.

With regard to the criteria set forth in CEQA Guidelines Section 15162(a), the changes proposed would not result in any new significant environmental impacts upon wildfire or result in a substantive increase in the severity of any previously identified impacts.

Attachment O

265 E. RIVER PARK CIRCLE, SUITE 310 FRESNO, CALIFORNIA 93720

MAILING ADDRESS
POST OFFICE BOX 28340
FRESNO, CALIFORNIA 93729

TELEPHONE (559) 233-4800

FAX (559) 233-9330



OFFICE ADMINISTRATOR LYNN M. HOFFMAN

Writer's E-Mail Address: jkinsey@wjhattorneys.com

Website: www.wjhattorneys.com

TIMOTHY JONES* MICHAEL S. HELSLEY RILEY C. WALTER PATRICK D. TOOLE SCOTT D. LAIRD JOHN P. KINSEY KURT F. VOTE TROY T. EWELL JAY A. CHRISTOFFERSON MARISA L. BALCH AMANDA G. HEBESHA** PETER M. JONES* MICHAEL L. WILHELM*** STEVEN M. CRASS* DEBORAH K. BOYETT STEVEN K. VOTE JENNIFER F. DELAROSA GIULIO A. SANCHEZ CHRISTOPHER A. LISIESKI**** BENJAMIN C. WEST HUNTER C. CASTRO IRIS C. CHIU STEPHANIE M. HOSMAN

OLIVER W. WANGER

* Also admitted in Washington

** Also admitted in Idaho

** Also admitted in Idaho

*** Of Counsel

**** Also admitted in Virginia

August 17, 2020

VIA EMAIL & UNITED STATES MAIL

Board of Supervisors County of Lake 255 N. Forbes Street Lakeport, CA 95453 Mark Roberts, Principal Planner Community Development Department County of Lake 255 N. Forbes Street Lakeport, CA 95453

Re: Appeal of Planning Commission Approval of Red Hills BioEnergy Project Major Use Permit UP 19-05, Initial Study/Negative Declaration IS 19-09

Dear Honorable Supervisors:

My law firm represents several businesses and individuals that own property and/or conduct operations near the property located at 7130 Red Hills Road, Kelseyville, California (the "Subject Property"), including Shannon Ranches ("Shannon") and Beckstoffer Vineyards-Red Hills ("Beckstoffer"). Beckstoffer appealed the County of Lake Planning Commission's approval of the Red Hills BioEnergy Project, including the Commission's approval of Major Use Permit UP 19-05, and recommended adoption of the Initiated Study/Negative Declaration IS 19-09 (collectively, the "Project"). On my clients' behalf, I am writing to urge the Board of Supervisors to grant the appeal and deny the Project.

Please note that I have also enclosed expert reports from Dale La Forest of Dale La Forest & Associates (Noise); Greg Gilbert of Autumn Wind Associates (Air Quality); and Clint Nelson (Agriculture), (see Exs. "A"-"C"), which are incorporated as if set forth fully herein.

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 2

A. Shannon, Beckstoffer, and the Importance of the Lake County Wine-Growing Region and the Red Hills Appellation

Beckstoffer has developed vineyards and opened tasting rooms throughout Lake, Napa, and Mendocino Counties. Beckstoffer is one of California's leading wine grape growers, and has been grower in California since 1973. Beckstoffer's founder, Andy Beckstoffer, was the Founding Director of the Napa Valley Grapegrowers Association, which began a new era of grape quality and land preservation to the wine industry. Beckstoffer has been recognized by the State of California as an Integrated Pest Management Innovator (1997). In 1998, Beckstoffer purchased over 1,000 acres near Mount Konocti in the Red Hills of Lake County. Since then, Beckstoffer has continued to invest in developing vineyards in the Red Hills area, and has been instrumental in the recognition of the Red Hills American Viticultural Area (AVA). For the past several decades, Beckstoffer has tirelessly promoted the Red Hills AVA, demonstrating that Lake County today shows the same potential for the winemaking industry that Napa Valley did in the 1960s.¹

Shannon, in turn, has nearly three decades of history growing wine grapes in Lake County. Like Beckstoffer, Shannon's operations span several counties, including the Counties of Lake, Sonoma, and Napa. However, Shannon's primary focus is on Lake County; today, Shannon is one of the largest growers in the Red Hills AVA, with thousands of acres of vineyards. Shannon has also opened several tasting rooms, where it showcases its locally produced wines.

Both Beckstoffer and Shannon have significant concerns regarding the effects of the Project on nearby vineyards, agricultural operations, agri-tourism, and the Red Hills AVA. As explained in the expert report prepared by Mr. Nelson:

The Red Hills AVA is known for rolling mountain ranges comprised of unique volcanic soils, intense solar radiation and picturesque landscapes. The summers are hot and dry with a strong diurnal shift. Following the onset of fall, cooler days and nights help promote and retain intense flavor development. The cumulative effect of ideal climate along with porous soils offer the potential for building a world class winegrowing region.

(Exhibit "C.") Notably, these unique conditions "mirror some of the well-known mountainous Napa Valley AVA's like Stag's Leap" (*Id.*) Coupled with exceptional air quality, an "abundance of light" associated with "less diffusion of solar radiation," and "well-drained volcanic soils rich in native materials ideal for sugar accumulation" coupled with "strong minerality," the Red Hills AVA provides a uniquely strong environment to grow world class grapes and produce extraordinarily high quality wines. (*Id.*)

.

http://www.beckstoffervineyards.com/assets/pdf/2017-AndyBeckstofferNapaValleysMostPowerfulGrapegrower.pdf

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 3

Strong growing conditions, however, are only one component of a region's winegrowing success. The other is agri-tourism and local tasting rooms. As explained by Mr. Nelson, these tasting rooms are "critically important" to local wineries, and in particular smaller growers. Notably, "[d]irect to consumer (DtC) wine sales account for nearly 60% of total sales for wineries producing 50,000 cases or less" (*Id.*) Importantly, "[w]inery and/or tasting room customers expect—and demand—a rural atmosphere with unique and aesthetically pleasing visual resources that reflect the agricultural nature of the experience." (*Id.*) Thus, the preservation of the bucolic setting of both the vineyards and the tasting rooms is paramount, and interference with that rural backdrop has the potential to both adversely affect the aesthetic values needed for winery/tasting rooms to thrive and receive visitors.

With this backdrop in mind, both Beckstoffer and Shannon are significantly concerned about the placement of an industrial land use—and in particular a facility with the potential for the creation of dust and pathogen migration, that will result in a visual eyesore—in the midst of the bucolic, rural setting that is needed for tasting rooms and wineries to thrive and survive. This is simply the wrong location for the Project. The Project should be denied on the merits.

B. The Project is Not Appropriate for the Subject Property and the Surrounding Land Uses, and Should Be Denied on the Merits

1. The Project is Not Permitted under the County's Zoning Ordinance

The County asserts that the Project can be approved with a Major Use Permit pursuant to its Zoning Ordinance. (See Zoning Ordinance, §§ 21-8.5(l), 21-27.10 [Table B].) This is inaccurate, while a "power generation facility" may under some circumstances be developed in a residential zoning district, it cannot be constructed in a commercial zoning district. Here, the Subject Property is zoned both residential and commercial. Because the property is partly zoned commercial, any "power generation facility" is not permitted. The Applicant may argue the facilities are located on the residential portions of the Subject Property. This is not entirely accurate. Specifically, the BioGas Facility will need to tie in to the well and other facilities on the commercial portion of the property. As such, the County cannot issue a Major Use Permit for the Project.

In addition, the record does not include information sufficient to determine whether the Project constitutes a "power generation facility" as contemplated under the Zoning Ordinance. Specifically, the definition of "power generation facility" in Section 21-27(x) only refers to "[a]n *electrical* generation facility," and not a "natural gas" or "biogas" generation facility. Moreover, this provision includes certain thresholds that are only stated in terms of megawatts (*i.e.*, facilities over 3 MW require neighbor approval), and not units of measurement applicable to gas generation.

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 4

As such, based on the record before the Board, it does not appear evidence has been presented to demonstrate the Project could even be permitted through a Major Use Permit.²

2. The Board Cannot Make the Findings Necessary to Approve Proposed Major Use Permit 19-05

Section 21-51.4 of the County's Zoning Ordinance states a Major Use Permit can only be approved if the County finds, *inter alia*:

That the establishment, maintenance, or operation of the use applied for will not under the circumstances of the particular case, be detrimental to the health, safety, morals, comfort and general welfare of the persons residing or working in the neighborhood of such proposed use, or be detrimental to property and improvements in the neighborhood or the general welfare of the County.

(Lake County, Zoning Ordinance, Art. 51, § 21-51.4(a)(1) [Findings Required for Approval].) The findings also require assurances of public safety (*i.e.*, traffic safety), consistency with the General Plan, and confirmation that no code violations exist. The County cannot make these findings.

As explained in detail below, substantial evidence of a fair argument exists that the Project would result in significant environmental effects. (See *infra*, § D.1.) Indeed, the Project will adversely affect nearby agricultural resources, residents, and persons working in the area. (*Id.*). As such, the County cannot find the Project would not "be detrimental to the health, safety, morals, comfort and general welfare of the persons residing or working in the neighborhood," or the general welfare of the County. Nor can the County find the Project is consistent with its planlevel documents, as explained below. (See *infra*, § G.)

Because the County cannot make the finding necessary to issue a Major Use Permit, or support those findings with substantial credible evidence, the Major Use Permit should be denied.

C. The IS/MND Fails to Disclose Important Information Needed to Evaluate the Environmental Effects of the Project

One of the fundamental problems with Initiated Study/Negative Declaration IS 19-09 (the "IS/MND") is that it merely *presumes* the project would be developed and operated in a way that reduces or avoids the Project's potential environmental effects. The IS/MND does not

County's response did not include information sufficient to demonstrate Section 21-27(x) applied. As such, to the extent the County relies upon new information that was not produced in response to the request for records, it will demonstrate the County violated the Public Records Act.

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 5

analyze the full range of environmental impacts that could occur as a result of the Project; rather, the IS/MND analyzes a high-level project design that is not inclusive of all information needed to evaluate environmental impacts. Rather, to avoid detailed analysis of particular impacts, the IS/MND simply *presumes* various project features will ultimately be incorporated into the project that would avoid or minimize potential environmental effects. By proceeding in this fashion, the IS/MND's project description avoids full discussion of the Project's potential environmental effects, as well as reasonable feasible mitigation necessary to ensure the Project would not have significant environmental effects.

Inaccurate Project Description. CEQA requires that the project description must include reasonably foreseeable future activities that are consequences of the project. (See Laurel Heights Improvement Ass'n v. Regents of the Univ. of Cal. (1988) 47 Cal.3d 376.) The IS/MND, however, fails to provide a description of the Project sufficient to identify and evaluate its potential environmental effects. Such information is necessary to evaluate whether the Project would have significant environmental impacts.

These omissions hinder a complete and accurate environmental review (and result in an invalid environmental document). Specifically, CEQA requires that the description of the project be accurate and consistent throughout the environmental document. (See, e.g., County of Inyo v. City of Los Angeles (1977) 71 Cal.App.3d 195; Kings County Farm Bureau v. City of Hanford (1990) 221 Cal.App.3d 692, 738; San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus (1994) 27 Cal.App.4th 713, 730; Santiago Water Dist. v. County if Orange (1981) 118 Cal.App.3d 818, 830; Christward Ministry v. County of San Diego (1993) 13 Cal.App.4th 31, 45; Dusek v. Anaheim Redevelopment Agency (1986) 173 Cal.App.3d 1029, 1040.) As explained in County of Inyo:

A curtailed or distorted project description may stultify the objectives of the reporting process. Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against the environmental cost, consider mitigation measures, assess the advantage of terminating the proposal (*i.e.*, the "no project" alternative) and weigh other alternatives in the balance.

(County of Inyo, supra, 71 Cal.App.3d at 192-93.)

After the IS/MND was circulated for public review, the Applicants were required to augment, modify, and further refine the scope and nature of the Project, and add further detail. (See Exs. "D," "E.") These Project alterations were specifically proposed to help Applicants argue the Project would have no environmental effects. In other words, they are directly relevant to environmental review under CEQA. As such, the Project Description is inadequate and unstable under CEQA, and cannot be approved as currently drafted. In addition, the IS/MND does not discuss the refinements and additional information presented by Applicants. At the very least, the

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 6

Project Description should be fully revised to include the new and different information provided by the Applicants, and the IS/MND should be recirculated to afford environmental review and public comment based on a full, complete, and stable project description.

Failure to Include All Project Components. The entire project being proposed (and not some smaller aspect of it), must be described in the environmental document. This requirement reflects the CEQA Guideline's definition of a "project" as the "whole of an action." (CEQA Guidelines, § 15378.) Here, the IS/MND does not describe the whole of the action, but rather a future hypothetical facility that has not been specifically proposed. The Project itself is merely the issuance of a Major Use Permit, meaning that an applicant in the future could construct a vastly expanded facility without adequate operational measures.

In addition, the Project Description and the discussion of existing conditions/baseline are insufficient to fully and accurately analyze the environmental impacts of the Project, as explained in full in Exhibits "A" and "B." Among other things, the IS/MND does not "adequately identify and discuss important emissions-related information regarding process rates and emissions-generating equipment to be used routinely at the proposed Red Hills BioEnergy operation," the document "lists contradictory information relevant to the determination of potentially significant emissions impacts," and in many cases the document "provides no information necessary to evaluate the project's emissions of federally- and state-regulated criteria air pollutants for determination of project-related significant air quality impacts." (Exhibit "B" at 2.) Numerous other examples concerning air quality—which are replete throughout the IS/MND—are listed in Exhibit B.

The same is true for noise impacts, as explained in the La Forest Report. (See generally Exhibit "A.") Among other things, there is no mention of ambient/existing conditions against which noise impacts should be evaluated. (*Id.* at 5.) Nor is there an adequate description of nearby sensitive receptors, or how far those receptors are from the Project operations. (See *id.* at 4-5.)

As a result, the IS/MND is inadequate because it does not identify all *potential* components of the Project.⁴

Piecemealing/Segmentation of Environmental Review. The failure to adequately describe a project, or provide sufficient detail, results in the improper piecemealing or segmentation of environmental review. Here, by omitting important details about the Project, the

{9373/002/01138648.DOCX}

2

For this and other reasons, the Project Description is unstable, which renders the IS/MND invalid under CEQA.

My office requested additional detail through requests for records under the Public Records Act. Much of the basic factual information needed to evaluate impacts was not provided. To the extent such documentation exists, but was not provided to my office, that would constitute a violation of the Public Records Act.

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 7

IS/MND does just that. In *Santiago Water District*, for example, the court held the environmental review for a mining operation inadequate because the project description omitted mention of the construction of water delivery facilities that were an integral part of the project. "Because of this omission, some important ramifications of the proposed project remained hidden from view at the time the project was being discussed and approved. This frustrates one of the core goals of CEQA." (*Santiago Water Dist.*, *supra*, 118 Cal.App.3d at 830.)

Here, the Project would allow a completely different and much larger project than that described in the IS/MND. As noted above, the Applicants were required, before and after the appeal, to augment, modify, and further refine the scope and nature of the Project. (See Exhibits "D," E.") By proceeding in this fashion, the IS/MND seeks to impermissibly piecemeal or segment environmental review.

Inadequate Description of the Environmental Baseline Conditions. As explained in the La Forest Report, the IS/MND includes no mention of ambient/existing conditions against which noise impacts should be evaluated. (Exhibit "A" at 5.) The IS/MND likewise includes an inadequate description of nearby sensitive receptors, including a failure to accurately measure how far those receptors are from the Project operations. (See *id.* at 4-5.) Due to this failure, the IS/MND's analysis of noise increases is incomplete and inaccurate. (*Id.* at 5-7.) Due to the failure to adequately describe baseline conditions, the IS/MND is invalid.

D. An Environmental Impact Report is Required for the Proposed Project

1. A Fair Argument Exists that the Project Will Have Significant Effects on the Environment and, as such, an EIR is Required

The Project is not appropriate for the Subject Property, and should therefore be denied on the merits. But even if the County were to consider the Project, the IS/MND is not the appropriate vehicle to evaluate the Project's potential environmental effects under CEQA. Rather, an Environmental Impact Report (EIR) is required, as there is substantial evidence supporting a fair argument that there are significant impacts from the Project, and those impacts could be cumulatively considerable.

Prior to considering any "project" under CEQA, a lead agency must first determine whether to prepare a Negative Declaration, a Mitigated Negative Declaration, or an EIR for the project. (CEQA Guidelines, § 15063.) The lead agency makes this determination based on what is called the "fair argument" standard. (CEQA Guidelines, § 15064(f)(1).) As explained by the Supreme Court:

[S]ince the preparation of an EIR is the key to environmental protection under CEQA, accomplishment of the high objectives of hat act requires the preparation of an EIR whenever it can be fairly argued on the basis of

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 8

substantial evidence that the project may have a significant environmental impact.

(No Oil, Inc. v. City of Los Angeles (1975) 13 Cal.3d 68, 75.)

The Supreme Court has explained that even in "close and doubtful cases," an EIR should *always* be prepared to ensure "the Legislature's objective of ensuring that environmental protection serve as the guiding criterion in agency decisions." (*Id.* at 84; see also Pub. Resources Code, § 21101, subd. (d).) Many courts have stated that the "EIR is the heart of CEQA. The report . . . may be viewed as an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes *before* they have reached ecological points of no return." (*Citizens for Quality Growth v. City of Mount Shasta* (1988) 198 Cal.App.3d 433, 438 [quoting *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810] [emphasis added].)

The CEQA Guidelines set forth the "fair argument" test used to evaluate whether an EIR is required:

If the lead agency finds there is substantial evidence in the record that the project may have a significant effect on the environment, the lead agency shall prepare an EIR. Said another way, if a lead agency is presented with a fair argument that a project may have a significant effect on the environment, the lead agency *shall prepare an EIR* even though it may also be presented with other substantial evidence that the project will not have a significant effect.

(CEQA Guidelines, § 15064(f)(1); see also Pub. Resources Code, § 21080, subd. (d) [internal citations omitted].)

Moreover, an agency's failure to gather or analyze information on a project's impacts can expand the scope of the fair argument standard necessitating the preparation of an EIR. (See, e.g., *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 311 ["CEQA places the burden of environmental investigation on government rather than the public," and a lead agency "should not be allowed to hide behind its own failure to gather data."].)

Accordingly, if any commenting party makes a fair argument that the proposed project's environmental impacts "may have a significant effect on the environment," the County *must* prepare an EIR, even if other substantial evidence supports the argument that adverse environmental effects will *not* occur. (CEQA Guidelines, § 15064(g)(1); see also *Sierra Club v. County of Sonoma* (1992) 6 Cal.App.4th 1307, 1316 ["[i]f there is substantial evidence of such an impact, contrary evidence is not adequate to support a decision to dispense with an EIR."].)

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 9

A mitigated negative declaration is only appropriate where the applicant has agreed to eliminate or avoid all potentially significant environmental impacts by incorporating mitigation measures into the project. (See Pub. Resources Code, §§ 21064.5, 21080, subd. (c)(2); CEQA Guidelines, §§ 15064(f)(2), 15070(b).)

Here, substantial evidence supports a fair argument that an EIR is necessary:

The Project Will Result in Significant Noise Impacts. This comment letter is accompanied by the August 14, 2020, Noise Impacts Report prepared by Dale La Forest & Associates. (See Exhibit "A.") That report raises numerous concerns and demonstrates the Project would have significant noise impacts. For example, Mr. La Forest explains that the backup warning alarms will result in significant and unavoidable noise increase. There will likewise be significant noise impacts associated with electrical generator, the wood chipper, and the front-end loader, all of which will exceed the County's noise thresholds. Mr. La Forest's report also discusses adverse impacts associated with short-term construction-related noise. (See *id.*)

In addition, Mr. La Forest's analysis shows the County's noise analysis is incomplete, as it does not actually evaluate the magnitude of the noise increase caused by the Project to sensitive receptors. Because the IS/MND does not examine these factors, it is insufficient under CEQA. (See *id*.)

In short, substantial evidence of a fair argument exists that the Project would have significant acoustic impacts, and that the Project would result in events that exceed the noise levels included in the Lake County General Plane. (See CEQA Guidelines, Appendix G, Subd. XI(a).) As a result, to the extent the County considers the Project for approval, an EIR should be prepared. (See *id*.)

The Project Will Result in Significant Aesthetic Impacts. CEQA requires analysis of a project's impacts on "view and other features of beauty." (Ocean View Estates Homeowners Assn., Inc. v. Montecito Water Dist. (2004) 116 Cal.App.4th 396, 401.) On this topic, "the opinions of area residents, if based on direct observation, may be relevant as to aesthetic impact and may constitute substantial evidence in support of a fair argument; no special expertise is required on this topic." (The Pocket Protectors v. City of Sacramento (2004) 124 Cal.App.4th 903, 908, 937 [requiring EIR, rather than Initial Study, in part to address neighbors' concerns regarding aesthetic impacts of project].)

The reports prepared by the Applicant suggest the facilities would be barely visible adjacent to the Project site due to the presents of trees and landscaping. However, as demonstrated by the attached pictures, a large power generation facility would be visible from both the Scenic Highway (S.R. 29) and Red Hills Road. (See Exhibit "F.")

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 10

Nor is there any analysis of the impacts of the facility on the scenic vistas and bucolic setting from the tasting rooms and viewsheds uphill from the Project Site. As is demonstrated by the attached diagrams, the facility would also create an unsightly feature uphill from the Project Site, which is the location of several important tasting rooms. (See Exhibit "F.") These opinions are confirmed by the opinions of Mr. Nelson, who explains the importance of the bucolic nature of the local setting, as well as the impact of the facility, to local vineyards and tasting rooms. (See Exhibit "C.")

The Project Will Result in Significant Impacts to Agricultural Resources. The Project would negative effect agricultural recourse in numerous respects. First, the Subject Property is located next to several vineyard properties. Photographs submitted by several nearby residents, employees, and landowners have demonstrated the wood chipping on the Subject Property can easily result in wind-borne migration of dust and wood chippings. This has the significant potential to convey windborne pathogens to local vineyards, including fungal, insect, and mite infestations. (See Exhibit "C.")

The Project would also adversely affect the Red Hills AVA, which would in turn adversely affect other winegrowers and agricultural properties in the area. As explained by Mr. Nelson, the wine industry is largely tourism based, with direct to customer (DtC)—i.e., tasting room—sales comprising over 60% of small to mid-size wineries' sales. These wineries and tasting rooms thrive on tourism, which is driven to the area by a bucolic, agricultural setting similar to what the tourists would expect to see in Napa Valley or the winemaking regions of Sonoma County. This Project would result in the construction of a power generation facility that would lie directly in the viewshed of several tasting rooms. This directly undermines the agricultural, rural, and bucolic setting that tourists expect from the region. As such, the Project, if approved, would undermine and inhibit the ability of agricultural uses to survive and thrive. Based on the foregoing, which is explained in detail in Mr. Nelson's report, the Project would result in potentially significant impacts to agriculture. (See Exhibit "C.")

The Project Will Result in Significant Air Quality, and in Particular Fugitive Dust and PM10. According to the Air Resources Board, fugitive dust can:

- Reduce visibility on roadways, creating traffic safety impacts, which is also a violation of Section 41701 of the Health & Safety Code.
- Cause significant health effects, including exacerbating asthma
- Reduce crop yields by depositing dust on foliage

Despite this, there is no discussion in the MND as to the generation of fugitive dust from the Project, or how the applicant intends to comply with the Health & Safety Code. Fugitive dust and airborne waste from the Subject Property is a known and documented issue. In addition

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 11

to the fact that several witnesses have complained to the County, the local air district, and the California Air Resources Board about the current issues on the property, the County has received several photographs showing wood chippings and dust from the Subject Property on nearby properties. As such, the Project will continue to cause negative dust and other impacts for nearby properties. Finally, this letter encloses the report of Mr. Greg Gilbert, an expert in air quality, whose opinion states that, without mitigation, the Project would result in significant adverse air quality impacts. (See Exhibit "B.")

The air quality analysis in the IS/MND is also insufficient under CEQA because it does not address all of the potential air quality impacts noted in Appendix G of the CEQA Guidelines. (See, e.g., Exhibit "B" at 4-6.)

The Project Will Result in Adverse Health Impacts. The IS/MND also fails to sufficiently explain the nature and magnitude of the Project's health impacts on nearby residents and employees before concluding that the impacts would be less than significant. (Sierra Club v. County of Fresno (2018) 6 Cal.5th 502, 523 (hereafter Friant Ranch) [emphasizing that "a sufficient discussion of significant impacts requires not merely a determination of whether an impact is significant, but some effort to explain the nature and magnitude of the impact"].) An environmental document must discuss the health and safety problems that the proposed project may induce. (CEQA Guidelines, § 15126.2, subd. (a) [requiring an EIR to discuss the "health and safety problems caused by the physical changes" that the proposed project will induce].) More specifically, when it comes to significant air quality impacts, an environmental document must allow the public to translate bare air pollutant data into adverse health impacts, or to understand why such translation is not possible. (Friant Ranch, supra, 6 Cal.5th 502, 525.)

Here, the IS/MND does not adequately address this issue. This is critically important here, as the County has received evidence that similar operations have adversely affected the health of nearby residents and employees.

The Project Will Result in Significant Land Use Impacts. CEQA requires agencies to evaluate whether a proposed development project will, among other things, conflict with any land use plan, policy, or regulation of an agency with jurisdiction over a project. A fair argument exists that the Project as proposed will result in several conflicts with both the County's General Plan and Rivieras Area Plan. First, the Project seeks to bring an industrial land use into an area that is predominantly rural residential and agricultural. This conflicts with both sound land use principles, as industrial land uses are typically incompatible with residential land uses, particularly when they are adjacent to each other. It also interferes with the County's objectives and plans to promote agriculture and agritourism. Further, as explained in detail below, the Project is inconsistent with several policies and programs articulated in the County's General Plan. (See infra, § G.)

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 12

In short, as the Project is presently designed, substantial evidence supports a fair argument that the Project will cause significant environmental effects. As a result, the County cannot approve the IS/MND.

2. The MND Fails to Analyze the Project's Cumulative Impacts

CEQA "require[s] a finding that a project may have a 'significant effect on the environment' if . . . [t]he possible effects of a project are individually limited but cumulatively considerable." (Pub. Res. Code, § 21083.) A project's cumulative impacts are significant if the project's incremental contribution to the impact is "cumulative considerable." (CEQA Guidelines § 15130(a).) A Project's incremental contribution is cumulatively considerable if the incremental effects of the project are significant "when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." (CEQA Guidelines § 15065(a)(3).) The fact that a particular project's incremental impact is not alone significant, or is relatively small when compared to the greater overall problem, does not mean the project does not have significant cumulative impacts. This theory was rejected in *Kings County Farm Bureau* because it would allow "the approval of projects which, when taken in isolation, appear insignificant, but when viewed together, appear startling." (*Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 720-21.) The proper standard for a cumulative impacts analysis is whether the impacts are "collectively significant." (*Id.* at 721 [citing CEQS Guidelines, § 15355].)

If a project's incremental contribution to the impact is "cumulative considerable," (CEQA Guidelines § 15130(a)) – *i.e.*, if they are "collectively significant," (*Kings County Farm Bureau*, *supra*, 221 Cal.App.3d at 721) – the lead agency must examine reasonable, feasible options for reducing or avoiding the project's contribution to those significant cumulative effects. (CEQA Guidelines, § 15130(b)(5).) A mitigated negative declaration may not be adopted unless the al potentially significant environmental impacts are eliminated or avoided by incorporating such mitigation measures into the project. (See, e.g., Pub. Resources Code, §§ 21064.5, 21080, subd. (c)(2); CEQA Guidelines, § 15064(f)(2), 15070(b).)

Here, the IS/MND did not include a cumulative impacts analysis. No other projects—past, present, or future—were identified. The only discussion of such impacts is in the Mandatory Findings of Significant; but these are findings without supporting evidence, or even identification to other development in the vicinity. Because the County did not evaluate cumulative impacts in any meaningful way, the IS/MND cannot be adopted.

E. The IS/MND Impermissibly Relies Upon Non-Binding Project Design Features to Reduce the Project's Significant Environmental Effects

The IS/MND asserts the applicant would incorporate several design features into the Project that are ultimately intended to prevent the occurrence of or minimize the significance

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 13

of adverse environmental effects. The IS/MND then applies these design features to the Project's unmitigated impacts on, *inter alia*, noise, odors, and air quality to conclude the Project's impacts are supposedly less than significant, without discussing the severity of the impact prior to mitigation, and without incorporating the alleged design features as *binding* mitigation measures.

Among other things, the supplemental project description provided by Applicants, as well as the May 7, 2020, document prepared by the Applicants, purport to make certain representations about how the Project will mitigate dust, noise, and other environmental effects. (See Exhibits "D," "E.") For example, without modifying the Project Description, the Applicants state the Applicant will use a specific type of system (Artis), a specific type of generator (150W Gillette), and that only a certain number of trucks will visit the site. Many other examples are included in the La Forest Report. However, none of these alleged commitments—or others—were included in either the Project Description or as mitigation. (See also Exhibits "A," "B" [La Forest, Nelson, Autumn Wind Reports].)

1. Failure to Disclose Potentially Significant Impacts Prior to Mitigation

The IS/MND's use of purported design features to attempt to minimize the Project's unmitigated impacts violates CEQA's requirement that the lead agency must first determine the extent of a project's impacts before it may apply mitigation measures to reduce those impacts. (CEQA Guidelines, § 15370; *Lotus v. Dept. of Trans.* (2014) 223 Cal.App.4th 645, 651-52.) In addition, the CEQA Guidelines define "measures which are proposed by project proponents to be included in the project" as "mitigation measures" within the meaning of CEQA. (CEQA Guidelines, § 15126.4(a)(l)(A).) As described in Section 15370 of the CEQA Guidelines, "mitigation" includes:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

(*Lotus*, *supra*, 223 Cal.App.4th at 650.)

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 14

California courts interpreting Section 15370 have held that "avoidance, minimization and/or mitigation measures," are not "part of the project." (*Id.* at 656.) Rather, they are mitigation measures designed to reduce or eliminate environmental impacts of the Project, *and must be treated as such*. Mitigation measures cannot be incorporated in an IS/MND's initial calculation of the Project's unmitigated impacts because the analysis of unmitigated impacts, by definition, must accurately assess such impacts *before* any mitigation measures to reduce those impacts are applied. (*Id.* at 651-52.) An environmental document that conflates the analysis of impacts and mitigation measures into a single issue disregards the requirements of CEQA.

Because CEQA prohibits the conflation mitigation measures with project features, the IS/MND's lack of analysis of potential environmental impacts caused by the Project violates CEQA. The IS/MND should be revised to disclose the severity of all potentially significant impacts prior to mitigation.

2. Failure to Require Enforceable Mitigation

To be adequate under CEQA, mitigation measures must be enforceable through conditions of approval, contracts, or other methods to ensure the measures are legally binding. (Pub. Resources Code, § 21081.6, subd. (b); CEQA Guidelines, § 15126.4(a)(2); Lotus, supra, 223 Cal.App.4th at 651-52.) This requirement is intended to ensure that mitigation measures will actually be implemented, not merely adopted and then ignored. (Fed. of Hillside & Cyn. Ass'n v. City of Los Angeles (2000) 83 Cal.App.4th 1252, 1261; Anderson First Coalition v. City of Anderson (2005) 130 Cal.App.4th 1173, 1186.)

The IS/MND's reliance on design features (as opposed to binding mitigation) fails to meet this threshold requirement because the measures are not incorporated as binding mitigation measures in either the MMRP or proposed Conditions of Approval. As a result, the IS/MND fails to include any binding mechanism to ensure the applicant would actually implement these measures for the Project. Without an enforceable mechanism, the project features described in the IS/MND are little more than aspirations about what might occur, and the IS/MND's conclusions that the Project's impacts would be less than significant with these project features incorporated are unsupported.

If the County intends to rely upon project features to reduce or avoid potentially significant impacts, and to reduce those impacts to less than significant levels, the project features must be incorporated into the Project's MMRP and Conditions of Approval. (*Lotus*, *supra*, 223 Cal.App.4th at 651-52.)

3. <u>Impermissible Deferral of Mitigation</u>

Under CEQA, the lead agency must adopt all feasible mitigation measures that minimize the significant environmental impacts of a project. (Pub. Resources Code, § 21002;

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 15

CEQA Guidelines § 15126.4(a)(1).) Lead Agencies generally may not defer formulation of mitigation measures to the future. (CEQA Guidelines, § 15126.4(a)(1)(B).) A lead agency can only defer mitigation where, *inter alia*, the environmental document sets forth criteria governing future actions to implement mitigation, and the agency has assurances that future mitigation will be both "feasible and efficacious." (*Califs. for Alternatives to Toxics v. Dept. of Food & Agric.* (2005) 136 Cal.App.4th 1, 17.) Impermissible deferral occurs when an EIR calls for mitigation measures to be created based on future studies but the agency fails to commit itself to specific performance standards. (*Cal. Clean Energy Comm. v. City of Woodland* (2014) 225 Cal.4th 173, 195.)

Several mitigation measures identified in the IS/MND suffer from these defects, including:

- Mitigation Measure HYD-1 merely states that the applicant must receive permits, but it does not explain how those approvals might actually result in mitigation, or what that mitigation may entail. Rather, the mitigation is deferred to a later date. As such, the mitigation measure is unlawful.
- Mitigation Measure NOI-1 does not specify what noise-reducing measures must be used, and there is no performance standard or other guidance articulated. As such, this mitigation measure contemplates the impermissible deferral of mitigation.
- Mitigation Measure NOI-2 does not actually articulate mitigation, but merely restates the County's zoning code. There is no mitigation actually required, leaving mitigation up to future discretion by the County and/or the Applicant. It is thus invalid.
- Mitigation Measure FIRE-1 reserves the siting of facilities to a future date, without explaining which standards or other requirements with which the Applicant must comply. Rather, it leaves those measures to future discretion. This is the impermissible deferral of mitigation, and thus unlawful.

Similarly, several mitigation measures are impermissibly vague, including the

following:

 Mitigation Measure AES-2 is impermissibly vague because it does not provide any standards for screening; it merely provides for healthy, nonhazardous vegetation that "provides screening." This is insufficient under CEQA.

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 16

- Mitigation Measure AIR-4 does not specify which fugitive dust control measures must be implemented, or what the performance standard is to prevent migration. It is likewise deficient.
- Mitigation Measure CUL-2 is incomplete. While it requires a cultural resources monitor to be present, there is no verbiage concerning the what the role of the monitor might be, or what authority the monitor may have.
- Mitigation Measure NOI-1 is likewise incomplete. It does not state what "lowest allowable levels" actually are, or how those would reduce the noise volumes to less than significant. It likewise does not provide any standards for noise-reducing measures, but merely states that "noise-reducing measures" must be utilized.
- Mitigation Measure NOI-2 does not actually articulate mitigation, but merely restates the County's zoning code. It is vague because it does not actually articulate any affirmative measures, or create any enforceable mechanism to reduce noise, particularly during Project operation.

Moreover, as explained by Mr. La Forest in his comments, the IS/MND's noise-related mitigation measures are inadequate, "because they fail to prevent excessive increases in construction noise and operational noise levels at nearby homes, and because they would allow County planning staff to subsequently approve a new noise study and new noise mitigations without public review." (Exhibit "A.")

Further, as explained by Mr. Gilbert in the Autumn Wind comments, numerous air quality mitigation measures that are required to lessen impacts to a less-than-significant level have not been included. And the existing mitigation contains flawed language that violates CEQA. (See Exhibit "B" at 9-10.).

Until the above mitigation measures are corrected, the County may not adopt the IS/MND or approve the Project

F. The IS/MND Must Be Recirculated for Public Review

If, after circulation of an initial study, mitigation measures are changed, the initial study should be recirculated for additional public review. (See CEQA Guidelines, § 15073.5.) Based on the analyses included with this submission, and the arguments articulated above, at the very least, several mitigation measures must be adopted and/or revised. This appears to be recognized in the Rebuttal to Appeal and other documents, which make certain representations about mitigation of noise and dust, and other issues (without incorporating those alleged commitments as mitigation measures). (See also *supra*, § E.) As a result, the Project may not be

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 17

approved until several additional mitigation measures are added, at which time the IS/MND must be recirculated for public comment.

G. The Project Is Inconsistent With the Lake County General Plan and The County's Rivieras Area Plan

State planning and zoning law requires that all land-use decisions of counties must be consistent with the county's General Plan. (Govt. Code, § 65860, subd. (a); see also *Corona-Norco Unif. Sch. Dist. v. City of Corona* (1993) 17 Cal.App.4th 985, 994.) A "project is consistent with the general plan if, considering all its aspects, it will further the objectives and policies of the general plan and not obstruct their attainment." (*Corona-Norco*, *supra*, 17 Cal.App.4th at 994.) While perfect conformity may not be required, "a project *must* be compatible with the objectives and policies of the general plan." (*Endangered Habitats League, Inc. v. County of Orange* (2005) 131 Cal.App.4th 777, 782 [emphasis added] [citing *Families Unafraid to Uphold Rural etc. County v. Board of Supers.* (1998) 62 Cal.App.4th 1332, 1336].) "A project is inconsistent if it conflicts with a general plan policy that is fundamental, mandatory, and clear." (*Endangered Habitats, supra*, 131 Cal.App.4th at 782 [citing *Families Unafraid, supra*, 62 Cal.App.4th at 1341-42].)

The Project is inconsistent with several goals and policies of the County's General

Plan:

- General Plan Goal LU-1. The Project is inconsistent with this goal because it would discourage, diminish, and undermine agriculture and agricultural tourism, and in particular the wine industry. The Project would also diminish and undermine existing quality of life standards, particularly to nearby residents and businesses, due to noise, dust migration, aesthetic impacts, and other issues.
- General Plan Policy LU-1.1. The Project is inconsistent with this policy because it directs an urban use in a largely rural area, and not in an area occupied by similar industrial uses. It therefore does not direct growth toward existing communities. It likewise does not preserve open space, but rather undermines the preservation of open space, because it will result in an industrial use in an otherwise bucolic area.
- General Plan Policy LU-1.3. The facility contemplated by the Project is incompatible with adjacent residential, commercial, and agricultural uses. As such, the Project is inconsistent with this policy.
- General Plan Goal LU-2 and Policy LU-2.3. Because the Project contemplates an industrial, urban use in a rural area, it undermines the

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 18

County's ability to differentiate between urban and rural uses, and undermines the urban edge of existing communities.

- General Plan Policy LU-2.4. The Project does not contemplate any agricultural buffers or setbacks. As such, the Project is inconsistent with this policy.
- General Plan Policy LU-5. This Project contemplates an industrial facility on land not otherwise designated for such uses. As such, the Project is not consistent with this goal.
- *General Plan Policy LU-5.4*. The Project is entirely inconsistent with this policy, which requires compatibility of industrial projects with surrounding land uses.
- *General Plan Policy LU-5.5.* The Project is inconsistent with this provision because it contemplates access from a residential area.
- General Plan Policy LU-5.6. The Project is inconsistent with this policy because it was not permitted under a planned development process, and the property is over five acres in size.
- General Plan Policy LU-6.4. The Project is not a high quality development that will entice visitors, businesses, and permanent residents to the area; rather, it will undermine such attractive features. As such, the Project is inconsistent with this policy.
- General Plan Policy LU-6.7. The Project is inconsistent with this policy. Much community pride is built upon the numerous appellations and the winery industry in the County. This Project—placing an industrial land use in the middle of vineyards and tasting rooms—is inconsistent with this community feature.
- General Plan Policy LU-6.8. The Project is inconsistent with this policy because the Project undermines agritourism.
- General Plan Policy LU-7.10. The Project is inconsistent with this policy because the industrial facility will interfere with visual access to the hillsides, vineyards, and other distinctive natural areas.

- General Plan Policy LU-7.13. The Project would undermine agricultural uses and agritourism, as opposed to enhancing recreational features. As such, it is inconsistent with this policy.
- *General Plan Policy LU-7.15*. The Project does not contemplate screening of the facility, including visual impacts. As such, it is inconsistent with this policy.
- General Plan Policy HE-3.9. The residents and employees near the existing site have made numerous complaints regarding PG&E's operations on the site. However, those went unabated, with code enforcement taking no action. There is nothing in the Project approval to ensure code enforcement will ensure any nuisances are abated. As such, the Project is inconsistent with this policy.
- General Plan Policy HE-7.1. The Project will undermine nearby agricultural uses and agritourism, including local tasting rooms. It will also lessen the value of, and undermine, the Red Hills AVA. In addition, operations at the project site have already interfered with nearby commercial and residential uses. As such, the Project is inconsistent with this policy because it undermines the development of a job base.
- General Plan Policy PFS-6.2. To the extent the Project could be considered to include an electric facility, the facility would not be appropriately sited to minimize environmental and other impacts. As such, it is inconsistent with this policy.
- General Plan Policy HS-1.1. The County was unable to abate the nuisance caused by PG&E's use of the hammermill at the existing site. As such, the Project would be inconsistent with this policy, due to the danger that such fugitive dust and wood scrappign creates.
- General Plan Policy HS-3.4. The Project does not contemplate the paving of all internal roads used by trucks. In addition, there is a significant likelihood of continued dust associated with the Project. All of this is inconsistent with this policy.
- *General Plan Policy HS-3.10*. The Project does not contemplate adequate dust suppression measures and, as a result, it is inconsistent with this policy.
- *General Plan Goal N-1*. The Project is inconsistent with this goal because it would not shield residents, employees, and visitors from excessive noise.

- *General Plan Policy N-1.2.* The Project would result in impacts to sensitive receptors that would exceed the thresholds identified in Table 8-1. As such, the Project would be inconsistent with this policy.
- General Plan Policy N-1.3. For the same reasons as Policy N-1.2, the Project is inconsistent with this policy.
- *General Plan Policy N-1.4.* The Project proponents did not site the facility in a manner that would result in successful noise attenuation. Nor are any of the mitigation measures in this policy required to be implemented. As such, the Project is inconsistent with this policy.
- General Plan Policy N-1.5. The Project does not include any abatement for transportation noise, including noise associated with heavy vehicles. The mitigation measures in this policy have not been required. As such, the Project is inconsistent with this policy.
- General Plan Policies OSC-1.18, OSC-2.13, and OSC-2.16. The Project does not endeavor to reduce or minimize lighting impacts to nearby uses, including residential uses and tasting rooms. As such, the Project is inconsistent with these policies.
- *General Plan Goal OSC-2*. The Project contemplates bringing an industrial facility into a rural area, which will interfere with both views from the scenic road and uphill tasting rooms and vistas. As a result, the Project is incompatible with this goal.
- General Plan Policy OSC-2.1. Although the Project contemplates the design of an industrial facility within a rural area, none of the guidelines in this policy were implemented. As such, the Project is inconsistent with this policy.
- General Plan Policy OSC-2.7. The Project does not contemplate sufficient landscaping to shield the development from the scenic roadway or nearby tasting rooms. As such, it is inconsistent with this policy.
- General Plan Policy OSC-2.8. Although S.R. 29 is a designated scenic roadway, the Project contemplates an industrial development along the parcel abutting the roadway. The view of these facilities are not screened. As such, the Project is inconsistent with this policy.

- *General Plan Policy OSC-4.4.* The Project would result in the generation of dust, and thus would interfere with and undermine this policy.
- General Plan Policies GR-2.1, 2.3. The Project contemplated that industrial facilities with anticipated dust migration and wood chippings would be sited nearby residential properties, agricultural uses, and tasting rooms. This is inconsistent with these policies.
- General Plan Policy GR-2.4. Rather than using new technologies to curb environmental impacts, the Project relies upon wood-chipping that causes dust migration and health hazards for nearby residents. The Project is thus inconsistent with this policy.
- *General Plan Policy GR-2.15*. The Project does not seek to minimize dust migration or contamination drift, or otherwise minimize air emissions. As such, the Project is inconsistent with this policy.
- General Plan Policy GR-2.16. This energy Project would result in adverse environmental impacts, and would thus be inconsistent with this policy.
- General Plan Policy GR-2.17. The Project would result in significant adverse noise impacts, as explained in the LaForest report. As such, the Project is inconsistent with this policy.
- General Plan Policy GR-2.22. There is no requirement that all internal roads used by trucks be paved, which is inconsistent with this policy.
- o *General Plan Goal AR-1*. The Project undermines nearby agricultural and agro-tourism uses. As such, it is inconsistent with this goal.
- General Plan Policy AR-1.2. The Project undermines—rather than supports—nearby agricultural and agro-tourism uses. As a result, the Project is inconsistent with this policy.
- General Plan Policies AR-1.3, 1.4. These policies contemplate limiting non-agricultural development intensity around agricultural properties, while the Project does the opposite. No buffers or other mitigation measures were contemplated. It is thus inconsistent with these policies.
- *General Plan Policy AR-1.6.* No buffers have been suggested between the Project and agricultural land uses. The Project is inconsistent with this policy.

- General Plan Policy AR-1.7. This Project contemplates the extension of utilities, including electricity generation, into agricultural areas. It is thus inconsistent with this policy.
- General Plan Policies AR-2.1, 2.2, 2.6. The Project undermines agricultural development and agri-tourism by interfering with vineyards and tasting rooms. It does not promote agriculture or economic development of agriculture in any way. As such, it is inconsistent with these policies
- Rivieras Area Plan Objective 3.4.1a (Recognition by residents that preservation of agricultural lands provides privately maintained open-space and facilitates a rural lifestyle). The Project contemplates an industrial land use adjacent to agricultural and agri-tourism uses. The Project undermines those uses. The Project is inconsistent with this objective.
- Rivieras Area Plan Objective 3.4.1b (Protection of agricultural lands and operations from conflicting uses). The Project contemplates an industrial land use adjacent to agricultural and agri-tourism uses. The Project conflicts with and undermines those uses. The Project is inconsistent with this objective.
- Rivieras Area Plan Policy 3.4.1a (Buffer zones shall be incorporated into new projects adjoining dissimilar uses to reduce land use conflicts). The Project contemplates an industrial land use adjacent to agricultural and agritourism uses. The Project undermines and conflicts with those uses. No buffers were proposed. The Project is inconsistent with this objective.
- Rivieras Area Plan Policy 3.4.1b (Lands adjacent to agricultural lands shall be designated for low density use, wherever feasible, to serve as buffer areas between agricultural operations and suburban and higher density uses). The Project contemplates an industrial land use adjacent to agricultural and agri-tourism uses, as opposed to low density land uses. The Project is inconsistent with this objective.
- Rivieras Area Plan Policy 3.4.1c (Prohibit new non-agricultural uses in agricultural areas that can interfere with any normal agricultural operations or its necessary accessory uses). The Project contemplates an industrial land use adjacent to agricultural and agri-tourism uses. The Project undermines those uses, and interferes directly with those uses through dust and pathogen migration, as well as interfering with agritourism and tasting rooms. The Project is inconsistent with this objective.

- Rivieras Area Plan Objective 3.5.2a (To take measures to protect and enhance scenic resources in the Rivieras Planning Area and promote a visually appealing environment). The Project seeks to place an industrial facility near a scenic roadway, and in a place where it can be visible from, and on the way toward, tasting rooms. The Project will undermine scenic resources, and it will be inconsistent with this objective.
- Rivieras Area Plan Objective 3.5.2b (To maintain the rural character of the planning area). The Project contemplates the introduction of industrial facilities into a rural areas. It is inconsistent with this objective.
- Rivieras Area Plan Policy 3.5.2a (The County shall encourage utility lines to be installed underground wherever possible. Where installing utilities underground is not practical, lines shall be sited in a manner that minimizes their visual intrusion). The Project contemplates above-ground facilities where it is feasible to construct underground utilities. It is thus inconsistent with this policy.
- Rivieras Area Plan Policy 3.5.2b (The siting of structures must not only reflect appropriate setbacks, but also consider the rural vista. Buildings should complement and not block views). The industrial facilities interfere with the rural vista, both from the scenic roadway, as well as nearby tasting rooms. The Project is thus inconsistent with this policy.
- Rivieras Area Plan Objective 3.5.2c (Protect the natural scenery along scenic highways and roads from new development that would diminish the aesthetic value of the scenic corridor). The industrial facilities interfere with the rural vista from the scenic roadway. The Project is thus inconsistent with this objective.
- Rivieras Area Plan Policy 3.5.2c (New development along scenic corridors should be designed to relate to the dominant character of the corridor or of a particular segment of the corridor. Relationships shall be achieved in part through regulations concerning building form, site location and density of new development). The industrial facilities interfere with the rural vista from the scenic roadway. The Project is thus inconsistent with this policy.
- Rivieras Area Plan Objective 3.5.2d (To establish and enforce design standards which will give the County, private property owners and developers a tool to achieve the highest architectural, functional, costeffective and environmental quality). The Project does not incorporate the

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 24

highest architectural, functional, cost-effective and environmental quality design. It is thus inconsistent with this objective.

- Rivieras Area Plan Objective 4.4.1 (To protect the health of residents of the Rivieras Planning Area from poor or diminished air quality). Wood chipping operations has interfered with the health of nearby residents and employees. The Project contemplates that those activities would be permitted, continue, and promoted. The Project is thus inconsistent with this objective.
- Rivieras Area Plan Objective 4.4.2 (To maintain clear visibility for the area's view sheds). The industrial facilities interfere with the rural vista, both from the scenic roadway, as well as nearby tasting rooms. The Project is thus inconsistent with this policy.
- Rivieras Area Plan Objective 5.2.1b (Ensure that new development does not conflict with existing development). The Project contemplates the introduction of industrial facilities into a rural areas. It is inconsistent with this objective.
- Rivieras Area Plan Objective 5.5.4 (To promote development of agricultural uses and support the continued viability of Lake County's agricultural economy). The Project undermines agri-tourism and agricultural uses, as described herein. The Project is inconsistent with this policy.
- Rivieras Area Plan Policy 5.5.4 (Development adjacent to incompatible uses shall be designed to provide a buffer in the form of a setback of sufficient distance to avoid land use conflicts between the agricultural use and the non-agricultural use. Such setback or buffer areas shall be established by recorded easement or other instrument that reserves it in perpetuity. A method and mechanism (for example, a homeowner's association or easement dedication to a non-profit organization or public entity) for guaranteeing the maintenance of that area in a safe and orderly manner shall be established, if necessary). The Project contemplates an industrial land use adjacent to agricultural and agri-tourism uses. The Project undermines and conflicts with those uses. No buffers were proposed. The Project is inconsistent with this objective.

Based on the foregoing, the Project conflicts with both the County's General Plan, as well as the Rivieras Area Plan. The Project thus violates state planning and zoning law. The Project should be denied.

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 25

H. Conclusion

For each of the foregoing reasons, the County should not adopt the IS/MND for the Project, and should decline to approve Project. Although my clients believe the Project should fail on its own merits, the Project may not be approved unless the County prepares a full environmental impact report to fully evaluate the numerous potentially significant effects of the Project, and to fully mitigate each of those negative environmental effects.

Respectfully submitted,

John P. Kinsey

Enclosures

Board of Supervisors, County of Lake Mark Roberts, Principal Planner August 17, 2020 Page 26

Enclosures

Exhibit A: August 14, 2020, Noise Impacts Report, Dale La Forest & Associates

Exhibit B: August 13, 2020, Air Quality Analysis, Autumn Wind Associates

<u>Exhibit C</u>: August 16, 2020, Report on Agricultural Impacts of the Red Hills BioEnergy Project, Clinton Craig Nelson

Exhibit D: April, 21, 2020, Supplemental Project Description

Exhibit E: May 7, 2020, Response to Appeal

Exhibit F: photographs of surrounding area showing proposed location of Project

EXHIBIT A

Dale La Forest & Associates Environmental Design & Planning 101 E. Alma Street, Suite 100-A Mt. Shasta, California 96067 dlaforest@gmail.com

Phone: (530) 918-8625

Phone: (559) 233-4800, Ext. 216

John P. Kinsey, Esq. Wanger Jones Helsley PC 265 E. River Park Circle, Suite 310 Fresno, California 93720-1553

NOISE IMPACTS REPORT

Initial Study/Mitigated Negative Declaration for Red Hills Bioenergy Project Major Use Permit UP 19-05 Initial Study IS 19-09

Dear Mr. Kinsey: August 14, 2020

At your request, I have prepared this Report in response to the County of Lake's IS/MND for the Red Hills Bioenergy Project ("Project"). My qualifications are attached hereto as "Attachment 2". This report shows that the Project's noise impacts are potentially significant under the California Environmental Quality Act, Pub. Res. Code § 21000 *et seq.*, ("CEQA") and will exceed maximum permissible noise standards set by the County of Lake ("County").

During its operations, the Project would subject nearby homes and businesses to excessive noise levels from its proposed chipper operation, its generators' noise, and its heavy equipment with backup beepers and wood chip delivery truck use of the Project site.

Because operational noise impacts not fully disclosed in the Project's Initial Study will likely exceed applicable significant thresholds under the County's Zoning Ordinance and General Plan, the Planning Commission's approval of an IS/MND is inappropriate per 14 Cal. Code. Regs. § 15000 *et seq.* (the "CEQA Guidelines").

Hence, the County should require the Project applicant to prepare a more demanding CEQA review such as an environmental impact report ("EIR") to consider feasible mitigation measures.

EXECUTIVE SUMMARY

1. CEQA requires this IS/MND to have evaluated if the **magnitude of the increase** in noise levels this Project may create at sensitive receptors by comparison to existing ambient noise levels will be significant. But the IS/MND never examined such increases. The IS/MND does not provide any measurements of ambient conditions at neighboring homes nor evaluates the Project's likely increase in such noise levels. That failure violates CEQA and is important because this Project will generate loud noise level increases at neighboring homes. (See p. 4 of this Report.)

- 2. The use of **backup warning alarms** during chip truck deliveries and front-end loader operations will create noise levels that will exceed the County's Zoning Ordinance's maximum daytime noise standards at all seven nearest sensitive receptors. (See p. 6)
- 3. Loud **electrical generator noise** levels will exceed County standards and greatly affect nearby homes, especially at night. The Zoning Ordinance sets a maximum noise level at nighttime of 45 dBA L_{eq}-1 hr. The County's General Plan sets a limit of a *Maximum Allowable Noise Exposure level* of 60 dBA CNEL for "conditionally acceptable" uses at a residential land use. The General Plan also states: "*indoor noise levels for residential uses shall not exceed 45 dBA CNEL*." This Project however will generate noise levels from just its **generators'** operation that will exceed all of these standards at several homes. When the daytime operations in the chipyard and delivery truck noise are added the generator noise, the total Project noise will exceed these noise limits at other homes nearby. (See p. 10)
- 4. Constant use of a **loud wood chipper** in this residential neighborhood will produce noise levels that exceed permissible standards. The County Zoning Ordinance prohibits this Project from generating daytime noise levels greater than 55 dBA L_{eq-1 hr.} at residences. But just the use of a wood chipper will create noise levels at seven nearby sensitive receptors that will exceed this noise standard and thus violate the Zoning Ordinance. (See p. 20)
- 5. Operation of the **front-end loader** during Project operations will create noise levels that exceed County noise standards at all five nearest homes. (See p. 24)
- 6. **Construction-related** short-term noise impacts to neighboring homes will be significant. Site clearing and construction activities could generate serious noise level increases at these homes of potentially 20 to 40 dBA louder than existing ambient noise levels at some homes. (See p. 25)
- 7. The IS/MND's **noise mitigations are inadequate** because they fail to prevent excessive increases in construction noise and operational noise levels at nearby homes, and because they would allow County planning staff to subsequently approve a new noise study and new noise mitigations without public review, thus violating established CEQA case laws. (See p. 28)

The consequence of the IS/MND's failure to comply with CEQA and to reveal that this Project will likely violate County noise standards is that its approval must be overturned and an EIR be prepared before this Project is allowed to proceed.



Figure A – Map of Noise Sensitive Receptors Near Project Site

IS/MND FAILS TO DESCRIBE LOCATION OF SOME NOISE-SENSITIVE RECEPTORS

To evaluate a project's noise impact on adjacent residents or businesses, an IS/MND must first identify accurately *where* the likely affected sensitive receptors" are located in relation to the Project's noise-generating activities. Typically the location of such noise-sensitive neighbors are indicated on a map in an IS/MND. But this Project's IS/MND does not contain such a map, nor even a text description that accurately informs the public where all these noise-affected sensitive receptors are with their distances to the Project's noisy operations. The Noise Impact section of the IS/MND is only two pages long² and has no maps at all.

Of the seven potentially-noise-impacted sensitive receptors in the Project's vicinity, the IS/MND p. 24 only vaguely and even incorrectly mentions the distance to three of them.³ Onsite **House B** (200 feet) and Onsite **House A** (300 feet) and Offsite **House C** ("about 800 feet") to the southwest of the proposed building. (*See* this Report's <u>Figure "A"</u> - *Map of Noise Sensitive Receptors* on the previous page for all seven relevant noise-sensitive receptors.)

But the location of some other likely-noise-affected homes and a nearby commercial office are never described in the IS/MND. By not including these other sensitive receptors, the IS/MND underestimates the extent of this Project's potentially significant noise impacts. These additional locations include:

- One unmentioned nearby **home** (herein labeled **House D**) is located just south of **House C**. It is about 900 feet southwest of the proposed generators according to Google Earth's distance measuring tool.
- Another unidentified **home** (now labeled **House E**) is located above 1,300 feet east of the Project's chipping and biomass storage yard. This house is at 7140 Eagles Nest Lane. Its residents have been adversely affected by previous noisy PG&E wood chipping operations on the Project site, as stated in their emails to planning officials dated February 3, 2020.
- A **travel trailer** is located onsite about 450 feet southeast of the Project's chip yard and biomass storage area. This trailer is mentioned in the IS/MND, but its correct distance to noise-producing activities is not provided there. Nor is any mention made of the amount of Project noise its occupants will be exposed to, including at nighttime when they may be attempting to sleep amidst the loud generator noise that will occur 24 hours per day.
- A **business office** for the Eagle's Nest Self Storage facility is about 1,170 feet east-northeast of this Project's proposed chipping and biomass storage yard.

As will be shown in this Report, these additional unidentified noise-sensitive receptors will likely be significantly impacted by this Project's noise.

-

¹ A noise-sensitive receptor is any property where frequent human use occurs and where a lowered noise level would be beneficial to reduce significant noise impacts.

² See: *IS/MND*, pp. 24 – 45, Section XIII, Noise chapter of a checklist.

³ See: IS/MND p. 24, where it states: "The "Level 2" housed gen-set would be located on the west side of the building, over 140 feet from Red Hills Road, over 200 feet from the nearest on-site residence, and 800± feet from the nearest off-site residence."

THE IS/MND PROVIDES NO AMBIENT NOISE LEVEL MEASUREMENTS

The County General Plan requires "project specific acoustical studies for projects where existing or project-related noise levels exceed County noise standards." ⁴ This would be such a project because its noise levels would exceed County Noise Ordinance and General Plan noise standards. Part of such a required acoustical study is the assessment of the "noise environment in the general project vicinity." (See: General Plan, p. 8-6) To assess the noise environment, ambient ⁵ noise level measurements are required of conditions near existing homes. But the IS/MND contains no ambient noise level measurements. Nor does it contain an acoustical study. In their absence, this Project is inconsistent with the General Plan and the Zoning Ordinance, § 41.11 Noise.

Conformity with a general plan does not insulate a project from EIR review where it can be fairly argued that the project will generate significant environmental effects. The County's exclusive reliance on specific decibel metrics does not provide a complete picture of the noise impacts that may result from the Project. The setting here includes a quiet rural location and very few homes in the neighborhood. The intrusion of this noisy industrial facility will likely result in a large increase in magnitude in noise levels at these homes. The ambient noise levels at neighboring homes are essentially baselines for comparison to the noise levels that will result from Project activities. For projects like this, CEQA requires ambient measurements. Ambient noise levels in the IS/MND would have allowed County officials or the public to have evaluated the magnitude and significance of the Project's noise level *increases*.

THE IS/MND FAILS TO EVALUATE THE MAGNITUDE OF THE NOISE LEVEL INCREASES

Under Appendix G to the State CEQA Guidelines, ⁶ a project's noise impact is normally significant if:

- Exposure of persons to or generation of noise levels is in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- A substantial permanent increase in **ambient** noise levels in the project vicinity above levels existing without the project; or
- A substantial temporary or periodic increase in **ambient** noise levels in the project vicinity above levels existing without the project.

Page 5

⁴ See: County of Lake General Plan, p. 8-6, Table 8-2, Noise Implementation Measure 1.0.

⁵ Ambient Noise is defined "the all-encompassing noise associated with a given environment, being usually a composite of sounds from many sources near and far. Ambient noise level is the level obtained when the noise level is averaged over a period of at least 15 minutes without inclusion of noise from occasional or occasional and transient sources, at the location and time of day near that at which a comparison is to be made."

⁶ California Natural Resources, Appendix G- Environmental Checklist Form, http://resources.ca.gov/ceqa/guidelines/Appendix_G.html Also, the current version of Appendix G for noise impacts, while recently revised, still directs the County to consider if the project's increase in ambient noise levels in the vicinity of the project may be substantial.

Neither the County nor the public can evaluate the Project's noise level increase without having that ambient noise level data. As a result, the IS/MND could not evaluate if there might be a substantial short-term noise level increase during construction or a permanent noise level increase during subsequent operations.

Generally, if a project's operational noise increases the overall noise level at a neighboring residence by 5 dBA or more, that much of an increase is considered by many California agencies and the courts to be a significant noise impact.⁷

But the IS/MND never analyzes how loud the combined noise level will be of this Project's activities when added to the existing noise levels at that neighboring home. Nor does the IS/MND disclose what the ambient noise level at that home currently is. As the result, the IS/MND fails to comply with CEQA because it does not discuss how much of an increase in noise levels at this home will result once the Project begins operating.

Instead, and without credible data or analysis, the IS/MND concludes this Project's noise levels will not exceed the County's allowable noise standards at that neighboring home. But that comparison only to the County's noise limit standards is not consistent with CEQA. The IS/MND should also have examined the magnitude of the noise level increase. The IS/MND fails to explain why the magnitude of the increase in ambient noise levels played no role in determining whether the change would be significant.

In a court decision: *King and Gardiner Farms, LLC v. County of Kern et al* (2020) 45 Cal.App.5th 814, 830, the Court of Appeal ruled:

"As to the project's noise impacts, the County determined the significance of those impacts based solely on whether the estimated ambient noise level with the project would exceed the 65 decibels threshold set forth in the County's general plan. Based on prior case law, we conclude the magnitude of the noise increase must be addressed to determine the significance of change in noise levels."

This is the same error made in this Project's IS/MND. The IS/MND, on pages 24 – 25, compares the County's maximum noise standards and concludes the Project's noise levels will comply with those standards. Nowhere does the IS/MND consider the magnitude of the Project's noise level increases at nearby sensitive receptors. The IS/MND, p. 24, fails to include any mention of a substantial increase in noise levels triggering its significance criteria. Because the IS/MND is

vicinity of the project in excess of standards established in the

⁷ See: <u>King and Gardiner Farms</u>, <u>LLC v. County of Kern et al</u> (2020) 45 Cal. App.5th 814, 892. https://scholar.google.com/scholar_case?case=4251652402952652772 increase in ambient noise levels in the

⁸ The IS/MND p. 24 for XIII Noise *Significance Criteria* only states: "The Project would have a significant impact if it temporarily or permanently exceeded local noise standards in the vicinity of the Project, generated excessive groundborne noise or vibration; or would expose people residing or working in the area to excessive noise levels from public airports or private airstrips." The IS/MND p. 24, § XIII, never answers its question, would the project result in: (a) Generation of a substantial increase in ambient noise levels?

seriously flawed in this regard, an EIR must be prepared to evaluate if the magnitude of such noise level increases would be significant.

NOISE IMPACTS OF HEAVY EQUIPMENT BACKUP WARNING ALARMS WOULD SIGNIFICANTLY EXCEED NOISE ORDINANCE STANDARDS

The IS/MND fails to analyze the noise impacts to the neighbors from this Project's heavy equipment backup warning beepers. Such backup alarms are mandated on the haul trucks delivering wood chips and on the front end loader. That noise could be very audible and annoying at some homes near this Project site. As discussed below, noise levels from those backup beepers would be illegal in this setting because they will significantly exceed the County's maximum noise standards at neighboring properties.

Backup alarms are required to protect workers from being run over by heavy equipment. For onground workers, it is crucial to detect backup alarm signals as far away as possible rather than at close distances since this will provide them more time to react to approaching vehicles. However the required single-frequency tone used in typical backup alarms is not uniformly loud in all directions. For that reason, alarm manufacturers often make these alarms extra loud to protect their companies from liability as well as to protect nearby workers. Workers also often wear over-the-ear hearing protectors, like ear muffs, to protect their hearing from the loud heavy equipment operational noise. No reasonable worker using the Project's heavy equipment and very loud chipper would work without hearing protection. Such hearing protectors however reduce workers' ability to localize the direction of the backup alarms and move safely out of harm's way. Accordingly they require the alarms be louder than required to provide them an adequate safety margin.

"The use of these hearing protectors may impair the ability to localize sound, i.e., recognize the direction of the source of the sound. For safety reasons, under industrial conditions, it is vital to be able to correctly localize the noise source, which particularly applies to vehicle back-up alarm signals. Localization enables the user to take action to avoid being hit by a vehicle." ¹⁰

Such backup alarms are typically the loudest equipment used on such wood chipping operations, so it is inexcusable the IS/MND is entirely silent on revealing the amount of their noise impacts.

Backup alarms or beepers are a frequent source of complaints from neighbors, whether they are used during the daytime or nighttime. Backup alarms must generate a noise level at least 5 to 10 dBA above the background noise in the vicinity of the rear of the machine where a person would be warned by the alarm. Thus, they are significantly louder than the Project's proposed

Page 7

⁹ See: Impact of Hearing Protection Devices on Sound Localization Performance, by Véronique Zimpfer and David Sarafian (2004), available online at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4052631/ A copy of this document is available to County officials if requested.

¹⁰ See: Localization of Vehicle Back-Up Alarms by Users of Level-Dependent Hearing Protectors under Industrial Noise Conditions Generated at a Forge; Int. J. Environ. Res. Public Health 2019, 16, 394; doi:10.3390/ijerph16030394 www.mdpi.com/journal/ijerph A copy of this document is available to County officials if requested.

chip delivery trucks and front end loader equipment's engine noise. Yet the IS/MND fails to describe these alarms' decibel rating. The applicant has not agreed to place specific decibel limits on their loudness. Backup alarms typically produce from 97 to 112 decibels at four feet, ¹¹ which attenuates to about 75 to 90 dBA at 50 feet, ¹² and can even be heard at the distances where the surrounding neighbors live. At the noise levels the neighbors will hear, backup alarm noise would exceed the County's maximum limit for *pure tone* noise sources of 49 dBA L_{max} at residential property lines. ¹³ These backup alarms beep about once per second at a penetrating frequency of about 1,000 Hertz¹⁴ which is designed to be easily heard by most people.

The County's Noise Ordinance, § 41.11(c), seeks to protect residentially-zoned and commercially-zoned property from loud, annoying unusual noise. It limits the maximum noise level for "noises of unusual periodic character," such as noise with a "pure tone" characteristic. A "pure tone" is simply definable as a single frequency sound such as a backup beeper emits. Pure tone noise is unusual and more annoying, and thus the County's Noise Ordinance, with its Table 11.3, sets limits on the median octave band noise levels. Octave Frequency Bands divide the audio spectrum into 10 equal parts. The specific octave band pertinent in this Project's case to backup beeper alarms has a center frequency of 1,000 Hz, and it ranges in frequency from 710 to 1420 Hz. This center frequency of 1,000 Hz is the median frequency of this octave band. According, the County's Table 11.3 limits the maximum sound pressure level for pure tone noise like backup alarms of 1,000 Hz during the daytime (7 a.m. to 10 p.m.) to at most 49 dBA L_{max} as heard at residential properties beyond the Project site. This limit is a maximum allowed noise level, not an average. Unlike other noise standards in the Noise Ordinance, this limit is not complicated by requiring the difficult, logarithmic averaging the source's noise level over an hour. It is therefore simple to measure and to calculate. If the backup alarms would create a pure tone louder than 49 dBA at the property line of any residential property, they would violate the County's Noise Ordinance. It can be readily shown that this Project's backup alarms will greatly exceed that noise level limit at neighboring properties or homes. Their use would also exceed the permissible limit at the neighboring Eagle's Nest Self Storage commercial storage business.

Backup Alarm Noise Levels at Homes "A" and "B" Exceed Noise Ordinance Limits

The nearest home (labeled *House B* on the Site Plan) is on-site and about 200 feet south of this Project's chip yard. The backup alarm noise level at that home would be as loud as about 78 dBA L_{max} , or 29 dBA louder than the County's maximum permitted pure tone noise limit.

¹¹ Source of back-up alarm noise levels from alarm manufactured by Pollak, #41-761, "Manually adjustable Back-up Alarm," rated at 112, 107, 97 dB.

Holzman, David C. (2011-01-01). "Vehicle Motion Alarms: Necessity, Noise Pollution, or Both?" available online at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018517/

Environ Health Perspect. 119 (1): A30–A33. doi:10.1289/ehp.119-a30. PMC 3018517. PMID 21196143 A copy of this report will be made available to County officials if requested.

¹² Noise level attenuation due to distance is calculated as reduced by about 6 dB for each doubling of distance, and 7.5 dB for each doubling of distance beyond 1,000 feet from the noise source due to atmospheric attenuation.

¹³ See Lake County Zoning Ordinance, § 41.11(c).

¹⁴ See: "Vehicle Motion Alarms: Necessity, Noise Pollution, or Both?" available online at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018517/

That assumes the alarms emit up to 112 decibels as measured at a distance of four feet away. ¹⁵ Nothing in the Project Description prohibits the applicant's use of typical backup alarms of that loudness.

The next home (*House A* on the Site Plan) is about 310 feet at the closest from this chip yard. At that distance, the backup alarms' noise levels could be up to 74.2 dBA L_{max} . (Calculated being 6 dB quieter for each doubling of distance.) That noise level would also be illegal because it could be about 25 dB louder than the County's maximum pure tone noise limit of 49 dBA.

Backup Alarm Noise Levels at Homes "C" and "D" Exceed Noise Ordinance Limits

The nearest off-site homes are located to the southwest of the Project chip yard by about 720 feet (House C) and about 900 feet (House D). (See Figure A, Map of Noise Sensitive Receptors Near Project Site on page 3 of this Report). These distances are estimated using Google Earth's measuring tool.

As discussed above, a single backup warning beeper emitting 90 dBA at 50 feet could be as loud as 66 dBA at a home 720 feet away at House C. Noise levels there of 66 dBA L_{max} could be 17 dBA greater than County's maximum pure tone limit of 49 dBA L_{max}. (See Figure A for location of House "C") At this House C's nearest property line where the Noise Ordinance applies about 650 feet away, the backup alarms would be even louder.

At **House D** located about 900 feet from the chip yard, the backup beeper noise level could be as loud as nearly 65 dBA L_{max} . That back up alarm noise level at House D would exceed the County's maximum pure tone noise level standard of 49 dBA L_{max} by about 16 dB.

Backup Alarm Noise Levels at House "E" Exceeds Noise Ordinance Limits

Another home exists about 1,300 feet to the east of the Project's chip yard, (see Figure A, House E). At that **House** E, such backup beepers operated in the chip yard could create noise levels of up to about 60.4 dBA L_{max} . Even if the intervening ground is assumed to be "soft" with a greater drop-off rate over that distance of 7.5 dB per doubling of distance, the resulting noise level of about 53.3 dBA L_{max} would still exceed the <u>County's maximum pure tone noise limit of 49 dBA</u>. ¹⁸

Backup Alarm Noise Levels at Adjacent Eagles Nest Self Storage Office Exceeds Noise Ordinance Limits

 $^{^{15} \} Calculation: \ dB_2 = dB1 - \ 10 \ x \ A \ x \ LOG(R_2/R_1) = 112 - 10 \ x \ 2.0 \ x \ LOG \ (200' \ / \ 4') = 78.0 \ dBA$

¹⁶ Calculation: $dB_2 = dB1 - 10 \text{ x A x LOG}(R_2/R_1) = 112 - 10 \text{ x 2.0 x LOG}(310' / 4') = 74.2 dBA$

¹⁷ Calculation: $dB_2 = dB1 - 10 \text{ x A x LOG}(R_2/R_1) = 112 - 10 \text{ x 2.0 x LOG}(1,300^{\circ}/4^{\circ}) = 61.7 \text{ dBA}$; however at a distance of 1,300 feet, atmospheric attenuation could reduce that noise level by approximately 1.3 dBA, resulting in a noise level at that home of about **60.4 dBA** L_{max*}

¹⁸ Calculation: $dB_2 = dB1 - 10 \text{ x A x LOG}(R_2/R_1) = 112 - 10 \text{ x 2.5 x LOG} (1,300' / 4') = 54.6 dBA$. Then with a reduction due to atmospheric attenuation of 1.3 dB over 1,300 feet, that would result in **53.3 dBA** L_{max} .

Even the commercial office to the northeast of the Project's chip yard could be exposed to excessive noise from these backup beeper alarms. The Eagles Nest Storage company's office building is located about 1,170 feet from the Project's chip yard. The County's Noise Ordinance § 41.11 however establishes its Table 11.3 and Table 11.4 decibel limitations even closer at the western property line of this commercial property, and that property line is only about 700 feet to the east of the chip yard. For commercial properties exposed to loud noise, the Noise Ordinance Table 11.4 adds 5 dB to the 1000 Hz median octave band noise level limitation of 49 dB, and therefore limits these backup alarms generating pure tones to at most 54 dBA L_{max} . But at 700 feet, such alarms might emit noise levels up to 67 dBA L_{max} , thus exceeding that limit by 13 dB. Even at the actual commercial office building about 1,170 feet away, that backup alarm noise level could reach about 61 to 62 dBA L_{max} depending upon atmospheric absorption. That pure tone noise level of at least 61 dBA L_{max} would exceed the County's commercial noise level limit of 54 dBA L_{max} by about 7 dB.

Conclusion about Backup Alarm Noise Impacts

As shown above, there are five homes (labeled A, B, C, D and E on **Figure A** on page 3 of this Report) and a commercial office where this Project's backup alarms could generate noise levels that exceed the County's Noise Ordinance maximum permissible standards. Such calculated exceedances present a fair argument of significant noise impacts at those homes and nearby office. Such a potential violation of the Noise Ordinance must be evaluated in a subsequent environmental study in order to be consistent with CEQA.

ELECTRICAL GENERATOR NOISE LEVELS WILL EXCEED COUNTY STANDARDS AT NEARBY HOMES

What resident of a quiet rural residential neighborhood would want to have his or her home exposed to loud industrial noise that would continue non-stop for 24 hours every day? But this is exactly what will occur with this Project's two loud electrical power generators. Their noise levels will even violate the County's noise standards during day or night unless major changes are made.

The County of Lake Noise Ordinance, in Section 41.11, Table 11.1, sets a *nighttime* maximum one-hour equivalent sound pressure level of **45 dBA** L_{eq} -**1 hr.** for residential property exposure. This noise standard could be exceeded at nighttime at several homes just by operation of the Project's two generators as summarized here, and explained in greater detail below:

- As shown below, the noise emissions from the generators when calculated at House B would be about 65.4 dBA L_{eq}-1 hr. That noise level exceeds the Zoning Ordinance's maximum allowed *nighttime* standard of 45 dBA L_{eq}-1 hr.
- At **House A**, about 570 feet from the generators, it would be exposed to *nighttime* noise levels of about **58.2 dBA** L_{eq}-1 hr., in excess of the Zoning Ordinance standard.
- At the onsite existing **Travel Trailer** site about 690 feet from the proposed generators, its noise exposure during any nighttime hour if doors are open would be about **56.5 dBA** L_{eq}-1 hr., also exceeding the Zoning Ordinance maximum-allowed 45 dBA L_{eq}-1 hr.

standard. If the metal building's doors are shut, that generator noise level might be 10 dB less due to the building's barrier effect, resulting in a noise level at the travel trailer of about 46.5 dBA L_{eq} -1 hr. That too would exceed the County's nighttime noise standard.

• Even at the offsite **House** C located about 720 feet southwest of the proposed generators, its exposure to generator noise at nighttime would exceed this Zoning Ordinance maximum noise standard. At that distance, the generator noise would diminish to about **56.2 dBA** L_{eq}-1 hr., and would exceed the County's maximum of 45 dBA L_{eq}-1 hr.

A project that would generate noise levels in excess of local noise standards is considered to create a significant noise impact. The IS/MND never evaluates the generator's compliance with the County's Noise Ordinance though. Instead, the IS/MND substantially underestimates how much noise the Project's two generators will produce. The information from the applicant as presented to the Planning Commission describes a generator noise level of **79 dBA** when measured at a distance of 23 feet. That estimation is significantly flawed for these reasons:

Applicant Underestimates Generator Noise

The IS/MND does not state how loud the Project's two generators will be. Instead, in a revised *Supplementary Project Description* released after the close of the comment period on the IS/MND and not included as part of the Project Description, the applicant claims its generators will produce noise levels of "79 dBA at a distance of 23 feet." ¹⁹ But according to the applicant's submitted product specifications, ²⁰ that decibel rating is actually **83 dBA at 23 feet**, and it is for only one generator. Moreover, the Project proposes two generators that will both operate at the same time for 24 hours per day. The combined noise levels they both would emit could be over 3 dB louder on average, which would be **86.1 dBA at 23 feet.** That difference of over 7 dBA in noise levels between the applicant's claim and the actual data for two generators is significant. Calculation:

Sound levels in decibels are logarithmic values that cannot be combined by normal algebraic addition. Instead, the sound levels in decibels are first converted to energy equivalents, the energy equivalents are added algebraically, and the total energy equivalent is converted back to its decibel values.

Calculation: $L = 10 \times Log_{10} (10^{8.3} + 10^{8.3}) = 86.1 \, dBA$ for 2 generators This cumulative result of 86.1 dBA can alternatively be verified using this online decibel addition calculator: http://www.sengpielaudio.com/calculator-spl.htm

Applicant's Specifications Underestimate Neighboring Noise Exposure Because They Are for *Average* Noise Levels, Not *Maximum* Levels as used by County Noise Standards.

The Applicant's possible reliance upon a generator noise level of 83 dBA is apparently only an *average* noise level stated by the manufacturer. But these generators are louder in some

Page 11

¹⁹ See: Scotts Valley Band of Pomo Indians' Supplementary Project Description, 04/21/2020, p. 2, for this claimed noise level of 79 dBA at 23 feet distance. Nothing in the IS/MND supports that claim of 79 dBA at 23 feet.

²⁰ See: IS/MND PDF p. 127, which specifies that an Gillette Generator Model T4D-1500 when equipped with a "Level 2 Critical Silencer" (an enclosure) will emit 83 dBA when measured at 23 feet on average during normal operations.

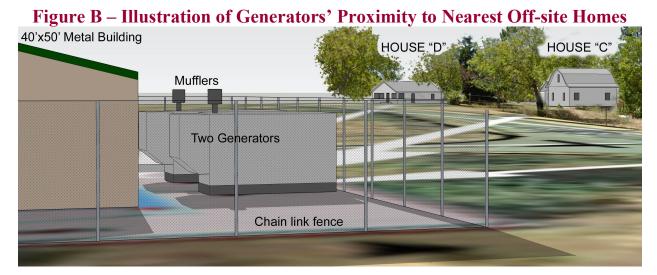
directions compared to their *average* noise level. For example, noise emits to a greater extent from the generators' exhaust ports which are located on one side of their enclosures. That is a similar phenomena to the noise level many automobiles emit being louder at the rear by their exhaust pipes. Because the IS/MND is tasked with analyzing how much noise neighboring homes may be exposed to, it must consider the *maximum* noise emissions that will be greater in directions toward some homes and not the others. The IS/MND fails to do that.

Even the placement of two noisy generators immediately west of the proposed metal building does not guarantee their combined noise emissions will be uniformly distributed or adequately silenced at nearby homes.

There is no evidence in the IS/MND to support its claim that generator noise will not exceed the County's noise standards at residences. The IS/MND provides no calculations of that claim. Besides, there are other applicable noise standards that CEQA requires be evaluated. As discussed above, those include increases in ambient noise levels, not just the fixed noise level standards that Lake County has adopted.

Calculation of Generator Noise Levels at Nearby Homes

One of this Project's most significant noise impacts will occur from the 24-hour per day operation of the two diesel-powered electrical generators as heard at some nearby homes. The IS/MND fails to accurately disclose that significant noise impact. The IS/MND, p. 4, "Site Plan," shows the two "Level-2" aluminum-housed Gen-Sets proposed to be located outside the metal building on its west side and with direct line-of-sight to some off-site residences, as illustrated here:

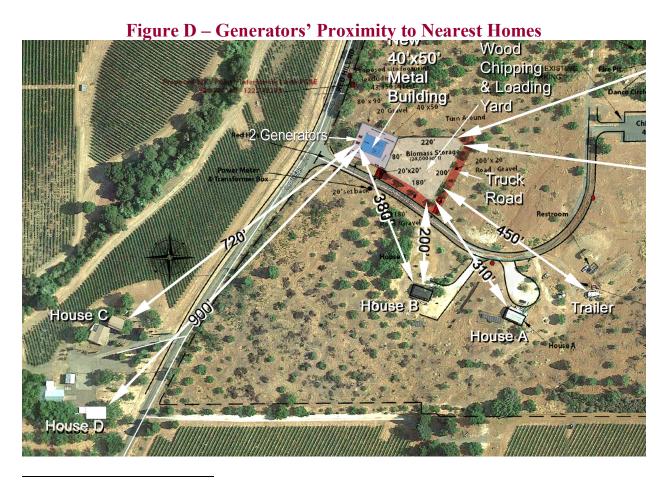


An engine-generator is the combination of an electrical generator and a diesel engine mounted together to form a single piece of equipment. The two engines specified for this Project's generators are much like trucks' six-cylinder 470 cubic-inch, 252-horsepower diesel engines. This combination is also called an engine-generator set or a **gen-set** as referenced in the Project's IS/MND. In many contexts, the engine is taken for granted and the combined unit is simply

called a generator. In this Project's case, this engine-generator grouping would be a fixed installation with two separate gen-sets located outside the west wall of the proposed Production Plant 40' x 50' metal building. (See IS/MND, p. 4: Site Plan) These gen-sets would be housed in aluminum enclosures with vents and external diesel engine mufflers. Most important, they could be loud, especially at nighttime when compared to the quiet the neighbors currently experience.

Distances in IS/MND from Project Generators to Nearby Homes are Incorrect

The IS/MND is vague about the locations and distances of the nearby homes from this Project's noise-generating construction activities and operations. Accordingly, assuming a reasonable worst case location as described below, the Project's noise impacts to these sensitive receptors would be potentially significant. For example, the IS/MND describes the proposed Generators being about 800 feet from the nearest off-site residence (House C), but Google Earth's measurement tool shows a distance of about 720 feet there. That difference is significant because generator noise could be about **1 dB louder** at that **House C**'s closer distance, and a 1 dB loudness error might make the difference between complying with County standards or not complying. The IS/MND provides no accurate distances from this Project's two generators to other nearby homes that will also be exposed to this excessively-loud generator noise (i.e., Houses A, C, and D).



²¹ See: Figure A – Map of Noise Sensitive Receptors Near Project Site, on page 3 of this Report. See also Fig. D on this page above for enlargement of that map.

Project Boundry
8' Chain Link Fence

TOWARDS
KELSEYVILLE

Inset- Production Plant Detail

12KV Switch Gear and Pad

Artis 100 Gassifiers

Metal Cabinet

Trash Bins

40'x50' Concrete Pad
w/16' Metal Building

Figure E – Plan View of Generators (Gen-Sets) and Metal Building on Project Site





Generators' Noise Level at Nearest On-site House "B" Would Exceed County's Noise Standards

The nearest on-site homes may be partially shielded from direct line-of-sight of the two generators proposed on the west side of the new metal building. However, **House B** will have a line-of-sight to at least one of the generators according to the applicant's Site Plan drawings. Also, if both 18-foot wide roll-up doors on the proposed metal building are open, those large openings will allow some direct transmission of generator noise to other on-site dwellings.

Without initially considering the metal building's partial attenuation factor due to its walls, combined generator noise emissions of more than 86.1 dBA L_{eq} would be reduced by the approximate 380 feet²³ of distance to the nearest on-site home (**House B**) to about **61.7 dBA** L_{eq} .

To calculate a dB level at different distances from a source given a known dB level for a known distance:

 $dB_2 = dB_1 - 10 \text{ x A x LOG}(R_2 / R_1) \text{ where:}$

LOG = logarithm, base 10,

A = dB drop-off rate coefficient (in this Project's case, a = 2.0 for a 6.0 dB drop-off rate (point source, no atmospheric absorption).)

 $dB_1 = dB$ level at know distance from source, R_1

 $dB_2 = dB$ level at another distance from source, R_2

 R_1 = known distance from source for known decibel level dB_1

 R_2 = second distance from source for which known decibel level estimate (dB₂) is desired In this case, at a location where a home is 300' (R₂) from the proposed metal building, where the combined noise levels of two generators would be about 86.1 dBA L_{eg} at 23 feet:

 $dB_1 = 86.1 dBA$ at 23' (R1) from the generator building,

 $dB_2 = dB1 - 10 \text{ x A x LOG}(R_2/R_1) = 86.1 - 10 \text{ x } 2.0 \text{ x LOG} (380' / 23') = 61.7 \text{ dBA}$



Figure G - Generators' Proximity to Nearest House "B"

The 40' x 50' metal building at most will only shield a direct line-of-sight to one of the two generators. Sound waves also bend around objects rather than travel in straight lines, so noise

Page 15

²² See: IS/MND p. 114, Attachment 1, including "Inset - Production Plant Detail"; see also Figure B - Generators' Proximity to Nearest House "B" above on page 12 of this Report

The IS/MND states these generators will be located over 200 feet from the nearest home on the property. A distance of approximately 380 feet between the nearest generator and the nearest home (House B) is obtained using Google Earth's measurement tool. See: Figure A – Map of Noise Sensitive Receptors Near Project Site.

emitting from the tall gen-set diesel engine mufflers will tend also to go over the building's roof toward onsite homes. A light-weight metal building wall also does not have sufficient mass to block all noise transmission through the wall. Some generator noise will be transmitted through the building, especially if the doors or other ventilation openings are not closed. If half the acoustical energy of these two gen-sets is blocked by the metal building, the generator noise level that reaches **House B** would be about 3 dBA less, or **58.7 dBA** $L_{eq-1 hr}$. (61.7 – 3.0 = 58.6 dBA L_{eq} .) This is generator noise that will occur 24-hours per day.

That noise level of **58.7 dBA** $L_{eq-1 \text{ hr}}$ as measured at **House B** would greatly exceed the County's *nighttime* noise standard of <u>45 dBA</u>. That exceedance of more than 13 dBA would be very significant. Generator noise would also exceed the County's *daytime* noise standard of <u>55 dBA</u>, not even including any of the other daytime operational noisy activities such as trucking, chipping and loading wood chips. Therefore these two generators as proposed would likely create a significant noise impact at **House B**.

Generators' Noise Levels at On-site House "A" and Travel Trailer Would Exceed County's Noise Standards

This generators' noise levels would be excessive at *nighttime* also for onsite **House A** and the **Travel Trailer** located nearby.

1. The **Travel Trailer** would be about 690 feet from the two generators. At that distance, not considering the sound attenuation the metal building would provide, the travel trailer could be exposed to generator noise at nighttime of about **56.5 dBA** L_{eq-1} hr.

Calculation:
$$dB_2 = dB1 - 10 \text{ x A x LOG}(R_2/R_1) = 86.1 - 10 \text{ x 2.0 x LOG} (690' / 23') = 56.5 dBA$$

That is a noise level that would significantly exceed the nighttime 45 dBA $L_{eq-1\ hr}$. noise limit of the County's Noise Ordinance. If the metal building's two exterior 18-foot wide roll-up doors are open, much of that generator noise would travel through the building directly southeast toward that travel trailer without much attenuation. Even if the building with closed doors reduced such generator noise by 10 dB, the resulting 46.5 dBA L_{eq} -1 hr. at the travel trailer would exceed the County's nighttime noise standards.

2. The House A located at about 570 feet from the generators would be exposed to nighttime noise levels during generator operations of about 58.2 dBA L_{eq-1 hr}. That noise level would also exceed the County's 45 dBA L_{eq}-1 hr. nighttime noise level limitation. If the metal building acting as a barrier reduced the generator noise level transmission by 10 dBA, House A would be exposed to about 48.2 dBA L_{eq}-1 hr. of generator noise. That too would exceed the County's nighttime noise standard of 45 dBA L_{eq}-1 hr.

Calculation: $dB_2 = dB1 - 10 \text{ x A x LOG}(R_2/R_1) = 86.1 - 10 \text{ x } 2.0 \text{ x LOG } (570' / 23') = 58.2 \text{ dBA}$

The IS/MND does not disclose these unacceptable noise level standard exceedances. Every neighbor has the right to peace and quiet, or at least as much as the County's noise standards provide. The IS/MND never considers how loud these generators will be when operating 24 hours a day as heard at these onsite residences. The County's noise standards apply even at a closer distance than 380 feet to the exterior walls of the nearest home. The standards apply at the property lines of off-site homes so the occupants can enjoy outdoor activities near their homes. The Project noise just from generator operations would be excessive therefore even for outdoor activities at these onsite sensitive receptors.

Generator Noise Level at Nearest Off-site Home ("House C") Exceeds County's Noise Standards

The nearest off-site home on Red Hill Road (**House C**) is located about 720 feet to the southwest of the two outdoor generators proposed adjacent to the west side of the Project's metal building. As shown above, their combined noise levels would be at least and possibly more than 86.1 dBA at a distance of 23 feet. That is an average noise level calculated in all directions around a gen-set, but it may actually be greater depending upon which way the gen-sets are positioned. The IS/MND does not describe if the ends of the gen-sets' aluminum housings with their unenclosed mufflers raised above their housings and exhaust stacks and their cooling exhaust vents will be facing the nearest off-site homes. If so, these gen-sets may emit a noise level greater than 86.1 dBA at 23 feet in that direction.

At the nearest off-site home (**House C**), the noise level of both gen-sets would diminish by that 720 feet distance to about **56.2 dBA** L_{eq} (or more, depending upon orientation of gen-sets). Calculation:

$$dB_2 = dB1 - 10 \text{ x A x LOG}(R_2/R_1) = 86.1 - 10 \text{ x } 2.0 \text{ x LOG}(720' / 23') = 56.2 \text{ dBA}$$

Even if this house is 800 feet away, the combined gen-sets' noise level would calculate to about 55.3 dBA L_{eq} . That result is derived from the same calculation using the different distance.

That generator noise level of either 56.2 or 55.3 dBA L_{eq} at **House C** would therefore exceed the County's maximum 45 dBA *nighttime* noise standard. That noise level would even exceed the County's *daytime* noise standard of 55 dBA. And depending upon the two gen-sets' orientations, their combined noise level at this home might be greater yet. Additionally, the County standards apply at this home's property line, not just the actual home distance as calculated above, so at that closer distance to the property line the gen-sets' noise levels would be slightly louder yet. Furthermore, the metal building exterior metal wall would tend to reflect some of the generator noise toward these two homes increasing their noise exposure even more. Exceeding both of the County's maximum *daytime* and *nighttime* noise levels at **House** C indicates this Project's generator operations would create a significant noise impact.

-

²⁴ As the IS/MND states: "County noise standards require noise levels **at the property line adjacent to residential** and agricultural uses (west, south and east) not to exceed 55dBA between the hours of 7:00 a.m. and 10:00 p.m. and 45 dBA between the hours of 10:00 p.m. and 7:00 a.m."

Generator Noise Level at Second Nearest Off-site Home ("House D") Also Exceeds County's Noise Standards

At the second nearest off-site home (**House D**) about 900 feet southwest of these generators along Red Hill Road, the combined noise level of both gen-sets would diminish by that 900 feet distance to about **54.2 dBA** L_{eq} (or more, depending upon orientation of gen-sets and the location of this home's nearest property line).

Calculation:

$$dB_2 = dB1 - 10 \text{ x A x LOG}(R_2/R_1) = 86.1 - 10 \text{ x } 2.0 \text{ x LOG} (900' / 23') = 54.2 \text{ dBA}$$

That combined generator noise level of **54.2 dBA** L_{eq} at **House D** would therefore exceed the County's maximum 45 dBA *nighttime* noise standard. That noise level is so close to 55 dBA that it might also exceed the County's maximum *daytime* noise standard of 55 dBA L_{eq} even without adding the other daytime noise-producing Project activities. Therefore **House D** would be exposed to excessive generator noise levels at *nighttime*, and excessive *daytime* Project noise (generator noise plus the daytime operations of trucking, grinding, and loading activity noise). Exceeding both *daytime* and *nighttime* noise levels at **House D** indicates this Project's combined operations would also have a significant noise impact.

Generator Noise Will Likely Create a Significant Noise Impact by Raising the Existing Ambient Noise Levels at the Two Nearest Off-Site Homes by More Than 5 dBA.

CEQA also requires the County to evaluate the magnitude of the noise level increase the Project might create compared to ambient noise levels at these homes without any Project operations. The IS/MND fails to do that. If just the generator noise levels at these homes is more than 5 dBA louder than the ambient noise levels in either the daytime or nighttime, that Project-related noise level increase would be considered to create a significant noise impact. The IS/MND provides no ambient noise level measurements at these homes (House C and House D). But it is highly unlikely that at any hour during the nighttime the existing ambient noise level either home is never lower than 49 dBA L_{eq-1 hr}. Typically in such rural locations in the wee hours of nighttime the ambient noise level will drop to less than 40 dBA L_{eq-1 hr}. Yet this Project's nighttime generator noise levels at these two homes will likely exceed 54.2 dBA, representing much more than a 5 dBA noise level increase compared to the likely 40 dBA L_{eq} or less noise level at some nighttime hours. For that matter, it is also likely that such generator noise will increase the daytime noise levels at these homes compared to ambient conditions by more than 5 dBA. This too is evidence this Project's generators during the nighttime and maybe the daytime will create significant noise impacts at these two homes.

-

²⁵ As described above, a project's 5 dB increase in noise levels compared to ambient conditions is typically considered to create a significant noise impact. *King and Gardiner Farms, LLC v. County of Kern et al* (2020) 45 Cal.App.5th 814, 892.

GENERATOR NOISE LEVELS WOULD EXCEED COUNTY'S GENERAL PLAN 24-HOUR DAYTIME NOISE STANDARDS AT THE NEAREST ON-SITE HOME.

At **House B**, located about 380 feet from the proposed generators, its nighttime noise exposure to generator noise could be about **58.7 dBA** L_{eq-1 hr}. as calculated above. Because the generators would operate 24-hours a day, their noise level can result in a weighted day-night average noise level of **65.4 dBA** CNEL at **House B**. That noise level is just for generator operations and does not include chipping, trucking and loading noise.

That noise level would exceed the General Plan's "Maximum Allowable Noise Exposure" level of 60 dBA CNEL for "conditionally acceptable" uses at a residential land use. ²⁷ To put an end to all question about acceptability, when the noise levels of *daytime* Project operations of chipping and trucking are added to the 24-hour/day generator noise levels, their combined CNEL noise level would greatly exceed 65.4 dBA CNEL. Under such circumstances, the General Plan defines this Project to be unacceptably noisy because of its proximity to those existing on-site dwellings.

"Normally Unacceptable. New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded." (General Plan, Table 8-1)

At **House B**, that cumulative exterior noise level of **65.4 dBA CNEL** or more from just the generators' use could result in an excessive interior noise level as well as described below.

GENERATOR NOISE LEVELS WOULD EXCEED <u>Interior</u> General Plan Noise Standards for Occupants of Several Nearby Homes.

Noise from the generators alone, even without any chipping or heavy equipment use, could create excessive interior noise levels for both onsite homes. The County's General Plan Noise Element Policy N-1.3 on page 8-4 states that "indoor noise levels for residential uses shall not exceed 45 dBA CNEL." But at House B, its interior noise exposure level with open windows would be in excess of that noise limit. With an exterior noise level of 65.4 dBA CNEL at

Page 19

²⁶ The General Plan, p. 8-1, defines: "Community Noise Equivalent Level (CNEL). Used to characterize average sound levels over a 24-hour period, with weighting factors included for evening and nighttime sound levels." To account for greater noise sensitivity in the evening from 7 p.m. to 10 p.m., noise levels in this weighted averaging calculation are increased by 5 dB. And during the nighttime from 10 p.m. to 7 a.m., noise levels are increased by 10 dB. The General Plan Table 8-1, Maximum Allowable Noise Exposure by Land Use, defines residential noise exposure at single family homes greater than 60 dBA CNEL to be "normally unacceptable."

CNEL= $10\log_{10}[(1/24)x\{(10^{(38.7+10)/10}x 9 \text{ hrs})+(10^{(38.7)/10}x 12 \text{ hrs})+(10^{(38.7+3)/10}x 3 \text{ hrs})\}] = 65.4 \text{ CNEI}$ ²⁷ General Plan Noise Element p. 8-3, Table 8-1.

House B's windows, and with an attenuation factor of 10 dBA due to noise passing through the walls and roof of a home with open windows, the interior noise level there would be as much as about **55.4 dBA CNEL**. (65.4 - 10.0 = 55.4 dBA) Even with the windows closed at **House B**, assuming a 20 dBA transmission loss from exterior to the interior, that generator noise level when measured indoors might still exceed the County's 45 dBA CNEL maximum standard.

Similarly, at **House A** located about 570 feet from the generators, its windows could be exposed to exterior noise levels just from generator operation of 48.2 dBA L_{eq} -1 hr. That assumes the metal building's 18-foot wide doors are closed and the building as a barrier reduces noise transmission by 10 dBA. When converted to a day-night average noise level for all 24 hours of generator operation, the exterior of House A could be exposed to 55.0 dBA CNEL. Calculation:

$$\textbf{CNEL} = 10\log_{10}[(1/24)x\{(10^{(48.2+10)/10}x9 \text{ hrs}) + (10^{(48.2)/10}x12 \text{ hrs}) + (10^{(58.2+5)/10}x3 \text{ hrs})\}] = \textbf{55.0 CNEL}$$

With open windows where exterior noise levels are quieted by about 10 dB on the interior, that home's interior noise level could be as high as about 45.0 dBA CNEL. If the metal building's doors are open any time in that 24-hour day, this generator noise level measured in the interior of House A could be in excess of the General Plan's 45 dBA CNEL maximum standard. When other Project noise such as chipping, trucking and loading activities is considered, the interior rooms of **House A** would be exposed to even more noise than allowed by County standards. Such excessive interior noise can interfer with sleep, speech and other activities even during daytime hours.

Use of Just The Wood Chipper Will Create Noise Levels in Excess of Zoning Ordinance's 55 dBA $L_{\rm Eo}$ -1 hr. Daytime Maximum Standards.

The IS/MND (PDF pp. 24 & 119) describes and the Planning Commission approved the use of a diesel-powered wood chipper onsite at this Project's outdoor biomass storage yard. Yet nowhere does the IS/MND describe how loud this wood chipper's use will be. Calculations below will show that the chipper noise levels will be so loud that they will violate the County's noise standards at all seven sensitive receptors mentioned in this Report.

Nor does the IS/MND as approved by the Planning Commission actually regulate where in the storage yard this chipper can be used. Wood chippers can be extremely loud, especially for residents living just several hundred feet away. The IS/MND is inadequate for failing to describe how loud the chipper's use may be. As will be shown below, the wood chipper's use may create noise levels so loud that they can exceed the Noise Ordinance's maximum one-hour 55 dBA L_{eq}-1 hr. during a daytime hour at any of the seven sensitive receptors studied in this Report. That includes at House E located about 1,300 feet east of the Project's wood chipping and storage yard; those residents have previously complained about excessive noise from wood chipping on this same Project site.

In the applicant's revised *Supplementary Project Description* released too late for the CEQA minimum 30-day public review, a 6-inch secondary chipper is vaguely proposed that "operates at approximately 100 dBA." No other information was submitted about its noise level. That claimed approximate 100 dBA noise level is essentially meaningless because there is no stated

distance from the chipper where that measurement is assumed. Without such a distance in the noise specification, it is impossible to predict how loud that chipper would be at a different distance when measured near the surrounding sensitive receptors.

Chipper Location and Noise Impact Consequences Are Uncertain

The applicant suggested some additional chipper noise limitations in its *Supplementary Project Description* but those may turn out to have no benefit whatsoever to neighbors. The public was not given adequate time to consider those last moment changes either. It is unclear if those conditions were even formally imposed upon the Project. These suggested changes include:

"The chipper's operating location has been revised to be placed within 10 feet of the east side of the building vs the original concept of working in the storage yard."

"The chipper will be placed between the fence and the building with both acting as sound attenuation media."

But if a chipper is located only 10 feet from a 10-foot high, 40-foot wide metal building wall, the building's large metal wall will reflect and thus essentially amplify the chipper's noise in that generally-eastward direction. Existing **Houses A, B, E** and the **Travel Trailer** will therefore be exposed to even greater chipper noise emissions than if the chipper was not next to that metal building's east wall. Reflected noise can be perhaps 2 dBA greater than when a reflective wall is not present. The IS/MND never evaluates such a probable noise reflection consequence because the applicant suggested this change after the IS/MND was circulated.

In its May 7, 2020 Response to Appeal, p. 6 to help reduce chipper noise impacts, the Project applicants are vaguely proposing, "if necessary," to possibly use portable fencing and acoustical absorption blankets. But the applicants provide no specifications about the fencing, acoustical blankets or their location. It is unlikely that such fencing will have any effect if the chipper is located close to a 10-foot high metal building where reflected sound waves could easily pass over a fence unimpeded by the fence's height. So that vague suggestion by the applicants has no merit in ensuring adequate chipper noise attenuation. It also suffers from the legal defect of an improperly deferred mitigation measure chastised in the appellate court's decision in Sundstrom v. County of Mendocino (1988) 202 Cal.App.3d 296, 307 as discussed below. Any subsequent noise reduction method the applicant might implement unannounced or negotiate with County staff when no specific performance criteria have been publicly agreed to does not comply with CEQA.

²⁸ "In contrast to the effects mentioned above, reflection can increase noise intensity. For instance, if a wall were erected along one side of a road or train track, the noise energy reflected by the wall would be additive to the noise energy reaching a receiver directly from the source. The size of the additive effect would depend on the characteristics of the wall and on the relative locations of the source, the wall and the receiver. If the wall were very long, very high, very flat, non energy-absorptive and continuous, if the road or track were long and straight, and if there were no air/ground absorption and path interruption effects, the resultant noise intensity at a receiver location could be much as 3 dB higher than it would have been without the wall. This maximum 3 dB noise enhancement would be experienced at locations far from the road or track; at closer points, the increase would be less."

Source: http://www.city.palo-alto.ca.us/planning-community/documents/PTOD%20Noise%20Report.pdf

The Project applicants in their *April 21, 2020 Supplementary Project Description* on page 2 also proposed another new noise mitigation. The applicants propose to locate the chipper:

"an additional 1,000 feet from the tub grinder site or a total of not less than 1,800 feet from the eastern property boundary. This additional distance will further reduce the noise level demonstrated in the tub grinder's operation."

This mitigation makes no sense and thus is unenforceable. The Project site itself is hardly more than about 1,800 feet wide (from east to west) at its southern property line. There appears to be no location on the entire site where the chipper could be placed where it would be "not less than 1,800 feet from the eastern property boundary."

That proposed new mitigation also seems to indicate that a tub grinder may also be located somewhere on this Project site. ²⁹ No location for that tub grinder is shown in the IS/MND so its noise impact cannot be accurately predicted. That may not be necessary though at this time since even the location of the smaller and quieter chipper would exceed the County's noise standards at the sensitive receptors. If the tub grinder will indeed operate on this Project site, its noise impact can be cumulatively considered in an EIR. If the tub grinder will instead be operated somewhere off-site, then the IS/MND is inadequate because it has not indicated that and the potential noise impacts of that undisclosed off-site location have not been evaluated.



Figure A (repeated for convenience) - Map of Noise Sensitive Receptors Near Project Site

Page 22

²⁹ See: Red Hills Bioenergy Project, "Project Description – Revised 10/23/2019", page 1, paragraph 2: "When the material accumulates, a **tub grinder** stored on site will be operated for intervals of 2-3 hours at a time." (emphasis added)

Wood chipper noise levels have been rated by other counties at about 89 dBA at 50 feet.³⁰ That is a reasonable noise level to use in this Report. The applicants have not agreed to use quieter wood chipper(s). With no barriers proposed surrounding the wood chipper, the following calculated noise levels at nearby homes are estimated.³¹

- At **House B** about 200 to 300 feet from the chipper location, its noise level would be about **73.4** to 77 dBA L_{eq}-1 hr. respectively, assuming no additional reflected noise from the building.
- At House A as close as about 310 to 460 feet from the chipper location if allowed anywhere in the
 chip storage yard, its noise level would be about 73 to 69.7 dBA L_{eq}-1 hr., respectively. That noise
 level will likely be significantly louder once reflected noise bouncing from the metal building's
 eastern wall is added.
- At the Travel Trailer's location about 450 feet to 620 feet from this chipper, depending where the
 chipper is located, the chipper noise level would be about 70 to 67.1 dBA L_{eq}-1 hr. respectively,
 assuming no additional reflected noise from the east wall of the generator building.
- At **House** C located about 750 feet from the west side of the chip storage yard where the chipper might be located, the chipper noise level at that distance could be about **65.5** dBA L_{eq}-1 hr.
- At **House D** located about 900 feet from the west side of the chip storage yard where the chipper might be located, the chipper noise level at that distance could be about **63.9** dBA L_{eq}-1 hr.
- At **House** E located between 1,320 feet to 1,500 feet from anywhere in the yard where the chipper might be located, the chipper noise level at that distance could be about **59.3** to **58.0** dBA L_{eq}-1 hr.³²
- At the Office of the adjacent neighboring Eagle's Nest Self-Storage business located about 1,170 feet from the chip storage yard, or about 1,400 feet from the western end of this yard where the chipper might be located, the chipper noise level could be from 60.2 dBA L_{eq}-1 hr. to 58.6 dBA L_{eq}-1 hr.³³

All of these chipper noise levels would exceed the County's maximum allowable daytime noise level during any hour of the daytime of 55 dBA L_{eq} -1 hr. That calculation does not include other Project noise such as trucking, front end loader noise, conveyor belt noise, backup beeper warning noise, or additional reflected noise from the metal building if it is behind the chipper, any of which would raise the Project's noise even further. This is strong evidence that the Project as proposed will generate noise levels that exceed the Noise Ordinance limitations of

(1)
$$L_2 = L_1 - |20 \log_{10} \left(\frac{d_1}{d_2} \right)|,$$

Where:

 L_1 = known sound level at d_1

 L_2 = desired sound level at d_2

 d_1 = distance of known sound level from the noise source

 d_2 = distance of the sensitive receptor from the noise source

³⁰ See: Table 4.7-6 – "Construction Equipment Noise Emission Levels"; Wood Chipper 89 dBA at 50 feet Source: Napa County, BDR 2005. Napa County General Plan Update Draft EIR, Feb. 2007, page 4.7-18 This document is online and/or a copy will be made available to County officials if requested: https://www.countyofnapa.org/DocumentCenter/View/7959/47-Noise-General-Plan-DEIR-PDF

The estimations of predicted chipper noise levels were calculated with this formula below which has been used in other calculations previously. First, noise attenuates from a point source at a rate of approximately 6.0 dBA per doubling of distance,³¹ the Project's noise impacts on sensitive receptors nearby can be determined by the following "Equation 1" for noise attenuation over distance:

³² Due to atmospheric absorption of sound at distances greater than 1,000 feet, the calculated noise level has been reduced by 1.3 to 1.5 dB respectively.

³³ These noise levels at distances greater than 1,000 feet have also been reduced due to atmospheric absorption.

55 dBA $L_{eq^{-1} hr}$. As such, this Project's IS/MND is incorrect in determining the Project's noise impact due to the use of the proposed wood chipper will be less-than-significant.

Some calculated chipper noise levels described above would be slightly decreased by "atmospheric absorption" at locations over 1,000 feet from the chipper. However that decrease would not significantly reduce the impact at **House E** or the adjacent business **Office** location. At 1,500 feet, such absorption of sound by the atmosphere would not exceed about 1.5 dBA. Additionally, the row of trees along the Project site's eastern property line is too narrow to have a significant noise reduction effect. Moreover, that row of trees is not close enough to either the source or the receiver of such noise to reduce that noise transmission significantly because sound waves tend to wrap around obstacles at a distance from either source or receiver. The noise levels at those locations of **House E** and the **Office** would therefore still exceed the County's maximum limit of 55 dBA L_{eq}-1 hr.

OPERATION OF THE FRONT-END LOADER WILL CREATE SIGNIFICANT NOISE IMPACTS AT THE FIVE NEAREST HOMES.

A diesel-powered front-end loader is proposed for use. A front-end loader is a noisy piece of heavy equipment when operated for up to eight hours per day near homes. This Project requires that wood be chipped and moved around the site before being stored and burnt for power production. Front-end loaders can generate 85 to 87 dBA at 50 feet. At a distance of 300 feet affecting the two on-site homes, **Houses A and B**, and without any noise wall to attenuate such loader noise, this equipment's noise levels as reduced by distance can be about **69.4 to 71.4 dBA**. At a greater distance of up to about 1,500 feet as proposed by the Project Description and the Project's Site Plan, a single front-end loader could generate noise levels as loud as **54.0 to 56.0 dBA**. House E is located about 1,500 feet from eastern side of the Project's chip storage yard where such a front-end loader would be used.

 $^{^{34}}$ See: Noise Ordinance § 41.11, Table 11.1, for daytime residential maximum one-hour equivalent noise levels of 55 dBA L_{eq} -1 hr.

³⁵ See: "Calculation of Absorption of Sound by the Atmosphere, where 0.1 dB is reduced per 100 feet of distance, for noise of 1,000 Hz at 70 degrees F; this calculator is available online or a copy will be provided to County officials if requested, at http://www.sengpielaudio.com/calculator-air.htm

³⁶ See: IS/MND p. 19: "A diesel-powered front-end loader is estimated to operate 6-8 hours per day, five days per week."

³⁷ See: U.S. EPA, "Noise from Construction Equipment and Operation," Building Equipment and Home Appliances, 1971.

 $^{^{38}}$ Calculation: $dB_2 = dB1 - 10 \text{ x A x LOG}(R_2/R_1) = 87 - 10 \text{ x } 2.0 \text{ x LOG} (300' / 50') =$ **71.4 dBA** If the intervening terrain between source and receiver is considered to be soft, an attenuation rate of 7.5 dB per doubling of distance would reduce the calculated noise level at some of these homes. For example, at 300 feet, the front-end loader would generate noise levels of 67.5 dBA instead of the 71.4 dBA calculated above. In this case though, the ground in between Houses A and B and the Project chip yard consists largely of unvegetated gravel and pavement so it might not qualify for that 7.5 dB attenuation rate.

³⁹ Calculation: $dB_2 = dB1 - 10 \times A \times LOG(R_2/R_1) = 87 - 10 \times 2.0 \times LOG(1,500'/50') = 57.5 dBA$; then subtract 1.5 dB for atmospheric absorption over 1,500 feet of distance: **56.0 dBA** $L_{eq-1 \text{ hr}}$. Note: At distances over 1,000 feet, atmospheric absorption typically is assumed to reduce noise transmission by approximately 1.0 dBA per 1,000 feet; therefore just the front-end loader's use may not generate noise levels greater than the County's daytime noise standard. But noise from the other daytime Project operations when added cumulatively will exceed this limit.

If the loader or similarly loud mobile equipment or truck operates in between a home and a large wall of the Project's metal building, then reflected noise could increase its noise level by up to another two decibels. In either case though, even this single front-end loader's operation could create a significant noise impact on nearby homes because that noise level increase would exceed County standards. The County's maximum daytime noise standard for operations of all Project equipment as measured at neighboring residences is **55 dBA** L_{eq-1 hr}. Just the operation of the Project's front-end loader will exceed that noise standard at all these neighboring homes. That includes **Houses A, B, C, D, and E** because they are less than 1,500 feet from the Project's wood-loading areas.

Not only will the noise level from front-end loader use exceed County standards, but its operation will also generate a noise level *increase* that will be greater than 5 dBA louder in magnitude than the existing ambient noise levels at these neighboring homes. That much of an increase is a significant noise impact and it would be clearly audible and likely annoying to these residents. Yet the IS/MND utterly fails to disclose, evaluate or mitigate the noise levels this front-end loader will generate at nearby sensitive receptors.

CONSTRUCTION-RELATED SHORT-TERM NOISE IMPACTS WILL BE SIGNIFICANT

The IS/MND states that during construction, this Project "may involve the use of a tractor/grader, compactor, water truck, and trucks delivering rock and concrete. Construction noise would occur over a period of approximately 8-12 weeks." (IS/MND, p. 24) The IS/MND does not mention that a chain saw and a wood chipper may also be used to cut and chip the dozens of trees proposed for removal. (*Ibid.*, p. 12) This equipment can generate very loud noise impacts for months that neighbors have a right to know about.

During construction activities with the use of a chain saw, a chipper and a grader when all three might be operating simultaneously, the builders could generate noise levels of up to 79.5 dBA L_{eq-1 hr.} at the nearest home 200 feet from the site. That noise level would be **24.5 dBA greater** than the Zoning Ordinance maximum-allowed daytime 55 dBA L_{eq-1 hr.} limit. But construction noise could be exempted from the Noise Ordinance standards during those hours. The County's exemption rule about construction noise however does not mean this Project would not have a significant noise impact to those sensitive receptors. CEQA still applies.

If for example, in this rural location these homes could be exposed to existing ambient noise levels of about 40 dBA $L_{eq-1 \, hr.}$ in the daytime, but for months on end could be exposed to increased construction noise levels of up to about 79.5 dBA $L_{eq-1 \, hr.}$, that could represent a temporary noise level increase of nearly 40 dBA. (79.5 – 40 = 39.5 dBA increase) More realistically, most construction would occur farther away at the location of the proposed metal building. So construction noise would decrease somewhat. Even if construction noise level

Page 25

⁴⁰ The estimation of a noise level of 79.5 dBA L_{eq} -1 hr. at that home is calculated by adding the separate noise levels of a chain saw (85 dBA), a chipper (89 dBA), and a grader (85 dBA) that could be used simultaneously near that home. Those decibel levels are at a distance of 50 feet. Calculation: $L = 10 \times Log_{10} (10^{8.5} + 10^{8.9} + 10^{8.5})$ = 91.5 dBA at 50 feet. Then to adjust for the 200-foot distance to this House B, where sound levels attenuate by

^{= 91.5} dBA at 50 feet. Then to adjust for the 200-foot distance to this House B, where sound levels attenuate by 6 dBA for each doubling of distance, the noise level at that house would be 12 dBA less, which is about 79.5 dBA.

increases dropped to half as much of an increase, a 20 dBA temporary increase would still be significant because it is much more than a typical 5 dBA threshold of significance used by many agencies reviewing CEQA projects. In such quiet rural locations, loud industrial construction noise can be particularly intrusive and disturbing. A 20 dBA to 40 dBA temporary noise level increase would be very significant. These neighboring residents may be unable to get away from this loud construction noise because they may still be under pandemic-related mandates that they stay home. Under these trying circumstances, these residents need protection from excessive noise. The IS/MND is inadequate for failing to disclose that potentially-significant temporary noise impact.

Other agencies require such an evaluation of significant increases in noise due to construction activities. For example, the City of Los Angeles defines⁴¹ that "a project would normally have a significant impact on noise levels from construction if:

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise sensitive use.
- Construction activities lasting more than 10 days in a three month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise sensitive use.

Another standard to be considered is the California Noise Insulation Standards (Building Code Title 24, Section 3501 et seq.). This standard for residential land uses sets a maximum interior noise level of $\bf 45~dBA~L_{dn}$ in any habitable room, averaged over a 24-hour period. This standard protects against sleep-disturbance impacts at nighttime, and more pertinent here to actual construction noise, against unreasonable annoyance impacts during the daytime.

If construction activities occur with a combined noise level of 91.5 dBA L_{eq} at 50 feet, then at 350 feet from House B, that noise level would be reduced by distance to about 74.6 dBA L_{eq} . If construction occurs for 12 hours per day from 7:00 a.m. to 7:00 p.m., centered at 350 feet from House B, and the site is quiet for the remaining 12 hours per day, the day-night weighted average noise level would be about **71.6 dBA** L_{dn} at that home's exterior. 42

With an exterior noise level of 71.6 dBA CNEL at **House B**'s windows, and with an attenuation factor of 20 dBA due to noise passing through the walls and roof of a home with closed windows, the interior noise level there would be as much as about **51.6 dBA CNEL**. That interior noise level due to Project construction would exceed the Building Code standards and the County General Plan's maximum allowable <u>45 dBA CNEL</u> interior noise limit. Construction noise could be louder yet if the work occurred in the chip yard as close as 200 feet to **House B**. Therefore construction noise impacts would be significant at some homes.

⁴¹ See L.A. CEQA Thresholds Guide (2006) Page I.1-3, Section 2(A) Significance Threshold.

 $[\]begin{aligned} \mathbf{CNEL} &= 10\log_{10}[(1/24)\mathbf{x}\{(10^{(40+10)/10}\mathbf{x}7\ \text{hrs}) + (10^{(40+5)/10}\mathbf{x}12\ \text{hrs}) + (10^{(40+5)/10}\mathbf{x}3\ \text{hrs}) + (10^{(40+10)/10}\mathbf{x}2\ \text{hrs})\}] = \\ &= 10\log_{10}[(1/24)\mathbf{x}\{700,000 + 346,083,780 + 94,868 + 200,000\} \\ &= 10\log_{10}[(1/24)\mathbf{x}347,078,648] = 10\ \mathbf{x}\ \log_{10}[14,461,610] = 10\ \mathbf{x}\ 7.16 = \mathbf{71.6}\ \mathbf{CNEL} \end{aligned}$

Such extremely loud construction noise is not reasonable and unavoidable because there are commonly available and routinely used methods to quiet such loud construction noise. For example, temporary sound curtains can be erected to protect neighbors. There are also mufflers, hand tools or quieter electric-powered equipment that can be used.

COUNTY NOISE STANDARDS DO NOT ADEQUATELY PROTECT NEARBY HOMES FROM LOW-FREQUENCY HEAVY EQUIPMENT NOISE

The IS/MND fails to evaluate how intrusive the nature of this Project's low-frequency industrial noise would be if located so close to the neighboring residences. The County's noise standards do not limit the amount of very intrusive, low-frequency noise typically emitted from diesel-powered heavy equipment operations, trucks, front end loaders, and chippers; the County's noise standards are based upon an "A-scale" frequency range that does not proportionately account for low frequency noise less than 500 Hertz where much heavy equipment noise energy is concentrated. Low frequency noise from the Project's operations is not attenuated well by light-weight residential structures, and thus is more troublesome for this Project's neighbors. This kind of an incompatible neighboring land use is generally solved by not allowing zoning heavy industrial operations to be adjacent to residences.

When low frequency noise is of concern, C-weightings are used because they attenuate low frequencies much less than the other weightings. Other California EIRs discuss noise impacts using the C-weighted scale. For example, the Blue Rock DEIR for Sonoma County states:

"In special situations, the C-weighted sound level or dB(C) scale is sometimes used. This scale gives more weight to lower frequency noise. When it is used, the intent is to differentiate between noises that have varying amounts of low frequency noise that would produce only little differences in A-weighted sound level." http://www.sonoma-county.org/prmd/docs/eir/bluerockdeir/apdx-i.pdf

It is true that people are more sensitive to noises in the "A"-weighted frequency range of 1000 Hz to 4000 Hz, but that doesn't mean that lower frequency sounds should be discarded from consideration. Industrial uses with large equipment and heavy trucking often produce much of their noise at frequencies less than 500 Hz. The "C"-weighted scale takes into account those frequencies down to 50 Hz where much industrial noise is generated. Noise level meter readings on the "C"-weighted scale can often be 8 dB louder than those on the "A"-weighted scale. The "A"-weighted noise scale emphasizes noise in the 500-20,000 Hz frequency range, while the "C"-weighted noise scale more broadly covers the lower frequency 50-20,000 Hz range where this Project's industrial noise from heavy truck deliveries and unloading of wood chips, chipper machinery and other equipment will be generated. The booming sound of heavy equipment can greatly impact nearby residences. Nearby homes neighborhood are predominantly constructed with lightweight wooden walls and thin windows that are not good at blocking low frequency sounds.

INADEQUATE NOISE MITIGATIONS

Some proposed noise reduction measures identified by the Project applicants have not been called "mitigations" during the Project approval. Thus these noise reduction measures are inadequate and not enforceable under CEQA because they are not binding mitigations. These measures must be included as binding mitigations because otherwise the noise impact would be potentially significant. Other identified mitigations are simply inadequate.

Noise Mitigation Measure NOI-1 is Inadequate

The IS/MND had to investigate if the Project "would result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?" (IS/MND p. 24) Some of those standards from the County's Noise Ordinance, designed to protect neighboring residents, require the builders not to exceed a noise level of 55 dBA L_{eq}-1 hr. at neighboring residences. That is, per one exemption, unless construction occurs onsite between 7:00 a.m. and 7:00 p.m., in which case there is no limit to the noise level the County's Noise Ordinance would regulate.

So for example, during construction use of a chain saw, a chipper and a grader when all three might be operating simultaneously, the builders could generate noise levels of 79.5 dBA L_{eq} -1 hr. at the nearest home 200 feet from the site. That noise level would be 24.5 dBA greater than the Zoning Ordinance's maximum allowed 55 dBA L_{eq} -1 hr. standard. But that construction activity noise level could be exempted from the Noise Ordinance standards during those hours. That exemption however does not mean there would not be a significant noise impact to sensitive receptors nearby. This mitigation measure NOI-1 (from the IS/MND, p. 25) does not cover all applicable concerns about excessive noise:

Noise Mitigation Measure NOI-1: (For temporary construction noise)

NOI-1: All construction activities including engine warm-up shall be limited to Monday Through Friday, between the hours of 7:00 a.m. and 7:00 p.m. to minimize noise impacts on nearby residents. Back-up beepers shall be adjusted to the lowest allowable levels. Contractors shall implement noise-reducing measures during construction when occupied residences or other sensitive receptors are located within 500 feet.

CEQA imposes a different threshold of significance on construction noise rather than exempting it altogether from 7:00 a.m. to 7:00 p.m. One question also before the County is whether or not there might be a *temporary increase in ambient noise levels* in the vicinity of the project? The

Calculation: $L = 10 \times Log_{10} (10^{8.5} + 10^{8.9} + 10^{8.5}) = 91.5 \text{ dBA}$ at 50 feet.

Then to adjust for the 200 foot distance to this House B, where sound levels attenuate by 6 dBA for each doubling of distance, the noise level at that house would be 12 dBA less, which is about 79.5 dBA.

 $^{^{43}}$ The estimation of a noise level of 79.5 dBA L_{eq} -1 hr. at that home is calculated by adding the separate noise levels of a chain saw (85 dBA), a chipper (89 dBA), and a grader (85 dBA) that could be used simultaneously near that home. Those decibel levels are predicted at a distance of 50 feet.

appellate court decision in *King and Gardiner Farms, LLC v. County of Kern et al.* (2020) 45 Cal.App.5th 814, 892 shows that the County is required to also consider the magnitude of the increase in noise levels caused by the Project's temporary construction activities at nearby sensitive receptors. The IS/MND never does this. No ambient noise level measurements were provided there. And no discussion of how much louder such construction noise might be compared to ambient noise levels there was included in the IS/MND. Without that analysis, there is no evidence to support the IS/MND's determination that this noise mitigation measure NOI-1 will reduce construction noise to a less-than-significant level. If for example, in this rural location these homes are exposed to existing ambient noise levels of about 40 dBA L_{eq} -1 hr. in the daytime, but for months on end could be exposed to increased construction noise levels of up to about 79.5 dBA L_{eq} -1 hr., that could represent a temporary noise level increase of nearly 40 dBA. (79.5 – 40 = 39.5 dBA increase) In such quiet rural locations, loud industrial construction noise can be particularly disturbing. A 40 dBA temporary noise level increase would be very significant. The IS/MND is inadequate for failing to disclose that potentially significant noise impact that construction activity may cause.

Mitigation measure NOI-1 is not saved by its requiring contractors to implement noise-reducing measures during construction when occupied residences or other sensitive receptors are located within 500 feet when no such measures are even specified. If the on-site residences were unoccupied during construction, then this mitigation would not even require any noise-reducing measures to protect off-site **Houses C**, **D**, and **E** located more than 500 feet away from loud construction noise.

The Project's mitigation that "(b)ack-up beepers shall be adjusted to the lowest allowable levels" is also ineffective because some such alarm devices do not allow adjustments. Backup alarms are one of the most complained about sources of noise because they are intentionally designed to be loud and alarming.

Noise Mitigation Measure NOI-2 is Also Inadequate

The Planning Commission approved the IS/MND (p. 25) with noise Mitigation Measure NOI-2. That mitigation allows during normal operations, if the chipper's noise level exceeds County standards, planning officials to subsequently negotiate with the Project applicant and approve different noise attenuation measures behind closed doors without any public knowledge. That mitigation clearly violates CEQA because, along with the failure to provide an adequate noise study now in the IS/MND, it allows deferring an actual noise impact assessment to some future date. It also allows the applicant and County staff to decide upon new noise control measures of unknown effectiveness. As such, that mitigation measure violates *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 307.

"It is also clear that the conditions improperly delegate the County's legal responsibility to assess environmental impact by directing the applicant himself to conduct the hydrological studies subject to the approval of the planning commission staff. Under CEQA, the EIR or negative declaration must be prepared "directly by, or under contract

.

⁴⁴ That court decision in *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 307 is available online at: https://scholar.google.com/scholar_case?case=1928844925867305993

to" the lead agency. (Pub. Resources Code, § 21082.1.) The implementing regulations explicitly provide: "The draft EIR which is sent out for public review must reflect the independent judgment of the lead agency." (Cal. Code Regs., tit. 14, § 15084, subd. (e).) Moreover, the EIR must be presented to the decisionmaking body of the agency. In *Kleist v. City of Glendale* (1976) 56 Cal. App.3d 770, 779 [128 Cal. Rptr. 781], the court held that the city council cannot delegate responsibility for considering the EIR to a planning board. By necessary inference, the board of supervisors cannot delegate the responsibility to the staff of the planning commission."

The noise standards ⁴⁵ mentioned in mitigation measure NOI-2 are also inadequate as specified because they do not include all applicable noise standards. Some applicable noise standards are not found in the County's Noise Ordinance. For example, this mitigation measure would not restrict Project activities that increase the ambient noise level at nearby sensitive receptors by more than 5 dBA, as CEQA is often interpreted to require. This mitigation measure also does not hold the applicant to those noise standards found in the County's General Plan.

CONCLUSION

As discussed above, the Project's Initial Study/Mitigated Negative Declaration fails to provide sufficient and basic information required for the County to adequately assess the severe noise impacts of this Project. As a result, this Project's likely construction and operational noise impacts have been demonstrated that there is substantial evidence in this Report of a fair argument to show that the Project may have significant noise impacts. As a result, this IS/MND is inadequate and inappropriate for the Project's CEQA review.

The Project's noise impacts to these nearby homes should compel the County to require proper CEQA review of these significant noise impacts and likely exceedances of County noise standards. Moreover, feasible mitigation measures are available and need to be considered pursuant to a CEQA-compliant EIR.

Sincerely,

Dale La Forest

Dale la Farest

Professional Planner, Designer, INCE Associate (Institute of Noise Control Engineering)
Dale La Forest & Associates

Attachment 1 - Appendix – with additional information

Attachment 2 - Statement of Qualifications

⁴⁵ See: IS/MND p. 25, for the mitigation measure NOI-2 with reference to some noise standards.

Attachment 1

APPENDIX

The IS/MND p. 1 mentions two single-family residences⁴⁶ and a travel trailer used for housing but without listing their distances to Project activities. Elsewhere, the IS/MND p. 5, mentions an off-site residence situated "approximately 800 feet southwest of the Project Site." ⁴⁷ That description somewhat exaggerates the distance to that home because that home (hereafter called "House D") is directly across the street from the Project site. It is merely about 720 feet from the Project's proposed generator and outdoor chip grinding and storage yard.

On page 13, the IS/MND states "There are two on-site residences and a travel trailer located approximately 200 to 300 feet from the Project Site." This distance claim also occurs on pages 20 and 24.

For reference, here are photographs of Houses D and C.

FIGURE H
PHOTO OF NEARBY HOMES TO SOUTHWEST OF PROJECT OPERATIONS ON RED HILLS ROAD



⁴⁶ "House A" and "House B", as identified on the Project Site Plan to the south and southeast of the generator building. ⁴⁷ Similarly, the IS/MND p. 24 states "(t)he nearest off-site single-family residence is located approximately 800 feet southwest of the edge of the property boundary."

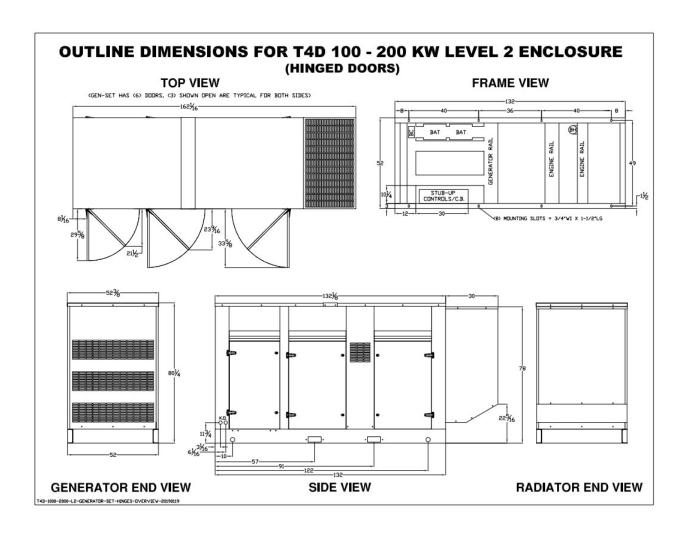
FIGURE I
DISTANCE OF HOUSE "E" TO EAST FROM PROJECT OPERATIONS
BARNES RESIDENCE AT 7140 EAGLES NEST LANE



The electrical generators this Project proposes are better described with the following information from their manufacturer:

Gillette T4D-1500 Prime Generator (150kW)





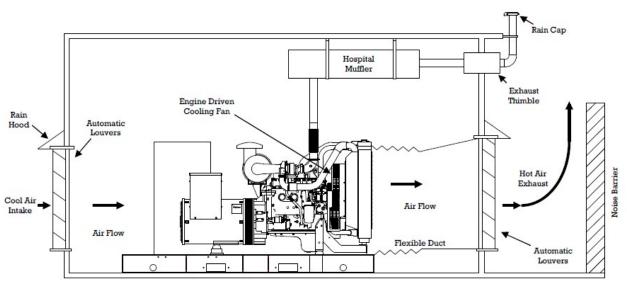


Figure J – Section View of Gen-Set from Manufacturer – But Project Does Not Include any Noise Barrier outside the Aluminum Enclosure's Hot Air Exhaust Grill

FIGURE 5

Dale La Forest & Associates

Design, Planning & Environmental Consulting 101 E. Alma Street, Suite 100-A; Mt. Shasta, CA 96067 Phone: (530) 918-8625 E-Mail: dlaforest@gmail.com

ATTACHMENT 2: Statement of Qualifications

INTRODUCTION

Dale La Forest & Associates provides commercial and residential design services, acoustical consulting, environmental review, project planning permitting for government approvals and multi-disciplinary environmental studies for government and private industry and citizens groups.

HIGHLIGHTS

In 45 years, I have designed hundreds of homes in California. During the last 20 years, I have also prepared expert acoustical studies for various development projects and reviewed and commented upon dozens of noise studies prepared by others. My expertise in environmental noise analysis comes from this formal educational training in architecture and planning, and from many years of evaluation of acoustics as relates to environmental analysis and challenging flawed project applications prepared by less-than-professional, industry-biased acousticians. I regularly measure and calculate noise propagation and the effects of noise barriers and building acoustics as they apply to homes near projects and their vehicular travel routes. I have also prepared initial environmental studies for noise-sensitive development projects including hotel and campground projects along major highways. I have reviewed dozens of quarry project and batch plant project environmental documents. I have designed highway noise walls, recommended noise mitigations, and have designed residential and commercial structures to limit their occupants' exposure to excessive exterior noise levels throughout California.

EXPERIENCE

1975 – 2020 **DESIGNER & PLANNER** — Dale La Forest & Associates; Mt. Shasta, CA. Design of commercial, residential, subdivision planning projects and environmental and acoustical consulting for commercial and industrial firms and for the public.

Dale La Forest, Architectural Designer, INCE Associate (Institute of Noise Control Engineering)

EDUCATION

1966 – 1973 **University of Michigan**, College of Architecture and Planning - Bachelor of Architecture, 1973; and Masters studies in architecture and planning.

ACOUSTICAL ANALYSIS/COMMENTS

| 0.12.0.11.0 | |
|-------------|--|
| 8/28/19 | CitizenM Hotel Project, DEIR, Los Angeles, CA |
| 4/15/19 | Mart South Hotel Conversion Project, C.E., Los Angeles, CA |
| 2/27/19 | Citizens News Project MND, Los Angeles, CA |
| 2/11/19 | 2005 James Wood Hotel Project MND, Los Angeles, CA |
| 2/4/19 | Breakers Hotel Project C.E., Long Beach, CA |
| 1/23/19 | Residence at 1888 N. Lucile Ave. MND, Los Angeles, CA |
| 12/5/18 | 100 E. Sunset Bridge Housing C.E., Los Angeles, CA |
| 11/6/18 | Dewey Hotel Project C.E., Los Angeles, CA |
| 2/12/18 | Residence at 17642 Tramonto Dr., Los Angeles, CA |
| 11/16/17 | Crystal Geyser Water Company EIR, Mt Shasta, CA |
| 8/18/17 | Freeze Car Wash Project MND, Mt. Shasta, CA |
| 3/13/17 | Roseburg Water Line Project MND, Mt. Shasta, CA |
| 1/19/17 | Residence at 2056 Mandeville Canyon Rd., Los Angeles, CA |
| 8/31/16 | Austin Quarry Project EIR, Madera County, CA |
| 10/20/15 | Syar Napa Quarry Expansion Project EIR, Napa |
| 9/30/13 | Shasta Dam Raising Draft EIS, Shasta County, CA |
| 9/30/13 | Livermore Walmart Project, Livermore, CA |
| 8/27/13 | Talmage Interchange Reconstruction Project MND, Ukiah, CA |
| 6/10/13 | Townhouse Project MND, Mt. Shasta, CA |
| 3/15/13 | Costco Wholesale Store DEIR, Ukiah, CA |
| 3/14/13 | Jaxon Enterprises Asphalt Plant IS/MND, Shasta County, CA |
| 3/14/13 | Amdun LLC Asphalt Plant IS/MND, Shasta County, CA |
| 1/30/13 | Grist Creek Aggregates Project IS/MND, Mendocino County, CA |
| 9/24/12 | Austin Quarry Draft EIR, Madera County, CA |
| 8/26/12 | Tesoro Viejo Specific Plan Revised EIR, Madera County, CA |
| 10/10/11 | Eagle Peak Asphalt Batch plant MND, Callahan, CA |
| 6/12/11 | Walmart Expansion Project EIR, Poway, CA |
| 2/20/11 | McCloud Springs Ranch Subdivision MND, Siskiyou County, CA |
| 1/4/11 | Comingdeer Asphalt Batch Plant MND, Redding, CA |
| 10/1/10 | Biogreen Cogeneration Power Plant, La Pine, OR |
| 7/13/10 | Chapin Concrete Batch Plant MND, Volta, CA |
| 1/25/10 | Walmart Supercenter Draft EIR, Galt, CA |
| 1/11/10 | Doctor's Park MND, Mt. Shasta, CA |
| 9/22/09 | Livingston Concrete EIR, Placer County, CA |
| 6/10/09 | Poonkinney Quarry MND, Mendocino County, CA |
| 5/11/09 | Orchard Subdivision MND, City of Mt. Shasta, CA |
| 1/2/09 | McCloud Springs Ranch Subdivision MND, Siskiyou County, CA |
| 10/8/02 | Shasta Mountain Lodge Hotel 2 (Springhill Dr.), Mt. Shasta, CA |
| 10/10/95 | Shasta Mountain Lodge Hotel 1 (Mt. Shasta Blvd.), Mt. Shasta, CA |
| | |

EXHIBIT B



Autumn Wind Associates

Air Quality CEQA Analysis and Consulting Services

916.719.5472 • ggilbert@autumnwind.us

August 13, 2020

John P. Kinsey, Esq. WANGER JONES HELSLEY PC 265 E. River Park Circle Suite 310 Fresno, California 93720

RE: AWA Comments Regarding Air Quality Analysis, Significance Determinations and Mitigations Contained Within the Red Hills Bioenergy Project (IS 19-09) IS/MND

At the request of John P. Kinsey, Esq., Autumn Wind Associates has reviewed the above-referenced Initial Study and Mitigated Negative Declaration and associated Lake County documents for the analysis, determination, and mitigation of air emission impacts estimated for the proposed Red Hills Bioenergy Project ("Project"), and submits this comment letter regarding our concerns for the project's failure to adequately characterize and mitigate the project's air quality impacts.

All page references in this report are, unless otherwise noted, taken from the project's IS/MND provided by Lake County as Lead Agency, and utilize the pdf program's page counter function for the 191-page document, obtained from the County's website, since the document as posted by the County is not logically paginated.

As proposed, the Project will utilize existing land owned by the Scotts Valley Band of Pomo Indians on Red Hills Road, Kelseyville (Lake County, CA) to site and operate a bioenergy/gasification/power generation plant on a full-time basis using woody biomass delivered to the site by heavy-duty trucks. Chipped and native woody materials delivered to the site will reduced by chipper, hammermill, or tub grinder and moved onsite by a frontend heavy-duty diesel loader. Gasifier and related equipment will be located in a newly constructed steel building; two 100kW gensets will be located outside, nearby, and co-located near woody biomass storage and processing equipment. Production of syngas at the site will occur on a daily basis, year-round, and may provide fuel for two 100kW gensets intended to provide electricity into the grid. Based on complaints of dust and noise noted in information resulting from discussion of the project in a public Planning Commission hearing, the project site was recently used to operate across a number of months a wood waste grinding operation which resulted in complaints of dust and noise to the County and the LCAQMD.

I. The IS/MND Fails to Provide Effective, Comprehensive Analysis and Evaluation of the Project's Air Quality Emissions and Their Potential Impacts

Our review reveals a number of shortfalls with the CEQA document's failure to 1) adequately identify and discuss important emissions-related information regarding process rates and emissions-generating equipment to be used routinely at the proposed Red Hills BioEnergy operation; 2) in some cases lists contradictory information relevant to the determination of potentially significant emissions impacts, and: 3) in other cases provides no information necessary to evaluate the project's emissions of federally- and state-regulated criteria air pollutants for determination of project-related significant air quality impacts.

As an example, IS/MND at pg. 40 (of 191) states that one full-time employee at the site will

"work 5.5 hours/day, seven days a week on a split shift. The operator will be responsible for chipping feedstock, feeding the hopper, packaging biochar and monitoring the plant's operation. Equipment employed in the storage area will include one front end loader, one hammermill, and possibly two conveyor belts placed between the chipper and the hammermill and between the hammermill and the hopper".

However, at pg. 41 the use of the front end loader is identified to occur "6-8 hours per day", exceeding the 5.5 hours/day for the one full-time employee who will be charged with accomplishing several different duties each day.

In addition, no detailed information is found in the IS/MND that identifies the size and horsepower of the diesel-powered front end loader, either a diesel-powered or electric-powered chipper (identified as diesel at pg. 19 but possibly electric at pg. 24), either an electrically powered (pg. 24) or diesel-powered (pg. 41) hammermill, and mobile conveyor belts that while unstated for power source may operate on diesel power. These contradictions (or in the case of the conveyors, missing information) are required for an accurate determination of whether the project could cause significant local or even regional air quality impacts. Without their substantive review the IS/MND has failed its CEQA duty and cannot justifiably claim that the project will not lead to unacceptable air pollution increases.

II. Diesel Equipment Emissions are Not Provided in the IS/MND

Necessary information to estimate the project's diesel-related equipment and vehicle emissions is simply not provided in the project's CEQA documentation, and this oversight is not acceptable since diesel engines emit diesel particulate matter (DPM), a CARB-listed toxic air contaminant with well-demonstrated serious health

effects.¹ Unsafe accumulations of DPM and particulate matter can, particularly under stagnant air conditions that often in early mornings and under summer and fall high-pressure atmospheric conditions, cause localized exceedances of 24-hour state or federal PM10 or PM2.5 health-based air quality standards.

At pg. 2 the IS/MND states that the project will grid-connect to 240 volt/3-phase/100-amp service, but because the IS/MND provides no information on the horsepower demands for electric motors necessary to operate chipper, hammermill, conveyors, etc., the 100-amp, three-phase grid power supplied to the site may be unable to supply sufficient power for the hammermill, conveyors, and other equipment. If this occurs it will result in reliance on higher-polluting diesel equipment. Such reliance would increase localized particulate and toxic air contaminants including DPM. No mention is made of the health risks associated with DPM in the project's CEQA documentation; this is unacceptable since nearby residents may be exposed to significant increases in non-cancer and cancer health risks. A project's potential for creating unacceptable health risks for cancer risks, typically identified by numerous air districts throughout the State as an increased cancer risk of 10 per million population, is a routine component of MND's involving the operational use of diesel vehicles and equipment. However, the Red Hills BioEnergy IS/MND has ignored this potential impact altogether.

III. IS/MND Provides Conflicting Emissions-Relevant Information Regarding Gensets

In similar fashion, while numerous entries in the IS/MND (starting at pg. 2) identify that the project's two "modified" (pg. 16) 100kW genset engines will be operate on syngas produced onsite by the Artis gasifier unit, no emissions rate information is provided for the "modified" genset engines, nor is there any information provided to show that they will meet CARB offroad engine certification regulations currently applying to the Volvo Penta diesels. Similarly, nothing is found to show that modifications necessary to permit them to run on project syngas will comply with EPA Memo 1-A's tamper-proofing and modification requirements.

In addition at pg. 47 manufacturer cut-sheet information clearly identifies that the two gensets will utilize large-displacement Volvo-Penta diesel engines and that they will consume up to 11.5 gallons of diesel per hour at full load. And while information provided by the gasifier's manufacturer (Omni BioEnergy, LLC) provides details identifying percentages of hydrogen, CO, methane, etc., expected for the project's syngas that may (or may not) fuel each generator's engine, it is a fact that diesel (compression-ignited) engines are not inherently capable of

¹ CA Air Resources Board; "Diesel engines emit a complex mixture of pollutants, including very small carbon particles, or "soot" coated with numerous organic compounds, known as diesel particulate matter (PM). Diesel exhaust also contains more than 40 cancer-causing substances, most of which are readily adsorbed onto the soot particles. In 1998, California identified diesel PM as a toxic air contaminant (TAC) based on its potential to cause cancer. Diesel engine emissions are believed to be responsible for about 70% of California's estimated known cancer risk attributable to toxic air contaminants. Also, diesel PM comprises about 8% of outdoor fine particulate matter (PM2.5), which is a known health hazard. As a significant fraction of PM2.5, diesel PM contributes to numerous health impacts that have been attributed to particulate matter exposure, including increased hospital admissions, particularly for heart disease, but also for respiratory illnesses, and even premature death. CARB estimates that diesel PM contributes to approximately 1,400 (95% confidence interval: 1,100-1,800) premature deaths from cardiovascular disease annually in California. Additionally, exposure to diesel exhaust may contribute to the onset of new allergies; a clinical study of human subjects has shown that diesel exhaust particles, in combination with potential allergens, may actually be able to produce new allergies that did not exist previously." See https://ww2.arb.ca.gov/resources/summary-diesel-particulate-matter-health-impacts

operating on a gaseous fuel. Either the gensets will run on diesel fuel or they will require extensive modifications, including the addition of spark plugs which will shift their regulatory status from diesel to spark-ignited, in order to operate with the project's proposed hydrogen-rich syngas. Their respective emissions test data are conspicuously absent from the IS/MND.

At pg. 41, the IS/MND claims without EPA or CARB emissions certification data or any other evidence that

"The electricity generator will meet all EPA and regional air quality board standards with an emission level cleaner than a natural gas generator.

This statement reveals broad ignorance of air agency emission standards and regulations that apply to the two genset engines proposed for use in the Red Hills BioEnergy project, and is a gross oversimplification since by law only EPA and CARB can regulate the several types of Clean Air Act-specified "criteria" pollutants emitted by the Volvo Penta diesel engines. Further, local or regional air quality stationary source permitting and enforcement duties are undertaken by air districts (not a "board"), and natural gas engine emissions (of the "natural gas generator" noted above) are certified under harmonized (EPA/CARB) Large Spark Ignited (LSI) regulations to the same emission standards irrespective of fuel type; therefore, a "natural gas generator" certified by CARB or EPA for use in CA must meet the same standards as, say, a certified gasoline, propane, or syngas-fueled engine.

Importantly, because the project's genset engines must be modified to operate on syngas, certified offroad engine emission values applied to the two diesel genset engines will no longer apply. No emissions test or certification data for the two engines have been provided in the IS/MND and therefore the project's CEQA air quality review cannot ensure that the modified engines, despite their operating with the syngas' purported 43% hydrogen level, will not cause NOx, HC, or CO emission excursions that exceed their EPA-certified (diesel) Tier Four-Final emission levels or spark-ignited engines under applicable LSI regulations. Similarly, excursions of genset emissions could combine cumulatively with emissions of diesel woody greenwaste delivery trucks and onsite diesel equipment (e.g. front-end loader, chipper, hammermill, to cause or contribute to localized exceedances of federal and ambient air quality standards in violation of CEQA Guidelines.

The gross simplification and over-generalization of the genset engine emissions lacks the necessary substance and detail expected of the most basic CEQA review, and the notion that simply because the two diesel-designed genset engines will be modified to run on gasifier-produced syngas their emissions will be at low or even non-detect levels is patently invalid---all engines, regardless of fuel, produce NOx, CO2, and other pollutants which can exceed applicable regulatory CI (compression-ignited) and LSI (Large Spark Ignited) emission standards. The IS/MND must provide verifiable emissions-testing proof that the two genset engines—either to run on diesel or syngas, depending on where you look in the document---will operate at very low emissions, and this must occur BEFORE the IS/MND's otherwise poorly-substantiated determinations of less than significant air quality impacts is accepted by decisionmakers.

IV. IS/MND Air Quality Impact Analysis is Inconsistent with CEQA Guidelines Appendix G

Specifically, CEQA Guidelines Appendix G provides that a project could cause a significant air quality impact if it would violate any air quality standard or contribute substantially to an existing or projected air quality violation. While Lake County is in attainment of all state and federal air quality standards currently, the IS/MND provides no specific data, evidence, information, or calculations used to estimate or evaluate for impact significance operational air quality emissions that will result from operation of the Red Hills BioEnergy project (with a planning lifetime of at least 30 years) and thus cannot fulfill CEQA's essential objective of ensuring that the proposed project will not cause or contribute to a significant air quality impact.

Similarly, Appendix G requires that a lead agency "make a good faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project" (Section 15064(a)), yet the IS/MND does little more than reflect the claim at pg. 19 by the gasifier's manufacturer that it will operate on a carbon-neutral basis. There, it states

"Trace level emissions to below detectable levels from the sealed-system Artis gasifier result in a carbon neutral system".

However, nothing in this statement or elsewhere in the IS/MND is provided to substantiate this claim, nor does the claim apply to the GHG emissions that should have been (but were not) estimated for the project consistent with CEQA Guidelines Appendix G.

In fact, the project will result in GHG emissions from grid-powered electric equipment that will operate at the site, from diesel equipment that will operate at the site, from diesel delivery trucks that will travel to and from the project site from unspecified locations and which will likely require thousands of miles of travel by heavy-duty diesel trucks weekly, from worker trips, and from other sources of emissions that will result from routine operation of the project over its planning lifetime. The IS/MND has clearly failed to require that the project's criteria and GHG emissions be effectively estimated and evaluated, deferring instead to oversimplified and unsubstantiated claims that fail to fulfill CEQA Guidelines Appendix G or its essential purpose of identifying, disclosing, and mitigating with reasonable, feasible measures the project's significant impacts. The IS/MND should have utilized emissions modeling estimates provided by readily available and commonly used CalEEMod land use emissions program. ² Its failure to do so reflects a poorly organized, scattershot environmental review that is not consistent with CEQA Guidelines.

² CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects. The model quantifies direct emissions from construction and operation activities (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. Further, the model identifies mitigation measures to reduce criteria pollutant and GHG emissions along with calculating the benefits achieved from measures chosen by the user. The model was developed for the California Air Pollution Officers Association (CAPCOA) in collaboration with the California Air Districts. Default data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California Air Districts to account for local requirements and conditions.

The CalEEMod land use emissions estimation model should have been used to produce discrete, quantitative emission estimates for specific pollutants that will result from the project's long-term, routine operation. In most cases those quantities would then be gauged for impact significance against quantitative CEQA thresholds of significance developed by the air district with jurisdiction. In this case LCAQMD has no CEQA significance thresholds and the County is in attainment of federal and state ambient air quality standards. Nonetheless, to prevent unacceptable deterioration of local air quality and to prevent emission increases that could result in localized exceedances of applicable state or federal ambient air quality standards, the project's emissions should have been carefully estimated and then compared to CEQA thresholds of significance developed by an adjoining air district with similar air quality conditions. Lake County is adjacent to several air districts with CEQA guidance and thresholds and the IS/MND should have, at the very least, utilized their guidance/thresholds to evaluate the Red Hills BioEnergy project for air quality impact significance.

V. Technical Information Regarding Hammermill and Truck Emissions is Missing from the IS/MND

Technical information regarding the project's use of a hammermill is missing altogether from the IS/MND; the hammermill at the project site will be used regularly to reduce larger diameter chipped material produced at the site or delivered via the 2-5 truckloads (at 2-5 tons per load) noted at pg. 19.

It may also be possible that the IS/MND has underestimated the tons of materials that will be delivered per load to the Red Hills Road site since chipping that occurs on timber salvage and risk reduction projects in the forest or field routinely use ~50' "chip" trucks to cost-effectively transport materials to the cogeneration or biowaste treatment facility, often at a substantial distance. A typical chip truck will transport 25 tons of wood waste chips per load, with materials then dried prior to subsequent use or secondary processing (as will occur at the Red Hills project to a "feedstock moisture level of 10-20%" found at IS/MND pg. 38 and to reduce chip diameter to ½" avg.).

Deliveries of the 2 – 5 tons per truckload to the Red Hills project identified in the IS/MND, delivered from wood waste and utility line clearance projects located throughout the region—although with originating locations are never specified or even mentioned in the IS/MND--- is inconsistent with standard industry practices and is likely to be cost-ineffective due to equipment, distance, labor costs, and fuel cost-related economies of scale cost factors. Similarly, a major portion of the project's operational emissions will result from daily deliveries by diesel heavy-duty vehicles to the site which will originate elsewhere. Those emissions belong to the Red Hills BioEnergy CEQA review, and therefore diesel delivery truck trip distances and frequencies should have been included in the IS/MND's air quality element. When combined with onsite diesel and dust emissions it is possible that a localized exceedance of PM10 standards or health risk thresholds could occur, and this potential should have been evaluated in the IS/MND.

The IS/MND may have intended to list the industry's commonplace 25 tons-per-truckload delivery value, which would likely produce lower total delivery-related emissions compared with the maximum of 5 daily smaller-

capacity diesel truck trips anticipated by the IS/MND's stated information. The quantity of materials requiring onsite processing that will arrive at the Red Hills project site is critical to the potential for the project to cause unacceptable air quality impacts for the surrounding area—nor is this issue theoretical, as wood waste processing at the site in the earlier months of 2020 by PGE resulted in numerous emissions complaints to the County and the LCAQMD from residents and the mini-storage facility workforce located nearby. Without fully paved roads on the project site, truck deliveries and traffic may, in combination with other project emissions, cause additional emission and dust complaints from nearby citizens.

While the IS/MND notes that it will utilize a hammermill at the site, it fails to provide air pollution-relevant information on its anticipated size, power supply (electric or diesel), process rate, or methods or controls it will employ to limit materials-grinding dust emissions that have in the recent past caused public nuisance³ and health-related complaints from citizens and residents in the surrounding area.

A hammermill utilizes flat-steel hammers suspended on rotating bars that spin at high speed to quickly reduce larger diameter materials (wood wastes in this case) to meet smaller diameter requirements. Hammermills, tub grinders, and chippers are known to cause dust entrainment in ambient air, particularly when timber harvest, line clearance, or fire salvaged materials, often coated with dirt or ash, are processed.

As noted in the IS/MND, chipped materials coming from the field will average 1.5" in diameter and will require reduction to the .25" diameter required by the Artis gasifier; hammermilling those larger diameter materials will be a common occurrence, and they can be expected to generate fugitive dust emissions which will cause (more⁴) public air quality-related nuisances complaints from nearby citizens and residents. Dust emissions can also be expected to cause deposition of dust materials on crops with the potential to impair growth and value of adjacent agricultural grape growing operations. Based on the anticipated long-term, 24/7/30/12 operation of the proposed Red Hills BioEnergy project---30 years is the typical planning lifetime of a CEQA-subject land use proposal—it

³ California Code of Regulations Health and Safety Code § 41700—Public Nuisance commonly serves as the baseplate for local adoption of a public nuisance rule by most CA air districts (but not including LCAQMD). The regulation is considered a safety-net measure, permitting the air district to respond to and enforce against air quality-related complaints representing potentially significant or considerable health risks and which are not otherwise covered by a specific, pollutant-based rule or regulation. CCR H&S §41700 states that "no person can discharge air contaminants that cause injury, nuisance, or annoyance to any considerable number of persons or the public, or that endanger the comfort, health or safety of such persons". The number and sustained nature of dust complaints to the County and the LCAQMD resulting from wood waste processing at the Red Hills project site in the first months of 2020 should have been—but intentionally were not---enforced by either entity with use of this public nuisance regulation.

⁴ Numerous dust and noise complaints from citizens in the project area have been received by the County and LCAQMD, along with concerns expressed on the record to Planning Commissioners. According to the complainants at the nearby mini-storage, their complaints resulted in statements from the County and the LCAQMD that there was nothing that could be done regarding tub-grinding dust and noise issues at the project site based on what was presented as the superseding authority and jurisdiction of the State. This was both incorrect and classic scapegoating, designed to have citizens believe that local authorities had no control over dust or noise issues emanating from the wood waste processing across several recent months, when in fact local governmental agencies were chiefly and primarily responsible for ensuring that planning and air quality regulatory enforcement duties at the site were applied and enforced. Further, according to complainants, report materials resulting from the one and only site inspection by LCAQMD were never provided despite their requests. They claim that they were also advised to secure the services of an attorney for resolution of their dust and noise complaints.

is highly likely that without highly effective dust controls the project will lead to air quality complaints consistent with those occurring at the site earlier this year.

Hammermilling of woody feedstocks at the Red Hills site will also create dust with the potential to cause local exceedances of LCAQMD visible emissions rule⁵, and based on previous project-related dust complaints fugitive dust from processing woody feedstocks at the site likely violated the District's rule along with the provisions of the State's H&S Code 41700- Public Nuisance since nuisance complaints of dust were received from neighbors and raised in at least one County-led public project-related meeting. The failure of the IS/MND to identify and discuss air quality regulations pertinent to the project is unacceptable.

Grinding-related dust contains PM10, a health-based pollutant regulated and monitored locally by the LCAQMD under federal and state Clean Air Act regulations. As noted in a University study⁶ of dust generated by hammermilling of agricultural products,

"Dust suspended in the air is a mixture with varied chemical composition and physical characteristics. Organic dust present in the air with a particle diameter greater than 10 m quickly settles on surface and is called deposited dust. At the same time, smaller fractions are suspended in the air. PM10 fraction refers to particles with the size smaller than 10 micrometers, while PM1.0 to the particles with the diameter smaller than 1 micrometer. Dust with dimensions smaller than 10 micrometers (PM10) enters the respiratory system and those with particle size smaller than 1 micrometer may penetrate alveoli and thus enter bloodstream and all other systems [7–9]. As evidenced by studies, dangerous mycotoxins enter the human body together with inhaled organic dust [10,11]. The presence of dust during the grinding process is very common. Primarily, particles of a greater size are present (PM10), but there are also those with smaller particle size (PM2.5). As the result of their further spread, and frequently mutual collision, their additional fragmentation takes place, which increases the amount of fine fraction PM2.5 and very fine fraction PM1.0."

The proposed project is expected to process woody materials from timber salvage and fire risk reduction projects that contain blue-stain and various types of molds common in decaying timber wastes; chipping and grinding may result in their entrainment in open, ambient air that will then migrate offsite to nearby breathers; this component of the project's potential to create fugitive dust emissions represents increased health risks, especially to those with asthma or other breathing difficulties. No information is found in the IS/MND that discusses sensitive receptors, or mitigations to control dust emissions that can move quickly offsite to nearby residences, agricultural operations, and at least one commercial business.

⁵ LCAQMD Rules and Regulations; Article 1, Section 400 – Visible Emissions; this rule prohibits fugitive emissions from the Red Hills site that cause an opacity impact greater than a Ringelmann 2 (or 40% opacity) for more than 3 minutes aggregated in any hour. Based on witness/complainant accounts of excessive dust, via statements claimed to have been made to County and LCAQMD staff, from relatively recent tub-grinding at the Red Hills project site it is likely that Section 400's opacity limitation was violated regularly.

⁶ "Evaluation of Dust Concentration During Grinding Grain in Sustainable Agriculture"; article by researchers P. Sobczak , J. Mazur, K.Zawislak, M. Panasiewicz, W. Zukiewicz-Sobczak; published August 2019 by the Multidisciplinary Digital Publishing Institute. See https://www.mdpi.com/2071-1050/11/17/4572

VI. Air Quality Mitigations are Not Contained Within an MMRP and Contain Flawed Language

Air quality mitigation measures are found at IS/MND pg. 13-14; these measures are flawed since they have not been written into an enforceable Mitigation, Monitoring, and Reporting Plan and because important components have been made conditionally subject to discretionary action by an unspecified "review authority".

Significant impacts from dust generated by the project's operational, routine use of onsite equipment (e.g. front-end loader, chipper, hammermill, etc.) and reliance on daily worker and delivery truck trips are likely, based on the history of dust complaints resulting from woody materials grinding at the project site and because the IS/MND fails altogether to estimate, evaluate, and impose controls to limit dust emissions from any of the number of project-related operational sources.

As an example, materials delivered to the site will contain dust contaminants including residual dirt, dust, and, likely, ash/char on fire-salvaged materials, and fugitive dust emissions will result during chipping, grinding (hammermilling)and conveying materials onsite via conveyor belt and front-end loader. Cyclones are commonly used devices to control dust from wood grinding activities, and water sprays are similarly employed to reduce fugitive dust emissions at chipping and grinding equipment and conveyors. No discussion, however, is found in the IS/MND that identifies these or other mitigation methods that should have been evaluated for use at the site to reduce operational fugitive dust entrainment/re-entrainment.

The IS/MND similarly contains no Mitigation, Monitoring, & Reporting Program (MMRP) element and thus the public has no assurance that air quality mitigations (Air-1 through Air 4) will be made a condition of project approval, and, thereby, providing for the measures' enforcement over the project's operational lifetime.

Significant and potentially significant environmental impacts raised or identified in the project's Mitigated Negative Declaration require that the lead agency adopt a

"reporting or monitoring program for the changes to the project which has adopted or made a condition of approval in order to mitigate or avoid significant effects on the environment" (PRC §21801.6(a); CEQA Guidelines §15091(d) and §15097)."

The MMRP is the instrument by which impact mitigation measures, identified to reduce the severity of impacts identified and evaluated in the MND, are assured of implementation and enforceability. The MMRP must reflect changes made to the project prior to the decisionmakers' body determination of findings, and it will specifically include enforceable conditions of approval required by the lead agency. The lack of an MMRP in the Red Hills BioEnergy IS/MND is not acceptable since mitigations Air-1 through Air-4, even if not containing the subjective language which will render Air-2 unenforceable, may be quickly ignored once CEQA findings are concluded.

MM Air-2 contains this language which renders the measure subjective and unenforceable:

"Prior to operation, the primary access roads and parking area shall be constructed, surfaced and maintained with an all-weather surface of asphaltic concrete or concrete *unless another all-weather surface is approved by the review authority* to minimize dust impacts to the public, visitors and road traffic. (emphasis added)

No information by the Lead Agency is provided to identify the "review authority" to be responsible for deciding what constitutes an acceptable "all weather surface", nor does the measure identify a schedule by which the alternative would be chosen, applied, and maintained for the life of the project.

Because the county has failed to reasonably and effectively respond to and mitigate dust complaints generated by the preceding wood waste tub-grinding operation at the Red Hills project site, it is reasonable to assume that they do not have the resources or will necessary to review, approve, and then enforce the effective use and maintenance of "another all-weather surface" to reduce fugitive dust entrainment by the trucks and equipment that will regularly operate once the IS/MND is approved with findings. To correct the air quality mitigation defects noted above, the MND must be re-written with precise, enforceable dust mitigation language and requirements, and with identification of the agency that will ensure their implementation and sustained maintenance over the project lifetime.

VII. Conclusion

The Red Hills BioEnergy IS/MND contains numerous flaws, contradictions, and omissions of information necessary for the accurate and effective estimation, determination, and mitigation of project-related emissions impacts. Genset emissions are uncertain since no emissions data were provided, and contradictory documentation in the IS/MND shows that the gensets will run either on diesel or syngas. Process rates for project equipment affecting emissions were not provided, nor was an estimate of vehicle miles traveled (VMT) or source locations associated with the daily delivery truck trips that will move woody feedstocks to the site or transport generated biochar to a southern central-valley location. Contradictory or missing information is evidenced throughout the environmental documentation regarding which power source—diesel or electric---for all or nearly all pieces of operational site equipment (e.g. hammermill, conveyors).

The IS/MND has failed to note or discuss the numerous previous dust and noise complaints from the public to the County and the LCAQMD that, as part of the subject property's history, should have been presented as an environmental setting and "baseline" component under CEQA since wood waste processing, virtually identical in nature to what is described in the IS/MND, occurred at the site for several months prior to preparation of the IS/MND.

Based on the proximity of residences and businesses (mini-storage, vineyard(s)), as close as 220' to the proposed gensets, storage yard, and building, the identified up to several heavy-duty truck deliveries to the site daily, 24/7 operation of the two genset engines, and daily operation of diesel equipment that will or could include chipper, hammermill, conveyors, and front-end loader, the IS/MND has failed to evaluate the project's potential to cause localized exceedances of regulated particulate and possibly DPM emissions, nor has it estimated or evaluated any of the project's other emissions-producing equipment, relying instead on gross simplifications and generalizations

obtained from non-expert sources including, likely, equipment manufacturers with an obvious financial interest in the proposed project's approval and development. Dust emissions at the site in the recent past have, via numerous complaints to the County and the LCAQMD, resulted in private and public nuisance complaints that were subsequently not resolved to the satisfaction of local residents, citizens, and taxpayers and which we believe are highly likely to recur under the operational scenario information presented in the flawed IS/MND.

Substantive, thorough, comprehensive revisions including emissions data and operational emissions estimates for truck trips to/from the site, onsite equipment, and gensets should be made to the IS/MND with re-release for subsequent public review and comment.

Greg Gilbert

Autumn Wind Associates

STATEMENT OF QUALIFICATIONS

Greg Gilbert

Autumn Wind Associates

Greg Gilbert is director and founder of Autumn Wind Associates, located northeast of Sacramento, CA. AWA provides expert review, analysis, and estimation of potential air quality and related environmental impacts of proposed land-use development projects involving indirect- (mobile) and stationary (operating under air agency permit) sources of air pollution. He has consulted on air quality land use planning, mobile, and stationary source projects to private and public clients since leaving public service as an air agency manager in 2000. Previously, he was national marketing director for an emissions catalyst products and technology firm with international markets in mobile and stationary sources. Between 1990 and 2000 Mr. Gilbert was employed in two California air agencies, most recently as project manager in the Mobile Source Division of the Sacramento Metropolitan Air Quality Management District (SMAQMD). While at SMAQMD Mr. Gilbert assisted in the development and implementation of the agency's heavy-duty diesel vehicle low-emission incentive program that would later evolve into the Moyer Program; the evaluation of land use-related air quality emission impacts and control strategies, development of California Environmental Quality Act (CEQA) thresholds of significance and mitigations to reduce, offset, or eliminate air quality impacts of new land use; development of air-related CEQA guidance; and creation of the first air quality CEQA mitigation fee program with percentage-based emission reduction mitigation choices provided to the building developer.

Since 2001, AWA has provided consulting expertise to private entities and air agencies, conducted research on construction practices and equipment emissions, assisted with development of CEQA land-use guidance documents and mitigation strategies for CA air quality agencies, and provided analysis and modeling of potential air quality impacts identified primarily in Mitigated Negative Declarations and Environmental Impact Reports for proposed land use development projects throughout California. Mr. Gilbert continues to review and provide expert written and testimony on CEQA- and development-related project-specific environmental analysis, mitigation, and documentation for a wide range of public-, private-, and environmental-sector clients, including law firms specializing in CEQA-NEPA cases.

EXHIBIT C

August 18, 2020

Report on Agricultural Impacts of the Red Hills BioEnergy Project

Clinton Craig Nelson

I. Introduction

The following is a report on the agricultural impacts associated with the Red Hills BioEnergy Project (the "Project"), as well as an analysis and review of the Agricultural & Forestry Resources and the Aesthetic Impacts analyses included in the County of Lake's Initial Study IS 19-09 (the "Initial Study").

The Lake County winegrape growing region is found in the intermountain region of Northern California, north of San Francisco and inland from the Pacific coast. The county is centered on Clear Lake, the largest natural freshwater lake in California, and has a Mediterranean-like climate of hot dry summers and cool moist winters. The county has long focused on agriculture with winegrapes, pears, and walnuts the main crops. The post-prohibition renaissance of the wine industry started in the 1960's and today includes approximately 200 vineyards representing nearly 9,400 acres. The majority of the vineyards in the region are planted within seven TTB-approved American Viticultural Areas that provide a myriad of grape growing environments: Guenoc Valley AVA, Clear Lake AVA, High Valley AVA, Benmore Valley AVA, Big Valley District Lake County AVA and Kelsey Bench Lake County AVA and for the sake of this discussion the Red Hills Lake County AVA (Jones 2014).

The Red Hills AVA is known for rolling mountain ranges comprised of unique volcanic soils, intense solar radiation and picturesque landscapes. The summers are hot and dry with a strong diurnal shift. Following the onset of fall, cooler days and nights help promote and retain intense flavor development. The cumulative effect of ideal climate along with porous soils offer the potential for building a world class winegrowing region.

Temperature is a critical factor in the development of quality winegrapes. If temperatures are excessively high, key phenolic compounds can be inhibited, degraded and even diluted over a larger sink of fruit (Keller 2010, Van Leeuwen and Darriet 2016). The grapevines can better handle extended warm days as long as appropriate cultural practices are implemented. However warm nights can greatly affect winegrape quality, especially during the later stages of development (Koshita et al. 2007).

Growing degree-days (GDD) is a common formula for calculating temperature's influence on plant growth potential and vigor. The vineyards located near this Project align with other high quality areas in nearby regions. For example, the Amber Knolls Vineyard (which is located in the Red Hills AVA) accumulated approximately 3880 GDD. Historically, these Red Hills vineyards

mirror some of the well-known mountainous Napa Valley AVA's like Stag's Leap, and they are slightly greater in heat accumulation than valley AVA's like St. Helena and Calistoga (Jones 2014).

The area, also known for having some of the highest air quality reports in the state (Gearhart 2017), encounters less diffusion of solar radiation from potential pollutants allowing greater interception of light. This is abundance of light help promote secondary metabolites that make the area perfectly suited for ultra-premium winegrape production.

Development of a grapevine begins in the soil. The Red Hills AVA is comprised of well-drained volcanic soils rich in native materials ideal for sugar accumulation while simultaneously driving strong minerality and aromatic potential in the fruit. This region, located approximately 45 minutes north of Napa Valley has relatively thin topsoil and is rich with obsidian rock that lends itself to rapid drainage after rain and irrigation events. The predominant soil type being Glenview-Arrowhead complex which is defined as a well-drained, extremely gravelly loam on obsidian hillsides (SSURGO).

Potentially the greatest and one of the most defining distinctions between the Red Hills AVA compared to other famous hillside vineyard appellations is the increase in uniformity of the parent material. The regional volcanics, obsidian and lava rock, have been deposited as recently as 10,000 years ago (USGS) from eruptions of Mount Konocti and form a continuous crust of porous rock across the vineyard landscapes. This is atypical for most California AVA's, where a vast number of hillside vineyards are composed of alluvial fans where differences in weathered material can impart variability across changing elevations.

With over 9,400 acres planted in Lake County; winegrape production alone accounts for over \$70,000,000 in gross revenue. Winegrapes and subsequent wine bottles are defined by their locale, for example a bottle of Napa Valley Cabernet will hold 10-fold monetary value compared to a Lodi appellate Cabernet. Consumers of fine wines depend greatly on the geographic pedigree and established quality of appellations. In the United States, we label these areas as American Viticulture Appellations (AVA). Consumer's dependence on AVA's drives the impetus on maintaining the value of the Red Hills AVA. The appellation process is extensive and involves petitions, fees and licenses through the Alcohol and Tobacco Tax and Trade Bureau (TTB).

The Project Would Result in Potentially Significant Agricultural Impacts

A. Impacts Associated with Dust Migration

The County has received written and verbal testimony concerning existing dust migration issues associated with the use of a tub grinder on the Subject Property. Because the Project does not contemplate mitigation that would assure dust migration would no longer occur, this report provides an analysis of the effects of dust migration on vineyard health, yield, sugar accommodation, fruit quality, and wine quality. This report also discusses potential conflicts between the Project and nearby vineyards, and the potential of the Project to cause the conversation of farmland to non-agricultural use.

Dust has the capability of carrying numerous windborne pathogens that could adversely affect vineyard properties. Such pathogens have the potential to cause insect, mite and fungal infestations.

1. For example, in Northern California's premium wine country, there are two species of dust mites ("Pacific spider mite": Tetranychus pacificus and "Willamette spider mite": Eotetranychus Willamettei), both of which spread primarily through dust plumes. Both spp. Of mites damage the grapevine integrity in similar ways; they use piercing/sucking mouthparts to drain canopy components of carbohydrates and chlorophyll, both of which are essential to photosynthesis and plant health. The damage begins as yellow spots, ultimately resulting in dead (necrotic) areas on the leaves as damage progresses. High populations of the pacific spider mite can render leaves unfunctional with leaf burning/bronzing, with large amounts of webbing. Due to impacts on photosynthesis, both mite spp. inhibit the ability of the plant to absorb sunlight, and convert sunlight to energy, decreasing the ability of the vines to grow. This results in the ability of the vine to develop fruit, and creates a subpar quality product for winemakers to vinify. Among other things, advanced mite damage causes wines to lack color, flavor, and mouthfeel astringency. In an environment where the smallest variables make a world of difference in the final product, which is high-quality wine, it is significantly more damaging to have unwarranted disease pressure impact marketability.

Damage associated with both mites can be managed somewhat by biological controls. However, unwatered dirt roadways and other uses that cause dusts can exacerbate mite infestations. (University of Irvine, Integrated Pest Management Program, Webspinning Spider Mites (2019)).

2. Eutypa dieback, Botryosphaeria dieback, Esca, and Phomopsis dieback make up a complex of "trunk diseases" caused by different wood-infecting fungi. Eutypa dieback delays shoot emergence in spring, and the shoots that eventually do grow have dwarfed, chlorotic leaves, sometimes with a cupped shape and/ or tattered margins. Symptomatic shoots are likely to either die back later that growing season or the spur from which they originate will die the following year. Eutypa dieback causes death of spurs, arms, cordons, canes, and sometimes the upper section of the trunk, depending on the location of the wood canker. Wedgeshaped wood cankers form in infected wood and are indistinguishable from those associated with Botryosphaeria dieback and Phomopsis dieback. Dead spurs and shoot dieback caused by Eutypa dieback are canopy symptoms shared in common among multiple trunk diseases, which often occur in mixed infection within the vineyard and even within an individual vine. (UC IPM Pest Management Guidelines: Grape UC ANR Publication 3448)

Typically, trunk diseases are spread through aerosol droplets that disperse during rain events. Spore dispersal is volatilized by rain droplets and infect open wounds

during winter and spring pruning. The Project's wood pulverization, grinding and chipping will likely not only disperse dust, but potentially contribute to the spread of the aforementioned dangerous trunk disease spores. This can and would be catastrophic for adjacent vineyard that would incur substantial vine losses as well as a decrease in vineyard uniformity. Vineyard uniformity, i.e. all vines growing and maturing at the same rate, is critical for driving quality vines. If significant numbers of vines are affected by fungal pathogens that decrease vigor, limit photosynthesis and eventually kill the vine – then growers are at risk of losing clients and being burdened with unmarketable fruit due to fungal pathogen vine decline as well as vine mortality.

The impacts of dust carrying fungal spores and mites has been stated and is well known (Plant Disease Management Guide (2016), Retief et al. (2006), University of Irvine, Integrated Pest Management Program, Webspinning Spider Mites (2019)). However, what is less known are the impacts of storing decaying wood near functioning vineyards. Cane borers and termites have been known to both cause detrimental impacts to grapevines and vineyards. The increased probability of having these insects drift from adjacent debris piles may ultimately lead to vine decline, mortality and once again unmarketable fruit.

It is the combination of these avoidable threats to vineyard sustainability that may potentially lead to the land be ill-suited for agriculture as a whole. As a result of this contamination drift, there is a significant likelihood of a scenario where uniquely valuable, ultra-premium winegrape land will need to be converted to something more suitable for an industrial zoned area, which would have a wide-ranging and long-lasting effect on agricultural lands within the Red Hills Appellation.

In sum, the Project has the potential to adversely affect nearby agricultural lands through the migration of dust. This would not only constitute a direct conflict between the Project and nearby vineyards, but also cause the conversion of nearby farmland to non-agricultural uses, as those adjacent properties would be unsuitable for vineyard uses. Based on the foregoing, and due to the lack of mitigation that reduces the above impacts, the evidence shows the Project would result in potentially significant impacts to nearby agricultural resources.

B. The Project Would also Cause Negative Impacts to Agricultural/Aesthetic Resources by Installing Incompatible Facilities that Would Undermine the Lake County/Red Hills Wine Appellations

One of Lake County's largest revenue producing resources, as well as key tourist attractions, is the wine industry that is comprised of a diverse assortment of wine appellations. These uniquely distinct growing regions are led by the Red Hills AVA which produces some of the most sought after winegrapes in the state.

Maintaining and cultivating a sense of *terroir* or landscape is critical to the success of any wine region. To blemish it with an industrial complex will undo years of efforts by local

industry leader's whom are attempting to market the next great wine locale. The wine industry is unlike many others in that it is driven by sensory perception. What people hear, smell, taste and see impact how they take in the appeal of a vineyard or how they distinguish the flavors of wine. Stated another way, the ability for vineyards and wineries to sell and market wine is driven strongly by visual aesthetics and ambience. If that atmosphere is tainted with the sounds and visuals of an industrial complex, that sense of being in a picturesque vineyard and/or winery will be lost. This avoidable disadvantage will negatively affect current businesses in the Project's vicinity as well as surely stymie future growth and commerce.

Lake County is not easily accessible as it remotely located hours from any major cities. Many of the tourists that make the travel to Lake County visit the area to get away from industrialized urban regions. Part of the attraction and ambiance of the Red Hills AVA is the unadulterated rolling hills consisting of either native vegetation or vineyard land. These vistas are unmatched and make this Project even more unharmonious with the location.

Because the Project is located adjacent to vineyards and tasting rooms, the Project has the potential to adversely affect the status of the Red Hills Appellation (and the Lake County Appellation generally), which is critically important to the survival of local vineyards. Among other things, the siting of an industrial facility with attendant noise, dust, and visual impacts would undermine the very qualities that promote the appellation—*i.e.*, its bucolic setting, natural hills, and clean air. As a result, the Project would result in potentially significant impacts to nearby agricultural resources by undermining the Red Hills and Lake County Appellations.

C. The Project Would also Adversely Affect Agricultural Operations by Diminishing the Value of Ancillary Facilities that are Critical to a Healthy Wine Industry

Of course, vineyards are of critical importance to the wine industry, as those lands produce the fruit that winemakers use to manufacture wine. For premium and ultra-premium wine grape lands and appellations, winemakers rely upon ancillary facilities and operations to market and promote their product. Often called tasting rooms, these facilities have become part and parcel of the modern winemaking industry. In addition to promoting a particular vineyard, these tasting rooms—when deployed in a critical mass within an appellation, directly enhance the appellation's prestige to the public.

The Project also has the potential to adversely affect the tasting rooms and wineries, which are critically important for the wineries. Small tasting rooms and wineries depend on return customers for a large portion of their sales. Direct to consumer (DtC) wine sales account for nearly 60% of total sales for wineries producing 50,000 cases or less (Wine Business International (2018)). The majority of Red Hills wineries fall into this category.

Like the Napa and Sonoma Appellations, the Red Hills AVA is primarily visited by customers coming from either the Bay Area or greater Sacramento region in search of a retreat away from urban environments. Winery and/or tasting room customers expect—and demand—a rural atmosphere with unique and aesthetically pleasing visual resources that reflect the agricultural nature of the experience. As a result, successful wineries and tasting

rooms are typically complemented by a rural, bucolic setting. They are often surrounded by vineyards, rolling hills, farmhouses, and sweeping rural vistas. Adjacent urban uses—and in particular industrial uses, such as energy plants—detract from the rural, bucolic nature of the experience, and have a significant potential to undermine the success of the facility. This will not only result in significant adverse aesthetic impacts for winery/tasting room visitors, but also significantly affect agricultural resources by undermining the ability of local producers to engage in DtC wine sales, which represent more than half of the total sales of small to medium-sized wineries.

II. CONCLUSION

As currently configured, the Project has the potential to cause significant impacts to agricultural and aesthetic resources that are of critical importance to the wine industry in Lake County and the Red Hills Appellation. Dust associated with the Project has the potential to cause bacterial, insect, and fungus infestations, all of which diminish the value of nearby vineyards, and the capability of the vines to produce high quality wine. In addition, the placement of the Project near productive vineyards and popular tasting rooms as a significant potential to undermine the Lake County and Red Hills Appellations, which are important to the survival and growth of agricultural uses within the County and the Red Hills Area.

References

Gearhart, D.G. (2017) http://www.lcaqmd.net/documents/PIRALA2017.pdf

Jones, G.V. (2014) Climate Characteristics for Winegrape Production in Lake County, California. Southern Oregon University

Keller, M.M. (2010) Managing grapevines to optimise fruit development in a challenging environment: a climate change primer for viticulturists. Aust. J. Grape Wine Res., 16, pp. 56-69

Koshita, Y., Asakura, T., Fukuda, H., Tsuchida, Y. (2007) Nighttime temperature treatment of fruit clusters of 'Aki Queen' grapes during maturation and its effect on the skin color and abscisic acid content. Vitis 46 (4), 208–209

Mozell, M.R., Thach, L., (2014) The impact of climate change on the global wine industry: Challenges & solutions, Wine Economics and Policy, Volume 3, Issue 2, Pages 81-89, ISSN 2212-9774 https://doi.org/10.1016/j.wep.2014.08.001.

Nelson, C.C., Kennedy, J.A., Zhang, Y., Kurtural, S.K. Am J Enol Vitic. January 2016 67: 18-28; published ahead of print September 03, 2015; DOI: 10.5344/ajev.2015.15043

Plant Disease Management Guide. Louisiana State University. (2016) https://www.lsu.edu/agriculture/plant/extension/hcpl-publications/Pub1802-plant_management_guide.pdf

Retief, E., McLeod, A., and Fourie, P.H. (2006) Potential Inoculum Sources of *Phaeomoniellachlamydospora* in South African Grapevine Nurseries. European Journal Plant Pathology. doi: 10.1007/s10658-006-9025-4

Rienth, M., Torregrosa, L., Luchaire, N., Chatbanyong, R., Lecourieux, D., Kelly, M.T., Romieucor, C. (2014) Day and night heat stress trigger different transcriptomic responses in green and ripening grapevine (vitis vinifera) fruit. BMC Plant Biol. 2014 Apr 28;14:108. doi: 10.1186/1471-2229-14-108

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: https://websoilsurvey.sc.egov.usda.gov/. Accessed [03/01/2018].

Teixeira, A., Eiras-Dias, J., Castellarin, S.D., and Hernâni Gerós, H., (2013) Berry Phenolics of Grapevine under Challenging Environments. Int. J. Mol. Sci. 2013, 14(9), 18711-18739; doi:10.3390/ijms140918711

USGS, Volcano Hazards Program. https://volcanoes.usgs.gov/volcanoes/clear_lake/van Leeuwen, C. Darriet, P. (2016) The Impact of Climate Change on Viticulture and Wine Quality. Journal of Wine Economics, Volume 11, Number 1, 2016, Pages 150–167 doi:10.1017/jwe.2015.21

Webspinning Spider Mites. University of California, Irvine. Statewide Integrated Pest Management Program (2019), available at http://ipm.ucanr.edu/PMG/r302400111.html.

Wine Business International (2018). https://www.wine-business-international.com/wine/general/unstoppable-rise-dtc

Clinton Craig Nelson

Director of Vineyard Operations ClintN@BeckstofferVineyards.com 707-349-3499

Curriculum Vitae

EDUCATION:

California State University, Fresno

Masters of Sciences: Viticulture and Enology

- Outstanding Graduate Student Nominee 2015
- University Fellowship Award 2013-2015
- Research Assistantship Award 2014
- American Vineyard Foundation Scholarship 2013-2015
- Graduate Golden Key Club Member

California State University, Chico

Bachelors of Sciences: Biology

- Omicron Theta Epsilon Honors Society
- Dean's Honor Roll
- Golden Key Club Member
- Special Problems Research
- SMART Grant Award 2009-2012

AREAS OF EXPERTISE:

- Grapevine fertility
- Winegrape chemistry
- Sensory evaluation of wine and winegrapes
- Grapevine canopy management
- Horticulture and agriculture pests and diseases
- Special problems

WORK EXPERIENCE:

Director of Vineyard Operations

March 2016 - Current: Beckstoffer Vineyards - Red Hills

- Directed cultural practices, pest control, fertility and harvest
- Managed team of vineyard managers, PCA's, viticulturists and supervisors
- Built and executed entirety of budget for 1800 acres of North Coast Cabernet; including development, farming and harvest
- Helped drive luxury tier fruit from Lake County that went into vineyard designated \$80-100 retail bottle prices
- Implemented precision irrigation strategies with the goal of limiting vigor and driving grape quality
- Lead liaison with winemakers and grower relations reps
- Orchestrated over 500 acres of new developments from design to preparation of; ripping, disking, soil amendments, trellis and irrigation, and clonal/rootstock selections
- Managed viticulture team that performed field data collection for lab analysis
- Renovated viticulture lab and delivered Brix, TA, pH and YAN to clients on bi-weekly cadence from veraison to harvest
- Designed and directed experimental research plots
- Worked alongside Dr. Kaan Kurtural (UC Research Specialist) to design, implement, and promote one of the most comprehensive Cabernet Research Trials in the state
- Primary liaison between company and sustainability certifying agency CSWA, CCOF, CAWG, County Agencies, State Agencies, and UC Davis

Grower Outreach Specialist

Dec. 2015- March 2016: E&J Gallo Winery - Acampo, CA

- Educated external growers on vineyard best practices to increase fruit quality, while maintaining yield
- Go-to expert on phenological based timing of cultural practices of water stress for white and red varietals
- Lead researcher and statistician for outreach department
- Conducted field data collection and lab analysis
- Designed and executed experimental research plots

- Primary liaison between company and sustainability certifying agency CSWA
- Guided over 150 contracted growers through the CSWA sustainability programs
- Promoted innovative vineyard mechanization
- Assisted in advancement of GIS and Remote Sensing technologies
- Special problems researcher; first to identify Pinot Gris Virus as well as Sudden Vine Collapse in the Lodi AVA
- Irrigation, canopy management and vine nutrition specialist

Principal Viticulturist

Dec. 2014-Dec 2015: Jack Neal and Son, Inc. - St. Helena, CA

- Primary liaison between company and certifying agencies CCOF, Organic CDFA and Fish Friendly Farming (FFF)
- Managed and scheduled irrigation; delegating work to team of irrigators and supervisors
- Arranged fertigation, soil and foliar nutrient applications
- Pest and disease identification
- Selected rootstock and scion combinations dependent upon soil type and climate of varying AVA's in Napa County
- Conducted sampling of soil, water and plant tissue to monitor nutrient status
- Special problems director

Graduate Research Assistant

Sept. 2013-May 2015: California State University of Fresno

- Initiated and managed 80-acre commercial research project
- Implemented trials on effects of nitrogen application, pruning systems, rootstock selection and deficit irrigation
- Work with analytical equipment such as High-Performance Liquid Chromatography and SEAL-Analytical AQ2
- Proficient statistical analysis using SAS, SPSS and Microsoft Office Suite
- Manage and coordinate team of interns, student workers and lab assistants with ranch leaders and PCA's; work cross-functionally with winemakers, enologists and chemists

CSU Research Assistant

Feb. 2013-Sept. 2013: California State University of Fresno

- Conduct research directly under supervision of Viticulture Research Chair PhD S. Kaan Kurtural
- Manage research projects with San Joaquin Valley and Central Coast
- Work on aspects of vineyard mechanization, sustainable viticulture and grape chemistry

Publications and Symposiums

- February 2020 Farm Bureau/Winegrape Commission Speaker 'Cultivating the Wine Industry' Kelseyville, CA
- December 2019 WinExpo presentation 'Effects of Climate Change on Red Winegrapes' Santa Rosa Fair Grounds, CA
- September 2018 Speaker 'AgVenture Women in Agriculture' Kelseyville, CA
- February 2017 Scientia Horticulturae 'Precipitation Before Bud Break Affect the Response of 'Zinfandel' Yields and Berry Composition to Production System'
- December 2016 Irrigation Scheduling Seminar, Lodi, CA
- June, July 2016 Irrigation Field Seminar 'Best Practices Demonstration,' Acampo, Modesto and Waterford, CA
- May 2015 CCOF Panel Discussion on Organic Farming, Rutherford, CA
- May 2015 CCOF Field Tour, Neal Family Vineyards, St. Helena, CA
- August 2015 American Journal of Enology and Viticulture 'Applied Water and Rootstocks Affect Productivity and Anthocyanin Composition of Zinfandel in Central California'
- April 2015 American Journal of Enology and Viticulture 'Anthocyanin Composition of Merlot Grapevine is Ameliorated by Light Microclimate and Irrigation
 in Central California'
- March 2015 VMB Defense Seminar for Carneros Grape Growers, Adastra Vineyard, Carneros, CA
- Dec. 2014 Research Review, Bronco Wine Company, Ceres, CA
- Nov. 2014 Industry presentation for West Coast Grape Growing, Fresno State University
- Aug. 2014 Grape Day Presenter 'Interactive Effects of Pruning Systems and Deficit Irrigation on 'Zinfandel' Fresno, CA
- June 2014 65th Annual American Society of Enology and Viticulture 'Rootstock Selection and Deficit Irrigation' Austin, Texas
- June 2014 65th Annual American Society of Enology and Viticulture 'Pruning Systems and Deficit Irrigation' Austin, Texas
- Nov. 2013 Industry presentation 'Effects of Fertilizer, Canopy Management and Rootstock on Wine Composition', Fresno State University

OTHER ACTIVITES

- Board member for Lake County Farm Bureau
- Lake County Winegrape Commission Research & Education Committee Member

EXHIBIT D

Scotts Valley Band of Pomo Indians

Red Hills Bioenergy Project 7130 Red Hills Road, Kelseyville Assessor's Parcel No. 009-021-070

SUPPLEMENTARY PROJECT DESCRIPTION 04/21/2020

Three issues, aesthetic, noise and dust, appear to be the main concerns discussed at the Planning Commission's meeting held on April 9, 2020. The following information is intended to address these three concerns.

<u>Aesthetic</u>

Attached are photos that show the placement of the proposed 2,000 square foot building in relation to its visibility. The first 4 photos were taken from four points of view. The first (#1) is inside the property looking north towards Highway 29. The next three are from the west side of Red Hills Road at the main entrance to the property, north of (#2), south of (#3 and mid-point of (#4) the entrance. These last three vantage points reflect that the full building is not in view at any point in time while traveling north or south on Red Hills Road. The natural tones proposed also allow the structure to blend into the site. In addition, as originally proposed, there will be an 8 foot high slatted wire fence placed around the building. The fence will further assist in blending the building into the site from offsite vantage points. From Red Hills Road moving south, it would appear that only the roof will be visible plus a small portion of the top of the building side, if at all.

Additional photos have been taken from vantage points south and north. The two southern vantage points were the immediate adjacent Beckstoffer Vineyards and the second from the entrance to the La Jour Winery. In neither photo can one see the location of the proposed building site. From La Jour the predominate structure seen is the PG&E substation. From the north vantage point on highway 281, again the proposed building will not be in view. And the most predominate structure viewed is a large building to the south west of 281 and south of 29.

There is a single photo taken of the two-story home that is on the west side of Red Hills Road and south of the property's main entrance. It provides a view of a building larger in size and width than the proposed building as seen on Red Hills Road.

Finally, the last photo shows a large building, painted all white, located south of Eagle's Nest and readily seen when driving west on 29 and south on 281.

Noise

PG&E's current full operation at Red Hills via its subcontractor, Donahoo, will end on May 9. Prior to the end date, they will need to operate the Bandit model 3860 tub grinder, for a

maximum of 4 days between May 4 to May 8. After the end date Donahoo will need time to clean site and restore it to its former state. This will NOT require the use of the tub grinder.

The Bandit 3860 operates at a noise level between 135 dba and ~115dba. Scotts Valley's proposal is to be well under this noise level and operate within the county standards, as measured at its property line. To achieve this reduced level, the following additional mitigation measures will be taken.

- The required fuel, forest material will be chipped off site in large pieces averaging 1" to 3" in size. It will then be transported to the site and unloaded in the storage area. The system's two reactors require approximately 4.0 tons of fuel daily. This equates to 28 30 tons brought to the site weekly and would equate to 6 5 ton loads transported and unloaded. Each load would be held in a separate pile and not expected to be higher than 12 feet.
- This large chip will undergo a second chipping to provide for a smaller more uniform size between 1/4 1/16 inch, required for processing. The time required to complete this process is estimated to be 2 4 hours per day 6 days a week, excluding Sunday
- To perform this second chipping operation, a 6 inch chipper will be employed. This is a revision downward from the original 9 inch chipper. The 6 inch chipper operates at approximately 100dba. It will be located and additional 1,000 feet from the tub grinder site or a total of not less than 1,800 feet from the eastern property boundary. This additional distance will further reduce the noise level demonstrated in the tub grinder's operation.
- The chipper's operating location has been revised to be placed within 10 feet of the east side of the building vs the original concept of working in the storage yard.

 The chipper will be placed between the fence and the building with both acting as sound attenuation media.
- As a precaution we have also developed a rapid mitigation response plan that would allow us, should it prove necessary, to further sound isolate the chipping process. This would involve the use of portable fencing and acoustic absorption blankets.
- The chipper will be filled with a front loader tractor, ideally with a cubic yard bucket. Current estimates dictate that 16 to 20 loads will be required to chip the requisite tonnage. The tractor's reversing alarm will be either the lowest level sold or muffled to achieve the lowest noise level allowed by regulation.
- The Gillette Generators (catalogue cut included in primary report) function at 79 dba at a distance of 23 feet. When installed inside a Level 2 enclosure with selective catalytic reduction/residential silencer, the dba rating drops to meet the established noise standards.

In summary, we are confident that our site design and location will allow us to achieve the required 55db or less at the impacted residential properties.

Dust

Neighbors also raised concern about dust because of the amount that emanates from the tub grinder. In discussing this concern with the current operator, it was noted that the tub grinder has

a 30' high boom that more easily releases dust into the environment. The Project's chipper will have a release point of not more than 8' high. In its revised location, behind a fence and close to the building, both structures will act as a wind buffer. Operating the chipper in the morning hours is proposed, when wind patterns are historically calm. And since the operation of the chipper is to reduce the size of the pre-chipped material plus its farther distance from the residences in line with the prevalent wind pattern, the far lesser amount of dust from the operation is not envisioned to reach these residences.

Scotts Valley staff also met with Clint Nelson, Director of Vineyard Operations Beckstoffer Vineyards, on site on the morning of April 20, 2020.

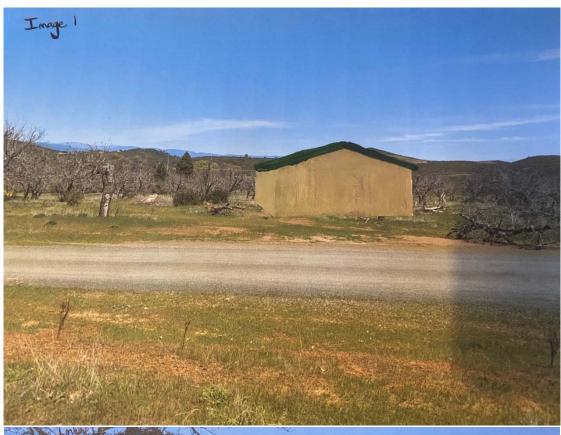
That conversation provided clarity on the location and operation of the plant. He asked about the height and material for the fence. He also suggested that at a future date a screen of trees be considered along the western boundary line to promote the area's scenic corridor goal.

In a telephone conversation with Commissioner Brown, his question related to the project's impact on cultural activities. Currently, the cultural area noted on the plot plan is used one day of the year in Septembers and historically on a Saturday or Sunday. Attendance can be up to 200 visitors and vendors. The day begins at 11 am and ends at 7:00. The parking lot accommodates the majority of the vehicles and with the rocked area left by PG&E's subcontractor there is adequate room for any overflow. As noted above there will be no chipping proposed on weekends and the production process emits little noise. If requested by the Tribal Council, the production plant can be closed for maintenance for the day and this would result in even less noise. Ideally the cultural site will be used for even more frequent smaller events sponsored by the Tribe. Requested accommodations will be honored for such events.

Finally, two points warrant clarification.

This operation is a resource driven activity. It requires forest material as its input and therefore it is logical to place the operation close to the input source in order to have the least amount of carbon emissions from transport of the material, particularly in light of the collective effort to reduce carbon emissions.

Also, it must be noted that this revised operating process will eliminate a secondary original idea to provide a location where community residents could bring brush material free of charge. The material was to be chipped and used as additional fuel thereby promoting a carbon negative result for this brush material. Reducing chipping in terms of hours and frequency will bar this service.











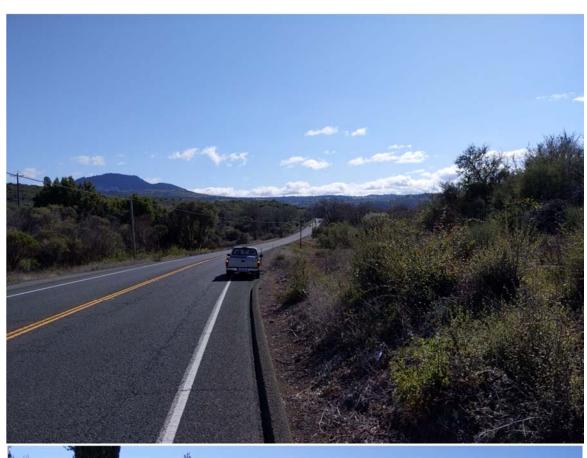






EXHIBIT E

Generating Renewable, Green Energy, Protecting Air & Water Quality, Creating Local Jobs



SCOTTS VALLEY BAND OF POMO INDIANS
BIOENERGY/BIOCHAR FACILITY

Scotts Valley Indian Energy, LLC | Red Hills Road Project | May 7, 2020

The Scotts Valley Band of Pomo Indians through its tribally owned company, Scotts Valley Energy Company, LLC, (SVEC) is submitting this response to the appeal of its bioenergy/biochar production project as submitted by Clint Nelson, Beckstoffer Vineyards, but said to be representing the "Red Hills AVA Stakeholders Alliance" comprised of vineyard, winery, and property owners in the vicinity. We do not know specifically who this stakeholder alliance represents, but we remain willing to speak with them directly.

About This Project

In the most current version of the Community Economic Development Strategy for Lake County, one of the opportunities listed is to, "Expand alternative energy systems" with a listed goal of, "Energy Independence & Sustainability: Work to develop energy independence and other sustainable living practices." This project meets both of those goals.

Imagine utilizing a patent-pending technology to generate electricity in a closed system (no smoke, no particulates) utilizing waste wood trimmings instead of burning wood in an open burner (old technology) to generate electricity, or just pile burning, that sends smoke and particulates into the air we breathe on a regular basis January - May every year.

Imagine creating BioChar - a type of charcoal created in a high-temperature system - from that waste woody biomass that has been used for thousands of years to amend agricultural soils to retain soil moisture and nutrients, lessening the amount of fertilizer needed on crops, or utilizing this biochar to filter sediment- and nutrient-laden waters before reaching Clear Lake - a state-designated "impared waterway" for nutrients.

Imagine creating local jobs to mitigate hazardous vegetation (that otherwise can become fuel for uncontrolled wildfires) who bring that vegetation - tree trimmings under power lines, previously burned brush in past wildfires - to a centrally-located facility pre-chipped.

Imagine no more: The Scotts Valley Energy Company, LLC, (SVEC), in partnership with Omni BioEnergy, are developing a patent-pending closed system that can produce from 50 - 500 kilowatts of green, renewable energy, produce biochar, and protect the air and soil quality in Lake County, as well as offer microgrid opportunities to high-demand users.

BioEnergy

Bioenergy is an important tool to reduce fuels for wildfires and restore carbon to California's forested and agricultural lands. Decreasing woody biomass on forested lands - both public and private - can reduce the devastating impacts of wildfire, protect public health and safety, and provide local jobs and economic development. Woody biomass can provide the source for 24x7 power generation to meet the state's renewable electricity goals.

California's forested lands provide a critical carbon sink that is quickly going up in smoke. Wildfire now causes two-thirds of California's black carbon emissions, a powerful climate pollutant and threat to public health. For the first time in decades, Lake County no longer is in the top 20 Counties for the cleanest air due to wildfire smoke. A single large wildfire can emit as much climate pollution as several million cars and a bad wildfire season can produce as much climate pollution as the state's entire transportation or energy sector in a year.

Utilizing Waste Biomass Provides Jobs and Economic Development. Woody biomass can save millions of dollars in avoided wildfire damages and fire-fighting costs while producing jobs and economic development:

- Hundreds of millions of dollars in avoided wildfire damages;
- Tens of millions of dollars in reduced firefighting costs;
- Local income, tax revenues, and energy supply;
- Twice as many jobs per megawatt as energy from natural gas;
- Economically valuable byproducts such as biochar that can be used to increase crop yield, improve soil health and conserve water.

BioChar

The conversion of biomass into charcoal and/or energy is as old as civilization. It is well understood that controlling aeration during burning optimizes the process for energy versus charcoal production. Modern pyrolysis and carbonization technology offers significant improvements in terms of energy efficiency and levels of pollution over traditional charcoal production technologies. The Major Use Permit SVEC seeks will utilize the latest advancements on this technology to produce biochar and bioenergy in a closed pyrolysis system to maximize energy production output, produce biochar, and protect the environment.

Pyrolysis is a chemical process that converts decomposable organic matter into biochar, a relatively inert organic material. In other words, the process of biochar production changes the chemical composition of the organic material so that it more slowly converts back into atmospheric CO₂ compared to the feedstock from which it is derived under comparable environmental conditions. Even though both the original feedstock and the resulting biochar will eventually convert back to atmospheric CO₂, the timeframe of when this will happen for biochar is thousands of years, while the timeframe is only a couple of years for the original feedstock.

Since it is believed that incorporating biochar material into agricultural soils also improves soil quality and productivity, soils are considered to be ideal sinks for biochar. This concept is illustrated in Figure 1:

Evaluation of the opportunities for generating carbon offsets from soil sequestration of biochar

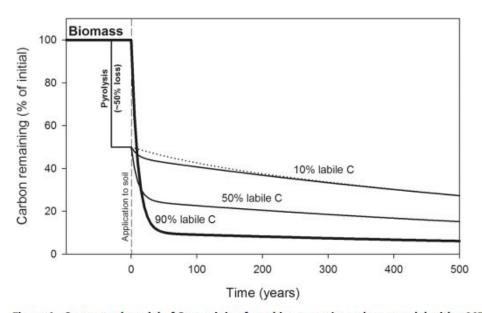


Figure 1. Conceptual model of C remaining from biomass using a decay model with a MRT of 10 years for the labile C pool and 1000 years for the stable C pool, but different proportions of labile C. Source: Lehmann and Joseph 2009

thick line represents the baseline decomposition of the original biomass, which contains up to 90% labile carbon (C). The thin lines represent scenarios of conversion of biomass into biochar, with different levels of chemical recalcitrance, ranging from 50% labile C to 10% labile C. Carbon losses by pyrolysis average approximately 68% at high temperature and 30% at low temperature (depending upon feedstock and production conditions).

This locally-produced biochar can be available for local agricultural producers, as well as water treatment applications.

Appeal Rebuttals

"Appeared to be Fast-Tracked" - SVEC submitted its Major Use Permit application in February 2019. It was not until July a following supplemental information submission that the Community Development (CD) staff provided approval to proceed. It was an additional six weeks before SVEC staff was informed that the Initial study was not scheduled until late fall. Accordingly, it was agreed that SVEC would commission and pay an independent planner to complete the Initial Study (IS) which was submitted on October 29, 2019. It took another 90 days for the CD staff to post the public comment period in the state clearinghouse and approximately another 30 days to

The

place the permit before the Planning Commission. There was no public comment submitted by the "Red Hills AVA Stakeholders Alliance" during this time.

"Nonchalantly Declared" - Neither Mr. Nelson, nor any member of the "Red Hills AVA Stakeholders Alliance" attended or provided public comment at any stage of this Major Use Permit including the April 9, 2020 session of the Lake County Planning Commission. The nearly 90-minute discussion of this project covered all major issues brought forward by neighbors, specifically noise and dust, as well as aesthetic concerns presented by two of the commissioners. Only four Commissioners were present at this first meeting, so it was agreed to continue final action on the project until April 23 to give SVEC time to review and address the issues raised. Prior to the second meeting held on April 23, SVEC staff prepared and submitted a supplemental project report outlining clarifying information on how the project would address three major concerns noted above (see report: Supplemental Project Description). Additionally, SVEC staff held an on-site meeting with Mr. Nelson and via correspondence with the first neighbor to raise concern, Mr. Mark Barnes, who has provided his support for the project.

"Deliberately Abusing the Zoning System" - The zoning ordinance as set forth in the General Plan is intended to be a framework in which unknown future development can occur. Within the Rural Residential (RR) zone a number of non-family services are allowed including power generation. One can only assume that the creators of this zone did not envision its sole use would be family structures.

As noted in the Initial Study and Community Development staff's report, the RR area of this parcel is 25 acres with another 10 acres zoned commercial highway, yet there are severe limits placed on the number of family units allowed in an RR zone. The intent would seem to be a meshing of surrounding properties with different zones by limiting future development via a very low density factor, i.e., a ratio of structures to acreage. This project meets this density ratio. It will encompass less than 1 acre or 1/25th of the RR area.

Of this small size, the majority will present as undeveloped because it is intended to hold low height piles of wood chips as they await processing. This feature will easily blend into the existing walnut orchard, the most recent prior use of the property. The major concern appears to be the project's proposed structure - a building with a height of 16' and a 2,000 square foot footprint, and will be shorter and smaller than the closest home southwest of the project and clearly much smaller than 4,000 to 5,000 square foot 2-3 story home that this property's current value suggests.

"Industrial Complex" - This concept conjures up images of the Allegheny Valley at the height of steel production with multiple factories taking in train loads of coal and iron ore to be heated in kilns that are kept heated 24 x 7, billowing smoke and ash into the environment with 50' smoke stacks. The small size of the bioenergy plant proposed does not meet the standards of an industrial complex. The main operation occurs fully contained within an enclosed building, the size of a medium-sized house. The chip storage area will be shielded from Red Hills Road by the building and the proposed 8' fence. To be considered a "blemish" both the building and storage area would have to dramatically stand out from multiple vista points. This is not the case as was demonstrated before the Planning Commission.

"Fuel Burning Facility & Smoke" – One of the key considerations in the development of this project was and is environmental impact. Carbon waste to green energy, planet stewardship and community improvement are all key components of our strategy. The Artis systems have no open flames, no atmospheric emissions and are designed to be carbon neutral to carbon negative. The appellants appear not to fully understand the concept of pyrolysis, the core process used in our systems. Simply stated this process heats a carbon-based material in an environment of limited oxygen. Oxygen is one of the three elements required to "burn" material. Without it, burning cannot occur. In the small bioenergy plant proposed in this project, forest material is reduced to a very small size less than ½ inch in all three dimensions. It is loaded into a chamber that is SEALED and HEATED to between 600 and 900 degrees Celsius. This high temperature in absence of oxygen causes the carbon-based material to be reduced to its primary elements. 80% - 85% is in the form of a gas, known a syngas, primarily hydrogen and carbon monoxide, and the remaining 15% - 20% is in the form of carbon, referred to as biochar. Because this process does not "burn" the forest material and because the process is in a sealed chamber intended to capture the syngas without producing any emissions - no smoke occurs - hence no smoke enters the environment.

Unlike open pile burning, which vineyard, orchard, and forested landowners and stewards do on a regular basis in Winter and Spring causing air quality alerts from particulate-laden smoke and ash - and just as importantly carbon into the atmosphere which contributes to climate change - the proposed bioenergy process qualifies for the state's carbon neutral standard because of its positive impact on the environment.

When the biochar is used as a soil amendment, the process meets the carbon negative standard which means that carbon is being removed from the atmosphere by virtue of being sequestered back into the soil, where it first originated. It is a building block of what is called "carbon farming" - sequestering carbon in soils.

"Dust" - SVEC staff are sensitive to and recognize that chipping of forest material can lead to the creation of dust. However, as described in the attached supplemental report, measures have been taken to reduce the volume of dust to below significant levels. These measures include bringing in only pre-chipped material that will be processed a second time to meet the small size standard noted above. This process is a modification of the original process whereby non-commercial grade forest material would be brought for both primary and secondary chipping. Additionally, the chipping process will occur between the building and the proposed 8' fence again with the objective of containing dust. As noted at the April 23, 2020 Planning Commission meeting, a water spray system can be used if the dust release is greater than anticipated. The property already has a chip-sealed drive and paved parking lot to further minimize dust.

"Noise" - Again as noted in the supplemental report, additional steps have been taken to mitigate the impact of noise on neighbors. These include first changing the entire acceptance of forest material to a pre-chipped state thereby eliminating the primary chipping process, and second to reduce the hours to no more than four hours per day with no chipping on Sunday. We believe that the secondary chipping process can occur in less than four hours a day, however, we have not had any chipper manufacturer give us a more accurate time frame. Given that most wine tasting rooms open after 10 am, it is proposed to start chipping between 7:30 and 8:00 a.m. with a goal of

completing the process prior to their opening. SVEC staff have already committed to not chipping on Sunday and will work to reduce hours on Saturday to the maximum extent feasible.

As noted above the secondary chipping process will occur between the building and fence area which should act as a buffer to noise. Again as noted, in the supplemental report, we have developed a rapid mitigation response plan that would allow us, should it prove necessary, to further sound isolate the chipping process. This plan includes use of portable fencing and acoustic absorption blankets.

"Generators" – The two (2) Gillette Generators (catalogue cut sheet included in primary report) function at 83 dba at a distance of 23 feet unenclosed. When installed inside a Level 2 enclosure designed with a selective catalytic reduction/residential silencer, the dba is reduced to 79 dba, well within the established noise standards. At 150kW each, these are not big generators. Each unit fits inside its own separate, noise reducing enclosure. Given the distance to the nearest neighbor, approximately 1,500 feet, it is highly unlikely that noise will be heard at their residence, outside or inside.

"Trucking" - The plant requires four tons of chipped material daily. The optimum plan would be to take delivery of one-five ton load each day for 3 days and two-five ton loads on the fourth and fifth days, presumably in the late afternoon; and, no deliveries on the weekends. On the output side, the biochar will be held in enclosed bags until five tons are amassed. At 15% of the input weight, (four tons), this equals 1,200 lbs. per day, or four days to acquire a five-ton load. For purposes of clarity one may assume two biochar pickups per week, with each accessing the project via highway 29. Thus, the total number of weekly trips for both input and output material is 9 trips or an average of 1.3 trucks per day. Given this low shipping demand it is hard to imagine when "trucking" will create a negative impact on the neighbors or scenic corridor.

"Scenic Corridor" – This issue was addressed at the first Planning Commission meeting on April 9. As noted in the supplemental report, the project's building will be seen for a distance of not more than 75 yards with the center of this distance being the center of the main entrance to the project's property. No other vantage point on either the north-south axis or east-west axis has been identified from which the building or storage area could be seen. The building will be in earth tones to blend into the surrounding environment. In addition, SVEC is proposing that a quilt block mural be installed on the front end of the building, which is the most viewed elevation seen traveling northbound on Red Hills Road.

In Summary

SVEC staff firmly believe that the small scale of this project will have none of the negative impacts presented in this appeal. Conversely, SVEC believes the project will support fire risk reduction efforts conducted by utilities, homeowner associations, fire safe councils, fire prevention agencies, forested land owners (both private and public) and residents.

Another positive side effect of this project would be an increase in local power grid resilience. As part of this project SVEC will be funding significant upgrades to the local grid as well as the addition of distributed bioenergy generation. These collectively add to local power availability and reliability.

This project also will support and protect the environment through a reduction in the release of carbon, provide local jobs and support local agricultural operations including winegrape vineyards if owners elect to use biochar as a soil amendment.

5/5/20, 4:15pm screenshot of live stream from the AlertWildfire webcam atop Mt. Konocti showing open pile burning of native chaparral cleared to make way for vineyards along Soda Bay Bay Rd/State Hwy 281 across from the Ely Stage Stop (in the foreground).

Instead of open-pile burning and sending smoke and particulates into the air and releasing carbon, this biomass could have been used to generate bioenergy and biochar in a facility a mile away.

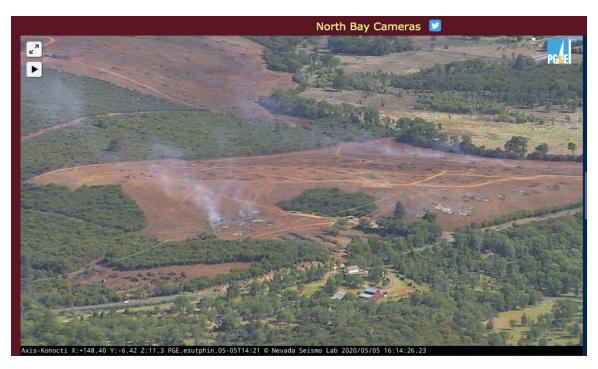


EXHIBIT F



Image 1. View from westerly vineyards looking east at A. Proposed BioFuel Plant Site, B. Wood Storage area



Image 2. View from northerly vineyards looking south at A. Wood Storage Area



Image 3. View from northerly vineyards looking south at A. Proposed Biofuel Plant Site



Image 4. View from Red Hills Road, directly across from residential property and vineyards A. Proposed Biofuel Plant Site



Image 5. View from Siegler Springs Road (near winery), A. Proposed Biofuel Plant Site

Attachment P

Laura Hall

From:

Laura Hall

Sent:

Thursday, February 8, 2024 11:37 AM

To:

Michelle Irace

Subject:

RE: [EXTERNAL] Re: Air Quality and Greenhouse Gas (GHG) Report with a Health

Assessment:

Michelle,

Too late, I already replied. I'll check out what he sent.

Thank you,

Laura

From: Michelle Irace < Michelle.Irace@lakecountyca.gov>

Sent: Thursday, February 8, 2024 11:35 AM **To:** Laura Hall < Laura. Hall@lakecountyca.gov>

Subject: RE: [EXTERNAL] Re: Air Quality and Greenhouse Gas (GHG) Report with a Health Assessment:

I'm working on something else, but don't reply and let's chat on Monday. We don't need to respond to him right awa.

From: Steve < sent: Thursday, February 8, 2024 11:30 AM
To: Laura Hall Laura.Hall@lakecountyca.gov

Cc: Thomas Jordan < thomas.jordan@sv-nsn.gov >; Michelle Irace < Michelle.Irace@lakecountyca.gov > Subject: Re: [EXTERNAL] Re: Air Quality and Greenhouse Gas (GHG) Report with a Health Assessment:

FYI,

Our site is equivalent of 1 semi truck in HP on the road with basically no NOx. We don't use oxygen in the gasification system. The amount of CO2 from the Mainspring linear generator is about 1/10 of that of a Natural Gas Fixed Generator. See BAAMD Engineering Report. The NOx is less than 1/5th.

The Bay Area Air board has approved the use of the Mainspring linear generators and are not a ICE unit.

In Mainspring's linear generator, electrically-controlled linear motion of oscillators compress a fuel and air mixture until the mixture reacts uniformly and near instantaneously without a flame or burning. Since there is no flame or burning (i.e., no combustion), the reaction occurs at low temperatures (less than 1500 C) and, as a result, produces near-zero NOx emissions. The energy from the low-temperature reaction drives linear motion of the oscillators, which is directly converted into electricity, and the electrically-controlled linear motion of the oscillators drives the reaction. Much like a fuel cell, Mainspring's linear generator only operates while producing electricity. This is in contrast to an engine, which can only operate by producing mechanical energy.

Mainspring unit generator

Emissions NOx: < 2.5 ppm (<0.07 lb/MWh)

Noise: < 70 dBA @ 6 feet

https://news.ucr.edu/articles/2023/04/17/methane-megafires-more-spew-we-knew

I build solar project and wind. They also have people that hate that technology and energy source.

Solar produces an estimate 50gams of CO2 for every kWh of produced in its life cycle. Nothing is for free.

The article that Biomass is worse than Coal is manipulating data to reinforce the agenda they are promoting.

They are calculating that you are cutting down the forest for the purpose of biomass power generation and not the fact that the forest material is already cut and being trucked for disposal or burned in the forest with little or no control of the pollutants being generated and that the burning produces no value to the community that needs energy. What do you do with the waste? If you don't burn it then it can compost and create major sources of methane that is 4x worse than CO2.

Our system used no oxygen to gasify the woody biomass and therefor creates almost no NOx. The CO2 is countered by the Biochar created with a value of 3x of its weight. So Net Zero carbon foot print.

So here is the conclusion that one of your articles states.

Conclusion:

Recommendations and Solutions Criteria for Just, Economical, Environmentally Sound Biomass Utilization In light of the continued and increasing production of woody material from wildfire management in forests, the presence of facilities to utilize this biomass is important. In comparison to open burning and landfilling, using biomass for electricity or heat production reduces pollution and creates opportunities to sell electricity and meet community power needs. We propose that any new biomass facilities meet the following criteria:

- 1. Feedstock comes only from ecological thinning, mill residues, or home hardening and defensible space practices as opposed to logging activities 2. Small-scale 5 MW or less, in accordance with BioMAT program requirements, or slightly larger facilities approved on a case-by-case basis
- 3. No more facilities are built than are needed to process the wood waste associated with sustainable forest management activities within a reasonable distance of the facility. This avoids creating an industrial complex that requires constant and increasing feedstock
- 4. Companies engage local communities for input and collaboration in the planning, design, and deployment of new facilities
- 5. Facilities are located close to the sources of biomass production, which tend to be rural and mountainous locales, to reduce emissions and costs of long-distance shipping; facilities will not be sited in already over-polluted Central Valley communities.
- 6. When feasible, new facilities should use gasification or pyrolysis technologies, along with the best available emissions controls, to minimize GHG impacts
- 7. When possible, feedstock is produced by work crews that create jobs for local communities and Indigenous peoples

All of these are exactly what we are doing.

Regards Steve

On Feb 8 2024, at 9:32 am, Laura Hall < Laura. Hall@lakecountyca.gov > wrote:

Steve,

| Regards, |
|---|
| Steve |
| |
| |
| |
| On Feb 8 2024, at 7:15 am, Laura Hall < Laura. Hall@lakecountyca.gov > wrote: |
| Steve, |
| After extensive research to determine if there was an alternative to requiring an Air Quality and Greenhouse Gas (GHG) Report with a Health Assessment, staff has determined that a report will be necessary for the CEQA analysis. This is due to residents being less than 1,000 feet from the facility and daily truck trips from the Donohoe facility to the project site. This report should be completed by a qualified professional who specializes in air quality reporting California. |
| As we are waiting on the Air Quality/GHG Report with Health Assessment and the revised Biological Assessment Report, I will continue working on the initial study. |
| Thank you for your patience. |
| Sincerely, |
| Laura |



Laura L. Hall, MS

Senior Planner

Community Development Department

Planning Division – 3rd Floor

Address: 255 N. Forbes St.

Lakeport, CA 95453

Phone: (707) 263-2221

<u>Dale La Forest & Associates</u> Environmental Design & Planning 101 E. Alma Street, Suite 100-A Mt. Shasta, California 96067 dlaforest@gmail.com Phone: (530) 918-8625

Phone: (530) 272-8411

Marsh A. Burch, Law Office 131 S. Auburn Street Grass Valley, CA 95945 mburchlaw@gmail.com

NOISE IMPACTS REPORT

Initial Study/Mitigated Negative Declaration for Ag Forest Wood Processing Bioenergy Project Major Use Permit UP 23-05 Initial Study IS 23-10

Dear Ms. Burch: May 10, 2025

At your request, I have prepared this Report in response to the County of Lake's IS/MND for the Ag Forest Wood Processing Bioenergy Project ("Project"). My qualifications are attached hereto as "Attachment 1". This report shows that the Project's noise impacts are potentially significant under the California Environmental Quality Act, Pub. Res. Code § 21000 *et seq.*, ("CEQA") and will exceed maximum permissible noise standards set by the County of Lake ("County").

During its operations, the Project would subject nearby homes and businesses to excessive noise levels from its proposed construction work, its wood chipper operation, and its heavy equipment with backup beepers and wood chip delivery truck use of the Project site.

Because operational noise impacts that are not fully disclosed in the Project's Initial Study will likely exceed applicable significant thresholds under the County's Zoning Ordinance and General Plan, the Planning Commission's approval of an IS/MND is inappropriate per 14 Cal. Code. Regs. § 15000 *et seq.* (the "CEQA Guidelines").

Hence, the County should require the Project applicant to prepare a more demanding CEQA review such as an environmental impact report ("EIR") to consider feasible mitigation measures.

INTRODUCTION

THE HUMAN COST OF NOISE: AN INTRODUCTION TO THIS NOISE IMPACTS REPORT

The following report details the significant noise impacts anticipated from the proposed Ag Forest Wood Processing Bioenergy Project and argues for a more thorough environmental review. Beyond many technical specifications and decibel levels, it is crucial to consider the human dimension of such a Project. The introduction of industrial noise into a community is not merely an inconvenience; it is an intrusion that can fundamentally alter the quality of life for those who call the area home. Their homes are more than just structures; they are sanctuaries where they seek rest, rejuvenation, and a sense of security. The persistent presence of excessive noise can shatter this peace, transforming a haven into a source of stress and anxiety.

The World Health Organization and numerous studies have well-documented the detrimental effects of noise pollution on human health. Constant exposure to loud or disruptive sounds can lead to a range of physical ailments, including sleep disturbance, cardiovascular issues, and increased stress hormone levels. Emotionally, the inability to escape invasive noise can foster feelings of frustration, helplessness, and a diminished sense of control over one's own environment. For families, particularly those with young children or individuals who work from home, the impact of excessively-loud, daytime neighboring industrial noise can be especially profound, affecting concentration, learning, and overall well-being.

This report will demonstrate that the noise generated by the proposed Project, from construction activities to daily operations involving wood chippers, heavy machinery, and truck traffic, poses a substantial threat to the health and emotional security of nearby residents. It underscores the necessity of robust regulations and diligent oversight to protect individuals from the proven harms of excessive noise. The quiet enjoyment of one's home is not a luxury, but a fundamental component of a healthy and secure life. Therefore, a comprehensive evaluation of noise impacts and the implementation of effective mitigation measures are paramount before a Project of this nature can proceed. The concerns of the neighbors are not just about noise; they are about preserving the sanctity and tranquility of their homes and their right to a peaceful existence.

EXECUTIVE SUMMARY

- 1. <u>INADEQUATE PROJECT DESCRIPTION</u>: The IS/MND violates CEQA due to its *failure to identify and describe the sensitive receptors located near the Project site*. Without this information, it is impossible to assess whether the Project's noise emissions could significantly impact these sensitive uses. The proximity and type of sensitive receptors directly influence the potential significance of noise impacts. The IS/MND fails to describe the locations of nearly all of the homes and businesses that may be exposed to this Project's excessive noise emissions. (See p. 6 of this Report.)
- 2. <u>FAILURE TO PROVIDE ANY AMBIENT NOISE LEVEL MEASUREMENTS</u>: The IS/MND does not provide any measurements of ambient noise level conditions at neighboring homes and businesses. CEQA, as well as the General Plan, require that such ambient noise level measurements be disclosed in an Initial Study. Such measurements are essential for neighbors to comprehend the potential harm they might experience during Project activities. (See p. 7.)
- 3, <u>FAILURE TO EVALUATE NOISE LEVEL INCREASES</u>: CEQA requires this IS/MND to have evaluated the magnitude of the increase in noise levels this Project may create at sensitive receptors. The public needs that information in order to determine if Project noise will be significant when compared to existing ambient noise levels. But the IS/MND never examined such noise level increases. That failure violates CEQA and is important because this Project will generate significant noise level increases at neighboring homes and businesses. (See p. 8.)
- 4. <u>FAILURE TO PROVIDE VITAL INFORMATION AND TO LIST ALL EQUIPMENT</u>: The IS/MND fails to describe all the equipment the Project would use that would create significant noise. It then fails to describe how loud such equipment would be when measured at known distances. Without that information, the public cannot review the IS/MND's conclusions or independently calculate the Project's noise level exposure at nearby homes. (See p. 11.)

5. EXCESSIVE NOISE LEVELS DURING CONSTRUCTION AT SENSITIVE RECEPTORS:

Construction-related short-term noise levels at neighboring homes and businesses will be significant. Noise levels at a dozen homes occurring during the Project's driveway construction would greatly exceed the County's maximum-allowed noise standards. Site development and construction activities could generate serious noise level increases at these homes of potentially 10 dBA louder than existing ambient noise levels.

Additionally, at some homes, *the magnitude of the increase in noise levels* during this Project driveway construction work would be significant when compared to existing ambient noise levels at those homes. (See p. 12.)

6. EXCESSIVE INTERIOR NOISE LEVELS FOR NEARBY HOMES: Not only would construction noise levels outside these neighboring homes be excessive, but those noise levels reduced while passing through exterior walls could be harmful as well inside these homes during the Project's driveway enlargement and other construction work. The Project's 24-hour averaged noise levels, when measured inside at least seven nearby homes with their windows closed could exceed the maximum-allowed noise standards set by the General Plan and State regulations. These interior noise standards are intended to protect against unreasonable noise impacts within residences including during daytime Project work. Excessively loud Project noise, when heard within these homes, could significantly harm some neighbors' stress levels, annoyance levels and health, especially when those neighbors would be helpless to protect against such noise intrusion. (See p. 16.)

7. EXCESSIVE NOISE DURING DAILY PROJECT OPERATIONS:

This Project would create significant noise impacts during its on-site operations. (See p. 18.)

- A. Use of a single **chainsaw** during Project operations will create noise levels that exceed County noise standards for at least eight of the nearest homes. (See p. 21.)
- B. Constant use of a **loud wood chipper** in this neighborhood may produce noise levels that exceed permissible standards. The County prohibits this Project from generating daytime noise levels greater than 55 dBA L_{eq-1 hr.} at residences and 60 dBA L_{eq-1 hr} at commercial buildings. But just the use of a wood chipper may create noise levels applicable to least nine homes, the pre-school, the casino, the tribal office building and the adjacent Ag building that will exceed these noise standards and thus violate the County's Noise Ordinance. (See p. 23.)
- C. Operation of a **front-end loader** during Project operations will create noise levels that exceed County noise standards at nine nearest homes. At distances less than 1,400 feet to these homes, the noise level from use of a front-end loader could be about 55.7 dBA L_{eq-1 hr}. That noise level at those homes would exceed the County's maximum allowed noise standard of 55 dBA L_{eq 1-hr}. It may also create a significant noise impact at one home by increasing its ambient noise level by more than 5 dBA. (See p. 24.)

- D. The use of **backup warning alarms** during chip truck deliveries and front-end loader operations will create noise levels exceeding the County's Zoning Ordinance's maximum daytime noise standards at all nine nearest sensitive receptors. (See p. 26 and <u>Table 4</u>.)
- E. **Operation noise** levels at the <u>Upper Lake Park</u> will exceed the County's noise standards. That Park is located about 1,070 feet northwest of the Project's noise sources. The County's General Plan sets a limit of a *Maximum Allowable Noise Exposure level* of <u>65 dBA CNEL</u> for "**normally acceptable**" uses at a neighborhood park or playground. This Project's noise from a wood chipper, a tub grinder, a front-end loader, and a chainsaw could generate a noise level of **66.2 dBA CNEL** at the Park when that combined noise is added to the existing noise in the Park. That resulting noise level, deemed by the General Plan to be "**normally unacceptable**," would exceed this General Plan noise standard. Thus the General Plan recommends that at that excessive noise level, the Project's development <u>should generally be *discouraged*</u>. That law is triggered because the IS/MND does not include a mandatory, detailed noise analysis and because needed insulation features (like a noise wall) are not included to protect the public using this Park. (See p. 30.)
- F. **Operation noise** levels may exceed the County's noise standards at the <u>office building</u> with tribal offices located about 690 feet to the west of major Project noise sources. At that close distance, the noise level from Project operations would cause a significant noise impact. Yet the IS/MND never analyzed that serious risk to those office users that could harm their business work and personal health. (See p. 32 and <u>Figure A</u>.)
- G. **Operation noise** levels at the <u>Running Creek Casino</u> located about 1,010 feet to the northwest of major Project noise sources may also exceed the County's noise standards for commercial uses. (See p. 33 and <u>Figure A</u>.) The Zoning Ordinance allows up to 60 dBA L_{eq-1 hr}, but Project operation noise at the casino could be as high as about 68.2 dBA L_{eq-1 hr}. (See p. 33.)
- H. **Operation noise levels** could be excessive and unmitigated at the adjacent <u>Ag Building</u> located to the west of the Project's major noise sources less than 300 feet away. While the County's Zoning ordinance allows daytime noise levels only up to 55 dBA L_{eq 1-hr.} at such agricultural facilities, this Project may generate very seriously excessive noise levels there of about 82 dBA L_{eq 1-hr.} (See p. 34.)
- G. Project operation could generate noise levels <u>at over a dozen neighboring homes</u> within 2,000 feet that may exceed the County's 55 dBA L_{eq-1 hr.} noise limit. (See p. 34.)
- 8. The IS/MND underestimates the noise impacts by failing to consider that the Project will generate <u>low-frequency noise that is more intrusive</u> than County noise standards recognize. (See p. 35.)
- 9. The IS/MND fails to include any noise mitigations to reduce this Project's noise problems. The County previously imposed noise mitigations for the applicant's Red Hills BioEnergy project, but at this Highway 20 site with more affected neighbors has not done so. (See p. 36.)

10. The IS/MND violates CEQA against piecemealed environmental review by not evaluating the full scope of all noise impacts of Project operations along with other of its operational segments from off-site wood chip processing operations. It claims that "there would not be a lot of noise" because wood chips would be processed elsewhere, Yet such processing operations may be transferred to this Highway 20 site instead, resulting in more noise than estimated. (See p. 38.)

The consequence of the IS/MND's failure to comply with CEQA and to reveal that this Project will likely violate County noise standards is that its approval must be overturned and an EIR be prepared to properly evaluate such noise impacts before this Project's approval process is allowed to proceed.



IS/MND FAILS TO DESCRIBE LOCATION OF MANY NOISE-SENSITIVE RECEPTORS.

To evaluate a project's noise impact on adjacent residents or businesses, an IS/MND must first identify accurately *where* the likely affected "sensitive receptors" are located in relation to the Project's noise-generating activities. Typically the location of such noise-sensitive neighbors are indicated on a map in an IS/MND. But this Project's IS/MND does not contain such a map with all the noise-sensitive receptors, nor even a text description that accurately informs the public where they are with their distances to the Project's noisy operations. Only the closest two homes, the preschool and one "Ag Building" are discussed in the IS/MND. The Noise Impact section of the IS/MND, pages 50 – 51, does not indicate where any sensitive receptors are located. Nor does the IS/MND's noise section indicate the basis for its conclusion of a less-than-significant noise impact. It fails to even mention that a <u>Sound Level Analysis</u> map exists elsewhere where buried on page 88 of the IS/MND, leaving the public largely in the dark. The IS/MND should have at least described that nearby sensitive receptors likely to be affected by the Project's noise include, among others, these homes on this map that we have labeled A, B, C, D, E, F, G, H, and I:

FIGURE A DISTANCES FROM NOISE SENSITIVE RECEPTORS TO WOOD DELIVERIES, UNLOADING. CHIP STORAGE LOADING, AND CHAINSAW NOISE



NOISE SENSITIVE LAND USES 200 400 800 1000 1200 1200 1800 1800

¹ A noise-sensitive receptor is any property where frequent human use occurs and where a lowered noise level would be beneficial to reduce significant noise impacts.

The IS/MND fails to include important information relating to the equipment that would be used for the proposed Project. Specifically, the IS/MND fails to identify and describe the noise-generating equipment of the equipments' noise source levels at varying distances. The IS/MND should identify: (1) how many of each will be in operation for the Project, (2) the equipments' operating assumptions (e.g. estimated daily hours of operations), and (3) noise source levels for each piece of equipment. This inadequacy of the IS/MND's Project Description contravenes CEQA and undercuts the legitimacy of the remainder of the IS/MND, therefore an EIR must be prepared to remedy these deficiencies.

As will be shown in this Report, these additional unidentified noise-sensitive receptors will likely be significantly impacted by this Project's noise.

THE IS/MND PROVIDES NO AMBIENT NOISE LEVEL MEASUREMENTS

The County General Plan requires "project specific acoustical studies for projects where existing or project-related noise levels exceed County noise standards." ² This would be such a project because its noise levels would exceed County Noise Ordinance and General Plan noise standards. Part of such a required acoustical study is the assessment of the "noise environment in the general project vicinity." (See: General Plan, Noise Element, p. 8-6.) To assess the noise environment, ambient ³ noise level measurements are required of conditions near existing homes. But the IS/MND contains no ambient noise level measurements at all. Nor does it contain a credible acoustical report prepared by anyone with sufficient expertise to support its conclusions; but that is required by the General Plan. ⁴ In the absence of any ambient noise level measurements and an acoustical report prepared by a qualified acoustical consultant, this Project is inconsistent with the General Plan and the Zoning Ordinance, § 41.11 Noise.

Conformity with a general plan does not insulate a project from EIR review where it can be fairly argued that the project will generate significant environmental effects. The IS/MND's exclusive reliance on some specific decibel metrics from the Zoning Ordinance does not provide a complete picture of the noise impacts to neighbors that may result from the Project. The setting here includes a rural location and some homes and businesses in the Project's neighborhood. The intrusion of this noisy industrial facility will likely result in a significant increase in the magnitude of noise levels at these neighboring homes and businesses. The ambient noise levels at neighboring homes are essentially baselines for comparison to the noise levels that will result from Project activities. For projects like this, CEQA requires ambient measurements. Ambient noise levels in the IS/MND would have allowed County officials and the public to have evaluated the magnitude and significance of the Project's noise level *increases* at the nearby sensitive receptors.

Page 7

² See: County of Lake General Plan, p. 8-6, Table 8-2, Noise Implementation Measure 1.0.

³ <u>Ambient Noise</u> is defined "the all-encompassing noise associated with a given environment, being usually a composite of sounds from many sources near and far. Ambient noise level is the level obtained when the noise level is averaged over a period of at least 15 minutes without inclusion of noise from occasional or occasional and transient sources, at the location and time of day near that at which a comparison is to be made."

⁴ The Lake County General Plan, p. 8-6, Table 8-2, Noise Implementation Measure 1.0, requires an acoustical report "be prepared by a qualified acoustical consultant."

⁵ Equivalent Noise Level (L_{eq}): The average noise level during a specified time period; that is, the equivalent steady-state noise level in a stated period of time that would contain the same acoustic energy as the time-varying noise level during the same period. Maximum Noise Level (L_{max}): The highest instantaneous noise level during a specified time period.

IS/MND FAILS TO EVALUATE THE MAGNITUDE OF THE NOISE LEVEL INCREASES.

The Project's *increase in noise* is a tremendous source of concern for nearby residents, especially because the proposed Project would place the Project's construction and wood delivery operations within a few hundred feet of some nearby homes along Highway 20. Moreover, the Project's noise level increases will be significant at numerous other homes.

California CEQA law considers an increase in noise levels compared to ambient noise to be potentially significant to residents for several key reasons:

1. Human Perception of Change:

Sensitivity to Increases: People are often more sensitive to a change in the noise environment than to a steady noise level, even if the new level remains within acceptable limits according to regulations. A sudden or noticeable increase can be disruptive and annoying, drawing attention even if it's not objectively "loud."

<u>Relative Loudness</u>: Our perception of loudness is not linear. A small increase in decibels can be perceived as a significant jump in loudness, especially when starting from a quieter ambient level. For example, a 3 dB increase is generally considered the threshold of a noticeable change, and a 10 dB increase is often perceived as a doubling of loudness.

<u>Intrusiveness</u>: A new noise source that stands out against the existing background noise is often considered more intrusive and bothersome than a consistent noise level, even if the absolute level of the new noise is not high.

2. Potential for Health and Well-being Impacts:

Annoyance and Stress: Increased noise can cause annoyance, irritability, and stress, even if it doesn't reach levels that cause hearing damage. Chronic exposure to even moderate noise increases has been linked to cardiovascular problems and other health concerns.

<u>Communication Interference</u>: Higher noise levels can make it difficult to hear conversations, watch television, or enjoy other activities, impacting quality of life.

<u>Learning and Productivity</u>: In residential areas, increased noise can disrupt concentration and learning.

3. Limitations of Noise Standards:

Averaging Effects: The County's noise standards rely on average noise levels (like L_{eq} or CNEL) over a period of time. These averages can mask short-term, intermittent, or impulsive noise events that can be particularly disruptive and annoying to residents. This biomass processing Project might technically comply with average noise limits at distant locations, but still generate significant short-duration noise increases due to the banging or clanking noise from heavy equipment, and during biomass unloading activities with heavy industrial equipment.

Existing High Ambient Levels: In areas with already high ambient noise levels, like along Highway 20, a small relative increase from this Project can push the total noise burden to a point where it significantly impacts residents' well-being, even if the Project's absolute noise contribution seems minor elsewhere. If the Project's noise level doesn not exceed numerical limits in the Noise Ordinance or General Plan, residents can still react negatively to noticeable increases in noise due to the reasons mentioned above.

<u>Increased Awareness</u>: A new or louder noise source can draw attention and become a constant reminder of the Project's presence.

<u>Loss of Quiet</u>: Residents may value the existing ambient quiet, and any intrusion, even if not legally "loud," can be perceived as a loss of their peaceful environment.

<u>Perceived Quality of Life Reduction</u>: Even if health impacts are not immediate or severe, increased noise can diminish residents' enjoyment of their homes and neighborhoods.

<u>Concerns about Future Increases</u>: Residents may worry that the initial noise increase is a precursor to further, more significant noise problems in the future.

<u>Loss of Trust</u>: If residents feel their concerns about noise were not adequately considered during the Project's review, it can lead to frustration and a loss of trust in County officials and the Project proponent.

Therefore, CEQA requires consideration of noise increases relative to the ambient level to provide a more comprehensive assessment of potential impacts on residents, going beyond simply checking if absolute noise thresholds are exceeded. This approach acknowledges the complexities of human perception and the potential for significant impacts even when regulatory limits are technically met.

Under Appendix G to the State CEQA Guidelines,⁶ a project's noise impact is normally significant if:

- Exposure of persons to or generation of noise levels is in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- A substantial permanent increase in **ambient** noise levels in the project vicinity above levels existing without the project; or
- A substantial temporary or periodic increase in **ambient** noise levels in the project vicinity above levels existing without the project.

Neither County officials nor the public can evaluate this Project's noise level *increase* without having that ambient noise level data that should have been measured at sensitive receptors. As a result, the IS/MND did not and could not evaluate if there might be a substantial short-term noise level increase during construction or a permanent noise level increase during subsequent operations.

-

⁶ California Natural Resources, Appendix G- Environmental Checklist Form, https://resources.ca.gov/CNRALegacyFiles/ceqa/docs/ab52/final-approved-appendix-G.pdf Also, the current version of Appendix G for noise impacts, although revised, still directs the County to consider if the project's increase in ambient noise levels in the vicinity of the project may be substantial.

Generally, if a project's operational noise actually increases the overall noise level at a neighboring residence by 5 dBA or more, that much of an increase is considered by many California agencies and the courts to be a significant noise impact.⁷ If the future noise level during the Project's operation is greater than the *normally acceptable* noise level, a noise increase of 3 dBA CNEL or greater should be considered a potentially significant noise impact, and mitigation measures must be considered.

But the IS/MND never analyzes how loud the combined noise levels of this Project's various activities will be when added to the existing noise levels at neighboring homes. Nor does the IS/MND disclose what the ambient noise levels at these homes currently are. As the result, the IS/MND fails to comply with CEQA because it does not discuss how much of an increase in noise levels at these home will result once the Project begins operating its noisy equipment.

Instead, and without credible data or analysis, the IS/MND vaguely concludes that this Project's noise levels will not exceed the County's allowable noise standards. But a presumed comparison only to the County's noise limit standards is not consistent with CEQA. The IS/MND should also have examined the magnitude of the noise level increase at sensitive receptors. The IS/MND entirely fails to explain why the magnitude of the increase in ambient noise levels at sensitive receptors played no role in determining whether the change would be significant.

In a court decision: <u>King and Gardiner Farms</u>, <u>LLC v. County of Kern et al</u> (2020) 45 Cal.App.5th 814, 830, the Court of Appeal ruled:

"As to the project's noise impacts, the County determined the significance of those impacts based solely on whether the estimated ambient noise level with the project would exceed the 65 decibels threshold set forth in the County's general plan. Based on prior case law, we conclude the magnitude of the noise increase must be addressed to determine the significance of change in noise levels."

That is the same error made in this Project's IS/MND. The IS/MND, on pages 50 - 51, and supported by the applicant's <u>Sound Level Analysis</u> page, compares the County's maximum noise standards and concludes the Project's noise levels will comply with those standards. Nowhere does the IS/MND consider the magnitude of the Project's noise level increases at nearby sensitive receptors. The IS/MND, pp. 50 - 51, fails to include any mention of a substantial increase in noise levels triggering its significance criteria. Because the IS/MND is seriously flawed in this regard, an EIR must be prepared to evaluate if the magnitude of such noise level increases would be significant.

-

⁷ See: <u>King and Gardiner Farms, LLC v. County of Kern et al.</u> (2020) 45 Cal. App.5th 814, 892. https://scholar.google.com/scholar_case?case=4251652402952652772

⁸ See IS/MND, PDF p. 88, "Sound Level Analysis," for its notation: "Residence - Expected Continuous Sound Levels Under 55 dBa."

⁹ The IS/MND, p. 50, for XIII Noise *Significance Criteria*, asks "would the Project (a) result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?" The IS/MND p. 51, § XIII, never answers its question about the generation of a substantial *increase* in ambient noise levels.

THE IS/MND OMITS OTHER VITAL INFORMATION ESSENTIAL FOR INFORMED PUBLIC PARTICIPATION.

The IS/MND misleads the public by underestimating how many activities would occur and how much noise this Project would emit from those activities.

The IS/MND, pp. 50 - 51, inadequately answers the question of:

"Would the project: (a) result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

But the IS/MND's **Discussion (a)** in response to that question claims there would be a less-than-significant noise impact, while never even mentioning anything about the nearby homes or other noise-sensitive land uses affected by the Project's noise emissions. It utterly misleads the public by merely pointing to effects on "agricultural operations" where it states:

"Sound levels have been estimated and fall under the county's acceptable levels for agriculture operations. The sound level of the power generation facility will be under the decibels A levels for non-business hours to the property line."

But what about noise impacts to nearby homes that are not businesses? Those affected residents are also entitled to protection from excessively loud industrial noise impacts. What about the preschool's exposure to excessive construction noise levels?

The IS/MND fails to describe the distances of nearby homes other than one home to the east and one to the north. No mention is made of over a dozen other homes where Project noise levels may be excessively loud. The IS/MND also does not identify the distances from the Project to the Running Creek Casino or to the related office building about 500 feet from driveway construction work. The Upper Lake Park¹⁰ is not mentioned in the Noise Section of the IS/MND either. These commercial facilities' use can also be harmed by exposure to loud Project noise.

Serving to hide essential information related to disclosure of the Project's noise impacts, nothing in the IS/MND's Noise Impact section (pages 50 - 51) points elsewhere to the applicant's <u>Sound Level Analysis</u> page that only the most inquisitive reader might accidentally discover where it is buried some 37 pages later in the IS/MND along with property maps.

The IS/MND fails to include important information about heavy industrial equipment that would be used for the Project. Specifically, the IS/MND fails to identify and describe the noise-generating equipment with their noise source levels at varying distances. The IS/MND should identify: (1) how many of each will be in operation for the Project, (2) the equipments' operating assumptions (e.g.

-

¹⁰ The Park's website states that it contains a large playground, a shaded picnic structure, many picnic tables, public restrooms, BBQ's, dog park, baseball field, tennis courts, a large well lit parking area and several walkways within 8 acres of lawn and numerous, beautiful trees.

estimated daily hours of operations), and (3) noise source levels for each piece of equipment. This inadequacy of the IS/MND's Project Description contravenes CEQA and undercuts the legitimacy of the remainder of the IS/MND. Therefore an EIR must be prepared to remedy these deficiencies.

Additionally, noise from Project deliveries will impact residents and businesses located farther from the Project site. For example, backup alarms on Project vehicles can likely be heard at homes a mile away. Increased truck traffic in the vicinity will raise the noise level at homes near Highway 20. Ambient noise level tests need to be conducted at greater distances from the Project site to adequately measure the potential noise impacts and assess these problems prior to Project approval.

The IS/MND fails to provide any evidentiary support by any qualified acoustical consultant for its conclusion that noise impacts resulting from construction and operation would be less-than-significant. In fact, all information in the IS/MND points to the opposite conclusion. Noisy construction work while building a suitable driveway would occur within about 400 feet of some homes to the north of Highway 20. The IS/MND discloses that other daily operations to process biomass chips would involve the use of loud heavy industrial equipment. The IS/MND further acknowledges that Project activities would occur during the daytime and for a period of four months during construction and long afterwards during operations. Some nearby residents work from home and would be disturbed by such intrusive daytime noise impacts. The increase in noise from trucks, a front-end loader, tractor, and chainsaws during daily operations will severely impact adjacent residents. The IS/MND provides no substantive mitigation. The revised IS/MND or EIR must include additional mitigation including on-going noise monitoring during these Project operations if noise levels exceed the County's noise standards.

CONSTRUCTION-RELATED SHORT-TERM NOISE IMPACTS WILL BE SIGNIFICANT.

The IS/MND, p. 50, acknowledges that CEQA requires analysis of whether the Project could result in the generation of substantial "temporary" noise in ambient noise level in the Project's vicinity. In this case, that temporary noise would occur during construction activities. But the IS/MND does not answer this question with any meaningful facts or analysis. Nonetheless it determines without substantial evidence that such temporary construction noise impacts would be less-than-significant. On that basis alone, the IS/MND violates CEQA which requires a good faith effort to protect the environment and a project's neighbors from excessive noise.

The IS/MND does not identify with any certainty what heavy equipment will be used during the Project's construction other than various trucks and some unspecified site compaction equipment. Accordingly, the IS/MND fails to adequately evaluate the Project's noise impacts during its construction activities. That construction work taking up to four months to complete includes constructing a long driveway with noisy equipment. The IS/MND provides no evidence whatsoever that such construction noise impacts to the neighbors will be less-than-significant.

However, and more informative, at least Lake County previously approved in 2020 and modified in 2023 a wood chipping project on property owned by the Scotts Valley Band of Pomo Indians with

similar driveway construction work. Its IS/MND¹¹ stated that during construction, that the Red Hills BioEnergy project "may involve the use of a tractor/grader, compactor, water truck, and trucks delivering rock and concrete." We can assume similar equipment might be used for the Ag Forest site's construction. Noise levels from backup alarms used on such mobile equipment are even louder. Project construction can generate very loud noise impacts for months that neighbors have a right to know about and be protected from during the IS/MND procedures.

TABLE 1. MAXIMUM ESTIMATED NOISE LEVELS OF POSSIBLE PROJECT EQUIPMENT

| Project Equipment | Noise Levels at 50 feet (dBA L _{max}) |
|--|--|
| Back-up Alarms (based on alarm noise level: 97 to 112 decibels at four feet) | 90 |
| Bulldozer | 90 |
| Compactor | 85 |
| Chainsaw | 88 |
| Excavator | 92 |
| Forklift | 86 |
| Front-end loader | 90 |
| Grader | 89 |
| Grinder* | 96 |
| Haul truck (under load) | 95 |
| Scraper | 91 |
| Tractor | 90 |
| Water truck for dust control | 94 |
| Wood Chipper ** | 89 |

Note: L_{max} = Maximum sound level; the highest sound level measured during a single noise event.

Equipment noise levels are at 50 feet from individual construction equipment and with no other noise contributors. Source: County of Ventura, Construction Noise Threshold Criteria and Control Plan, 2010, Page 4, Figure 2. "Typical Construction Equipment Noise," available online as of May 1, 2025:

https://rma.venturacounty.gov/wp-content/uploads/2024/03/construction-noise-threshold-criteria-and-control-plan.pdf

DRIVEWAY CONSTRUCTION NOISE EXCEEDS COUNTY'S NOISE STANDARDS

The IS/MND does not clearly describe or specify the noise levels for all the heavy equipment that would be used to build the Project's rock driveway. The IS/MND vaguely lists: "grubber; gravel truck; compaction equipment; post hole digger; ground screw anchor machine and delivery trucks; water trucks; and water buffalo trailer." No mention is made of typically loud heavy equipment such as a tractor or grader needed during the driveway construction. By comparison, the applicant's Red Hills bioenergy project IS/MND listed a tractor/grader to be used during construction there.

^{*} Tub Grinder: 96 dBA L_{max}. See: Bradley Landfill and Recycling Center (DEIR), pp. 4.5-1 and 4.5-10, Table 4.5-5. https://planning.lacity.gov/eir/BradleyLandfill/DEIR/4.5%20Noise.pdf

^{**} Wood Chipper: See: Napa County General Plan Update Draft EIR, Feb. 2007, page 4.7-18, Table 4.7-6 – "Construction Equipment Noise Emission Levels": Wood Chipper: 89 dBA at 50 feet. https://www.countyofnapa.org/DocumentCenter/View/7959/47-Noise-General-Plan-DEIR-PDF

¹¹ (See 2023 Red Hills BioEnergy Project Addendum to IS/MND, p. 16, available at: https://files.ceqanet.opr.ca.gov/288712-2/attachment/sz4G9B2JVrnyuEKGe88BAS-6ue4CrwqFLiUXkIDxC5e93AEJ6RJgLsakM1yt_pV-wr-OECzwlQQ0gcb30)

For this Noise Impacts Report, it is assumed then that during the Project's driveway construction, a haul truck, a compactor and a tractor/grader would be used and at times be operated simultaneously. Then that equipment use could generate a combined noise level of up to **60.3 dBA** L_{eq-1 hr.} at Homes "H" and "I" that are located about 1,000 feet to the west from the Project's driveway construction work. That noise level would exceed the County's maximum-allowed residential daytime noise level of 55 dBA L_{eq-1 hr.} per the Noise Ordinance § 41.11. Other homes are closer to the driveway construction work, such as Homes "C", "D", "E", "F", and "G", and therefore would be exposed to driveway construction noise levels even greater than 60.3 dBA L_{eq-1 hr.} (See Figure B for these distances from such homes to that driveway work.) That is substantial evidence that the Project's construction work would create significant noise impacts at seven or more neighboring homes.

The Upper Lake Middle School at 725 Old Lucerne Road is located 700 feet north-west of a portion of the Project's driveway construction work. The Noise Ordinance, § 41.11(a), Table 11.2, permits a **maximum of 57 dBA** L_{eq-1 hr}. for noise level exposure at a school. But at that distance, this Middle School could be exposed to excessive noise levels of about **63.4 dBA** L_{eq-1 hr}. Excessive noise like this at schools can interfere with students being able to hear their teachers clearly.

While the construction work might be exempt from the County's Noise Ordinance standards during daytime hours, the Project's adverse noise impact when exceeding those noise standards is not exempt from the requirement for analysis and mitigation under CEQA.

DRIVEWAY CONSTRUCTION WOULD CAUSE SIGNIFICANT NOISE LEVEL INCREASES.

CEQA requires the IS/MND to disclose the magnitude of the temporary noise level increase during such construction work at these affected homes. For example, in this rural location, these homes (Homes "H" and "I") may be exposed to existing ambient noise levels of about 50 dBA $L_{eq-1 \text{ hr.}}$ in the daytime. But for months on end, they could be exposed to increased construction noise levels of up to about **60.3 dBA** $L_{eq-1 \text{ hr.}}$ That work could cause a temporary noise level increase of over 10 dBA. (60.3 - 50 = 10.3 dBA) increase) That temporary increase would still be significant because it is much more than a typical 5 dBA threshold of significance used by many agencies reviewing CEQA

 $^{^{12}}$ The estimation of a combined noise level of 61.3 dBA $L_{\text{eq-1 hr.}}$ at either home is calculated by adding the separate noise levels of a haul truck (84 dBA L_{max}), a compactor (85 dBA L_{max}), and a grader (89 dBA L_{max}) that could be used simultaneously to construct the driveway. Those are decibel levels at a distance of 50 feet, and when added, they cumulatively result in a noise level of 91.3 dBA L_{max} . Calculation:

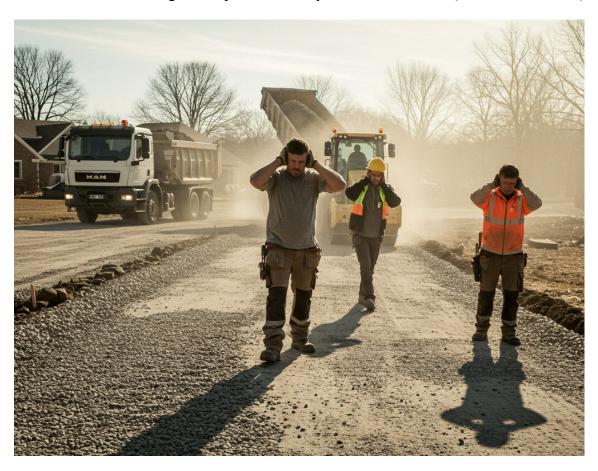
 $L_{total} = 10 \text{ x } Log_{10}$ ($10^{L1/10} + 10^{L2/10} + 10^{L3/10}$) = $10 \text{ x } Log_{10}$ ($10^{8.4} + 10^{8.5} + 10^{8.9}$) = $91.3 \text{ dBA } L_{max}$ at 50 feet. Then this total noise level is adjusted with a typical usage factor for each equipment type. The usage factor is an estimate of the fraction of time each piece of equipment operates at full power. The usage factor is used to estimate L_{eq} from the L_{max} values in this case where the Lake County impact criteria is expressed in terms of L_{eq} . This equation below is used to estimate L_{eq} from L_{max} . It also includes a term for estimating noise at distances other than 50 feet, such as at 1,000 feet in this calculation. L_{eq} dBA = L_{max} at 50 feet – 20log(D/50) + 10log(UF) where D = distance of interest, and UF = usage factor or fraction of time period of interest equipment is in use. Assuming each equipment is operated with a usage factor of 40%, and the distance from the driveway work to these two homes is 1,000 feet, the combined noise level during driveway work at these homes is calculated at 61.3 dBA $L_{eq-1 \text{ hr}}$. At that distance, 1.0 dB would be subtracted to account for atmospheric attenuation, resulting in a calculated noise level of **60.3 dBA** $L_{eq-1 \text{ hr}}$.

Calculation at 700 feet: $dB_2 = dB1 - 10 \text{ x A x LOG}(R_2/R_1) = 60.3 - 10 \text{ x } 2.0 \text{ x LOG}(700' / 50') = 63.4 \text{ dBA L}_{eq-1 \text{ hr}}$. (That noise level at the Middle School includes subtracting 0.7 dB for atmospheric attenuation over 700 feet.)

projects.¹⁴ In such rural locations, loud industrial construction noise can be particularly intrusive and disturbing. An 10 dBA temporary noise level increase would be very significant. The IS/MND is inadequate for failing to disclose that potentially-significant temporary noise impact. Other agencies require such an evaluation of significant increases in noise due to construction activities. For example, the City of Los Angeles defines¹⁵ that "a project would normally have a significant impact on noise levels from construction if:

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise sensitive use.
- Construction activities lasting more than 10 days in a three month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise sensitive use.

This Project would expose at least nine neighboring homes, two schools and other structures to excessive noise levels during the Project's driveway construction work. (See <u>Table 2</u> below.)



 $^{^{14}}$ A 5 dB increase in noise levels is considered significant if the ambient noise is below 60 dB day-night average sound level (L_{dn}). This threshold is applicable to the nearest residential areas to a project, where noise levels were recorded below 60 dB Ldn. A leading court case involving a proposed oil and gas ordinance in Kern County indicated that a 5 dB increase over existing ambient noise levels could constitute a significant noise impact, regardless of the maximum levels allowed under their General Plan. The Federal Interagency Commission on Noise (FICON) also uses this 5 dB threshold of significance assessing increases in project-related noise, taking into account the base level of ambient noise.

¹⁵ See L.A. CEQA Thresholds Guide (2006) Page I.1-3, Section 2(A) Significance Threshold.

DRIVEWAY CONSTRUCTION COULD GENERATE NOISE LEVELS INSIDE SOME NEIGHBORING HOMES THAT EXCEED THE COUNTY'S GENERAL PLAN 45 dBA CNEL INTERIOR NOISE LIMIT.

Another standard that the General Plan Noise Element Policy N-1.10 requires to be considered is the California Noise Insulation Standards (Building Code Title 24, Section 3501 *et seq.*). This standard for residences sets a maximum interior noise level of **45 dBA L**_{dn} in any habitable room, averaged over a 24-hour period. That is essentially the same standard set by the County's General Plan maximum indoor noise requirement of **45 dBA CNEL** at these homes. These standards protect against sleep-disturbance impacts at nighttime, and more pertinent here to actual construction noise, against unreasonable annoyance impacts during the daytime. But the IS/MND never evaluated this Project's compliance with this residential noise standard that would be violated within nearby homes.

If the Project's driveway construction activities generate a total noise level of **71.3 dBA** L_{eq} at 1,000 feet at Home "H" or "I", that noise level would exceed the maximum indoor noise standards at these two homes. For construction occurring for 10 hours per day, for example from 7:30 a.m. to 5:30 p.m., but with the Project site being quiet for the remaining 14 hours per day, the day-night weighted average noise level can be calculated to **67.5 dBA** CNEL at those two homes' exteriors. This impact would be even greater if the facility operates for over 11 hours per day, since it is permitted to operate from 7:30 am to 7:00 p.m. ¹⁸

With an exterior noise level of 71.6 dBA CNEL at Homes "H" and "I"s windows, and with a typical attenuation (reduction) factor of 20 dBA due to noise passing through the walls and roof of a home with its windows closed, the interior noise level indoors would be as much **51.6 dBA CNEL**. ¹⁹ That interior noise level due to Project construction would exceed the Building Code standards and the County General Plan's maximum allowable **45 dBA CNEL** interior noise limit. Even with a slight reduction in noise levels due to atmospheric attenuation of about 1 dB at these distances, the interior noise levels would still exceed the County's maximum standards. Therefore this Project's construction noise impacts to the interior noise levels would be significant at some homes.

Other homes exposed to noise from this Project's driveway construction work would be significantly impacted by that construction noise. The homes "C", "D", "E", "F", and "G" which are north of State Highway 20 are also less than 1,000 feet from sections of this driveway's construction work. They too would be exposed to interior noise levels when their windows are closed of greater than 45 dBA CNEL, a noise level which exceeds the County's maximum interior noise standards.

CNEL=
$$10\log_{10}[(1/24)x\{(10^{(71.3)/10}x10 \text{ hrs}) + (10^{(40+5)/10}x3 \text{ hrs}) + (10^{(40+10)/10}x9 \text{ hrs}) + (10^{(40)/10}x2 \text{ hrs})\}] = = 10\log_{10}[(1/24)x\{13,896,288 + 94,868 + 90,000 + 20,000\}] = 10\log_{10}[(1/24)x135,101,156] = 10 x \log_{10}[5,629,214] = 10 x 6.75 = 67.5 CNEL$$

 $^{^{16}}$ See County of Lake General Plan, Noise Element, p. 8-4, Policy N-1.3, Interior Noise Levels: 45 CNEL. 17 Calculation of CNEL: Assign 71.3 dBA L_{eq} to each of 10 daytime hours from 7:30 a.m. - 5:30 p.m., and assume 45 dBA L_{eq} for each of 3 evening hours from 7 p.m. - 10 p.m., (i.e. add 5 dB to each hour presumed at 40 dB), and 50 dBA L_{eq} for each of the 9 hours from 10 p.m. - 7 a.m. (i.e. add 10 dB to each nighttime hour presumed at 40 dB). Then assume 40 dBA L_{eq} for the remaining 2 hours. Then calculate the logarithmic average of these noise levels for all 24 hours in a day with this formula:

¹⁸ The IS/MND, p. 8, states: "Hours of operations will occur between 7:30 a.m. and 7:00 p.m."

¹⁹ Calculation: 71.2 dBA CNEL outdoors – 20 dB (loss with windows closed) = 51.2 dBA CNEL indoors

FIGURE B - DISTANCES FROM NOISE SENSITIVE RECEPTORS TO CONSTRUCTION NOISE

NOISE SENSITIVE LAND USES OF THE PROPERTY OF T

Table 2 - Noise Levels During Construction and During Operation at Sensitive Receptors

| Table 2 Roise Bevers Burning Constitution and Burning Operation at Sensitive Receptors | | | | | | | |
|--|---|--|---------------------------------------|-------------------------------------|--|---------------------------------------|--------------------------------|
| Sensitive Receptor (homes or businesses) | Distances To Construction At driveway or site work (in feet) See Figure A | Noise Level Exposure During Construction (dBA Leq-1 hr.) | Max dBA allowed by §41.11 | To Operation (in feet) See Figure C | Noise Level Exposure During Operation (dBA L _{eq-1 hr.}) | Max dBA allowed by §41.11 | Complies with Noise Standards? |
| A | 1031 | 60.0 | 55 | 1031 | 69.8 | 55 | No |
| В | 1395 | 57.4 | 55 | 1395 | 67.2 | 55 | No |
| С | 840 | 61.8 | 55 | 1566 | 66.2 | 55 | No |
| D | 478 | 66.7 | 55 | 1551 | 66.3 | 55 | No |
| Е | 378 | 68.8 | 55 | 1550 | 66.3 | 55 | No |
| F | 424 | 67.8 | 55 | 1360 | 67.4 | 55 | No |
| G | 742 | 62.9 | 55 | 1620 | 65.9 | 55 | No |
| Н | 1005 | 60.3 | 55 | 1165 | 68.8 | 55 | No |
| I | 1116 | 59.3 | 55 | 1166 | 68.8 | 55 | No |
| Preschool | 854 | 61.7 | 57 | 1630 | 65.9 | 57 | No |
| Middle School | 700 | 63.4 | 57 | 1850 | 64.7 | 57 | No |
| Casino | 706 | 63.3 | 60 | 1240 | 68.2 | 60 | No |
| Ag Bldg. | 100 | 80.3 | 55 | 243 | 82.4 | 55 | No |
| Office | 530 | 65.8 | 60 | 690 | 73.3 | 60 | No |

(Construction noise levels based on 60.3 dBA $L_{eq-1 \text{ hr.}}$ at 1,000 feet & atmospheric attenuation. See p. 14) (Operation noise levels are based on 67.9 dBA $L_{eq-1 \text{ hr.}}$ at 1,290 feet & atmospheric attenuation. See p. 31)



FIGURE C - DISTANCES FROM NOISE SENSITIVE RECEPTORS TO WOOD CHIPPER NOISE

NOISE SENSITIVE LAND USES

OPERATIONAL NOISE IMPACTS WOULD BE SIGNIFICANT IN THE NEIGHBORHOOD.

Neighbors to this proposed Project have legitimate concerns that the Project's IS/MND has not adequately disclosed the serious noise impacts that they may be forced to live with if this Project's daily operations and their likely noise levels are not adequately examined and sufficient noise mitigations are not imposed.

The confluence of increasing interest in sustainable waste management and renewable energy production has led to the emergence of combined wood processing and biochar production as potentially beneficial industrial operations. These facilities can efficiently utilize biomass resources, converting wood waste into valuable products such as biochar, a carbon-rich material with applications in agriculture and environmental remediation. However, the operation of heavy machinery inherent in both wood processing and material handling for biochar production carries the potential for significant noise pollution.

A thorough assessment of the noise impact from such combined facilities is crucial for ensuring the safety and well-being of workers and for maintaining positive relationships with surrounding communities. This report aims to provide a comprehensive analysis of the expected noise levels emanating from a combined wood processing and biochar plant. The analysis will consider the noise generated by specific equipment commonly used in these operations, the principles governing the

combination of sound levels from multiple sources, findings from existing research on similar industrial settings, the regulatory landscape concerning noise from biochar plants, and the various factors that can influence the overall noise environment.

The integration of these two industrial processes within a single facility can lead to complex acoustic interactions, where the noise generated from different stages of wood processing and biochar production might overlap and potentially amplify the overall noise footprint. Therefore, a detailed examination of the cumulative noise impact is essential.



Loud noise would occur on the entire 5-acre Project site during Project operations. The IS/MND does not disclose the increased noise exposure risk during truck unloading and chainsaw noise at the northern portion of the site to residents living north of Highway 20. The IS/MND's only map²⁰ of the neighborhood is deceptive and misinforms the public. It does not have any mention of noise source locations other than at a point (labeled "Lp(R1)") that is near the southern end of the 5-acre site. That location is up to 400 feet farther to the south from homes near Highway 20 than where other major sources of noise at the northern end of the 5-acre site would operate. Yet on that map, there is no outline or other indication where the Project 5-acre site would be positioned. If that major noise source point representing the location of a wood chipper or a *M85 grinder* was described on a map somewhat like Figure A, below, the public could understand how other loud Project noise sources operating 400 feet closer to homes and the pre-school to the north would impact people. That distance decrease can make a significant difference to those neighbors. The same noise level measured at 1,000 feet from the noise source would be about 3 dBA louder than if measured at 1,400 feet away.

On the following page, a map (<u>Figure A</u>) is repeated for convenience to show distances from various loud Project operations to each sensitive receptor listed in this report.

_

²⁰ See IS/MND, PDF page 88: the only neighborhood aerial photo map is on page labeled "Sound Level Analysis."



FIGURE A - DISTANCES FROM PROJECT OPERATION TO NOISE SENSITIVE RECEPTORS

NOISE SENSITIVE LAND USES

During preparation of this Noise Impacts Report, we were able to uncover the IS/MND's mapping inadequacy by using precise CAD drafting software that County officials and the general public probably do not have access to. But the public should not have such critical mapping information be hidden from them such that they would need specialized software and skills to unravel.

The overarching principles of CEQA inherently necessitate that documents intended for public review are presented in a format that allows for understanding. One of CEQA's primary purposes is to ensure that government decision-makers and the public are informed about the potential environmental effects of proposed activities. This informational goal is undermined if the documents, including crucial visual aids like site plans and maps, are missing vital information. Furthermore, CEQA mandates that public agencies disclose and evaluate the significant environmental impacts of projects, a process that relies on the public's ability to access and understand the information provided. The public review period, a cornerstone of CEQA, offers an opportunity for community members to submit comments on the project and the environmental document, an opportunity that is severely limited if key parts of the document are essentially unreadable. The public's ability to engage meaningfully in the CEQA process depends on their capacity to understand the information presented in all environmental review documents. Furthermore, the requirement for a "good faith effort of full disclosure" suggests a broader expectation within CEQA that agencies will present environmental information in a format that allows for genuine understanding and scrutiny.

USE OF A SINGLE LOUD CHAINSAW AT THE NORTHERN SIDE OF PROJECT SITE COULD EXCEED COUNTY'S NOISE LIMITS AT NEARBY HOMES.

The IS/MND, p. 23, describes that the Project proposes to have up to approximately 100 million pounds per year²¹ of forest materials delivered to the northern end of the 5-acre site during 12-hour workdays. Processing that much material would generate a lot of noise at the site. Then branches and tree trunks will be unloaded from delivery trucks by a front-end loader, and cut as needed with chainsaws. After further processing operations, other trucks and loaders will store the material in piles and haul away wood chips or biochar stored nearby. Noise levels generated by these multiple equipment types would be significant to nearby residents. The IS/MND places no limits on what equipment may operate there or how many chainsaws can be used at one time.

The use of a single loud chainsaw at the northern portion of the 5-acre site could generate noise levels at numerous homes that exceed the County's noise standards.

For example, that chainsaw could create noise levels at **Home "F"** to the north of approximately 57.1 to 58.0 dBA $L_{eq\ 1-hr.}$ That noise level would exceed the County's daytime noise standard for residences which is 55 dBA $L_{eq\ 1-hr.}$

Explanation: Home "F" is about 1,000 to 1,100 feet from where such a chainsaw could be operated at the north end of the Project's 5-acre site. Chainsaw noise levels have been measured at an average of 85 dBA L_{eq} at a 50-foot distance, and up to a maximum of 88 dBA L_{max} at 50 feet. If at a distance of 1,050 feet, that 85 dBA L_{eq} average sound level would decrease to 58.6 dBA L_{eq} . Then with atmospheric attenuation absorbing 1.1 dBA over that 1,100-foot distance, the resulting noise level would be **57.5 dBA** L_{eq} 1-hr. That noise level constitutes a significant noise impact at that home because it is greater than the County's maximum 55 dBA L_{eq} 1-hr. noise standard.

At Home "E" located about 1,325 feet northeast from where a chainsaw could be operated on the 5-acre site, this home's noise exposure to just that chainsaw noise would be about 55.2 dBA $L_{eq\ 1-hr.}$, slightly louder than the County's maximum allowed noise standard at a residence.²⁵

Homes "A", "B", "C", "G", "H", and "I" are less than that 1,325-foot distance from the 5-acre site and, using a similar noise level calculation, they too could also be exposed to excessive noise levels during the operation of a single loud chainsaw. See <u>Figure A</u> above for distances between the 5-acre site where chainsaws could be used and these various homes.

²² Source: County of Ventura, Construction Noise Threshold Criteria and Control Plan, 2010, Page 4, Figure 2. "Typical Construction Equipment Noise," (Chainsaw: 85 dBA L_{eq} at 50-feet); this source is available online as of May 1, 2025, and a copy will be provided to County of Lake officials if requested: https://rma.venturacounty.gov/wp-content/uploads/2024/03/construction-noise-threshold-criteria-and-control-plan.pdf

²¹ (Up to 50,000 tons per year).

Calculation: $dB_2 = dB1 - 10 \text{ x A x LOG}(R_2/R_1) = 85 - 10 \text{ x 2.0 x LOG}(1,050' / 50') = 58.6 dBA L_{eq}$. Subtracting 1.1 dB for atmospheric attenuation, the resulting noise level would be 57.5 dBA L_{eq 1-hr}.

²⁴ See Noise Ordinance, § 41.11, Table 11.1 (Maximum one-hour equivalent sound pressure levels, daytime, residential): 55 dBA L_{eq 1-hr}.

²⁵ Calculation: $dB_2 = dB1 - 10 \text{ x A x LOG}(R_2/R_1) = 85 - 10 \text{ x } 2.0 \text{ x LOG}(1,320' / 50') = 56.5 dBA L_{eq}$. Subtracting 1.3 dB for atmospheric attenuation in 1,320 feet, the resulting noise level would be **55.2** dBA L_{eq 1-hr}.

All these neighboring homes would be affected by louder noise levels yet than just from a chainsaw when noise levels are combined from the other Project noise sources. Those other sources include haul trucks, front-end loader, wood chipper, grinder, shredder, grappler, crumbler/rotary shear, and backup warning alarms used on mobile equipment.

Because gas-powered chainsaw noise could create noise levels at these neighboring houses that exceed the Zoning Ordinance's noise standards, this Project would create a significant noise impact.



USE OF JUST THE WOOD CHIPPER WILL CREATE NOISE LEVELS IN EXCESS OF ZONING ORDINANCE'S 55 dBA $L_{EO^{-1}HR}$ Daytime Maximum Standards.

This Project would use a wood chipper to grind up logs and small tree trunks. Wood chippers play a crucial role in processing smaller diameter wood, branches, and other woody debris into smaller, more uniform chips. Wood chipper noise levels have been rated by other counties up to 89 dBA L_{max} at 50 feet. That accordingly is a noise level also used in this Report. The applicants have not agreed to only use a quieter wood chipper. The Planning Commission enacted no conditions of approval, no mitigation and no other requirement to use a less noisy wood chipper. With few effective noise barriers proposed to remain at all times surrounding the wood chipper, the following calculated noise levels at nearby homes are estimated.

Table 3 - COMPARISON OF WOOD CHIPPER NOISE LEVELS WITH COUNTY NOISE ORDINANCE

| Sensitive Receptor | Distance to chipper (in feet) | Maximum Allowed Chipper Noise Level (dBA Leq - 1 hr.) | Calculated Noise Level at Receptor (dBA L _{eq-1 hr.}) | Comply with Noise Standard? |
|-----------------------|-------------------------------|--|---|-----------------------------------|
| A | 1031 | $\frac{(\text{dBA L}_{\text{eq}-1 \text{hr.}})}{55.0^{\text{(See Note 1)}}}$ | 61.7 | No |
| В | 1395 | 55.0 | 58.7 | No |
| C | 1566 | 55.0 | 57.5 | No |
| D | 1551 | 55.0 | 57.6 | No |
| Е | 1550 | 55.0 | 57.6 | No |
| F | 1360 | 55.0 | 58.9 | No |
| G | 1620 | 55.0 | 57.2 | No |
| Н | 1165 | 55.0 | 60.5 | No |
| I | 1166 | 55.0 | 60.5 | No |
| Casino | 1240 | 60.0 (See Note 2) | 59.9 | (Yes) |
| Preschool | 1630 | 57.0 | 57.1 | No |
| Offices | 690 | 60.0 (See Note 2) | 66.5 | No |
| Ag Bldg. | 243 | 60.0 (See Note 2) | 75.0 | No |

Note 1: Noise Ord., § 41.11, Table 11.1 (Maximum one-hour equivalent sound pressure levels, daytime, residential)

Note 2: Noise Ord., § 41.11, Table 11.1 (Max. one-hour equivalent sound pressure levels, daytime, commercial)

Note: These noise levels include adjustment for atmospheric attenuation over the specified distances.

Nearly all of these noise levels from wood chipper operation listed in $\underline{\text{Table 3}}$ above would exceed the County's maximum allowable daytime noise levels at residences of $55~dBA~L_{eq-1~hr}$, for a preschool of $57~dBA~L_{eq-1~hr}$, and for commercial buildings of $60~dBA~L_{eq-1~hr}$.

That calculation does not include other Project noise such as trucking, front end loader noise, conveyor belt noise, backup alarm warning noise – any of which would raise the Project's noise

https://www.countyofnapa.org/DocumentCenter/View/7959/47-Noise-General-Plan-DEIR-PDF

²⁶ See IS/MND, PDF p. 83, "Detail "B", Equipment Layout of 5 Acre Leased Site, where the processed biomass area included a label that describes the project processing "Forest Biomass – logs, small (tree) trunks . . ".)

²⁷ See: Napa County, BDR 2005. Napa County General Plan Update Draft EIR, Feb. 2007, page 4.7-18, Table 4.7-6 – "Construction Equipment Noise Emission Levels"; Wood Chipper: 89 dBA at 50 feet. This document is online and/or a copy will be made available to County officials if requested:

even further.²⁸ This is strong evidence that the Project as proposed will generate noise levels that exceed the Noise Ordinance limitations.²⁹

As calculated, the wood chipper's use may create noise levels so loud that they can exceed the Noise Ordinance's maximum one-hour $55 \, dBA \, L_{eq-1 \, hr}$. during a daytime hour at any of the nine sensitive receptors studied in this Report. Numerous homes in a residential subdivision located to the west and as close as 1,700 to 2,000 feet to the wood chipper could also be exposed to excessive noise levels greater than 55 dBA $L_{eq-1 \, hr}$ during use of the wood chipper, not even considering the Project's other major noise sources. As such, this Project's IS/MND incorrectly determined the Project's noise impact due to the use of the proposed wood chipper will be less-than-significant.

Take note that the calculated noise levels described in <u>Table 3</u> above have been decreased due to a factor that accounts for "atmospheric attenuation." For example, at 1,500 feet, such absorption of sound by the atmosphere could be about 1.5 dBA.³⁰

OPERATION OF JUST THE FRONT-END LOADER WILL CREATE SIGNIFICANT NOISE IMPACTS AT THE NINE NEAREST HOMES.

A diesel-engine powered front-end loader is proposed for use during operations. A front-end loader is a noisy piece of heavy equipment when operated for 10 (or 11) hours per day near homes. This Project requires that wood be chipped and stored on the site using a front-end loader. Sound pressure levels measured at a distance of 50 feet for these machines typically fall within the range of 80 dBA to 94 dBA. In 1971, the US EPA reported front-end loaders can generate 87 dBA L_{max} at 50 feet. The County of Ventura as recently as 2024 describes a front-end loader's noise level as 90 dBA L_{max} . The engine and exhaust system of the loader are major sources of this noise.

(1)
$$L_2 = L_1 - |20 \log_{10} \left(\frac{d_1}{d_2} \right)|,$$

Where:

 L_1 = known sound level at d_1

 L_2 = desired sound level at d_2

 d_1 = distance of known sound level from the noise source

 d_2 = distance of the sensitive receptor from the noise source

²⁸ The estimations of predicted chipper noise levels were calculated with this formula below which has been used in other calculations previously in this report. First, noise attenuates from a point source at a rate of approximately 6.0 dBA per doubling of distance, the Project's noise impacts on sensitive receptors nearby can be determined by the following equation for noise attenuation over distance:

²⁹ See: Noise Ordinance § 41.11, Table 11.1, for daytime residential and commercial maximum one-hour equivalent noise levels of 55 dBA L_{eq}-1 hr. See also Table 11.2 for the maximum noise levels at schools of 57 dBA L_{eq-1 hr}.

³⁰ Atmospheric attenuation is an additional reduction factor caused by the sound energy being converted to heat as it travels through the air, and it is not due to the sound spreading out and decreasing by approximately 6 dB for each doubling of distance .See: "Calculation of Absorption of Sound by the Atmosphere, where 0.1 dB is reduced per 100 feet of distance, for noise of 1,000 Hz at 70 degrees F; this calculator is available online or a copy will be provided to County officials if requested, at http://www.sengpielaudio.com/calculator-air.htm

³¹ See: IS/MND p. 7: "Moving materials and loading them into processing equipment will be accomplished with a front loader."

³² See: IS/MND, PDF p. 88: "Planned Operational Hours of Equipment Listed Above 7:30am – 5:30pm".

³³ See: U.S. EPA, "Noise from Construction Equipment and Operation," Building Equipment and Home Appliances, 1971.

At a distance of 1,400 feet relevant to at least nine affected homes, 35 this equipment's noise levels as reduced by that distance, and assuming it would be used 40% of the time during a workday, would be about 55.7 dBA $L_{eq-1 hr}$. That noise level from just a single piece of equipment would exceed the County's maximum allowed 55 dBA $L_{eq-1 hr}$. standard for daytime noise at these residences. 37

Moreover, the actual noise level during Project operations would be substantially higher at these homes when the cumulative noise from other equipment that would also be simultaneously operating is added, including trucks, tractor, shredder, wood chipper, M85 grinder, grappler, chainsaws, a crumbler/rotary shear, and backup warning alarms. This construction equipment usage seriously risks a significant noise impact to neighbors that the IS/MND fails to disclose.

NOISE LEVEL <u>Increase</u> From Operation of Front End Loader Would be Significant at Nearby Homes.

Not only will the noise level from just the front-end loader's use exceed County noise standards during any hour of the day, but its operation will also generate a noise level *increase* that will be greater than 5 dBA louder in magnitude than the existing ambient noise levels at one of the neighboring homes, Home "I". Because the IS/MND provides no ambient noise level measurements at these homes, it is assumed that some of these homes experience ambient noise levels of below 50 dBA L_{eq} during the daytime. For example, the Lake County General Plan Noise Element, page 8-13, Figure 8-7, contains a roadway noise contour map showing the 55 dBA L_{dn} noise contour at about 360 feet from the centerline of Highway 20. That 55 dBA L_{eq}. ³⁸ Then at a distance of 1,140 feet from the centerline of Highway 20, the daytime ambient noise level can be calculated to be about 50 dBA L_{eq}. ³⁹ Home "I" (at 625 E. Highway 20) is more than 1,140 feet from Highway 20,

(Continued): Calc: $L_2 = L_1 - 10 \times n \times \log_{10}(r_2/r_1) = 55 - 10 \times 1 \times \log(1,140/360) =$ **50 dBA** L_{dn} at 1,140 feet from Highway 20.

³⁴ See: County of Ventura, Construction Noise Threshold Criteria and Control Plan, 2010, Page 4, Figure 2. "Typical Construction Equipment Noise," available online as of May 1, 2025, and a copy will be provided to County of Lake officials if requested: https://rma.venturacounty.gov/wp-content/uploads/2024/03/construction-noise-threshold-criteria-and-control-plan.pdf

and-control-plan.pdf

35 The distance from where the front-end loader would be used to Homes "A", "B", "C", "D", "E", "F", "G", "H", and "I" could be less than 1,400 feet.

 $^{^{36}}$ Calculation: dB $_2$ = dB1- 10 x A x LOG(R $_2$ /R $_1$) = 90 - 10 x 2.0 x LOG (1,400' / 50') = 63.1 dBA L_{max} . Then assuming a Use Factor of 40% for the front-end loader, its noise level would drop to 57.1 dBA $L_{eq\text{-}1\ hr}$ at 1,400 feet. Subtracting 1.4 dB for the atmospheric attenuation at that distance would result in the front end loader's noise level of **55.7 dBA L_{eq\text{-}1\ hr}** at 1,400 feet.

 $^{^{37}}$ See: Noise Ordinance § 41.11, Table 11.1, for daytime residential maximum one-hour equivalent noise levels of 55 dBA $L_{eq-1 hr}$.

³⁸ Source: The Engineering ToolBox's <u>Day-Night Sound Level Calculator</u>, assuming a daytime equivalent sound level of 55 dBA L_{eq} and a nighttime equivalent sound level of 45 dBA L_{eq}, which calculates to a day-night sound level of **55 dBA** L_{dn}, which is available online at: https://www.engineeringtoolbox.com/sound-level-d_719.html

³⁹ Calculation of noise level farther from highway: $L_2 = L_1 - 10 \times n \times \log_{10}(r_2/r_1)$, where L_1 is the initial noise level at a distance r_1 from the highway, and L_2 is the noise level at a new, further distance r_2 from the highway, and n is a factor (n = 1) representing a 3 dBA reduction for every doubling of distance from a linear noise source of highway traffic. Where $L_1 = 55$ dBA L_{dn} at 360 feet, then L_2 calculates to 50 dBA L_{dn} at 1,140 feet per this formula: (Continued): Calc: $L_2 = L_1 - 10 \times n \times \log_{10}(r_2/r_1) = 55 - 10 \times 1 \times \log_{10}(1,140/360) = 50$ dBA L_{dn} at 1,140 feet from

so presumably its residents would experience ambient daytime noise levels less than 50 dBA L_{ea}. But when just a front-end loader is operating and generating noise levels of 55.7 dBA L_{eq-1 hr.} as calculated at this house, that noise level increase of over 5 dB would be significant. (55.7 - 50 = 5.7)dB increase.) That increase is more than a typical 5 dBA threshold of significance used by many agencies reviewing CEOA projects. That much of an increase is a significant noise impact and it would be clearly audible and likely annoying to these residents. When the cumulative noise levels from multiple pieces of equipment operating simultaneously is considered, this significant, greaterthan-5 dBA increase in noise levels due to Project operations would impact additional homes in the vicinity too. Yet the IS/MND utterly fails to disclose, evaluate or mitigate the noise levels this frontend loader (and other equipment) will generate at these nearby homes.

NOISE IMPACTS OF HEAVY EQUIPMENT BACKUP WARNING ALARMS WOULD SIGNIFICANTLY EXCEED NOISE ORDINANCE STANDARDS.

The IS/MND fails to analyze the noise impacts to the neighbors from this Project's heavy equipment backup warning beepers. Such backup alarms are mandated on the haul trucks delivering wood chips and on the front end loader. That noise could be very audible and annoying at some homes and businesses near this Project site. As discussed below, likely noise levels from those backup beepers would be unlawful in this setting because they will significantly exceed the County's maximum noise standards at neighboring properties.

Backup alarms are required to protect workers from being run over by heavy equipment. For onground workers, it is crucial to detect backup alarm signals as far away as possible rather than at close distances since this will provide them more time to react to approaching vehicles. However the required single-frequency tone used in typical backup alarms is not uniformly loud in all directions. For that reason, alarm manufacturers often make these alarms extra loud to protect their companies from liability as well as to protect nearby workers. Workers also often wear over-the-ear hearing protectors, like ear muffs, to protect their hearing from the loud heavy equipment operational noise. No reasonable worker using the Project's heavy equipment and very loud chipper would work without hearing protection. Such hearing protectors however reduce workers' ability to localize the direction of the backup alarms and move safely out of harm's way. Accordingly they require the alarms be louder than required to provide them an adequate safety margin.

"The use of these hearing protectors may impair the ability to localize sound, i.e., recognize the direction of the source of the sound. 40 For safety reasons, under industrial conditions, it is vital to be able to correctly localize the noise source, which particularly applies to vehicle back-up alarm signals. Localization enables the user to take action to avoid being hit by a vehicle." 41

⁴⁰ See: Impact of Hearing Protection Devices on Sound Localization Performance, by Véronique Zimpfer and David Sarafian (2004), available online at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4052631/ A copy of this document is available to County officials if requested.

⁴¹ See: Localization of Vehicle Back-Up Alarms by Users of Level-Dependent Hearing Protectors under Industrial Noise Conditions Generated at a Forge; Int. J. Environ. Res. Public Health 2019, 16, 394; Available on Internet at: https://www.mdpi.com/1660-4601/16/3/394 A copy of this document is available to County officials if requested.

Such backup alarms are typically the loudest equipment used on such wood chipping operations, so it is inexcusable that the IS/MND is entirely silent on revealing the extent of their noise impacts.

Backup alarms or beepers are a frequent source of complaints from neighbors, whether they are used during the daytime or nighttime. Backup alarms must generate a noise level at least 5 to 10 dBA above the background noise in the vicinity of the rear of the machine where a person would be warned by the alarm. Thus, they are significantly louder than the Project's proposed chip delivery trucks and front-end loader equipment's engine noise.

Yet the IS/MND fails to describe these alarms' decibel rating. The applicant has not agreed to place specific decibel limits on their loudness. Backup alarms typically produce from 97 to 112 decibels at four feet, 42 which attenuates to about 75 to 90 dBA at 50 feet, 43 and can even be heard at the distances where the surrounding neighbors live. At the noise levels the neighbors will hear, backup alarm noise would exceed the County's maximum limit for *pure tone* noise sources at 1,000 Hertz of 49 dBA L_{max} at residential property lines. 44 These backup alarms beep about once per second at a penetrating frequency of about 1,000 Hertz 45 which is designed to be easily heard by most people.

The County's Noise Ordinance, § 41.11(c), seeks to protect residentially-zoned and commerciallyzoned property from loud, annoying unusual noise. It limits the maximum noise level for "noises of unusual periodic character," such as noise with a "pure tone" characteristic. A "pure tone" is simply definable as a single frequency sound such as a backup alarm emits. Pure tone noise is unusual and more annoying, and thus the County's Noise Ordinance, with its Table 11.3, sets limits on the median octave band noise levels. Octave Frequency Bands divide the audio spectrum into 10 equal parts. The specific octave band pertinent in this Project's case to backup beeper alarms has a center frequency of 1,000 Hz, and it ranges in frequency from 710 to 1420 Hz. This center frequency of 1,000 Hz is the median frequency of this octave band. According, the County's Table 11.3 limits the maximum sound pressure level for pure tone noise like backup alarms of 1,000 Hz during the daytime (7 a.m. to 10 p.m.) to at most 49 dBA L_{max} as heard at residential properties beyond the Project site. This limit is a maximum allowed noise level, not an average. Unlike other noise standards in the Noise Ordinance, this limit is not complicated by requiring the difficult, logarithmic averaging of the source's noise level over an hour. It is therefore simple to measure and to calculate. If the backup alarms would create a pure tone louder than 49 dBA at the property line of any residential property, they would violate the County's Noise Ordinance. It can be readily shown that this Project's backup alarms will greatly exceed that noise level limit at neighboring properties or homes. Their use would also exceed the permissible limit at the neighboring commercial businesses.

44 See Lake County Zoning Ordinance, § 41.11(c).

⁴² Source of back-up alarm noise levels from alarm manufactured by Pollak, #41-761, "Manually adjustable Back-up Alarm," rated at 112, 107, 97 dB.

Holzman, David C. (2011-01-01). "Vehicle Motion Alarms: Necessity, Noise Pollution, or Both?" available online at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018517/

Environ Health Perspect. 119 (1): A30–A33. doi:10.1289/ehp.119-a30. PMC 3018517. PMID 21196143 A copy of this report will be made available to County officials if requested.

⁴³ Noise level attenuation due to distance is calculated as reduced by about 6 dB for each doubling of distance, and 7.5 dB for each doubling of distance beyond 1,000 feet from the noise source due to atmospheric attenuation.

⁴⁵ See: "Vehicle Motion Alarms: Necessity, Noise Pollution, or Both?" (2011) available online at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018517/

TABLE 4 - COMPARISON OF BACKUP ALARM NOISE LEVELS & NOISE ORDINANCE STANDARDS

| Sensitive | Distance | Maximum Allowed Alarm | Calculated Noise | Comply with |
|-----------|------------|--|-------------------------|-------------|
| Receptor | to alarm | Noise Level Standard for | Level at Receptor | Noise |
| | (in feet) | Pure Tones 1000 Hz (dBA L _{max}) | (dBA L _{max}) | Standard? |
| | See Fig. A | | See Fig. A | |
| A | 1000 | 49.0 | 63.0 | No |
| В | 1300 | 49.0 | 60.4 | No |
| C | 1340 | 49.0 | 60.1 | No |
| D | 1320 | 49.0 | 60.2 | No |
| Е | 1325 | 49.0 | 60.2 | No |
| F | 1100 | 49.0 | 62.1 | No |
| G | 1250 | 49.0 | 60,8 | No |
| Н | 1020 | 49.0 | 62.8 | No |
| I | 1080 | 49.0 | 62.2 | No |
| Casino | 1010 | 54.0 (See Note 1) | 62.9 | No |
| Office | 560 | 54.0 (See Note 1) | 68.5 | No |
| Ag Bldg. | 250 | 59.0 (See Note 2) | 75.8 | No |

Note 1: Per Lake County Noise Ordinance § 41.11(d), an additional allowance of 5 dB above the allowable pressure levels specified in Table 11.3 is allowed when the receiving property is zoned commercial. (i.e. 49 + 5 = 54 dBA L_{max} maximum allowable pure tone noise at 1000 Hz.

Note 2: Per § 41.11(d), an additional allowance of 10 dB above the allowable pressure levels specified in Table 11.3 is allowed when the receiving property is zoned industrial. However the neighboring Ag Building is located on land zoned for agriculture.

These calculations include a reduction in noise levels due to atmospheric attenuation.

BACKUP ALARM NOISE LEVELS AT HOMES "A", "B", "H" AND "I" EXCEED NOISE ORDINANCE LIMITS.

The nearest home (labeled *Home A* on <u>Figure 1</u>, "Noise Sensitive Land Uses") is about 1,000 feet east of this Project's chip yard. The backup alarm noise level at that home would be as loud as about 63 dBA L_{max}. ⁴⁶ That calculation assumes the backup alarms emit up to 112 decibels as measured at a distance of four feet away. That noise level would be <u>14 dBA louder than the County's maximum permitted pure tone noise limit of 49 dBA L_{max} for residences. Two more homes, "<u>H" and "I"</u>, exist to the west of the Project's chip yard and are located at about the same distance as Home A (1,020 feet and 1,080 feet respectively.) This is strong evidence that the IS/MND is seriously flawed for failing to identify this backup alarm component of the Project being able to emit noise levels that greatly exceed the County's noise standards at surrounding homes. Nothing in the Project Description, mitigations or conditions of approval prohibits the applicant's use of typical backup alarms of that loudness for its mobile equipment.</u>

⁴⁶ Calculation: $dB_2 = dB_1 - 10 \text{ x A x LOG}(R_2/R_1) = 112 - 10 \text{ x } 2.0 \text{ x LOG}(1,000' / 4') = 64.0 dBA L_{max}$. With atmospheric attenuation at that 1,000 foot distance, the noise level is reduced 1.0 dB to **63.0 dBA** L_{eq-1 hr}.

Another home (*Home* "B" on <u>Figure 1</u>) is about 1,300 feet at the closest from this Project's chip yard where backup alarms would be used. At that distance, the backup alarms' noise levels could be up to **60.4 dBA** L_{max} . That noise level would also be unlawful because it could be over <u>11 dB</u> louder than the County's maximum pure tone noise limit of 49 dBA for residences.

BACKUP ALARM NOISE LEVELS AT HOMES "C", "D", "E", "F", & "G" TO THE NORTH OF HIGHWAY 20 ALSO EXCEED NOISE ORDINANCE LIMITS.

The nearest homes to the north of the Project's chip yard are located between 1,100 to 1,340 feet away from where backup alarms would be used while workers load chips into outdoor storage piles. (See <u>Figure A</u>, Map of "Noise Sensitive Land Uses" on page 6 of this Report for location of Homes "C", "D", "E", "F", and "G"). These distances are estimated using Google Earth's measuring tool and computerized drafting software.

As discussed above, a single backup warning alarm emitting 90 dBA at 50 feet could be as loud as 60.1 dBA L_{max} at Home "C" located 1.340 feet away from alarm use. Noise levels there of 60.1 dBA L_{max} could be 11 dBA greater than County's maximum pure tone limit of 49 dBA L_{max} for noise of 1,000 Hz frequency for residences.

If two backup alarms are used and emit noise at the same time, such as from the simultaneous operation of the Project's front-end loader and the tractor, those backup alarms' combined noise levels would be even louder by approximately 3 dBA. The County's noise standard in § 41.11(d) for equipment that emits such pure tone noise is based on maximum, not average, noise levels. Therefore, these noise level estimations can be based on the maximum noise levels that typical backup alarms can generate when two alarms are in use at the same time.

Because Homes "D", "E", "F", and "G" are even closer to the Project's chip yard with their distances listed in <u>Figure 1</u> above, these homes would be exposed to backup alarm noise levels that are even greater than 60.1 dBA L_{max} (or 63.1 dBA L_{max} when two alarms are used.)

CONCLUSION ABOUT BACKUP ALARM NOISE IMPACTS

As shown above, there are numerous homes, a pre-school, and a commercial office where this Project's backup alarms could generate noise levels that exceed the County's Noise Ordinance's maximum permissible standards. Such calculated exceedances present a fair argument of significant noise impacts at those homes and other sensitive receptors. Such a potential violation of the Noise Ordinance must be evaluated in a subsequent environmental study in order to be consistent with CEQA.

-

⁴⁷ Calculation: $dB_2 = dB_1 - 10 \text{ x A x LOG}(R_2/R_1) = 112 - 10 \text{ x 2.0 x LOG} (1,300' / 4') = 61.7 dBA L_{max}$. However at a distance of 1,300 feet, atmospheric attenuation could reduce that noise level by approximately 1.3 dBA, resulting in a noise level at that home of about **60.4 dBA L_{max**</sub>.

⁴⁸ Doubling the amount of noise with two alarms results in a 3 dBA increase in their combined noise levels.

NEARBY PARK WOULD BE EXPOSED TO PROJECT OPERATION NOISE LEVELS THAT EXCEED COUNTY NOISE STANDARDS.

People using the Upper Lake Park located about 1,290 feet to the west of the Project's operational noise sources are entitled to protection from excessive noise.⁴⁹ Excessive noise from this industrial wood chipping project that breaches a neighborhood park's maximum acceptable noise standards can subject park-goers to a range of health risks, psychological impacts, and significant annoyance, undermining the intended use and tranquility of the public space.

Parks are designated as noise-sensitive areas in the County's General Plan, recognizing their role in providing places for recreation, relaxation, and social interaction. When noise levels exceed the established limits in these settings, the impacts can extend far beyond simple inconvenience. Even moderate increases in noise above ambient levels in a park can lead to significant annoyance. This is particularly true for intrusive and unfamiliar sounds like those generated by industrial machinery. Annoyance can disrupt leisure activities, make conversation difficult, and detract from the enjoyment of nature and the park environment. The World Health Organization (WHO) identifies noise annoyance as a health effect in itself, linked to feelings of dissatisfaction, disturbance, and irritation. Parks are often sought out for their restorative qualities, offering an escape from the stresses of daily life. High noise levels can counteract these benefits, leading to increased feelings of stress, anxiety, and frustration among visitors. If the Park is too noisy, fewer people will visit it, and may not benefit from a park's value in their lives.

The County's General Plan noise standards normally allow noise levels in neighborhood parks and playgrounds at noise levels not exceeding 60 dBA CNEL. For louder noise levels in such recreational areas between 60 to 65 dBA CNEL, such noise levels are only conditionally allowed "after a detailed analysis of the noise reduction requirements is made and needed insulation features have been included in the design." If the noise level at the Park exceeds 65 dBA CNEL, that noise level is considered to be "Normally Unacceptable" and the General Plan states: "New construction or development should generally be discouraged." But this Project's IS/MND contains no such detailed analysis. It appears that this Project's noise exposure could exceed that 65 dBA CNEL normally unacceptable noise level. That would constitute a significant noise impact. Otherwise, in order not to exceed the General Plan's noise standards, this Project's operations must not raise the noise level in the Park to greater than 60 dBA CNEL.

During Project operations, as demonstrated in calculations in a footnote below, its activities could generate noise levels of about **66.2 dBA CNEL** at the Park when Project operation noise is added to the existing noise in the Park at 1,290 feet from this Project's operation area. This Project could simultaneously operate a <u>wood chipper</u>, a tub grinder, a front-end loader, and a chainsaw. The combined noise levels from this equipment can be calculated to a noise level of **67.9 dBA** L_{eq-1 hr}. at

⁴⁹ See <u>Figure C</u> for that distance of 1,290 feet from the Project's central processing area with the chipper to the Park.
⁵⁰ See: County of Lake General Plan Noise Element, p. 8-3, Table 8-1, "Maximum Allowable Noise Exposure by Land Use", for *Playgrounds*, *Neighborhood Parks*, with 60 dBA CNEL being the upper limit for "Normally Acceptable" noise," and 65 dBA CNEL being the upper limit for "Conditionally Acceptable" noise if a detailed analysis and needed insulation features are included.

1,290 feet.⁵¹ That noise level calculation has been already reduced by 1.3 dB due to atmospheric attenuation over that distance as explained elsewhere in the report.

Then, since the Project was approved operating for at least 11 hours per day, (7:30 a.m. to 7:00 p.m.), one can calculate the community equivalent noise level (CNEL) used by the General Plan for compliance. That noise level calculates to **66.2 dBA CNEL** when assuming a Project noise level during operations of 67.9 dBA L_{eq-1 hr}. at the Park for each of 11 hours, and an average ambient noise level of 55 dBA L_{eq} in the Park for each of the other 13 hours of the 24-hour day. That resulting 24-hour CNEL noise level of **66.2 dBA CNEL** when Project operation noise is added would exceed the General Plan's noise standard of 65 dBA CNEL, meaning the General Plan identifies the Project to be "normally unacceptable" and should be "discouraged" without the IS/MND containing the

The usage factor is an estimate of the fraction of time each piece of equipment operates at full power. The usage factor is used to estimate L_{eq} from the L_{max} values in this case where the Lake County impact criteria are expressed in terms of L_{eq} . This equation below is used to estimate L_{eq} from L_{max} . It also includes a term for estimating noise at distances other than 50 feet, such as at 1,290 feet to the Park in this calculation:

 L_{eq} dBA = L_{max} at 50 feet – 20log(D / 50) + 10log(UF) where D = distance of interest, and UF = usage factor or fraction of time period of interest equipment is in use. To calculate their noise levels at the park 1,290 feet away: First, with L_{max} value at 50 feet, calculate the L_{eq} noise level for each equipment with its UF at 1,290 feet:

Now add these four noise levels logarithmically with this formula (where L_1 is the chipper noise level, etc): $L_{total} = 10 \text{ x } Log_{10} \left(10^{L_1/10} + 10^{L_2/10} + 10^{L_3/10} + 10^{L_4/10} \right) =$

= $10 \times \text{Log}_{10} (10^{6.08} + 10^{6.78} + 10^{5.78} + 10^{5.68}) = 69.2 \text{ dBA L}_{\text{eq-1 hr.}}$ at 1,290 feet for these four noise sources. Source for summation calculation: California Department of Transportation, *Technical Noise Supplement*, 2009.

Next, reduce this combined noise level due to atmospheric attenuation by 1.3 dB, resulting in **67.9 dBA** L_{eq-1 hr}. The Zoning Ordinance does not specify a project's noise limit at a neighborhood park or playground, but the General Plan does regarding unacceptable noise levels. The General Plan, p. 8-1, defines: "Community Noise Equivalent Level (CNEL). Used to characterize average sound levels over a 24-hour period, with weighting factors included for evening and nighttime sound levels." To account for greater noise sensitivity in the evening from 7 p.m. to 10 p.m., noise levels in this weighted averaging calculation are increased by 5 dB. And during the nighttime from 10 p.m. to 7 a.m., noise levels are increased by 10 dB. The General Plan, Table 8-1, Maximum Allowable Noise Exposure by Land Use, defines noise exposure at neighborhood parks and playgrounds greater than 65 dBA CNEL to be "normally unacceptable." This Project's noise levels at the Park (of 66.2 dBA CNEL) could exceed 65 dBA CNEL and be "normally unacceptable" by the General Plan's noise standard.

Calculation of CNEL where Project operations expose the Park to 67.9 dBA L_{eq} for 11 hours per day and the average noise levels at the Park during the other 13 hours of a day are 55 dBA L_{eq} : CNEL = 66.2 dBA; See https://www.noisemeters.com/apps/ldn-calculator/ for online calculator of "Lden" (which is CNEL) day-night weighted noise level. Or use this formula from the CalTrans Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, page 2-53, Formula 2-24 found online at: https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf CNEL =10log₁₀[(1/24)x{(10^{(55+10)/10}x 9 hrs)+(10^{(67-9)/10}x 11 hrs)+(10^{(55)/10}x 1 hrs)+(10^{(55+5)/10}x 3 hrs)}] = 66.2 CNEL

[?] See: General Plan Noise Element p. 8-3, Table 8-1.

 $^{^{51}}$ Calculation: The estimation of a combined noise level of 67.9 dBA $L_{eq-1 hr}$ at the Park is calculated by adding the separate noise levels of a wood chipper (89 dBA L_{max} with 100% use), a tub grinder (96 dBA L_{max} with 100% use), and a front-end loader (90 dBA L_{max} with 40% use) and a chainsaw (88 dBA L_{max} with 50% use) that could be operated simultaneously to during Project activities. Those are decibel levels at a distance of 50 feet, and each is adjusted by its relative acoustical utilization factor ("UF").

mandatory detailed noise analysis and noise insulation features. Actually, the Project's noise impact would be even greater yet than this calculation shows if the noise levels from the Project's haul trucks, backup alarms, a wood shredder, a tractor, and a crumbler/grappler are also considered. This General Plan standard exceedance represents a significant noise impact to some users of this Park who rely upon the Park for relaxation and enjoyment free from unpleasant industrial noise.

NEARBY OFFICE BUILDING WOULD BE EXPOSED TO EXCESSIVE NOISE LEVELS DURING PROJECT OPERATIONS.

The IS/MND does not describe that an office building with tribal offices exists at 635 E. Hwy 20 about 700 feet west of the Project's center of operations that would have a noisy wood chipper and other equipment use. At that distance, that office building would be exposed to Project noise levels that can substantially exceed the County's maximum allowable standards. The Zoning Ordinance allows a maximum daytime noise level of 60 dBA $L_{eq-1 hr}$ at that office building when the receiving property is commercial. Presuming the Project uses the same equipment simultaneously as discussed with calculations on the previous pages (a wood chipper, a tub grinder, a front-end loader, and a chainsaw), the noise level generated by Project operations at a distance of about 700 feet to this office building could be as high as about 73.2 dBA $L_{eq-1 hr}$.

That noise level would exceed the County's maximum standard of $60 \text{ dBA L}_{\text{eq-1 hr}}$ by over 13 dBA. Office workers depend upon protection of excessive noise in order to communicate and conduct their business. This much of an exceedance is evidence of a significant noise impact at that location.

If just a loud wood chipper by itself is operating at that 700-foot distance, its noise level when measured at the office building could be about $65.4~dBA~L_{eq-1~hr.}^{54}$ That noise level would exceed the County's maximum allowed noise standard of $60~dBA~L_{eq-1~hr.}$ and would also create a significant noise impact there.

Office workers exposed to such excessive noise can experience a wide range of problems impacting their health, well-being, and productivity. The constant or intermittent loud noise, characteristic of industrial machinery and processes like wood chipping, creates a disruptive environment far exceeding typical office background noise. Excessive noise is a recognized stressor that can trigger physiological responses, including increased heart rate and blood pressure. Long-term exposure has been linked to a higher risk of hypertension and other cardiovascular problems. The unpredictable and intrusive nature of loud industrial noise can significantly elevate stress levels, leading to symptoms such as headaches, fatigue, irritability, difficulty relaxing, and increased anxiety.

⁵² See: Noise Ord., § 41.11, Table 11.1 (Maximum one-hour equivalent sound pressure levels, daytime, commercial) ⁵³ Calculation: Using the results of calculations for noise exposure at the nearby Park during operation of multiple equipment types, where at a distance of 1,290 feet the combined noise level would be as much as 67.9 dBA L_{eq-1 hr.}, then at a distance of 700 feet, this is the calculated noise level:

 $dB_2 = dB_1 - 10 \text{ x A x LOG}(R_2/R_1) = 67.9 - 10 \text{ x } 2.0 \text{ x LOG}(1,290' / 4') = 73.2 \text{ dBA L}_{eq-1 \text{ hr}}$. Wood chippers have been rated at 89 dBA L_{max} at 50 feet by Napa County. To estimate that noise level at 700 feet: Calculation: 89 dBA $L_{max} - 20 \text{ x log}(700'/50') + 10 \text{ x log}(100\%) = 89 - 28.2 + 0 = 66.1 \text{ dBA L}_{eq-1 \text{ hr}}$. Reducing that value by 0.7 dB for atmospheric attenuation in 700 feet, the resulting noise level at the office would be **65.4 dBA L**_{eq-1 hr}.

Loud and distracting noises make it significantly harder for office workers to concentrate on tasks requiring focus, analytical thinking, or creative problem-solving. This can lead to more errors and a decrease in the quality of work. Studies have shown that chronic noise exposure can negatively impact cognitive functions such as memory, attention span, and the ability to learn new information. The combination of reduced concentration, increased errors, and mental fatigue directly translates to lower overall productivity. Tasks may take longer to complete, and the volume of work may decrease. Loud background noise makes verbal communication challenging, leading to misunderstandings, the need to repeat information, and increased frustration during conversations and meetings. It can also make it difficult to hear important phone calls or virtual meeting participants. Persistent unwanted noise is a significant source of annoyance and frustration, negatively impacting mood and job satisfaction. Elevated stress levels and frustration due to noise can lead to increased irritability and a greater potential for conflict among colleagues. A noisy and disruptive work environment can significantly lower overall job satisfaction and contribute to a negative perception of the workplace. If the noise is an external factor that the office occupants have little control over, it can lead to feelings of helplessness and exacerbate stress. The specific intensity, frequency, and duration of the noise from the wood chipping and industrial equipment will influence the severity of these problems. However, even noise levels that would not cause immediate hearing damage can still have significant detrimental effects on the office workers' health, well-being, and ability to perform their jobs effectively.

CASINO WOULD BE EXPOSED TO OPERATION NOISE LEVELS THAT EXCEED COUNTY NOISE STANDARDS.

The Running Creek Casino is located about 1,010 feet to the northwest from where the Project's operations would use heavy equipment. (See <u>Figure A.</u>) Its distance to the center of the wood processing area that generates the most noise is approximately 1,240 feet. (See <u>Figure C.</u>) At that distance, this Casino would be exposed to noise levels that exceed the County's noise standards. The County allows noise levels in the daytime at commercial land uses like a casino up to 60 dBA $L_{eq-1 \text{ hr.}}^{55}$

The IS/MND fails to adequately analyze the Project's noise impact on this casino. At the casino building with its distance of about 1,240 feet from the Project's center of operations, that operational noise level could be as high as about $68.2~dBA~L_{eq-1~hr}$. This calculation is based upon the simultaneous use of a wood chipper, tub grinder, front-end loader, and a chainsaw during the biomass processing operations. This calculation does not include the additional noise from the Project's use of backup alarms or haul trucks at even closer distances to the casino. That noise level exceedance of more than 8 dBA above the County's maximum noise standards constitutes a significant noise impact.

 55 See Zoning Ordinance, p. 41-6, Table 11.1: <u>Maximum one-hour equivalent sound pressure levels</u> (A-Weighted - dBA), for the commercial category: **60 dBA** $L_{eq-1 hr}$. If this noise standard is followed strictly, since the Casino parcel is zoned "agricultural," the County would apply the maximum 55 dBA $L_{eq-1 hr}$, standard for listed for residential land uses because the Table 11.1 footnote states the residential category applies to "all agricultural and resource districts."

⁵⁶ This calculation uses the previous calculated noise level at the Park, and adjusts it for the slightly shorter distance.

NEARBY AG BUILDING WOULD ALSO BE EXPOSED TO EXCESSIVE NOISE LEVELS **DURING PROJECT OPERATION.**

The IS/MND does not adequately describe that an Ag Building exists about 243 feet west of the Project's center of operations. At that distance, that agricultural building would be exposed to severe Project noise levels that greatly exceed the County's standards. The County's maximum allowed daytime noise level in agricultural (as well as residential) zones is 55 dBA L_{eq-1 hr}. 57 At that 243foot distance, this Project's operational noise from the same equipment discussed above would be as high as about 82.4 dBA L_{eq-1 hr.}. (See <u>Table 2</u> and <u>Figure 3</u>.) That is strong evidence that this Project will create a serious noise impact at that location.

The IS/MND, PDF p. 88, on its Sound Level Analysis map, incorrectly states that this Ag Building is expected (to have) continuous sound levels under 65 dBA. But 65 dBA is not the applicable noise standard for this receiving land use. That prediction made by the applicant's representative is also flawed because it presumes only one equipment type will be operating at a time. When multiple equipment operations simultaneously occur within the Project site, their combined noise levels at the Ag Building will be much louder than this Sound Level Analysis page in the IS/MND predicts.

RESIDENCES WITHIN 2,000 FEET COULD ALSO BE EXPOSED TO EXCESSIVE NOISE LEVELS DURING PROJECT OPERATION.

The people most likely to be harmed by this Project's loud noise levels are residents in the neighborhood. Besides not having noise disturbances heard within their homes, they are entitled to enjoy their outdoor patios and back yard recreational features without suffering from excessive noise originating from this Project.

As shown on Figure A and Figure C, over a dozen homes are located less than 2,000 feet from where this Project's onsite operations would occur. Just the processing operation's noise originating from the southern end of the Project site generated by the wood chipper, grinder, front-end loader, and other equipment, when measured at those homes and beyond up to 2,000 feet, the Project's noise levels could be about **64.1 dBA** $L_{eq-1 hr}$. This noise level would exceed the County's maximum allowed daytime noise level at residences of $\underline{55 \text{ dBA}}$ L_{eq-1 hr}.

At closer distances, the Project's noise levels at these homes would be louder yet. Some on-site processing operations that take place at the north end of the 5-acre site would be closer to homes located north of E. Highway 20 and could generate substantial noise levels at those homes.

⁵⁸ Assuming combined noise levels from operation of multiple equipment as described above, where the noise level at 1,290 feet could be 67.9 dBA $L_{eq 1 hr}$, this is the formula when the noise level at 1,290 feet would be 67.9 dBA $L_{eq-1 hr}$: <u>Calculation</u>: $dB_2 = dB_1 - 10 \text{ x A x LOG}(R_2/R_1) = 67.9 - 10 \text{ x 2.0 x LOG}(2,000' / 1,290') = 64.1 dBA L_{eq-1 hr}.$

Zoning Ordinance, p. 41-6, Table 11.1: Maximum one-hour equivalent sound pressure levels (A-Weighted - dBA), which notes that: "The Residential category also includes all agricultural and resource zoning districts."

COUNTY NOISE STANDARDS DO NOT ADEQUATELY PROTECT NEARBY HOMES FROM LOW-FREQUENCY HEAVY EQUIPMENT NOISE.

The IS/MND fails to evaluate how intrusive the nature of this Project's low-frequency industrial noise would be if located so close to the neighboring residences. The County's noise standards do not limit the amount of very intrusive, low-frequency noise typically emitted from diesel-powered heavy equipment operations, trucks, front-end loaders, and wood chippers. The County's noise standards are based upon an "A-scale" frequency range that does not proportionately account for low frequency noise less than 500 Hertz where much heavy equipment noise energy is concentrated. Noise from wood chippers generate the highest noise levels in the 20–50 Hz frequency range which is a very low frequency. Low frequency noise from the Project's operations is not attenuated well by light-weight residential structures, and thus is more troublesome for this Project's neighbors. Low frequency noise like that is even more intrusive than the above calculations predict, since low-frequency noise penetrates homes with less dampening compared to noise with a wider range of frequencies. Low frequency noise can be very annoying if it penetrates residential walls and causes objects on shelves within neighboring homes to vibrate and rattle.

This kind of an incompatible neighboring land use is generally solved by not allowing heavy industrial operations to be so near to residences.

When low-frequency noise is of concern, C-weightings are used because they attenuate low frequencies much less than the other weightings. Other California EIRs discuss noise impacts using the C-weighted scale. For example, the Blue Rock Draft EIR for Sonoma County states:

"In special situations, the C-weighted sound level or dB(C) scale is sometimes used. This scale gives more weight to lower frequency noise. When it is used, the intent is to differentiate between noises that have varying amounts of low frequency noise that would produce only little differences in A-weighted sound level."

It is true that people are more sensitive to noises in the "A"-weighted frequency range of 1000 Hz to 4000 Hz, but that doesn't mean that lower frequency sounds should be discarded from consideration. Industrial uses with large equipment and heavy trucking often produce much of their noise at frequencies less than 500 Hz. The "C"-weighted scale takes into account those frequencies down to 50 Hz where much industrial noise is generated. Noise level meter readings on the "C"-weighted scale can often be 8 dB louder than those on the "A"-weighted scale. The "A"-weighted noise scale emphasizes noise in the 500-20,000 Hz frequency range, while the "C"-weighted noise scale more broadly covers the lower frequency 50-20,000 Hz range where this Project's industrial noise from heavy truck deliveries and unloading of wood chips, chipper machinery and other equipment will be generated. The booming sound of heavy equipment can greatly impact nearby residences. Nearby homes neighborhood are predominantly constructed with lightweight wooden walls and thin windows that are not good at blocking low frequency sounds.

The IS/MND is inadequate for its utter failure to consider such low-frequency noise impacts.

COUNTY FAILED TO INCLUDE ANY NOISE MITIGATIONS BUT REASONABLE MITIGATIONS ARE FEASIBLE.

The IS/MND determined, but without valid analysis or evidence, that this Ag Forest Project would not create significant noise impacts. Accordingly, the IS/MND and the Planning Commission's approval included no noise mitigations. However, a previous 2020 IS/MND for the Red Hills BioEnergy project at 7130 Red Hills Rd, Kelseyville by the same project applicants did require some noise mitigations, suggesting that the County should impose noise mitigations on the current Project as well because it too would otherwise severely impact some neighbors.

Such extremely loud construction noise is not reasonable. It is somewhat avoidable because there are commonly available and routinely used methods to quiet such construction noise. For example, as noise mitigations, temporary sound curtains can be erected to protect neighbors. Or affected homes could be retrofitted with better windows that block outdoor noise. Somewhat like before, the County could require back-up alarms to be adjusted to the lowest allowable levels or to a specified limit, or require backup alarms that emit bright light to alert workers for their safety instead of noise. A noise mitigation could be adopted to require contractors to implement certain specified noise-reducing measures during construction work.

This Noise Impacts Report makes numerous fair arguments supported by substantial evidence to demonstrate that this Project would create significant noise impacts at many nearby sensitive receptors. CEQA requires the County to impose noise mitigations under these circumstances. As recently as May 1st, the appellate court in <u>Los Angeles Parks Alliance v. Los Angeles County Metro.</u> <u>Transportation Authority</u> (May 1, 2025) decided that all feasible mitigation measures must be identified for such significant impacts:

Accordingly, an EIR must identify and describe all feasible mitigation measures for each significant impact. (Guidelines, § 15126.4, subd. (a); § 21002; Clover Valley, supra, 197 Cal.App.4th at p. 244.) In this context, "`[f]easible' means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." (§ 21061.1.) Our Supreme Court has described the mitigation section as the "core" of an EIR. (*Goleta Valley, supra, 52 Cal.3d at p. 564; Los Angeles Unified School Dist. v. City of Los Angeles* (1997) 58 Cal.App.4th 1019, 1028-1029 (LAUSD).)

"The agency may not approve a project with significant environmental impacts `if there are . . . feasible mitigation measures available which would substantially lessen' the project's significant environmental impacts." (*Cherry Valley Pass Acres & Neighbors v. City of Beaumont* (2010) 190 Cal.App.4th 316, 348)

That court decision noted that insulating buildings can greatly reduce construction noise, especially when windows are sealed and cracks and other openings are filled.

Other noise mitigations could be considered and possibly be adopted.

Construction-Related:

- Require construction activities to be placed as far as possible from the nearest off-site land uses. Some construction equipment could otherwise be unnecessarily intrusive
- Require construction activities to be scheduled to avoid operating several loud pieces of equipment simultaneously; alternatively to reduce the overall length of the construction period, combine noisy operations to occur in the same time period if it will not be significantly greater than if operations were performed separately.
- Require the replacement of noisy equipment with quieter equipment, such as using rubbertired equipment rather than track equipment, or using quieted and enclosed air compressors with properly working mufflers on all engines.
- Require construction contractor to avoid using vibratory rollers and packers near sensitive areas.
- Require construction staging areas to be as far from sensitive receptors as reasonably possible.
- Require all construction truck traffic to be restricted in hours so that deliveries are not received at times where the noise could be sleep-disturbing.
- Require the construction of noise barriers, such as temporary walls or piles of excavated material, between noisy activities and noise-sensitive receivers, including on all sides of the Project site.
- Require flexible sound control curtains to be placed around all noisy equipment when in use and more extensive noise control barriers protecting adjacent residential structures.
- Require power construction equipment operated at the project site to be equipped with effective state-of-the-art noise control devices (e.g., equipment mufflers, enclosures, and barriers) with contractors maintaining all sound-reducing devices and restrictions throughout the construction period and keeping documentation showing compliance.
- Require contractors to use either plug-in electric or solar powered on-site generators to the extent feasible.
- Require grading and construction contractors to use equipment that generates lower vibration levels such as rubber-tired equipment rather than metal-tracked equipment, such as a combination loader/excavator for light-duty construction operations.
- Two weeks before the commencement of construction at the Project Site, require notification to be provided to the immediate surrounding off-site properties that disclose the construction schedule, including the various types of activities and equipment that would be occurring throughout the construction period. A noise disturbance coordinator and hotline telephone number shall be provided to enable the public to call and address construction-related issues.
- Require all mitigation measures restricting construction activity to be posted at the Project Site and all construction personnel shall be instructed as to the nature of the noise and vibration mitigation measures.
- Require a noise monitoring/control plan that includes absolute noise limits for classes of equipment, noise limits at lot lines of specific noise sensitive properties, specific noise control treatments to be utilized (such as the above-mentioned measures), and a designated compliance officer to respond to promptly respond to complaints and take immediate correction action if limits/restrictions are not complied with.

Operation-Related:

- Prohibition of amplified sounds in outdoor spaces and/or meet specified dBA levels.
- Before the issuance of a Certificate of Occupancy, require the sound levels to be measured
 consistent with documentation of the measurements being submitted to the County's building
 officials for the file to demonstrate specified noise levels are not exceeded at the property
 lines.
- Use insulation or construct solid barriers between noise sources and noise receivers.
- Separate noise sources from noise receivers by distances sufficient to attenuate the noise to acceptable levels.
- Limit the hours of use for the equipment.
- Installation of double-pane exterior windows meeting specified Sound Transmission Coefficient rating for the Project for the adjacent residential uses.
- Redesign the source of equipment noise to radiate less noise (e.g., substitute a quieter equipment type process or enclose the source with sound absorbent material).
- All outdoor-mounted mechanical equipment be enclosed and impermeably-shielded with it breaking the line-of-sight from off-site noise-sensitive receptors.

PROJECT'S UNLAWFUL SEGMENTATION OF OPERATIONS RESULTS IN INADEQUATE NOISE LEVEL ANALYSIS AND MITIGATION.

This Ag Forest Project is being proposed more broadly as operating on more than one property along with additional chipping operations to be located elsewhere at a considerable distance. The IS/MND, on page 6, states: "Forest materials are pre-processed into large wood chips offsite, mostly at the Donahoo facility at 8605 Bottle Rock Road, Kelseyville CA 95451, 21.2 miles away." Because the trucking involved in transporting those forest materials or chips is necessarily linked to the Project, then the noise impacts that may be caused by such trucking must also be considered in the IS/MND. The IS/MND's noise analysis section, p. 51, even acknowledges that: "Because the wood would be processed at the Donahoo site before being delivered to the site, there would not be a lot of noise that is normally associated with woody forest biomass projects that also process the wood on the site." Yet the IS/MND never examines the noise impact of such related off-site trucking work. The IS/MND is alleging that this Project will be quieter because a lot of its noise would occur at a distant location. Yet that Donahoo location may not be available according to neighbors who have examined the matter.

Alternatively, if that distant wood processing is not permitted, then work on the Ag Forest site might be increased beyond what the IS/MND currently describes. That appears to have also occurred with some wood processing activities and equipment having been omitted at the Red Hills site owned by the Project applicant due to a 2023 out-of-court settlement and transferred to the Highway 20 Project site. This confusing and indefinite Project Description prevents the public from being able to adequately assess how much noise this Project would generate in its neighborhood. This problem may also violate CEQA.

A public agency may not segment a large project into two or more smaller projects in order to mask serious environmental consequences. CEQA prohibits such a "piecemeal" approach and requires

review of a Project's impacts as a whole. "Project" is defined as "the whole of an action," which has the potential to result in a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment. CEQA mandates "that environmental considerations do not become submerged by chopping a large project into many little ones — each with a minimal potential impact on the environment — which cumulatively may have disastrous consequences." Before undertaking a project, the lead agency must assess the environmental impacts of all reasonably foreseeable phases of a project.

CONCLUSION

As discussed above, the Project's Initial Study/Mitigated Negative Declaration fails to provide sufficient and basic information required for the County to adequately assess the severe noise impacts of this Project. As a result, this Noise Impacts Report provides fair arguments backed by substantial evidence that the Project's likely construction and operational noise impacts may exceed County noise standards and that the Project may accordingly have significant noise impacts. As a result, this IS/MND is inadequate and inappropriate for the Project's CEQA review. The Project's possible loud noise levels at nearby homes and other sensitive receptors should compel the County to require proper CEQA review of these significant noise impacts and likely exceedances of County noise standards. Moreover, feasible mitigation measures are available and need to be considered pursuant to a CEQA-compliant EIR.

Sincerely,

Dale La Forest

Dale la Facest

Professional Planner, Designer, INCE Associate (Institute of Noise Control Engineering)

Dale La Forest & Associates

Attachment 1 - Statement of Qualifications

Dale La Forest & Associates

Design, Planning & Environmental Consulting 101 E. Alma Street, Suite 100-A; Mt. Shasta, CA 96067 Phone: (530) 918-8625 E-Mail: dlaforest@gmail.com

ATTACHMENT 1: Statement of Qualifications

INTRODUCTION

Dale La Forest & Associates provides commercial and residential design services, acoustical consulting, environmental review, project planning permitting for government approvals and multi-disciplinary environmental studies for government and private industry and citizens groups.

HIGHLIGHTS

In 50 years, I have designed hundreds of homes in California. During the last 20 years, I have also prepared expert acoustical studies for various development projects and reviewed and commented upon dozens of noise studies prepared by others. My expertise in environmental noise analysis comes from this formal educational training in architecture and planning, and from many years of evaluation of acoustics as relates to environmental analysis and challenging flawed project applications prepared by less-than-professional, industry-biased acousticians. I regularly measure and calculate noise propagation and the effects of noise barriers and building acoustics as they apply to homes near projects and their vehicular travel routes. I have also prepared initial environmental studies for noise-sensitive development projects including hotel and campground projects along major highways. I have reviewed dozens of quarry project and batch plant project environmental documents. I have designed highway noise walls, recommended noise mitigations, and have designed residential and commercial structures to limit their occupants' exposure to excessive exterior noise levels throughout California.

EXPERIENCE

1975 – 2025 **DESIGNER & PLANNER** — Dale La Forest & Associates; Mt. Shasta, CA. Design of commercial, residential, subdivision planning projects and environmental and acoustical consulting for commercial and industrial firms and for the public.

Dale La Forest, Designer, INCE Associate (Institute of Noise Control Engineering)

EDUCATION

1966 – 1973 **University of Michigan**, College of Architecture and Planning - Bachelor of Architecture, 1973; and Masters studies in architecture and planning.

| ACOUSTIC | AL ANALYSIS/COMMENTS |
|----------|--|
| 7/15/24 | Norwalk Specific Plan Area Code Amendment, C.E., City of Norwalk, CA |
| 2/28/24 | Pacific Resort Plaza Development Project, revised, MND, Anaheim, CA |
| 2/20/24 | Golden Eagle Charter School, MND, County of Siskiyou, CA |
| 4/13/23 | Hilton Home2 Hotel Project, C.E., Hawthorne, CA |
| 3/18/23 | Mountain Townhomes Project, MND, Mt. Shasta, CA |
| 2/5/23 | Cherry Avenue Warehouse Project, C.E., Long Beach, CA |
| 8/8/22 | Kidder Creek Orchard Camp, EIR, Siskiyou County, CA |
| 5/15/22 | Summit Lofts Project, C.E., Mt. Shasta, CA |
| 8/9/21 | Pacific Edge Hotel Remodel Project, MND, Anaheim, CA |
| 7/21/21 | Jeff Hotel Project, MND, Culver City, CA |
| 3/17/21 | Pacific Edge Hotel Remodel Project, MND, City of Laguna Beach, CA |
| 1/25/21 | Hyatt House Hotel Project, C.E., Los Angeles, CA |
| 11/26/20 | Santa Maria Raceway Project, CEQA C.E., Nipomo, CA |
| 9/14/20 | Golden Eagle Charter School, MND, City of Mt. Shasta |
| 8/31/20 | Cargill Solar Sea Salt Activities Project, EA, San Francisco, CA |
| 8/15/20 | Redhills BioEnergy Project, MND, Lake County, CA |
| 8/28/19 | CitizenM Hotel Project, DEIR, Los Angeles, CA |
| 4/15/19 | Mart South Hotel Conversion Project, C.E., Los Angeles, CA |
| 2/27/19 | Citizens News Project, MND, Los Angeles, CA |
| 2/11/19 | 2005 James Wood Hotel Project, MND, Los Angeles, CA |
| 2/4/19 | Breakers Hotel Project, C.E., Long Beach, CA |
| 1/23/19 | Residence at 1888 N. Lucile Ave., MND, Los Angeles, CA |
| 12/5/18 | 100 E. Sunset Bridge Housing, C.E., Los Angeles, CA |
| 12/18/18 | Altes Special Events Project, MND, Mt. Shasta, CA |
| 11/6/18 | Dewey Hotel Project, C.E., Los Angeles, CA |
| 8/16/18 | Love's Travel Stop Project, EIR, Weed, CA |
| 2/12/18 | Residence at 17642 Tramonto Dr., Los Angeles, CA |
| 11/16/17 | Crystal Geyser Water Company, EIR, Mt Shasta, CA |
| 8/18/17 | Freeze Car Wash Project, MND, Mt. Shasta, CA |
| 3/13/17 | Roseburg Water Line Project, MND, Mt. Shasta, CA |
| 1/19/17 | Residence at 2056 Mandeville Canyon Rd., Los Angeles, CA |
| 8/31/16 | Austin Quarry Project EIR, Madera County, CA |
| 10/20/15 | Syar Napa Quarry Expansion Project, EIR, Napa |
| 9/30/13 | Shasta Dam Raising Draft EIS, Shasta County, CA |
| 9/30/13 | Livermore Walmart Project, Livermore, CA |
| 8/27/13 | Talmage Interchange Reconstruction Project MND, Ukiah, CA |
| 6/10/13 | Townhouse Project, MND, Mt. Shasta, CA |
| 3/15/13 | Costco Wholesale Store, DEIR, Ukiah, CA |
| 3/14/13 | Jaxon Enterprises Asphalt Plant, IS/MND, Shasta County, CA |
| 3/14/13 | Amdun LLC Asphalt Plant, IS/MND, Shasta County, CA |
| 1/30/13 | Grist Creek Aggregates Project IS/MND, Mendocino County, CA |

| 9/24/12 | Austin Quarry Draft EIR, Madera County, CA |
|----------|--|
| 8/26/12 | Tesoro Viejo Specific Plan Revised EIR, Madera County, CA |
| 10/10/11 | Eagle Peak Asphalt Batch Plant MND, Callahan, CA |
| 6/12/11 | Walmart Expansion Project EIR, Poway, CA |
| 2/20/11 | McCloud Springs Ranch Subdivision MND, Siskiyou County, CA |
| 1/4/11 | Comingdeer Asphalt Batch Plant MND, Redding, CA |
| 10/1/10 | Biogreen Cogeneration Power Plant, La Pine, OR |
| 7/13/10 | Chapin Concrete Batch Plant MND, Volta, CA |
| 1/25/10 | Walmart Supercenter Draft EIR, Galt, CA |
| 1/11/10 | Doctor's Park MND, Mt. Shasta, CA |
| 9/22/09 | Livingston Concrete EIR, Placer County, CA |
| 6/10/09 | Poonkinney Quarry MND, Mendocino County, CA |
| 5/11/09 | Orchard Subdivision MND, City of Mt. Shasta, CA |
| 1/2/09 | McCloud Springs Ranch Subdivision MND, Siskiyou County, CA |
| 10/8/02 | Shasta Mountain Lodge Hotel 2 (Springhill Dr.), Mt. Shasta, CA |
| 10/10/95 | Shasta Mountain Lodge Hotel 1 (Mt. Shasta Blvd.), Mt. Shasta, CA |
| | |



U.S. DEPARTMENT OF COMMERCE

Economic Development Administration Jackson Federal Building, Room 1890 915 Second Avenue Seattle, Washington 98174 Fax: (206) 220-7669

Date: August 10, 2022

To: SRO Project File – Scotts Valley Band of Pomo Indians, Upper Lake, Lake County, California, #07-79-

07842

From: Rowena DeFato/REO

Subject: Scotts Valley Forest Biomass Management and Economic / Jobs Development Project; DOC Categorical

Exclusion A-2, Record of Environmental Consideration

Project Description

The project site is located 1,000 feet southwest of the intersection of SR 20 with Old Lucerne Road., immediately southeast of the community of Upper Lake in central Lake County, California (Attachment A). The project site is flat, ranging from 1,334 feet above mean sea level (msl) in the northwestern corner to 1,330 feet msl along the southern side of the overall 5-acre site. The site was historically developed for agriculture, with a vineyard the most recent use.

The proposed project would install an approximately 600 linear-foot chain link fence to form an approximately 200-foot x 100-foot biomass processing area enclosure with access gates. Ground disturbance for fence installation would be limited to the digging of approximately sixty 4-inch holes, set approximately 10 feet apart. Within the fenced area, a temporary, 5,000 square-foot (sf) structure composed of four shipping containers and a hoop tent would be constructed with the containers serving as both walls for the hoop tent shelter and as on-site storage. No foundation would be used for placement of this proposed structure. The project would take approximately three months to complete.

Construction activities would involve clearing and grubbing activities including the removal of existing blackberry bushes from the site, fence installation limited to holes needed for fence posts, and placement of the proposed shipping containers and hoop tent onto the site. Total construction related land disturbance would be approximately 0.46 acre or less. Rock will be used for leveling in place of most grading. No further construction is proposed.

The proposed project also includes the procurement of equipment (Table 1). This equipment would be stored and operated within the biomass processing area and/or the hoop tent storage area. Mobile equipment would have wheels, further limiting ground disturbance.

When fully operational, the project would transform wood derived from forest thinning from multiple locations across Lake County into various saleable wood products including firewood, landscaping products, biochar, and intermediate products used for the downstream production of fuel pellets, engineered wood, and various other wood-based products. Raw and processed biomass would be temporarily stored within the overall larger project area

Table 1 Equipment List

| Equipment Type | Application |
|--|--|
| Grinder / Shredder (SSI Shredder M85 Electric) | Biomass Processing |
| Wheel Loader (Cat 914, 2.5 cubic yard) | Biomass handling |
| Tracked Grapple Loader (John Deere 337E and Rotobec | Biomass handling |
| 6007 grapple with RT-222 Rotator | |
| Skid-steer / articulated loader (Bobcat S590 loader with | Biomass handling |
| 62" industrial grapple bucket) | |
| Trommel Screen (McCloskey International 512A) | Biomass processing |
| Crumbler Feed Bin (20 cubic yard) | Biomass processing |
| Rotary Shear Mill (Crumbler P24 System) | Biomass processing |
| Orbital Screen System (BM&M Super Screen, 2 deck, 5 x | Biomass processing |
| 12) | |
| Firewood Processor (Multitek 1610 with electric driver) | Biomass processing (firewood) |
| Firewood Bundler (Multitek wrapper / bundler) | Biomass processing (firewood) |
| Conveyors (fixed and movable) | Biomass processing |
| Biochar handling and packaging | Biomass processing |
| Chip van (120 cubic yard, 48-foot trailer, 4) | Biomass transport |
| 48-foot flatbed trailer | Biomass transport |
| Fuel tank | Site equipment |
| Truck Scale, non-permanent (Optima Scale OP-100 Truck | Biomass inhaul / outhaul and product measurement |
| Scale) | |
| Fabric Membrane Structure (5,000 square foot hoop tent | Equipment non-permanent housing |
| with storage container walls) | |
| Generator Set (2G Energy) | Biomass processing / on site energy production |
| Artis Units (Omni Bioenergy) | Biomass processing / on site energy production |
| Artis Power Electronics Upgrade (Omni Bioenergy) | Biomass processing / on site energy production |
| Shipping | Equipment procurement / setup |
| Equipment assembly, integration, and testing | Equipment procurement / setup |
| Mobile office trailer (20-foot length) | Site operation support / administration |
| Water Truck | Biomass processing / dust management |

Biomass would be hauled to and from the site via truck along an existing, unnamed road immediately west of the project site. Maintenance of equipment, as well as periodic maintenance and upkeep for the proposed hoop tent and fence, would be completed intermittently as needed during project operation.

Vehicles would enter through a gate in the processing area, located near the southern edge of the processing area, and would access this gate via an existing gravel pad that is located along the southern edge of the project area. Incoming vehicles would proceed through the gate to be weighed, then proceed forward for loading, turnaround, and weighing on their way out of the facility.

NHPA Section 106 Consultation/Determination

The Tribe completed a review of its internal records and contacted key representatives from other area tribes to identify potential historic, archaeological, or cultural resources within the area of potential effect (APE) for the project site. The APE is defined as the 5-acre project site (Attachment B). No relevant historic, archaeological, or cultural resources were identified within the project's APE. The historically and culturally significant Bloody Island site is located approximately 0.6 mile southeast of the project site.

The Battle of Bloody Island site was listed as a California Historical Resource in March 1949. Located on private property, the site is marked with a historical marker at the intersection of SR 20 and Reclamation Road. The site is the location of a military attack on the Clear Lake Pomo in retribution for the death of two landholders who had gravely mistreated the Pomo. Historical records indicate that 40 or more Pomo were killed, most of whom were women and children.

Based on communications with local registered professional archaeologist Dr. John Parker, the remains of those killed were burned / buried on the east side of the creek that winds around the east side of the island. Soil, including levee soil, located near the island could contain cultural material. The levees in question are located at least 0.5 mile from the project's APE, and the project is not expected to affect these sensitive areas. However, since the Tribe has determined that there is potential for cultural materials to be located on the proposed project site, the Tribe proposes to conduct cultural monitoring during the construction process and implement Mitigation Measures CUL-1 and CUL-2 (refer to the Mitigation section of this document).

California SHPO Consultation

EDA requested consultation under Section 106 with the California SHPO by submitting a letter and relevant documents via the SHPO portal on May 12, 2022. SHPO concurred with the determination of no historic properties affected in a letter dated June 8, 2022.

Tribal Consultations

The Scotts Valley Band of Pomo Indians (SVPI) reviewed their files and contacted other tribes. They did not, however, request formal consultations with other local tribal bands residing in Lake County. The SVBPI's staff has made a brief project presentation at an informal meeting in which a few of the local tribal Environmental Directors were in attendance. The SVBPI has not received any comments of concern about the proposed project.

Table 2 Outreach from SVBPI to Tribal and Other Interested Parties

| Date | Subject | Participants* | |
|--|---|----------------------------------|--|
| 7/22/2021 | Planning Grant for Env Ed Ctr/Lab/Native Plant | HPUL, RRA, CLERC, SVBPI | |
| | Nursery/BioChar in Upper Lake | | |
| 7/23/2021 | Planning Grant for Env Ed Ctr/Lab/Native Plant | Added LC Water Resources | |
| | Nursery/BioChar in Upper Lake | | |
| 7/26/21 | Planning Grant for Environmental Ed Ctr/Lab/Native Plant | HPUL, RRA, CLERC, SVBPI, LCWR | |
| | Nursery/BioChar Mtg | | |
| 7/30/2021 | RE: Biochar Project planning letters of intent / commitment | HPUL, RRA, CLERC, SVBPI, LCWR | |
| 7/30/2021 | CA Resilience Challenge Grant Planning Mtg 2 | HPUL, RRA, CLERC, SVBPI, LCWR, | |
| | | TERA | |
| 8/17/2021 | UL Environmental Ed/BioChar/Nursery discussion | HPUL, RRA, CLERC, SVBPI, LCWR, | |
| | | TERA | |
| 8/27/2021 | UL EnvEd/BioChar/Nursery proposal paragraph meeting | HPUL, RRA, CLERC, SVBPI, LCWR, | |
| | | TERA | |
| 1/7/2022 | 741 E Hwy 20 Env report? | RRA, HPUL, Wolfcreek Archaeology | |
| 1/7/2022 | 741 E Hwy 20 Env report? | RRA, HPUL, Wolfcreek Archaeology | |
| 1/12/2022 | Call w/HPUL THPO | HPUL | |
| 1/12/2022 | TEAMS meeting with Robert Geary re: EDA question | HPUL | |
| * HPUL = Habematolel Pomo of Upper Lake; RRA = Lake County Community Risk Reduction Authority CLERC = Clear Lake | | | |
| Environmental Research Center; SVBPI = Scotts Valley Band of Pomo Indians (Applicant); TERA = Tribal EcoRestoration Alliance | | | |

EDA submitted an information request under Section 106 to the Native American Heritage Commission via their electronic portal on May 12, 2022. The NAHC responded that a search of their Sacred Lands File (SLF) was completed using the project information submitted by EDA. The results were negative.

In addition to searching the SLF, the NAHC provided a list of potentially interested tribes. The EDA sent initial consultation letters to all tribes identified by the NAHC as having ancestral ties to the project area as well as tribes identified by the HUD TDAT database.

Responses were received from Habematolel Pomo of Upper Lake, Middletown Rancheria, and Yocha Dehe. The Yocha Dehe deferred to the Habematolel Pomo of Upper Lake. Middletown Rancheria was interested in the location of the proposed project for future options of biomass energy generation.

Habematolel Pomo of Upper Lake

EDA received letter from the Habematolel Pomo of Upper Lake Cultural Resources Department dated July 27, 2022, which followed a phone call from Mr. Robert Geary, Cultural Resources Director, Tribal Historic Preservation Officer. The letter informed the EDA that upon review of the proposed project, the Cultural Resources Department determined that the project site is within their Aboriginal territories, and they have a cultural interest and authority in the proposed project area. The Tribe also requested a formal consultation with EDA and the SVBPI. EDA informed the SHPO of the request and provided a copy of the letter via the submittal portal. A subsequent submittal was made to SHPO following the consultation.

The consultation took place via a Teams call on August 3, 2022. The Habematolel Pomo of Upper Lake have information that the area of the proposed project is sensitive for cultural resources. Artifacts have been found on the adjacent property near Highway 20. The following items and actions were requested to be taken into consideration as the project moves to construction:

- SVBPI will provide a detailed description of all ground disturbing activities including depth and area to Mr.
 Robert Geary and his team. This will include details on the installation and function of the ground screws planned to be used to secure equipment, and installation of site lighting.
- An Unanticipated Discovery Plan will be developed and agreed to by both the SVBPI and the Habematolel Pomo of Upper Lake.
- Sensitivity Training will be developed and conducted for on-site workers.
- Tribal Monitor(s) will be in place during earth-disturbing activities.
- Members of the Habematolel Pomo of Upper Lake will be given access to the site to survey for cultural resources prior to construction.
- EDA will include Specific Award Conditions where appropriate.
- The SVBPI and the Habematolel Pomo of Upper Lake will work together to identify mitigation measures.

Subsequently, SVBPI has agreed to increase cultural monitoring oversight during the proposed project. The Habematolel Pomo will provide contracted cultural resources staff to the project to support additional cultural sensitivity training and oversight. In addition, SVBPI agrees to adhere to the Habematolel Pomo Cultural Resources Protocol (Attachment B) during project implementation.

Consultation documents are provided as Attachment B.

Wetlands

No wetland vegetation has been noted on the proposed project site. There is, however, a potentially jurisdictional agricultural drainage located on the western side of the access road adjacent to the project site. Vegetation associated with that swale can be viewed in Figures 9 and 10 (Attachment C). The feature is also shown on the US Fish and Wildlife Service's National Wetlands Inventory (NWI) mapper, as shown on Figure 11 (Attachment C).

Based on data provided by the NWI mapper, the offsite drainage is classified as follows:

- A Palustrine System, which includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2.5 m (8.2 ft) at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt.
- Emergent (EM) Class: Characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.
- Persistent (1) Subclass: Dominated by species that normally remain standing at least until the beginning of the next growing season.
- Seasonally Flooded (C) Water Regime: Surface water is present for extended periods especially early in the growing season but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.

Project activities would not interfere with or impact the existing agricultural drainage. All project related activities would take place to the east of the existing agricultural drainage ditch. Moreover, to ensure that no impacts to the drainage would occur, all project construction activity would be located at least 100 feet east of the existing drainage ditch.

Additionally, all biomass storage areas, which are located outside of the processing area, would be set back at least 100 feet from the drainage. Access to the project site would be via an existing gravel pad that is located along the southern edge of the project site to avoid the need for additional land disturbance in proximity to the agricultural ditch.

Floodplains

The proposed project site is not within a 100-year flood zone or within a 500-year flood zone, although the boundary of the 500-year floodplain is near the southern boundary of the project area (Attachment D). The project would not cause or directly or indirectly result in any placement of fill, use, or other activities in a FEMA-delineated floodplain. As a result, the project would not be affected by, nor would it affect, a 100-year or a 500-year floodplain. While Lake County does participate in the National Flood Insurance Program, the project would not be required to purchase flood insurance.

The proposed project does not involve property acquisition, management, construction, or improvements within the 100-year floodplain (Zones A or V) identified by FEMA maps and does not involve a "critical action" (e.g., emergency facilities) within a 500-year floodplain (Zone B).

Climate Change

Drawing on information provided in the National Climate Assessment including FEMA's National Risk Index, Lake County, and the census tract where the project is proposed (06033000100) score in the Relatively High category for risks, including those affected by climate change. More specifically, this area is expected to suffer a relatively high expected annual loss, with a relatively moderate social vulnerability and relatively low community resilience.

Key risk categories that contribute to the Relatively High determination include the following: drought (score of 28.22), earthquake (37.8), and wildfire (30.40). Climate change has the potential to contribute to / exacerbate both drought and wildfire incidence. The project requires limited volumes of water to operate and would not be substantially affected by drought, nor would it result in excessive consumption or use of water, and therefore would not exacerbate the local effects of drought (Attachment E).

The project would potentially be susceptible to wildfire. However, the project is designed to help mitigate wildfire threat within the Lake County region. The proposed project would help advance forest thinning / fuel reduction efforts regionally within Lake County, resulting in reduced forest fire risk for these areas. The project would also help to create new demand for wood harvested during forest thinning, thereby resulting in improved economics for local / regional forest thinning efforts. Moreover, the project would also result in the generation of renewable bioenergy on site as a coproduct during the production of biochar. Renewable bioenergy would be generated using a portion of the incoming biomass, and the electricity generated would be used to operate on site equipment and, if sufficient electricity is available, it would be sold back onto the grid as renewable power.

Moreover, all stationary equipment would be operated using electricity rather than fossil fuels, which would help to reduce the greenhouse gas (GHG) emissions footprint of project operations. Forest thinning related reductions in wildfire risk also have significant potential to reduce GHG emissions by reducing potential for additional catastrophic wildfires in Lake County, which to date have already released millions of tons of carbon dioxide and other air pollutants. Therefore, the project is expected to result in a net benefit with respect to potential impacts of climate change and would contribute to an incremental net reduction in climate related impacts.

ESA Section 7 Determination

Delta Smelt

Burke's Goldfields

The US Fish and Wildlife Service Information for Planning and Consultation (IPaC) database was queried on May 12, 2022, for special status species that may occur in or near the project area (Table 3).

| Common Name | Scientific Name | ESA Listing Status | Critical Habitat |
|----------------------|----------------------------|-----------------------|------------------|
| | Insects | | |
| Monarch Butterfly | Danaus plexippus | Candidate | None designated |
| | Birds | | |
| Northern Spotted Owl | Strix occidentalis caurina | Threatened | Final designated |

Hupomesus transpacificus

Lasthenia burkei

Table 3: Species Potentially Affected by Project Activities

There are no critical habitats within the project area.

In addition to the above-listed species, certain birds are protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The birds listed in this section of the IPaC Report are of particular concern either

Fishes

Flowering Plants

Threatened

Endangered

Final designated

None designated

because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the location of the proposed project. The Species List generated for the proposed project did not list any migratory birds. However, the IPaC resources list contained the following species:

- **Bald Eagle** (*Haliaeetus leucocephalus*): This is not a Bird of Conservation Concern (BCC) in this area but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. Breeds January 1 to August 31.
- California Thrasher (*Toxostoma redivivum*): This is a BCC throughout its range in the continental USA and Alaska. Breeds January 1 to July 31.
- Common Yellowthroat (*Geothlypis trichas sinuosa*): This is a BCC only in particular Bird Conservation Regions (BCRs) in the continental USA. Breeds May 20 to July 31.
- Golden Eagle (*Aquila chrysaetos*): This is not a BCC in this area but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. Breeds January 1 to August 31.
- **Nuttall's Woodpecker** (*Picoides nuttallii*): This is a BCC only in particular Bird Conservation Regions (BCRs) in the continental USA. Breeds April 1 to July 20.
- Oak Titmouse (*Baeolophus inornatus*): This is a BCC throughout its range in the continental USA and Alaska. Breeds March 15 to July 15.
- Olive-sided Flycatcher (*Contopus cooperi*): This is a BCC throughout its range in the continental USA and Alaska. Breeds May 20 to August 31.
- **Tricolored Blackbird** (*Agelaius tricolor*): This is a BCC throughout its range in the continental USA and Alaska. Breeds March 15 to August 10.
- Wrentit (*Chamaea fasciata*): This is a BCC throughout its range in the continental USA and Alaska. Breeds March 15 to August 10.
- Yellow-billed Magpie (*Pica nuttalli*): This is a BCC throughout its range in the continental USA and Alaska. Breeds April 1 to July 31.

The Probability of Presence Summary included in the IPaC Report (or species list) provides data on the probability of these species being present in the area of the proposed project and whether this presence is during breeding season. This information can be used to tailor and schedule proposed project activities to avoid or minimize impacts to birds.

The proposed project site has been used for agricultural purposes for generations. Therefore, there are no trees on the site. Based upon the lack of habitat in the project area for the federally listed species as well as the lack of federal designated critical habitat in the project area, there would be "no effect" to federally listed species (Attachment F).

Other Species

Although not included in the project species list, information provided for the proposed project indicates that there is potential for the California Red-legged Frog (*Rana draytonii*) to be present in the area. This species occurs from sea level to elevations of about 1,500 meters (5,200 feet). It has been extirpated from 70 percent of its former range and now is found primarily in coastal drainages of central California, from Marin County, California, south to northern

Baja California, Mexico. Potential threats to the species include elimination or degradation of habitat from land development and land use activities and habitat invasion by non-native aquatic species.

California red-legged frogs have been observed using a variety of habitat types, including various aquatic, riparian, and upland habitats. They include, but are not limited to, ephemeral ponds, intermittent streams, seasonal wetlands, springs, seeps, permanent ponds, perennial creeks, manmade aquatic features, marshes, dune ponds, lagoons, riparian corridors, blackberry (Rubus spp.) thickets, nonnative annual grasslands, and oak savannas. They are found in both natural and manmade aquatic habitats and inhabit areas of diverse vegetation cover.

The ephemeral agricultural drainage located adjacent to the project site could potentially serve as low-quality habitat for this species. While the project would not impact, alter, or affect the existing drainage, implementation of Mitigation Measure BIO-1 would ensure that no damage to California red-legged frogs would occur (refer to the Mitigation section of this document).

Hazardous or Toxic Substances

The proposed project would result in storage of up to 500 gallons of petroleum diesel fuel using a proposed on-site diesel storage tank. The tank would be located aboveground with double walls and/or secondary containment sufficient to hold the entire volume of the tank when full. The tank would adhere to / comply with all local, state, and federal requirements and regulations relevant to the onsite temporary storage of diesel fuel. The project would also store minor amounts of lubricant oil (up to 55 gallons) for use in the project equipment. All spent oil would be immediately recycled. Handling of lubricant oil and diesel would be subject to all local, state, and federal regulations, and would be subject to standard operating procedures to ensure worker safety as well as minimize potential for spill or release of these pollutants into the environment.

Phase I Environmental Site Assessment, June 2013, Revised June 17, 2013

A Phase I Environmental Site Assessment (ESA) was conducted in anticipation of a commercial real estate transaction involving several parcels (26) covering 762 acres. The proposed project site was included in this work (Attachment G).

The Phase I ESA revealed no evidence of recognized environmental conditions (RECs) in connection with the 26 parcels; however, it did reveal some de minimis conditions: 1) barns and storage sheds with vehicle and equipment storage that could contain petroleum-stained soils; 2) septic systems; 3) wells; 4) Wilcox property former on-site sewer pond abandoned reportedly in 2001. Data gaps: ASTs, persistent pesticides, and DDT use (*Phase I Environmental Site Assessment, Middle Creek Flood Damage Reduction and Ecosystem Restoration Project, Lake County, California*, GHD, Inc., June 2013; Revised June 17, 2013).

There are no significant impacts from hazardous or toxic substances from the implementation of the project.

Water Resources

The project site and its vicinity are underlain by groundwater resources. Nearby Clear Lake also provides a valuable water resource. The proposed project would draw limited volumes of water to support project operations - approximately 1.3 acre-feet per year. This volume is equivalent to the volume of water used by approximately two California households during a single year. This volume of water use would not impact or noticeably affect or deplete any locally available water supply.

Topography on the project site and its vicinity is generally level and was previously fine graded for agricultural use. The site has a gentle slope on site. Preliminary calculations for stormwater that would be collected by the hoop tent -

based on a 100-year storm event - were completed. Gutters sized at 4 inches were determined to be sufficient to contain stormwater flows. The originally proposed 20-foot trailer would be integrated into the hoop tent structure.

Gutters would be placed along the sides and the back (closed) end of the hoop tent to capture stormwater and route it away from the operations site. On-surface storm drainage conduit would be lain in an unused area of the project site. These pipes would take advantage of the gentle slope available on site and disperse water along the pipe array including through perforated pipes toward the ends of the array, to facilitate conveyance of water off site via sheet flow. This design avoids releasing concentrated flows onto the ground's surface, and mimics natural site drainage processes. There are no significant impacts to water resources from the proposed project (Attachment H).

Transportation

SVBPI would maintain sufficient gravel on the roadway to allow access year-round. During day-to-day operations, the facility would receive wood / biomass deliveries and pickups via mid- to heavy duty vehicles, typically of size class 5 to 6, occasionally of size class 7, and rarely of size class 8. Based on the proposed operations, it is anticipated that no more than four to six medium-to-heavy duty vehicle trips per day would be necessary for operations. Therefore, the site would not receive heavy traffic. Project operations would include adding rock to the gravel roadway on an as-needed basis to ensure that the road is fully operational and can handle targeted loads.

Air Quality

Dust Generation. The SVBI recognizes the need to minimize dust generation from truck traffic along the unpaved access road. To this end, the project design includes purchase and operation of a water truck. The water truck would be used during the dry season and/or whenever road conditions are dry enough that truck traffic along the unpaved access road could generate dust. During such periods, water would be applied to the road as needed to ensure that dust generation is avoided. The water truck would also be used on site as warranted to minimize dust generation for equipment and for transport trucks.

Odors. Potential for generation of odors would be very limited. Biomass activities that generate odors include the degradation or composting of biomass. Such activities would not occur on site. Microbial breakdown (e.g., composting) of the proposed wood products would be detrimental to their value. As a result, there would be an operational limit the storage period for wood products on site and wood products would be managed to avoid their breakdown and avoid the generation of odors. Incoming biomass feedstock would be composed only of forest thinning biomass and would not carry or generate odors. Splitting and chipping of incoming biomass could release natural and aromatics from fir and other evergreen vegetation, but any resulting scent would be faint/rapidly dissipating, and detectable only in very close proximity to the biomass operation. No further mitigation is warranted.

There are no significant impacts to air quality from project implementation. The project would not result in a cumulatively considerable net increase of a criteria pollutant under applicable federal or state ambient air quality standards.

Permits

The project would require a permit to operate from the Lake County Air Quality Management District. Construction of the proposed fence would require a county building permit. No other permits would be required.

The SVBI is coordinating with the County regarding the required CEQA process. Based on a preliminary review of the project, County environmental personnel noted that the project would most likely require completion of an Initial Study / Negative Declaration or an Initial Study / Mitigated Negative Declaration.

Public Notice

Regulations under the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) require that the public be offered an opportunity to be informed of, and involved in, Federal actions that may significantly affect the quality of their environment before decisions are made to implement actions.

The NEPA notice was published in the Paper of Record, The Lake County Record-Bee. The Lake County Record-Bee published the notice three times on April 8th, 9th, and 12th, 2022 (Attachment I).

The SRO Regional Environmental Officer received no comments pertaining to the proposed project since the NEPA notice was published. There is no known controversy about the proposed project.

Mitigation

The following mitigation measures were described in the application Environmental Narrative revised June 2021.

Historic / Archaeological Resources

Mitigation Measure CUL-1. Cultural Resources Construction Monitoring. During all groundwork (e.g., installation of fence posts), a certified cultural monitor--a member of Scotts Valley Band of Pomo Indians and/or the Habematolel Pomo of Upper Lake (monitor), shall be continuously present onsite, to observe disturbance areas. The monitor shall halt work in the immediate vicinity if artifacts, exotic rock, shell, or bone are uncovered during the construction. In the event such cultural resources are unearthed during ground-disturbing activities, and the monitor is not in that location, the project operator shall cease all ground-disturbing activities within 50 feet of the find and immediately contact the monitor. Work shall not resume until the potential resource can be evaluated by the monitor. The monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the find until the qualified monitor has evaluated the find, determined whether the find is culturally sensitive, and designed an appropriate short-term and long-term treatment plan. The significance of the find shall be determined by the monitor, in consultation with the Scotts Valley and Habematolel Bands of Pomo Indians. If determined to be significant the archaeologist shall prepare a treatment plan in consultation with local experts, Native American Representatives, and the County Planning & Development Services Department.

Mitigation Measure CUL-2. Discovery of Unknown Resources. The project applicant shall continuously comply with the following requirement: In the event that unanticipated cultural or tribal cultural resources are encountered during the course of groundwork or construction, the project operator/contractor shall cease any ground-disturbing activities within 50 feet of the find. Cultural and/or tribal cultural resources may include prehistoric archaeological materials such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock, as well as historic materials such as glass, metal, wood, brick, or structural remnants. A certified cultural monitor shall evaluate the resource in consultation with the Scotts Valley and Habematolel Bands of Pomo Indians, and recommend treatment measures, as appropriate.

Wetlands

To ensure that no impacts to the drainage occur, all project construction activity would be located at least 100 feet east of the existing drainage ditch. Additionally, all biomass storage areas, which are located outside of the processing area, would also be set back at least 100 feet from the drainage. Access to the project site would be via an existing gravel pad that is located along the southern edge of the project site to avoid the need for additional land disturbance in proximity to the agricultural ditch.

Listed Species

Mitigation Measure BIO-1. Prior to project implementation, the Applicant shall retain a qualified biologist to complete a survey for the presence of California red legged frog and its suitable habitat. If the species or reasonably suitable habitat is found to be present, such that project construction could result in impact to the species, the Applicant shall adhere to the following measures:

- Project construction activities in potential red-legged frog habitat shall be restricted to the period between July 1 and October 15.
- Additional permitting and mitigation measures may be warranted in the event that red legged frogs are
 identified on site. Additional measures would be identified following the site survey and could include, but
 would not be limited to:
 - Prior to the onset of any project-related activities, the approved biologist must identify appropriate areas to receive red-legged frog adults and tadpoles from the project areas. These areas must be in proximity to the capture site, contain suitable habitat, not be affected by project activities, and be free of exotic predatory species (i.e. bullfrogs, crayfish) to the best of the biologist's knowledge.
 - A qualified biologist shall survey the project site at least two weeks before the onset of construction activities. If red-legged frogs are found in the project area and these individuals are likely to be killed or injured by work activities, the biologist will allow sufficient time to move them from the site before work activities resume. Only qualified biologists will participate in activities with the capture, handling, and monitoring of red-legged frogs.
 - O Prior to the onset of project construction, a qualified biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the red-legged frog and its habitat, the importance of the red-legged frog and its habitat, the general measures that are being implemented to conserve the red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.
 - A qualified biologist shall be present at the work site until such time as removal of red-legged frogs, instruction of workers, and habitat disturbance has been completed. The biologist shall have the authority to halt construction as warranted.

Water Resources

SVBPI will have a qualified engineer from the project engineering team design all elements of the proposed on-site drainage system. The drainage system will be designed to meet all applicable state and county standards. In no case will water be discharged from the property untreated, nor will it be discharged improperly onto a neighboring property. All stormwater releases will comply with applicable state and local regulations and requirements.

Gravel Road

SVBPI will maintain the gravel access road on an ongoing basis to avoid, mitigate, minimize, and/or correct rut and pothole formation. The road surface will be adequately maintained so as not to be left as bare mud or dirt during any season. Similarly, all access areas on the biomass depot site will be rocked and underlain with road base sufficient to support the weight of biomass haul trucks and other vehicles/equipment. These elements of the project will ensure

that mud tracking, rutting, and other road stability issues are avoided for the duration of the proposed facility's lifetime.

Specific Award Conditions

To assure mitigation of potential environmental impacts, mitigation measures are used in the form of grant conditions. The following Specific Award Conditions are recommended for placement on the Grant Agreement as an addendum to the General Terms and Conditions:

- TRIBAL MONITOR: Thirty (30) days prior to earth-disturbing activities funded under the EDA grant, the Recipient shall provide evidence satisfactory to the EDA that the Habematolel Pomo of Upper Lake have been notified and will have a tribal monitor on-site during earth-disturbing activities.
- ARCHEOLOGICAL AND HISTORICAL RESOURCES: If during construction of the project,
 historical and archeological resources, including burial grounds and artifacts are discovered, the Recipient
 shall immediately stop construction in the area, contact the applicable State Historic Preservation Officer
 (SHPO) or Tribal Historic Preservation Officer (THPO), interested Tribes, and EDA, and follow the SHPO
 or THPO instructions for the preservation of resources.
- CULTURAL SENSITIVITY TRAINING: Prior to solicitation of bids for construction, the Recipient
 shall provide evidence satisfactory to the EDA that Cultural Sensitivity Training for site workers has been
 developed in consultation with the Habematolel Pomo of Upper Lake. Site workers shall receive the
 training prior to commencement of earth-disturbing activities.
- INADVERTENT DISCOVERY PLAN: Prior to the start of any construction and/or earth-disturbing activities, the Recipient shall provide evidence satisfactory to the EDA that an Unanticipated Discovery Plan or equivalent has been prepared for the project in cooperation with the Habematolel Pomo of Upper Lake. The Plan shall follow the requirements of the California SHPO and the Habematolel Pomo Cultural Resources Treatment Protocol. If inadvertent discoveries are made, no further work will be allowed on the project until the SHPO and THPO have approved a plan for managing or preserving artifacts or features; the SHPO and THPO will be notified of changes to the project scope.
- WETLANDS PROTECTION: The project shall be designed to keep at least a 100-foot buffer between
 construction activities and wetland areas. Construction best management practices shall be used to avoid
 impacts to adjacent wetlands.
- CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA): Prior to solicitation of bids, the
 Recipient shall provide evidence satisfactory to the EDA that the Recipient has completed all CEQA
 requirements.
- MITIGATION: The Recipient shall follow mitigation measures outlined in the application Environmental Narrative revised June 2021 and subsequent responses, the Habematolel Pomo Cultural Resources Treatment Protocol, and the Inadvertent Discovery Plan.

Categorical Exclusion Determination

Categorical Exclusion DOC A-2: New construction upon or improvement of land where all of the following conditions are met: (a) The site is in a developed area and/or a previously disturbed site, (b) The structure and proposed use are compatible with applicable Federal, Tribal, State, and local planning and zoning standards and consistent with Federally approved State coastal management programs, (c) The proposed use will not substantially increase the number of motor vehicles at the facility or in the area, (d) The site and scale of construction or

improvement are consistent with those of existing, adjacent, or nearby buildings, and (e) The construction or improvement will not result in uses that exceed existing support infrastructure capacities (roads, sewer, water, parking, etc.).

The proposed project is new construction of an approximately 600 linear-foot chain link fence and a temporary, 5,000 square-foot (sf) structure composed of four shipping containers and a hoop tent to be used for a biomass management facility.

- The proposed project site was previously disturbed for agriculture, most recently a vineyard.
- b) The biomass processing facility is in an agricultural area of the county and is compatible with the surrounding land uses and zoning.
- c) Operation of the facility would not substantially increase the number of vehicles coming to the property or entering the area as no more than four to six medium-to-heavy duty vehicle trips per day are anticipated.
- d) The facility is consistent with surrounding development.
- e) The proposed project would not stress local infrastructure as the needs of the facility are well within the capacity of the surrounding infrastructure.

Digitally signed by

ROWENA DEFATO

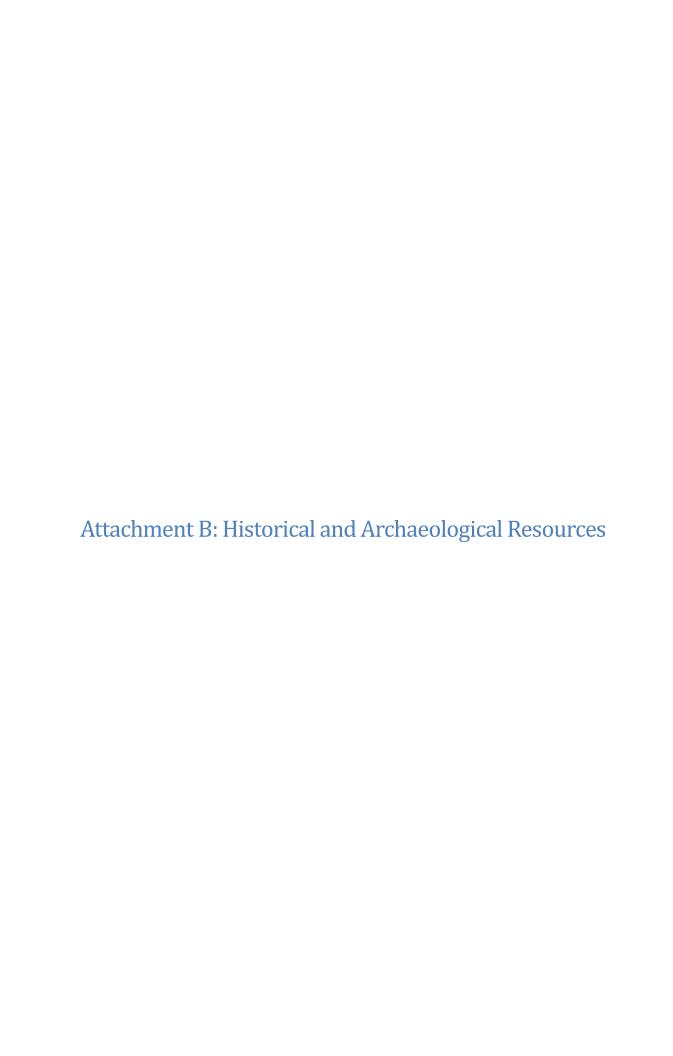
Date: 2022.08.10

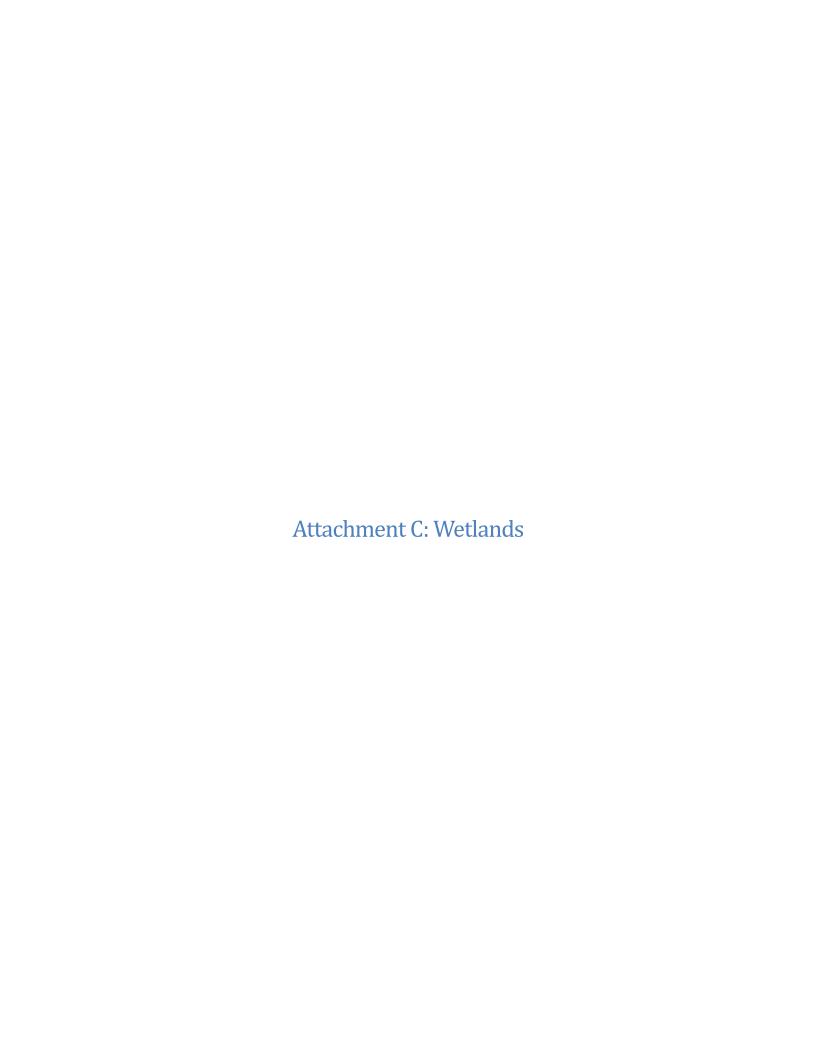
06:30:49 -07'00'

PREPARED BY:

Rowena DeFato, Regional Environmental Officer, Seattle Regional Office

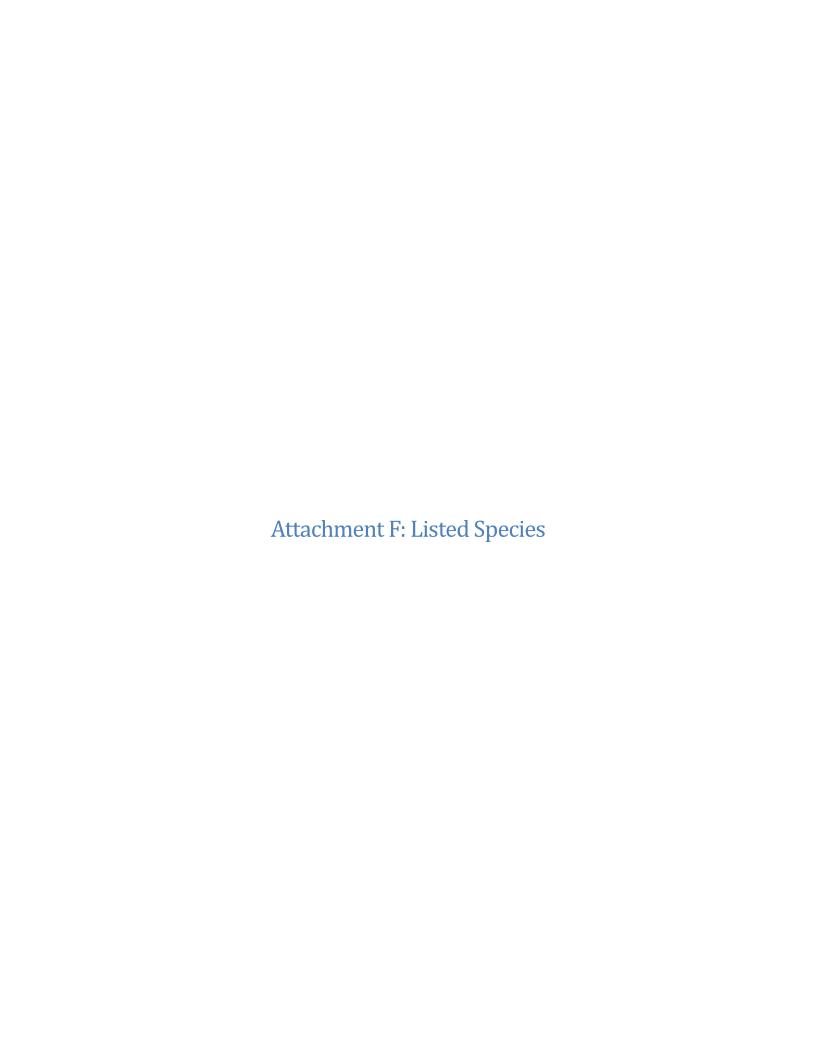




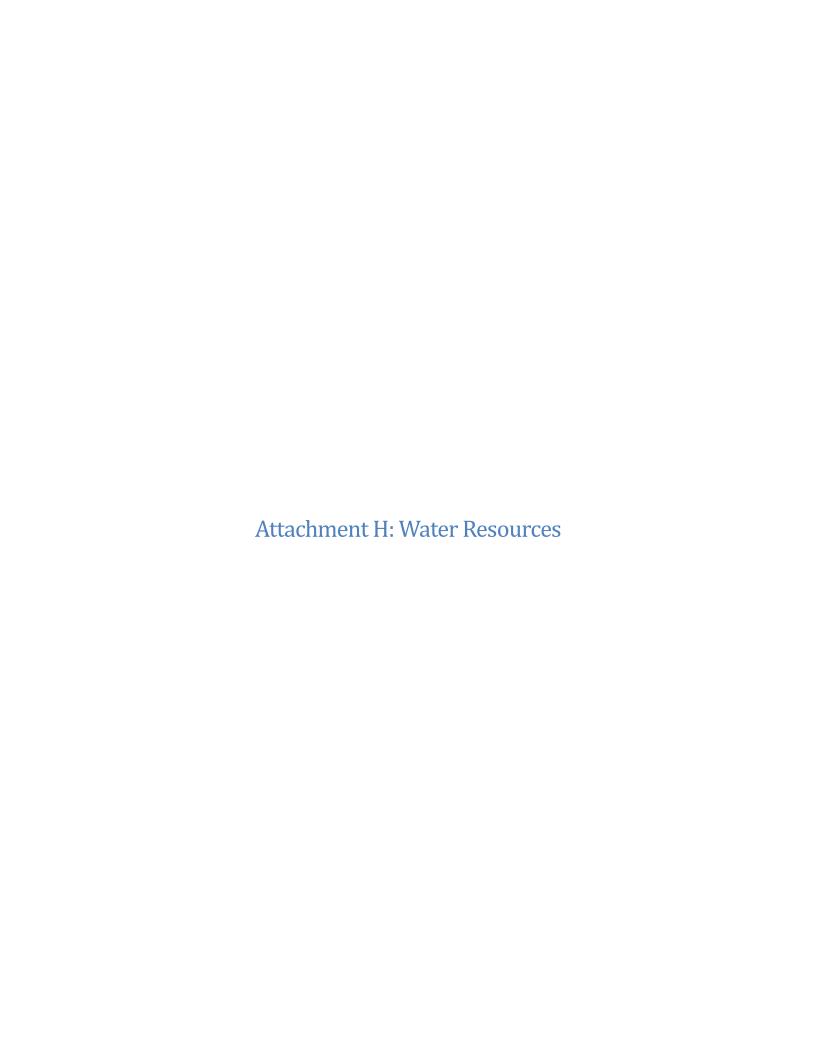


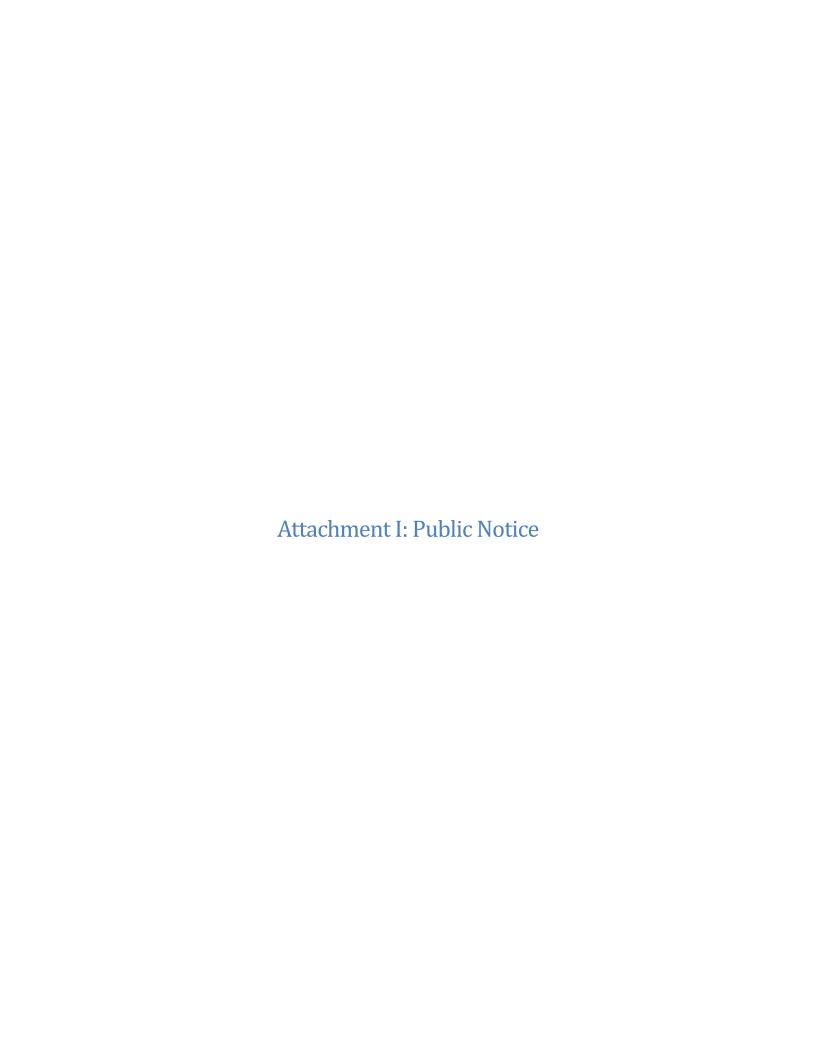
Attachment D: Floodplains











Laura Hall

From: Sherry Harris < lakecountyartnews@gmail.com>

Sent: Friday, May 16, 2025 4:30 PM

To: Eddie Crandell; brad.rassmussen@lakecountyca.gov; Helen Owen; Bruno Sabatier;

Jessica Pyska; Laura Hall; Mireya Turner

Subject: [EXTERNAL] Appeal request from an Upper Lake homeowner/ full time resident and

small business owner

Dear Lake County Board of Supervisors and Heads of Community Development.

I live in Upper Lake and disapprove of having this syngas and biochar plant approved to be placed in this particular location at 755 E Highway 20.

I live almost across the highway from this location and I'm afraid of how the building and activity of this industrial like plant will disturb my "peace and tranquility" living on our property.

I can handle the sound of everyday traffic but the sound of dump trucks, tractors and machinery, from what I understand, happening at least five days a week from 7am-7pm would be really upsetting to hear and I know I will hear it.

Other issues that concern me is the air quality between the dirt dust from the trucks and tractors equipment and possibly the fine chemical refinery dust that I've read about some biochar plants can produce. We have breezes and sometimes winds that come from that direction that could distribute the dust to where we live. Besides breathing it, how much of it will cover our property and vegetable gardens, along with the other agricultural growing areas nearby. How will this dust affect the vineyard grapes, pear orchard's pears on one side and the hay fields grown for cattle and cattle on the other side.

My view of this natural property will be completely ruined. I don't mind seeing the property used for agricultural purposes like vineyards, pear orchards or even hay fields grown for cattle or even cattle, but seeing and hearing an industrial like activity across from where I live completely ruins it for my husband and I. I wonder how it will affect the value of our property if we ever decide to sell it, or our neighbors' properties.

I've heard there's concerns about fires caused by piles of these processed materials. Someone said it could affect our fire insurance.

There's reasonable questions about water use and how much is necessary from public water or well water. Also, issues, have been discussed about water run off from processed materials into stream tributaries that go to the lake.

I ,also, question how this industrial like plant will affect our small town and schools. I have a small gift gallery that caters to mostly tourists and out of town visitors who are attracted to staying at our town's anchors, the Tallman Hotel and Blue Wing Saloon. The new owners are doing major marketing of our town as a wonderful clean air country town. I hope our town doesn't get the reputation of having a controversial poluting biochar plant that could scare visitors and business away leading to loss of income.

All in all, even if biochar plants are suppose to do good things, I feel that this one should be located somewhere else in a more established industrial area.

I don't know how many local Upper Lake residents are aware of this biochar plant plan as, so far, the majority of the local people I talk to have not heard about it. My feelings are that if they had, like some of us, they would feel the same way and want participate in appealing this plan.

Please, if you can understand our reasons for my and others request to appeal you will cancel and stop this project in this location.

Sincerely yours, Sherry Harris To the Lake County Board of Supervisors,

My name is Terra Morris, and I am writing in support of the appeal for the "AG Forest Wood Processing Bioenergy Project" (UP 23-05, IS 23-10) at 755 E. Hwy. 20 in Upper Lake. I urge you to repeal the use permit granted by the Planning Commission in December 2024.

This project should be located away from the community and sensitive receptors, away from environmentally sensitive areas like waterways and wetlands, and should be on land zoned for industrial use. Upper Lake should not be used as collateral damage to settle the Red Hills Bioenergy lawsuit (Case CV421326). The County should not have leased this parcel for this project. This property was purchased with state funds under an agreement with the Department of Water Resources to "protect or enhance flood protection corridors while preserving or enhancing wildlife value for properties located at the north end of Clear Lake." This project threatens the sensitive ecosystem around Rodman Slough, the waterways that feed into Clear Lake, nearby agricultural resources, the clean air in the Upper Lake Valley, and the health and quality of life for Upper Lake residents, the Community, and wildlife.

In 2015, the Lake County Watershed Protection District purchased 115 acres of prime agricultural land at 737 and 755 E. Hwy 20, Upper Lake, CA for \$1,534,329. This land was purchased with funds from the California Department of Water Resources under Agreement No. 4600003318 for the Middle Creek Flood Damage Reduction and Ecosystem Restoration Project (SAP Contract No. 4600003318, Amendment1, Amendment2, Amendment3). The land agreement states the Watershed Protection District must (among other things):

- Get permission from the DWR to sell, transfer, or lease the property
- If permission is granted by the State to lease the land, lease must abide by Agreement No. 4600003318 and any Flood/Conservation Easement deeds
- Protect the wildlife value of the property
- Put 20% of the purchase value into a trust to maintain the property

This property is zoned:

- Agricultural Preserve Zone (APZ)
- Scenic Combining (SC)
- Waterway (WW)
- Floodway Fringe (FF)

In California, APZ is an area designated by local government to preserve agricultural and open space land, often with contracts that restrict land use under The Williamson Act.

So how did an industrial project end up on prime ag land near a waterway and the 100-year flood zone?

A settlement in the Red Hills Bioenergy lawsuit led to this industrial project being moved to Upper Lake, on an environmentally sensitive area, near waterways that drain into Rodman Slough. This project will impact nearby residences, ag workers, ag resources, offices, schools, the community, wildlife and the environment.

Red Hills:

The original location of this project was 7130 Red Hills Rd (UP 19-05 IS 19-09)

The Vineyard Manager at Beckstoffer Vineyards Red Hills appealed the use permit.

The Board of Supervisors voted against the appeal and upheld the permit.

Red Hills community members, including SVBPI tribal members and stakeholders, and local businesses formed the "Citizens for Environmental Protection and Responsible Planning" and filed a civil lawsuit against the Red Hills Project Developer Thomas Jordan, the County, and the Board of Supervisors (Case CV421326) – See Writ of Mandate for details.

- The lawsuit went from October 2020 to July 2023.
- Court documents show a settlement was reached in closed session April 2023.
- In June 2023 an <u>Addendum</u> to the Red Hills permit (MND) showed significant reductions in project scope to reduce dust, noise, and overall impact on nearby residences, businesses and agricultural resources. Modifications:
 - The entire 28,000 ft² outdoor wood processing area was eliminated; thus, eliminating the chain saws, woodchipper, hammer mill, front loader
 - All biomass will arrive at Red Hills in pre-processed ¼ inch wood chips
 - Wood chips will be delivered in a covered truck.

Additional documents may be found here:

https://drive.google.com/drive/folders/11XQulw6pxNuH35RlM23cNOB0crWJpPiq?usp=drive_link

- Delivery truck must back into the structure and offload the wood chips directly into the gasifiers. Wood chips <u>cannot</u> be loaded/unloaded outside of the canopy structure.
- Deliveries are limited to one truck per day
- In July 2023, the Red Hills lawsuit was officially dismissed in court.

Upper Lake:

Documents prepared in 2021 show the Project Developer and the Community Development Department started planning to move the wood processing site from Red Hills to Upper Lake about 6 months after the Red Hills lawsuit was filed. In May 2023, one month after the Red Hills lawsuit was settled in closed session, the <u>initial site plans</u> were created for a wood processing and bioenergy project in Upper Lake, on land owned by the County. On April 22, 2024, the application for the use permit was submitted (<u>UP 23-05, IS 23-10</u>). The next day(!), April 23, 2024, the County entered into a 15 year <u>lease agreement</u> for 42.6 acres of prime ag land (with the option to renew) for \$100/year.

Everything that was eliminated from the Red Hills project to settle the lawsuit was moved to Upper Lake, a more environmentally sensitive area:

- The site in Upper Lake has two waterways/blueline streams that drain directly into Rodman Slough and the north end of Clear Lake.
- This area has one of the highest water tables in the County, which is beneficial for dry farming, but leaves it susceptible to groundwater contamination.
- Dust and emissions could compromise the air quality in the Upper Lake Valley and Clover Valley.
- This property is near sensitive wetlands, within the 100-year floodplain, and an important wildlife corridor that connects the north end of Hogback Ridge to Rodman Slough, a freshwater source for wildlife during the dry season.

The outdoor wood processing area, wood processing equipment, heavy machinery, and ~5 deliveries of biomass per day were eliminated from the Red Hills project due to the impact the noise and dust would have on surrounding residents, businesses and agricultural resources.

• Upper Lake has agricultural workers 100 ft from the site, tribal offices 600 ft from the site, multiple residences 1000-1500 ft away, and 4 schools within 3000 feet

Experts from Beckstoffer Vineyards Red Hills said the dust generated during the wood chipping process can spread mites, fungus and pathogens, compromising agricultural resources.

- Upper Lake is adjacent to vineyards and pear orchards which could be impacted by dust, mites, fungus, and pathogens that become airborne during the chipping process.
- Sudden Oak Death (SOD) fungus is found in the Mendocino National Forest. SOD becomes airborne during the wood chipping process and enters waterways when it rains, putting Upper Lake's beautiful oak trees in danger.

The Red Hills lawsuit stated the scenic corridor and American Viticultural Area (AVA) appellation were threatened by the project.

- Hwy 20 between Calpella and Hwy 16, which includes Upper Lake, was identified by CalTrans as <u>eligible to be a scenic corridor</u>.
- In 2022, the <u>Upper Lake Valley became the 8th AVA in Lake County</u>. It was selected due to its hydrology, rich and fertile soil, and climate.

The Red Hills lawsuit stated land zoned for agricultural use should not be used for industrial purposes.

- The site in Upper Lake is zoned as Agricultural Preserve Zone (APZ), Scenic Combining (SC), Waterway (WW), Floodway Fringe (FF).
- This is <u>not</u> the right location for an industrial project.

The Red Hills lawsuit stated the noise analysis excluded sensitive receptors.

- The noise analysis for Upper Lake did not include all wood processing equipment that may be used on-site and excluded many sensitive receptors, including the offices behind Running Creek Casino, located 600 feet from the project site. This analysis was not conducted by a sound expert.
- Community members in Upper Lake hired an expert to evaluate the sounds level
 analysis and conduct an independent analysis. This <u>expert found</u> the sound analysis
 in the project application included errors and incorrect calculations. Sensitive
 receptors were removed from the analysis, as the project can't meet the County's
 noise level ordinance at the tribal offices located 600 feet to the west and the
 closest residence roughly 1000 feet to the east.

The Red Hills lawsuit said, "failure to disclose crucial elements of the project", "inconsistent descriptions" and "continuous changes to key components of the project" resulted in an "unstable project description"

- The Upper Lake Community faced the same challenges as the Red Hills Community with an unstable project description across the EDA funding application, NEPA, CEQA, the application for the use permit, and in-person presentations.
- The misleading and inconsistent details about the project, on-going changes to the project scope and specifications, failure to disclose key elements of the project, and inaccurate site plans and environmental assessments downplay environmental risks.
- Emails obtained through multiple PRAs show how the people responsible for creating these documents intentionally manipulated the information to conceal elements of the project. Thomas Jordan (Project Developer), Steve Rumbaugh (Project Manager), and Laura Hall (Senior Planner) were primarily responsible for the inconsistent and inaccurate information presented to the community.
- Much of what was presented to the community during Western Regional Town Hall meetings and planning meetings did not match the application for the use permit.
- The site plans in the application for the permit include details that were copied from other projects in San Benito County, City of Hollister, and British Columbia, all unrelated to the project in Upper Lake.
- The site plans were not created by a licensed professional engineer or design professional. The CDD claims the plans do not need to be signed at this stage of the process, yet the current plans do not take the required setback from the west waterway into account. The NEPA documents claim all construction will be 100 feet from the waterway, yet the application for the use permit doesn't reflect this.
- The Project Manager, Steve Rumbaugh of Woodbridge Energy Company (WEC), has a history of owning/starting energy related companies that are deactivated within 2-3 years of being created. We found at least 10 LLCs for energy related companies in California under his name. This includes LLCs that were deactivated by the Franchise Tax Board, had lawsuits and liens from clients for incomplete projects, and complaints of fraudulent business practices to the Better Business Bureau of California. When we contacted the members of Steve Rumbaugh's team listed on the WEC website, we found his "colleagues" did not know they were listed on his website, did not give Steve Rumbaugh permission to use their photographs/biographies/accomplishments on his website, and were not affiliated with Woodbridge Energy Company.

Photos of the property before and after the County purchased the land





Lake Superior Court Register of Actions

CV421326: Citizens For Environmental Protection and Responsible Planning et al vs.

County of Lake et al

Case Type: Civil Unlimited - Judicial Review: Writ Mandate (02)

Filing Date: 10/21/2020

Disposition: Dismissal: No ADR

Disposition Date: 07/06/2023

Michael Robinson

Party

| Party Party | Attorney |
|---|------------------|
| Petitioner: Citizens For Environmental Protection and Responsible F | John Kinsey |
| Petitioner: Nelson Clint | John Kinsey |
| Petitioner: Walter Matt | John Kinsey |
| Respondent: County of Lake | Anita Grant |
| Respondent: The Lake County Board of Supervisors | |
| Real Party in Interest: Jordan Thomas | Michael Robinson |
| | Michael Robinson |

Filings

| Filing Type/Category | Disposition |
|----------------------|----------------------|
| | Filing Type/Category |

Real Party in Interest: Scotts Valley Band of Pomo Indians

10/22/2020 Petition-Judicial Review: Writ

Dismissal: No ADR on 07/06/2023

Mandate (02)

Documents

| Date Filed 10/21/2020 | <u>Document Type</u> Complaint | Additional Information | Filed By Plaintiff |
|--------------------------|-----------------------------------|--|-----------------------|
| 10/21/2020 | Civil Case Cover Sheet | | Plaintiff |
| 10/21/2020 | Summons: Issued | | Plaintiff |
| 10/21/2020 | Notice: Other | of Election to Prepare Record of Administrative Proceedings | Plaintiff |
| 10/21/2020 | Notice: Generic | To The Attorney General | Plaintiff |
| 11/13/2020 | Document: Other | Notice of Settlement conference | Respondent |
| 11/25/2020 | Notice: Generic | To Responsible Agencies | Plaintiff |
| 12/30/2020 | Paperwork Return - Lakeport | | Clerk |
| 01/12/2021 | Paperwork Return - Lakeport | | Clerk |
| 01/15/2021 | Motion | Request for Hearing | Petitioner |
| 02/01/2021 | Stipulation | and Order to Continue Hearing | Plaintiff |
| 02/05/2021 | Notice: Other | of Entry of Order to Continue Hearing on The Merits of Petition for Writ of Mandate | Plaintiff |
| 02/05/2021 | Stipulation | and Order to Extend Time to Certify Administrative Record | Plaintiff |

CV421326: Citizens For Environmental Protection and Responsible Planning et al vs.

County of Lake et al

| | ก Lake et al ะ Civil Unlimited - Judicial Review: Wi | rit Mandate (02) Filing Date: | 10/21/2020 |
|------------|---|--|--------------------------------|
| Dispositio | n: Dismissal: No ADR | Disposition Date: | 07/06/2023 |
| 03/01/2021 | Business Records | Paper and CD - Administrative Record of County of Lake | County Counsel |
| 03/03/2021 | Stipulation | and Order Setting Briefing Schedule | Plaintiff |
| 03/09/2021 | Document: Other | Notice of Lodging Administrative Record | Defendant |
| 03/16/2021 | Notice: Generic | Of Entry of Order Setting Briefing Schedule & Continuing Deadline for Certification of Administrative Record | Petitioner |
| 03/29/2021 | Order: Case Management Conference | | Clerk |
| 04/01/2021 | Document: Other | Errata and Amendment to Notice of Cerification and Lodging of Administrative Letter | Defendant |
| 04/01/2021 | Demurrer | | Real Party in Interes |
| 04/01/2021 | Notice: Hearing | | Real Party in Interes |
| 04/01/2021 | Declaration | of M Robinson Re Pre-Filing Meet and Confer In Support of Real Property in Interest's Demurrer | Real Party in Interes |
| 04/01/2021 | Demurrer | | Real Party in Interes |
| 04/01/2021 | Request: Joinder | | Real Party in Interes |
| 04/09/2021 | Stipulation | And Order Amending Briefing Schedule and Continuing the Hearing on the Merits of Petition for Writ of Mandate | d Petitioner |
| 04/09/2021 | Motion | and Notice of Motion to Strike Errata and Amendment to Notice of Certifcation and Lodging of Administrative Record | Plaintiff |
| 04/09/2021 | Request: Judicial Notice | in Support of Motion to Strike Errata and Amendment to Notice of Administrative Record | Plaintiff |
| 04/09/2021 | Declaration | of John P. Kinsley | Plaintiff |
| 04/09/2021 | Memo: Points and Authorities | | Plaintiff |
| 04/14/2021 | Declaration | of Joshua Baileu | Plaintiff |
| 04/20/2021 | Request | for Judicial Notice in Support of Pet's Opposition to RPI Demurrer | Plaintiff |
| 04/20/2021 | Document: Other | Appendix to Pet's Opposition to RPI Demurrer | Plaintiff |
| 04/20/2021 | Declaration | of John P. Kinsey | Plaintiff |
| 04/20/2021 | Memo: Points and Authorities | Page 2 of 8 03/12 | Plaintiff 2/2025 11:43:51AM |

Page 2 of 8 03/12/2025 11:43:51AM

CV421326: Citizens For Environmental Protection and Responsible Planning et al vs.

County of Lake et al

Case Type: Civil Unlimited - Judicial Review: Writ Mandate (02) Filing Date: 10/21/2020 Disposition Date: 07/06/2023

Disposition: Dismissal: No ADR

| 04/20/2021 | Proof of Service | | Plaintiff |
|------------|--------------------------------|---|-----------------------|
| 04/20/2021 | Memo: Points and Authorities | | Defendant |
| 04/20/2021 | Memo: Points and Authorities | | Defendant |
| 04/21/2021 | Opposition/Objection | | Real Party in Interes |
| 04/26/2021 | Reply | Brief in Support Of Demurrer to Complaint | Real Party in Interes |
| 04/26/2021 | Reply to Opposition | To Petitioner's Motion To Strike Errata and Notice of Amendment To Lodging and Certification of Administrative Record | Plaintiff |
| 05/03/2021 | Minute Record | | |
| 05/03/2021 | Minute Record | | |
| 06/08/2021 | Stipulation | and Order Further Amending Briefing Schedule and Continue The Hearing on the Merits of Petition for Writ of Mandate | Petitioner |
| 06/11/2021 | Document: Other | RE: Notice of Order Further Amending Breifing Schedule and Continuing Hearing on the Merits of Petition | Petitioner |
| 06/17/2021 | Case Management Conf Statement | County of Lake and Lake County Board of Supervisors | Respondent |
| 06/21/2021 | Case Management Conf Statement | | Real Party in Interes |
| 06/28/2021 | Civil Minutes | | Clerk |
| 07/28/2021 | Order | Motion to Strike | Judge |
| 07/28/2021 | Order | Demurrer - overruled | Judge |
| 07/29/2021 | Proof of Service | | Clerk |
| 08/12/2021 | Stipulation | and Order Further Amending Briefing Schedule and Continuing the Hearing on the Merits of Pet for Mandate | Petitioner |
| 08/17/2021 | Demurrer | Renewed | Real Party in Interes |
| 08/17/2021 | Notice: Hearing | on Renewed Demurrer | Real Party in Interes |
| 08/17/2021 | Declaration | of Michael A. Robinson | Real Party in Interes |
| 08/17/2021 | Request: Judicial Notice | | Real Party in Interes |
| 08/24/2021 | Notice: Other | Of Entry of Order Further Amending Briefing Schedule and Continuing the Hearing on the | Petitioner |

Merits of Petition for Writ of Mandate

CV421326: Citizens For Environmental Protection and Responsible Planning et al vs.

County of Lake et al

| Case Type: Civil Unlimited - Judicial Review: Writ Mandate (02) | Filing Date: | 10/21/2020 |
|---|-------------------|------------|
| Disnosition: Dismissal: No ADR | Disposition Date: | 07/06/2023 |

| Dispositio | n: Dismissal: No ADR | Disposition Date: 0 | 7/06/2023 |
|------------|------------------------------|---|-----------------------|
| 09/14/2021 | Opposition/Objection | To Real Party in Interest's request for Judicial Notice In Support of Renewed Demurrer to Pet For Writ | Petitioner |
| 09/14/2021 | Memo: Points and Authorities | | Petitioner |
| 09/14/2021 | Request: Judicial Notice | | Petitioner |
| 09/14/2021 | Declaration | of J Kinsey In Opposition to Renewed Demurrer to Petition for Writ of Mandate and Complaint | Petitioner |
| 09/14/2021 | Proof of Service | Memo Pts and Auth; Objection;Declaration; Request for Judicial Notice and Proof of Service | Petitioner |
| 09/20/2021 | Document: Other | Reply Brief in Support of Demurrer to Petition for Writ of Mandate and Complaint | Real Party in Interes |
| 09/20/2021 | Declaration | Of Michael A. Robinson RE: Pre-Filing Meet and Confer in Support of Real Party in Interest's Demurrer | Real Party in Interes |
| 09/27/2021 | Minute Record | | |
| 12/20/2021 | Order | on renewed demurrer to petition for writ of mandate and complaint | Judge |
| 12/20/2021 | Proof of Service | | Clerk |
| 12/22/2021 | Stipulation | and Order Continuing Writ of Mandate Hearing | Petitioner |
| 12/23/2021 | Notice: Other | Of Entry of Order On Renewed Demurrer of Thomas Jordan, Real Party in interest, to Petition for Writ of Mandate and Complaint | Petitioner |
| 12/29/2021 | Notice: Other | Entry Of Order | Petitioner |
| 01/05/2022 | Document: Other | Joinder to Real Party's Answer to Verified Petition for Writ of Mandate and Complaint for Declaratory and Injunctive Relief | Respondent |
| 01/05/2022 | Answer: Verified | of Real Party in Interest to Petition for Writ of Mandate and Complaint for Declaratory and Injunctive Relief | Real Party in Interes |
| 01/06/2022 | Proof of Service | | Clerk |
| 02/28/2022 | Request: Judicial Notice | | Petitioner |
| 02/28/2022 | Brief: Opening | | Petitioner |
| 02/28/2022 | Proof: Service | Re Petitioner's Opening Brief | Petitioner |

CV421326: Citizens For Environmental Protection and Responsible Planning et al vs.

County of Lake et al

Case Type: Civil Unlimited - Judicial Review: Writ Mandate (02) Filing Date: 10/21/2020

Disposition: Disposition Date: 07/06/2023

| Disposition | : Dismissal: No ADR | Disposition Date: 07 | 7/06/2023 |
|-------------|--------------------------|---|-----------------------|
| 03/15/2022 | Stipulation and Order | Further Amending Briefing Schedule & Continuing the Hearing on the Merits of Petition for Writ of Mandate | Real Party in Interes |
| 03/25/2022 | Notice: Generic | of Entry of Order Granting Briefing Schedule and Continuing the Hearing on Merits of Pet for Writ of Mandate | Real Party in Interes |
| 04/21/2022 | Stipulation | And Order Further Amending Briefing Schedule and Continuing the Hearing on the Merits of Petition for Writ of Mandate | Real Party in Interes |
| 05/02/2022 | Notice: Other | Of Entry Of Order Granting Briefing Schedule and Continuing the Hearing on the Merits of Petition for Writ of Mandate | Real Party in Interes |
| 05/27/2022 | Brief | Real Party in Interest's Merit Brief | Real Party in Interes |
| 05/27/2022 | Request: Judicial Notice | in Support of RPI's Merits Brief | Real Party in Interes |
| 05/27/2022 | Notice: Generic | of Joinder and Joinder of The County of Lake in Real Party in Interest's Merit Brief | Respondent |
| 06/08/2022 | Stipulation | And Order Further Amending Briefing Schedule and Continuing the Hearing on the Merits of Petition for Writ of Mandate | Petitioner |
| 06/13/2022 | Document: Other | Notice of Entry of Order Further Amending Briefing Schedule and Continuing the Hearing on the Merits of Petition for Writ of Mandate | Petitioner |
| 07/29/2022 | Stipulation | And Order Further Amending Briefing Schedule and Continuing the Hearing on the Merits of Petition for Writ of Mandate | Petitioner |
| 08/12/2022 | Notice: Other | of Entry of Stip and Order | Petitioner |
| 10/05/2022 | Stipulation | and Order Continuing Hearing Date | Petitioner |
| 10/06/2022 | Notice: Generic | of Entry of Order Further Amending Briefing Schedule and Continuing the Hearing on the Merits of Petition for Writ of Mandate | Petitioner |
| 12/07/2022 | Stipulation | And Order Further Amending Briefing Schedule and Continuing the Hearing on the Merits of Petition for Writ of Mandate | Petitioner |
| 02/14/2023 | Stipulation | and Order Further Amending Briefing Schedule and Continuing the Hearing on the Merits of Petition for Writ of Mandate | Plaintiff |
| 04/05/2023 | Notice: Settlement | of Entire Case | Plaintiff |
| 05/09/2023 | Stipulation and Order | concerning hearing on the merits of petition for write of mandate | Petitioner |
| | | | AAA 40 E4 AA |

Page 5 of 8 03/12/2025 11:43:51AM

CV421326: Citizens For Environmental Protection and Responsible Planning et al vs.

County of Lake et al

Case Type: Civil Unlimited - Judicial Review: Writ Mandate (02) Filing Date: 10/21/2020

Disposition: Dismissal: No ADR

Disposition Date: 07/06/2023

| 07/06/2023 | Request: Dismissal | Entire With Prejudice | Petitioner |
|------------|--------------------|-----------------------|------------|
| 08/06/2024 | Archived Documents | | Clerk |
| 08/06/2024 | Archived Documents | | Clerk |
| 08/06/2024 | Archived Documents | | Clerk |
| 08/06/2024 | Archived Documents | | Clerk |
| 08/06/2024 | Archived Documents | | Clerk |
| | | | |

Scheduled Events

| Event Date | Event Type | Result |
|------------|---|-------------------------------|
| 03/01/2021 | Motion Hearing - Other | Continued: Stipulation |
| 06/21/2021 | Motion Hearing - Other | Continued: Stipulation |
| 06/28/2021 | Case Management Conference | Heard |
| 05/03/2021 | Demurrer | Heard: Taken Under Submission |
| 09/13/2021 | Writ of Mandate Hearing | Continued: Stipulation |
| 05/03/2021 | Motion Hearing - Strike | Heard: Taken Under Submission |
| 10/25/2021 | Writ of Mandate Hearing | Not Heard: Vacated |
| 02/28/2022 | Writ of Mandate Hearing | Continued: Court |
| 09/27/2021 | Demurrer | Heard: Taken Under Submission |
| 05/23/2022 | Writ of Mandate Hearing | Continued: Court |
| 06/13/2022 | Writ of Mandate Hearing | Continued: Court |
| 07/11/2022 | Writ of Mandate Hearing | Continued: Stipulation |
| 09/12/2022 | Writ of Mandate Hearing - Continuance (Trial) | Continued: Stipulation |
| 11/14/2022 | Writ of Mandate Hearing - Continuance (Trial) | Continued: Stipulation |
| 01/09/2023 | Writ of Mandate Hearing - Continuance (Trial) | Continued: Stipulation |
| 03/13/2023 | Writ of Mandate Hearing - Continuance (Trial) | Continued: Stipulation |
| 05/15/2023 | Writ of Mandate Hearing - Continuance (Trial) | Not Heard: Vacated |
| 07/10/2023 | Status Conference | Not Heard: Vacated |
| | | |

Under Submission

| Submitted Date 05/03/2021 05/03/2021 09/27/2021 | <u>Decision Date</u> 07/28/2021 07/28/2021 12/20/2021 | <u>Decision</u> Motion Denied Motion Denied Motion Denied | Submitted By Michael Lunas Michael Lunas Michael Lunas | Event Type Demurrer Motion Hearing - Strike Demurrer | |
|--|--|--|--|--|--|
|--|--|--|--|--|--|

Case Disposition

| Disposition Date | Disposition Type | | | | |
|------------------|-------------------------|--|--|--|--|
| 07/06/2023 | Dismissal: No ADR | | | | |

CV421326: Citizens For Environmental Protection and Responsible Planning et al vs.

County of Lake et al

Case Type: Civil Unlimited - Judicial Review: Writ Mandate (02) Filing Date: 10/21/2020

Disposition: Dismissal: No ADR Disposition Date: 07/06/2023

Invoices

| <u>Date</u> | Invoice Type | Description/Paid By | <u>Amount</u> | <u>Paid</u> | Balance | |
|-------------|--------------|------------------------------|---------------|-------------|---------|-----|
| 10/22/2020 | FEE | Complaint/Petition Unlimited | \$435.00 | \$435.00 | \$0.00 | **: |
| 10/22/2020 | | Onminted | | \$435.00 | | |
| 01/15/2021 | FEE | Motion | \$60.00 | \$60.00 | \$0.00 | |
| 01/15/2021 | | | | \$60.00 | | |
| 01/15/2021 | FEE | Court Reporter Fee-< 1 hour | \$30.00 | \$30.00 | \$0.00 | |
| 01/15/2021 | | | | \$30.00 | | |
| 01/29/2021 | FEE | Stipulation and Order | \$20.00 | \$20.00 | \$0.00 | |
| 01/29/2021 | | | | \$20.00 | | |
| 02/05/2021 | FEE | Stipulation and Order | \$20.00 | \$20.00 | \$0.00 | |
| 02/05/2021 | | | | \$20.00 | | |
| 03/02/2021 | FEE | Stipulation and Order | \$20.00 | \$20.00 | \$0.00 | |
| 03/02/2021 | | | | \$20.00 | | |
| 04/01/2021 | FEE | Answer/Responsive Pleading | \$435.00 | \$435.00 | \$0.00 | |
| 04/01/2021 | | Thomas Jordan | | \$435.00 | | |
| 04/08/2021 | FEE | Stipulation and Order | \$20.00 | \$20.00 | \$0.00 | |
| 04/08/2021 | | | | \$20.00 | | |
| 04/14/2021 | FEE | Motion | \$60.00 | \$60.00 | \$0.00 | |
| 04/14/2021 | | | | \$60.00 | | |
| 04/14/2021 | FEE | Court Reporter Fee-< 1 hour | \$30.00 | \$30.00 | \$0.00 | |
| 04/14/2021 | | | | \$30.00 | | |
| 06/07/2021 | FEE | Stipulation and Order | \$20.00 | \$20.00 | \$0.00 | |
| 06/07/2021 | | | | \$20.00 | | |
| 08/11/2021 | FEE | Stipulation and Order | \$20.00 | \$20.00 | \$0.00 | |
| 08/11/2021 | | | | \$20.00 | | |
| 08/17/2021 | FEE | Motion | \$60.00 | \$60.00 | \$0.00 | |
| 08/17/2021 | | | | \$60.00 | | |
| 08/17/2021 | FEE | Court Reporter Fee-< 1 hour | \$30.00 | \$30.00 | \$0.00 | |
| 08/17/2021 | | | | \$30.00 | | |
| 12/21/2021 | FEE | Stipulation and Order | \$20.00 | \$20.00 | \$0.00 | |
| 12/21/2021 | | | | \$20.00 | | |
| 03/15/2022 | FEE | Stipulation and Order | \$20.00 | \$20.00 | \$0.00 | |
| 03/15/2022 | | | | \$20.00 | | |
| | | | | | | |

CV421326: Citizens For Environmental Protection and Responsible Planning et al vs.

County of Lake et al

Case Type: Civil Unlimited - Judicial Review: Writ Mandate (02) Filing Date: 10/21/2020

Disposition: Dismissal: No ADR Disposition Date: 07/06/2023

| Disposition. | Distillissal. No ADIX | | | | | |
|--------------|-----------------------|-----------------------|---------|---------|--------|--|
| 04/21/2022 | FEE | Stipulation and Order | \$20.00 | \$20.00 | \$0.00 | |
| 04/21/2022 | | | | \$20.00 | | |
| 06/08/2022 | FEE | Stipulation and Order | \$20.00 | \$20.00 | \$0.00 | |
| 06/08/2022 | | | | \$20.00 | | |
| 07/28/2022 | FEE | Stipulation and Order | \$20.00 | \$20.00 | \$0.00 | |
| 07/28/2022 | | | | \$20.00 | | |
| 09/29/2022 | FEE | Stipulation and Order | \$20.00 | \$20.00 | \$0.00 | |
| 09/29/2022 | | | | \$20.00 | | |
| 12/07/2022 | FEE | Stipulation and Order | \$20.00 | \$20.00 | \$0.00 | |
| 12/07/2022 | | | | \$20.00 | | |
| 02/09/2023 | FEE | Stipulation and Order | \$20.00 | \$20.00 | \$0.00 | |
| 02/09/2023 | | | | \$20.00 | | |
| 05/09/2023 | FEE | Stipulation and Order | \$20.00 | \$20.00 | \$0.00 | |
| 05/09/2023 | | | | \$20.00 | | |

January 21, 2020

CALIFORNIA ENVIRONMENTAL QUALITY ACT ENVIRONMENTAL CHECKLIST INITIAL STUDY (IS 19-09)

1. Project Title: Red Hills BioEnergy Project

2. Permit Numbers: Major Use Permit UP 19-05

Initial Study IS 19-09

3. Lead Agency Name and Address: County of Lake

Community Development Department Courthouse – 255 North Forbes Street

Lakeport CA 95453

4. Contact Person: Mark Roberts, Principal Planner

(707) 263-2221

5. Project Location(s): 7130 Red Hills Rd, Kelseyville, CA

The Project Site is located approximately 6 miles east of Kelseyville, on the southeast corner of the intersection of State Highway 29 and Red Hills Rd, approximately 900 feet

south of the intersection; APN: 009-021-07.

6. Project Sponsor's Name/Address: Thomas Jordan, Tribal Administrator

Scotts Valley Band of Pomo Indians

1005 Parallel Drive

Lakeport, California 95453

7. General Plan Designation: Rural Residential and Community Commercial

8. Zoning: Split Zoned: Rural Residential (24.5± ac.); Highway

Commercial (10.5± ac.), Scenic Combining District, Design

Review Combining District

9. Environmental Setting/Existing Conditions: The Project Site is relatively flat to gently sloping, generally following the contours of the grades established by State Route 29 (SR 29) and Red Hills Road. The Site is accessed from Red Hills Road via a private, 18-foot wide gravel driveway, located 900± feet south of the intersection of Red Hills Road and SR 29. The majority of the 34.58±-acre property is occupied by a fallow walnut orchard, comprising approximately 86.18 percent of the land area. Approximately 1.55 acres (4.5 percent) is occupied by Interior Live Oak Woodland and 1.48± acres (4.28 percent) is occupied by Mixed Chaparral, comprised primarily of manzanita, madrone, scrub oak, and buck brush. The remaining 1.75 acres± (5.06 percent) is developed. Existing development on the property includes two single-family residences; one travel trailer; a 40-stall, 14,000-square foot (sf), ADA-compliant chip-sealed parking lot; 180-ft long, 18-ft wide gravel roadway through the property; three low-profile street lights adjacent to the internal roadway; a well and pumps; (2) 2,000-gallon water storage tanks; an accessible public restroom; two septic disposal systems; and two small solar collection grids serving the two residences. In the northeast portion of the property is a fire pit surrounded by a dance circle with dressing rooms and outdoor furniture used for tribal gatherings. The property is surrounded on all sides by three-foot high chain link fencing. The

residential units are rented to tribal members; the parking lot and public restrooms are used by tribal members visiting the property.

10. Description of Project:

Supervisor District: District 5; Brown

Flood Zone: Not within a designated flood zone

Slope: Flat to gently sloping

Fire Hazard Severity Zone: Moderate (Project Site) and Very High

Earthquake Fault Zone: Not within a fault zone
Dam Failure Inundation Area: Not within dam failure zone
Parcel Size: Approximately 34.58 acres

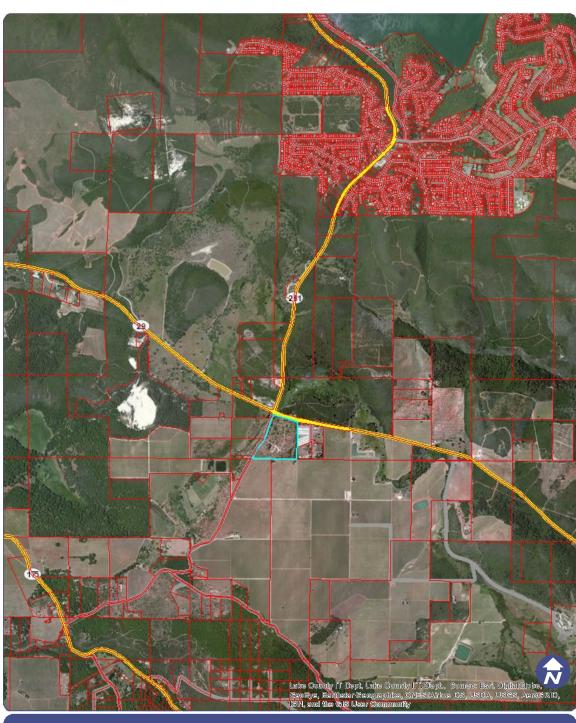
Area Plan: Riviera Area Plan

The applicant is requesting approval of a Major Use Permit to allow for the development of a small-scale bioenergy production facility using woody biomass to produce syngas and biochar. The syngas will power the generators that run the system. Biochar is a by-product of the bioenergy process that functions as an agricultural or forestry soil amendment. The total footprint of the Project is 43,350 sf, which includes:

- Removal of 25 walnut trees (including 5 dead trees or stumps), grass and brush; and minor grading of 45± cubic yards for site preparation; no import/export of soils;
- 2,000-sf (40 ft x 50 ft), six-inch deep concrete pad to house the bioenergy equipment (production plant pad), offset 140 ft from the edge of Red Hills Road (County road);
- Production Plant: two (2) fully-automated Omni BioEnergy Artis 100kW gasifiers and two (2) electrical generators fueled by the syngas generated by the plant that will operate 24 hours per day/7days per week except for maintenance;
- 16-ft high, 2,000-sf metal building enclosing the production plant, with gutters and downspouts draining to a French drain system around the pad that will discharge into a rock energy dissipator in the field;
- 20-ft wide gravel road around the perimeter of the pad;
- 8-ft high chain link fence around the gravel perimeter of the pad with lockable gates on the east and south sides;
- 28,000-sf permeable outdoor storage area on the east side of the production plant to receive, process and store woody feedstock into ¼-inch wood chips, including a front-end loader, chipper, hammermill, and an enclosed-bed truck; surfaced with wood chips;
- (2) 20-ft wide lanes on two sides of the storage area with a hammerhead "T" to allow delivery trucks to turn around;
- Connection to 240v/three-phase/100-amp overhead electrical service from PG&E at utility pole located on Red Hills Road;
- Downcast, exterior LED lighting for the building; up to four (4) new light posts consistent with existing light posts on the property; and
- 2-5 deliveries of feedstock daily, Monday Friday; less frequent outgoing deliveries of biochar.

A detailed project description and Artis gasification specification sheets are provided as Attachment A.

VICINITY MAP



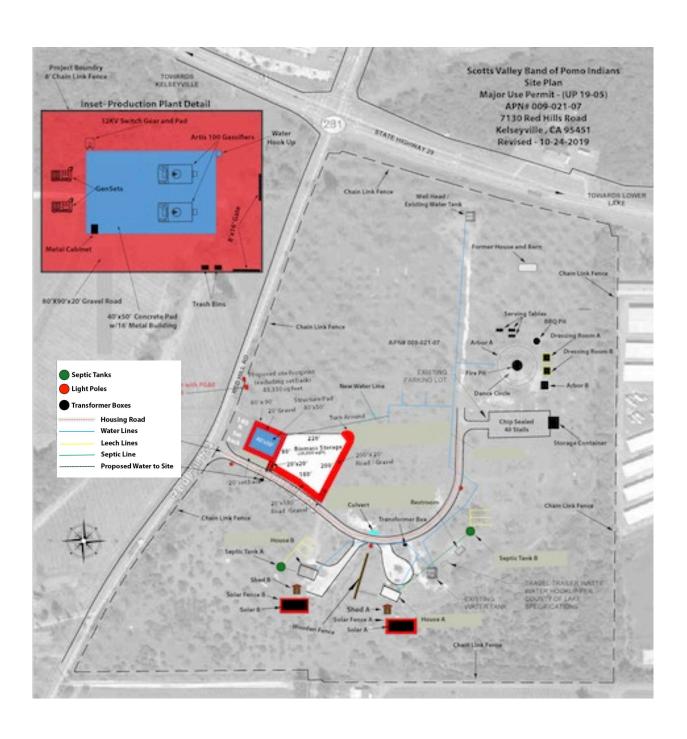
Lake County, CA

UP 19-05 Jordan Vicinity Map

el description.

Print Date: 2/15/2019

SITE PLAN



Surrounding Land Uses and Setting:

North: Property to the north is zoned Rural Residential (RR), Highway Commercial (CH) and Community

Commercial (C2). Parcel sizes are approximately 134 acres and 19 acres. Land uses to the north are commercial, and are located on the north side of SR 29. The primary development is Kit's Corner

grocery and gasoline station.

West: Property to the west is zoned C2 and RR. Parcels are approximately eleven to 18 acres in size. Land

uses to the west are predominantly agriculture (vineyards and orchards).

South: Property to the south consists of parcels 173 and 466 acres in size, zoned Agriculture (A).

East: Property to the east includes mini storage units on 7.66 acres zoned Planned Development Commercial

(PDC), and a 5.43-acre parcel zoned RR.

The nearest off-site residence is situated approximately 800 feet southwest of the Project Site.

11. Other public agencies whose approval may be required (e.g., permits, financing approval, or participation agreement)

Lake County Air Quality Management District

Lake County Environmental Health

Lake County Community Development Department – Building Division

Lake County Agricultural Commissioner

Kelseyville Fire Protection District

California Department of Forestry and Fire Protection (CalFire)

Central Valley Regional Water Quality Control Board

State Water Resources Control Board

California Department of Transportation (Caltrans)

California Department of Fish and Wildlife

California Air Resource Control Board

12. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.? Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3 (c) contains provisions specific to confidentiality.

The property is owned by the Scotts Valley Band of Pomo Indians. The Tribe does not request consultation and will employ a cultural monitor during site preparation and construction activities. However, Notification of the project was sent to local tribes, Big Valley Rancheria, Elem Colony, Koi Nation, Middletown Rancheria, and Robinson Rancheria, Scotts Valley Band of Pomo, Upper Lake Habematolel, Cortina Rancheria, and Yocha Dehe.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

| \boxtimes | Aesthetics | | Greenhouse | e Gas I | Emissions | | Public Services | | |
|------------------------|--|-------------------------|--|---------------------------|--|-------------------|---------------------------------------|-----------------------------|-------------------|
| | Agriculture & Forestry Resources | | Hazards Materials | & | Hazardous | | Recreation | | |
| \boxtimes | Air Quality | \boxtimes | Hydrology | / Wat | ter Quality | | Transportation | | |
| \Box | Biological Resources | $\overline{\Box}$ | Land Use / | | - • | \boxtimes | Tribal Cultural l | Resources | |
| $\overline{\boxtimes}$ | Cultural Resources | $\overline{\Box}$ | Mineral Re | | ~ | $\overline{\Box}$ | Utilities / Service | Systems | |
| | Energy | \boxtimes | Noise | | | \boxtimes | Wildfire | 3 | |
| \boxtimes | Geology / Soils | | Population | / Hous | sing | | Mandatory Significance | Findings | of |
| | ERMINATION: (To be complete basis of this initial evaluation: | eted l | by the lead | Agen | cy) | | | | |
| | I find that the proposed project DECLARATION will be prep | | | nave a | significant eff | ect on | n the environment | , and a NEGA | ATIVE |
| | I find that although the propose a significant effect in this case proponent. A MITIGATED N | beca | ause revision | ns in t | he project have | e bee | n made by or agre | | |
| | I find that the proposed ENVIRONMENTAL IMPAC | | | | | t eff | ect on the env | rironment, a | nd an |
| | I find that the proposed project mitigated" impact on the envi- document pursuant to applical the earlier analysis as describe but it must analyze only the ef | ironn ole le d on | nent, but at gal standard attached she | least das, and eets. | one effect 1) h d 2) has been a An ENVIRON | as be | een adequately and ssed by mitigation | alyzed in an measures ba | earlier sed on |
| | I find that although the prop potentially significant effect DECLARATION pursuant to earlier EIR or NEGATIVE D upon the proposed project, no | s (a) appl ECL | have been have b | n ana dards , inclu | nlyzed adequa and (b) have buding revisions | tely een a | in an earlier El avoided or mitiga | R or NEGA ted pursuant | ATIVE to that |

Initial Study Prepared By: Julie Price, Planner/Environmental Specialist Crawford & Associates, Inc. Initial Study Reviewed By: Mark Roberts - Principal Planner

SIGNATURE

Michalyn DelValle, Director

Mark file

Community Development Department

Date: 1/24/2020_

SECTION 1

EVALUATION OF ENVIRONMENTAL IMPACTS:

- A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- Once the lead agency has determined that a particular physical impact may occur, and then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).
- Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - a) Earlier Analysis Used. Identify and state where they are available for review.
 - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

- 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- 9) The explanation of each issue should identify:
 - a) the significance criteria or threshold, if any, used to evaluate each question; and
 - b) the mitigation measure identified, if any, to reduce the impact to less than significance.

KEY: 1 = Potentially Significant Impact

2 = Less Than Significant with Mitigation Incorporation

3 = Less Than Significant Impact

4 = No Impact

| IMPACT CATEGORIES* | 1 | 2 | 3 | 4 | All determinations need explanation. Reference to documentation, sources, notes and correspondence. | Source Number** |
|-----------------------|---|---|---|---|---|--------------------|
|-----------------------|---|---|---|---|---|--------------------|

I. AESTHETICS

Significance Criteria: Aesthetic impacts would be significant if the Project resulted in the obstruction of any scenic vista open to the public, damage to significant scenic resources within a designated State scenic highway of County designated scenic area, substantial degradation to the existing visual character or quality of the site and its surroundings from public views, or generate new sources of light or glare that would adversely affect day or nighttime views in the area, including that which would directly illuminate or reflect upon adjacent property or could be directly seen by motorists or persons residing, working or otherwise situated within sight of the Project.

Environmental Setting: The 34.58-acre subject parcel is located on the southeast corner of the intersection of SR 29 and Red Hills Road. The CH-zoned portion of the subject parcel is located within a "Scenic" (SC) Combining Overlay District (SC District). The SC District is located along the SR 29 corridor, including a 400±-ft deep section of the subject property adjacent to SR 29; along Soda Bay Road north of its intersection with SR 29; on lands abutting the subject parcel to the south; and on Red Hills Road directly south of the subject parcel (refer to Attachment B-1). The southerly portion of the subject parcel where the Project would be situated is <u>not</u> located within the SC District boundary. SR 29 is a designated state scenic highway. Scenic resources in the general region include Clear Lake, approximately 2.5 miles north of the Site; Mt. Konocti, 3.25± miles northwest of the Site; and Mount Hanna, 2.7± miles south of the Site.

| | Excep | ot as pro | videa | l in Public Resources Code Section 21099, would the project: | |
|--|-------|-----------|-------|---|------------------------|
| a) Have a substantial adverse effect on a scenic vista? | | X | | The Project Site is located in a rural area surrounded by orchards and vineyards. The Site has long-distance views to Mt Konocti (over five miles). Clear Lake is not visible from the Project Site due to distance and topography. The proposed development will include a 2,000-square foot building on the north side of the existing driveway offset 140 feet from the edge of Red Hills Road. The building will have a sloped roof of heights between 10½ -16½ feet above finished grade. An outdoor processing and storage area will be located on the east side of the building, partially obscuring it from public view. The applicant provided a Visual Impact Assessment/Windshield Survey with photographs of the Project Site from various vantage points (refer to Attachment B-2). Due to distance and vegetation, the proposed Project would not be visible from SR 29, a designated state scenic highway. The proposed Project would not impede views of Mt. Konocti or other scenic vistas. The Project Site is visible from a limited segment of Red Hills Road; however, it is situated in a manner that would not significantly impact the view shed, and is consistent with County and Area Plan policies for preserving scenic resources. Less Than Significant Impact. | 1, 2, 3, 4, 5, 6, 7, 8 |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | | | X | The Project Site does not contain any scenic resources. The area of the subject property that is located within a Scenic Combining District will not be impacted by the Project. No Impact. | 1, 2, 3, 4, 5, 6, 7, 8 |

| \ T | т т | 3.7 | mi il a pirmi pil | 1 2 2 4 5 6 |
|--|-----|-----|---|-------------------|
| c) In non-urbanized areas, | | X | The subject property is elevated above surrounding roadways. Red Hills Road in | 1, 2, 3, 4, 5, 6, |
| substantially degrade the existing | | | this location is a two-lane, rural road without paved shoulders that does not | 7, 8 |
| visual character or quality of | | | accommodate pedestrians; motorists are its primary users. Views into the property | |
| public views of the site and its | | | from Red Hills Road are partially obscured by woody vegetation, including | |
| surroundings? (Public views are | | | walnut, oak and pine trees. Gaps in vegetation exist near the property entrance | |
| those that are experienced from | | | where the Project would be the most visible to motorists. The structure housing | |
| publicly accessible vantage | | | the production plant would be located approximately 140 feet from the west edge | |
| point). If the project is in an | | | of the roadway. The chipping and grinding area would be located on the east side | |
| urbanized area, would the project | | | of the building, partially shielded from public view. Beginning at the south property | |
| conflict with applicable zoning | | | line, a row of mostly pine trees grows along the edge of Beckstoffer Vineyards on | |
| and other regulations governing | | | the east side of Red Hills Road, providing total screening of the Project Site from | |
| scenic quality? | | | views south. Existing vegetation north and south of the Project Site limit public | |
| | | | visibility of the Site to a few seconds while driving past the Site entrance. Although | |
| | | | the portion of the property where the Project will be situated is not located within | |
| | | | a Scenic Combining District, neighboring roads and properties are. Policy 3.5.2b | |
| | | | of the Riviera Area Plan states, "The siting of structures must not only reflect | |
| | | | appropriate setbacks, but also consider the rural vista. Building should | |
| | | | complement and not block views." Due to the 140-ft setback between the Project | |
| | | | development and Red Hills Road, the small scale of the building and relatively low | |
| | | | height of the roof, the lack of recreational use of the road, and the brief period that | |
| | | | the plant would be visible to motorists, the Project is not expected to visually | |
| | | | degrade the area. The following mitigation measures are recommended to ensure | |
| | | | that the brief sighting of the Project by motorists on Red Hills Road would have a | |
| | | | less than significant impact on the quality of public views of the Site, and will | |
| | | | further ensure that the Project conforms to scenic resource policies in the General | |
| | | | Plan and Riviera Area Plan. Less Than Significant Impact with Mitigation | |
| | | | Incorporated. | |
| | | | Mitigation Measures: | |
| | | | <u>AES-1</u> : All structures associated with the Project, including the building and any new fencing, shall use neutral, earth-tone colors in order to blend into the surrounding environment. Low glare building materials shall be used for new building construction. | |
| | | | AES 2. Evicting healthy, non-homoudous regestation that musciles someoning to | |
| | | | <u>AES-2</u> : Existing healthy, non-hazardous vegetation that provides screening to the Project Site along the western boundary shall be maintained. | |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | | X | Exterior lighting for the Project would consist of downcast LED lighting under the roof eaves to illuminate the building perimeter and up to four (4) additional downcast light posts to illuminate the storage area. The light posts would be the same style as those currently illuminating the driveway through the property. To ensure that light or glare is not broadcast beyond the property boundaries, Mitigation Measures AES-3 is recommended. Less Than Significant with Mitigation Incorporated. | 1, 2, 3, 4, 5, 7 |
| | | | Mitigation Measure: | |
| | | | AES-3: All outdoor lighting shall be shielded and downcast or otherwise positioned in a manner that will not broadcast light or glare beyond the boundaries of the subject property. All lighting equipment shall comply with the recommendations of the International Dark-Sky Association (www.darksky.org) and provisions of Section 21.48 of the Zoning Ordinance. Security lighting shall be motion activated. | |

II. AGRICULTURE AND FORESTRY RESOURCES

Significance Criteria: The proposed Project would have a potentially significant impact on agricultural resources if it would convert prime farmland to a non-agricultural use, conflict with a Williamson Act contract, or disrupt a viable and locally important agricultural use. The Project would have a potentially significant impact on forestry resources if it would result in the loss, rezoning or conversion of forestland to a non-forest use. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest protocols adopted by the California Air Resources Board.

Environmental Setting: The Project Site is assigned two base zoning designations, Rural Residential and Highway Commercial. Approximately 86 percent of the Project Site contains a fallow, dry-farmed walnut orchard. The remainder contains Interior Live Oak Woodland and Mixed Chaparral, residential development and internal roadways serving residential and tribal community uses. According to the Farmland Mapping and Monitoring Program (FMMP) the project site is designated as "Unique Farmland," defined as "Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date." According to the USDA Soil Survey, the subject property is designated as "Not Prime Farmland."

| Would the project: | | | | |
|--|---|---|--|----------------------------|
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | X | | The Project Site is designated as "Unique Farmland" by the FMMP, having lower quality soils than Prime Farmland and Farmland of Statewide Importance, and as "Not Prime Farmland" by the USDA. SVBPI purchased the land 23 years ago, at which time it contained a commercial walnut orchard. SVBPI maintained the walnut grove in its early ownership years, but abandoned that effort due to the age and condition of the trees. The orchard is observed to be in poor condition, as evidenced by the condition of the trees, many of which have died, have broken limbs or are overgrown; and surface soils, which are pocked with gopher holes. Uses immediately surrounding the site to the west and south include vineyards. The proposed Project would convert just under one (1) acre to a non-agricultural use. Less Than Significant Impact. | 1, 2, 3, 4, 5, 8, 9, 10 |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | X | | The Project Site is zoned "RR" Rural Residential and "CH" Highway Commercial. The Site is not zoned for agriculture, is not actively farmed, and is not encumbered by a Williamson Act contract. Parcels to the south of the Project Site are zoned "AG" Agriculture; however the proposed small-scale bioenergy plant is not expected to conflict with the existing agricultural zoning or use. Less Than Significant Impact. | 1, 2, 3, 4, 5, 8, 9, 10 |
| c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | | X | The proposed Project is not located within or adjacent to forest lands or lands zoned Timberland Production. The Project will therefore not conflict with existing timberland zoning or result in the rezoning of forest lands and/or Timberland Production. No Impact. | 1, 2, 3, 5, 8 |
| d) Result in the loss of forest land or conversion of forest land to non-forest use? | | X | The proposed Project is not located within or adjacent to forest lands, and will therefore not result in the loss or conversion of forest land to a non-forest use. No Impact. | 1, 2, 3, 5, 8 |
| e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to nonforest use? | X | | Except as discussed in (a) above, the Project as proposed does not involve changes to the existing environment that would result in the site's conversion to non-agricultural or non-forest use. Less Than Significant Impact. | 1, 2, 3, 4, 5, 8, 9, 10 |

III. AIR QUALITY

Significance Criteria: Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. The proposed Project would have a significant impact to air quality if it would conflict with an air quality plan, result in a cumulatively considerable net increase of a criteria pollutants for which the Lake County Air Quality Management District (LCAQMD) has non-attainment, expose sensitive receptors to substantial concentrations of air pollutants, or result in emissions that create objectionable odors or otherwise adversely affect a substantial number of people.

Environmental Setting: The Project Site is situated at the foot of the northern slope of Mount Hanna, approximately 2.5 miles south of Clear Lake at an elevation of approximately 1,925 feet above MSL. The Project Site is located within the Lake County Air Basin, which is under the jurisdiction of the LCAQMD. The LCAQMD applies air pollution regulations to all major stationary pollution sources and monitors air quality. The Lake County Air Basin is in attainment with both state and federal air quality standards, and the air is relatively low in pollutants in comparison with much of the state. Automobile emissions are the main contributor to air pollution in Lake County. Other contributors include serpentine soils, residential development (wood burning stoves and the burning of cleared vegetation for subdivision development) and agricultural operations. The Lake County Air Basin lies entirely within the Coast Range Mountains and constitutes one of the major inter-mountain basins of the region. Inversions occur in isolated valleys when warm air prevents the cooler air from rising and dispersing any trapped pollutants. Serpentine soils have not been found within the Riviera Community Planning Area.

Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?

The Project would result in temporary emissions during the 8-12 week construction period. Site preparation will include the clearing and chipping of 25 trees, and earth moving of 2,000± square feet to achieve final grades for the production pad. These activities have the potential to generate fugitive dust for a short period of time until the site is stabilized. If trees are burned, smoke can also contribute particulate

emissions. The applicant plans on chipping the cleared trees and using them as the storage area base for dust and erosion control and/or as feedstock for the plant; the trees are not proposed to be open-burned. The applicant plans to use water dispersal as the primary method of dust control during construction, using either on-site water and/or application by water truck. Internal roadways are currently paved; the proposed new travel lanes will be surfaced with 1/2-inch gravel or with a new composite material consisting of dirt and cement. Stabilized road surfaces will

minimize dust over the long term.

Once operational, the Project would result in up to eight additional trips (16 round-trips) to the site per day including employee vehicles and delivery trucks, considered an insignificant increase in daily vehicle trips and resulting emissions. The bioenergy plant will use generators that will operate on syngas. The operation of internal combustion engines is subject to requirements administered by LCAQMD. Prior to the commencement of site preparation and plant operations, the applicant will be required to secure all necessary permits from LCAQMD. Implementation of mitigation measures below would further reduce air quality impacts to less than significant.

Due to the potential generation of fugitive dust associated with construction activities, construction of the Project could have a significant impact on air quality. In their letter dated March 8, 2019, the LCAQMD provided recommendations to address fugitive dust and other potential air pollutants generated by the Project. These are incorporated as Mitigation Measures AIR-1 through AIR-4. Less Than Significant with Mitigation Incorporated.

Mitigation Measures:

AIR-1: Prior to the commencement of construction, applicant shall submit to the Lake County Air Quality Management District a complete list of all equipment to be used at the site with the potential to emit air contaminants, including diesel powered generators, pumps, off-road equipment, etc. and secure all necessary permits for all eligible operations and equipment as required by the District. Diesel powered equipment must meet the requirements of the State Air Toxic Control Measures for CI engines (stationary and portable). All mobile diesel equipment used must be in

1, 2, 3, 4, 5, 8, 11, 12, 13

| | | | | compliance with State registration requirements. Portable and stationary diesel powered equipment must meet the requirements of the for CI engines. <u>AIR-2:</u> Prior to operation, the primary access roads and parking area shall be | |
|--|---|---|---|---|---------------------------------|
| | | | | constructed, surfaced and maintained with an all-weather surface of asphaltic concrete or concrete unless another all-weather surface is approved by the review authority to minimize dust impacts to the public, visitors and road traffic. All areas subject to semi-truck/trailer traffic shall require asphaltic concrete paving or equivalent to prevent fugitive dust generation. Gravel surfacing may be adequate for low use/overflow driveways and parking areas if it receives regular palliative treatment. The use of white rock for surfacing is prohibited. | |
| | | | | AIR-3: All vegetation removed during site development shall be chipped and spread for ground cover, erosion control and/or biomass feedstock. The burning of vegetation, construction debris, or waste material is prohibited. | |
| | | | | AIR-4: Dust control measures shall be implemented to minimize fugitive dust emissions from the Project Site. Dust control measures may consist of approved chemical, structural, or mechanical methods and shall be reapplied at the necessary intervals to prevent wind erosion. | |
| b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under and applicable federal or state ambient air quality standard? | | | X | The County of Lake is in attainment of state and federal ambient air quality standards. No Impact. | 1, 3, 11 |
| c) Expose sensitive receptors to substantial pollutant concentrations? | X | | | See response to Section III (a). Construction activities have the potential to generate short-term fugitive dust if not properly controlled. There are two on-site residences and a travel trailer located approximately 200 to 300 feet from the Project Site. The nearest off-site residence is $800\pm$ feet to the southwest. There are no schools, hospitals, or other sensitive receptors in the vicinity of the proposed Project. Less Than Significant with Mitigation Measures AIR-1 through AIR-4 Incorporated. | 1, 2, 3, 4, 5, 8, 11, 12, 13 |
| d) Result in other emissions (such as those leading to odors or dust) adversely affecting a substantial number of people? | | X | | Refer to response to Section III (a) relating to dust. The Project Site is not located within a mapped area of Naturally Occurring Asbestos (NOA) and is therefore not expected to generate NOA emissions. The bioenergy plant has zero emissions and will therefore generate no odors. Conditions that could result in odors from processed feedstock include a combination of high heat, high moisture content, and storage for long periods, which can lead to anaerobic conditions. Due to the small size of the bioenergy system, wood waste would be processed in small batches using minimal water, which would avoid the creation of the conditions that could generate odor. Less Than Significant Impact. | 1, 2, 3, 4, 5, 8, 11, 12, 13 |

IV. BIOLOGICAL RESOURCES

Significance Criteria: Project impacts upon biological resources would be significant if any of the following resulted: substantial direct or indirect effect on any species identified as a candidate, sensitive, or special status species in local/regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS) or any species protected under provisions of the Migratory Bird treaty Act (e.g. burrowing owls); substantial effect upon riparian habitat or other sensitive natural communities identified in local/regional plans, policies, or regulations or by the agencies listed above; substantial effect (e.g., fill, removal, hydrologic interruption) upon state or federally protected wetlands; substantially interfere with movement of native resident or migratory wildlife species or with established native resident or migratory wildlife corridors; conflict with any local policies/ordinances that protect biological resources or conflict with a habitat conservation plan.

Environmental Setting: The site is located along the Highway 29 corridor in narrow valley terrain between the northeastern toe of the Mayacamas Mountains and the southern slope of Mount Konocti. This corridor consists of a series of isolated flats and small basins either drained internally or connected to Thurston Creek, which drains to the isolated basin of Thurston Lake. This property is drained along its eastern edge by an excavated ditch which flows north to SR 29 and then east to an unnamed tributary to Thurston Creek. The property drops approximately 80 feet in elevation from north to south into Hess Flat at an elevation of 1,880 feet msl. Site soils are weathered from obsidian (volcanic) formations, and are deep and well-drained. The majority of the 34.58±-acre property is occupied by a fallow walnut orchard, comprising approximately 86.18 percent of the land area. Approximately 1.55 acres (4.5 percent) is occupied by Interior Live Oak Woodland located along an ephemeral drainage swale on the eastern edge of the property. The community along

the east property line is heavily dominated by interior live oak trees to a height of 50 feet and contains a dense shrub layer. Mixed Chaparral occupies 1.48± acres (4.28 percent) in the southeastern corner of the property, comprised primarily of common manzanita, ceanothus, interior live oak shrub, poison oak, coyote brush and knobcone pine. The remaining 1.75 acres± (5.06 percent) is developed. The footprint of the proposed Project is located within the walnut orchard.

| Woul | l A | th a | nuo | inat. |
|------|-----|------|-----|-------|
| woui | а | ıne | pro | ieci: |

| would the project: | | | | |
|--|--|---|--|-------------|
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | | X | A Biological Resource Assessment with Botanical Survey and Delineation of Waters of the U.S. (BRA), dated July 1, 2019, was prepared by Northwest Biosurvey for the Project Site. The purpose of the Assessment was to determine whether the property contains sensitive plants or potentially contains sensitive wildlife requiring mitigation under CEQA. The terms sensitive plant or wildlife includes all state or federal rare, threatened, or endangered species and all species listed in the California Natural Diversity Database (CNDDB) list of "Special Status Plants, Animals, and Natural Communities." Plants. Each of the sensitive plant taxa potentially occurring at the site was specifically searched for during the survey. The survey identified a total of 60 plant taxa on the property, including native and introduced plants. The relatively small number of species identified is a result of the small survey area, the lack of diversity within the ruderal areas and orchard, and the small palette size of the natural plant communities. No plants with sensitive status were discovered during the in-season floristic-level botanical surveys. Wildlife. A total of 17 sensitive wildlife species were assessed for potential occurrence at the site because of inclusion in the CNDDB database for the Clearlake Highlands quadrangle and the WHR database. The species listed include insects, isopods, aquatic reptiles and amphibians, raptors, and small mammals. The site does not contain perennial streams or ponded water of any type, making it unsuitable for any of the listed aquatic species. The lack of roosting structures makes it poor habitat for nesting raptors and roosting bats. No Impact. | 3, 6, 7, 15 |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | | X | According to the BRA, the Project Site does not contain perennial streams or ponded water of any type. Delineated aquatic resources consisted of 0.136 acres (5,924 sf) of intermittent stream channel located in the southeast corner and continuing north along the east boundary of the subject parcel. The proposed Project Site is located over 350 feet downslope of this drainage channel. No riparian or other sensitive natural community was identified in the project area. No Impact. | 3, 6, 7, 15 |
| c) Have a substantial adverse effect on state or federally protected wetlands (including, not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | | X | According to the BRA, a delineation was conducted in accordance with the U.S. Army Corps of Engineers Wetlands Delineation Manual: Arid West Region (2008) to determine the extent of possible waters of the U.S. Delineation fieldwork was completed on April 10, 2019. Waters of the U.S. within the subject property were determined to consist of intermittent stream channels and ephemeral drainages. No potential wetland resources were found. No Impact. | 3, 6, 7, 15 |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | | X | According to the BRA, there is no habitat on the Project Site that would support resident or migratory fish. New construction does not include impediments to wildlife corridors. There are no native wildlife nursery sites on the subject property. No Impact. | 3, 6, 7, 15 |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | | X | The proposed Project would not conflict with local policies, such as those identified in Section 3.3 of the Riviera Area Plan [Vegetation and Wildlife] or Chapter 9.1 of the General Plan [Biological Resources]. No Impact . | 1, 2, 3 |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community | | X | There are no adopted habitat conservation plans in the Project area. No special conservation plans have been adopted for the subject parcel. No Impact. | 1, 2, 3 |

| Conservation Plan, or other approved local, regional, or state habitat conservation plan? | | | | | |
|--|--------|---------|-------|---|-----------------------|
| | | | | V. CULTURAL RESOURCES | |
| Significance Criteria: The proposed Pr substantially changed, or if human remains | | | | nificantly impact cultural resources if the significance of a historical or archaeologicad. | al resource were |
| | orchai | rd. The | e pro | of Mount Hanna, approximately 2.5 miles south of Clear Lake. Approximately 86 perces posed Project Site is located within the existing orchard. There are no perennial watered as prevalent on the property. | |
| Would the project: | | | | | |
| a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5? | | | x | Comments received from the Northwest Information Center (NWIC) indicate that archaeological resources surveys were conducted of the entire property in 2003 and 2006 and no archaeological resources were identified. Cultural resources surveys were conducted in 1996 and 2001, which identified one non-archaeological resource, a single-family home, of potential historical value due to its age of 45 years or older. According to the results of the studies, NWIC recommended no further study for potential unrecorded cultural resources; however recommended that the status of the recorded non-archaeological resource be reassessed. An Archaeological Reassessment of the subject property, dated September 9, 2004, was provided by NWIC. Included in the NWIC documents is a letter written by the State Office of Historic Preservation, which states, "A record search conducted by the Northwest Information Center at Sonoma State University identified no archeological properties located within the project APE [Area of Potential Effects]. A pedestrian survey of the project area conducted by qualified archeologists in January 2001 also provided no evidence of historical or prehistoric archeological properties." The letter further states, "Our review of the submitted HPSR [Historic Property Survey Report] leads us to concur with FHWA's [Federal Highway Administration] determination that the property at 7130 Red Hills Road is not eligible for inclusion on the NRHP [National Register of Historic Places] under any of the criteria established by 36 CFR 60.4." The residence was therefore not considered to be a significant historical resource and has since been demolished and removed from the site due to its state of disrepair. No Impact. | 1, 2, 3, 4, 5, 15, 16 |

| b) Cause a substantial adverse change in the significance of an archeological resource pursuant to §15064.5? | X | | According to the applicant, "SVBPI is not aware of any flatland or lowland sites in Lake County that could not be a possible archaeological site given the existence of Native Americans in the area since 12,000 B.CE. A blanket of shattered obsidian is prevalent on the property, which is a minor indication that obsidian may have been mined as some point in time. However, during its years of ownership, SVBPI's certified cultural monitors have surveyed the property for archaeological evidence. To date no such evidence has been found. Nevertheless, SVBPI will retain one or more of its cultural monitors, as needed, during the project's site preparation and construction phases." No impacts to known archaeological resources are anticipated as a result of the Project. However, to ensure that undiscovered resources are not impacted during Project construction, CUL-1 and CUL-2 are recommended. Less Than Significant with Mitigation Incorporated. Mitigation Measures: CUL-1: Should any archaeological, paleontological, or cultural materials be discovered during site development, all activity shall be halted in the vicinity of the find(s), and a qualified archaeologist retained to evaluate the find(s) and recommend mitigation procedures, if necessary, subject to the approval of the Community Development Director. The applicant shall halt all work and immediately contact the Lake County Sheriff's Department and the Community Development Department if any human remains are encountered. | 1, 2, 3, 5, 6, 16, 17 |
|---|---|---|---|--------------------------|
| | | | <u>CUL-2</u> : A cultural resource monitor shall be present during ground disturbance activities. | |
| c) Disturb any human remains, including those interred outside of formal cemeteries? | X | | Disturbance of human remains is not anticipated. However, to ensure that human remains are not disturbed during Project construction, CUL-1 and CUL-2 are recommended. Less Than Significant with Mitigation Measures CUL-1 and CUL-2 Incorporated. | 1, 2, 3, 5, 6, 16, 17 |
| | | | VI. ENERGY | |
| | | | gnificantly impact energy if construction of the Project would result in wasteful, ine Project would conflict with a state or local plan for renewable energy or energy effi | |
| | | | located on less than one-acre within a 35.58-acre parcel at the foot of Mount Hanna e-family residential development surrounded predominantly by agricultural uses. | . The subject |
| Would the project: | | | | |
| a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? | | X | The Project consists of a small-scale, modular waste-to-energy plant that utilizes high-carbon woody biomass and electric heaters to generate syngas and biochar. The syngas generated by the system is a fuel gas mixture consisting primarily of hydrogen, carbon monoxide, methane and carbon dioxide. Biochar is a byproduct of the process used as a soil amendment. The plant will operate two 100kW bioenergy units. According to the applicant, using a hybrid of pyrolysis and gasification, the oxygen and moisture in the biomass feedstock help produce a higher energy syngas, allowing for efficient energy generation. The syngas is delivered via a closed system to a modified internal combustion engine and generator to create electricity, which is used to fuel the plant. The two 100-kW systems (200 kW total) will consume approximately 60 kW of electricity to operate, and will require a 240v, three-phase, 100-amp electrical connection. By design, the ARTIS Gasification System is intended to reduce wasteful, inefficient consumption of energy resources by transforming a waste product into renewable, clean energy that, in turn, would fuel the plant. As such, the Project is expected to have a positive impact on energy resources. Less Than Significant Impact. | 1, 2, 3, 5, 6 |

| 1) 0 0 1 1 | | 37 | | 1 2 2 5 6 |
|--|---|---|--|---|
| b) Conflict with or obstruct a state or local plan for renewable | | X | The proposed Project would not conflict with or obstruct a state or local renewable energy plan, nor would it conflict with goals and policies of the | 1, 2, 3, 5, 6 |
| energy or energy efficiency? | | | General Plan [Section 9.5, Energy Resources]. No Impact. | |
| | | | VII. GEOLOGY AND SOILS | |
| risk; ruptured a known fault; produc | ed stror | ig seismi | sult in a significant impact to geological or soil resources if it exposed people or struct c ground shaking, ground failure, liquefaction, landslides or substantial soil erosio stable ground; or destroyed a unique paleontological resource or geologic feature. | |
| underlying the area are comprised of ago) epochs. These are described as a contains a single soil type, Glenview vegetation is mainly brush with scatt sandy loam. The Glenview soil is ver | young p well-bed w-Arrov tered co ry deep oderatel | yroclastic lded ash whead com nifers. The and well y deep ar | d within the Clear Lake volcanic field, and characterized by gentle slopes. The major deposits from the Holocene (8,000 years ago to present) and Pleistocene (1.8 millio and tuff, with abundant blocks and bombs that weather to a dark orange color. The implex, 5-15% slopes, weathered from obsidian formations. This unit is on volcan he unit contains about 60% Glenview very gravelly loam and 20% Arrowhead ext drained. It formed in material weathered from obsidian. Permeability is moderately and well drained, and formed in material weathered from obsidian. Permeability is slopels. | n to 8,000 years subject property nic hills. Native remely gravelly slow and runoff |
| Would the project: | | | | |
| a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist- Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. ii) Strong seismic ground shaking? iii) Seismic-related ground failure, including liquefaction? | | X | (a)(i) The Project Site is not located within an Earthquake Fault Zone as established by the California Geological Survey in accordance with the Alquist-Priolo Earthquake Fault Zoning Act. The nearest fault zones are approximately 0.8 miles east and one mile south of the Project Site. The proposed project would not expose people or structures to substantial adverse effects due to earthquakes. (a)(ii) and (a)(iii) Lake County contains numerous known active faults. Future seismic events in the Northern California region can be expected to produce seismic ground shaking at the site. All proposed construction is required to be built consistent with Current Seismic Safety construction standards. (a)(iv) According to the U.S. Landslide Inventory provided by the USGS Landslide Hazard Program, there are no mapped landslides on or in the vicinity of the Project Site. The Project is not expected to cause potential substantial adverse effects due to seismic activity or landslides. Less Than Significant Impact. | 4, 8, 16, 17, 18, 19 |
| iv) Landslides? b) Result in substantial soil erosion or the loss of topsoil? | X | | Project grading will involve approximately 45 cubic yards (cy) to create a 2,000-sf building pad and to level the 28,000-sf outdoor storage area. The applicant estimates that the volume of cut will be equivalent to the volume of fill, resulting in no need to import or export soil. The building will be equipped with gutters and downspouts that will connect to underground drainage pipe that will outlet into the adjacent field where water will percolate into site soils. A rock energy dissipator will be installed at the pipe outlet to protect against scour. According to the applicant, site soils experience a high infiltration rate and stormwater discharge from the facility is not anticipated. Due to the scope of the grading activity, the moderate erosion hazard rating of site soils, and the lack of sensitive environmental resources on the Project Site, grading associated with the Project is exempt from a grading permit. Grading is, however, subject to the grading design standards outlined in the County Grading Ordinance. Compliance with the following mitigation measures will reduce impacts associated with soil erosion to a less than significant level. Less Than Significant Impact with Mitigation Incorporated. Mitigation Measures: GEO-1: The permit holder shall protect the local watershed with the implementation of Best Management Practices (BMPs) in accordance with the Chapter 30 (Grading Ordinance) of the Lake County Code and the Project | 1, 2, 3, 4, 5, 8, 18, 20 |

| | | | Description dated October 24, 2019 to prevent or reduce discharge of all pollutants and hazardous materials offsite. No silt, sediment or other materials exceeding natural background levels shall be allowed to discharge from the project area. The natural background level is the level of erosion that currently occurs from the area in a natural, undisturbed state. Typical BMPs include the placement of straw, mulch, seeding, straw wattles, silt fencing and the planting of native vegetation on all disturbed areas. Following construction, all exposed soil shall be protected by covering with vegetation, mulch, gravel or other surface treatment as appropriate for permanent erosion control. Erosion and sediment control measures shall be in place by the end of the grading project and shall be maintained until such time that permanent control has been established. GEO-2: Excavation, filling, vegetation clearing or other disturbance of the soil shall not occur between October 15 and April 15 unless authorized by the Community Development Director. The actual dates of the allowable grading period may be adjusted according to weather and soil conditions at the discretion of the Community Development Director. GEO-3: The permit holder shall monitor the site during the rainy season (October 15 – April 15), including post-installation, implementation of BMPs, erosion control maintenance, and other improvements as needed. GEO-4: Native vegetation shall be retained and protected where its removal is not necessary to implement the grading project or to meet fire safety regulations. | |
|--|---|---|--|----------------------------------|
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | X | | The Project Site is not identified as containing landslides or other unstable geologic conditions other than a moderate erosion hazard. There is a less than significant chance of landslide, subsidence, liquefaction or collapse as a result of the Project. Less Than Significant Impact. | 4, 8, 16, 17, 18, 19 |
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? | X | | According to the USDA Soil Survey, the shrink-swell potential for the Project soil type is moderate, and is not considered to be expansive. The proposed Project would therefore not increase risks to life or property as a result of expansive soil. Less Than Significant Impact. | 1, 2, 3, 4, 5, 8, 18, 20 |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water? | | X | The Project Site is served by an existing onsite waste disposal system. The proposed Project does not require or include expansion of this system. No Impact. | 4 |
| f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | | X | The Project Site does not contain any known unique geologic feature or paleontological resources. Disturbance of these resources is not anticipated. No Impact. | 1, 3, 4, 5, 8, 12, 16, 18, 19 |

VIII. GREENHOUSE GAS EMISSIONS

Significance Criteria: The proposed Project would significantly impact greenhouse gas (GHG) emissions if it were to generate substantial GHG emissions exceeding the CEQA thresholds of significance adopted by the Lake County Air Quality Management District (LCAQMD) or conflict with an adopted plan, policy or regulation intended to reduce greenhouse gas emissions.

Environmental Setting: Climate change is caused by greenhouse gases (GHGs) emitted into the atmosphere around the world from a variety of sources, including the combustion of fuel for energy and transportation, cement manufacturing, and refrigerant emissions. GHGs are those gases that have the ability to trap heat in the atmosphere, a process that is analogous to the way a greenhouse traps heat. GHGs may be emitted as a result of human activities, as well as through natural processes. Increasing GHG concentrations in the atmosphere are leading to global climate change. The Lake County Air Basin is in attainment for all air pollutants and has therefore not adopted thresholds of significance for GHG emissions.

| Would the project: | | | |
|--|-----|--|-------------------|
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | X | Greenhouse gas emissions from Project-related construction activities occurring over an 8-12 week period would include the use of diesel- and gasoline-powered construction equipment, delivery vehicles and worker vehicles. GHG emissions resulting from construction activities would be negligible and temporary, and would not result in a significant impact to the environment. During the operating phase, the bioenergy plant would operate 24 hours per day, seven days per week except when shut down for maintenance. According to the Project Description, the Artis gasifier "delivers a clean syngas to a modified internal combustion engine and generator to create electricity." The syngas generated by the Artis gasifier is a fuel gas mixture consisting primarily of hydrogen, and carbon monoxide, with less than ten percent by volume being methane and carbon dioxide. The syngas is processed through a series of heat exchangers, hydrocarbon crackers and particulate filters before being delivered to the generator to fuel the system. Trace level emissions to below detectable levels from the sealed-system Artis gasifier result in a carbon neutral system. The applicant states, "Emissions testing will be done as part of project startup and commissioning activities. The Artis 100 systems have zero emissions and the generators we are proposing to use will all meet EPA and air quality board emission requirements." Approximately 2-5 trucks to the site per day are estimated to deliver feedstock. One employee per shift (two per day) will operate the facility. A diesel-powered front-end loader is estimated to operate 6-8 hours per day, five days per week. This is based on the assumption that all material will arrive unchipped; however, material will be delivered to the site in both chipped and unchipped form. The hammermill will operate on electricity and would therefore not contribute GHG emissions. Based on the temporary nature of construction activities, the relatively light use of diesel equipment, and zero emissions generated by th | 1, 2, 3, 5, 6, 12 |
| b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? |) X | The proposed Project will not conflict with any adopted plans or policies for the reduction of greenhouse gas emissions. No Impact. | 1, 2, 3, 5, 6, 12 |

IX. HAZARDS AND HAZARDOUS MATERIALS

Significance Criteria: The Project would result in significant hazards or hazardous materials impacts if it exposed people to hazardous materials or placed them into hazardous situations; if it released hazardous materials or emissions into the environment or within 0.25 miles of a school; if it is located on a listed hazardous materials site; if it would create a hazard due to its proximity to a public airport or private airstrip; if it would create excessive noise for people in the area; if it would interfere with an emergency response or evacuation plan; or if it would expose people or structures to significant risks due to wildland fire.

Environmental Setting: The Project Site is located approximately five miles southeast of Kelseyville town center, on a 34.58-acre property occupied predominantly by a fallow walnut orchard. The subject property is also occupied by two single-family residences and a travel trailer. The fire hazard rating for the majority of the subject parcel, including the Project Site, is moderate. The very north portion of the parcel adjacent to SR 29 has a fire hazard rating of very high. The nearest receptors are the two on-site residences and travel trailer, located 200 to 300 feet south-southeast of the Project Site.

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? Hazardous materials associated with the Project include the use of diesel fuel and the use and storage of cleaning solvents. The loader and chipper will be fueled by a mobile fueling service. Solvents in containers of two gallons or less will be stored in a locked fireproof cabinet. The Project does not involve the routine disposal of hazardous materials. The use and storage of hazardous materials creates the opportunity for accidental releases to occur, requiring measures to prevent potential releases and to take proper action to contain, clean up and notify authorities should a release occur.

1, 2, 3, 5, 6, 23, 24, 25

Lake County Division of Environmental Health (LCEH) provided written comments on March 13, 2019. These included, in part, "If the applicant stores hazardous materials (defined as either virgin or waste materials) equal to or greater than 55 gallons of a liquid, 500 pounds of a solid or 200 cubic feet of compressed gas, the applicant will be required to submit a Hazardous Materials Business Plan to the Environmental Health Division via the California Electronic Reporting system (CERS) and it shall be renewed and updated annually or if quantities increase. If the amount of hazardous materials is less than the above quantities, the applicant will need to complete and submit a Hazardous Materials/Waste Declaration stating the name of the material and the quantity to be stored on site. Hazardous materials shall not be allowed to leak onto the ground or contaminate surface waters. Any release of a hazardous material must be immediately reported to LCEH." Other pertinent comments from LCEH include the protection of wells from hazardous materials.

Section 41.7 of the Lake County Zoning Ordinance specifies that all uses involving the use or storage of combustible, explosive, caustic or otherwise hazardous materials shall comply with all applicable local, state and federal safety standards and shall be provided with adequate safety devices against the hazard of fire and explosion, and adequate firefighting and fire suppression equipment.

Implementation of the following mitigation measures will reduce the impact from potential releases of hazardous materials to a less than significant level. Less Than Significant Impact with Mitigation Measures HAZ-1 and HAZ-2 Incorporated.

Mitigation Measures:

HAZ-1: The storage of potentially-hazardous materials shall be located at least 100 feet from any existing water well. These materials shall not be allowed to leak onto the ground or contaminate surface waters. Collected hazardous or toxic materials shall be recycled or disposed of through a registered waste hauler to an approved site legally authorized to accept such materials.

HAZ-2: If operation includes storage of hazardous materials equal to or greater than fifty-five (55) gallons of a liquid, 500 pounds of a solid, or 200 cubic feet of compressed gas, then a Hazardous Materials Inventory Disclosure Statement/Business Plan shall be submitted and maintained in compliance with requirements of Lake County Environmental Health Division. Industrial waste shall not be disposed of on site without review or permit from Lake County Environmental Health Division or the California Regional Water Quality Control Board. The permit holder shall comply with petroleum fuel storage tank regulations if fuel is to be stored on site.

| b) Create a significant hazard to the public or the environment through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment? c) Emit hazardous emissions or | X | | v | The Project does not involve the storage of a significant volume of hazardous materials that could be released into the environment. The storage of small volumes of cleaning solvents will be stored in a locked cabinet inside the building. Should the storage of fuel be desired in the future, the operator must comply with all applicable local, state and federal regulations. Less Than Significant Impact with Mitigation Measures HAZ-1 and HAZ-2 Incorporated. | 1, 2, 3, 5, 6, 23, 24, 25 |
|---|---|---|---|--|-------------------------------------|
| handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | | | X | The nearest school is located over two miles from the Project Site. No Impact. | 1, 2, 3, 5, 6, 7 |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | | | X | The California Environmental Protection Agency (CALEPA) has the responsibility for compiling information about sites that may contain hazardous materials, such as hazardous waste facilities, solid waste facilities where hazardous materials have been reported, leaking underground storage tanks and other sites where hazardous materials have been detected. Hazardous materials include all flammable, reactive, corrosive, or toxic substances that pose potential harm to the public or environment. The following databases compiled pursuant to Government Code §65962.5 were checked for known hazardous materials contamination within ¼-mile of the Project Site: • State Water Resources Control Board (SWRCB) GeoTracker database • Department of Toxic Substances Control EnviroStor database • SWRCB list of solid waste disposal sites with waste constituents above hazardous waste levels outside the waste management unit. The Project Site is not listed in any of these databases as a site containing hazardous materials as described above. No Impact. | 1, 2, 3, 4, 5, 6, 23, 24, 25, 26 |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? | | | X | The project is not located within two (2) miles of an airport and/or within an Airport Land Use Plan. The nearest airport is Lampson Field approximately 9.5 miles northwest of the Project Site. No Impact. | 1, 2, 3, 4, 5, 6, 27 |
| f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | | X | | Development of a small-scale bioenergy plant at this location would not impair or interfere with an adopted emergency response or evacuation plan. Less Than Significant Impact. | 1, 2, 3, 4, 5, 6, 23 |
| g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? | X | | | The Project Site is situated in a moderate fire hazard severity zone and is within the Local Responsibility Area of the Kelseyville Fire Protection District. The Project Site is surrounded by orchards, vineyards, and residential and commercial development. The Project includes both potential ignition sources (equipment) and fuel (wood chips), which, under certain conditions, could result in fire that could spread to adjacent vegetation. Proper operation and maintenance of equipment would minimize these impacts. Less Than Significant Impact with Mitigation Measures HAZ-3 and HAZ-4 Incorporated. Mitigation Measures: HAZ-3: The permit holder shall operate in full compliance with fire safety rules and regulations and instruct all project workers that the project involves working adjacent to flammable vegetation. All activities shall be performed in a safe and prudent manner with regards to fire prevention. Vehicles and equipment shall be maintained and operated in a manner to prevent hot surfaces, sparks or any other heat sources from igniting grasses, brush or other highly combustible material. | 1, 2, 3, 4, 5, 6, 23, 28, 29 |

| | | HAZ-4: Vehicles and equipment shall be maintained and operated in a manner to prevent hot surfaces, sparks or any other heat sources from igniting grasses, brush or other highly combustible material. |
|--|--|---|
| | | X. HYDROLOGY AND WATER QUALITY |
| requirements or substantially degraded management; altered drainage patter flooding; impeded or redirected flood a water quality plan or sustainable graded managemental Setting: The Project Mountains and the southern slope of Mountains to the north to SR 29 and then east to an understand the Hess Flat at an elevation of 1,880 feet consist of 0.136 acres of intermittent Project Site would be located over 350 storage area. Would the Project: | ed surface on sin a mar al flows; risk oundwater. Site is located loca | ificantly impact hydrology and water quality if it violated water quality standards or waste discharge regroundwater quality; substantially decreased groundwater supplies or impeded sustainable groundwater ner that would cause substantial on- or off-site erosion, polluted runoff or excessive runoff that caused ed a release of pollutants due to inundation if in a flood hazard, tsunami or seiche zone; or conflicted with management plan. The dalong the Highway 29 corridor in narrow valley terrain between the northeastern toe of the Mayacamas cti. This corridor consists of a series of isolated flats and small basins either drained internally or connected pasin of Thurston Lake. The property is drained along its eastern edge by an excavated ditch which flows utary to Thurston Creek. The property drops approximately 80 feet in elevation from north to south into Project Site does not contain perennial streams or ponded water of any type. Delineated aquatic resources nel located in the southeast corner and continuing north along the east boundary of the subject parcel. The his drainage channel. A small drainage swale is located over 100 feet from the eastern edge of the proposed |
| a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? | X | Construction of the proposed Project will not generate any wastewater; therefore, there are no waste discharge requirements associated with the Project. Grading activities in preparation for the building pad have the potential to cause erosion; however, Project drainage is designed to flow as sheet flow into well-drained soils downslope of the site. Gutters and downspouts installed on the building will be connected to an underground drainage pipe that will extend downgradient 20 feet beyond the lane that will encircle the building. The pipe will release roof drainage into a rock energy dissipator to prevent surface erosion. Due to the significant acreage of land downslope of the Project Site and the well-drained soils designated by the USDA and confirmed by the applicant, sediment generated from the Project is expected to settle out on the property and not be discharged off site. Project grading of one or more acres requires compliance with the State Water Resources Control Board (SWRCB) General Permit for Discharges Associated with Construction Activities (Construction Stormwater Permit). The area proposed for grading is 2,000 square feet for the plant production pad and some leveling in the 28,000-sf storage area; therefore, the Project does not qualify for the Construction Stormwater Permit. However, the chipping activity may require coverage under the SWRCB General Permit for Discharges Associated with Industrial Activities (Industrial Stormwater Permit). Coverage under the Industrial Stormwater Permit would require development of a Storm Water Pollution Prevention Plan (SWPPP) and implementation of a comprehensive stormwater monitoring program for the facility. HYD-1 requires the applicant to obtain any necessary permits, which would include a permit from the SWRCB if so required, in order to protect water quality from project-related impacts. Refer to Section VII(b) [Geology/Soils] for a discussion of impacts to water quality as a result of hazardous material use and storage. Less Than Significant with |

1, 2, 3, 5, 6

| h) Cylestantially doguesas | _ | | v | | The managed biggroups about is expected to use empreyimentally 5 to 10 college | 1, 2, 3, 5, 6 |
|---|--------------|---------|-------|--------------|---|-------------------------------|
| b) Substantially decrease groundwater supplies or interfere | | | X | | The proposed bioenergy plant is expected to use approximately 5 to 10 gallons of water daily supplied by the onsite well. As proposed, the project would not | 30, 31 |
| substantially with groundwater | | | | | substantially decrease groundwater supplies or interfere substantially with | 30, 31 |
| recharge such that the project may | | | | | groundwater recharge. Less Than Significant Impact. | |
| impede sustainable groundwater | | | | | g.community roomings 2000 rama signatum rampuos | |
| management of the basin? | | | | | | |
| c) Substantially alter the existing | 1 | X | | | The 34.58-acre Project Site is predominantly fallow orchard, with 5.06± acres | 1, 2, 3, 5, 6, 7 |
| drainage pattern of the site or | | | | | occupied by residential development, roads and a parking lot. The disturbed | 15, 18, 29, 32 |
| area, including through the | | | | | acreage comprises 1.75 percent of the total acreage. The proposed Project will add | |
| alteration of the course of a | | | | | 2,000± square feet of impervious surface to the parcel. | |
| stream or river or through the | | | | | | |
| addition of impervious surfaces, | | | | | (i) As discussed in (a) above, construction activities and operation of the Project | |
| in a manner that would: | | | | | will not result in substantial erosion or siltation, due to well-drained site soils, | |
| i) result in substantial erosion or | | | | | extensive acreage for percolation, and proposed drainage improvements that will | |
| siltation on-site or off-site; | | | | | direct roof runoff onto a rocky substrate in the orchard. Mitigation measures GEO- | |
| shadon on site of our site, | | | | | 1 through GEO-4 address Project-related soil erosion. | |
| ii) substantially increase the rate | | | | | | |
| or amount of surface runoff in | | | | | (ii) The increase of 2,000 square feet of impervious area will have a negligible | |
| a manner which would result in | | | | | effect on the rate and amount of surface runoff, and will not result in on- or off-site | |
| flooding on- or offsite; | | | | | flooding. | |
| iii) create or contribute runoff | | | | | | |
| water which would exceed the | | | | | (iii) The increase of 2,000 square feet of impervious area on the 34.58-acre parcel | |
| capacity of existing or planned | | | | | will not cause stormwater to exceed the capacity of the stormwater drainage system | |
| stormwater drainage systems or | | | | | or provide substantial additional sources of polluted runoff. | |
| provide substantial additional | | | | | | |
| sources of polluted runoff; or | | | | | (iv) The Project Site is not within a flood hazard zone, nor does flooding occur | |
| iv) impede or redirect flood | | | | | on the property. The Project will not impede or redirect flood flows. | |
| flows? | | | | | Toward Charles of Toward Call Market and Call | |
| d) In flood hazard, tsunami, or | ┼─ | | | X | Less Than Significant Impact with Mitigation Incorporated. The Project Site is not located in an area of potential inundation by seiche or | 1 2 2 5 6 7 |
| seiche zones, risk release of | | | | Λ | tsunami. The subject parcel is not located within a flood hazard zone. Therefore, | 1, 2, 3, 5, 6, 7 9, 23, 32 |
| pollutants due to project | | | | | there is no risk of release of pollutants due to inundation. No Impact. | 9, 23, 32 |
| inundation? | | | | | there is no risk of release of politicants due to mundation. To impact. | |
| e) Conflict with or obstruct | † | | | X | The proposed Project would not conflict with or obstruct water quality or | 1, 2, 3, 5, 6, 29 |
| implementation of a water quality | | | | 11 | management plans. No Impact. | 1, 2, 3, 3, 0, 2 |
| control plan or sustainable | | | | | management plants to rangue | |
| groundwater management plan? | | | | | | |
| | | | | | XI. LAND USE AND PLANNING | |
| Significance Criteria: The Project | et wo | uld si | gnifi | cantl | y impact land use if it physically divided an established community or conflicted | with a land us |
| plan, policy or regulation intended | to av | oid o | r mit | igate | an environmental impact, such as the general plan or zoning code. | |
| Environmental Setting: The Projection | ect Si | te is l | ocate | d wi | thin the unincorporated County of Lake, within the Riviera Area Plan boundary. The | northern 10.5 |
| | | | | | e Designation of Community Commercial, and is zoned "CH" Commercial Highwa | |
| | | | | | and the "SC" - Scenic Combining District Overlay District. The southern 24.5± acr | |
| | | | | | and Designation of Rural Residential and is zoned Rural Residential. The parcel is | |
| | | nd ag | ricul | tural | uses to the west, east, and south. The proposed Project Site within the subject acreas | ge is surrounde |
| by agricultural and residential uses | 3. | | | | | |
| Would the project: | | | | | | |
| a) Physically divide an | | | | X | The Project Site is located on approximately 34.58-acre parcel in a rural area of | 1, 2, 3, 5, 6 |
| established community? | | | | | Lake County. The proposed Project would not physically divide an established | |
| | $oxed{oxed}$ | | | | community. No Impact. | |
|) Couse a significant | 1 | 1 - | 1 | \mathbf{v} | This proposed Project is consistent with the Lake County Coneral Plan Piviara | 1 2 2 5 6 |

This proposed Project is consistent with the Lake County General Plan, Riviera

Area Plan, and Lake County Zoning Ordinance. Pursuant to Section 27.11 [Table

B] of the Lake County Zoning Ordinance (LCZC), a Power Generation Facility is

allowed in the Rural Residential zoning district subject to approval of a major use

Χ

permit. No Impact.

b) Cause a significant

environmental impact due to a

conflict with any land use plan,

policy, or regulation adopted for

the purpose of avoiding or

effect?

mitigating an environmental

XII. MINERAL RESOURCES

Significance Criteria: Impacts to mineral resources would be considered significant if the proposed Project were to result in the loss of a known mineral resource that has value to the region and state or is otherwise locally important as designated on a local land use plan.

Environmental Setting: The Project Site is not located within an area identified by the State or County as regionally significant for containing mineral resources.

| resources. | | | | | | | | |
|---|--------------------|--|--|---|--|--------------|--|--|
| Would the project: | Would the project: | | | | | | | |
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | | | | X | The Aggregate Resource Management Plan (ARMP) does not identify the subject property as being located within a Quarry Resource Area. There are no regionally significant mineral resources identified within the Project area. No loss of a known mineral resource of value to the region or the state would result from the proposed Project. No impact. | 1, 3, 31, 32 | | |
| b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? | | | | X | The subject property is not designated as being a locally important mineral resource recovery site in the County of Lake's General Plan, the Riviera Area Plan or the Lake County ARMP. There are no existing quarries on the Project Site. The Project does not involve the extraction of mineral resources; therefore the Project would not result in the loss of availability of valuable or locally important mineral resources. No impact. | 1, 3, 31, 32 | | |

XIII. NOISE

Significance Criteria: The Project would have a significant impact if it temporarily or permanently exceeded local noise standards in the vicinity of the Project, generated excessive groundborne noise or vibration; or would expose people residing or working in the area to excessive noise levels from public airports or private airstrips.

Environmental Setting: The Project Site is located adjacent to a two-lane rural County road, and within an area dominated by agricultural uses. The area is exposed to the typical background noise associated with these activities, such as light vehicle traffic, human voices, and farm vehicles and equipment. Background noise is also provided by SR 29 to the north. The nearest residential receptors are two single-family residences and a travel trailer located on the subject property approximately 200 to 300 feet south-southeast of the proposed Project site. The nearest off-site single-family residence is located approximately 800 feet southwest of the edge of the property boundary. The Noise Element of the Lake County General Plan and Section 41.11 of the Lake County Zoning Ordinance protects residential areas and other noise-sensitive uses from excessive noise by implementing noise standards.

Would the project result in:

| a) Generation of a substantial |
|--------------------------------------|
| temporary or permanent increase |
| in ambient noise levels in the |
| vicinity of the project in excess of |
| standards established in the local |
| general plan or noise ordinance, |
| or applicable standards of other |
| agencies? |
| - |

Short-term noise levels would be increased during the construction phase of the Project. Construction-related noise may involve the use of a tractor/grader, compactor, water truck, and trucks delivering rock and concrete. Construction noise would occur over a period of approximately 8-12 weeks. For construction activities, General Plan Policy N-1.7 states, "The County shall require contractors to implement noise-reducing mitigation measures during construction when residential uses or other sensitive receptors are located within 500 feet." Compliance with NOI-1 and NOI-2 will mitigate temporary construction noise to a less than significant level.

1, 2, 3, 4, 5

Once Project construction is completed, noise associated with the operation would be generated by truck deliveries of feedstock, chipping equipment, and generators operating the bioenergy system on the west side of the building. The operation plan assumes 2 – 5 trucks daily delivering both chipped and unchipped material. To prepare feedstock, unchipped material would be run through a diesel or electric-powered chipper and then through an electric-powered hammermill before transfer to the hopper or stockpiled for later use. It is anticipated that material will be processed for no longer than 2-3 hours per day, five days per week, with the front-end loader operating 6-8 hours per day. The biochar is stored until five tons is accumulated, at which time it would be shipped to a soil amendment wholesaler located in the Central Valley. Out shipments of biochar would therefore be significantly less frequent than deliveries. Generator noise would be attenuated by full aluminum weather protection and superior sound attenuation for specific low noise applications, including a critical grade muffler. The "Level 2" housed gen-set would be located on the west side of the building, over 140 feet from Red Hills Road, over 200 feet from the nearest on-site residence, and 800± feet from the nearest off-site residence.

| b) Generation of excessive groundborne vibration or groundborne noise levels? c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where | | X | | X | County noise standards require noise levels at the property line adjacent to residential and agricultural uses (west, south and east) not to exceed 55dBA between the hours of 7:00 a.m. and 10:00 p.m. and 45 dBA between the hours of 10:00 p.m. and 7:00 a.m. Where adjacent uses are commercial (north and east) noise levels must not exceed 60dBA during daytime hours and 55dBA during nighttime hours. The Project Description states that, "Based on the distance of the operation from property lines and receptors and topography, the operation is capable of complying with County noise standards." Compliance with NOI-2 and NOI-3 will ensure that permanent Project activities will not exceed County noise standards. Less Than Significant with Mitigation Incorporated. Mitigation Measures: NOI-1: All construction activities including engine warm-up shall be limited to Monday Through Friday, between the hours of 7:00 a.m. and 7:00 p.m. to minimize noise impacts on nearby residents. Back-up beepers shall be adjusted to the lowest allowable levels. Contractors shall implement noise-reducing measures during construction when occupied residences or other sensitive receptors are located within 500 feet. NOI -2: The Project shall comply with the noise standards identified in Section 41.11 of the Zoning Ordinance, including, but not limited to: maximum non-construction project-related noise levels shall not exceed: (a) 55 dBA between the hours of 7:00 a.m. to 10:00 p.m. and 45 dBA between the hours of 10:00 p.m. to 7:00 a.m. adjacent to residential districts; and (b) 60 dBA between the hours of 7:00 a.m. adjacent to residential districts; and the property lines as outlined in Table 11.1. Should the Project exceed these noise standards during construction or operational phases, noise-generating activities shall cease until noise attenuation measures are implemented such that the Project is compliant with noise standards. Refer to discussion in Section XII (a). Groundborne noise or vibration may occur during site development or oper | 1, 2, 3, 4, 5 | | |
|---|--|---|--|---|--|---------------|--|--|
| such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | | | | | | | | |
| XIV. POPULATION AND HOUSING | | | | | | | | |
| Significance Criteria: The proposed Project would result in significant impacts to the local population or housing stock if it directly or indirectly induced substantial unplanned population growth or displaced a substantial number of people or housing such that the construction of replacement housing would be required. Environmental Setting: The subject property is located in an established agricultural area with low residential density. | | | | | | | | |
| Would the project: | | | | | | | | |
| a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | | | | X | The Project does not involve the construction of new homes or businesses, or the extension of roads or other infrastructure that would induce population growth. No Impact. | 1, 2, 4, 5 | | |

| b) Displace substantial numbers of existing people or housing, necessitating the construction of | | | | X | No people or housing will be displaced as a result of the project. No Impact. | 1, 2, 4, 5 | | | | |
|--|--|----------|--------|-------|---|-------------------|--|--|--|--|
| replacement housing elsewhere? | | | | | | | | | | |
| | | | | | XV. PUBLIC SERVICES | | | | | |
| Significance Criteria: The Project would result in a significant impact to public services if it resulted in a requirement for increased or expanded public service facilities or staffing, including fire or police protection, schools and parks. | | | | | | | | | | |
| Environmental Setting: The subject property is served by the Lake County Sheriff Department, the Kelseyville Fire Protection District, and is located within the Kelseyville Unified School District. | | | | | | | | | | |
| Would the project: | | | | | | | | | | |
| a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: - Fire Protection? - Police Protection? - Schools? - Parks? | | | X | | The proposed Project during operation and construction will not result in the need for additional police or fire protection, parks or other public facilities. The Project would not affect the number of students served by local schools, nor would it increase the number of new residents to the area, which could require the construction of expanded school facilities. Less Than Significant. | 1, 2, 3, 4, 5 | | | | |
| - Parks? - Other Public Facilities? | | | | | | | | | | |
| - Other I done I definites: | | <u> </u> | | | | | | | | |
| | | | | | XVI. RECREATION | | | | | |
| | | | | | significant if the Project resulted in increased use of existing parks or recreational | | | | | |
| extent that substantial deterioration adverse effect on the physical environment. | | | lerat | ed or | if the Project involved the development or expansion of recreational facilities that | t would have an | | | | |
| | | | in the | Rivi | era planning area is Clear Lake State Park, located nearly seven miles northwest of | the Project Site. | | | | |
| The nearest public parks are Kelsey approximately seven miles southea | | | | | eer Park, located over five miles northwest of the Project Site. Boggs Mountain States. | e Park is located | | | | |
| Would the project: | | | | | | | | | | |
| a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | | | | X | The proposed Project involves the construction and operation of a bioenergy plant, and as such, will have no impacts on existing parks or other recreational facilities. No Impact. | 1, 2, 3, 4, 5 | | | | |
| b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on | | | | X | The Project does not include or require the construction or expansion of any recreational facilities. No Impact. | 1, 2, 3, 4, 5 | | | | |

XVII. TRANSPORTATION

the environment?

Significance Criteria: Impacts to transportation and traffic would be significant if the Project conflicted with a local plan, ordinance or policy addressing transit, roadway, bicycle and pedestrian facilities; conflicted with CEQA Guidelines Sec. 15064.3(b) which contains criteria for analyzing transportation impacts; substantially increased hazards due to geometric design features; or resulted in inadequate emergency access.

Environmental Setting: The Project Site is located in a low density residential and agricultural region of the Rivieras planning area. The Project Site is situated on private land, accessed via a private driveway accessed from Red Hills Road, a two-lane, a rural County-maintained road. The private driveway is shared by two residences and provides access to the Tribe's community gathering areas and parking lot in the northeast portion of the property. Red Hills Road connects SR 29 to the north of the Project Site and SR 175 to the southwest, and has no sidewalks, bicycle or pedestrian lanes. The nearest school is over five miles from the Site. The subject property is located adjacent to the proposed Lake 29 Expressway Project, which would widen eight miles of SR 29 between Kelseyville and Lower Lake to four lanes to improve safety and increase capacity for trucks and commercial traffic. The highway project would be developed by Caltrans in the next few years, beginning with the segment that includes the intersection of SR 29 and Red Hills Road.

| Would the project: | | | |
|--|---|---|------------|
| a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? | X | The Project Site is accessible off of Red Hills Road, approximately 1,000 feet from SR 29, the principal east-west commercial route through Lake County. There are no bicycle or pedestrian facilities in the vicinity of the Project Site. A minor temporary increase in construction-related traffic is anticipated during the construction phase. When operational, truck traffic to the site will increase by 2-3 trucks per day (4-6 trips/day) and vehicle traffic will increase by two employees per day (4 trips/day). The Project does not conflict with any local or regional transportation plans or facilities. Less Than Significant Impact. | 1-5, 33-38 |
| b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)? | X | Construction of the Project would temporarily generate additional vehicle trips resulting from work crew members traveling to and from the Site, and the delivery of materials. The construction period is expected to occur over an 8 to 12-week period. The increase in vehicle miles traveled (VMT) during Project construction is considered to be equivalent to those generated by an accessory building construction project, and considered less than significant. Operation of the plant is expected to generate up to 12 vehicle trips per day, five days per week, resulting in a minor increase in VMT after the Project is completed. Less Than Significant Impact. | 1-5, 33-38 |
| c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | X | The Project does not propose any changes to road alignment or other features, nor does it involve incompatible uses that could increase traffic hazards. The equipment and vehicles used to construct and operate the plant would be similar to those used for agricultural uses on adjacent farms. Less Than Significant Impact. | 4, 5 |
| d) Result in inadequate emergency access? | X | The construction and operation of the plant will not adversely impact existing emergency access. The existing driveway will be widened, improving accessibility for emergency vehicles. Less Than Significant Impact. | 4, 5, 24 |

XVIII. TRIBAL CULTURAL RESOURCES

Significance Criteria: An impact to tribal cultural resources would be significant if the Project were to substantially reduce the significance of a tribal cultural resource, a listed or eligible historic resource, or a resource considered significant by a California Native American tribe. Assembly Bill (AB) 52 was signed into law on September 25, 2014, requiring lead agencies to evaluate a project's potential to impact tribal cultural resources and establishes a consultation process for California Native American Tribes as part of CEQA. Tribal cultural resources include "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are eligible for inclusion in the California Register of Historical Resources (California Register) or included in a local register of historical resources. Lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." The consultation process must be completed before a CEQA document can be certified.

Environmental Setting: The Project Site lies at the foot of Mount Hanna, approximately 2.5 miles south of Clear Lake. Approximately 86 percent of the subject property is comprised of a fallow walnut orchard. The proposed Project Site is located within the existing orchard. There are no perennial watercourses or springs on the subject property. A blanket of shattered obsidian is prevalent on the property.

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

| a) Listed or eligible for listing in | | X | See response to Section V (a). No Impact. | 1, 2, 4, 5, 15, | ı |
|--|--|---|---|-----------------|---|
| the California Register of | | | | 16 | l |
| Historical Resources, or in a local | | | | | l |
| register of historical resources as | | | | | l |
| defined in Public Resources Code | | | | | l |
| section 5020.1(k), or | | | | | ı |

| b) A resource determined by the | X | A Request for Review was mailed on February 14, 2019 to the following tribes: | 1, 2, 3, 5, 6, |
|---|---|--|----------------|
| lead agency, in its discretion and supported by substantial | | Big Valley Rancheria, Cortina Rancheria, Elem Colony, Koi Nation, Middletown Rancheria, Mishewal-Wappo of Alexander Valley, Redwood Valley, Robinson | 15, 16 |
| evidence, to be significant | | Rancheria, Upper Lake Habematolel and Yocha Dehe, in addition to the Scotts | |
| pursuant to criteria set forth in | | Valley Band of Pomo Indians, the applicant for the subject Project. | |
| subdivision (c) of Public | | | |
| Resources Code section 5024.1. | | A response was received from Yocha Dehe, stating that the project is not within | |
| In applying the criteria set forth in | | the aboriginal territories of the Yocha Dehe Wintun Nation, and declining | |
| subdivision (c) of Public | | comment. | |
| Resources Code 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. | | The subject property is owned by the Scotts Valley Band of Pomo Indians. The Tribe's cultural monitors have surveyed the property for archaeological evidence, and to date have found none. Cultural monitors will be employed during site development activities. | |
| | | Less Than Significant with Mitigation Measures CUL-1 and CUL-2 Incorporated. | |

XIX. UTILITIES AND SERVICE SYSTEMS

Significance Criteria: Impacts to utility and service systems would be significant if the Project resulted in the construction or expansion of utilities that could cause significant environmental effects; have insufficient water supplies available to the Project during normal to extremely dry years; resulted in inadequate capacity of the wastewater treatment plant; generated solid waste exceeding the capacity of local infrastructure or impairing the achievement of solid waste reduction goals; or failed to comply with any management and reduction statutes or regulations related to solid waste.

Environmental Setting: The Project Site consists of a portion of a fallow walnut orchard situated on the east side of Red Hills Road, approximately 1,000 feet south of its intersection with SR 29. The Site contains two single-family residences, a travel trailer and a "public" restroom used by tribal members during ceremonial gatherings. These units are served by an on-site well with (2) 2,000-gallon storage tanks and an on-site septic disposal system. Electricity is provided by PG&E and trash collection is provided by the local waste hauler. The residences are also supplied with telecommunications services. There is no storm drain system; stormwater infiltrates into well-drained site soils.

| Would the project: | | | | | |
|--|--|---|---|--|---------------|
| a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? | | X | | The bioenergy system will require approximately 5-10 gallons of water per day. Water for dust control will be used judiciously, as feedstock requires a low moisture content of 20-25 percent. Water for the operation will be supplied by the on-site well by installing a "T" connector to the existing distribution system piping, extending a line and outlet to the Project Site and using a commercial grade hose for water delivery. The Project's primary electrical need is the transmission line between the plant's co-generator and the PG&E pole to the northwest of the plant on Red Hills Road to provide a 240v, 3-phase, 100-amp electrical connection. The transmission line will be installed overhead as required by PG&E. It will connect the co-generator units to a transformer set towards the top of the pole as installed by PG&E's employees. Secondary electrical needs will include power to the operation's interior and exterior LED lighting. According to the applicant, PG&E is prepared to provide these electrical services. Less Than Significant Impact. | 1, 2, 3, 5, 6 |
| b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? | | X | | As discussed in Section XIX(a), water demand associated with the facility is expected to be low, and can be provided by an existing on-site well, storage and distribution system. Project-related water demands are not dependent on seasonal precipitation. Less Than Significant Impact. | 4 |
| c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | | | X | The subject parcel is served by an on-site septic system. No Impact. | 4, 23 |

| d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? | X | The operation will generate a limited amount of trash; existing curbside trash collection will be expanded to include the bioenergy operation. The existing landfill has sufficient capacity to accommodate the Project's solid waste disposal needs. Eastlake Landfill, South Lake Refuse Center, and Quackenbush Mountain Resource Recovery and Compost Facility are located approximately 12 miles northeast of the subject parcel. Lake County Waste Solutions Transfer Station and Recycling Center is located approximately 12 miles northwest of the subject parcel. Less Than Significant Impact. | 1, 2, 4, 5, 39, 40 |
|--|---|--|------------------------|
| e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste? | X | The facility is designed to reduce waste by converting it into energy. Comments received from CalRecycle indicate that the biomass plant does not require a solid waste permit as long as it complies with PRC 40106 [definition of "biomass conversion"] and Title 14 CCR Section 17855(a)(5)(C), which excludes the handling of compostable materials if, "the activity is located at the site of biomass conversion and is for use in biomass conversion as defined in Public Resources Code section 40106." Another exclusion likely to pertain to the Project is found in Section 17855(a)(5)(I), which states, "The activity is the storage of yard trimmings at a publicly designated site for the collection of lot clearing necessary for fire protection provided that the public agency designating the site has notified the fire protection agency." The primary source of wood waste is from PG&E's line clearing program. As such, the Project does not require a solid waste permit and is understood to be compliant with federal, state and local regulations related to the reduction of solid waste. Less Than Significant Impact. | 1, 2, 3, 5, 23, 39, 40 |
| | | XX. WILDFIRE | |

Significance Criteria: Impacts to wildfire would be less than significant with the incorporated mitigation measures as the project is located within the State Responsibility Area (SRA). Additionally, the applicant shall adhere to all Federal, State and local agency requirements. and may substantially impair an emergency response plan; exposed project occupants to wildfire pollutants or uncontrolled spread of wildfire due to site conditions such as slope and prevailing winds; require the installation or maintenance of infrastructure that could exacerbate fire risk; or expose people or structures to significant risks as a result of post-fire runoff, slope instability or drainage changes.

Environmental Setting: The Project Site is located approximately five miles southeast of Kelseyville town center, on a 34.58-acre property occupied predominantly by a fallow walnut orchard. The fire hazard rating for the majority of the subject parcel, including the Project Site, is moderate. The very north portion of the parcel adjacent to SR 29 has a fire hazard rating of very high. The Project Site is located within the State Responsibility Area (SRA) zone. The nearest receptors are the two on-site residences and a travel trailer, located 200 to 300 feet south-southeast of the Project Site.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project: a) Substantially impair an The Project Site is located within a moderate/high fire hazard severity zone and is 1, 2, 3, 5, 6, adopted emergency response plan within the State Responsibility Area. The Site is located within the response area 23, 25, 28, 29 or emergency evacuation plan? of the Lake County Emergency Operations Plan, updated in 2018 by the Department of Emergency Services. The proposed Project will not substantially impair the Emergency Operations Plan. Less Than Significant b) Due to slope, prevailing winds, Χ The Project would not be situated in conditions that would exacerbate wildfire 1, 2, 3, 5, 6, and other factors, exacerbate risks. Less Than Significant Impact. 23, 25, 28, 29 wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

| c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? | X | | Infrastructure exists on the property, including roads, water storage tanks and electrical service. The proposed operation will require electrical service, which will be delivered from a PG&E utility pole located on Red Hills Road. An overhead line will connect to a utility pole that will be situated on the west side of the parcel. Additionally, the applicant shall adhere to all current <u>California Fire Codes</u> , including 4290 and 4291 of the Public Resource Code regulations and/or requirements Less Than Significant with Mitigation Incorporated. FIRE-1: Prior to occupancy, new electrical service on the subject parcel shall be sited and maintained to avoid impact by falling trees, overgrown vegetation or other potential sources of ignition that could increase fire risk. | 1, 2, 3, 5, 6 |
|--|---|----|--|------------------------------|
| d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? | | X | There are two existing residences and a travel trailer on the property. The risk of flooding, landslides, slope instability, or drainage changes would not be significantly increased due to the Project. Less Than Significant Impact. | 1, 2, 3, 5, 6, 21, 23, 32 |
| | | XX | I. MANDATORY FINDINGS OF SIGNIFICANCE | |
| a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | X | | The proposed Project proposes to disturb just less than one acre of land within an old, fallow walnut orchard. A biological resources assessment encountered no special status plant species or wildlife habitat within the 34.58-acre parcel. There are no Waters of the U.S. or fish-bearing streams on the property. There are no historic or known cultural resources on the property. Based on the findings and conclusions contained in the Initial Study, the Project has the potential to significantly impact Aesthetics, Air Quality, Geology/Soils, Hazards & Hazardous Materials, Hydrology/Water Quality, Noise, Tribal Cultural Resources and Wildfire. However, the implementation of mitigation measures described herein will reduce all potential impacts to a less than significant level. | ALL |
| b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | X | | The proposed Project has the potential to significantly impact Aesthetics, Air Quality Geology/Soils, Hazards & Hazardous Materials, Hydrology/Water Quality, Noise, Tribal Cultural Resources and Wildfire. These impacts, in combination with the impacts of other past, present and reasonably foreseeable future projects could cumulatively contribute to significant effects on the environment. Implementation of mitigation measures identified in each section would avoid or reduce potential impacts to less than significant levels. Based on the findings and conclusions contained in the Initial Study, the proposed Project would have impacts that are individually limited, but are not cumulatively considerable. | ALL |
| c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | X | | The proposed Project has the potential to result in adverse indirect or direct effects on human beings in the areas of Aesthetics, Air Quality, Hazards & Hazardous Materials, Noise, Tribal Cultural Resources and Wildfire. Implementation of mitigation measures identified in each section would avoid or reduce the substantial adverse indirect or direct effects on human beings to a less than significant level. | ALL |

| | XXI. MITIGATION MONITORING AND REPOR | RTING PROGRAM | [| | |
|--|---|----------------------------------|---------------------------------------|---|---------------------|
| Potential Impact | Mitigation Measure | Implementation Responsibility | Monitoring & Reporting Responsibility | Timing | Date Implemented |
| | AESTHETICS | | | | |
| Impact public views from Red Hills Road. | AES-1: All structures associated with the Project, including the building and any new fencing, shall use neutral, earth-tone colors in order to blend into the surrounding environment. Low glare building materials shall be used for new building construction. | Applicant | Applicant | Prior to occupancy | |
| | AES-2: Existing vegetation that provides screening to the Project Site shall be maintained or replaced with plantings as specified in AES-1. | Applicant | Applicant | During site preparation | |
| Generate a new source of light and glare from exterior lighting. | AES-3: All outdoor lighting shall be shielded and downcast or otherwise positioned in a manner that will not broadcast light or glare beyond the boundaries of the subject property. All lighting equipment shall comply with the recommendations of the International Dark-Sky Association (www.darksky.org) and provisions of Section 21.48 of the Zoning Ordinance. Security lighting shall be motion activated. | Applicant | Applicant | Prior to occupancy | |
| | AIR QUALITY | | | | |
| Impact air quality temporarily during construction activities and permanently during wood processing activities. | AIR-1: Prior to the commencement of construction, applicant shall submit to the Lake County Air Quality Management District a complete list of all equipment to be used at the site with the potential to emit air contaminants, including diesel powered generators, pumps, off-road equipment, etc. and secure all necessary permits for all eligible operations and equipment as required by the District. Diesel powered equipment must meet the requirements of the State Air Toxic Control Measures for CI engines (stationary and portable). All mobile diesel equipment used must be in compliance with State registration requirements. Portable and stationary diesel powered equipment must meet the requirements of the for CI engines. | Applicant | Applicant | Prior to commencement of site preparation | |
| | AIR-2: Prior to operation, primary access roads and parking shall be surfaced to minimize dust impacts to the public, visitors and road traffic. At a minimum, chip seal surfacing is required. Paving with asphaltic concrete is preferred. All areas subject to semi truck/trailer traffic shall require asphaltic concrete paving or equivalent to prevent fugitive dust generation. Gravel surfacing may be adequate for low use/overflow driveways and parking areas if it receives regular palliative treatment. The use of white rock for surfacing is prohibited. | Applicant/ Contractor | Applicant | During site development and construction | |
| | AIR-3: All vegetation removed during site development shall be chipped and spread for ground cover, erosion control and/or biomass feedstock. The burning of vegetation, construction debris, or waste material is prohibited. | Applicant | Applicant | During site development | |

| | AIR-4: Dust control measures shall be implemented to minimize fugitive dust emissions from the Project Site. Dust control measures may consist of approved chemical, structural, or mechanical methods and shall be reapplied at the necessary intervals to prevent wind erosion. | Contractor | Applicant | During site development and construction |
|---|--|-----------------------------------|-----------------------------------|--|
| | CULTURAL RESOURCES/TRIBAL CULTURAL | RESOURCES | | |
| Disturb an archaeological resource or human remains during construction activities. | CUL-1: Should any archaeological, paleontological, or cultural materials be discovered during site development, all activity shall be halted in the vicinity of the find(s), and a qualified archaeologist retained to evaluate the find(s) and recommend mitigation procedures, if necessary, subject to the approval of the Community Development Director. The applicant shall halt all work and immediately contact the Lake County Sheriff's Department and the Community Development Department if any human remains are encountered. | Applicant | Applicant | During site development |
| | CUL-2: A cultural resource monitor shall be present during ground disturbance activities. | Applicant | Applicant | During site development |
| | GEOLOGY/SOILS | | | |
| Create soil erosion during construction activities and from the alteration of drainage patterns due to new impervious area and roof drainage. | GEO-1: The permit holder shall protect the local watershed with the implementation of Best Management Practices (BMPs) in accordance with the Grading Ordinance and the Project Description dated October 24, 2019 to prevent or reduce discharge of all pollutants and hazardous materials offsite. No silt, sediment or other materials exceeding natural background levels shall be allowed to discharge from the project area. The natural background level is the level of erosion that currently occurs from the area in a natural, undisturbed state. Typical BMPs include the placement of straw, mulch, seeding, straw wattles, silt fencing and the planting of native vegetation on all disturbed areas. Following construction, all exposed soil shall be protected by covering with vegetation, mulch, gravel or other surface treatment as appropriate for permanent erosion control. Erosion and sediment control measures shall be in place by the end of the grading project and shall be maintained until such time that permanent control has been established. | Applicant/ Contractor | Contractor | Prior to and during site development and construction |
| | GEO-2: Excavation, filling, vegetation clearing or other disturbance of the soil shall not occur between October 15 and April 15 unless authorized by the Community Development Director. The actual dates of the allowable grading period may be adjusted according to weather and soil conditions at the discretion of the Community Development Director. GEO-3: The permit holder shall monitor the site during the rainy season | Applicant/ Contractor Applicant/ | Applicant/ Contractor Applicant/ | Prior to and during site development and construction During site |
| | (October 15 – April 15), including post-installation, implementation of BMPs, erosion control maintenance, and other improvements as needed. | Contractor | Contractor | development and construction |
| | GEO-4: Native vegetation shall be retained and protected where its removal is not necessary to implement the grading project or to meet fire safety regulations. | Applicant/ Contractor | Applicant/ Contractor | Prior to and during site |

| - | | | | 11 | 33 01 |
|---|--|--------------------------|--------------------------|---|-------|
| | | | | development and construction | |
| | HAZARDS & HAZARDOUS MATERI | AIS | | construction | |
| Create a hazard to the public or the environment due to an accidental release of hazardous materials. | HAZ-1: The storage of potentially-hazardous materials shall be located at least 100 feet from any existing water well. These materials shall not be allowed to leak onto the ground or contaminate surface waters. Collected hazardous or toxic materials shall be recycled or disposed of through a registered waste hauler to an approved site legally authorized to accept such materials. | Applicant | Applicant | For duration of the use | |
| | HAZ-2: If operation includes storage of hazardous materials equal to or greater than fifty-five (55) gallons of a liquid, 500 pounds of a solid, or 200 cubic feet of compressed gas, then a Hazardous Materials Inventory Disclosure Statement/Business Plan shall be submitted and maintained in compliance with requirements of Lake County Environmental Health Division. Industrial waste shall not be disposed of on site without review or permit from Lake County Environmental Health Division or the California Regional Water Quality Control Board. The permit holder shall comply with petroleum fuel storage tank regulations if fuel is to be stored on site. | Applicant | Applicant | For duration of the use | |
| Expose people or structures, directly or indirectly, to a significant risk of loss, injury or death involving wildland fires. | HAZ-2: If operation includes storage of hazardous materials equal to or greater than fifty-five (55) gallons of a liquid, 500 pounds of a solid, or 200 cubic feet of compressed gas, then a Hazardous Materials Inventory Disclosure Statement/Business Plan shall be submitted and maintained in compliance with requirements of Lake County Environmental Health Division. Industrial waste shall not be disposed of on site without review or permit from Lake County Environmental Health Division or the California Regional Water Quality Control Board. The permit holder shall comply with petroleum fuel storage tank regulations if fuel is to be stored on site. | Applicant | Applicant | For duration of the use | |
| | HAZ-4: Vehicles and equipment shall be maintained and operated in a manner to prevent hot surfaces, sparks or any other heat sources from igniting grasses, brush or other highly combustible material. | Applicant | Applicant | For duration of the use | |
| | HYROLOGY/WATER QUALITY | | | | |
| Degrade surface water quality due to industrial activities. | HYD-1: Prior to operation, the applicant shall obtain all necessary Federal, State and local agency permits and shall submit a copy of said permit(s) to the Community Development Department within 30 days of obtaining the permit(s). | Applicant | Applicant | Prior to commencement of the activity requiring the permit. | |
| | NOISE | | | <u>'</u> | |
| Exceed noise standards beyond the property boundaries due to construction activities and | NOI-1: All construction activities including engine warm-up shall be limited to Monday Through Friday, between the hours of 7:00am and 7:00pm to minimize noise impacts on nearby residents. Back-up beepers | Applicant/ Contractor | Applicant/ Contractor | During site development and construction | |

| operating equipment associated with the new facility. | shall be adjusted to the lowest allowable levels. Contractors shall implement noise-reducing measures during construction when occupied residences or other sensitive receptors are located within 500 feet. NOI -2: The Project shall comply with the noise standards identified in Section 41.11 of the Zoning Ordinance, including, but not limited to: maximum non-construction project-related noise levels shall not exceed: (a) 55 dBA between the hours of 7:00 a.m. to 10:00 p.m. and 45 dBA between the hours of 10:00 p.m. to 7:00 a.m. adjacent to residential districts; and (b) 60 dBA between the hours of 7:00 a.m. adjacent to commercial districts as outlined in Table 11.1 at the property lines. Should the Project exceed these noise standards during construction or operational phases, noise-generating activities shall cease until noise attenuation measures are implemented such that the Project is compliant with noise standards. | Applicant/ Contractor | Applicant | For the duration of the use permit | |
|---|---|--------------------------|-----------|------------------------------------|--|
| | | | | | |
| | WILDFIRE | | | | |
| Increase fire risk due to new | FIRE-1: Prior to occupancy, new electrical service on the subject parcel shall | Applicant/ | Applicant | Prior to | |
| utility pole and overhead lines to | be sited and maintained to avoid being impacted by falling trees, overgrown | Contractor | | construction and | |
| the parcel. | vegetation or other potential sources of ignition that could increase fire risk. | | | for the duration | |
| | • | | | of the use permit | |

**Source List (listed in the order in which they appear)

- 1. Lake County General Plan
- 2. Lake County Zoning Ordinance
- 3. Rivieras Area Plan, adopted January 9, 2007
- 4. County of Lake Major Use Permit Application and Supplemental Materials
- 5. Site Visit, September 23, 2019.
- 6. Scenic Combining Overlay District Map
- 7. California Streets and Highways Code, Section 263.3, http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=SHC&division=1.&title=&part=&chapter=2.&article=2.5.
- 8. Lake County GIS Portal
- 9. https://www.conservation.ca.gov/dlrp/fmmp/Pages/Important-Farmland-Categories.aspx
- 10. Important Farmland Map, https://maps.conservation.ca.gov/agriculture/
- 11. Lake County Air Quality Management District, www.lcaqmd.net
- 12. Ultramafic, Ultrabasic, Serpentine Rock and Soils of Lake County Map, undated.
- 13. Lake County Air Quality Management District Memorandum, dated March 8, 2019.
- 14. Biological Resource Assessment with Botanical Survey and Delineation of Waters of the U.S., prepared by Northwest Biosurvey, July 1, 2019.
- 15. Northwest Information Center Letter, File No. 18-1569, February 22, 2019
- 16. UP 19-05, IS 19-09, Attachment 4, Archaeological Reassessment, provided by Northwest Information Center, Sonoma State University, Rohnert Park, CA, undated.
- 17. U.S.G.S. Geologic Map and Structure Sections of the Clear Lake Volcanic, Northern California, Miscellaneous Investigation Series, 1995
- 18. Official Alquist-Priolo Earthquake Fault Zone maps for Lake County, https://www.conservation.ca.gov/cgs/geohazards/eq-zapp
- 19. U.S.D.A. Lake County Soil Survey
- 20. Landslide Hazards in the Eastern Clear Lake Area, Lake County, California, Landslide Hazard Identification Map No. 16, California Department of Conservation, Division of Mines and Geology, DMG Open –File Report 89-27, 1990
- 21. Lake County Grading Ordinance, adopted 2007
- 22. Lake County/City Area Planning Council, https://www.calcog.org/index.php?src=directory&view=members&srctype=detail&back=members&refno=32
- 23. Lake County Division of Environmental Health Memorandum, March 13, 2019
- 24. 2018 Lake County Emergency Operations Plan, Office of Emergency Services, May 1, 2018
- 25. Lake County Local Hazard Mitigation Plan Update, January 2018
- 26. Hazardous Waste and Substances Sites List, www.envirostor.dtsc.ca.gov/public
- 27. Kelseyville Fire Protection District
- 28. Lake County Airport Land Use Compatibility Plan, adopted 1992
- 29. California State Water Resources Control Board Storm Water Program, https://www.waterboards.ca.gov/water_issues/programs/stormwater/
- 30. Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region Fifth Edition, May 2019
- 31. Lake County Aggregate Resource Management Plan
- 32. California Geologic Survey Information Warehouse: Mineral Land Classification, https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=mlc
- 33. 2018 Regional Transportation Improvement Program, Lake County/City Area Planning Council, adopted November 8, 2017
- 34. 2017 Lake County Regional Transportation Plan Final, Dow & Associates, February 14, 2018
- 35. Active Transportation Plan for Lake County, Lake County/City Area Planning Council, December 2016
- 2011 Lake County Regional Transportation Bikeway Plan, Lake County/City Area Planning Council, adopted August 10, 2011
- 37. Lake County 2030 Regional Blueprint, October 2010.
- 38. California Department of Transportation (CALTRANS)
- 39. Lake County Record Bee, "4-Lane Construction on HWY 29 to Begin 2019," August 23, 2018.
- 40. CalRecycle Solid Waste Information System https://www2.calrecycle.ca.gov/SWFacilities/Directory/17-AA-0001/Detail/
- 41. California Code of Regulations, https://govt.westlaw.com/

Description

Scotts Valley Energy Corporation (SVEC) is developing 7 bioenergy and biochar production facilities in Lake County, California.

The Red Hills project is a 200kW AC biomass conversion facility that will convert non-commercial grade wood waste to electricity, biochar, and carbon credits (CORC's). The project is being developed by Scotts Valley Energy Corporation and it is an economic development and social justice initiative of the Scotts Valley Band of Pomo Indians.

The project is expected to be operational in early September of 2025 generating 1,500 Megawatt Hours of electricity, 370+ metric tons of biochar and 1,000+ metric tons of carbon removals.

The project uses pyrolysis to create synthesis gas in an oxygen deprived environment to establish its compliance with net-zero operations. All SVEC systems include wireless management interfaces so they can be remotely configured, operated, and monitored continuously. Ongoing reporting and compliance adherence will be provided by their partner, Offstream.

The project is being capitalized through a combination of developer equity from SVEC, Investment Tax Credits under section 48 and debt facilities provided by Community Development Financial Institutions (CDFI).

Biochar is being sold as a soil amendment to farmers and ranchers in California. CORCS's are available on a discounted basis to creditworthy institutional buyers on a long-term pre-sale basis.



Co-benefits

The SVEC Red Hills project has socioeconomic and environmental benefits across the board.

Economic development for the Scotts Valley Band of Pomo Indians: The bioenergy project is part of the tribe's economic development strategy to achieve self-sufficiency and independence. It aims provides employment opportunities for tribal members that are unmatched.

OMB Number: 4040-0004 Expiration Date: 11/30/2025

| Application for Federal Assist | ance SF-424 | | | |
|---------------------------------------|-----------------------|---|--|--|
| * 1. Type of Submission: | | If Revision, select appropriate letter(s): | | |
| Preapplication | New | E: Other (specify) | | |
| Application | Continuation * | Other (Specify): | | |
| [[Application | | Add Sec 17 Corp | | |
| | | | | |
| * 3. Date Received: | Applicant Identifier: | | | |
| 09/09/2024 | | | | |
| 5a. Federal Entity Identifier: | | 5b. Federal Award Identifier: | | |
| SB75ZH4VKEM9 | | 07-79-07847 | | |
| State Use Only: | | | | |
| 6. Date Received by State: | 7. State Application | Identifier: | | |
| 8. APPLICANT INFORMATION: | | | | |
| *a. Legal Name: Scotts Valley | Band of Pomo Indians | | | |
| * b. Employer/Taxpayer Identification | | * c. UEI: | | |
| 68-0226509 | | SB75ZH4VKEM9 | | |
| d. Address: | | | | |
| | th Street | | | |
| | Eleventh Street | | | |
| Street2: | | | | |
| * City: Lakeport County/Parish: | | | | |
| | rnia | | | |
| | LIILG | | | |
| Province: | D CHATTE | | | |
| | USA: UNITED STATES | | | |
| * Zip / Postal Code: 95453-4102 | | | | |
| e. Organizational Unit: | | Division Name: | | |
| Department Name: | oorati en | Wood Processing Campus | | |
| Scotts Valley Energy Cor | | matters involving this application: | | |
| P | * First Na | matters involving this application: me: Thomas | | |
| Prefix: | THISTINGS | Thomas | | |
| Middle Name: | | | | |
| * Last Name: Jordan | | | | |
| Suffix: | | | | |
| Title: Economic Developmen | Director | | | |
| Organizational Affiliation: | | | | |
| Scotts Valley Energy Cor | poration | | | |
| * Telephone Number: 707-349- | -8545 | Fax Number: | | |
| *Email: thomas.jordan@sv- | nsn.gov | | | |

| Application for Federal Assistance SF-424 |
|---|
| * 9. Type of Applicant 1: Select Applicant Type: |
| I: Indian/Native American Tribal Government (Federally Recognized) |
| Type of Applicant 2: Select Applicant Type: |
| K: Indian/Native American Tribally Designated Organization |
| Type of Applicant 3: Select Applicant Type: |
| |
| * Other (specify): |
| |
| * 10. Name of Federal Agency: |
| Economic Development Administration |
| 11. Catalog of Federal Domestic Assistance Number: |
| 11.307 |
| CFDA Title: |
| Economic Adjustment Assistance |
| |
| * 12. Funding Opportunity Number: |
| EDA-2021 ARPAINDIGENOUS |
| * Title: |
| FY 2021 American Rescue Plan Act Indigenous Communities Notice of Funding Opportunity |
| 13. Competition Identification Number: |
| ARPA-IND-NC |
| Title: |
| ARPA Indigenous Non-Construction Application |
| |
| |
| 14. Areas Affected by Project (Cities, Counties, States, etc.): |
| Add Attachment Delete Attachment View Attachment |
| |
| * 15. Descriptive Title of Applicant's Project: |
| Scotts Valley Forest Biomass Management and Economic/Jobs Development Project |
| |
| |
| Attach supporting documents as specified in agency instructions. |
| Add Attachments Delete Attachments View Attachments |

| Application for Federal Assistance SF-424 | | | | | |
|---|--|--|--|--|--|
| 16. Congressional Districts Of: | | | | | |
| * a. Applicant CA-005 * b. Program/Project CA-003 | | | | | |
| Attach an additional list of Program/Project Congressional Districts if needed. | | | | | |
| Add Attachment Delete Attachment View Attachment | | | | | |
| 17. Proposed Project: | | | | | |
| * a. Start Date: 04/15/2022 * b. End Date: 04/14/2024 | | | | | |
| 18. Estimated Funding (\$): | | | | | |
| * a. Federal 4,997,170.00 | | | | | |
| * b. Applicant 0.00 | | | | | |
| * c. State 0 . 00 | | | | | |
| * d. Local 0.00 | | | | | |
| * e. Other 0.00 | | | | | |
| *f. Program Income 0.00 | | | | | |
| *g. TOTAL 4,997,170.00 | | | | | |
| * 19. Is Application Subject to Review By State Under Executive Order 12372 Process? | | | | | |
| a. This application was made available to the State under the Executive Order 12372 Process for review on 01/14/2022 | | | | | |
| b. Program is subject to E.O. 12372 but has not been selected by the State for review. | | | | | |
| c. Program is not covered by E.O. 12372. | | | | | |
| * 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.) | | | | | |
| ☐ Yes ☐ No | | | | | |
| If "Yes", provide explanation and attach | | | | | |
| Add Attachment Delete Attachment View Attachment | | | | | |
| 21. *By signing this application, I certify (1) to the statements contained in the list of certifications** and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 18, Section 1001) ** I AGREE* ** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions. | | | | | |
| Authorized Representative: | | | | | |
| Prefix: * First Name: Thomas | | | | | |
| Middle Name: | | | | | |
| * Last Name: Jordan | | | | | |
| Suffix: | | | | | |
| * Title: Economic Development Director | | | | | |
| * Telephone Number: 707-349-8545 Fax Number: | | | | | |
| * Email: thomas.jordan@sv-nsn.gov | | | | | |
| * Signature of Authorized Representative: * Date Signed: 09/09/2024 | | | | | |
| | | | | | |

| FORM CD-451 (REV. 11/18) | U.S. DEPARTM | MENT OF COMMERCE | GRANT COOF | PERATIVE AGREEMENT |
|--|--|----------------------------|---|---------------------------------|
| A 10/4 | ENDMENT TO | | FEDERAL AWARD ID NUMBI | ER |
| | | | 07.70 | 0.07040 |
| FINANCIAL | ASSISTANCE AWA | RD | 07-79 | 9-07842 |
| CFDA NO. AND NAME | | | | |
| 11.307 / Economic Adjustment Assistance P | 'rogram | | | |
| PROJECT TITLE | | | | |
| Forest Biomass Management | | | | |
| RECIPIENT NAME | | | AMENDMENT NUMBER | |
| Scotts Valley Band of Pomo Indians | | | | 2 |
| STREET ADDRESS | | | EFFECTIVE DATE | |
| 1005 Parallel Drive | | | | Officer's Signature |
| CITY, STATE, ZIP CODE | | | EXTEND PERIOD OF PERFO (IF APPLICABLE) | RMANCE TO |
| Lakeport, California 95453-5709 | | | · | NA |
| RECIPIENT NAME | | | | |
| Scotts Valley Energy Corporation (Corecipie | ent) | | | |
| STREET ADDRESS | | | | |
| 1005 Parallel Drive | | | | |
| CITY, STATE, ZIP CODE | | | | |
| Lakeport, California 95453-5709 | | | | |
| RECIPIENT NAME | | | | |
| 0.775.57 | | | | |
| STREET ADDRESS | | | | |
| CITY STATE ZID CODE | | | | |
| CITY, STATE, ZIP CODE | | | | |
| COSTS ARE REVISED AS FOLLOWS: | PREVIOUS ESTIMATED COST | ADD | DEDUCT | TOTAL ESTIMATED |
| FEDERAL SHARE OF COST | \$ 4,997,170 | | 3.46.1 | \$ 4,997,170 |
| RECIPIENT SHARE OF COST | \$ - | | | \$ - |
| TOTAL ESTIMATED COST | \$ 4,997,170 | | | \$ 4,997,170 |
| REASON(S) FOR AMENDMENT | | | | |
| Addition of Section 17 Corpor | ration as co-recipient inc | luding adding mul | tiple recipients SAC | |
| This Amendment Document (Form CD-451) s Federal funding. By signing this Form CD-45 provisions incorporated into the Award. If n withdraw this Amendment offer and de-oblig SPECIFIC AWARD CO LINE ITEM BUDGET OTHER(S): Exhibit A | 51, the Recipient agrees to comply wit ot signed and returned without modifi gate any associated funds. ONDITION(S) | th the Amendment provision | ns checked below and attach | ed, as well as previous |
| SIGNATURE OF DEPARTMENT OF COMMER | CE GRANTS OFFICER CLIED | A DEDCON MUL | ITI EV Digitally signed b | y SAETE A PERSON-WHITLEY |
| Sheba Person-Whitley, Regional | Director | A PERSON-WH | Date: 2024.09.26 | 17:09:46 -07'00' |
| PRINTED NAME, PRINTED TITLE, AND SIGNATURE OF AUTHORIZED RECIPIENT OFFICIAL DATE | | | | |
| Jesse Gim2442, via chair, PRINTED NAME, PRINTED TITLE, AND SIGN | MUN, SYBPI CL | 12 // | \ | 10-5-24 |
| PRINTED NAME, PRINTED TITLE, AND SIGN Shawn Davis, Chaiman, S PRINTED NAME, PRINTED TITLE, AND SIGN | VEC. | a flex |) | 10/5/24 |
| FRINTED NAME, FRINTED TITLE, AND SIGN | ATORE OF AUTHORIZED RECIPIENT | OFFICIAL | | DATE |

Exhibit A Amendments to the Specific Award Conditions (SACs)

Add SAC 38 in its entirety:

38. MULTIPLE RECIPIENTS: This Award is made to multiple Recipients. Any reference to the term "Recipient" means all Recipients listed on the Financial Assistance Award Form CD-451 as may be amended.

Add SAC 39 in its entirety:

39. LEAD RECIPIENT DESIGNATION: This Award is made to multiple Recipients as identified on the Form CD-451 to which these Specific Award Conditions are attached. EDA requested that one of the Recipients be designated as the Lead Recipient to facilitate the administration of this Award. The Recipient named first in the Recipient name block on Form CD-451 has agreed in writing to be designated as Lead Recipient. The co-Recipients acknowledge, agree with and consent to this designation. The co-Recipients agree that all funds available pursuant to this Award will be disbursed by EDA to the Lead Recipient. The Lead Recipient agrees to be responsible for the further disbursement of all such funds received from EDA to the co-Recipients in accordance with the Budget attached to this Award. Such disbursement by the Lead Recipient to the co-Recipients will be made in accordance with all applicable Federal requirements as identified and set forth on Form CD-451. The Lead Recipient further agrees to be responsible for accumulating all necessary information for and the submission of all reports required to be submitted to EDA pursuant to this Award.

All other terms and conditions of the Financial Assistance Award remain in full force and effect.



U.S. DEPARTMENT OF COMMERCE Economic Development Administration 915 Second Avenue, Room 1890 Seattle, Washington 98174

Fax: 206.220.7669 Voice: 206.220.7660

Thomas Jordan
Economic Development Director
Scotts Valley Band of Pomo Indians
1005 Parallel Dr.
Lakeport, California 95453-5709

Transmitted via email: thomas.jordan@sv-nsn.gov

RE: EDA Award No. 07-79-07842 Forest Biomass Management

Amendment No. 2: Adds Co-Recipient and Multiple Recipients Specific Award

Conditions

Dear Mr. Jordan,

Enclosed is a CD-451 which amends the Specific Award Conditions (SACs) and adds Scotts Valley Energy Corporation as a co-recipient. Please see Exhibit A which adds SAC No. 38, Multiple Recipients, and SAC No. 39, Lead Recipient Designation. Except as amended herein, all other terms and conditions of the Financial Assistance Award remain in full force and effect.

Your agreement to Amendment No. 1 should be indicated by the signature on the enclosed "Amendment to Financial Assistance Award." The attached CD-451 can be electronically signed in either of the following ways: (i) using a certified signature through Adobe or some other software, (ii) signing in ink and scanning the documents. The fully executed document should be returned electronically to Derek Ulehla at dulehla@eda.gov with a copy to Sheba Person-Whitley at Seperson@eda.gov. If not signed and returned within 30 days of receipt, EDA may declare the award amendment null and void. Please retain a copy of the executed award amendment for your records.

Sincerely,

SHEBA PERSON- Digitally signed by SHEBA PERSON-WHITLEY
WHITLEY
Date: 2024.09.26
17:11:25 -07'00'

Sheba Person-Whitley Regional Director Seattle Regional Office

Attachment: CD-451 – Amendment to Financial Assistance Award

Copy to: Jeffrey Hays, Economic Development Representative

Budget Narrative

Scotts Valley Forest Biomass Management and Economic / Jobs Development Project

The proposed budget includes the following specific items, consistent with the attached SF-424C:

1. Administrative and Legal Costs (\$240,828)

This category includes administrative and management costs. Legal costs are not anticipated for the project. Scotts Valley Energy Company LLC (SVEC) anticipates the following costs within this category:

| Cost Category | Staffing | Cost |
|---------------------------------|--------------------------------|-----------|
| RFP / Bid Development and | Contracted Consultant | |
| Administration | | |
| Grant Administration, | Contracted Consultant | |
| Support, Cultural Reporting, | | |
| and Evaluation | | |
| Additional Cultural Sensitivity | Contracted Consultant | |
| Training and Oversight | (Habematolel Pomo Cultural | |
| | Staff) | |
| Grant Administration | Internal Staff (fully burdened | \$119,033 |
| | cost including direct and | |
| | fringe) | |
| Total Administrative and Man | \$240,828 | |

The following table provides additional detail regarding grant administration costs for internal staff;

| Staff | Total Hours | Direct Labor | Fringe | Total |
|------------------|-------------|--------------|----------|-----------|
| | 475 | \$29,930 | \$9,641 | \$39,571 |
| | 423 | \$20,103 | \$6,475 | \$26,578 |
| Cultural Monitor | 704 | \$40,000 | \$12,884 | \$52,884 |
| Total | | \$90,033 | \$29,000 | \$119,033 |

Direct labor reflects the identified staff direct labor rates. Fringe includes employee benefits.

2. Engineering (\$

Project engineering would be completed by a qualified, external engineering consultant, to be determined during the bid process. Total contract value for engineering will not exceed

3. Project Inspection Fees (\$

Project inspection fees / permitting fees are expected to be limited for the project, and will include county processing fees, including county-administered fees to support state level compliance, building permits / inspections, and air district permitting.

4. Construction (\$

While the Applicant will provide high level / administrative oversight of the construction process, the Applicant will also hire a general contractor to oversee all construction / construction process. The construction contractor will be selected through an EDA-compliant bid process. Construction also includes direct costs incurred for non-equipment supplies required for the construction process. Construction will include ground compaction in select areas, mowing and grubbing, installation of fencing, lighting, security cameras, electrical systems and equipment, gravelling of the access road and site area including underlayment and fabric stabilization, and installation of all equipment including placement as well as ground screw installation as relevant, as well as minor site-related appurtenances needed to complete or support installation of the proposed equipment. SVEC proposes the following costs within this category:

| Cost Category | Application | Cost |
|---|----------------------|-------|
| General Contractor Construction Cost including clearing / | | |
| grubbing, drainage installation, gravelling of roads, | | |
| placement of all equipment, and construction / installation | | |
| / completion of all other construction elements shown | | |
| below in this table | Construction | |
| Ground Compaction | Site Foundation Base | |
| Mowing & Ground Prep | Site Foundation Base | |
| Fencing, 1 acre, Perimeter 890.4' not 600' @ \$29 per ft- | | |
| Installed | Site security | |
| Lighting - LED Round High bay 16,000LM, 120-277V - | | |
| \$250ea @ 8 with install | Electrical | |
| Lighting - LED Wallpack 93W - 8105LM, 5000K, \$225ea @ | | |
| 4 | Electrical | |
| 6 Security Cameras and Recorder System - Wireless | Electrical | |
| THHN Wire Lot: #3/0 120/240V 3P 4W 200A 400' @ \$5.65 | | 48 21 |
| per, #6 Outlets 2,000' @ \$1.08 per, #10 Outlets 2,000' @ | | |
| \$.39 per, #14 Lighting/Sercurity 2,000' @ \$.17 per | Electrical | |
| THHN 300MCM Copper Wire (2 Wires per Leg * 4 Legs = 8 | | |
| * 80' = 640') @ \$9.75 per foot = | Electrical | |
| Load Center (SQD - 200A 3P, 240V/120V) QO342MQ200RB | Electrical | |
| Misc HomeLine or QO Breakers 20A to 60A | Electrical | |

| | 1 | |
|---|----------------------|----|
| Disconnect Switch (SQD-HU366R) | Electrical | \$ |
| Panelboard 600A 3P 480V SQD HCM14486CU | Electrical | \$ |
| 600A 600V 3P(ABC) Powerpact I-Line CB | Electrical | |
| 200A 600V 3P(ABC) Powerpact I-Line CB | Electrical | |
| 100A 600V 3P(ABC) Powerpact I-Line CB | Electrical | |
| Wire Misc. Outlets, connectors and distribution wiring | Electrical | |
| Road Base 5" Graveling 1 acre area @ \$40 per Cubic Yard | Site Base Gravel | |
| Road Base 5" Graveling Road Access 1.08 acres @ \$40 per | | |
| Cubic Yard | Site Road Access | |
| Gravel Underlayment Fabric Stabilization Geotech 13' x | | |
| 108' Qty 65 | Site Ground Prep | |
| Conduit Sched 80, 4" 60' for 300MCM Cable @ \$20 per Ft | | |
| to Main CB | Electrical | |
| Conduit Sched 80, 2" 100' for #3/0 Cable @ \$3.50 per Ft | | |
| M85 Grinder | Electrical | |
| Conduit Sched 80, 1" 200' for #6 Cable @ \$2.00 per Ft to | | |
| Multitek 1610 | Electrical | |
| Conduit Misc Bends, Couplers Sched 80 and Surface | | |
| Ground Supports | Electrical | |
| Conduit EMT 3/4" to 1-1/4" & Unistrut Inside Canopy | | |
| lights/outlets | Electrical | |
| Conduit EMT Bends/Outlet Boxes/Outlet | Electrical | |
| Electrical transformers 480V-240V/120V, 3P | Electrical | |
| Ground Screws, Qty 60 @ \$350 ea including purchase and | | |
| installation labor | Site Foundation Base | |
| Total | | |
| | | |

5. Equipment (

Equipment costs comprise the majority of the total cost of the proposed project. The following equipment list will support project implementation and its operation, as described in the attached narrative project forms and descriptions. All equipment costs are estimated based on information provided by a potential vendor. SVEC proposes the following costs within this category:

| Equipment Type | Useful Life | Cost | Application |
|---|-------------|------|--------------------|
| Grinder / Shredder (SSI Shredder M85 Electric) | 20yrs | | Biomass processing |
| Wheel Loader (Cat 914, 2.5 cubic yard) | 15yrs | | Biomass handling |
| Tracked Grapple Loader (John Deere 337E & Rotobec 6007 grapple with RT-222 Rotator) | 15yrs | | Biomass handling |
| Skid-steer / articulated loader (Bobcat S590 loader with 62" industrial grapple bucket) | 15yrs | | Biomass handling |
| Trommel Screen (McCloskey International 512A) | 20yrs | | Biomass processing |

| Crumbler Feed Bin (20 cu yd) | 30yrs | Biomass processing |
|---|-------|--|
| Rotary Shear Mill (Crumbler P24 System) | 20yrs | Biomass processing |
| Orbital Screen System (BM&M Super Screen, 2 deck, 5x12) | 20yrs | Biomass processing |
| Firewood Processor (Multitek 1610 w/electric drive) | 20yrs | Biomass processing (firewood) |
| Firewood Bundler (Multitek wrapper/bundler) | 20yrs | Biomass processing (firewood) |
| Conveyors (fixed and movable) | 20yrs | Biomass processing |
| Biochar handling and packaging | 20yrs | Biomass processing |
| Chip Carrier (120 cu yd, 28 ft trailer, 4) Change to 3 Units | 15yrs | Biomass transport |
| Fuel tank (550 Gallon UL® 142 tank \$3,500), Pump \$350, Spill Containment, PROP65-ULTRATECH-6 \$1,000, Ship \$150 | 30yrs | Site equipment |
| Truck Scale, non-permanent (Optima Scale OP-934-2010- 120k LB Truck Scale) | 30yrs | Biomass inhaul / outhaul and product measurement |
| 60'x 80' Fabric Membrane Structure (5,000 sf hoop Tent/Canopy) Base Price \$23,900 + Upgrades \$5,000, Shipping \$500 + Assemble \$17,500 | 20yrs | Equipment non- permanent housing |
| Storage Containers 3-Standard 40' x 8' x 8' \$5,000 | 30yrs | Equipment non-permanent housing |
| Generator Set (2G Energy) - Changed from 2 units to 1, add Capstones | 15yrs | Biomass processing / on site energy production |
| Capstone 65 Units (Qty 2 @ 150,000ea = \$300,000) | 15yrs | Biomass processing / on site energy production |
| Artis Units (Gasification Units) | 20yrs | Biomass processing / on site energy production |
| Artis Power Electrical Upgrades | 20yrs | Biomass processing / on site energy production |
| Shipping | NA | Equipment procurement / setup |
| Equipment assembly, integration, and testing | NA | Equipment procurement / setup |
| Upgraded shipping container including, 1 Office 40'x8'x8' \$22,122 | 30yrs | Site operation support / administration |
| Water Truck | 15yrs | Biomass processing / dust management |
| Total Equipment | | |

6. Contingency

The project team has included an approximately construction contingency of





WORKSPACE FORM

This Workspace form is one of the forms you need to complete prior to submitting your Application Package. This form can be completed in its entirety offline using Adobe Reader. You can save your form by clicking the "Save" button and see any errors by clicking the "Check For Errors" button. In-progress and completed forms can be uploaded at any time to Grants.gov using the Workspace feature.

When you open a form, required fields are highlighted in yellow with a red border. Optional fields and completed fields are displayed in white. If you enter invalid or incomplete information in a field, you will receive an error message. Additional instructions and FAQs about the Application Package can be found in the Grants.gov Applicants tab.

| OPPORTUNITY & PACK | AGE DETAILS: |
|--------------------------|---|
| Opportunity Number: | EDA-2021-ARPAINDIGENOUS |
| Opportunity Title: | FY 2021 American Rescue Plan Act Indigenous Communities Notice of Funding Opportunity |
| Opportunity Package ID: | PKG00268449 |
| CFDA Number: | 11.307 |
| CFDA Description: | Economic Adjustment Assistance |
| Competition ID: | ARPA-IND-NC |
| Competition Title: | ARPA Indigenous Non-Construction Application |
| Opening Date: | |
| Closing Date: | 09/30/2022 |
| Agency: | Economic Development Administration |
| Contact Information: | www.eda.gov/contact |
| APPLICANT & WORKSP. | ACE DETAILS: |
| Workspace ID: | WS00782441 |
| Application Filing Name: | SVBPI Indigenous Community Grant |
| DUNS: | 8838422960000 |
| Organization: | SCOTTS VALLEY BAND OF POMO INDIANS |
| Form Name: | CD511 Form |
| Form Version: | 1.1 |
| Requirement: | Mandatory |
| Download Date/Time: | Feb 02, 2022 05:38:27 PM EST |
| Form State: | No Errors |
| FORM ACTIONS: | |

U.S. DEPARTMENT OF COMMERCE

(REV 1-05) CERTIFICATION REGARDING LOBBYING

Applicants should also review the instructions for certification included in the regulations before completing this form. Signature on this form provides for compliance with certification requirements under 15 CFR Part 28, 'New Restrictions on Lobbying.' The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of Commerce determines to award the covered transaction, grant, or cooperative agreement.

LOBBYING

As required by Section 1352, Title 31 of the U.S. Code, and implemented at 15 CFR Part 28, for persons entering into a grant, cooperative agreement or contract over \$100,000 or a loan or loan guarantee over \$150,000 as defined at 15 CFR Part 28, Sections 28.105 and 28.110, the applicant certifies that to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, 'Disclosure Form to Report Lobbying.' in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure occurring on or before October 23, 1996, and of not less than \$11,000 and not more than \$110,000 for each such failure occurring after October 23, 1996.

Statement for Loan Guarantees and Loan Insurance

The undersigned states, to the best of his or her knowledge and belief,

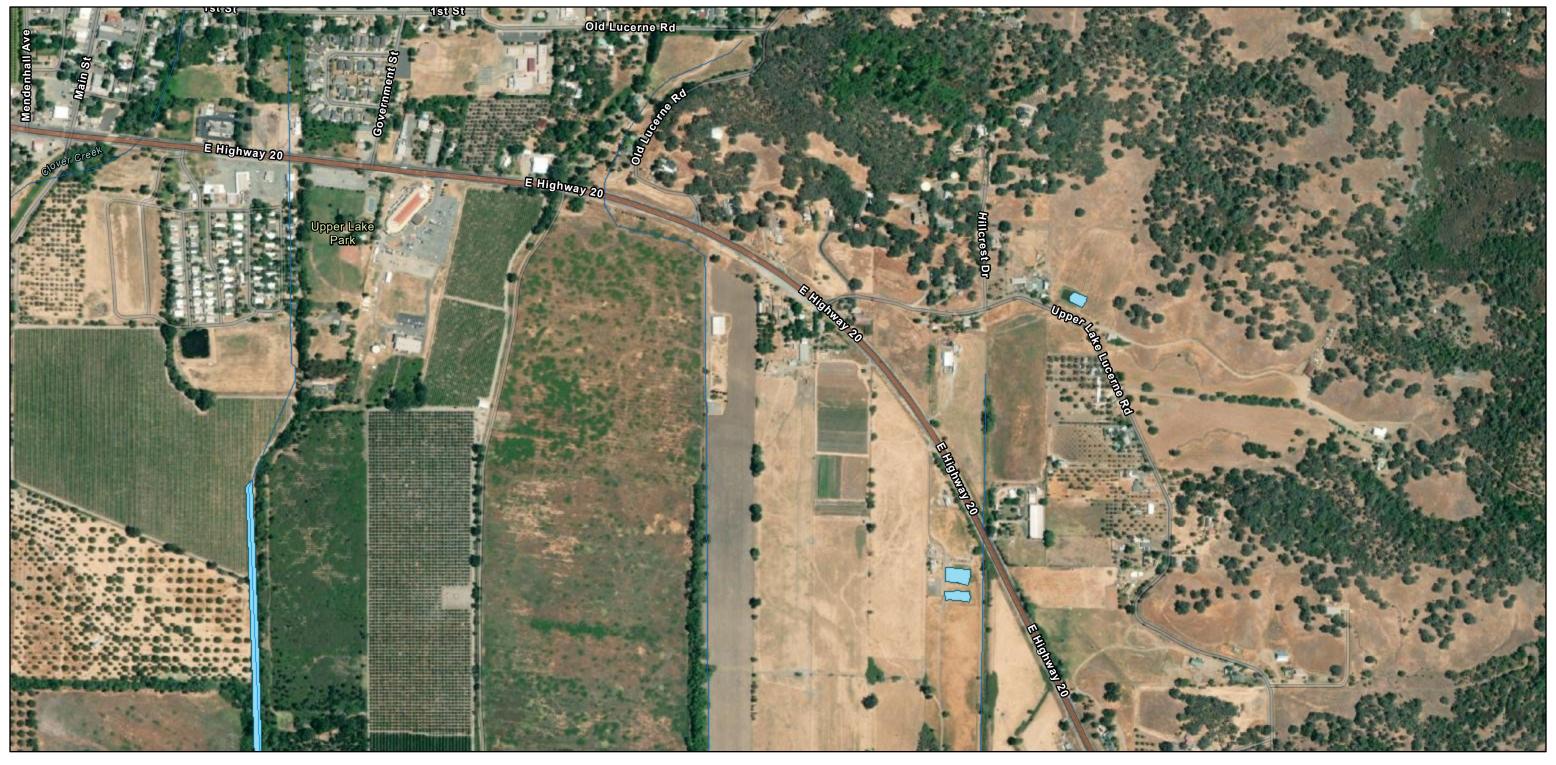
In any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, 'Disclosure Form to Report Lobbying,' in accordance with its instructions.

Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure occurring on or before October 23, 1996, and of not less than \$11,000 and not more than \$110,000 for each such failure occurring after October 23,

As the duly authorized representative of the applicant, I hereby certify that the applicant will comply with the above applicable certification.

| * NAME OF | APPLICANT | |
|------------------------|---------------------------|---|
| Scotts Va | lley Band of Pomo Indians | |
| * AWARD N | UMBER | * PROJECT NAME |
| TBD Scotts Valley Fore | | Scotts Valley Forest Biomass Management and Economic / Jobs |
| Prefix: | * First Name: | Middle Name: |
| Mr. | Thomas | |
| * Last Name: | | Suffix: |
| Jordan | | |
| * Title: Trib | bal Administrator | |
| * SIGNATUR | RE: | * DATE: |
| M | 3 Andy | 15. JANUARY 2022 |
| - | | |

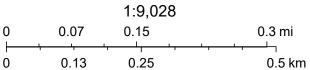
Scotts Valley Biomass



August 3, 2022

--- Streams

Water Bodies

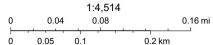


Esri Community Maps Contributors, Lake County, CA, California State Parks, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, Maxar

Scotts Valley Biomass







U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov, Esri Community Maps Contributors, Lake County, CA, California State Parks, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land

Based on data provided by the NWI mapper, the offsite drainage is classified as follows:

A Palustrine System, which includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2.5 m (8.2 ft) at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt.

Emergent (EM) Class: Characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.

Persistent (1) Subclass: Dominated by species that normally remain standing at least until the beginning of the next growing season.

Seasonally Flooded (C) Water Regime: Surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.



Figure 9. Adjacent to the western edge of the project site, from the access road, facing northwest and showing the offsite agricultural drainage ditch that is located west of the project site, across the existing access road.

-

¹ Available at: https://www.fws.gov/wetlands/data/Mapper.html Accessed January 9, 2022.



Figure 10. Project site access road along the western edge of the project site, facing south. The offsite agricultural drainage ditch is shown to the right, covered in vegetation, and the project site is to the left of the road with no drainages on the eastern side of the access road.



Figure 11. National Wetlands Inventory map² for the project site (red outline) and vicinity. An existing agricultural ditch that is considered potentially jurisdictional is located on the opposite side of the access road from the project site. It is classified as a freshwater emergent wetland (see text).

² Available at: https://www.fws.gov/wetlands/data/Mapper.html Accessed January 9, 2022.

From: <u>Mike Shaver</u>

To: <u>Defato, Rowena E. (Federal)</u>
Cc: <u>Cristian Viveros-Cardenas</u>

Subject: Re: Section 106 Consultation Request: Scotts Valley Forest Biomass Management and Economic / Jobs

Development Project

Date: Friday, July 8, 2022 3:24:37 PM

Hi Rowena,

What is the street address of the proposed project? We are considering the Forest Biomass Management options of biomass energy generation here at Middletown Rancheria in a BioChar processing unit; or, sending out our wood waste from planned wildfire management projects to off-site location sites.

Thanks

Mike Shaver

Environmental Director

Middletown Rancheria of Pomo Indians

On Fri, Jul 8, 2022 at 2:48 PM 'Defato, Rowena E. (Federal)' via THPO < THPO@middletownrancheria.com > wrote:

| Dear Ms. Perkins: |
|---|
| The Scotts Valley Band of Pomo Indians has made an application for grant funding to the U.S. Department of Commerce, Economic Development Administration (EDA) to construct the Scotts Valley Forest Biomass Management facility located near the intersection of SR 20 and Old Lucerne Road southeast of the community of Upper Lake in central Lake County. |
| Please find attached information about the project and a request for consultation. Should you have any comments or questions concerning the proposed project, please don't hesitate to contact me. |
| Thank you. |
| Regards, |

Rowena DeFato

Regional Environmental Officer

U.S. Department of Commerce

Economic Development Administration

Seattle Regional Office

p. 206.220.7703

c. 206.450.8251

rdefato@eda.gov

Connect with EDA on eda.gov, Facebook, Twitter and LinkedIn!

Preliminary Engineering Report

The following preliminary engineering report was completed in accordance with EDA guidelines for construction and design funding applications.

C.1. Description of Project Components.

The project site is located 1,000 feet southwest of the intersection of SR 20 with Old Lucerne Rd., immediately southeast of the community of Upper Lake in central Lake County, CA (Figure 1 in Section C.3). The project site is flat, ranging from 1,334 feet above mean sea level (msl) in the northwestern corner to 1,330 ft msl along the southern side of the overall 5-acre site. The site was historically used for farming (vineyard), and is already flat and level.

Existing facilities on site include an access road along the western edge of the project site, and an existing gravel access (ingress/egress) area near the southwestern corner of the project site. No other facilities or improvements are located on site. The Applicant proposes to construct an approximately 600 linear-foot chain link fence to form an approximately 200' x 100' biomass processing area enclosure, with access gates. Ground disturbance for fence installation be limited to the digging of approximately sixty 4" holes, set approximately 10' apart. Within the fenced area, the Applicant also proposes to install a temporary, 5,000 square-foot (sf) structure composed of four shipping containers and a hoop tent, where the containers will serve both as walls for the hoop tent shelter and as on site storage; note that placement of this structure will be completed by the hoop tent vendor and no construction effort is needed for this element. More specifically, no foundation or earthwork will be required for placement of this proposed structure. After placement of the hoop tent structure, electrical / wiring will be installed, including two transformers and panels, as needed for operation of electrical equipment on site. Construction will be completed over an approximately 3 month period from June to August, 2022. On site wiring and electrical will be installed using aboveground conduits. Construction would involve removal of existing blackberry bushes from the site, fence installation limited to holes needed for fence posts, and installation of electrical wiring, conduit, transformers, and associated equipment. Total construction related land disturbance would be approximately 0.46 acre or less. No further construction is proposed.

C.2. Statement of Consistency with Form ED-900

The project description provided in Section C.1, and all other information provided in this preliminary engineering report, is fully consistent with the with the EDA investment project description that is provided in Section B.2 of Form ED-900.

C.3. Project Site Drawings and Layout

Figure 1, below, provides a general layout and location of the existing site conditions, along with all project components. There are no beneficiaries external to the Tribe identified herein, or in Section B.9 of Form ED-900. Rough dimensions and/or sizes for major project components are labeled on the drawing. All project components slated for construction are included on the drawing.



Figure 1. Project site.

C.4. Feasibility Analysis

The following feasibility addresses constructability of the project.

Existing Conditions

Preliminary Engineering Report

As discussed in Section C.1, the project site was formerly used for agriculture as a vineyard. As a result, the project site is level and clear of trees and other large vegetation. The site has been fallow since 2014, and as a result, ruderal grassland and blackberry bushes have grown across the site. These will require removal from the project site during the construction process. Depth to groundwater on site is more than five feet. Soils are silty to clayey and moderately to moderate-poorly drained. As noted previously, construction activities on site will be extremely limited, with the only in ground work including the installation of a chain link fence. Placement of the proposed hoop tent structure will only require a flat area on site. Based on a site visit completed in November 2021, the proposed location for the hoop tent, along with the remainder of the site, is already flat and leveled.

Conditions Affecting Construction of Project Components

No conditions affecting construction of project components have been identified. Soils will support the proposed construction without modification or other earth work.

Feasibility Assessment

Based on the limited extent of construction anticipated under the project and the favorable conditions on site, project construction is expected to be highly feasible as described in Section C.1.

C.5. Construction Methods

The Applicant will retain a general contractor to oversee / complete blackberry removal, fencing and security installation, and electrical installation, the latter following placement of the proposed hoop tent.

Due to the simple nature of the project, a detailed / engineering level design for the project will not be required. Therefore, to handle construction, the Applicant will complete a bid process—compliant with applicable requirements of EDA funding—to select a third party construction manager or qualified general contractor. While a design will not be required, the Applicant will otherwise follow a traditional design/bid/build / sealed competitive bid process.

C.6. Number of Construction Contracts Anticipated.

The Applicant will seek to complete one contract that encompasses all construction elements for the project. Multiple contracts will not be required. No phasing for the project will be required.

C.7. Detailed Construction Cost Estimate.

The following table summarizes anticipated construction costs for the project, and includes quantities, unit prices, and total costs. All costs are based on preliminary engineering calculations using standard equipment and installation and cost rates applicable to Lake County, CA. Note that a 7% contingency has been included in the construction cost to cover additional costs in the event of a cost overrun or unanticipated expense.

| Item | \$/each | Qty | Total Cost |
|--|---------|-----|-------------------|
| fence posts 8' 6" galvanized | \$ | | |
| Terminal posts 9' galvanized | | | \$ |
| Chain link fence, 50-ft length, galvanized, 12.5 gauge | \$ | | |
| Tie wires, tension bars and bands, misc. parts | | | \$ |
| Security System | | | \$ |
| Installation | | | \$ |
| SUBTOTAL | | | |
| | | | |
| Wiring, copper, per foot | | | |
| Breakers and Outlets | | | |
| Conduit, 10 ft lengths | | | |
| Installation | | | |
| Contingency | | | |
| SUBTOTAL | | | |
| | | | |
| Step up / Down transformers | | | |
| Installation | | | \$ |
| SUBTOTAL | | | \$ |
| | | | |
| TOTAL | | | \$ |

C.8. Real Property Acquisition.

The Applicant will lease the project site from the County under a long term lease. Real property acquisition will not be required.

C.9. Permits List

The project will require the following permits:

- 1) Permit to operate (PTO) from the Lake County Air Quality Management District; Applicant will acquire permit prior to the initiation of full commercial operation, on or before December 15, 2022.
- 2) County building permit from Lake County. Applicant will acquire permit prior to the initiation of construction, by May 31, 2022

The project will not cross a railroad right of way, nor will it be located within such a right of way.

C.10. Project Schedule

The applicant will complete the project according to the following schedule:

- Design Completion: April 15, 2022
- County Building Permit Acquisition (requires up to 4 weeks lead time): May 31, 2022

Preliminary Engineering Report

• Solicitation of Bids—release of solicitation: April 15, 2022

• Award of contracts: May 1, 2022

• Construction Period: June 1 to August 31, 2022

C.11. Overall Project Budget Breakdown

The following tables summarize overall project budget. For additional breakdowns, refer to Section C.7 of this document, and to the Budget Narrative attached to the grant proposal.

Administrative Costs

| Cost Category | Staffing | Cost |
|-------------------------------|------------------------------------|----------|
| Grant Administration | Internal Staff (fully burdened | \$50,033 |
| | cost including direct, fringe, and | |
| | indirect) | |
| Grant Administration Support, | Contracted Consultant | \$43,291 |
| Reporting, and Evaluation | | |
| Total Administrative Cost | | \$93,300 |

Construction Costs

| Cost Category | Application | Cost | |
|---------------------------------|---------------|------|--|
| Fencing, lighting, and security | Site security | | |
| Wiring and breakers for | Utility | | |
| distribution and outlets | | | |
| Electrical transformers | Utility | \$ | |
| Total Construction Cost | | \$ | |

Equipment Costs

| Equipment Type | Application | Cost |
|---|--------------------|------|
| Grinder / Shredder (SSI Shredder M85 Electric) | Biomass processing | \$ |
| Wheel Loader (Cat 914, 2.5 cubic yard) | Biomass handling | |
| Tracked Grapple Loader (John Deere 337E and | Biomass handling | |
| Rotobec 6007 grapple with RT-222 Rotator) | | |
| Skid-steer / articulated loader (Bobcat S590 loader | Biomass handling | |
| with 62" industrial grapple bucket) | | |
| Trommel Screen (McCloskey International 512A) | Biomass processing | |
| Crumbler Feed Bin (20 cu yd) | Biomass processing | \$ |
| Rotary Shear Mill (Crumbler P24 System) | Biomass processing | \$ |
| Orbital Screen System (BM&M Super Screen, 2 | Biomass processing | |
| deck, 5x12) | | |
| Firewood Processor (Multitek 1610 w/electric | Biomass processing | |
| drive) | (firewood) | |

Preliminary Engineering Report

| Equipment Type | Application | Cost |
|---|-------------------------------|------|
| Firewood Bundler (Multitek wrapper/bundler) | Biomass processing (firewood) | |
| Conveyors (fixed and movable) | Biomass processing | \$ |
| Biochar handling and packaging | Biomass processing | \$ |
| Chip van (120 cu yd, 48 ft trailer, 4) | Biomass transport | \$ |
| 48 ft flatbed trailer | Biomass transport | \$ |
| Fuel tank | Site equipment | \$ |
| Truck Scale, non-permanent (Optima Scale OP- | Biomass inhaul / outhaul and | |
| 100 Truck Scale) | product measurement | |
| Fabric Membrane Structure (5,000 sf hoop tent | Equipment non-permanent | |
| with storage container sides) | housing | |
| Generator Set (2G Energy) | Biomass processing / on site | |
| | energy production | |
| Artis Units (Omni Bioenergy) | Biomass processing / on site | |
| | energy production | |
| Artis Power Electronics Upgrade (Omni | Biomass processing / on site | |
| Bioenergy) | energy production | |
| Shipping | Equipment procurement / | |
| | setup | |
| Equipment assembly, integration, and testing | Equipment procurement / | |
| | setup | |
| Mobile office trailer (20' length) | Site operation support / | |
| | administration | |
| Water Truck | Biomass processing / dust | |
| | management | |
| Total Equipment | | |



Preliminary Assessment Public Summary

This is a *Preliminary Assessment Public Summary* prepared by Puro.earth, which contains general information about the CO₂ Removal Supplier, a non-technical summary of the project, and a table containing details about the criteria assessed. The CO₂ Removal Supplier has received an extended Preliminary Assessment Report that includes additional remarks and recommendations for the continuation of the certification journey.

1. Supplier and project information

| CO ₂ Removal Supplier | | | | |
|--------------------------------------|---|--|--|--|
| Company name | Scotts Valley Energy Corporation ("SVEC") | | | |
| Company address | 1005 Parallel Drive, Lakeport, California 95453 | | | |
| Business ID | 5867699 | | | |
| KYC status | Completed (2024-09-16) | | | |
| CC | 0₂ Removal Project | | | |
| Methodology | Biochar, Edition 2022, Version 3 | | | |
| Production Facility name | Scotts Valley Energy Corporation - Red Hills | | | |
| Facility registration date | 2024-07-31 | | | |
| Production Facility ID | 387584 | | | |
| Production Facility location | Red Hills Road, Kelseyville, 95451, California, USA | | | |
| Host Country of removal | USA | | | |
| Has this facility been registered in | ⊠No | | | |
| another registry? | ☐Yes, additional information: | | | |
| A | ssessment details | | | |
| Date of assessment | 2024-09-24 | | | |
| Status of assessment | Final | | | |
| Conclusion of assessment | Passed | | | |

2. Non-technical project summary*

The Red Hills project is a 200kW AC biomass conversion facility that will convert non-commercial grade wood waste to electricity, biochar, and carbon credits (CORC's). The project is being developed by Scotts Valley Energy Corporation and it is an economic development and social justice initiative of the Scotts Valley Band of Pomo Indians, based in Lakeport, California. The project is expected to be operational in early September of 2025. The project uses pyrolysis to create synthesis gas in an oxygen deprived environment to establish its compliance with net-zero operations. The project is being capitalized through a combination of developer equity from SVEC, Investment Tax Credits under section 48 and debt facilities provided by Community Development Financial Institutions (CDFI). CORCS's are available on a discounted basis to creditworthy institutional buyers on a long-term pre-sale basis. Biochar is being sold as a soil amendment to farmers and ranchers in California.

The definition of CO₂ Removal Supplier and Production Facility can be found in the Puro Standard.

^{*}Filled by the Supplier. Between 150-200 words



3. Criteria assessment report

Reminder: Sub-criteria either concern the Production Facility's technical eligibility or its maturity and quality. There are three types of sub-criteria:

- Required to be passed: These correspond to the core criteria related to the eligibility of a Production Facility. Suppliers must meet these criteria, as they may otherwise be impossible or costly to change at a later stage of the certification journey.
- Required to be assessed: These criteria are important for evaluation but do not necessarily determine pass or fail at this stage, as it is understood that the suppliers may be at different stages of development.
- **Not required:** These criteria are optional at this stage. They may provide additional information about the project maturity but are not essential for passing the preliminary assessment.

For a facility to be considered eligible for listing, all the sub-criteria that condition eligibility must be met (i.e. passed or assessed). If one of those sub-criteria is not met, the facility in its current state of development is not eligible for listing.

Disclaimer: The assessment has been made against the criteria in the current version of the methodology. Puro.earth relied on the CO₂ Removal Supplier for the correctness of the provided information during the time of the preliminary assessment and will make no representation as to the accuracy or completeness of this report. The CO₂ Removal Supplier must undergo a third-party audit before issuing CO₂ Removal Credits (CORCs). **Passing the** preliminary assessment does not quarantee a success in the third-party audit.

Overall evaluation: Preliminary Assessment is Passed.

Table 1. Criteria and sub-criteria assessment by Puro based on the documents submitted.

| ID | Criteria / Sub-criteria | Outcome | Comment | Evidence reviewed | Requirement for listing | Purpose of criteria |
|------|---|---------|---|---|-------------------------|--------------------------|
| C1 | Planned biomass feedstock(s) is(are) eligible | Passed | | | Passed if required su | b-criteria are met |
| C1.1 | Biomass feedstocks are identified and compatible with EBC positive list | Passed | The facility is planning to use: wood from firesafe clearing (F-o2), wood from forestry thinning (F-o1, F-o2), wood from wildfire recovery (F-o1, F-o2), wood racked in forests from previous thinning efforts (F-o1, F-o2), and wood chips from utility infrastructure clearing (F-o1, F-o2). These forestry-based feedstocks are EBC compatible. In addition, walnut shells are intended to be used (AG-o5), also allowed for biochar production, as an agricultural residue. | C1. Summary of Planned Biomass Feedstocks.docx SVE Puro C4.0 additionality questions to suppliers v1.8.pdf C6. 2023-Apr SVEC Business Plan.pdf C1. Biomass types and origins list.xlsx | Required to be passed | Technical eligibility |



| C1.2 | Biomass feedstock sustainability and chain-of-custody can be demonstrated, if applicable | Passed | The wood is produced during the course of normal forest management operations, there is a noted co-benefit of wildfire reduction within the Mendocino National Forest. SVEC declares that the forestry-based feedstock is already part of the PG&E BIOMAT program for sustainably sourced biomass. Further details on forest biomass sustainability will be required for the audit. No evidence is required for walnut shells, besides record keeping of origin and amounts consumed. | C1. Biomass types and origins list.xlsx | Required to be passed | Technical eligibility |
|------|--|----------|--|--|-------------------------|--------------------------|
| C1.3 | Bioenergy leakage related to feedstock use is minimal | Assessed | Wood chips from utility infrastructure clearing and walnut shells were combusted for bioenergy production. Since the Red Hills Bioenergy facility will also be producing electricity for the local grid, bioenergy leakage is deemed minimal. | C1. Summary of Planned Biomass Feedstocks.docx SVE Puro C4.o additionality questions to suppliers v1.8.pdf C1. Biomass types and origins list.xlsx | Required to be assessed | Technical eligibility |
| C1.4 | Land use change related to feedstock use is minimal | Assessed | SVEC declares that the forestry-based biomass is sourced during normal forest management operations, while walnut shells are an agricultural waste stream. Therefore, no land use changes are associated with the feedstock use. | C1. Summary of Planned Biomass Feedstocks.docx C6. 2023-Apr SVEC Business Plan.pdf | Required to be assessed | Technical eligibility |
| C1.5 | Sourcing of biomass is secured (e.g. letters of intent, contracts) | Assessed | A letter of intent between a biomass provider and SVEC has been drafted, regarding annual provision of 1400 metric tons of chipped forest material to be used as the feedstock for SVEC's hybrid pyrolysis/gasifier units for a period of 3 years, with the provision of annual extensions thereafter. No information provided about securing sourcing of walnut shells. | C1. and C3. Biomass Sourcing_ SVEC LOI.docx | Not required | Maturity & Quality |
| C2 | Planned biochar production equipment is technically sound | Passed | | | Passed if required su | ıb-criteria are met |
| C2.1 | Several options of reactor design have been identified | Passed | Hybrid pyrolysis and gasifier reactor designs from Omni BioEnergy, LLC were considered for the production facility. | C2. and C8. Biochar production equipment questionnaire.xlsx C2. Omni BioEnergy Tech Specs.pdf | Required to be passed | Technical eligibility |
| C2.2 | Reactor design has been decided, contracted, or purchased | Assessed | Omni BioEnergy's Artis 200 model (hybrid of pyrolysis and gasification) has been decided for | C2. and C8. Biochar production equipment questionnaire.xlsx | Required to be assessed | Maturity & Quality |



| | | | the project. The equipment was manufactured | | | |
|------|---|--------|---|--|-----------------------|--------------------------|
| | | | in 2020 and has been in operation since 2023. | C2. Omni BioEnergy Tech Specs.pdf | | |
| | | | Temperature, heating rate, and residence time | C2. Offini BioEnergy Teen Spees.put | | |
| | | | indicated by the supplier, combined with the | | | |
| | Reactor design is vetted, regarding | | feedstock type, is deemed possible to produce | C2. and C8. Biochar production equipment | | |
| C2.3 | production of biochar with H/C ratio | Passed | biochar with an H/C below 0.7. Tests for similar | questionnaire.xlsx | Required to be | Technical |
| (2.3 | below 0.7 | rasseu | equipment and feedstock were provided, | C2. Omni BioEnergy Tech Specs.pdf | passed | eligibility |
| | Delow 0.7 | | resulting in an H/C around 0.3. Tests for this | Cz. Offini BioEffergy Tech Specs.pdf | | |
| | | | facility will need to be provided for audit. | | | |
| | | | The gasifier system includes a catalyst to break | | | |
| | | | down oil and tars into easily combustible gases | | | |
| | | | (primarily H2 and CO, and a small amount of | | | |
| | | | CH4). This modified gas stream is combusted in | | | |
| | | | an electrical genset or in a safety flare, both | | | |
| | | | equipped with safety systems and design | C2. and C8. Biochar production equipment | | |
| | | | measure to ensure complete combustion. CH4 | questionnaire.xlsx | | |
| | Reactor design is vetted, regarding risk | | emissions are therefore expected to be | 4 | Required to be | Technical |
| C2.4 | for CH4 emissions | Passed | negligible under the described operating | C2. Omni BioEnergy Tech Specs.pdf | passed | eligibility |
| | , | | conditions. | 3, 3, 2, 2, 3, 4 | ' | , |
| | | | An emissions summary provided by the | C2. Red Hills Emission Summary 2024.pdf | | |
| | | | equipment manufacturer for the Red Hills | , 11 | | |
| | | | facility presents zero values of CH4 from the | | | |
| | | | genset and flare exhausts; but details on the | | | |
| | | | methods of measurements and calculations | | | |
| | | | were not available. | | | |
| | | | | C2. and C8. Biochar production equipment | | |
| | | | | questionnaire.xlsx | | |
| | | | The bioenergy plant has been designed to | | | |
| | | | adhere to local regulation, from the Lake County | C2. Omni BioEnergy Tech Specs.pdf | | |
| | Reactor design is vetted, regarding air | | Air Quality Board. Several air pollutants will be | | Required to be | Technical |
| C2.5 | pollutant emissions in line with local | Passed | monitored (CO, NOx, VOC). A comparable | C2. Red Hills Emission Summary 2024.pdf | passed | eligibility |
| | regulation | | facility has been approved / permitted to | | | |
| | | | operate by the EPA. The Red Hills facility has | Red Hills Air Quality App Approval | | |
| | | | applied for approval. | SVECTUAL IN IS IN I I I I I I | | |
| | | | | SVEC RH Approved Modified Major Use Permit o6 | | |
| - | Facility design is vetted, regarding | | The system is designed to break down oil and | 23.pdf C8. Environmental Evaluation Report.pdf | | |
| | | | tars into easily combustible gases via catalysts. | Co. Environmental Evaluation Report.pdf | Dec to Lead | T. 1 |
| c2.6 | disposal of waste streams, including any liquid streams (wastewater, oil, | Passed | Hence, formation of tars and oils is minimal. The | C2. and C8. Biochar production equipment | Required to be passed | Technical eligibility |
| | tars) | | catalyst can be cleaned once per year with | questionnaire.xlsx | hassen | engibility |
| | tursj | | Catalyst call be cleaned office per year with | questiorinalie.xisx | | |



| | | | steam injection and no additional external waste. Small volumes of water used to quench biochar are recycled on the premises. Particulate air filters used in the process can be recycled or disposed in trash. Minor amounts of soot are removed every 1-2 months from an ash bucket from the catalyst bed. The production facility is therefore deemed to generate minimal waste and have suitable management plans. | C2. Mass and energy balance of production process_6.12.24.xlsx | | |
|------|--|----------|--|---|-------------------------|--------------------------|
| C2.7 | Facility is co-producing bioenergy (e.g. heat, power) for internal use | Assessed | A portion of the syngas will be used to generate electricity to sustain the reaction. The reaction is heated by electricity. | C2. and C8. Biochar production equipment questionnaire.xlsx | Required to be assessed | Maturity & Quality |
| c2.8 | Facility is co-producing bioenergy (e.g. heat, power, fuel) for external use | Assessed | Excess electricity generated will be exported to the local grid. Amounts remain to be confirmed. | C6. 2023-Apr SVEC Business Plan.pdf | Required to be assessed | Maturity & Quality |
| c3 | Biochar planned end-use(s) is(are) eligible | Passed | | | Passed if required su | b-criteria are met |
| C3.1 | Biochar end-uses are eligible | Passed | The biochar will be used as a soil amendment. It will be sold in bulk to a company that produces soil-amended biochar which will be used for agriculture and forestry applications. Some secondary uses mentioned in the company's Business plan may be ineligible. | SVEC RH Approved Modified Major Use Permit o6 23.pdf C3. Summary of Planned Biochar End Use.docx C6. 2023-Apr SVEC Business Plan.pdf | Required to be passed | Technical eligibility |
| C3.2 | Plans of biochar end-uses are tangible | Assessed | A letter of intent is in place with the supplier of the biomass, who intends on purchasing biochar. An official contract is expected to be in place before operations commence. | C ₃ . Summary of Planned Biochar End Use.docx C ₁ . and C ₃ . Biomass Sourcing_ SVEC LOI.docx | Required to be assessed | Maturity & Quality |
| c3.3 | Biochar environmental quality thresholds are known for the identified end-uses | Assessed | The environmental quality thresholds have not been stated for the end-use. The supplier is awaiting laboratory results. Comparison to EBC benchmarks for soil use will be required. | Audit Document Index – Biochar.xlsx | Required to be assessed | Maturity & Quality |
| С4 | Additionality is demonstrated | Passed | | | Passed if required su | b-criteria are met |
| C4.1 | Carbon storage additionality to baseline | Passed | The baseline scenarios include woody waste that would be left to decay in forests, and walnut shells that would be shipped to produce | SVE Puro C4.0 additionality questions to suppliers v1.8.pdf | Required to be passed | Technical eligibility |



| | | | bioenergy. In both cases, long term carbon | | | |
|------|---|---------------|---|---|-------------------------|--------------------------|
| C4.2 | Financial additionality of facility | Passed | storage is secured. Financial cash flow model includes sensitivity analysis based on project cash flows, including, CAPEX, OPEX, and carbon credit and biochar revenues. Without carbon credit revenues the project is not deemed to be financially viable. | C4. SVEC Pro Forma Model_8.7.24 | Required to be passed | Technical eligibility |
| C4.3 | Regulatory additionality | Passed | SVEC declared that biochar production is not mandated in the jurisdiction of the project. | SVE Puro C4.0 additionality questions to suppliers v1.8.pdf | Required to be passed | Technical eligibility |
| C4.4 | Production equipment is newly built (i.e. not an existing facility or a retrofit of existing facility) | Assessed | The production equipment is newly built, in operation since 2023. | C2. and C8. Biochar production equipment questionnaire.xlsx C2. Omni BioEnergy Tech Specs.pdf | Required to be assessed | Maturity & Quality |
| с5 | Facility has monitoring, reporting, and LCA capabilities or tangible plans | Passed | | | Passed if required su | b-criteria are met |
| c5.1 | Protocol for biomass and biochar record keeping is prepared | Assessed | SVEC commits to implementing a comprehensive record-keeping system as outlined in the MRV plan, ensuring the accurate tracking of biomass feedstock flow and biochar production. This system will capture key data elements related to biomass sourcing, biochar production, and the sale and distribution of biochar products. | C5. Summary of MRV plans.docx | Required to be assessed | Maturity & Quality |
| C5.2 | Protocol for dry mass determination of biochar is prepared | Assessed | The MRV plan contains a high-level protocol for determining the dry mass of biochar, to be further refined. | C ₅ . Summary of MRV plans.docx | Required to be assessed | Maturity & Quality |
| c5.3 | Protocol for biochar sampling and laboratory analysis is prepared (permanence and environmental quality) | Assessed | The MRV plan does not include a protocol for biochar sampling and laboratory analysis. Note that Omni BioEnergy conducted independent biochar verification through the IBI Certification Program, but SVEC has not indicated that this would be their option. | C5. Summary of MRV plans.docx C2. Omni BioEnergy Tech Specs.pdf | Required to be assessed | Maturity & Quality |
| C5.4 | Monitoring and reporting plan of facility emissions is prepared | Assessed | The MRV plan contains high-level guidelines for monitoring pollution emissions, to be further refined. | C ₅ . Summary of MRV plans.docx | Required to be assessed | Maturity & Quality |
| c5.5 | An LCA model specific to the facility's operation is prepared | Not required. | No LCA model was yet provided for evaluation. | Not required. | Not required | Maturity & Quality |
| c6 | Facility has likely co-benefits and positive SDG impacts | Passed | | | Passed if required su | b-criteria are met |



| c6.1 | Facility-specific co-benefits have been identified | Assessed | Co-benefits resulting from the project activity includes diverting waste from landfill, economic development for the Scotts Valley Band of Pomo Indians, energy resilience and independence, and re-establishing tribal sovereignty. | C6. Summary of Co-Benefits and SDG Impacts.docx | Required to be assessed | Maturity & Quality |
|------------|--|----------|---|---|-------------------------|-----------------------|
| с6.2 | Facility-specific SDG targets or indicators have been identified | Assessed | Specific SDGs have not yet been listed. | No information provided. | Required to be assessed | Maturity & Quality |
| c 7 | Facility team has access to relevant knowledge and skills | Passed | | | Passed if required su | b-criteria are met |
| C7.1 | Relating to biomass sourcing, handling, processing | Assessed | The team has an LoI with a biomass supplier who will process and supply biomass for SVEC. | C1. and C3. Biomass Sourcing_SVEC LOI.docx | Not required | Maturity & Quality |
| с7.2 | Relating to thermochemical processes | Assessed | The team contains individuals with experience in the field. | C7. Team Bios.pdf | Not required | Maturity & Quality |
| c7.3 | Relating to biochar use | Assessed | The team has an agreement with a biochar user who will mix it with organic compost to produce a soil amendment suitable for its intended use. | C1. and C3. Biomass Sourcing_SVEC LOI.docx | Not required | Maturity & Quality |
| c7.4 | Relating to monitoring and carbon accounting | Assessed | The supplier has engaged a 3 rd party dMRV specialist. | C7. Team Bios.pdf | Not required | Maturity & Quality |
| с8 | Environmental and social safeguards | Passed | | | Passed if required su | b-criteria are met |
| | | | Initial communication channels have been | | | |
| с8.1 | Stakeholder consultations have been planned or conducted | Assessed | established between Scotts Valley Band of Pomo Indians, and individual and group stakeholders. It is noted that a dispute is being resolved regarding wood chipping and onsite storage between stakeholders who neighbor the identified storage site. This requires attention and full resolution prior to audit. | 240720 SVEC Org Chart.pdf C6. 2023-Apr SVEC Business Plan.pdf | Required to be assessed | Maturity & Quality |
| c8.1 | | Assessed | established between Scotts Valley Band of Pomo Indians, and individual and group stakeholders. It is noted that a dispute is being resolved regarding wood chipping and onsite storage between stakeholders who neighbor the identified storage site. This requires attention | | | , |



| | biochar. Procedures to obtain other necessary | | |
|--|---|---|--|
| | permits are known and have been started. | Red Hills CEQA - State Comments 2020010407_DTSC | |
| | | Comment.pdf | |

Source: https://www.lakeconews.com/news/community/commentary/74463-from-the-editor-s-desk-tom-jordan-s-folly-and-the-threat-to-a-community

From the Editor's Desk: Tom Jordan's folly and the threat to a community

Elizabeth Larson

Posted On Friday, 16 December 2022 01:53

26 December 2022

Merriam-Webster has declared that the word of 2022 is "gaslighting," and that's incredibly appropriate considering what Tom Jordan, tribal administrator of the Scotts Valley Band of Pomo Indians, is trying to pull on the town of Lucerne and the county at large.

With one fell swoop, this self-appointed expert on everything — in partnership with a rogue Lake County Office of Education staffer, Ana Santana — managed to hornswaggle the state into giving the tribe millions of dollars for a project Jordan doesn't have the least clue how to carry out — turning the Lucerne Hotel into a gigantic homeless shelter, the biggest in the county, in the midst of a town that has one of the county's smallest, poorest populations.

Why the state gave him money is anyone's guess, other than he was using the tribe's name to convince them at a time when Gov. Gavin Newsom's administration is throwing money at the homeless situation with little emphasis on accountability or positive outcomes.

There are many issues with Jordan's scheme, but perhaps most disgusting is Jordan's arrogant dismissal of community concerns or any community input on the idea, which will need vast cooperation and financing to get off the ground, much less to survive.

Hinting that some imaginary entitlements exist he has already suggested he will fight the zoning and planning processes that such a project would necessarily require. He has yet to entertain a preplanning meeting with the county, though he's already been told that there are zoning issues.

But is this about a homeless youth housing facility, or as some of Lake County News' readers are already suggesting, something else entirely — such as a gambit to force a casino or some other undesirable use into our community?

"Oh, gosh, our shelter failed," I can imagine Jordan saying, patting his forehead with a hanky. "Now, we'll spend those millions to turn it into a secondary casino to the \$700 million casino we want to build in Vallejo."

Or is it a plan for this Lakeport-area tribe to move its government offices into the building, part of Jordan's ultimate vanity project in controlling the last of Lake County's great resorts?

It's anyone's guess. And I suspect we'll be waiting a long time for Tom Jordan — who it must be stressed is not a tribal member — to tell us the truth.

The description of the project sounds like a 19th century workhouse, something Charles Dickens would have written about warming the stone-cold heart of Ebenezer Scrooge as he walked past it in a dreary, coal-clouded London winter.

People who I know and trust, who are housing advocates who have reviewed the plan, call it poorly thought out, with the potential to become an unmitigated disaster for Lucerne and its residents.

Until Lake County News contacted them, the Lake County Office of Education, the plan's "primary partner" who was supposed to run the shelter, knew nothing about it. Nor did dozens of other "secondary" partners also were named in that grant.

All of those who we have contacted so far didn't know about the plan, and certainly didn't give it any support, while others read their names in disbelief. Some reached out to tell us "no, not us" or in one case, "Holy Toledo!"

Some of the notable organizations and agencies in that group include Lake County Probation, Lake Family Resource Center, Woodland Community College, Lake County Tribal Health and the Lake County Gleaners.

On Thursday afternoon, the Red Cross, a national level organization, contacted us to say they also had nothing to do with it.

We expect to hear from more of these "partners" before we're done checking.

You could wonder whether the grant application's audacious claims of unicorn partnerships, and the fact that they are categorically false, is burning bridges, not building them.

And how could any plan succeed without substantial input from the Lucerne school superintendent, the Northshore Fire chief, the sheriff and a host of other officials, much less the community? As disrespectful as that is on a government to government basis, contemplate the real world consequences for the neighborhood.

This is a clear case of planning to ask for forgiveness, not permission, or simply using the tribe's name, and the Sword of Damocles that is a threat of being called a racist, over the head of anyone who questions it.

Already, Jordan's fawning, sycophantic supporters appear to be starting a campaign of character assassination of anyone challenging their plan. I'd love to back up a dump truck full of his nonsense

into their neighborhood. Their stupidity won't get far.

This, it must be emphasized, is not about a tribe. This is about two bureaucrats who rubbed their heads together and sparked a nightmare. It's a bad idea, no matter who is suggesting it. And it's unconscionable for the state of California to throw money at it when it's clearly based on fiction, upon fiction, upon fiction.

Does this have something to do with Jordan's involvement with the local Democratic party? Is this why a Democratic governor's administration doesn't question it?

More troubling still, our county legislators — Mike McGuire and Cecilia Aguiar-Curry — have remained silent when we've asked them about this thorny situation. They've stepped up when the county was in peril before, why do they stay silent now when Lucerne needs them?

Perhaps most shocking, we're now getting word that many of Scotts Valley's 300-plus tribal members had no idea about this plan or what is being done in their name.

That tribe reportedly has just seven homeless youth that would even qualify for such housing as the grant would cover. Now, they're supposed to be responsible for running a 75,000 square foot historic building for dozens of individuals who aren't members of their tribe? Yet, it's our understanding that tribes currently have the ability already to house homeless youth. So what gives?

Our attempt to get a comment from the tribal chair, listed online by the Bureau of Indian Affairs as Shawn Davis — the tribe's own website doesn't list council members, and mostly likely for this very reason — was unsuccessful, so that leaves Jordan to speak for the tribe. And that's probably why the tribe at large isn't getting the message. Or wasn't, until the article came out.

Despite all of this, the California Business, Consumer Services and Housing Agency indicated it intends to go through with giving Scotts Valley the \$5.2 million, without so much as a lead agency to run this project.

There's that old saying about the dog that catches the car. In this case, Tom Jordan and Ana Santana caught the car.

The entire situation is outrageous. But then, anyone who is familiar with Tom Jordan's history of bluster and bamboozlement shouldn't be surprised.

Case in point, the sudden and complete destruction of the <u>Lake County Community Action</u> <u>Agency</u> in 2011, an agency whose board he chaired.

That year, the agency board discovered an estimated \$100,000 in unpaid payroll taxes, which precipitated a financial crisis that closed the agency's many important services, caused layoffs and ultimately resulted in its equipment and furniture being auctioned off in October 2011.

No one, including Jordan and other board members — tasked with oversight of the agency — could give clear answers of just how it all happened, but in hindsight, it's become clearer.

The Lake County Community Action Agency was like the victim on Agatha Christie's "Murder on the Orient Express" — many people were responsible for its death. But unlike that victim, the agency didn't deserve its fate.

Those two stories also have in common that no one took the fall for the final act.

Jordan went on to be the executive director of the Lake County First 5 Commission. When he left that job, his daughter, Sorhna Li Jordan — who ran unsuccessfully in 2014 for county assessor-recorder — took over his job at First 5. Within months, however, she was terminated by the county Health Services director.

She now works as Scotts Valley's chief financial officer, according to the grant documents, and will have a role in oversight, despite her statement to me that it wasn't her project.

And in November, Scotts Valley environmental director and chief operations officer, Terre Logsdon, was hired as the county's new grant-funded climate resiliency officer. One wonders what behind-the-scenes lobbying for Scotts Valley is taking place by Logsdon, now ensconced in the County Administrative Office.

The Lucerne Area Town Hall asked Jordan for information, but he didn't respond until after the town hall finally issued its agenda earlier this week, which included a discussion of the plan and a proposed resolution condemning it.

Andrew Beath of the Malibu-based Earthways Foundation, a pal of former Supervisor Denise Rushing's, purchased the Lucerne Hotel from the county as part of its predetermined sale process — one that we have long had evidence didn't follow proper county procedure — in order for Rushing and her other buddies to carry out some wackadoodle plan about a permaculture college.

I wouldn't think a real permaculture college would rip out native plants and otherwise destroy the landscape, but what do I know? It's not like Rushing stuck around to actually see the results of her goofy ideas. She was at least consistent in that aspect.

Beath is now refusing to let the Lucerne Area Town Hall at the building, which it has done for months, because he claims they don't know the whole story of the sale. Uh huh.

Meanwhile, Jordan suddenly asked to be on the town hall's agenda in January — expected to be well after the close of escrow, which we have been told closes at the end of this month. Community members attending that meeting should be sure to take with them a shovel to dig through the load of hogwash he'll try to feed them.

District 3 Supervisor Eddie Crandell, who is becoming mostly known for his consistent failure districtwide to respond to community concerns — such as the potential for catastrophic levee failure in Upper Lake — has refused to respond to questions about the Lucerne Hotel plan for weeks.

Or, I should say, he was refusing until Wednesday night, when based on the town hall bylaws he appears to have overstepped himself and sent out a notice canceling the town hall's Thursday meeting and saying the town hall won't meet again until January. Again, after the reported close of escrow.

Nice of him to so willingly carry water for Jordan. So rarely does Crandell show initiative on any other matter.

Crandell is now letting County Counsel Anita Grant cover his behind for his actions. Grant claims he didn't overstep himself, which is a classic case of an attorney saying the sky is black when it's blue. The bylaws are very clear, that the town hall chair has the authority for setting meeting times, locations and dates, while the district supervisor has no official role in bylaws Crandell himself voted to approve on Oct. 18.

But we have to remember, Grant protects the supervisors and the county, not the community. She's the one making sure the foxes can get in and out of the hen house without getting pecked by angry chickens.

The town hall attempted to meet on Thursday night. About 20 people, of all ages, showed up to stand on the steps in front of the building to discuss their concerns. However, only two board members showed up to the meeting, meaning no quorum was present and so business couldn't be conducted.

It looked like Beath, Jordan and Crandell got their way.

But, not yet.

The town hall is now working to secure another meeting location going forward and plans to hold an emergency meeting to put its concerns on record before escrow closes.

Jordan's plan fits nicely with what appears to be the county of Lake's plan to turn the entire Northshore into a sacrifice zone.

The Board of Supervisors, led by the nose by then-County Administrative Officer Carol Huchingson, took the Lucerne Hotel away from the community in a way that hasn't been seen in any other community, making it difficult for community groups to take possession of it without millions of dollars at their fingertips. It was based on greed, to make sure she got her big, fat retirement.

It's scandalous. I cannot imagine such a thing happening in other communities, like Clearlake,

Kelseyville, Lakeport or Middletown.

Yet it happened here. And unincorporated communities need to beware, because if it's happening here, it can happen anywhere.

As I personally informed the Lake County Board of Education at its Wednesday meeting, Jordan and Santana's grant looks like a badly mashed up eighth grade term paper, with plenty of aspirations but no understanding of real world consequences. They clearly needed to have a "partner" like LCOE to pick up the tab on the millions of dollars they don't have to pull this off.

In addition, Santana, who committed LCOE to operating this shelter, needs to be thoroughly investigated with a view toward termination. We have many questions regarding her possible use of government time for personal ends, and have served the Board of Education with a public records act request to ascertain what was going on.

The Board of Education also needs to understand that if it doesn't take action to condemn this matter soon, it will be too late, escrow will have closed, they will look complicit and liable through their own inaction.

"Silence encourages the tormentor, never the tormented," said Elie Wiesel, who as a boy was held as a prisoner at Buchenwald concentration camp, liberated in April 1945 by men including my grandfather, who recounted for me in vivid detail that day and the price paid to keep our governments free and responsive to the people.

Lake County cannot afford any more of Tom Jordan's wildly inappropriate, unstudied, damaging and egotistical projects.

He's an embarrassment to the community and the tribe. He needs to go.

The community of Lucerne's plea to the Scotts Valley tribe is this: Don't do this. Don't let Jordan do this in your name.

If you want to partner on a plan for economic development and use of the building for a hotel, conference center and restaurant — which the county of Lake itself has said is the highest and best use — there could be success on all sides.

What is being proposed on your behalf, in your name, will bring destruction to us and infamy to us all. There is no good ending to this story as Jordan and Santana have written it.

You have the power to write a different ending, to do the right thing, to build meaningful partnerships.

The question is: Will you?

| Elizabeth Larson is ti Lucerne, California. | he editor and pub | olisher of Lake Co | ounty News, and | a proud resident of |
|--|-------------------|--------------------|-----------------|---------------------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Source: https://terralingua.org/langscape_articles/good-fire-an-intertribal-alliance-empowers-native-californians-to-restore-their-homelands/

"Good Fire": An Intertribal Alliance Empowers Native Californians to Restore Their Homelands

September 27, 2023

Tribal members take responsibility toward the land by reviving ancestral cultural burning.

WORDS AND IMAGES Jeanine Pfeiffer
AUDIO AND VIDEO Tribal EcoRestoration Alliance



Tribal EcoRestoration Alliance (TERA) crew completing a cultural burn among tule reeds along Big Valley Rancheria's Clear Lake shoreline. Photo: Ronald Montez Sr.

.

In Northern California's Lake County, young and young-ish Tribal women and men are reclaiming their eco-cultural heritage four generations after their great-great-grandparents were massacred, enslaved, and ousted from their homelands, shamed into not speaking their languages, and forbidden from following customary lifeways. For Pomo Tribes whose ancestral territories surround Clear Lake — California's largest and most ancient lake — fire lies at the heart of those traditional lifeways and is embedded in their languages. Northern Pomo, for example, one of several Pomo languages spoken in the region, has many words for fire: ho miye:din, "fire burning along"; se?e malijin, "brush fire"; kadi malijin, "grass fire"; kako malijin, "forest fire"; and so on. Fire, then, also lies at the heart of current efforts to revitalize Indigenous biocultural diversity.

Ronald Montez Sr., Tribal Elder and Tribal Historical Preservation Officer of the Big Valley Band of Pomo Indians, remembers his Aunt Elvina setting fires behind the Elem Indian Colony reservation where he grew up. "During certain times of the year, when the weeds reached a given height, Auntie

would gather all the kids, give us soaking wet gunny sacks and buckets, and light a fire in a big square — just big enough for us to contain it. When the fire got near to us kids, we would start slapping the ground with our wet sacks, chasing the fire, smothering it. By the time the fire trucks showed up — and they always did because people who didn't understand what we were doing would report us — the fire had burned out."

Throughout the western United States, most people fear fire because they have no history with "good fire" — the art and practice of cultural burning. Instead, they grew up with the misguided Smokey-the-Bear mantra conceived by the U.S. Forest Service: "Only you can prevent forest fires." As a result of that approach, California's woodlands, once intensively and extensively managed by thousands of Tribal bands, lapsed into neglect, becoming overgrown and, with the extended drought that the state has long been experiencing, extremely dry: a statewide tinder box.

Most people fear fire because they have no history with 'good fire' — the art and practice of cultural burning.

It took over ten million acres burned in catastrophic megafires between 2002 and 2021 for California to recognize that 120 years of ecologically ignorant fire suppression policies needed to be reversed. Recent executive orders by California Governor Gavin Newsom and legislation passed by the state assembly supporting prescribed fire are allowing good fire to experience a renaissance. Yurok, Karuk, Hupa, Pomo, Maidu, Wintun, Nisenan, Plains Miwok, North Fork Mono, Mechoopda, Luiseño, Pala, and Tule River Tribes and Tribal members all held cultural burns in 2022.

The Tribal EcoRestoration Alliance (TERA), formed in 2019 in Lake County, has a mission "to cultivate land stewardship, livelihood, and leadership skills that weave collaborative relationships between Tribal members and the community at large for the benefit of all lands and beings." Centered in a small office donated by the Robinson Rancheria Pomo Indians of California, TERA aims to build Tribal capacity to manage ancestral lands by offering paid employment and certification programs in prescribed burning, emergency medical response, and environmental hazards.

Good fire is being applied by TERA on Tribal, private, county, state, and federal lands along with agencies that in the past opposed cultural burning — and arrested or imprisoned Tribal members who attempted it — but now embrace collaborative cultural burning events. Following several seasons of returning good fire to oak woodlands and tule reed marshes, using willow bioengineering to restore eroded streambanks, and replanting hillsides with native species, TERA's crew is now inundated with requests for their expertise.

Through TERA, dozens of Indigenous recruits from California and beyond are receiving and applying hands-on training in fuels reduction, cultural burning, traditional ecological knowledge, invasive species removal, and riparian restoration. Two federally recognized lakeside Tribes with significant landholdings — Robinson Rancheria Pomo Indians and Big Valley Band of Pomo Indians — hosted cultural burns in the past year. The Big Valley Pomo recently signed a memorandum of understanding with Clear Lake State Park, facilitating future Indigenous comanagement of parkland containing Big Valley's original village site (Xabenapo), burial grounds, and hundreds of acres of culturally significant plants and animals. Plans include cultural burning, to be performed in partnership with TERA, alongside traditional tending of oak, manzanita, and tule reed habitats.

Today's Pomo generations are learning how to apply ancient practices to cultivate native foods, traditional medicinal and basketry plants, and steward flora and fauna used in ceremony and regalia by carefully setting and monitoring fires. Culturally significant species, such as edible acorns, sacred angelica root, willow and sedge for basketry, and elderberry, whose branches are made into clapper sticks to accompany traditional Pomo songs, all depend on routinely set fires to prosper. Although much of the traditional ecological knowledge and in situ tending practices held by Tribal aunties and Elders died when they passed on, oral histories and remembrances, combined with hands-on experimentation and intertribal expertise sharing, are empowering Pomo Tribes to reignite good fires that lay dormant for far too long.

Culturally significant species all depend on routinely set fires to prosper.

TERA's services are desperately needed, as climate change has hit Lake County — one of California's most impoverished regions — especially hard. Over sixty percent of the county's landmass has been subjected to catastrophic wildfire in the past seven years, harmful algal blooms plague its overly warm waterways, and after years of unrelenting drought, a sacred fish — the Clear Lake hitch — teeters on the brink of extinction. Good fire simultaneously restores biocultural diversity and addresses climate change impacts by reinstating Indigenous stewardship practices that make landscapes more fire resistant, protect watersheds by restoring streambanks and reducing excess vegetation (which raises the water table), and rehabilitate endangered lakeside tule reed beds that serve as vital habitat for Clear Lake hitch juveniles and adults.

Good fire simultaneously restores biocultural diversity and addresses climate change impacts by reinstating Indigenous stewardship practices that make landscapes more fire resistant.

Here, eleven Tribal staff members and leaders talk about why they have chosen to be affiliated with TERA, why they are investing time and energy in TERA field training sessions, and what this training means to them as parents, husbands, workers, leaders, and small business owners. For each person, we see how promoting and cultivating good fire is radically different from "fighting" or "suppressing" fire and how engaging in cultural burning enables Tribal members to align land management practices with the deepest parts of themselves.



TERA crew undertaking a cultural burn in the oak woodlands on Robinson Rancheria Pomo Indians' ancestral lands.



TERA crew undertaking a cultural burn in the oak woodlands on Robinson Rancheria's ancestral lands.

.

Chris McCloud



"I put myself in the middle of all of it so that I can gather the information and bring it back to my tribe. Hopefully we can start our own cultural burning group and give back to the land."

Audio Player

00:00

00:00

Use Up/Down Arrow keys to increase or decrease volume.

..

Daniel Driskell

"I'm doing it for my family, to support me, my wife, and my daughter. . . . This is me getting my foot in the door to actually get in the fire."



Audio Player

00:00

00:00

Diana McCloud



"I want to do my part to restore the land and to take care of it just as my ancestors did.... I can make a difference... for my kids and my kids' kids."

Audio Player

00:00

00:00

Don Calit

"California is in desperate need of good fire. . . . This is what we need to get everything back into balance."



Audio Player

00:00

00:00

Lance McCloud



"I am a big believer in restoring the land. I believe that it has been neglected for longer than I've been alive. . . . I love being outside. It's just relaxing, calming. So anything I could do to help preserve it for future generations is a good start in my eyes."

Audio Player

00:00

00:00

Use Up/Down Arrow keys to increase or decrease volume.

.

Loren Uriarte

"I come from the suppression background, so it's totally a different outlook and perspective on fire. . . . The suppression side is kind of, you just [avoid the] burn. This has a more of a spiritual side to it. It's for regrowth, it's for our food. . . . This is the future of how we do fire."



Audio Player

00:00

00:00

Use Up/Down Arrow keys to increase or decrease volume.

.

Rachael Campbell



"We're learning more and more about how, even though we lived on the reservation, we really were not educated in how tribes used to use fire to manage the land. Now we're beginning to have an opportunity to learn more about the benefits of good fire on Native properties, on anybody's property."

Audio Player

00:00

00:00

Richard White

"We live in a place where we knew it was gonna burn, and we had a fire, didn't know what to do. It scared me, a little bit of PTSD from that. I'm trying to learn . . . to do good for the land and for the people."



Audio Player

00:00

00:00

Use Up/Down Arrow keys to increase or decrease volume.

.

Stoney Timmons



"When I was growing up, my greatgram over in Elem Indian Colony used
to burn the tule, and that knowledge
has been lost along the way. . . . The
more knowledge that I'm able to gain,
the more I'm able to bring back to my
people and share this knowledge. . . .
The work that we do on the land is
important. We're doing the hard work
now to prevent these catastrophic
wildfires from happening."

Audio Player

00:00

00:00

Tim Nelson

"Traditionally Indigenous people have always burned, and it was one of the ways that we took care of the land and one of the ways that we managed our resources. We haven't been able to do it, and there have been some obvious consequences of that. One of the really beneficial side effects of the cultural burning that we did traditionally was that it mitigated catastrophic fire."



Audio Player

00:00

00:00

Tyrone Earl Mitchell



"It's bringing the people together. It's bringing ideas, it's bringing concepts, it's bringing social parameters and meshing everybody together and forcing a brainstorming of ideas and resolving the problems that we're facing right now."

Audio Player

00:00

00:00



TERA crew undertaking a cultural burn in the oak woodlands on Robinson Rancheria's ancestral lands.

.

Watch <u>TERA Cultural Burning – Thoughts from the Field</u>, a video of the TERA crew undertaking a cultural burn.

••

Back to Vol. 12 | Read the Table of Contents | Like Our Stories? Please Donate!



Jeanine Pfeiffer, PhD, is an ethnoecologist focusing on biocultural diversity. Her award-winning essays (five of which have been nominated for a Pushcart prize), research articles, poems, and films have been published in major media and journals, anthologized, radio broadcast, and exhibited in art galleries. Follow Jeanine on jeaninepfeiffer.com and on Twitter @JeaninePfeiffer

FacebookTwitterShare



Master Gardeners' safety precautions for handling, applying, and storing biochar

Biochar is a fairly common label used to identify the by-product from the gasification of carbonaceous materials like wood chips or grasses. It is a solid odorless powder that has a gray/black or black/tan color depending on the process and original carbonaceous material. This by-product has some characteristics that require safety precautions while storing, handling, and applying.

Handing and Applying Biochar

The personal safety concerns for biochar are potential irritations to your skin, eyes, and respiratory system. The exposure to airborne biochar dust may cause irritation. The body's reaction could be immediate or delayed. To help minimize the potential irritation exposure, Master Gardeners should follow some safety practices of applying biochar and use specified personal protective equipment when needed.

Biochar Safe Practices

A safety goal of handling and applying biochar is to minimize the amount of biochar that is suspended in the air. Use caution when transferring biochar from package to soil or package to applicator. Avoid dumping biochar out of the package from a height. Consider postponing applications when the wind creates conditions that can easily suspend biochar. If using an applicator, staying upwind during transfer of biochar into the applicator may reduce personal exposure. These practices prevent the formation of a biochar dust cloud and limit potential exposure biochar.

Personal Protective Equipment

Personal protective equipment recommended for Master Gardeners while handling or applying biochar would be eye protection, gloves, long sleeves, long pants, and respirator depending on the conditions. The level of protection depends upon the amount of biochar dust suspended in the air and quantity of biochar that could be suspended. The minimum eye protection recommended is safety glasses but if the environment is laden with biochar dust then

IOWA STATE UNIVERSITY

Extension and Outreach

Ames. lowa | April 2012

Authors

Charles V. Schwab

Professor and
Extension Safety Specialist
Iowa State University

Mark Hanna

Extension Agricultural Engineer Iowa State University

Cenusa bioenergy,
a USDA-funded research
initiative, is investigating
the creation of a
sustainable Midwestern
biofuels system.

Research Partners

Iowa State University—Lead
USDA Agricultural Research
Service (ARS)
Idaho National Lab (INL)
Purdue University
University of Illinois
University of Minnesota
University of Nebraska—
Lincoln
University of Vermont
University of Wisconsin

www.cenusa.iastate.edu



non-vented goggles are recommended. In the case of eye exposures, treat biochar dust in eyes as a foreign object and flush with water for 15 minutes, including under the lids to remove any dust particles.

Gloves

Most Master Gardeners already use gloves while working so this is no different. However if conditions are such that the biochar is or becomes wet then typical cloth, canvas, or leather gloves may not be sufficient, so in these wet conditions latex or PVC gloves are recommended. Gloves and long sleeves are a barrier to prevent dust from contacting the skin. Consideration should be given to using disposable outer garments if the work environment is extremely dusty with biochar. It is important to wash all exposed skin with soap and water. Launder all clothing before reuse or discard disposable outer garment after use.

Respirators

Avoid breathing biochar dust. In small applications of biochar and when precautions are taken to avoid suspending biochar then no respirator is required. If conditions are such that you cannot avoid breathing dust, you experience discomfort with any level of biochar dust, or have respiratory problems then the use of an NIOSH-Approved N95 particulate filtering face piece respirator should be used. Use of respirator requires proper fitting and checking with your physician before using.

Biochar Storage

Never store near food and beverages. Biochar should be stored in a cool, dry place away from direct sunlight. It is important to reseal containers immediately after use. Freshly produced Biochar may be prone for auto ignition and spontaneous heating when exposed to air. Consider the volume of biochar being stored and location of your storage site knowing the potential for auto ignition. Large quantities of of stacked biochar have more potential of spontaneous flame when exposed to air.

Finely ground biochar powder suspended in the air in a closed container has the potential to become a fuel if an ignition source is present. If leftover biochar is re-packaged, avoid using tightly sealed rigid containers such as cans or jars, but consider using a bag so that flexible sides and be rolled up leaving little opportunity for dust to become airborne inside the container during transportation or other handling.

Hazards to Watch

- Avoid biochar dust contact with skin
- Do not inhale biochar dust
- Avoid biochar dust contact with eyes
- Do not ingest biochar

Precautions to Take

- Keep biochar dust to a minimum
- Wear safety glasses
- ♦ Wear gloves
- Wear long sleeve shirts
- Consider respirator if needed
- Follow rules for safe storage

This project is supported by Agriculture and Food Research Initiative Competitive Grant No. 2011-68005-30411 from the National Institute of Food and Agriculture.

... and justice for all

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Many materials can be made available in alternative formats for ADA clients. To file a complaint of discrimination, write USDA, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964.

lowa State University Extension programs are available to all without regard to race, color, age, religion, national origin, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. veteran. Inquiries can be directed to the Director of Equal Opportunity and Compliance, 3280 Beardshear Hall, (515) 294-7612. Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Cathann A. Kress, director, Cooperative Extension Service, Iowa State University of Science and Technology, Ames, Iowa.



Journal of Hazardous Materials

Volume 403, 5 February 2021, 123833

THE DARK SIDE OF BLACK GOLD: Ecotoxicological aspects of biochar and biochar-amended soils

Paulina Godlewska ^a, Yong Sik Ok ^b, Patryk Oleszczuk ^a ス ⊠

Show more V





https://doi.org/10.1016/j.jhazmat.2020.123833 7 Get rights and content 7

Highlights

- Toxicity or stimulation effect of biochar to organisms depends on many factors.
- Feedstock and temperature are the main factors affecting biochar (BC) contamination and toxicity.
- PAHs, heavy metals, pH and EC are usually responsible for BC toxicity.
- Dose of BC and soil properties determine toxicity of BC in biocharamended soil.

Abstract

Biochar, a product of biomass pyrolysis, is characterized by significant surface area, porosity, high water holding capacity, and environmental persistence. It is perceived as a material that can counteract climate change due to its high carbon stability and is also considered suitable for soil amendment (fertility improvement, soil remediation). However, biochar can have a toxic effect on organisms as harmful substances may be present in it. This paper reviews the literature regarding the current knowledge of harmful substances in biochar and their potential negative impact on organisms from different trophic levels. The effects of biochar on the content and toxicity of harmful substances in biochar-amended soils are also reviewed. Application of biochar into soil does not usually have a toxic effect and very often stimulate plants, bacteria activity and invertebrates. The effect however is strictly determined by type of biochar (especially the feedstock used and pyrolysis temperature) as well as contaminants content. The pH, electrical conductivity, polycyclic aromatic hydrocarbons as well as heavy metals are the main factor usually responsible for biochar toxicity.

Graphical abstract



Download: Download high-res image (138KB)

Download: Download full-size image

Introduction

Biochar is a solid product of biomass and waste pyrolysis (Inyang et al., 2016, Lee et al., 2019), i.e., anaerobic (or with a small amount of oxygen) organic matter decomposition at relatively low temperatures of <700 °C (Ok et al., 2016). A variety of plant components, animal waste, or even industrial waste can be used to produce biochar (Inyang et al., 2016).

The structure of biochar is porous and its composition primarily comprises carbon. Although biochar is similar to charcoal, the two materials are generally distinguished since charcoal is used as a fuel during the burning process, whereas biochar is usually used to improve environmental conditions or for applications other than as fuel (Ok et al., 2016). Some of the environmental applications of biochar include (1) serving as a pollutant adsorbent (Inyang et al., 2016, Ok et al., 2016, Ahmad et al., 2014, Shaheen et al., 2018); (2) improving the quality of soil by influencing: pH, water holding capacity (WHC), cation exchange capacity (CEC), the structure of microbial communities, and other soil properties important in agriculture (Ok et al., 2016, Kavitha et al., 2018, El-Naggar et al., 2019a); (3) immobilizing carbon in soil for a long time, which contributes to a decrease in atmospheric carbon dioxide (CO₂) concentrations (Ok et al., 2016), (4) serving as a catalyst support (Xiong et al., 2017); and (4) improve soil aggregate stability (Heikkinen et al., 2019, El-Naggar et al., 2019b).

A significant challenge in the use of biochar is that toxic substances can be released from the biochar matrix (e.g., due to biochar aging) and affect living organisms. The issue of contaminants in biochar is discussed thoroughly in the next section of this review.

In addition to containing environmental toxins, biochar can substantially influence the conditions of the environment where it is located (e.g., soil), causing changes in the physical, chemical, or biological properties of the environment that can have an indirect harmful effect on organisms. Therefore, the negative impact of biochar on organisms may not result directly from the harmful substances but from the environmental changes which biochar induces. These changes can lead to unfavorable conditions for some organisms. Furthermore, when affected by environmental conditions, biochar undergoes chemical, physical, and biological changes over time (Xiong et al., 2017, Heikkinen et al., 2019), which can also influence its toxicity toward various organisms (Kavitha et al., 2018). This environmental aging can cause a decrease in biochar's affinity for contaminants, releasing them into the environment where they can come into contact with organisms. The properties of biochar can also be modified by the aging process, contributing to changes in soil properties that adversely affect organisms (Yang et al., 2019). Although the latter topic is extremely important in the context of the long-term effects of biochar on the environment and the biological world, few investigations on it exist in literature.

Awareness of the degree of the toxic effects on organisms caused by biochar-amended soil is very important because an unconscious use of a material that may contain harmful substances poses a risk of creating ecological imbalance and subsequently ecosystem impoverishment. Apart from the environmental impact, in the case of agricultural soils,

toxicity can also impact the obtained yield, leading to negative economic outcomes. Therefore, it is crucial to identify the effects of different types of biochar on soil organisms.

Toxic substances present in biochar can be divided into categories based on their chemical character or origin. In terms of chemical character, biochar contaminants are either organic or inorganic; in terms of origin, contaminants can be distinguished as either byproducts of pyrolysis (i.e., they are formed during biochar production) or components of the feedstock used to produce biochars that remain, often more concentrated, after the pyrolysis process (Fig. 1).

An essential issue regarding the presence of contaminants in biochar is their availability to organisms and thus their potential toxicity. The total amount of contaminants in biochar is not equivalent to the amount that can cause toxic effects. A fraction of contaminants is bound so strongly to biochar that it cannot be taken up and absorbed by plants, microorganisms, or animals. Only the contaminants that are capable of penetrating into an organism can cause toxic effects (Alexander, 2000, Alexander, 1995). Therefore, rather than measuring the total fraction of contaminants, researchers are increasingly choosing to measure the bioavailable fraction (Wang et al., 2017, Cipullo et al., 2018, Oleszczuk, 2007), which is directly available to organisms. The bioaccessible fraction is another quantity used to describe biochar contaminants: this fraction may become bioavailable if an organism gains access to it as a result of external factors, such as a change in environmental conditions (e.g., pH), a change in the material structure (e.g., due to the action of organisms), or the presence of other substances (e.g., surface active ones) (Cipullo et al., 2018, Oleszczuk, 2007).

Polycyclic aromatic hydrocarbons (PAHs) are the most frequently occurring contaminants in biochar. PAHs are hydrocarbon compounds containing two or more condensed aromatic rings. They are formed during pyrolysis due to the aromatization and carbonization of organic matter as well as the attachment of hydrocarbon radicals and synthesis into heavier aromatic molecules (Wang et al., 2017). PAHs are classified as persistent organic pollutants (POPs) (Schwarzenbach et al., n.d.) and have carcinogenic, mutagenic, and teratogenic properties (Wang et al., 2017).

Standards for biochar PAH content have been determined by the International Biochar Initiative (IBI) and European Biochar Certificate (EBC). According to IBI's guidelines, the maximum permissible content of Σ 16 PAHs (US EPA) in biochar ranges from 6 to 300 mg/kg. Biochar with a PAH content higher than 300 mg/kg is not recommended for use as a soil amendment (IBI International Biochar Initiative Guidelines, n.d.). EBC's recommendations are more rigorous and cover both premium and basic grades of biochar. Biochar with a PAH

content lower than 4 mg/kg is considered to be premium grade, whereas basic grade biochar has a PAH content of up to 12 mg/kg (International Biochar Initiative, 2014). The basic and premium grades are intended to distinguish between biochars with an acceptable (basic) PAH content, i.e., an elevated content that does not significantly affect the environment, and a low (premium) PAH content.

The content of PAHs in biochar is affected by a range of factors associated with the transformation process of organic matter into biochar, such as substrate residence time in the oven, oven heating rate, and pyrolysis temperature. Research shows that biochars with lower PAH content are produced during slow pyrolysis than during fast pyrolysis (Wang et al., 2017).

A number of both experimental (Yang et al., 2019, Weidemann et al., 2018, Zielińska and Oleszczuk, 2016, Taherymoosavi et al., 2017, Stefaniuk et al., 2016, De la Rosa et al., 2019, la Rosa et al., 2016, Hale et al., 2012, Oleszczuk et al., 2013, Wiedner et al., 2013, Buss et al., 2015, Khalid and Klarup, 2015, Kołtowski and Oleszczuk, 2015, Gascó et al., 2016, Gondek et al., 2016, Lyu et al., 2016, Visioli et al., 2016, Hilber et al., 2017a, Sigmund et al., 2017, Oleszczuk and Kołtowski, 2018, Liu et al., 2019a) and review (Wang et al., 2017, Dutta et al., 2017, Hilber et al., 2017b, Hilber et al., 2017b, Liu et al., 2018, Raclavská et al., 2018) papers on PAH content in biochars produced from various feedstocks and under different conditions have been published since 2010. In this paper, we present a brief discussion of the topic and previous studies have been referenced for further information. Table 1 presents the total PAH content in biochars produced from a variety of feedstocks at different pyrolysis temperatures. The content of Σ 16 EPA PAHs in biochars ranges from 80 μ g/kg (Freddo et al., 2012) to as high as 172,000 µg/kg (Khalid and Klarup, 2015) (median value of about 1810 µg/kg). Feedstocks containing plant biomass contribute to reduced PAH content in the obtained biochar as such biomass contains few PAH precursors and leads to the production of biochar with a PAH content primarily comprising light naphthalene (NAP) (Kończak et al., 2019).

Although numerous studies have investigated the total PAH content in biochars, this quantity is not the most reliable indicator of the toxicity or environmental risk associated with the presence of PAHs in biochar (Alexander, 2000, Alexander, 1995). It is the bioavailable fraction of a contaminant, rather than the total amount, that is directly responsible for its toxicity; however, the bioavailable fraction of PAHs in biochar is not legally regulated, and few measurements of this quantity have been reported (Wang et al., 2017, Hale et al., 2012). Existing research demonstrates that the bioavailable fraction of PAHs in biochar does not usually exceed 200 ng/L (Zielińska and Oleszczuk, 2016, Hale et al., 2012,

Hilber et al., 2017a). For instance, Hale et al. (2012) determined the bioavailable PAH content in biochars derived from different substrates (23 substrates) at temperatures ranging from 250 to 900 °C. The bioavailable fraction (called the freely dissolved concentration, C_{free}) was determined using polyoxymethylene (POM) passive samplers. The concentration of bioavailable PAHs in biochars ranged from 0.17 to 10.0 ng/L. The lowest (0.17 ng/L) and highest (10.0 ng/L) contents of bioavailable PAHs were found in biochar derived from pine wood and food waste, respectively (Hale et al., 2012). Hilber et al. (2017a) and Zielińska and Oleszczuk (2016) determined (using POM method) the concentrations of bioavailable PAHs in biochars derived from wood, *Miscanthus*, sugar beet, green garden waste, sewage sludge, lignite, and coffee dregs; the concentration ranges were similar to those reported by Hale et al. (2012), ranging from 12 to 85 ng/L. Naphthalene accounted for up to 90% of the bioavailable PAH content. Biochar derived from green garden waste had the highest content of bioavailable PAHs (85 ng/L) (Hilber et al., 2017a). Sewage sludge biochars (produced 500– 700 °C) were characterized by concentrations of C_{free} PAHs ranging from 81 to 126 ng/L; in this case, 3-ring PAHs were predominant among the bioavailable PAHs (Zielińska and Oleszczuk, 2016). To date, the highest content of bioavailable PAHs (POM method) has been reported by Kołtowski and Oleszczuk (2018) in biochar produced from Miscanthus, for which C_{free} of $\Sigma 16$ PAHs was nearly 1 μ g/L. PAHs containing 2 rings were predominant in the bioavailable fraction, constituting 47% of all the identified compounds. Such a high content of bioavailable PAHs in this biochar was due to its low specific surface area $(0.76 \text{ m}^2/\text{g})$, which facilitated the migration of PAHs to the extraction solution. Biochars specific surface area is considered one of the main properties driving the adsorption mechanisms (hydrophobic interactions and π - π electron donor- acceptor interactions) between biochar and organic pollutants such as PAHs. Low specific surface area leads then to obtaining less sorption sites for PAHs.

The pyrolysis temperature is another important factor which determines PAHs content in biochar. Biochars produced in the 400–600 °C temperature range are characterized by higher PAH concentrations than biochars obtained at lower or higher temperatures (Table 1). During the gasification process, however, biochars with relatively high PAH concentrations are obtained despite the high temperatures used (Visioli et al., 2016). Biochar produced via gasification had a higher content of bioavailable PAHs (162 ng/L) than biochar obtained from food waste via pyrolysis. Hale et al. (2012) also observed that an increase in pyrolysis temperature decreased the concentration of bioavailable PAHs (with some exceptions). An increase in temperature enhances the aromaticity of the biochar surface; hence, the attraction between PAH and biochar is higher and the bioavailability of the PAHs is lower due to the greater hydrophobic and π - π electron- donor- acceptor (EDA) interactions strengths. The gas used to produce biochar can also influence the PAH content.

For example, biochars produced in an atmosphere of nitrogen contain more PAHs than biochars produced in an atmosphere of CO_2 (Kończak et al., 2019, Kwon et al., 2015). A similar PAH reduction effect is achieved owing to the use of CO_2 rather than air during gasification (Lee et al., 2017).

The bioavailable PAH content in biochar is low compared to, for example, the bioavailable PAH content in urban sediments (0.08–342 μ g/L) (Hale et al., 2012). Such a large difference between the total biochar content of PAHs and their bioavailable content results from the very strong bonds (physical: occlusion in biochar pores and chemical: based on π - π interactions) formed between biochar and PAHs generated during pyrolysis. Thus far, however, no study clearly indicates that biochar toxicity is determined by PAHs (total or bioavailable). This may confirm the presumptions of some researchers that PAHs are so strongly bound to biochar that they have no toxic effect on organisms, because the bioavailable fraction is too low to cause toxicity. Nevertheless, PAHs can be released from biochar and pose a potential threat, particularly in the case of repeated biochar application in soils. A lack of comprehensive studies also exists on biochar aging in the context of the bioavailability of PAHs. It is therefore very important, given the current stage of the development of biochar production technology and use, to monitor and regulate the bioavailable content of PAHs in biochars, especially those used for fertilization and food production purposes.

Polychlorinated dibenzo-p-dioxins and -furans (PCDD/Fs) exist in insignificant quantities in biochar (Hilber et al., 2017b). PCDD/Fs are formed in biochar during pyrolysis of feedstocks containing significant amounts of chlorine, such as food waste (Hilber et al., 2017b). Due to the varying toxicities of PCDD/Fs, their concentrations are expressed as toxic equivalent (TEQ). TEQ is calculated by multiplying the mass of a given congener by its toxicity equivalency factor (TEF) according to the following equation (Eq. 1):

 $TEQ = \sum_{i=1}^{i=17} (m_i \bullet TEF_i)$ where: m_i- concentration, content or mass of the congener,

TEF_i- toxicity equivalency factor based on studies by Van den Berg et al. (Van den Berg et al., 1998).

The limits established by IBI and EBC for PCDD/Fs in biochar are 17 and 20 ng/kg TEQ, respectively. Hale et al. (2012) measured 130 toxic and non-toxic PCDD/F congeners in biochars produced from food waste, digested dairy manure, pine wood, and lodgepole pine. Their concentrations ranged from 84 to 92 ng/kg. In the same study, in biochars obtained from food waste, digested dairy manure, pine wood, lodgepole pine, laurel oak, eastern gamma grass, switch grass, and paper mill waste, 17 toxic congeners were identified (0.5–13.3 ng/kg), for which the TEQ ranged from 0.005 to 1.20 ng/kg TEQ (Hale et al., 2012). The

highest TEQ was observed for biochar produced from food waste at 300 °C, which also contained a higher chlorine content than the other pyrolyzed materials. The bioavailable content (C_{free}) of dioxins was below the detection limit, which may indicate that these compounds have a limited effect on biochar toxicity. Wiedner et al. (Wiedner et al., 2013) compared the dioxin content in biochars and hydrochars and observed dioxins above the detection limit (14.2 ng/kg TEQ) only for sewage sludge hydrochar. Wiedner et al. (2013) explained the presence of dioxins by noting their occurrence in the sewage sludge prior to processing; the low hydrochar production temperature (<250 °C) prevented them from degrading. Weidemann et al. (2018) found only monochlorinated dibenzofuran in biochars produced from softwood, wheat straw, or anaerobic digestate at 550 °C, while the concentrations of other congeners were below the detection limit (<0.3 pg/g). Lyu et al. (2016) determined values ranging from 50 to 610 pg/g for the total content of PCDD/Fs in sawdust biochars produced at temperatures ranging from 250 to 700 °C. However, the TEQ concentrations were significantly lower, ranging from 1.7 to 9.6 pg/g TEQ. Based on the above studies (Weidemann et al., 2018, Hale et al., 2012, Wiedner et al., 2013, Lyu et al., 2016), it can be concluded that the level of biochar contamination with PCDD/Fs is low and poses a rather marginal risk for environmental use of biochar, though it cannot be ruled out that environmental contamination may occur during repeated application of biochar contaminated with these compounds.

Volatile organic compounds (VOCs) are also among the biochar contaminants that can have potentially toxic impacts on organisms (a carcinogenic effect as well as effects relating to the respiratory, digestive, and nervous systems) (Ghidotti et al., 2017). VOCs include chemicals such as acetic, formic, butyric and propionic acids, methanol, phenol, methylated phenols, and cresols (Buss et al., 2015, Aller, 2016, Spokas et al., 2011). These compounds are formed during pyrolysis as a result of thermochemical transformations of biomass, wherein larger organic molecules break down into compounds with lower molecular masses. VOCs are then deposited on biochar or inside biochar pores (Buss et al., 2015). Spokas et al. (2011) investigated biochars produced under different conditions from various materials (more than 30) in terms of their VOC content. Acetone, benzene, methyl ethyl ketone, toluene, methyl acetate, and propanal were identified in more than half of the biochars tested, while other VOCs were less common. A broad study on the formation of VOCs and their presence in biochars was also conducted by Buss et al. (2015). They tested biochars produced from softwood pellets at 550 °C. Re-condensation of VOCs was observed on two of the biochars tested, which were then found to have a high VOC content. Phenols (2-methylphenol, 3/4methylphenol, 3,4 dimethylphenol, 4-ethylphenol, 4-ethylphenol, and 2,4dimethylphenol), organic acids (acetic acid, methanol, formic acid, butyric acid, and propionic acid), and cresols have been most commonly extracted with water in biochar, all

at concentrations of >100 μ g/g biochar. Ghidotti et al. (2017) studied corn stalk biochars produced at temperatures ranging from 350 to 650 °C and identified VOCs including benzenes, biphenyls, indanes, benzonitrile, benzofurans, aldehydes, and ketones. They observed that a higher degree of biochar carbonization generated a smaller amount of VOCs. Rombolà et al. (2015) found VOCs in biochar obtained from poultry litter at 400 °C, identifying substances such as cyclopentenones, furans, guaiacol, pyrroles, pyridines, indole, and acetic acid.

It is suggested to produce highly carbonized biochars in order to obtain low VOCs-contaminated materials. According to Spokas et al. (2011) there is also an influence of partial aerobic conditions during production of biochar, which lead to lower VOCs content in the material.

Among inorganic biochar contaminants, heavy metals (HMs) are of the greatest interest in the context of biochar toxicity. The chemical composition of the feedstock from which biochar is produced, that is, the presence of HMs in the original material, is responsible for their presence in biochar. For many HMs, their concentrations in biochar are usually higher than those in feedstock due to the partial mineralization of organic substances during the pyrolysis process (the concentration effect). Under specific conditions some metals can be converted to volatile forms that are released during pyrolysis, e.g. Hg or Cd (He et al., 2019, Zielińska and Oleszczuk, 2015). Sewage sludge is a substrate that contains substantial amounts of HMs (from several to as high as 4000 mg/kg dm). Biochar with a high HM content is also obtained from plants grown on HM-contaminated soils. HMs in biochar include essential HMs, such as Co, Cr, Cu, Fe, Mn, Ni, and Zn, and non-essential HMs, such as Pb, Cd, and Hg. In small quantities, essential HMs are necessary micronutrients, but in large amounts they cause a toxic effect. On the contrary, non-essential HMs are highly toxic regardless of the amount (Heavy Metals in the Environment: Origin, Interaction and Remediation, n.d.). It has been found that more than 98% elements included to HMs groups become more concentrated in biochar during pyrolysis compared to feedstock (Hilber et al., 2017b, Lehmann and Joseph, 2015). Due to mass loss during organic matter decomposition, the concentration of HMs in biochar can be up to 4–6 times higher than their concentrations in the original material before pyrolysis. EBC and IBI have defined standards for HMs content in biochar, which are presented in Table 2.

Taherymoosavi et al. (2017) determined the total content of HMs in biochars produced from municipal solid waste at temperatures ranging from 450 to 650 °C. The highest concentrations were found for Zn (735–987 mg/kg depending on pyrolysis temperature) and Pb (160–193 mg/kg), and hence, the tested biochars did not meet EBC standards. The Cd content in biochar was also determined to be high (1–3 mg/kg). The concentrations of the

other metals (Ni, Hg, Cr, and As) were within EBC's recommended range for basic grade biochar (Table 2).

Literature describes a range of methods for determining the bioavailability of HMs in different environmental matrices (Dean, 2009). The simplest methods are those involving the extraction of metals using one solvent (e.g., water or diethylenetriaminepentaacetic acid, DTPA) (Dean, 2009). The difference between water and DTPA used for HMs extractants is that DTPA extracts not only water-soluble part but also HMs bound to soil mineral particles because of its chelating properties. Although methods based on a procedure known as sequential extraction are more complicated, they provide a wider spectrum for the assessment of the risks related to metals. Sequential extraction involves the successive leaching of metals from the matrix using increasingly stronger extractants. Thus, it is possible to determine not only the bioavailable fraction but also the fraction bound with varying bond strengths to the different matrix components. In terms of defining the bioavailable fraction, the method proposed by the Community Bureau of Reference (BCR) is frequently used. This method considers the following fractions to be bioavailable to organisms: (1) acid soluble and exchangeable, bound to carbonates (F1, leached with acetic acid) and (2) reducible, bound to Fe and Mn oxides (F2, leached with hydrochloric hydroxylamine). The other two fractions, i.e., the oxidizable fraction (F3) and the residual fraction (F4), are considered not easily available or unavailable due to their strong binding to organic matter and sulfides, respectively, as well as to silicate minerals. Some consider only the fraction F1 to be bioavailable, fractions F2 and F3 not easily available, and F4 a fraction incorporated into the matrix structure.

Yang et al. (2018) used DTPA method to determine the bioavailable fraction of HMs (Cd, Cu, Pb and Zn) in biochars obtained from biosolids from wastewater treatment plants in 500 or 700 °C. The DTPA extracted HMs content ranged from 2% to 10% in 500 °C biochar and from 1% to 10% in 700 °C biochar. Visioli et al. (2016) determined the bioavailable fraction of HMs in biochars obtained through gasification using the DTPA-based method. The DTPA-extracted fraction ranged from 18% to 36% of the total HM content, depending on the feedstock from which biochar was produced. Also using the DTPA method, He et al. (2019) studied the bioavailability of HMs in biochars derived from *Avicennia marina* at 300–800 °C. The bioavailable fraction varied from 5% to 90%, a significantly wider range than that reported by Visioli et al. (2016). The type and pyrolysis temperature determined the availability of metals. With the exception of Pb, Cd, and Cu, there was a decrease in the bioavailability of metals (Cr, Ni, As, Mn, Co, and Zn) with increasing pyrolysis temperature, which was caused by transformations to inorganic forms, such as oxides and sulfides. Luo et al. (2014), using the DTPA method, identified bioavailable HMs in biochars produced from

corn stalk or sewage sludge at temperatures ranging from 200 to 700 °C. The bioavailable concentrations of individual metals, depending on temperature, were determined for corn stalk and sewage sludge biochars, respectively, as follows: Cu (30–170 µg/L, 29.5–365.0 $\mu g/L$), Zn (35–115 $\mu g/L$, 220–970 $\mu g/L$), Pb (1.95–9.50 $\mu g/L$, 27.5–115.0 $\mu g/L$), Cd (0.45–0.75 $\mu g/L$, 0.30–10.50 $\mu g/L$), Cr (3.0–11.5 $\mu g/L$, 8–11 $\mu g/L$), and Ni (6.5–32.5 $\mu g/L$, 14.0–46.5 $\mu g/L$). Sewage sludge biochars were characterized by a higher content of metals than corn stalk biochars due to the higher metal content in the feedstock. In biochars produced at temperatures >500 °C, higher concentrations of bioavailable metals were found than in biochars produced at lower temperatures (200, 300, 400, and 500 °C). This was probably due to a higher total metal concentration in biochars produced at >500 °C, resulting from higher mass losses. The plant available fraction in corn stalk biochars was usually the highest for biochars produced at 400-500 °C and ranged from 3% to 6% of total Cu content, from 1% to 2% of total Zn content, from 3% to 5% of total Pb content, 1% of total Cr content and from 3% to 7% of total Ni content. Cd only did not follow this trend. The highest contribution of Cd in DTPA fraction was determined for corn stalk biochar produced at 300 °C (100%) and in 400 °C (79%) as well as for corn stalk biochars regardless of temperature and ranged from 21 to 100%. In sewage sludge biochars the DTPA- extracted HMs ranged from less than 1% to 4% of total Cu content, from less than 1% to 2% of total Zn content, from 2% to 3% of total Pb content, from less than 1% to 30% of total Cd content, 0.1% of total Cr content and from less than 1% to 2% of total Ni content. The contribution of bioavailable fraction usually increased with increasing temperature of feedstock pyrolysis. Wang et al. (2016) studied sewage sludge biochars produced at 700 °C and pre-heated at 160–220 °C and found bioavailable fractions ranging from 0% to 58%. Bioavailability decreased as the thermal treatment temperature of the materials before pyrolysis was increased. They attributed this trend to the conversion of metals to more stable forms due to pre-heating. Zeng et al. (2018) studied bioavailable HMs using the DTPA method in biochars obtained from swine and goat manure at 200–800 °C and reported bioavailable fractions ranging from 3.5% to 37.3%.

The methods using sequential extraction allow us to obtain more precise information on not only the bioavailability of metals but also their potential interactions with environmental components. The bioavailable fraction (F1 + F2) in biochars measured by different authors (Wang et al., 2019a, Wang et al., 2019b, Chen et al., 2018, Devi and Saroha, 2014) using the BCR method ranged from 0% to 70% and was largely determined by the HM content in the feedstock. For example, in biochars produced from textile dyeing sludge (at 300–700 °C), Wang et al. (2019a) determined bioavailable fractions between 1% and 43%. Wang et al. (2019b) found a similar range of bioavailable fractions (from 0% to 58%) in biochars obtained from sewage sludge and co-pyrolyzed sewage sludge and cotton stalk at 300–600 °C.

Biochars produced at 600 °C usually had a lower F1 + F2 fraction than those produced at lower temperatures. The addition of cotton stalk to sewage sludge significantly reduced metal bioavailability relative to biochars obtained from sewage sludge alone. Using the BCR method, Chen et al. (2018) determined HMs in sewage sludge biochars (550–850 °C) and hydrochars (180–300 °C). The bioavailable fractions of metals in hydrochars and biochars were similar and ranged from 6% to 40% and 2% to 35%, respectively. Increase of the production temperature decreased the bioavailability of Cd and Pb in hydrochars; however, a reverse trend was observed for Cu and Zn, wherein an elevated process temperature increased their bioavailable fraction. In the case of biochar, increased pyrolysis temperature decreased the bioavailability of Cu and Pb. A relatively low bioavailable fraction (2%–19%) compared to the previously cited study was found by Devi and Saroha (2014) in biochars produced from paper mill sludge at 500–700 °C. They observed that, generally, the bioavailable fraction of HMs in biochars decreased with increasing pyrolysis temperature.

The experimental data (Table 3) shows that both the material from which biochar is produced and the pyrolysis temperature have an impact on the bioavailable fraction of HMs in biochar. With increasing pyrolysis temperature, the bioavailable fraction usually decreases and the fraction strongly bound to the matrix increases. Bioavailability also changes depending on the type of HMs, but no clear trends that would allow us to draw more concrete conclusions can be observed.

Apart from the abovementioned classic pollutants that can occur in biochar, there are a few studies showing that biochar can contain other potentially hazardous compounds depending on its feedstock. One example is perfluorochemicals (PFCs), which are resistant to chemical and thermal degradation and are used in various consumer products. Wastewater treatment plants are considered to be an important pathway for environmental contamination by PFCs, and high concentrations of PFCs are frequently found in sewage sludge. Sewage sludge is an increasingly popular material used to produce biochar; sewage sludge coupled with the high thermal stability of PFCs poses a risk of these compounds being present in sewage sludge biochars. In their analysis of sewage sludge biochars, Kim et al. (2015b) found concentrations of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) in biochar ranging from 10.6 to 11.5 ng/g and 4.8 to 6.3 ng/g, respectively. Although the total amounts of PFOA and PFOS in biochar decreased by up to 50% based on the total weight loss of biochar during pyrolysis.

Free radicals (FRs), which can potentially contribute to biochar toxicity, have been observed to form in biochar during the pyrolysis of organic matter (Liao et al., 2014). Chemisorption and electron transfer are recognized mechanisms for the formation of FRs. The process of FR formation in biochar is described in detail in a previous study (Ruan et al., 2019). FRs were

found to generate reactive oxygen species (ROS), which can damage DNA under in vitro conditions and in cell structures (Gehling and Dellinger, 2013). Liao et al. (2014) investigated the content of FRs in biochars obtained from various types of biomass and from major components of biomass (i.e., lignin and cellulose). They observed that lignin-derived biochar generated higher electron paramagnetic resonance (EPR) signals than cellulose biochar, and no signal was obtained for the original materials. Increase of the pyrolysis temperature enhanced the EPR signal for both biochars. Zeng et al. (Zielińska and Oleszczuk, 2015) noted significant germination inhibition, root and shoot growth retardation, and plasma membrane damage in the case of biochars containing large amounts of FRs. Zhang et al. (Liao et al., 2014, Zhang et al., 2019a) also observed a significant effect of pyrolysis temperature on FR formation in biochar produced from pine needles at 300–600 °C. They further found that FR-containing biochar induced the production of extracellular ROS (such as ·OH) in water, which would also induce the production of interior cellular ROS in aquatic organisms. Moreover, the EPR signal decreased only by 10% after a month. Lieke et al. (2018) did not observe significant changes in the intensity of the EPR signal in biochar even after one year, which indicates the high persistence of FRs in biochar. They suggested that the neurotoxic effect of biochar on Caenorhabditis elegans was associated with the presence of FRs in biochar, identified by EPR.

Biochar application to soil can lead to increased levels of toxic compounds in the soil due to their presence in biochar (Aller, 2016). There is an underlying risk of the migration of toxic soil contaminants to plants, soil organisms, and other environmental elements. Biochar, however, has strong adsorption properties due to its large specific surface area, a welldeveloped pore network, and the presence of numerous functional groups (Anyika et al., 2014). Thus, although there is a risk of the spread of the contaminants in biochar into the surrounding environment, the significant affinity of biochar for these contaminants tends to reduce their spread. It can therefore be presumed that not only will contaminants originating from biochar have reduced mobility in soil but also biochar can also decrease the mobility of contaminants already present in the soil. This phenomenon is used in remediation techniques and is widely described in literature (Ahmad et al., 2014, Fang et al., 2018, Qi et al., 2017, Derakhshan Nejad et al., 2018). However, there is sparse information available on the persistence of native contaminants after biochar incorporation in soils. Despite the significant affinity of biochar for contaminants, there is still a risk that owing to various environmental processes (e.g., biochar biodegradation), changes may occur that could affect the properties of biochar responsible for binding contaminants; in this case, previously unavailable contaminants can be mobilized. This is a new issue that has not yet been adequately addressed in literature.

Bioavailability and bioaccessibility of PAHs in soil are affected by their concentrations, the concentrations of other contaminants, soil type (especially in the context of soil organic matter content), and other environmental conditions (such as pH, temperature, and moisture content). Owing to biochar's large specific surface area and the aromatic nature of its surface (and thus its strong sorption capacity), it is assumed that the addition of biochar in soil will not increase the bioavailable PAH content in soil and may in fact reduce the bioavailable content, even if the total PAH content increases. Although a number of studies have reported the total PAH content in biochar-amended soils, few have investigated the bioavailable fraction.

De la Rosa et al. (2016) produced biochars at temperatures ranging from 500 to 620 °C using wood chips, paper sludge, or sewage sludge as feedstock and added biochars in soil at rates of 10–40 t/ha. After 79 days of incubation, the Σ 16 PAH content in the soil ranged from 50 to 2710 μg/kg. Application of biochars produced from wood chips and paper sludge at the lowest application rate resulted in virtually no change in the total PAH concentration relative to the control soil (59 μ g/kg). For all biochars with the exception of sewage sludge and kiln wood biochars, more PAHs were incorporated into the soil as the biochar application rate increased. Soil incubated with kiln wood biochar, applied at a rate of 10 t/ha, contained the greatest amount of PAHs (2710 μg/kg) amongst all the treatments studied, with fluoranthene, phenanthrene, and pyrene identified as the dominant PAHs. After biochar amendment the PAHs content was from 19% to almost 26-times (for wood biochar) higher compared to control soil. Maienza et al. (2017) investigated the effect on PAHs content of biochar produced from orchard pruning waste in 500 °C added to vineyard soil. They found that although the application of biochar increased the total PAHs content in the soil, it did not exceed the threshold limits defined by the Italian environmental legislation. After one year, the PAHs content significantly decreased; Maienza et al. (2017) attributed the decrease to leaching, photodegradation, biodegradation, bioaccumulation, and/or volatilization. Kuśmierz et al. (2016) studied the persistence of PAHs in soil (Podzolic, loamy sand) amended with biochar (30 or 45 t/ha) produced from wheat straw at 650 °C. The experiment was conducted under field conditions over an 18 month period. Biochar increased the soil content of Σ 16 PAHs by factors of 2.2 (30 t/ha) and 5 (45 t/ha). However, 105 days after biochar incorporation, the total content of PAHs was comparable to the PAHs content in the control soil. Biochar amendment, even at the highest rate, did not result in an increase in the soil PAHs content above the permissible limits throughout the duration of the experiment (Kuśmierz et al., 2016). Likewise, in the studies by de Resende et al. (2018) and Rombolà et al. (2019), the PAHs content decreased to the level of the control soil after 3 to 5 years. The content of PAHs increased above that in the control soil (Rombolà et al., 2019) only when the soil was amended with biochar twice (year after year). In no case,

however, were the European limits for PAHs content exceeded (de Resende et al., 2018, Rombolà et al., 2019). While de Resende et al. (2018) investigated the persistence of PAHs in tropical soil amended with biochars (16 t/ha) obtained from savannah wood at 350 °C or from eucalyptus at 450 °C, Rombolà et al. (2019) studied their persistence in vineyard soil amended with biochar (16.5 t/ha) produced from orchard pruning biomass (apple, grapevine, pear, and peach) at 500 °C. An increase in soil PAHs concentration immediately after biochar application was also observed by Quilliam et al. (2013). Similarly to the abovementioned studies, the soil content of Σ 16 PAHs did not exceed the European threshold limits. In this study, biochar produced from rice husk or wood at 450 °C was applied at a rate of 25 or 50 t/ ha to a Eutric Cambisol with sandy clay loam texture.

To date, only a single study of bioavailable PAHs in biochar-amended soils has been reported, a field experiment conducted by Oleszczuk et al. (2016). This study evaluated changes in PAH Cfree in soil amended with biochar (obtained from wheat straw at 650 °C) at rates of 30 and 45 t/ha for a duration of nearly two years. A significant decrease in PAHs C_{free}, which ranged from 26% to 36%, was recorded 105 days after biochar incorporation. No significant change was observed in subsequent years. At the completion of the experiment (after 851 days), PAHs C_{free} was lower by 40%–42% in soil with biochar relative to that in the control soil. However, PAHs degradation was observed to decrease in the presence of biochar, which may contribute to the increased persistence of PAHs in soil. Biochar is typically added to soils contaminated with metals in order to immobilize the contaminants (Ahmad et al., 2014, Rajapaksha et al., 2016, Vithanage et al., 2017). In recent years, biochar production from more controversial materials (e.g., waste or sewage sludge) has become increasingly common. In biochar produced from these feedstocks, metals present in the feedstock become more concentrated after pyrolysis (Zielińska and Oleszczuk, 2015), and consequently may cause environmental effects after biochar is added to soil. To date, research on this phenomenon has been scarce, de Figueiredo et al. (2019a) produced biochar from sewage sludge at temperatures of 300 or 500 °C and applied biochar to tropical soil at a rate of 0.7% (w/w). The addition of biochar did not change the bioavailable fraction (extracted with DTPA) of HMs (Pb, Cr, Cu, Mn, Zn, and Co) in the soil. Khanmohammadi et al. (2017) applied biochar produced from sewage sludge at 350 °C at a rate of 14.5 t/ha to two calcareous soils. The bioavailable fractions (extracted with DTPA) of Fe and Zn increased by 7.6%–8.6% and 21.0%–35.5%, respectively, in comparison to biocharunamended soil. Biochar addition did not affect the bioavailable content of Cu and Mn but caused a decrease of 5.4%–22.3% in the bioavailable fraction of Pb. Méndez et al. (2012) produced biochar from sewage sludge at 500 °C. The biochar was added to soil (Haplic Cambisol, sandy loam) at two rates (4% and 8% based on mass). The experiment was carried out for 200 days. The addition of biochar to soil generally increased the bioavailable fraction content (DTPA and CaCl₂- methods). It was found that the DTPA extracted Cu content was from 1.5 to 1.6- times higher, Ni content was from 3.0 to 3.5- times higher, Pb content was from 1.6 to 1.8- times higher and Zn content was from 1.2 to 1.5- times higher compared to soil without biochar addition. However, Cd content was from 7% to 12% lower in soil with biochar compared to control soil. The content of HMs in soil with biochar based on the extraction with CaCl₂ was higher for all HMs cases than control soil. The CaCl₂- extracted fractions increased with biochar addition from 1.2 to 3.0- times, from 3.6 to 5.1-times, from 1.2 to 1.3- times, from 2.5 to 3.4- times and from 1.9 to 2.9- times in case of Cu, Cd, Ni, Pb and Zn respectively.

Tests on living organisms are an important part of research on the toxicity of materials. Such analysis is complementary to chemical analysis and therefore necessary to properly assess the risks involved in incorporating materials into the environment (Oleszczuk et al., 2013). By applying both chemical analysis and toxicological evaluation, comprehensive risk assessment as well as an analysis of relationships between biochar properties, such as the content of toxic compounds, and the toxic effects of biochar can be conducted.

Previous studies (Kavitha et al., 2018, Lehmann et al., 2011, Domene, 2016, Buss et al., 2016) have demonstrated that biochar can affect microorganisms, plants, and soil invertebrates differently. The toxic effects of biochar on organisms can be associated with the abovementioned toxic contaminants in biochar (Table 1, Table 3), but they can also result from the dose of biochar, physicochemical properties such as size of the particles of applied biochar (Prodana et al., 2019), high pH and/or salinity (Lehmann et al., 2011), strong capacity to adsorb nutrients and thus reduce their availability (Ren et al., 2018), and water retention capacity leading to impeded access to water for plants (Ren et al., 2018).

On the other hand, biochar can stimulate the growth and development of organisms due to its macro- and micronutrient content and the partial bioavailability of carbon contained in its matrix. Furthermore, owing to its porous structure (together with its nutrient content), biochar can provide excellent environment for the functioning of microorganisms and other small soil organisms (Anyika et al., 2014, Ren et al., 2018, Palansooriya et al., 2019). The positive impact of biochar on organisms has been described in many previous reviews (El-Naggar et al., 2019a, Lehmann et al., 2011, Domene, 2016, Palansooriya et al., 2019, Warnock et al., 2007); the following sections in this review focus on its toxic effects (Fig. 2). Toxicity is usually measured by liquid and solid phase tests. Liquid phase tests examine the effect of water extract from the studied material eg. biochar on organisms, while solid phase tests investigate the direct effect of studied material or the material mixed with solid matrix (e.g. artificial soil) to tested organisms.

Ecotoxicological tests involving microorganisms are commonly employed to assess the risk related to biochar use, since these organisms are widespread in soil and exert a great influence on the functioning of the entire ecosystem. Biochar may induce a positive effect on the reproduction of microorganisms (Palansooriya et al., 2019, Sun et al., 2013) by providing both protection and a source of food (Palansooriya et al., 2019, Hammer et al., 2014, Ennis et al., 2012). However, evidence pointing to negative impacts of biochar on soil microorganisms has also been reported (Anjum et al., 2014). It should be emphasized that the impact of biochar may significantly differ depending on the organism/strain. For example, in one study (Kavitha et al., 2018) a greater diversity of bacteria was observed in biochar-amended soil than in biochar-unamended soil. Nonetheless, in the case of fungi, no similar relationship was observed. In other studies (Kavitha et al., 2018, Sun et al., 2013), biochar (derived from corncob, temperature not given) promoted an increase in biomass of both bacteria and fungi after application to soil. Han et al. (2016) conversely found that biochar produced from pyrolyzed switchgrass (*Panicum virgatum* L.) at temperatures of 500 or 700 °C negatively impacted a colony of mycorrhizal fungi in soil (Han et al., 2016).

The above cited studies evaluated the numbers of organisms and their viability. There are, however, tests that facilitate the comparison of results between studies conducted by different research groups. The test using Vibrio fischeri bacteria, which exhibit bioluminescence, is one of the most popular ecotoxicological assays using microorganisms as test organisms. The decrease or disappearance of luminescence in the test solution relative to the control provides a measure of the toxic effect of a tested substance, extract, or mixture. Although this test is very common, few studies have employed it for the evaluation of the toxic effects of biochar. Gondek et al. (2016) studied extracts of biochars produced from a mixture of sewage sludge with wheat straw, bark, or sawdust at temperatures of 300 or 600 °C and tested their toxicity toward V. fischeri. In all cases, no toxic effect was observed. Nevertheless, a number of diverse negative impacts of biochar extracts on V. fischeri have been reported. Lyu et al. (2016) produced biochars from pine tree wood sawdust at temperatures between 250 and 700 °C. The half maximal effective concentration (EC_{50}) associated with luminescence inhibition ranged from 0.39 to 6.00 g/L, with the greatest toxic effects resulting from biochar produced at 300 °C. In the 400–700 °C temperature range, the toxicity decreased. Lyu et al. (2016) explained the high toxicity of biochars produced at low temperatures by noting their higher content of 5- and 6-ring PAHs compared to biochars produced at higher temperatures. Moreover, they did not exclude the impact of other substances (e.g., phenols) that can form during pyrolysis at a low temperature (Buss et al., 2015). The study investigated the toxicity of aqueous extracts of four biochars produced from Miscanthus, coconut shell, wicker (Salix viminalis), and wheat straw (Triticum L.) at 650 °C (Oleszczuk et al., 2013). Miscanthus biochar exhibited the

highest toxicity, causing almost complete luminescence inhibition (99%). Biochar made from wheat straw was also moderately toxic toward the test bacteria (85%), whereas biochar obtained from wicker was less toxic, inhibiting less than half of the luminescence (40%). Biochar derived from coconut shell was the least toxic, inhibiting only 12% of the V. fischeri luminescence (Oleszczuk et al., 2013). The same biochars were subsequently subjected to a post-treatment that comprised drying at 100, 200, and 300 °C (Kołtowski and Oleszczuk, 2015). A distinct decrease in toxicity with increased biochar drying temperature (and thus a decreased PAH concentration in biochar) was observed in the case of *Miscanthus* biochar. The toxicity of biochar made from wheat straw increased with increasing drying temperature, despite the observed decrease in PAH content. This effect was attributed to the possible presence of other toxic substances that re-condensed on biochar during the drying process. Moreover, due to the drying, the content of carbon, whose presence reduces the bioavailability of harmful substances, decreased, which could also have caused a toxic effect (Kołtowski and Oleszczuk, 2015). Stefaniuk et al. (Stefaniuk et al., 2016) prepared aqueous extracts of biochars produced from residues from biogas production (RBP) at 400-800 °C and studied their effects on V. fischeri. The toxicities of the extracts toward V. fischeri varied depending on the origin of the feedstock used to produce biochar. The extract of biochar obtained from non-separated RBP under mesophilic conditions proved to be the most toxic. All biochars exhibited enhanced toxicity as the pyrolysis temperature increased; notably, biochar produced at the lowest applied temperature (400 °C) was the most toxic, causing bacteria luminescence inhibition of more than 90%. Elevated hydrophobicity with increasing pyrolysis temperature, which leads to increased affinity of the biochar surface for organic substances and reduces their mobility and hence toxicity, may be responsible for this effect.

Zhang et al. (2019a) produced biochar from pine needles (*Pinus massoniana Lamb*) at different temperatures in the range of 300–600 °C and investigated its effect on the luminescence of the bacterium *Photobacterium phosphoreum*. Biochar was applied at rates between 125 and 2000 mg/L. Higher luminescence inhibition was observed with increasing biochar concentration as well as increasing pyrolysis temperature from 300 to 500 °C. Zhang et al. (2019a) suggested that FRs occurring in biochar were the source of the toxic effect.

Another ecotoxicological test that uses bacteria is a less popular assay called microbial assay for risk assessment (MARA) (Wadhia, 2013). This assay examines the growth of 11 bacterial strains in the presence of a potentially toxic agent. The MARA test was used (Oleszczuk et al., 2013) to evaluate the toxicity of aqueous extracts of biochars obtained from wicker, wheat straw, *Miscanthus*, and coconut shell. The test showed no significant differences between the individual biochars. Nonetheless, particular strains were observed to exhibit varying sensitivity to the biochars tested, which confirmed a previous field study wherein

biochars had also been found to have a diverse impact on soil microbiology (Oleszczuk et al., 2014). Coconut shell biochar was the most toxic (causing a toxic effect on all test strains), particularly toward the strains of *Enterococcus casseliflavus*, *Serratia rubidaea*, and *Pichia anomalia* (Oleszczuk et al., 2013).

Biochar has also been investigated for its genotoxicity, cytotoxicity, and mutagenicity. Using the AMES test (the mutagenicity test using *Salmonella typhimurium* strains), Anjum et al. (2014) studied aqueous extracts of biochar produced from hemp bedding or commercial wood pellets at 500 °C. Although both extracts showed mutagenic properties, the hemp bedding extract was more mutagenic. The observed toxicity was attributed to the high PAHs content in biochars. Piterina et al. (2017) used the AMES test to investigate the mutagenicity of dimethylsulfoxide extracts (1:2, v/v) of biochars produced from pig manure, cow manure, calf manure, sawdust, *Miscanthus*, or solid municipal waste at temperatures ranging from 400 to 800 °C. Pig manure biochar exhibited the highest mutagenicity (54% mutagenic potency) among the biochars tested. Biochars derived from *Miscanthus* and sawdust were the least mutagenic (1% mutagenic potency).

Busch et al. (2013) studied hydrochars obtained from maize silage, food leftovers, cut grass, sewage sludge, and digestates from a biogas plant at 170–230 °C as well as biochars produced from food leftovers, digestates from a biogas plant, olive residues, poplar wood chips, wheat straw, and *Miscanthus* at 400–1000 °C. To evaluate their mutagenicity, the *Tradescantia* micronucleus test was applied: chromosomal aberrations in *Tradescantia* pollen cells in the form of micronuclei were microscopically evaluated after exposure to extracts of hydrochars and biochars. Pollen cells of *Tradescantia* flowers were also examined to determine the number of micronuclei after hydrochar or biochar exposure. Hydrochars from hydrothermal carbonization generally exhibited negative results. In the biochar experiments, a genotoxic effect was only observed for the extract of *Miscanthus* biochar, which was also found to have an enhanced concentration of naphthalene.

Lyu et al. (2016) applied the AhR agonistic activity test using the H4IIE-luc cell line to study the mutagenicity of biochars produced from pine tree sawdust at 250–700 °C. The H4IIE bioassay measures the catalytic activity of the cytochrome P4501A (CYP1A), a mixed-function oxidase (MFO) enzyme, as 7-ethoxyresorufin-O-deethylase (EROD) activity in cultured rat liver cells exposed to environmental extracts. EROD is induced and the H4IIE bioassay is consequently useful for characterizing the presence of certain PAHs and related compounds (e.g., nitrogen heterocyclics as well as sulfur-, oxygen-, nitro-, amino-, and alkyl-substituted PAHs) and polyhalogenated hydrocarbons (e.g., PCDD/Fs, PCBs, and naphthalenes) in environmental samples. Biochar produced at 300 °C exhibited the most

potent AhR agonistic ability, followed by biochars produced at 250 and 400 °C. Above 400 °C, toxicity decreased with increasing temperature. Exposition of biochar produced at 700 °C to the extract did not cause any significant induction of AhR-mediated expression of the reporter gene. The TEQ concentrations determined by the H4IIE-luc assay were higher than those calculated based on the analytical data. This indicates that there are other AhR ligands produced in addition to PAHs and PCDD/Fs during pyrolysis, and they need to be identified.

Liu et al. (2019b) studied the effect of ball milling of biochar on its cytotoxic properties toward *Streptomyces coelicolor* M145. Biochar produced from a poplar tree feedstock at 500 °C was ball milled; the hydrodynamic diameters of pristine and ball-milled biochar were 1829 ± 114.6 and 490.5 ± 35.5 nm, respectively. Pristine biochar applied at a rate of 10 mg/L had no toxic effect toward *S. coelicolor*. After ball milling, the physicochemical properties of biochar changed significantly, which according to Liu et al. (2019b) resulted in cell damage. Application of ball-milled biochar stimulated antibiotic production; the highest rate (10 mg/l) caused massive cell disruption and the survival rate of *S. coelicolor* cells was only 68.2% (Liu et al., 2019b).

Several studies have examined the effects of aqueous biochar extracts on algae and protozoa. Understanding the toxicity of biochar toward aquatic organisms is important since contaminants may be leached from biochar-amended soil into water, potentially leading to negative impacts on organisms there. Oleszczuk et al. (2013) investigated the toxicity of four biochars produced from coconut shell, willow, wheat straw, and Miscanthus by employing two tests: Algaltoxkit (chronic toxicity microbioassay: a 72 h growth inhibition test based on the green algae Selenastrum capricornutum, also called Raphidocelis subcapitata or Pseudokirchneriella subcapitata) and Protoxkit (chronic toxicity microbioassay: a 72 h growth inhibition test based on the protozoa *Tetrahymena thermophila*). Biochar derived from coconut shell had the greatest negative effect on the test organisms, whereas Miscanthus biochar exhibited the lowest toxicity toward algae and protozoa. Oleszczuk et al. (2013) did not indicate a potential toxic factor. Zhang et al. (2019a) studied biochar produced from pine needles (*Pinus massoniana Lamb*) at various temperatures ranging from 300 to 600 °C and its effect on the growth and chlorophyll content of the algae Scenedesmus obliquus. The concentration of biochar in the water ranged from 50 to 800 mg/L. The EC₅₀ values determined for S. obliquus growth were 133.6, 72.1, 60.6, and 80.6 mg/L for biochars produced at 300, 400, 500, and 600 °C, respectively. Biochar produced at 500 °C had the greatest toxic effect on the chlorophyll content.

The majority of studies on biochar address its effects on plant growth and development. The toxicity of biochar toward plants is investigated by exposing organisms to both biochar leachates and biochars in the solid phase (usually mixed with soil). Leachates enable the

determination of biochar's direct toxicity as well as the potential impact of leaching various biochar constituents. Solid phase tests, on the other hand, are a better approximation of real conditions in the environment, although the effect of biochar on plants may vary depending on the type of soil.

Biochar toxicity toward plants often varies substantially depending on the feedstock from which biochar is manufactured, pyrolysis temperature (and other process parameters), and biochar application rate. Benavente et al. (2018) prepared aqueous extracts of biochar produced from the organic fraction of urban waste at 300 °C (with a residence time of 1 or 5 h) or 500 °C (with residence time of 1 h) and measured their effects on germination of Lepidium sativum. Biochars produced at 300 °C exhibited a toxic effect that increased when the residence time during pyrolysis was extended (the germination index (GI) was 40% and 62%, respectively, for biochar produced from 1 and 5 h pyrolysis). In contrast, biochar produced at 500 °C stimulated L. sativum germination. This effect occurred owing to the decreasing content of soluble organic carbon, volatile matter, and toxic PAHs in biochars produced at higher temperatures. Gondek and Mierzwa-Hersztek (n.d.) studied aqueous extracts of biochars produced from sewage sludge at 300 °C and their effect on the growth of L. sativum roots. Two of the biochar extracts had no effect on root growth, while one extract caused a toxic effect that manifested in a 25% root growth inhibition. No significant relationship between toxicity and content of Cd, Cu, Pb and Zn in biochar (determined by a 24-h extraction of a sample with redistilled water) was observed.

Oleszczuk et al. (2013) reported varying impacts of feedstock on biochar phytotoxicity. They evaluated the toxicity of biochars obtained from *Miscanthus*, wicker, coconut shell, and wheat straw. At all application rates tested (1%, 5%, and 10%), wicker biochar stimulated the growth of *L. sativum* roots. Coconut shell biochar applied at rates of 1% and 5% also stimulated root growth, but application at the higher rate of 10% caused a toxic effect. The other two biochars inhibited root growth by 33% and 48% when applied at rates of 5% and 10%, respectively, while a slight stimulating effect was observed for the application rate of 1%.

Stefaniuk et al. (2016) compared the phytotoxicity of aqueous and solid phase extracts of biochar (applied at rates of 0.5% and 5.0% in OECD soil) toward *L. sativum*. Differences were observed depending on the type of feedstock used to produce biochar, the feedstock preparation method (separation into solid and liquid phases vs. no separation), and the pyrolysis temperature. Biochar produced from RBP and applied at a rate of 5% inhibited germination and root growth. In contrast, biochars produced at 400 and 600 °C and applied at the lower rate of 0.5% stimulated *L. sativum* root growth. Liquid-phase toxicity analysis

confirmed observations of high biochar toxicity in the solid phase. Undetermined components leached from biochar were the main source of the toxic effects. For the other biochars studied, a trend was observed wherein an increase in pyrolysis temperature led to elevated biochar toxicity. Biochar obtained from separated RBP under mesophilic conditions stimulated root growth regardless of the pyrolysis temperature and the rate applied. The negative impact of biochar on *L. sativum* growth was attributed to the presence of both PAHs and HMs in biochar as well as its high salinity (>19.4) and pH (>10.8). Gascó et al. (2016) investigated the toxic effects on plants (L. sativum, Lens culinaris Medikus, Cucumis sativus, Solanum lycopersicum, and Lactuca sativa) of aqueous extracts of biochars obtained from mixed wood sievings (at a temperature of 620 °C), a mixture of paper sludge and wheat husks (500 °C), and sewage sludge (600 °C). The effect of biochar was observed to vary depending on the plant species: all biochars stimulated the growth of *L. culinaris*, whereas wood biochar had a toxic effect on L. sativum, C. sativus, and S. lycopersicum. The highest toxicity observed (a GI of 49%) was exhibited by biochar from paper sludge and wheat husks toward L. sativa. According to Gascó et al. (2016), the toxic effect was caused by high pH and the presence of HMs in biochar.

The toxic effects of biochar can be significantly reduced using an appropriate application rate. Application of biochar at excessively high rates is the main reason for the commonly observed toxic effects of biochar on plants. It is accepted that realistic biochar application rates, i.e., <1%, do not usually cause toxicity toward plants (Lehmann and Stephen, 2009). Intani et al. (2019) studied the toxicity toward *L. sativum* of biochar produced from corncob at 450 °C and added to soil at rates of 10, 20, and 30 t/ha (\sim 1%). While the lowest biochar application rate did not significantly influence the germination rate (GR), the higher rates led to toxic effects (GR was 79% and 30%, respectively, for rates of 20 and 30 t/ha). Biochar post-treatments of heating to 105 °C or washing with deionized water resulted in reduced biochar toxicity; washing with water was more effective than heating for reducing the toxic effects. Aqueous extracts of pristine biochar were also subjected to the test with L. sativum and were found to cause similar effects on plants as the solid phase of pristine biochar. Intani et al. (2019) suggested that water-soluble phenols, organic acids, ketones, and alcohols as well as the soluble fraction of PAHs may have been responsible for the toxicity. The salinity of biochar and its content of volatile compounds were also indicated as factors that could have negative impacts on plants. Visioli et al. (2016) produced gasified biochars from conifer wood, poplar wood, grape marc, and wheat straw and studied their effects on the growth of C. sativus, L. sativum, and S. saccharatum at application rates ranging from 0.5% to 50%. Biochar from grape marc exhibited the greatest toxic effects, but significant toxicity was only seen at a rate of 10%, which is higher than typical rates in the environment. Biochar produced from conifer wood and poplar wood had the lowest toxicity toward all

plants studied. The reason for biochar's toxic activity could have been the presence of HMs (but not PAHs) as well as its salinity and pH, similar to previous studies (Visioli et al., 2016). Liao et al. (2014) studied the effects of corn biochar (500 °C) at different application rates (from 0.03% to 0.36%) on germination as well as the shoot and root length of *Z. mays*, *T. aestivum*, and *Oryza* L. Increase of the application rate led to increased toxicity. Corn and wheat growth were stimulated by low application rates (0.03% and 0.06%). Liao et al. (2014) suggest that this stimulation was associated with the incorporation of additional micro- and macronutrients in the soil with biochar. Application rates above 0.06% caused plant germination and growth inhibition. Potential toxic effects caused by HMs and PAHs were ruled out based on an investigation of the content of these contaminants in biochar. Ultimately, FRs present in biochar were concluded to be responsible for the observed toxicity (Liao et al., 2014).

Rogovska et al. evaluated the effects of aqueous extracts of biochars of different origin on Zea mays germination and growth. Biochars were produced from hardwood (450–500 °C) or corn (500 or 732 °C) via fast pyrolysis, from hardwood (500 °C) via slow pyrolysis, and from switchgrass (850 °C) or corn (845 °C) via gasification (Rogovska et al., 2012). Extracts of all types of corn biochars exhibited a toxic effect (shoot length inhibition), which was attributed to PAHs or other potentially phytotoxic organic substances occurring in biochars. The plant toxicity was also evaluated based on the length of the radicle (the embryonic root of the plant, growing downward in the soil). A toxic effect was observed for an extract of corn biochar produced at 500 and 845 °C. Biochar produced using fast pyrolysis promoted radicle growth, which was rationalized by the higher content of nutrients in the biochar extract relative to deionized water. Free et al. (2010) investigated the effect of biochar produced at 550 °C from biosolid, corn stover, eucalyptus, fresh pine, or willow on Z. mays growth. Biochars were applied at a rate of 10 t/ha in two different sandy soils; biochar amendment did not affect the seed germination, coleoptile and root dry weight, or coleoptile length of Z. mays. Busch et al. (2013) produced hydrochar from maize silage (230 °C) and biochar from poplar wood chips and investigated their effects on the growth of Z. mays and Brassica rapa, adding the hydrochars and biochars to a standard soil (unfertilized turf-based substrate) at rates ranging from 1.25% to 25% (v/v). Hydrochar addition at rates above 2.5% caused inhibition of germination and biomass growth. Addition of biochar to the soil at a rate of 1.25% did not significantly affect the test plants, while rates ≥5% stimulated plant growth (measured as a greater amount of biomass compared to the control).

Phoungthong et al. (2018) studied the toxicity toward *Triticum aestivum* of extracts of sewage sludge biochars produced at 300 to 900 °C, using deionized water, H_2SO_4/HNO_3 solution (60:40 w/w), and acetic acid (HAc) as extractants. The HAc solution used in the

assay simulated municipal sewage sludge, whereas the H₂SO₄/HNO₃ solution simulated acid rain. The toxicities of the aqueous and acid extracts were similar, while the GI values differed between the extracts depending on the biochar production temperature. The extracts of biochar produced at 500 °C, which stimulated germination, were the least toxic, while the extracts of biochar produced at 400 °C were the most toxic (GI of 65%) (Phoungthong et al., 2018). Kong et al. (2019) prepared aqueous extracts of sewage sludge biochars produced at various temperatures ranging from 300 to 700 °C and studied their effect on seed germination as well as root and shoot length of *T. aestivum*. The aqueous extracts were obtained using different biochar/distilled water ratios (1:70 and 1:7 w/v). The extracts did not influence seed germination, whereas root growth inhibition was enhanced for biochars produced at higher pyrolysis temperatures (from 5.98% to 18.32%). In contrast, the inhibition of shoot growth was similar (about 8%) regardless of the pyrolysis temperature. The toxic effect of the biochar extracts was linked to the presence of HMs in biochars.

Collembolans, common soil organisms from the phylum Arthropoda, are a frequent subject of ecotoxicological studies in soils (Domene, 2016), but fewer studies have examined these organisms in the context of biochar toxic effects. The activity of Collembolans is associated with organic matter transformation (Domene, 2016). Conti et al. (2018) investigated the toxicity of gasified biochars toward Folsomia candida and found that among the biochars studied (produced from conifer wood, poplar wood, grape marc, and wheat straw), only grape marc biochar applied at rates ranging from 10% to 50% (w/w) was toxic toward F. candida (100% mortality). The negative impact of biochar on reproduction was more varied but less adverse. The values of half maximal effective concentration (EC₅₀) calculated for individual biochars were 11.2%, 6.2%, 0.2%, and 19.0% (w/w) for biochars produced from conifer wood, poplar wood, grape marc, and wheat straw, respectively. The results of an avoidance test (Conti et al., 2018) obtained for the same experimental design confirmed the previous observations. Biochar from grape marc ($EC_{10} = 3.8\%$) again proved to be the most toxic, while the EC₁₀ values for the other biochars ranged between 5.3% and 8.1%. According to Conti et al. (2018), the negative effect of biochars on F. candida was caused by (1) their pH (in the cases of avoidance, survival, and reproduction), (2) their HM content (in the case of reproduction), and (3) their PAH content (in the case of reproduction).

In recent years, the use of various wastes for biochar production has been extensively explored (Sun et al., 2017). Waste material requires thorough ecotoxicological analysis due to the possible environmental risk associated with an elevated content of HMs (Mierzwa-Hersztek et al., 2018) and a generally higher content of other organic contaminants (Chen et al., 2019). Stefaniuk et al. (2016) investigated the effects of biochar produced from RBP on mortality and reproduction of *F. candida*. Biochar from non-separated RBP under mesophilic

conditions had the greatest toxic effect, which was also confirmed for other test organisms employed in this study (Stefaniuk et al., 2016). Depending on the pyrolysis temperature used to produce biochar, the *F. candida* mortality ranged from 20% to 50% and reproduction inhibition ranged from 70% to 100%. The toxic effect increased with the pyrolysis temperature. The toxicity toward *F. candida* was attributed to the high pH of biochars as well as their high salinity and PAH content (Stefaniuk et al., 2016). Raclavská et al. (2018) studied the toxicity of biochars produced from beverage cartons (Tetrapak) at 400–700 °C and found that *F. candida* reproduction inhibition ranged from 12% to 90% depending on the application rate of biochar (0.5%–100%). Increase of the biochar application rate led to increased toxicity. Biochars produced at 500 and 600 °C were the most toxic toward *F. candida*.

Other less common ecotoxicological tests are also applied to test biochar toxicity. Yang et al. (2019) studied the effect of biochar on the viability of *Drosophila melanogaster*. Aqueous extracts (1:10, w/v) were prepared from biochars produced at 200 or 500 °C from vegetable waste, pine cones, or a mixture of vegetable waste and pine cones (1:1). The extracts were diluted to obtain biochar concentrations of 1.5, 3, and 5 mg/mL. Depending on the type of substrate used to produce biochar and the extract dilution, biochars had varying impacts on the viability of *D. melanogaster*. The extracts with the lowest concentration of biochar obtained from vegetable waste or pine cones slightly stimulated the viability of D. melanogaster (regardless of the pyrolysis temperature). The extract of biochar produced from the mixture of vegetable waste and pine cones exhibited a toxic effect at the lowest biochar concentration. A slightly different effect was observed for the higher biochar concentrations: biochars derived from the single substrates were more toxic than those obtained from their mixture. No relationship was found between the toxic effect and HM and PAH contents in biochars. It was suggested that other toxic substances (such as VOCs, other PAHs, and/or dioxins unidentified in the study) could be responsible for the toxic activity. However, if this were the case, one would expect an increase in toxic effect with increasing biochar application rate, which was not observed for biochars obtained from the waste mixtures.

Aqueous extracts of biochars derived from various feedstocks were also evaluated for their toxicity toward *Dapnia magna* (Oleszczuk et al., 2013). The commercially available test Daphtoxkit F, which is based on immobility or mortality of the test organisms during 48 h in accordance with OECD Guideline 202 and ISO 6341, was used in this study. All raw biochar extracts caused 100% mortality of the test organisms. Differences between biochars were observed only after 10-fold dilution of the extract. *Miscanthus* biochar was the most toxic, causing mortality in nearly 80% of individuals. The toxicity of the 10-fold diluted extracts of

biochars produced from wicker and wheat straw ranged from 18% to 28%. The 10-fold diluted extract of biochar obtained from coconut husks caused no toxic effect on *D. magna*. A relationship was established between the extent of biochar toxicity toward *D. magna* and the biochar PAH content.

Earthworms are an important element of the soil ecosystem (Domene, 2016). They transform soil organic matter and mix it with mineral particles, aerate soil, and influence other soil organisms (Nahmani et al., 2007, Hirano and Tamae, 2011, Li et al., 2011, Blouin et al., 2013). Biochar toxicity toward earthworms has been previously studied (Lehmann et al., 2011, Domene, 2016, Ren et al., 2018, Weyers and Spokas, 2011). Nevertheless, the large majority of studies are conducted in contaminated soils in which biochar is used as a toxicity-reducing agent or in natural soils. Relatively few studies exist concerning the use of OECD soil as an inert matrix in tests with earthworms. Such tests allow the comparison of studies conducted in a variety of media. They also facilitate the intercomparison of biochars, which is frequently problematic when a natural soil is used in a study, due to the complicated nature of the soil containing other elements that may also cause toxic effects.

An important factor in determining the toxic or stimulating effect of biochar is its application rate. Biochar added to soil at high rates can be toxic to earthworms (Weyers and Spokas, 2011) due to (1) a change in the pH of the environment, to which earthworms are sensitive; (2) physical injuries arising from the impact of a dry material on animal systems; and (3) bioavailable contaminants present in biochar. In a study by Li et al. (2011), an avoidance test was conducted on Eisenia fetida based on the fact that organisms have the ability to avoid unfavorable conditions. Biochar produced from apple wood at 525 °C was mixed with artificial soil at application rates of 1%, 10%, and 20%. Earthworms avoided soil amended with biochar at application rates of 10% and 20%, but no avoidance effect was observed for the lowest rate of 1%. Moreover, E. fetida earthworms were characterized by a lower weight in soil with a 10% and 20% rate of biochar addition than that of E. fetida in the control soil. A biochar application rate of 1% did not result in weight loss, which is consistent with the avoidance test results. Li et al. (2011) suggested that biochar's high WHC, which reduced water availability and desiccated earthworms leading to a toxic effect, was responsible for the avoidance of biochar by earthworms. In soil with pre-wetted biochar, no differences were observed between the control soil and biochar-amended soil (Li et al., 2011). Zhang et al. (2019b) studied the toxicity toward E. fetida of biochar produced from wheat straw at 500 °C and added to OECD soil at rates ranging from 1% to 10% (w/w DM) over 28 days. E. fetida mortality did not differ significantly between the soil with biochar and the control soil without biochar. In soil amended with biochar at low rates (1%-3%), the earthworm weight was even observed to increase, whereas the 10% application rate caused a decrease in the earthworm weight, compared to that in the control. Biochar was not found to affect *E. fetida* reproduction.

Lieke et al. (2018) investigated the effect on the behavior of *Caenorhabditis elegans* of biochar produced from rice straw at 500 °C and applied at four rates ranging from 250 to 2000 mg carbon/L. Biochar applied at rates between 1000 and 2000 mg carbon/L had a neurotoxic effect on *C. elegans*, causing decreased locomotion, frequency of defecation, and chemical sensory ability. In contrast, the lowest application rate (250 mg carbon/L) stimulated the movement of the organisms. The observed negative effect on *C. elegans* was explained by the presence of FRs in biochars.

When biochar is applied to standardized OECD soil in an experiment, the matrix effect can be determined and biochar toxicity can be compared across studies; when biochar is added to other soils, comparison of results between different research groups is difficult because the matrix effect can significantly influence potential biochar toxicity. Nonetheless, regardless of the method used, research on the toxicity of biochar-amended soils is important for understanding the toxicity of biochars derived from various feedstocks or under different temperature or carrier gas conditions.

Microorganisms are a necessary element of the soil environment, decomposing organic matter and leading to soil enrichment with plant-available nutrients (Kavitha et al., 2018). Microorganism populations in agricultural soil, which requires a suitable level of fertility, are particularly important. Most studies investigating the effects of biochar on microorganisms focus on evaluating the direct impact of biochar on the biological environment (number and structure of microorganisms, enzymatic activity, etc.) (Palansooriya et al., 2019). Only a few studies have evaluated the toxicity of biocharamended soil using the abovementioned classical ecotoxicological tests (e.g., Microtox®, MARA, and AMES).

Mierzwa-Hersztek et al. (2016) studied the effects of biochar produced from poultry litter at 300 °C, added to soil (Eutric Cambisols, loamy sand) at a rate of 2.25 or 5 t/ha. The toxicity of aqueous extracts toward *V. fischeri* was evaluated using the Microtox® test. Biocharamended soil was found to be less toxic toward *V. fischeri* than biochar-unamended soil. Increase in the biochar application rate further reduced the soil toxicity. Hale et al. (2013) observed a similar effect, investigating the impact on toxicity toward *V. fischeri* of soil amended with biochar (applied at rates ranging from 0.5% to 5.0%) produced from corn stover at 600 °C. They found that the toxicity of the aqueous soil extracts decreased with increasing biochar application rate. The decrease in toxicity may have resulted from biochar-induced immobilization of certain compounds present in the soil. Prodana et al.

(2019) added pine wood biochar to soil and observed no negative impact on its toxicity toward *V. fischeri*. To date, only the study by Zhang et al. (Mierzwa-Hersztek et al., 2018), which investigated the effect of sewage sludge biochar on soil toxicity toward *V. fischeri*, found evidence of a toxic effect, measuring luminescence inhibition from 31% to 50% compared to the control soil.

More studies have been conducted regarding the effects of biochar on the number and structure of organisms in soil. This topic has been discussed in previous studies (Gondek et al., 2016, Palansooriya et al., 2019, Zhu et al., 2017, Gul et al., 2015). In short, biochar contributes to increased activity, diversity, and occurrence of microorganisms in soil (Maienza et al., 2017, Palansooriya et al., 2019, Benavente et al., 2018, Gomez et al., 2014, Li et al., 2016, Paz-Ferreiro et al., 2015a, El-Naggar et al., 2020), as a result of its various physicochemical properties. It was observed (Li et al., 2019) that in soil amended at a rate of 1% with biochar produced from maize straw at 500 °C, the ratio of the number of grampositive to gram-negative bacteria was nearly twice that in biochar-unamended soil. Gramnegative bacteria are more sensitive and hence less resistant to environmental stress compared to gram-positive bacteria. Moreover, gram-positive bacteria process several persistent carbon-rich substances (including PAHs), which may stimulate their growth in biochar-amended soils. Gomez et al. (2014), however, observed an opposite effect. In soil amended with biochar (produced from wood at 550 °C) at rates of 5%–10%, gram-negative bacteria predominated over gram-positive bacteria and fungi. The bacterial profile and its response to the presence of biochar depend on specific biochar properties as well as on soil properties and environmental conditions. Li et al. (2016) observed an increase in soil microbial biomass carbon from 14% to 62% after biochar application, de Figueiredo et al. (2019b) observed increased (33%) soil microbial biomass carbon in soil with sewage sludgederived biochar addition. Paz-Ferreiro et al. (2015a) determined microbial biomass in soil with four biochars (sewage sludge- derived in 600 °C, deinking sludge- derived in 600 °C, Miscanthus- derived in 450 °C and obtained during gasification in 800 °C from wood). The addition of three biochars (sewage sludge, deinking sludge and Miscanthus- derives) increased soil microbial biomass nearly 2- fold. In other studies biochar did not significantly influence soil microbial biomass (Abujabhah et al., 2016, Giagnoni et al., 2019). de Figueiredo et al. (2019b) also observed increase in the colonization of corn roots (mycorrhizal fungi) by 20 percentage points after adding sewage sludge- derived biochar produced in 300 °C to soil and by 12 percentage points after adding sewage sludge- derived biochar produced in 500 °C.

Basal respiration is a basic test used to evaluate soil microbiological activity. The effect of biochar on soil respiration depends on the biochar type (Šlapáková et al., n.d.). Amendment

with some types of biochar contributes to increased basal respiration (Ennis et al., 2012, Mierzwa-Hersztek et al., 2018, Paz-Ferreiro et al., 2015a), meaning that biochar added to soils enhances the effectiveness of organic matter decomposition processes. However, this stimulation effect only lasts 1–12 months (Piterina et al., 2017) and thereafter the rate of decomposition returns to that of the control soil. An excessively high level of soil basal respiration is not desirable due to increased soil CO_2 emissions. One study suggests higher CO_2 emissions are generated from soils amended with low-temperature biochar compared to those from soil amended with high-temperature biochar (Ennis et al., 2012). This is due to the higher content of water-soluble carbon in low-temperature biochar.

Enzymatic activity is not a typical ecotoxicological test, but it can provide information similar to classical ecotoxicological tests, i.e., it allows us to determine the impact of various factors on different groups of organisms responsible for specific soil processes. Biochar is thought (Zhu et al., 2017, Gul et al., 2015) to change enzymatic activity because it adsorbs extracellular enzymes on its surface, it is a source of soluble carbon, and it affects the bioavailability of nutrients (by increasing pH) necessary for microorganism growth and development. Moreover, due to its specific structure, biochar provides optimal living environment for microorganisms (Palansooriya et al., 2019, Mierzwa-Hersztek et al., 2017). Nonetheless, divergent results are present in literature regarding the impact of biochar on enzymatic activity. Giagnoni et al. (2019) observed varying effects of biochar on the activity of arylesterase, arylsulfatase, alkaline phosphomonoesterase, phenol oxidase, phosphodiesterase, cellulase, acid phosphomonoesterase, β -glucosidase, β -galactosidase, urease, and protease. The activity of arylesterase, arylsulfatase, alkaline phosphomonoesterase, phenol oxidase, and phosphodiesterase increased after double application of biochar, whereas the activity of cellulase, acid phosphomonoesterase, β glucosidase, β-galactosidase, urease, and protease decreased upon biochar addition. The increased activity of phenol oxidase is attributed to the fact that this enzyme is produced by microorganisms capable of degrading aromatic substances (such as PAHs), which are often components of biochar (Giagnoni et al., 2019). In general, changes observed in the enzymatic activity of biochar-amended soil are associated with changes in the availability of building blocks and nutrients (aromatic C as well as N and P) and may also be related to various interactions of soil organisms. Wang et al. (2015) observed that a biochar application rate of 0.5% increased soil enzymatic activity of C-cycling enzymes (b-Dcellobiosidase, b-glucosidase, and a-glucosidase), one C- and N-cycling enzyme (N-acetyl-bglucosaminidase), and one S-cycling enzyme (sulfatase), whereas higher rates ranging from 1.0% to 5.0% had a different effect. The decrease in activity was caused by excessive biochar porosity and the reactive surface area. In the case of N-cycling enzymes (leucine aminopeptidase and urease), the enzyme activity was enhanced with increasing biochar

application rate. On the contrary, Mierzwa-Hersztek et al. (2016) did not observe a significant effect of biochar on enzymatic activity, though they found that dehydrogenase and urease activity was higher for a biochar application rate of 5 t/ha than that for 2.25 t/ha. Apart from the biochar application rate, the conditions in which biochar is produced also influence enzymatic activity. Benavente et al. (2018) observed that biochars produced from urban waste at 300 °C caused an increase in phosphomonoesterase and dehydrogenase activity, regardless of the pyrolysis duration (1 or 5 h), while biochar produced at 500 °C (1 h pyrolysis time) caused a significant decrease in soil dehydrogenase activity. The reduced activity was attributed to the immobilization of nutrients (C and P) in biochar produced at 500 °C, leading to a decrease in enzyme production by soil microorganisms. Paz-Ferreiro et al. (2012) studied the effect of sewage sludge- derived biochar produced in 600 °C on the enzymatic activity of soil. Biochar was added to soil at the rate of 4% or 8% based on weight. The activity of dehydrogenase was higher in treatments with biochar compared to control soil, while the activity of b-glucosidase decreased. The activity of phosphomonoesterase and arylsulphatase was not affected by biochar addition to soil. In different study from Paz-Ferreiro et al. (2015b) biochar from poultry litter produced in 400 °C was incubated with soil (Haplic Acrisol) for 4 months. Biochar addition caused higher activity of cellulase, bglucosidase and arylsulphatase.

Soil biochar amendment is often considered in terms of its usefulness in agriculture. To that end, toxicity tests of biochar-amended soil on plants are conducted to analyze the impact of biochar on the toxicity of a particular soil. A large number of studies (Table 4) emphasize the benefits for plants that result from biochar-amended soil (Kavitha et al., 2018).

Germination, root and shoot length, and produced plant biomass are the most frequently evaluated ecotoxicological parameters for plants. Many studies addressing the impact of biochar on plant growth and development have been published over the last decade (Gascó et al., 2016, de Figueiredo et al., 2019a, Mierzwa-Hersztek et al., 2018, Mierzwa-Hersztek et al., 2016, Mierzwa-Hersztek et al., 2017, O'Toole et al., 2018, Chi and Liu, 2016, Jeffery et al., 2017, Faria et al., 2018). Contradictory data have been reported regarding the beneficial or adverse effects of biochar on plants. For example, Jeffery et al. (2017) found a varying impact of biochar on plant yield, depending on the type of soil to which biochar was added. They observed that biochar had a positive effect on plant yield when the study was conducted on tropical soils and when the soils used were nutrient-poor with a low pH (acidic soils). However, in temperate zone soils and in soils with a pH optimal for plants (i.e., 6.2–7.0), the effect of biochar amendment was negligible or negative (Jeffery et al., 2017). Mierzwa-Hersztek et al. (2016) investigated the amount of biomass produced for grass (pasture grass mix) grown in soil amended with biochar produced from poultry litter at 300 °C. The amount of biomass produced was 30%–32% higher in the biochar-amended soil than in the

biochar-unamended soil. In another study conducted by the same authors (Mierzwa-Hersztek et al., 2017), biochar obtained from wheat straw or Miscanthus at a temperature of 300 °C was added to a loamy sand Eutric Cambisol. The yield was found to increase only by 2% and 14% (pasture grass mix with red clover) after application of biochar at rates of 2.25 and 5 t/ha, respectively. Another study (Mierzwa-Hersztek et al., 2018) reported a significant increase in Poa pratensis L. biomass after the addition of biochars produced from sewage sludge to sandy acid soil at 300 °C. The application rate of biochar (0.5%, 1%, and 2%) was responsible for the stimulating effect. Plant biomass was higher for soil with a biochar application rate above 1%, and at the highest rate applied, the yield increase ranged between 71% and 122%, depending on the type of sewage sludge from which biochar was produced. Plant yield was positively correlated with pH, salinity, and total nitrogen and carbon content, and negatively correlated with Pb and Cd content. The latter negative relationship may indicate that the metals present in biochar negatively affected the yield to some extent. Faria et al. (Faria et al., 2018) investigated the effect of addition (15 t/ha application rate) of biochar produced from sewage sludge at 300 or 500 °C to Red-Yellow Latosol soil. Biochar addition increased the corn grain yield, and biochar amendment by adding fertilizer based on NPK also enhanced yield, particularly in the case of biochar produced at 300 °C. de Figueiredo et al. (2019a) also observed an increase in corn yield after the addition of sewage sludge biochar produced at 300 or 500 °C to soil.

In addition to studies describing the positive impact of biochar on organisms, numerous studies indicate that under certain conditions, the addition of biochar to soils has a toxic effect on plants. Gascó et al. (2016) investigated the effects on plants (*L. sativum, Lens culinaris* Medikus, *Cucumis sativus*, *Solanum lycopersicum*, and *Lactuca sativa*) of three biochars added to Haplic Cambisols, sandy loam-ST, or sandy-SA soil. Biochars were produced from mixed wood sievings at 620 °C, a mixture of paper sludge and wheat husks at 500 °C, and sewage sludge at 600 °C, and applied at a rate of 8%. The results varied depending on the soil and plant species used for the test (Table 4). It was determined that HMs in biochars did not contribute to the toxicity toward plants and suggested that other substances that might have been present in biochar were responsible for the toxicity. O'Toole et al. (2018) investigated application at a rate of 35 t/ha of biochar obtained from *Miscanthus* at 750 °C and observed no impact on the grain and straw yields of barley and oat.

Relatively few studies have been conducted on the effect of biochar on aquatic plants. This type of research is a rather indirect measure of biochar toxicity, allowing the possible impact of surface runoff on aquatic ecosystems to be evaluated. To date, the only study of biochar effects on aquatic plants has been conducted by Chi and Liu (2016) in the context of

the possible application of biochar for immobilization of contaminants found in bed sediments. Biochar produced from wheat straw at 400 or 700 °C was added to bed sediments at a rate of 3% (w/w), and its effect on growth and root and shoot biomass of Vallisneria spiralis was investigated. No statistically significant difference was observed immediately after biochar application relative to the control experiment, with the exception of shoot biomass. After 54 days, the shoot biomass in the experiment with biochar was lower than that in the control experiment. Biochar produced at 700 °C proved to be the most toxic; it manifested not only in a lower biomass of *V. spiralis* but also in a lower root length relative to the control experiment. According to Chi and Liu (2016), the observed inhibiting effect of biochar on the plants was caused by increased retention of nutrients in the presence of biochars. Consequently, a decrease in nutrient bioavailability and disturbances in the symbiosis of plants with microorganisms occurred due to the sorbing by biochar of substances necessary for chemical communication in symbiotic organisms. Invertebrates are components of soil fauna that decompose organic matter and participate in nutrient cycling. Earthworms are the type of invertebrates most frequently studied in the context of biochar-amended soil (Nahmani et al., 2007). Contaminants can be consumed by these organisms in two ways: through the skin (passive diffusion) and through ingestion together with soil particles (Zhang et al., 2019b). It is accepted that the addition of biochar to soil essentially improves the living environment of earthworms due to increased organic matter content and soil aeration as well as due to an increase in the content of trace elements and minerals (Hale et al., 2013). There are, however, studies indicating that biochar can negatively impact earthworms, primarily due to toxic substances present in biochar.

Hale et al. (2013) applied biochar produced from corn stover at 600 °C to uncontaminated soil to determine its effect on *Aporectodea caliginosa* earthworms, with application rates ranging from 0.5% to 5.0%. It was found that rates ranging from 2% to 5% contributed to weight loss in *A. caliginosa*. Elliston and Oliver (2019) conducted an earthworm avoidance test on *E. fetida* in natural soil (Kettering loam) and artificial OECD soil. Biochars produced from rice husk or wheat straw at 550 °C were added to the soils at rates ranging from 5% to 20% (w/w). A positive linear relationship was observed between biochar application rate and avoidance, but only for OECD soil with wheat straw biochar. For the other treatments, i.e., in OECD soil with rice husk biochar and in natural soil with rice husk or wheat straw biochar, no such correlation was found. Moreover, after exposure of over two weeks of *E. fetida* or *Lumbricus terrestris* to the soil with 20% biochar amendment, changes occurred in the structures of some individuals, suggesting a toxic effect of high biochar application rates on the test organisms. A high application rate of wheat straw biochar (10%–20%) in OECD soil also led to a decrease in the weight of *L. terrestris*. In natural soil, 20% addition rates of

both biochars caused weight loss in earthworms of both species. Other studies confirm the adverse effect of high biochar application rates on earthworm growth and development (Weyers and Spokas, 2011).

The wide range of effects depending on not only the type of biochar but also the type of soil indicates that soil type must be considered when determining biochar toxicity, since differing soil properties can produce highly divergent results (Jeffery et al., 2017). Van Zwieten et al. (2010) performed an interesting experiment wherein biochar was added to two soils of different pH (acidic and alkaline) and performed an avoidance test with *E. fetida* earthworms. The earthworms preferred the mixture of biochar with acidic soil rather than the mixture with alkaline soil. This is due to the fact that in acidic soil, biochar amendment essentially causes an increase in pH and the creation of more optimal conditions for earthworm growth, whereas in alkaline soil, a further increase in pH after biochar addition is adverse for earthworm growth.

Studies investigating the effects of biochar on other invertebrates are relatively scarce. The effects of biochar on *Heterocypris incongruens* have been studied using the Ostracodtoxkit F test. In a study (Mierzwa-Hersztek et al., 2016) on the impact of poultry litter biochar (produced at 300 °C) on mortality and growth inhibition of *H. incongruens*, a significantly lower toxic effect in biochar-amended soil relative to unamended soil was found. Nonetheless, opposite results were obtained for biochar derived from sewage sludge (Mierzwa-Hersztek et al., 2018). *H. incongruens* growth inhibition ranged from 10% to 44% and depended on both the application rate and the type of sewage sludge from which biochar was produced. The toxic effect was, however, observed to decrease with increasing biochar application rate (for two out of the three biochars tested), which may indicate that nutrient deficiency, rather than the negative impact of biochar, inhibited the growth of the test organisms.

Collembolans from the phylum Arthropoda consume biochar particles, especially when *E. candida* is not given yeasts. This phenomenon may be associated with colonies of the fungus living in biochar that Collembolans feed on (Domene, 2016). Hale et al. (2013) investigated the effect on the toxicity toward *F. candida* of soil amended with corn stover biochar produced at 600 °C. Biochar was added to uncontaminated soil at rates ranging from 0.5% to 5.0%, and no differences in *F. candida* reproduction were observed relative to the unamended soil. Domene et al. (2015) studied the effects of various types of biochar (produced from bull manure with sawdust, corn stalks, digested dairy manure, food waste, oak, paper mill waste, or pine at temperatures of 300, 350, 550, or 600 °C) on Collembolans. High application rates of biochar derived from certain substrates had a clear toxic effect on

reproduction (e.g., biochar produced from food waste at 300 °C applied at a rate above 7%). The increased salinity after biochar incorporation in the soil was responsible for the toxic effect. Gruss et al. (2019) added biochar produced from pine and spruce chips at 300 °C to agricultural soil at rates ranging from 1.0% to 50.0%. *F. candida* mortality was less than 20% for all the conditions studied. Biochar application rates between 5.0% and 50.0% decreased reproduction and led to avoidance of *F. candida*. It was thus concluded that a significant increase in soil pH caused the toxic effect resulting from the high biochar application rates, due to the preference of Collembolans for a pH below 8.

Biochar is usually found to have a toxic impact on living organisms in experiments that directly evaluate its toxicity (without soil). High pH, salinity, and sometimes the presence of contaminants in biochar are primarily responsible for the observed toxic effects. However, we obtain a completely different picture of "potential biochar toxicity" when the toxicity of biochar is assessed by mixing with soil (especially at a rate of <1%, approximating actual conditions in the environment). Addition of various types of biochar in soil does not usually have a toxic effect and it even results in a range of desired effects (such as increased plant biomass or a higher number of microorganisms in soil). However, these effects are associated with the type of biochar (the material used for its production and pyrolysis temperature), its application rate, and the type of soil to which biochar is added. Research reveals that the above-mentioned factors have a significant influence on the observed effects. Biochars obtained from plant substrates usually have a much lower content of contaminants compared to biochars produced, e.g., from sewage sludge or animal manure, and hence, their toxicity is lower. Biochar produced at low temperatures (<500 °C) contains more bioavailable nutrients, which contributes to an increase in the amount of microorganisms in the soil and to higher crop yields. The type of soil to which biochar is added is a very important factor, since the physicochemical properties of the soil can substantially change biochar toxicity. Depending on the particle-size distribution, bulk density, porosity, compaction, or viscosity, the resulting effect may vary. Likewise, different effects can be observed depending on the content of carbon, nitrogen, phosphorus, and other essential macronutrients in the soil as well as its pH and salinity.

In the future, it will be necessary to focus research efforts to determine certain parameters relevant to biochar toxicity, such as the bioavailable fraction of contaminants in biocharamended soil (rather than their total content); to conduct a greater number of ecotoxicological tests in uncontaminated soils, particularly under field conditions and long-term perspective; and to increase the diversity of test organisms used to evaluate biochar toxic effects. It would also be worthwhile to increase the number of assays. This will provide an insight into the direct toxic mechanism or into mechanisms promoting an enhanced impact of biochar on organisms. Due to the planned use of biochar under a variety of

environmental conditions, improved understanding of these mechanisms will be essential in future research.

Access through your organization

Check access to the full text by signing in through your organization.

Access through your organization

Section snippets

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. ...

Acknowledgements

The project was funded by the National Science Centre granted on the basis of the decision number DEC-2018/31/N/ST10/01588. This work was also supported by the National Research Foundation of Korea (NRF) (NRF-2015R1A2A2A11001432) and NRF Germany-Korea Partnership Program (GEnKO Program) (2018–2020). ...

Recommended articles

References (158)

G. Agegnehu et al.

Biochar and biochar-compost as soil amendments: effects on peanut yield, soil properties and greenhouse gas emissions in tropical North Queensland, Australia Agric. Ecosyst. Environ. (2015)

G. Agegnehu et al.

The effects of biochar, compost and their mixture and nitrogen fertilizer on yield and nitrogen use efficiency of barley grown on a Nitisol in the highlands of Ethiopia

Sci. Total Environ. (2016)

G. Agegnehu et al.

Benefits of biochar, compost and biochar–compost for soil quality, maize yield and greenhouse gas emissions in a tropical agricultural soil

Sci. Total Environ. (2016)

G. Agegnehu et al.

Crop yield, plant nutrient uptake and soil physicochemical properties under organic soil amendments and nitrogen fertilization on Nitisols

Soil Tillage Res. (2016)

M. Ahmad et al.

Biochar as a sorbent for contaminant management in soil and water: a review Chemosphere (2014)

R. Anjum et al.

Assessment of mutagenic potential of pyrolysis biochars by Ames Salmonella/mammalian-microsomal mutagenicity test

Ecotoxicol. Environ. Saf. (2014)

V. Antoniadis et al.

A critical prospective analysis of the potential toxicity of trace element regulation limits in soils worldwide: Are they protective concerning health risk assessment?

- A review

Environ. Int. (2019)

I. Benavente et al.

Choice of pyrolysis parameters for urban wastes affects soil enzymes and plant germination in a Mediterranean soil

Sci. Total Environ. (2018)

D. Busch et al.

Genotoxic and phytotoxic risk assessment of fresh and treated hydrochar from hydrothermal carbonization compared to biochar from pyrolysis

Ecotoxicol. Environ. Saf. (2013)

W. Buss et al.

Inherent organic compounds in biochar–their content, composition and potential toxic effects

J. Environ. Manage. (2015)



View more references

Cited by (240)

Effects of different feedstocks-based biochar on soil remediation: A review

2022, Environmental Pollution

Show abstract ✓

Potential hazards of biochar: The negative environmental impacts of biochar applications

2021, Journal of Hazardous Materials

Show abstract ✓

A critical review on performance indicators for evaluating soil biota and soil health of biochar-amended soils

2021, Journal of Hazardous Materials

Citation Excerpt:

...When biochar is applied for soil stabilization, the leachability of metals/metalloids of amended soil can be determined by toxicity characteristic leaching procedure (TCLP, US EPA Method 1311), synthetic precipitation leaching procedure (SPLP, US EPA Method 1312), and European Council waste acceptance criteria (ECWAC) tests. By applying diethylenetriamine pentaacetic acid (DTPA) extraction method, rhizosphere-based extraction test using a mixture of organic acids, and in vitro bioaccessibility extraction test, the phytoavailability and bioaccesibility of metals/metalloids in soil could be estimated, respectively (Beiyuan et al., 2016; Godlewska et al., 2020; Yoo et al., 2018). Deionized water extraction method with multiple times can be carried out to extract the pollutants in biocharamended soil to simulate the desorption process during irrigation or rainfall events (Wei et al., 2019; Yoo et al., 2018)....

Show abstract ✓

Waste-derived biochar for water pollution control and sustainable development ¬

2022, Nature Reviews Earth and Environment

Recent Progress and Prospects in Catalytic Water Treatment 7

2022, Chemical Reviews

Multifunctional applications of biochar beyond carbon storage ¬

2022, International Materials Reviews



View all citing articles on Scopus ↗

View full text

© 2020 Elsevier B.V. All rights reserved.



All content on this site: Copyright © 2025 Elsevier B.V., its licensors, and contributors. All rights are reserved, including those for text and data mining, AI training, and similar technologies. For all open access content, the relevant licensing terms apply.



ELSEVIER

Contents lists available at ScienceDirect

Environmental Toxicology and Pharmacology

journal homepage: www.elsevier.com/locate/etap





Biochar dust emission: Is it a health concern? Preliminary results for toxicity assessment

Silvana Pinelli ^{a,1}, Stefano Rossi ^{a,1}, Alessio Malcevschi ^b, Michele Miragoli ^{a,c,d}, Massimo Corradi ^{a,c}, Luisella Selis ^a, Sara Tagliaferri ^{a,c}, Francesca Rossi ^e, Delia Cavallo ^f, Cinzia Lucia Ursini ^f, Diana Poli ^f, Paola Mozzoni ^{a,c,*}

- ^a Department of Medicine and Surgery, University of Parma, Parma, Italy
- ^b Department of Chemistry, Life Sciences and Environmental Sustainability, University of Parma, Parma, Italy
- ^c Centre for Research in Toxicology (CERT), University of Parma, Parma, Italy
- ^d Humanitas Clinical and Research Center, IRCCS, Rozzano, Milan, Italy
- ^e National Research Council (CNR), Istituto dei Materiali per l'Elettronica ed il Magnetismo (IMEM), Parma, Italy
- f INAIL Research, Department of Occupational and Environmental Medicine, Epidemiology and Hygiene, Monte Porzio Catone, Italy

ARTICLEINFO

Edited by M.D. Coleman

Keywords:
Biochar
Occupational exposure
Environmental pollution
In-vitro studies
In-vivo studies

ABSTRACT

Biochar is currently garnering interest as an alternative to commercial fertilizer and as a tool to counteract global warming. However, its use is increasingly drawing attention, particularly concerning the fine dust that can be developed during its manufacture, transport, and use. This work aimed to assess the toxicity of fine particulate Biochar (<PM₁₀) via *in-vitro* and *in-vivo* experiments as a first step for the evaluation of toxicity values. As *in-vitro* experiments, cell lines showed inhibition of proliferation following the reduction of expression genes involved in cell cycle control, increase in the production of ROS and IL-8, and decrease in intracellular ATP. *In-vivo* rat exposure induced hyperemia, edema, and inflammatory phenomena with infiltrations of neutrophil granulocytes and macrophages at the alveolar and bronchiolar levels. Both *in-vitro* and *in-vivo* studies highlighted how exposure to Biochar particulates leads to an inflammatory condition and oxidative stress.

1. Introduction

Biochar is a fine-grained, highly porous charcoal made from the thermal degradation of plant biomass. It is currently attracting considerable interest as a soil improver (Spokas et al., 2012) and a tool to counteract global warming (Yin et al., 2021) due to its distinctive physical/chemical/biological properties, including high water-holding capacity (Batista et al., 2018), large surface area cation exchange capacity (Munera-Echeverri et al., 2018) elemental composition (Denyes et al., 2014), and pore size/volume/distribution. These positive effects may be undermined by its possible contamination by toxic compounds formed or adsorbed during its production, which depends to a notable extent on temperature and on the kind of plant biomass used (Qiu et al., 2015). These hazardous chemicals may include primarily polycyclic aromatic hydrocarbons (PAHs), but also metals (e.g. cadmium, copper, chromium, lead, zinc, mercury, nickel, and arsenic), volatile organic cThese authors contributed equally to this workompounds (VOCs),

dioxins, furans, and Polychlorinated biphenyls (PCBs) (Gelardi et al., 2019).

In this context, growing attention is being paid to characterize the chemical and physical properties of different Biochar (Campos et al., 2020; de la Rosa et al., 2014), and a regulatory framework for Biochar production, quality assurance and application is under development (The European Biochar Certificate guides MPLs in Biochar for use in soil in their accreditation system, which can be found at the following link: http://www.european-biochar.org/en). The International Biochar Initiative (IBI) has also produced voluntary guidelines for Biochar that are used in soils, which include maximum permissible limits (MPLs) for heavy metals and organic pollutants (http://www.biochar-international.org/). Nevertheless, the knowledge about the relationships between Biochar chemical and physical properties and their effects on living organisms is still scanty with most studies focused so far mainly on soil biota (He et al., 2021), whereas the effects on humans have not yet been investigated systematically. To note, chemical analyses are not a

^{*} Correspondence to: Department of Medicine and Surgery, University of Parma, Via Gramsci 14, Parma 43126, Italy. E-mail address: paola.mozzoni@unipr.it (P. Mozzoni).

¹ These authors contributed equally to this work

sufficient tool for estimating health risks associated with Biochar-induced dust exposure. It is known that when manufacturing or applying pure Biochar, fine dust may result from the collision, abrasion, grinding, and pulverization of charcoal chunks. Prolonged exposure to carbon small particles through employment, e.g. in coal mining or old-style kilns, especially where deficient workplace conditions can lead to exceed the limit levels (de la Rosa et al., 2014; Kania et al., 2014). Biochar produced by low-efficient pyrolysis plants is characterized by very low mechanical strength and high brittleness (Das et al., 2016); therefore, during the emptying of plant, shifting, reloading and transport, it undergoes considerable fragmentation. Recent studies suggest that the number of workers occupationally exposed to Biochar dust is likely to increase because of its increasing application in soil (Li et al., 2023; Wang et al., 2022; Yu et al., 2019). However, data on the health risks resulting from its production, transport and use remain very limited and mainly concern the problem of dust inhalation. It is known that breathing, dermal absorption, or ingesting particulate charcoal with a diameter of less than 10 µm (PM₁₀) poses a variety of health risks like other small particles arising from human activities (Bonalumi and Miragoli, 2023; De Donno et al., 2018).

Epidemiological studies on humans have associated exposure to high concentrations of PM_{10} (>200 mg/m³), with increased lung diseases and cardiovascular morbidity (Chen and Hoek, 2020; Di Blasi et al., 2022). Respirable particles, producing reactive oxygen species (ROS), increase the production of mediators of pulmonary inflammation and may trigger or promote the mechanisms of pulmonary disease (e.g. endothelium inflammation, pneumoconiosis, chronic bronchitis, loss of lung function, emphysema, progressive massive fibrosis, and lung cancer) (Kania et al., 2014; Valavanidis et al., 2013). Dust inhalation-mediated cardiovascular toxicity is characterized by the activation of pro-inflammatory pathways and the generation of ROS (Gangwar et al., 2020). It has been proved that ultra-fine particles cause harm is by creating reactive oxygen species (ROS) in the heart muscle and endothelial cells (Rossi et al., 2021). This leads to various negative effects such as myocardial stunning, necrosis, vascular dysfunction, and apoptosis, which are linked to higher levels of ROS (Zorov et al., 2014). In addition, there is some evidence that small micrometer-to-nanometer-sized carbon particles may cross biological barriers, enter the bloodstream, and spread in tissues and fetal organs distant from the site of adsorption (Lu et al., 2016) affecting the entire organism with effects including changes in development and the immune response (Gour et al., 2018).

All these aspects, being a potential source of toxic compounds, or the ability to bind pollutants, highlight the need to understand whether exposure to Biochar dust is a health issue, particularly for workers.

The present work aimed to study the toxicity of fine particulate Biochar (<PM₁₀) via *in-vitro* and *in-vivo* experiments. Time and concentration-dependent effects of Biochar were evaluated *in-vitro* tests investigating multiple cell functions (e.g. cell viability, cell cycle, repression/activation of cytokines, ATP synthesis, oxidative stress, ROS production). *In-vivo* tests were conducted via Biochar intra-tracheal instillation in rats, to evaluate the effect on different tissues (e.g. inflammatory phenomena, oxidative stress, etc.) after exposure.

2. Methods

2.1. Biochar production and collection

The Biochar was collected from a biomass pyro-gasification power plant mainly intended for electricity and heat generation according to the principle of combined heat and power (CHP) as previously described (Sirico et al., 2020, 2021). Briefly, plants were located in the North of Italy (mainly broadleaf trees, such as chestnut, pine, and fir) and the woodchips, with sizes between 30 mm and 90 mm, were first dried and then transported from the storage bunker to the plant by a screw conveyor. Tar-less wood gas was then produced from biomass and various oxidation chemical reactions took place in the plant releasing

the heat needed for the endothermic reactions, with the final production of syngas and carbon. The Biochar powder was characterized and used as received from the plant, without sieving or grinding reducing the environmental impacts and making the recycling process more sustainable.

2.2. Characterization of biochar fragments by electron microscopy

The charcoal was analyzed by Scanning Electron Microscopy (SEM) in a Cambridge 360 Stereoscan SEM operated at an accelerating voltage of 10 keV, allowing to resolve details above 200 nm. The statistical analysis of the size distribution of the charcoal fragments was performed using the ImageJ software [http://imagej.nih.gov/ij/] to obtain the Feret diameter (or caliper diameter). Transmission Electron Microscopy (TEM) was also performed, using a JEOL JEM 2200FS operated at 200 kV in conventional bright field or high-resolution imaging mode. The samples were prepared by drop-casting a suspension of charcoal fragments, sonicated in ethanol, on a polished silicon substrate for SEM observation or a carbon-coated copper grid for TEM analysis.

2.3. In-vitro studies

Unless otherwise specified, Merck Life Science S.r.l. (Milano, Italy) was the source of all chemicals and reagents for *in-vitro* studies.

2.3.1. Cell culture and treatment

Cell lines A549 (adenocarcinoma alveolar basal epithelial cells) and HT29 (colorectal adenocarcinoma cells), both obtained from American Type Culture Collection (Manassas, VA, USA), used in this study, were cultured in RPMI 1640 (Lonza, Verviers, Belgium), supplemented with 10 % (v/v) fetal bovine serum, penicillin (100 U/ml), streptomycin (100 $\mu g/ml)$ and L-Glutamine (2 mM). Cells were maintained under standard conditions at 37°C and 5 % CO2 in a water-saturated atmosphere and seeded at a density of 50,000cells/cm², then left to attach for 24 h before treatments.

Cells were treated with Biochar prepared in a cell culture medium at a final concentration of 0, 10, 50, 100, or 250 $\mu g/ml.$

During incubation with Biochar, the morphology of cells was monitored under an inverted microscope (CK40-RFL Olympus, Tokyo, Japan).

2.3.2. Cellular uptake

Cellular interaction with Biochar was studied by flow cytometry in both lines, evaluating the changes in cell parameters, as described previously (Alinovi et al., 2015; Cacchioli et al., 2014; Zucker et al., 2013). 2- to 3-mm polystyrene beads were used for calibration and alignment of the FC500TM flow cytometer (Instrumentation Laboratory, Bedford, MA, USA). Both forward scatter (FSC) and side scatter (SSC) were acquired with linear amplification, setting the dynamic ranges to show the maximum changes for the highest concentration tested and 10,000 events were counted. The FlowJo v.10 software package was utilized for the analysis (Tree Star Inc, Ashland, OR, USA).

Data are reported as "mean SSC ratio"; in detail, we evaluated the ratio between the mean of SSC values and mean of SSC of control samples (treated/control) from 30 min to 24 h after 50 μ g/ml Biochar, while the dose-response curve (from 0 to 250 μ g/ml) was evaluated at 24 h.

2.3.3. Cytotoxicity and cell viability

The cytotoxicity was evaluated by CytoTox-OneTM assay (Promega GmbH, Germany), a homogeneous, fluorometric method for estimating the number of non-viable cells, measuring the membrane damage through lactate dehydrogenase (LDH) leakage into the surrounding culture medium.

Furthermore, the cell viability was evaluated by CellTiter-Glo Luminescent Cell Viability Assay (Promega GmbH, Germany) which is a luminescent method to determine the number of viable cells in culture based on quantitation of the intracellular ATP content.

Relative luminescent and fluorescent units, detected with a Fluorescence microplate reader (Varian, Inc., Palo Alto, CA, USA), were expressed as relative values compared to untreated control cells.

Cell viability was also evaluated via the MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay, as already reported (Goldoni et al., 2008). This assay is based on the cleavage of the tetrazolium salt to a formazan dye by succinate-tetrazolium reductase, which exists in the mitochondrial respiratory chain and is active only in viable cells. Cells were plated in 96-well plates. After a recovery period (24 h), increasing concentrations of Biochar were added to the medium. Three hours before the end of continuous exposure, 24 h or 48 h, MTT dye was added to each well (final concentration 0.5 % w/v) and after cell lysis, the absorbance of the formazan product was measured at 570 nm by a Spectrophotometer microwell plate reader (Multiskan Ascent Spectrophotometer, Thermo Labsystems, Helsinki, Finland). A calibration curve of untreated cells was performed. To test the possible reaction of Biochar with the probe, MTT was added to the culture media, without cells, containing different concentrations of Biochar. Data from at least 3 independent experiments were expressed as a percentage of the control. Moreover, cytotoxic test results were confirmed by the trypan blue exclusion method, counting cells in a hemocytometer.

Annexin V-FITC/propidium iodide kit was used to investigate possible apoptotic effects of Biochar, according to the manufacturer's instructions (Bender MedSystems GmbH, Vienna, Austria) and as previously described (Alinovi et al., 2015). Staurosporine (100 nM for 24 h) was used as a positive control of apoptosis.

2.3.4. Clonogenic survival assay

To assess long-term effects on cell survival a clonogenic assay was performed as previously described (Cacchioli et al., 2014; Rossi et al., 2015). Briefly, exponentially growing cells were seeded onto 6 well plates (400cells/well) and were allowed to attach for approximately 16 h, a duration shorter than the population-doubling time of the cell line. After exposure, the medium was replaced with a fresh culture medium and cells were cultured over 10 days corresponding to the time needed to obtain colonies. Cells were then fixed with methanol/acetic acid (3:1, v/v) and stained with Crystal Violet (0.5 % in methanol). Only colonies containing more than 50 viable cells were counted and survival was expressed by the ratio of the mean number of colonies in the treated condition to the mean number of colonies in the controls.

2.3.5. Cell cycle analysis

Nuclear DNA was stained with Propidium Iodide to determine the percentage of cells in different phases of the cell cycle (Alinovi et al., 2015). At least 20,000 stained cells were sorted using an FC500 TM flow cytometer (Instrumentation Laboratory, Bedford, MA, USA). The analysis of cytograms was conducted using FlowJo v.10 software (Tree Star Inc, Ashland, OR, USA).

2.3.6. Oxidative stress

The cellular oxidative status was evaluated by quantifying: ROS using 2,7-dichlorodihydrofluorescein diacetate (DCFH-DA) by FC500™ flow cytometry; intracellular levels of glutathione (GSH and GSSG) using a commercial colorimetric assay (Enzo Life Sciences International Inc., Plymouth Meeting, PA) in fresh cell lysates prepared according to the manufacturer's protocol; lipid peroxidation using the thiobarbituric acid reactive substances (TBARS) (Alinovi et al., 2015); protein oxidation *via* derivatization of carbonyl groups with 2,4-dinitrophenylhydrazine (DNPH), which leads to the formation of a stable dinitrophenyl (DNP) hydrazone product, according to the previously described method (Buschini et al., 2014).

The protein concentrations, quantified by the BCA (bicinchoninic acid) Protein Assay (Thermo Scientific, Rockford, IL, USA), were used to normalize the intracellular levels of GSH and GSSG in fresh cell lysates

prepared according to the manufacturer's protocol (Enzo Life Sciences, Farmingdale, NY, USA).

2.3.7. IL-8 release

To determine the pro-inflammatory impact, A549 and HT29 cells were exposed to different concentrations of Biochar. After 12 h and 24 h of incubation, the cell culture supernatants were collected and the IL-8 concentration was determined using a commercial Human IL-8 ELISA Kit (Invitrogen, Camarillo, CA, USA), according to manufacturer's instructions, and was normalized to the number of cells.

2.3.8. RNA isolation and gene expression

RNA was extracted from 10⁵ cells (Trizol, Ambion, Life Technologies, CA, USA), digested with DNase I (DNA-free kit; Ambion, Life Technologies, CA, USA) to remove any genomic DNA contamination and quantified using a NanoDrop spectrophotometer (Thermo Fisher Scientific, Inc.). cDNA was synthesized using a commercial kit [High Capacity RNA to cDNATM kit (Applied Biosystems; Thermo Fisher Scientific, Inc.)], following the manufacturer's recommended experimental conditions. RT qPCR was performed using the QuantStudio 7 Flex Real Time PCR System (Thermo Fisher Scientific, Inc.) employing TagMan 2X Universal PCR Master Mix (Life Technologies; Thermo Fisher Scientific, Inc.) and specific primers including exon-exon junctions specifically designed for heme oxygenase- 1 (HO-1), superoxide dismutase- 1 (SOD-1), superoxide dismutase- 2 (SOD-2), cyclindependent kinase 2 (CDK2), cyclin-dependent kinase 4 (CDK4), cyclindependent kinase 6 (CDK6), cyclin-D1 (CCND1), cyclin E1 (CCNE1), and cyclin-dependent kinase inhibitor 1 A (p21). All assays were performed in duplicate, and one no template and two interpolate controls were used in each experiment. The expression values of each mRNA were normalized to the expression of the glyceraldehyde-3-phosphate dehydrogenase (GAPDH) housekeeping gene. The changes in the expression of each mRNA concerning the untreated controls were calculated using the $2^{-\Delta\Delta Cq}$ method (Livak and Schmittgen, 2001).

2.4. In-vivo studies

2.4.1. Experimental animals

Experiments were conducted on twenty 8-month-old Sprague Dawley female rats singly housed with a $12\,h$ light cycle (lights on at $19.00\,h$) in a temperature-controlled room at $20-24\,^{\circ}\mathrm{C}$ with food and water available *ad libitum*. This study was realized following the recommendations in the Guide for the Care and Use of Laboratory Animals of the National Institute of Health (Bethesda, MD, USA, revised 1996), the European Guideline on Animal Experiments (Directive 2010/63/EU). The protocol was approved by the Veterinary Animal Care and Use Committee of the University of Parma (Permit: 281/2017-PR and PMS 53/2009).

2.4.2. Particle suspension

Biochar particulate matter was suspended in a physiological saline solution (10 mg/ml, stock solution). Immediately before the experiments, the suspension was vortexed and immersed in a sonication bath (Branson Ultrasonics, Danbury, CT, USA) for 5 min at 37 $^{\circ}\text{C}$ to minimize particle aggregation.

2.4.3. Intra-tracheal instillation

Animals were anesthetized intraperitoneally (i.p.) with a mixture of ketamine chloride 40 mg/kg (Imalgene, Merial, Milano, Italy) and medetomidine hydrochloride 0.15 mg/kg (Domitor, Pfizer Italia S.r.l., Latina, Italy). The instillation process was extensively described in our previous work (Savi et al., 2014). Briefly, after anaesthesia, a 16-gauge catheter was gently inserted into the trachea of rats to deliver 20 $\mu L/100$ g of body weight of saline solution (Physio) or stock solution (reaching a concentration of 2 mg/kg Biochar) utilizing a laboratory bench P200 pipette (Gilson, Dunstable, UK). Rats were divided into 4

groups:

- i) Physio (N = 5): intratracheal instillation of saline solution;
- ii) Biochar-acute (BA, N = 5): single intratracheal instillation of saline solution + Biochar at [2 mg/kg];
- iii) Biochar-subacute (BS, N = 5): intratracheal instillation of saline solution + Biochar at [2 mg/kg] for 5 consecutively days (from Monday to Friday);
- iv) Biochar-recovery (BR, N = 5): intratracheal instillation of saline solution + Biochar at [2 mg/kg] for 5 consecutively days (from Monday to Friday) and sacrificed after two days of recovery.

Administration of 0.15 mg/kg atipamezole hydrochloride (Antisedan, Pfizer, Milan, Italy) has been performed to wake up the animal. Four hours after the last instillation the animals were newly anesthetized i.p. and after euthanasia heart, lung and liver were excited, washed with PBS, and included in cryovials before freezing at -80° C.

2.4.4. Histological analysis

For histological analysis, tissue samples from liver, lung, and heart were collected. Immediately after organ removal, specimens were fixed in phosphate-buffered formalin, pH 7.4 (10 % v/v), embedded in paraffin, sliced at 5 μ m and stained with hematoxylin and eosin (HE).

Slides were examined using a Nikon Eclipse E800 microscope (Nikon Corporation, Japan) with Nikon PLAN APO lenses and equipped with Camera DIGITAL SIGHT DS-Fi1 (Nikon Corporation, Japan) acquiring pictures with DS camera control unit DS-L2 (Nikon Corporation, Japan).

2.4.5. ROS-induced lipid peroxidation and inflammation in-vivo

Frozen tissue samples were homogenized and sonicated in phosphate-buffered saline supplemented with a protease inhibitor cocktail (Sigma-Aldrich, St. Louis, MO, USA). Insoluble debris was pelleted, and lipid peroxidation products were detected in the supernatants by the TBARS method, based on the condensation of malondialdehyde derived from polyunsaturated fatty acids, with two equivalents to give a fluorescent red derivative. In each sample, TBARS concentrations were normalized to total protein concentration, determined by the bicinchoninic acid Protein Assay (ThermoScientific, Rockford, IL, USA). The total measurement of protein carbonyls involves the derivatization of these groups with the DNPH. The reaction generates a hydrazone which has an absorption peak at 365 nm and a molar extinction coefficient of 22000 M⁻¹cm⁻¹. The tissue lysates were incubated with Streptomycin sulfate (10 % in PBS) to precipitate the DNA, centrifuged to separate the supernatant and added with 15 mM DNPH in 2.5 N hydrochloric acid for 1 hour in the dark. At the end the proteins were precipitated with 20 % (w/v) trichloroacetic acid. To remove excess DNPH, the protein pellet was then washed three times with ethanol / ethyl acetate (1:1, v-v) and finally resuspended in 8 M guanidine. Both the carbonyl content (reading at 365 nm) and the protein content (reading at 280 nm) were determined with the DU640 spectrophotometer (Beckman Coulter, Brea, CA, USA).

2.5. Statistical analysis

All experiments were performed in at least three independent trials. The statistical analysis was carried out using SPSS 17.0 software (SPSS Inc., Chicago, IL, USA). Data were analyzed through Student's t-test and two-way analysis of variance (ANOVA). The post hoc Dunnett's were employed to determine differences vs control in all *in-vitro* experiments and Tukey's tests were employed to determine differences between groups in *in-vivo* experiment. Statistical significance was set at p<0.05.

3. Results

3.1. Characterization of biochar

The Biochar morphology was observed by SEM (Fig. 1, top). Irregular fragments, both isolated and aggregated in clusters, were observed. As obtained by statistical analysis on the small ($<15~\mu m$) fragments, the size distribution peaked around 1 micron. TEM was used to analyse the Biochar structure (Fig. 1, bottom), showing that the micrometric fragments are aggregates of sub-micrometric particles. The sample is mainly amorphous (Fig. 1, bottom center), but occasionally crystalline lattice fringes are observed (Fig. 1, bottom right), due to crystallites of common charcoal impurities (e.g., Si).

Chemical characterization of Biochar was reported in our previous study. Briefly, total PHAs are equal to 20.91 mg Kg $^{-1}$ with pyrene at a higher concentration (2.14 mg Kg $^{-1}$, 10.2 % of the total). Zn resulted in the most abundant metal (180 mg Kg $^{-1}$), and Ni, Pb, Co, and Cd were also detected. Cd showed a concentration (1.56 mg Kg $^{-1}$) that exceeded the European guideline values (1 mg Kg $^{-1}$) (https://www.edqm.eu), whereas Hg was not detectable.

3.2. In-vitro experiments

When the concentration of Biochar was varied, the mean SSC ratio at 24 h exhibited a dose-dependent behavior and significant increases in both lines exposed to higher amounts of Biochar (100–250 $\mu g/ml$) (Fig. 2a). The changes in this parameter over 24 h in cells treated with 50 $\mu g/ml$ are described in Fig. 2b.

From the curves it is apparent that the uptake is very fast in the first half-hour, plateauing within 1–4 hours. When HT29 and A549 cells were exposed for 24 h and 48 h to increasing concentrations of Biochar, no concentration tested elicited morphologic changes, or apoptotic or necrotic cell death, as assessed by LDH release and phosphatidylserine translocation (data not shown). However, a significant inhibition of proliferation was detected in both cultures, although A549 cells were resulted more sensitive than HT29 ones and with a dose-dependent downward trend. Proliferation was inhibited in A549 cells at 24 h starting from 100 μ g/ml, while in HT29 only after 48 h of exposure at the highest Biochar concentration (250 μ g/ml) (Fig. 3a-b). These effects were associated with a corresponding decrease in intracellular ATP levels (Fig. 3c). Fig. 3d is exposed to the colony-forming ability of both cell lines that were significantly affected by the treatment with the higher concentrations (100 and 250 μ g/ml).

After treatment with Biochar, the analysis of the cell cycle highlighted an increase in cells in the G0/G1 phase and at the same time a decrease in their division (Fig. 4).

Detection of cyclin expression gave a precise vision into the particle-induced effects on proliferation (Fig. 5). Treatments of A549 cells for 12 hours with 100 μ g/ml increased the main CDKs/cyclins (CDK4, CDK6, and CDK2) involved in checkpoint G0/G1; conversely, after 24 h cells showed a drastic decrease of the same and a significant increase of expression of p21. In HT29 cultures the main effects were observed at 24 h and only in CDK6 gene expression, significantly reduced concerning the untreated control and a significant increase of expression of p21.

Biochar was tested for its ability to induce oxidative stress in both culture cells exposed to concentrations that did not severely affect cellular metabolism (50 and 100 μ g/ml). One-hour exposure to DCFH-DA-preincubated cells developed a dose-independent increase of ROS production in A549 cultures (Fig. 6a). After 30 min Biochar caused a significant increase in intracellular ROS amounts, but this early and transient effect presented a decreasing trend and did not elicit lipid peroxidation or protein oxidation, as assessed by unchanged TBARS and carbonyl groups levels (data not shown). Only a slight not significant reduction in GSH was observed (data not shown). During the entire exposure period, no evidence of oxidative stress was observed in HT29 cultures, at any concentration tested. These observations were

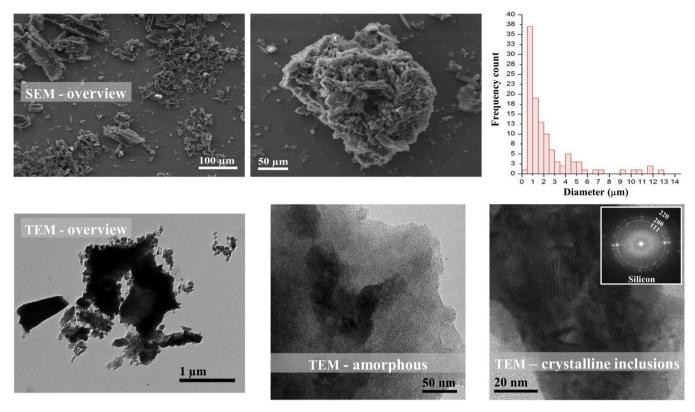


Fig. 1. Representative SEM (top row) and TEM (bottom row) images of the charcoal. Top: large area SEM image, magnified detail, and fragment size distribution. Bottom: bright-field low magnification TEM image, detail of the amorphous region, detail of crystalline inclusions (the inset shows the corresponding Fast Fourier Transform).

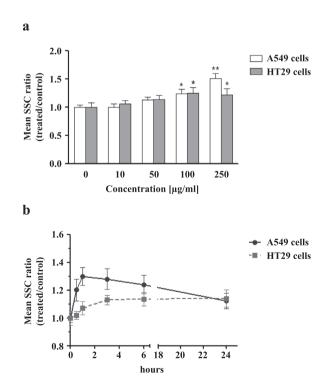


Fig. 2. Influence on side scatter (SSC) of increasing concentrations of Biochar (a) and incubation of A549 and HT29 cells with Biochar at a concentration of 50 μ g/ml (b). Data are expressed as Mean SSC ratio (treated/control) \pm SD. Significantly different from untreated control: *p<0.05; **p<0.01.

corroborated by gene expression of the enzymes with antioxidant

activity. Biochar-induced expression of HO-1 (p<0.001) and SOD-2 (p<0.01) only in A549 cells treated with 100 μ g/ml for 12 h (Fig. 6b). This trend was followed by a decrease in both genes' expression at 24 h, thus emphasizing a cell recovery (data not shown).

Regarding the pro-inflammatory potential of Biochar, the continued treatment caused after 24 hours a dose-independent enhancement of IL-8 concentration in HT29 cells culture media but not in A549 ones (Fig. 7).

3.3. In-vivo experiments

The naked-eye analysis of lung tissue revealed the presence of black foci uniformly located in the parenchyma (data not shown). From the analyzes carried out on the histological preparations, it was found that, among the organs subjected to treatment with Biochar, only at the pulmonary level hyperemia edema phenomena occur and fragments of blackish material in the bronchiolar lumen were also observed (Fig. 8). In detail, we observed a slight phenomenon of hyperemia, edema and alveolar hemorrhage of focal nature in the lungs tissue in Physio group (Fig. 8a). In BA group (Fig. 8b), hyperemia, edema, and presence of fragments of blackish material (Biochar) in the bronchiolar lumen was detected, as well as an inflammatory focus with infiltrates of neutrophilic granulocytes and macrophages at the alveolar and bronchiolar level. In the BS group, a focal inflammatory phenomenon was highlighted (Fig. 8c, upper panel). Moreover, a multifocal presence of inflammatory infiltrates with alveolar and interstitial infiltration of neutrophilic granulocytes and macrophages was also observed (Fig. 8c, middle and lower panels). In the lung parenchyma of the BR group there was a focal thickening of the alveolar interstitium and an initial phenomenon of fibrosis, infiltration of macrophages that incorporate or surround particles of Biochar, with bronchus-associated lymphoid tissue hyperplasia (Fig. 8d).

From the results obtained on cardiac, liver, and lung tissue lysates it

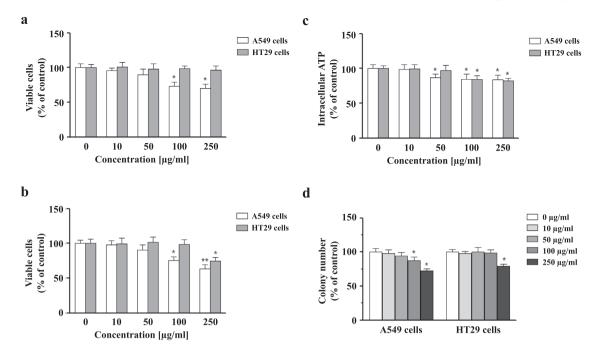


Fig. 3. Effects of Biochar on A549 and HT29 cells. Values are normalized to control. Each value represents the mean (\pm SD) of at least three separate experiments. *p<0.05, **p<0.01 vs control (unexposed cells). (a): viability after 24 h; (b): viability after 48 h; (c): intracellular ATP levels; (d): surviving fraction after 10 days' exposure.

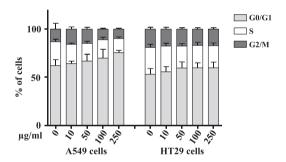
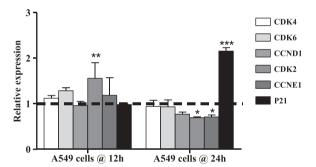


Fig. 4. Cell cycle distribution of exponentially growing cells exposed to increasing concentrations of Biochar after 24 h of treatment. By monoparametric DNA analysis three distinct phases could be recognized in proliferating cell populations, corresponding to different peaks: the GO/G1, S (DNA synthesis phase) and G2/M (mitosis).

can be observed that the alterations caused by Biochar on cell membranes were greater than those on proteins. The concentrations of carbonyl groups did not significantly increase in tissues after instillation compared to controls, indeed in some conditions, they even decreased (Fig. 9), although statistical significance was only achieved in the liver tissue of rats subjected to single instillation (BA). In the liver of this group of animals, lipid peroxidation is significantly increased both in comparison with controls and other treatments (Fig. 9). A non-significant increase in TBARS was also observed in the heart and lung tissues of rats that underwent Biochar tracheal instillations.

4. Discussion

Risk assessment begins with the identification of hazards and in our case, it cannot be differentiated from the physical chemical characterization of Biochar. We observed that the size distribution on the small fragments peaked around 1 micron in agreement with other works (He et al., 2018; Liu et al., 2022, 2021; Lyubov and Popova, 2017) that like us tried to establish guidelines concerning the particle sizes and the exposure level of Biochar for health effect. Furthermore, a majority of



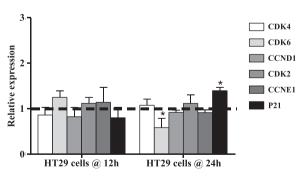


Fig. 5. Relative expression of cyclin, CDKs and P21 after 12 and 24 hours of treatment with $100 \mu g/ml$ of Biochar in A549 cells (upper panel) and HT29 cells (lower panel). *p<0.05, **p<0.01, ***p<0.001 versus control (dotted line).

the particles were below $5\mu m$ and, thus, could easily enter the alveolar region or deep lung (Boisa et al., 2014). Biochar particles' physical and morphological properties can be significantly influenced by the feed-stock and operating conditions used to produce them (Campos et al., 2020; De la Rosa et al., 2019; Mukome et al., 2013). Following what has been reported, it follows that, there are significant differences between

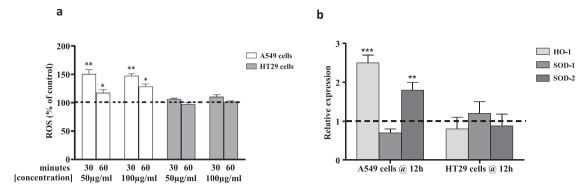


Fig. 6. Effects of biochar on ROS production (Panel a) and gene expression of HO-1, SOD-1, and SOD-2 (Panel b). Values are mean \pm SD of three separate tests, each performed in triplicate. Percentage vs control = (sample value/control value) x100. Significantly different from untreated control: *p<0.05; **p<0.01: ***p<0.001.

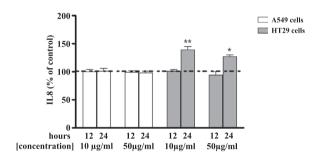


Fig. 7. Effects of Biochar on IL-8 secretion. Values are mean \pm SD of three separate experiments, each carried out in triplicate. Percentage vs control = (sample value/control value) x100. Significantly different from untreated control: *p<0.05; **p<0.01.

Biochars on the market, making it impossible to compare them (He et al., 2018). While the physical size of Biochar-related PM_{10} is itself a serious concern, the organic and inorganic chemical constituents of Biochar may also present a human health risk. Biochar on the market shows no negligible concentrations of heavy metals and hazardous organic compounds, even with a slow degradation rate, which can affect both the environment and human health (De la Rosa et al., 2019; Gelardi et al., 2019). It is also interesting to note that the types and levels of heavy metals and PAHs are similar to those found in our previous work on diesel particulate matter (Rossi et al., 2021). This highlights how the main problem in Biochar management is identifying and standardizing quality chemical and physical indicators, to establish a relationship between these characteristics and potential toxicological effects.

Over the past years, a growing number of test systems for evaluating the potential toxicological hazard of xenobiotics have been developed, avoiding the use of intact animals, but founded on the use of biological

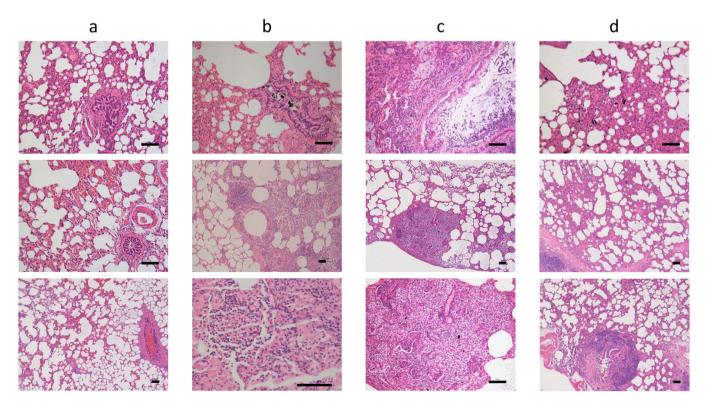


Fig. 8. Histopathologic evaluation of lung tissue stained with hematoxylin and eosin. (a) Physio group after intratracheal instillation of saline solution; (b) Biocharacute group (BA) after a single intratracheal instillation of saline solution + Biochar at [2 mg/kg], the lower panel is a magnification of the middle panel; (c) Biocharsubacute group (BS) after intratracheal instillation of saline solution + Biochar at [2 mg/kg] for 5 consecutively days, the lower panel is a magnification of the middle panel; (d) Biochar-recovery group (BR), after intratracheal instillation of saline solution + Biochar at [2 mg/kg] for 5 consecutively days and sacrificed after two days of recovery. Scale bars in all images: $100 \text{ } \mu\text{m}$.

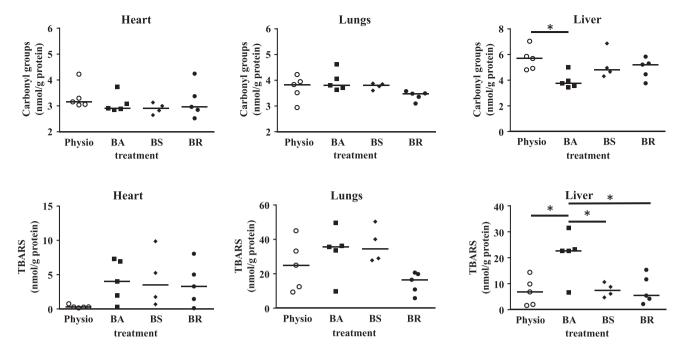


Fig. 9. Effects of Biochar on oxidative stress in the heart, lungs and liver respectively. Significantly different from untreated control: *p<0.05.

systems with a lower level of organization than the organism: isolated organs, cell cultures, and/or subcellular systems (Edler and Ittrich, 2003; Schofield, 2002). In *in-vitro* studies, concentration-effect/response curves are analysed using different mathematical models, but no reference doses other than the *EC50* have been considered. However, whereas the *EC50 in-vivo* is a parameter of systemic toxicity (50 % death), its counterpart *in-vitro* can reflect a particular toxic effect on a specific cell system. Mathematical models have been proposed to analyse *in-vitro* data and to extrapolate reference doses comparable with those observed *in-vivo* (Goldoni et al., 2003).

Both our cell lines showed a high rate of uptake during the first hour of exposure with intracellular accumulation without however showing any damage at the cellular level. Only at high doses (>100 $\mu g/ml$) was a substantial inhibition of cell viability and proliferation observed with a greater sensitivity of A549 cells compared to HT29 cells. These results agree with the work of Sigmund et al. (2017) in which a Biochar concentration of >100 $\mu g/ml$ produced a marked decline in cell viability, in mouse fibroblast cell line, after incubation for 24 h and the cytotoxicity increased further after 48 h. The same trend and pattern were observed also in MRC-5 (human lung cells) cells (Yang et al., 2019). Treatment with Biochar significantly increased the percentage of cells in phase G0/G1, concomitantly with a decrease of dividing cells in both cell lines in agreement with our data on the effects of TiO2 and Co3O4 nanoparticles on A549 cells (Alinovi et al., 2015).

We found that Biochar exposure is able to induce oxidative stress only in A549 cells at concentrations of 50 μ g/ml and 100 μ g/ml. This result is in agreement with what was obtained from de Almeida's study in which in murine fibroblasts exposed to carbon black nanoparticles there was a reduction in cell viability and proliferation, damage to cell membranes, and a rise in reactive oxygen and nitrogen species (de Almeida Rodolpho et al., 2021). More interestingly, only in HT29 cells, a rise in the pro-inflammatory potential of Biochar was evaluated by the increase in IL-8 concentration after 24 h. According to Kim et al. (2005), carbonaceous ultrafine particles seem to be a powerful inducer of proinflammatory responses in NHBE cells. As regards *in-vivo* tests, it was found that, based on histological preparations, only at the pulmonary level, Biochar treatment triggered hyperaemia edema phenomena. The analysis of histopathological samples of lung parenchyma of the experimental groups instilled with Biochar, showed mild to moderate

inflammatory phenomena and a progressive thickening of the alveolar interstitium, which is a prelude to fibrosis. The irreversible structural remodelling is linked to sub-chronic exposure to Biochar which, as we have already demonstrated in the rat exposed to TiO₂-NPs, is able to induce both inflammation and upregulation of genes that promote collagen deposition and fibrosis (Rossi et al., 2019). The evaluation of TBARS and total protein carbonyls highlighted that Biochar caused oxidative stress only in liver tissue with alterations on cell membranes greater than those on proteins. More interestingly the suspension of treatments reports TBARS levels similar to control levels, as we already demonstrated in rats treated with TiO₂-NPs (Rossi et al., 2019).

Our study evaluated only acute, single exposure and evidenced that an intracellular accumulation is elicited. Even if our study did not show any severe damage at the cellular level in intestinal and lung cells, the question of the long-term effects that might occur because of chronic or recurrent inhalation of occupationally exposed workers is still unresolved. It will therefore be essential in the future to evaluate in the workplace the effects of chronic inhalation of Biochar dust, its accumulation in the lungs and the reaction of the tissues to its presence.

Typically, diseases caused by inhaling dust take many years to develop and be manifested and are characterized by a diffuse fibrotic reaction in the lungs, through the release of fibrogenic chemical mediators. Although the endpoint is fibrosis, the pattern and location vary with the type, involving activated macrophages, cytokines releases, and cell-mediated immunity resulting in granulomas (e.g. coal workers' pneumoconiosis, silicosis, asbestosis, berylliosis) (lijima et al., 2020).

5. Conclusion

This work has highlighted the ability of Biochar to induce inflammatory and oxidative stress conditions, both *in-vitro* and *in-vivo*, whose evolution should be assessed under chronic conditions of exposure, typical of occupational settings. Recommendations from the British Biochar Foundation (https://www.biochar.ac.uk/) are appropriate ("when workers are using or applying pure Biochar, caution needs to be taken as fine dust can arise from the Biochar. There are multiple health risks associated with breathing in very small particles including respiratory diseases and even cancer. Such risks are usually associated with prolonged exposure to small particles through employment, e.g. in coal

mining, quarrying, or old-style charcoal making. However, for most Biochar applications, a simple face mask would eliminate any risk and constitutes best practice"), but so far, no Biochar exposure level has been proposed or recommended.

Further research is also needed to address knowledge gaps on the possible impact on human health as a first step in assessing and proposing a recommended level of exposure. In addition, it is crucial to investigate strategies to reduce potential damage during the production, shipment, and application of Biochar in the soil, and to define clear and unified environmental quality reference.

Ethical approval

N/A.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Consent to participate

N/A

Consent to publish

N/A

CRediT authorship contribution statement

Sara Tagliaferri: Data curation. Francesca Rossi: Writing – original draft, Methodology, Investigation. Delia Cavallo: Writing – review & editing. Cinzia Lucia Ursini: Writing – review & editing. Alessio Malcevschi: Supervision. Michele Miragoli: Supervision. Massimo Corradi: Supervision. Luisella Selis: Data curation. Paola Mozzoni: Writing – review & editing, Methodology, Investigation, Conceptualization. Stefano Rossi: Writing – original draft, Methodology, Data curation, Conceptualization. Diana Poli: Writing – review & editing, Conceptualization. Silvana Pinelli: Writing – original draft, Methodology, Data curation, Conceptualization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Data will be made available on request.

Acknowledgment

A heartfelt thanks goes to Professor Anna Maria Cantoni who left us prematurely.

References

- Alinovi, R., Goldoni, M., Pinelli, S., Campanini, M., Aliatis, I., Bersani, D., Lottici, P.P., Iavicoli, S., Petyx, M., Mozzoni, P., Mutti, A., 2015. Oxidative and pro-inflammatory effects of cobalt and titanium oxide nanoparticles on aortic and venous endothelial cells. Toxicol. Vitr. 29. 426–437.
- Batista, E., Shultz, J., Matos, T.T.S., Fornari, M.R., Ferreira, T.M., Szpoganicz, B., de Freitas, R.A., Mangrich, A.S., 2018. Effect of surface and porosity of biochar on water holding capacity aiming indirectly at preservation of the Amazon biome. Sci. Rep. 8, 10677.
- Bonalumi, F., Miragoli, M., 2023. Invited perspective: the silent threat-air pollution's Link to Arrhythmias. Environ. Health Perspect. 131, 111301.

- Cacchioli, A., Ravanetti, F., Alinovi, R., Pinelli, S., Rossi, F., Negri, M., Bedogni, E., Campanini, M., Galetti, M., Goldoni, M., Lagonegro, P., Alfieri, R., Bigi, F., Salviati, G., 2014. Cytocompatibility and cellular internalization mechanisms of SiC/SiO2 nanowires. Nano Lett. 14, 4368-4375.
- Campos, P., Miller, A.Z., Knicker, H., Costa-Pereira, M.F., Merino, A., De la Rosa, J.M., 2020. Chemical, physical and morphological properties of biochars produced from agricultural residues: Implications for their use as soil amendment. Waste Manag. 105, 256–267.
- Chen, J., Hoek, G., 2020. Long-term exposure to PM and all-cause and cause-specific mortality: a systematic review and meta-analysis. Environ. Int 143, 105974.
- Das, O., Sarmah, A.K., Bhattacharyya, D., 2016. Biocomposites from waste derived biochars: Mechanical, thermal, chemical, and morphological properties. Waste Manag. 49, 560–570.
- de Almeida Rodolpho, J.M., de Godoy, K.F., Brassolatti, P., de Lima Fragelli, B.D., de Castro, C.A., Assis, M., Speglich, C., Cancino-Bernardi, J., Longo, E., de Freitas Anibal, F., 2021. Apoptosis and oxidative stress triggered by carbon black nanoparticle in the LA-9 fibroblast. Cell Physiol. Biochem 55, 364–377.
- De Donno, A., De Giorgi, M., Bagordo, F., Grassi, T., Idolo, A., Serio, F., Ceretti, E., Feretti, D., Villarini, M., Moretti, M., Carducci, A., Verani, M., Bonetta, S., Pignata, C., Bonizzoni, S., Bonetti, A., Gelatti, U., Group, M.L.S., 2018. Health Risk Associated with Exposure to PM(10) and Benzene in Three Italian Towns. Int J. Environ. Res Public Health 15.
- de la Rosa, J.M., Paneque, M., Miller, A.Z., Knicker, H., 2014. Relating physical and chemical properties of four different biochars and their application rate to biomass production of on a Calcic Cambisol during a pot experiment of 79 days. Sci. Total Environ. 499, 175–184.
- De la Rosa, J.M., Sánchez-Martín, A.M., Campos, P., Miller, A.Z., 2019. Effect of pyrolysis conditions on the total contents of polycyclic aromatic hydrocarbons in biochars produced from organic residues: Assessment of their hazard potential. Sci. Total Environ. 667, 578–585.
- Denyes, M.J., Parisien, M.A., Rutter, A., Zeeb, B.A., 2014. Physical, chemical and biological characterization of six biochars produced for the remediation of contaminated sites. J. Vis. Exp., e52183
- Di Blasi, C., Renzi, M., Michelozzi, P., Donato, F.D., Scortichini, M., Davoli, M., Forastiere, F., Mannucci, P.M., Stafoggia, M., 2022. Association between air temperature, air pollution and hospital admissions for pulmonary embolism and venous thrombosis in Italy. Eur. J. Intern Med 96, 74–80.
- Edler, L., Ittrich, C., 2003. Biostatistical methods for the validation of alternative methods for toxicity testing. Atla Alter. Lab Anim. 31, 5–41.
- Gangwar, R.S., Bevan, G.H., Palanivel, R., Das, L., Rajagopalan, S., 2020. Oxidative stress pathways of air pollution mediated toxicity: Recent insights. Redox Biol. 34, 101545.
 Gelardi, D.L., Li, C.Y., Parikh, S.J., 2019. An emerging environmental concern: biochar-
- induced dust emissions and their potentially toxic properties. Sci. Total Environ. 678, 813–820.
- Goldoni, M., Caglieri, A., Poli, D., Vettori, M.V., Ceccatelli, S., Mutti, A., 2008.
 Methylmercury at low doses modulates the toxicity of PCB153 on PC12 neuronal cell line in asynchronous combination experiments. Food Chem. Toxicol. 46, 808–811.
- Goldoni, M., Vettori, M.V., Alinovi, R., Caglieri, A., Ceccatelli, S., Mutti, A., 2003. Models of neurotoxicity: extrapolation of benchmark doses. Risk Anal. 23, 505–514.
- Gour, N., Sudini, K., Khalil, S.M., Rule, A.M., Lees, P., Gabrielson, E., Groopman, J.D., Lajoie, S., Singh, A., 2018. Unique pulmonary immunotoxicological effects of urban PM are not recapitulated solely by carbon black, diesel exhaust or coal fly ash. Environ. Res 161, 304–313.
- He, P., Liu, Y., Shao, L., Zhang, H., Lu, F., 2018. Particle size dependence of the physicochemical properties of biochar. Chemosphere 212, 385–392.
- He, M., Xiong, X., Wang, L., Hou, D., Bolan, N.S., Ok, Y.S., Rinklebe, J., Tsang, D.C.W., 2021. A critical review on performance indicators for evaluating soil biota and soil health of biochar-amended soils. J. Hazard Mater. 414, 125378.
- lijima, Y., Tateishi, T., Tsuchiya, K., Sumi, Y., Akashi, T., Miyazaki, Y., 2020.
 Pneumoconiosis caused by inhalation of metallic titanium grindings. Intern. Med 59, 425–428
- Kania, N., Setiawan, B., Widjadjanto, E., Nurdiana, N., Widodo, M.A., Kusuma, H.M.S.C., 2014. Subchronic inhalation of coal dust particulate matter 10 induces bronchoalveolar hyperplasia and decreases MUC5AC expression in male Wistar rats. Exp. Toxicol. Pathol. 66, 383–389.
- Kim, Y.M., Reed, W., Lenz, A.G., Jaspers, I., Silbajoris, R., Nick, H.S., Samet, J.M., 2005. Ultrafine carbon particles induce interleukin-8 gene transcription and p38 MAPK activation in normal human bronchial epithelial cells. Am. J. Physiol. Lung C. 288, L432–L441.
- Li, Y., Gupta, R., Zhang, Q., You, S., 2023. Review of biochar production via crop residue pyrolysis: development and perspectives. Bioresour. Technol. 369, 128423.
- Liu, X.L., Ma, J., Ji, R., Wang, S.F., Zhang, Q.R., Zhang, C.D., Liu, S.J., Chen, W., 2021. Biochar fine particles enhance uptake of benzo(a)pyrene to macrophages and epithelial cells via different mechanisms. Environ. Sci. Tech. Let. 8, 218–223.
- Liu, B.L., Tang, C.Y., Zhao, Y., Cheng, K., Yang, F., 2022. Toxicological effect assessment of aged biochar on. J. Hazard. Mater. 436.
- Livak, K.J., Schmittgen, T.D., 2001. Analysis of relative gene expression data using real-time quantitative PCR and the 2(-Delta Delta C(T)) Method. Methods 25, 402–408.
- Lu, S.S., Guo, S.S., Xu, P.X., Li, X.R., Zhao, Y.M., Gu, W., Xue, M., 2016. Hydrothermal synthesis of nitrogen-doped carbon dots with real-time live-cell imaging and bloodbrain barrier penetration capabilities. Int J. Nanomed. 11, 6325–6336.
- Lyubov, V.K., Popova, E.I., 2017. Drying and heat decomposition of biomass during the production of biochar. J. Phys. Conf. Ser. 891.
- Mukome, F.N.D., Zhang, X.M., Silva, L.C.R., Six, J., Parikh, S.J., 2013. Use of chemical and physical characteristics to investigate trends in biochar feedstocks. J. Agr. Food Chem. 61, 2196–2204.

- Munera-Echeverri, J.L., Martinsen, V., Strand, L.T., Zivanovic, V., Cornelissen, G., Mulder, J., 2018. Cation exchange capacity of biochar: an urgent method modification. Sci. Total Environ. 642, 190–197.
- Qiu, M.Y., Sun, K., Jin, J., Han, L.F., Sun, H.R., Zhao, Y., Xia, X.H., Wu, F.C., Xing, B.S., 2015. Metal/metalloid elements and polycyclic aromatic hydrocarbon in various biochars: the effect of feedstock, temperature, minerals, and properties. Environ. Pollut. 206. 298–305.
- Rossi, F., Bedogni, E., Bigi, F., Rimoldi, T., Cristofolini, L., Pinelli, S., Alinovi, R., Negri, M., Dhanabalan, S.C., Attolini, G., Fabbri, F., Goldoni, M., Mutti, A., Benecchi, G., Ghetti, C., Iannotta, S., Salviati, G., 2015. Porphyrin conjugated SiC/SiOx nanowires for X-ray-excited photodynamic therapy. Sci Rep. 5, 7606. https://doi.org/10.1038/srep07606. Jan 5.
- Rossi, S., Buccarello, A., Caffarra Malvezzi, C., Pinelli, S., Alinovi, R., Guerrero Gerboles, A., Rozzi, G., Leonardi, F., Bollati, V., De Palma, G., Lagonegro, P., Rossi, F., Lottici, P.P., Poli, D., Statello, R., Macchi, E., Miragoli, M., 2021. Exposure to nanoparticles derived from diesel particulate filter equipped engine increases vulnerability to arrhythmia in rat hearts. Environ. Pollut. 284, 117163.
- Rossi, S., Savi, M., Mazzola, M., Pinelli, S., Alinovi, R., Gennaccaro, L., Pagliaro, A., Meraviglia, V., Galetti, M., Lozano-Garcia, O., Rossini, A., Frati, C., Falco, A., Quaini, F., Bocchi, L., Stilli, D., Lucas, S., Goldoni, M., Macchi, E., Mutti, A., Miragoli, M., 2019. Subchronic exposure to titanium dioxide nanoparticles modifies cardiac structure and performance in spontaneously hypertensive rats. Part Fibre Toxicol. 16.
- Schofield, T., 2002. In vitro versus in vivo concordance: a case study of the replacement of an animal potency test with an immunochemical assay. Dev. Biol. (Basel) 111, 299–304.
- Sigmund, G., Huber, D., Bucheli, T.D., Baumann, M., Borth, N., Guebitz, G.M., Hofmann, T., 2017. Cytotoxicity of biochar: a workplace safety concern? Environ. Sci. Tech. Let. 4, 362–366.
- Sirico, A., Bernardi, P., Belletti, B., Malcevschi, A., Dalcanale, E., Domenichelli, I., Fornoni, P., Moretti, E., 2020. Mechanical characterization of cement-based materials containing biochar from gasification. Constr. Build. Mater. 246.

- Sirico, A., Bernardi, P., Sciancalepore, C., Vecchi, F., Malcevschi, A., Belletti, B., Milanese, D., 2021. Biochar from wood waste as additive for structural concrete. Constr. Build. Mater. 303.
- Spokas, K.A., Cantrell, K.B., Novak, J.M., Archer, D.W., Ippolito, J.A., Collins, H.P., Boateng, A.A., Lima, I.M., Lamb, M.C., McAloon, A.J., Lentz, R.D., Nichols, K.A., 2012. Biochar: a synthesis of its agronomic impact beyond carbon sequestration. J. Environ. Qual. 41, 973–989.
- Valavanidis, A., Vlachogianni, T., Fiotakis, K., Loridas, S., 2013. Pulmonary oxidative stress, inflammation and cancer: respirable particulate matter, fibrous dusts and ozone as major causes of lung carcinogenesis through reactive oxygen species mechanisms. Int J. Env Res Pub He 10, 3886–3907.
- Wang, C.Q., Luo, D., Zhang, X., Huang, R., Cao, Y.J., Liu, G.G., Zhang, Y.S., Wang, H., 2022. Biochar-based slow-release of fertilizers for sustainable agriculture: a mini review. Environ. Sci. Ecotech 10.
- Yang, X., Ng, W., Wong, B.S.E., Baeg, G.H., Wang, C.H., Ok, Y.S., 2019. Characterization and ecotoxicological investigation of biochar produced via slow pyrolysis: effect of feedstock composition and pyrolysis conditions. J. Hazard. Mater. 365, 178–185.
- Yin, X.L., Peñuelas, J., Sardans, J., Xu, X.P., Chen, Y.Y., Fang, Y.Y., Wu, L.Q., Singh, B.P., Tavakkoli, E., Wang, W.Q., 2021. Effects of nitrogen-enriched biochar on rice growth and yield, iron dynamics, and soil carbon storage and emissions: a tool to improve sustainable rice cultivation. Environ. Pollut. 287.
- Yu, H.W., Zou, W.X., Chen, J.J., Chen, H., Yu, Z.B., Huang, J., Tang, H.R., Wei, X.Y., Gao, B., 2019. Biochar amendment improves crop production in problem soils: a review. J. Environ. Manag. 232, 8–21.
- Zorov, D.B., Juhaszova, M., Sollott, S.J., 2014. Mitochondrial Reactive Oxygen Species (Ros) and ros-induced ros release. Physiol. Rev. 94, 909–950.
- Zucker, R.M., Daniel, K.M., Massaro, E.J., Karafas, S.J., Degn, L.L., Boyes, W.K., 2013. Detection of silver nanoparticles in cells by flow cytometry using light scatter and far-red fluorescence. Cytom. Part A 83, 962–972.



RESEARCH & DEVELOPMENT IN POWER ENGINEERING, 2019

Hazards associated with syngas storage

Katarzyna Stolecka^{1*}, Andrzej Rusin^{2,*}

^{1,2} Silesian University of Technology, Institute of Power Engineering and Turbomachinery, Konarskiego 18, 44-100 Gliwice, Poland, katarzyna.stolecka@polsl.pl, andrzej.rusin@polsl.pl

Abstract Energy needs of many countries are largely covered by energy obtained from fossil fuels. This in turn involves environmental pollution and greenhouse gas emissions. The growing environmental awareness and the need to prevent climate changes mean that clean energy and alternative energy sources are still a significant research issue. One of the most important technologies for efficient and low-carbon energy generation is the gasification process and synthesis gas production. Worldwide, there are now more than 270 such installations. More installations are under construction. Syngas is a mixture of hydrogen and carbon monoxide. Depending on the feedstock, it can also contain smaller amounts of carbon dioxide, methane and nitrogen. The gasification process consists of four stages: syngas production, storage, transport and utilization, e.g. as fuel. Because syngas is mainly composed of flammable and toxic gases, in the event of an uncontrolled release into the atmosphere these processes may pose a potential hazard to humans and the environment. The paper presents the results of analyses related to hazards resulting from an uncontrolled release of gas at the stage of the gas storage, before it is transported or finally used. Hazard scenarios are presented and the probability of their occurrence as well as the consequences for humans and the environment are determined.

1. Introduction

Energy needs of many countries are covered primarily by energy obtained by firing fossil fuels, which involves environmental pollution and greenhouse gas

The effect of the growing awareness of the hazards, the stricter requirements concerning the reduction of emissions and the need to protect the environment is that clean energy and alternative energy sources are still a significant research issue. The shortage of conventional energy sources and the advancement in fuel conversion have stimulated interest in research on fuel conversion and gasification technologies as clean, reliable and energy-efficient processes [1,2].

It is assumed that gasification will be one of the main energy sources in future – it will become the tool for the transition from coal-based energy to energy based on hydrogen [1,2].

Syngas is the end product of the gasification process. The term relates to gases being the effect of gasification of different feedstocks, such as coal, biomass, waste, liquid hydrocarbons, etc. The process main gasifying medium is oxygen, steam or air. Synthesis gas is a mixture of carbon monoxide and hydrogen in the first place. It can also contain other gases, e.g. methane, nitrogen or carbon dioxide. The composition depends on the feedstock or the gasifying medium [3,4]. An example composition of syngas is presented in Table 1 [2,5].

Table 1. Syngas example composition

| | biomass | brown coal |
|--------------|-----------|------------|
| gasification | fluidized | fluidized |

| process | bed | bed |
|-----------------|-------|-------|
| СО | 20-30 | 30-50 |
| CO ₂ | 25-40 | 13-25 |
| H_2 | 20-30 | 35-46 |
| CH ₄ | 5-10 | 1-3 |
| N ₂ | 0-1 | - |

Syngas can be used as fuel to produce electricity. It can also be used as a semi-finished product in the chemical industry to produce synthetic natural gas, synthetic petroleum, ammonia and methanol. Currently, about 25% of the world® ammonia and 30% of the world® methanol are produced using the gasification process [6]. Syngas is also used to make biofuels and biomaterials.

The research on the scope of syngas application is therefore centred on the integrated gasification combined cycle (IGCC) technology, alternative internal combustion engines (ICE) and fuel-chemical production [1,4,7]. Such studies are presented e.g. in [2,7]. An analysis of syngas application in a microturbine is conducted in [8]. Syngas with a high content of hydrogen can also be used in high-temperature solid oxide fuel cells (SOFC) or in molten carbonate fuel cells (MCFC) [9].

Regardless of the final method of syngas application and of the technology advancement, each stage of syngas production, storage, transport and use requires additional attention focused on safety issues. Such analyses are presented for example in [4,10]. Safety is an important factor to consider because the presence of flammable and toxic gases in syngas creates potential hazards to humans

and the environment in the event of an installation failure or an uncontrolled gas release. The paper presents an analysis of hazards related to the process of syngas storage in tanks.

2. Synthesis gas production

Many processes are now used to produce synthesis gas. As already mentioned, syngas can be produced from coal, biomass, wood, waste or from natural gas. Gasification plants can be found on every continent, and most of them are located in China [6].

The selection of the syngas production process depends on many factors, such as the availability of raw materials, their cost and, first of all, the final product target composition. The basic parameter that defines syngas composition is the H₂/CO ratio [11].

The gasification dominant feedstock at present, as well as in predictable future, is coal. Biomass and feed waste are also gaining importance and the number of plants gasifying them is on the rise. Last but not least, there are also syngas production plants based on petroleum residues gasification and steam reforming [6].

In the process of steam-methane reforming, the heated mixture of steam and methane flows through a nickel catalyst. In such conditions methane undergoes a strong endothermic process referred to as steam reforming, which makes it possible to obtain hydrogenrich synthesis gas with the typical H₂/CO ratio of 3:1 to 5:1 [6].

The next method - coal gasification - is one of the most developed technologies of the gasification process. Considering the type of the feedstock bed, gasification technologies can be divided into processes taking place in a fixed bed, fluidized bed or entrained-flow bed reactor. In the fixed bed technology the coal grain size is included in the range of 5-80 mm. Coal is on the fuel bed and the gasifying medium, i.e. air and/or steam, is fed from below (updraft gasification). In fluidized bed gasification the coal grain size is up to 10 mm. The processes occurring in this case are similar to combustion processes typical of a fluidized bed boiler, and gasification proceeds under atmospheric pressure. In entrained-flow reactors, pulverized fuel (<0.1 mm) is fed into the reaction zone in a jet of steam and oxygen. The fluidized layer is created as coal dust is lifted by gasifying mediums [1,3,12].

Biomass is usually gasified using air in fixed bed (con- and countercurrent) reactors or fluidized bed reactors. In concurrent reactors, the feedstock and the gasifying medium are transported in the same direction, whereas in countercurrent gasifiers – in opposite ones. Such systems are characterized by a number of requirements concerning the degree of biomass comminution, and their main disadvantages are low efficiency and the tar content. Two bed types are used in the fixed bed technology of biomass gasification: the circulating fluidized bed and the bubbling fluidized bed. Good-quality gas is obtained.

Many different kinds of reactors can be used for waste gasification. They differ in size and the feedstock type. Some are intended for solid municipal waste gasification, others – for gasification of construction and demolition debris. Many of them often require the feedstock pretreatment, e.g. breaking up or drying, or removal of non-organic materials that cannot be gasified [2,8,9].

3. Synthesis gas storage

Syngas storage is not currently a common practice. This is due to the fact that synthesis gas is usually fed directly for use. However, there is an extra potential in syngas storage compared to its immediate use. Storage enables wider applications, additional supplies and ultimately - economic advantages to both producers and end consumers. For example, stored synthesis gas can be used to produce electricity in peak-demand periods. It can be a method to improve productivity, reliability and availability of IGCC power plants by increasing syngas availability during scheduled and unscheduled downtimes [7,13].

However, it has to be remembered that syngas storage involves technical difficulties because it contains hydrogen enhancing metal embrittlement. It is also necessary to consider specific safety issues in case of an uncontrolled release or corrosion. Therefore, the technical feasibility and economic attractiveness of syngas storage lie first of all in the gas properties, such as energy density or composition. Low energy density of synthesis gas, which varies from about a sixth to a third of that of natural gas, means that more syngas has to be produced to generate the same amount of electricity. This in turn makes it necessary to design large storage tanks with a high working pressure. Syngas can be stored in low- and high-pressure ground tanks, in existing pipelines or in underground sites [13].

The most essential large-scale stationary syngas storage system is compressed gas storage. This is a simple way to store syngas which generally needs only a pressure tank and a compressor. The costs are therefore lower compared to condensing, for example [13].

4. Hazards related to synthesis gas use

Syngas composition and the physicochemical properties arising therefrom have a substantial impact on the safety of the gas utilization. The analysis of the risk and hazards created by the process of syngas production, transport and storage should take account of the properties of the two basic components: hydrogen and carbon monoxide. Due to the content of the two gases, released synthesis gas can pose a fire hazard or explosion risk. The presence of a toxic gas can also present a toxic hazard.

The consequences of an uncontrolled failure-related release of syngas depend on the course of the event, i.e. whether the release is prompted by complete or partial damage to the pipeline (rupture or puncture) and whether ignition of the gas occurs. The consequences of the failure will also depend on the installation type and operating parameters, such as the tank pressure for example.

If there is a failure of a synthesis gas installation and immediate or delayed ignition of the mixture occurs, a number of dangerous events may follow, such as:

- jet fire caused due to a release and ignition of gas flowing through the hole (puncture) under high pressure; it is characterized by a long and stable flame;
- flash fire the cloud of released gas moves and ignites suddenly, sometimes far from the failure site;
- BLEVE a violent phenomenon related to a release of liquid vapours to the environment with a temperature exceeding the boiling point; it is most often caused by flames washing the storage tank, which results in an increase in the tank inside temperature, the tank rupture and a violent release of the tank contents; if the failure involves a volatile flammable substance, the BLEVE phenomenon is usually accompanied by a fireball;
- explosion i.e. a violent oxidation or decomposition reaction causing a rise in pressure and/or temperature [3,4,10,11].

The negative effects of the scenarios presented above are the fire-generated heat flux affecting humans and the environment (cf. Table 2) and the explosion-generated pressure wave (cf. Table 3) [14]. The effect of a release of syngas without ignition is the toxic hazard related to the toxicity of carbon monoxide contained in the mixture.

Table 2. Effects of the heat flux on humans and facilities

| heat flux [kW/m²] | effects |
|----------------------|---|
| 35-37.5 | 100% death rate within 1 min; destruction of buildings |
| 25-32 | deformation of steel |
| 23 | 100% death rate within 1 min; serious injuries within 10 s |
| 12.5 | 1% death rate within 1 min; first-degree burns within 10 s |
| 4.7 | pain if exposure time exceeds 20 s |
| 4 | glass cracking after 30 min of exposure |
| 2.5 | threshold value causing pain if exposure time exceeds 1 min |

Table 3. Effects of explosion-related overpressure on humans and facilities

| overpressure [kPa] | effects |
|-----------------------|---|
| 500 - 800 | 100% death rate |
| 350 – 500 | 50% death rate |
| 199.8 | 99% death rate due to lung damage |
| 34.4 | lung damage |
| 20.7 | minor damage to heavy machinery and equipment |
| 17.2 | demolition of 50% of brick buildings |
| 4.8 | damage to the structure of buildings |
| 0.21 | cracking of large window panes |



5. Consequences of a syngas tank failure

The potential hazards related to failures of syngas storage installations were analysed using the PHAST software [15].

Depending on the production process, synthesis gas composition may vary. This in turn has an impact on different properties creating fire-, explosion- or toxicity-related hazards. The following composition of the gas mixture is adopted for the purposes of the analysis:

- CO 19%, CO₂ 12%, H₂ 19%, CH₄ 2%, N₂ 48% (mixture I)
- CO 23%, CO₂ 29%, H₂ 38%, CH₄ 9.5%, N₂ 0.5% (mixture II).

The mixtures are obtained by gasifying biomass and coal, respectively. Fig. 1 and Fig. 2 present hazard zones within which humans feel pain if they happen to be there (heat flux exceeding 4.7 KW/m²). The analysis assumes a catastrophic complete rupture of a 10 m³ tank and syngas pressure of 25 bar. Due to the gas release and ignition, a fireball is created (BLEVE). The wind speed is 1.5 m/s.

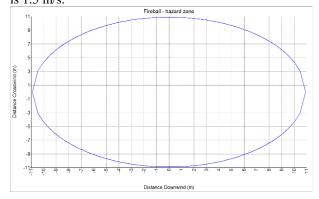


Fig. 1. Fireball hazard zone (mixture I)

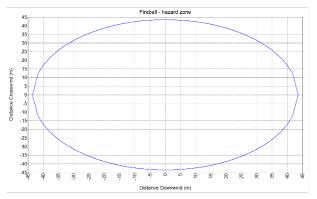


Fig. 2. Fireball hazard zone (mixture II)

The charts presented above indicate that a change in the content of flammable gases in the syngas mixture has a substantial impact on the level of the hazard related to a tank failure. If the hydrogen content is doubled, the hazard zone gets longer by about 35 metres.

Another important parameter that affects the range of hazard zones related to a fire and the generated heat flux is syngas pressure in the storage tank. Fig. 3 presents heat flux values depending on the distance from the site of the tank failure, assuming different values of syngas pressure.

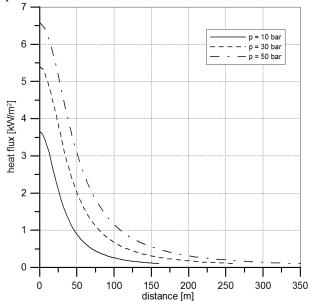


Fig. 3. Heat flux depending on the distance from the tank failure site (mixture I)

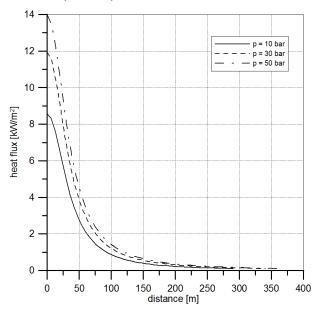


Fig. 4. Heat flux depending on the distance from the tank failure site (mixture II)

The tank immediate and complete rupture, in the case of delayed ignition, may also pose an explosion hazard. The next two figures present hazard zones related to an explosion of released synthesis gas. The parameters of the gas and of the storage tank assumed for the analysis are the same as in the analysis of the fireball hazard. The hazard zone corresponds to the explosion-generated pressure wave at the level of 34.4 kPa and higher, which causes damage to human lungs.

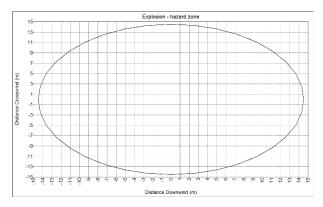


Fig. 5. Hazard zone for syngas explosion (mixture I)

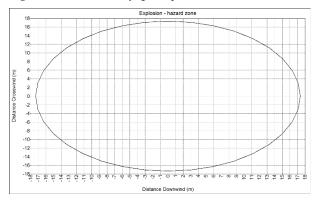


Fig. 6. Hazard zone for syngas explosion (mixture II)

As mentioned above, if the tank is partially damaged (tank puncture), a jet fire may occur. The jet of pressurized gas is ignited immediately, creating a long and stable flame with strong thermal radiation. The figures below illustrate hazard zones related to this failure type for a tank containing 10 m³ of synthesis gas under the pressure of 25 bar. The assumed diameter of the puncture is 5 cm. The hazard zones correspond to the heat flux of 4.7 and 23 kW/m², causing pain and 100% death rate, respectively. If syngas contains a bigger content of hydrogen, an additional zone occurs with a heat flux value causing human death, i.e. the value exceeding 37.5 kW/m².

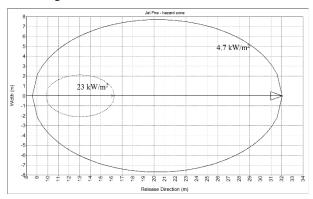


Fig. 7. Jet fire hazard zone (mixture I)

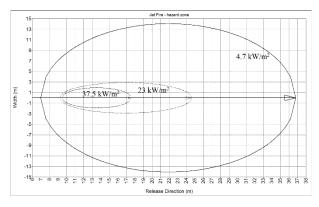


Fig. 8. Jet fire hazard zone (mixture II)

Analysing the figures presented above, it can be noticed that syngas fire hazard zones get bigger if the gas mixture contains bigger contents of flammable constituents.

In the case of a jet fire, the level of the hazard presented to humans and the environment will also be affected by the size of the puncture through which the gas is released. Fig. 9 presents changes in the heat flux generated by the fire of syngas with a higher content of hydrogen depending on the distance from the failure site for three different diameters of the puncture.

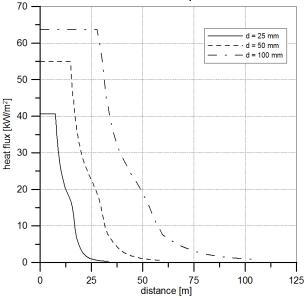


Fig. 9. Heat flux depending on the distance from the tank failure site for three different diameters of the puncture (mixture II)

Apart from the operating parameters of the installation and the size of the damage, the factors that have an essential impact on the consequences of a potential failure involving synthesis gas are the gas composition and the nature of the properties related thereto. For this reason, any consideration of issues related to the safety of syngas use, transport and storage should take account of the parameter defining the mixture composition, i.e. the H₂/CO ratio. Fig. 10 presents the change in the heat flux generated after a failure resulting in a fireball (BLEVE) and depending on the distance from the failure site for a storage tank with the H₂/CO ratio of 1:1, 2:1 and 3:1.

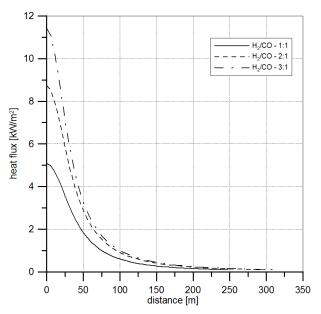


Fig. 10. Fireball-generated heat flux depending on the distance from the failure site for three different H_2/CO ratios

Analysing the chart presented above, it can be seen that a change in the H_2/CO ratio in the syngas mixture causes about twice as high a rise in the generated heat flux in the immediate vicinity of the fire.

6. Summary and conclusions

Undoubtedly, fuel gasification and conversion processes are very important in technologies aiming at a reduction in greenhouse gas emissions and clean energy production. They also play an essential role in the development of the chemical industry.

Synthesis gas can be used as an independent fuel, or it can be processed and utilized as an energy carrier. Any processes related to syngas processing, transport and storage should take account of its low energy density, which may create technical problems. The fact that it contains toxic and flammable gases should also be taken into consideration, as it may pose serious hazards.

The paper focuses on the hazards related to syngas storage. Storage processes may for example be a part of electricity production in IGCC power plants, where stored synthesis gas can be used to improve the power unit productivity or reliability.

A release of syngas may cause a situation with no ignition at all, but it is also possible that immediate or delayed ignition will occur [4].

If the released gas does not ignite, it will disperse in air creating no fire hazard or explosion risk. In the case of immediate ignition, a jet fire will be a potential hazard. If ignition is delayed, an explosion may occur. The level of the hazard presented to humans and the environment will depend on a number of factors, such as the tank geometry, the tank operating parameters and syngas composition. The heat flux generated by a syngas jet fire for the tank damage in the form of a hole with the diameter of 2.5, 5 and 10 cm will vary from about 40 kW/m 2 to 65 kW/m 2 in the immediate vicinity of the tank. Such values pose an essential hazard to human life and structural strength. The hazard zones for humans

arising due to the pressure wave generated during a syngas explosion (and causing lung damage) will reach the range of about 15 metres. In the case of syngas storage installations, the hazard level will also depend on the gas composition and the H₂/CO ratio in the mixture. If the ratio is raised from 1:1 to 3:1, the hazard related to the impact of the heat flux generated by the fire will be about twice as high.

The presented work was supported by the Silesian University of Technology within statutory research funds.

References

- Mishra A., Gautam S., Sharma T., Effects of operating parameters on coal gasification, International Journal of Coal Science & Technology, 5(2), pp. 113–125, (2018)
- 2. Rauch R., Hrbek J., Hofbauer H., Biomass gasification for synthesis gas production and applications of the syngas, *Energy and Environment*, 3(4), pp. 343-362, (2014)
- 3. Stolecka K., Rusin A., Analysis of hazards related to syngas production and transport, *Renewable Energy*, 146, 2535-2555, (2020)
- 4. Pierorazio A.J., Baqer Q., A., Hazards for Syngas Fires and Explosions, *Process Safety Progress*, 29(4), pp. 288-292, (2010)
- 5. Kordylewski W., Spalanie i paliwa [Combustion and fuels], Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław (2008)
- Global Syngas Technologies Council, World Gasification Database
- 7. Cocco D., Sierra F., Tola V., Assessment of energy and economic benefits arising from syngas storage in IGCC power plants, *Energy*, 58, pp. 635-643, (2013)
- 8. Corrêa P.S.P., Yhang J. Lora E.E.S., Andrade R.V., Pinto R.L., Ratner A., Experimental study on applying biomass-derived syngas in a microturbine, Applied Thermal Engineering, 146(5), pp. 328-227, (2019)
- 9. Pańczyk M., Borowiecki T., Otrzymywanie i zastosowanie gazu syntezowego [Syngas production and application], Adsorbenty i katalizatory: wybrane technologie a środowisko[Adsorbents and catalysts: selected technologies vs. the environment]. Edited by J. Ryczkowski, the University of Rzeszów, pp. 275-287, (2012)
- 10. Molino A., Braccio G., Fiorenza G., Marraffa F.A., Lamonaca S., Giordano G., Rotondo G., Stecchi U., La Scala M., Classification procedure of explosion risk areas in presence of hydrogen-rich syngas: Biomass gasifier and molten carbonate fuel cell integrated plant, *Fuel*, 99, pp. 245-253, (2012)
- 11. Nandan A., Siddiqui N.A., Mondal P., Chaudhar K., Pandey R., Hazards associated to synthesis gas and its mitigation measures, Research Journal Engineering and Tech., 5(3), pp. 144-146, (2014)
- 12. Chmielniak T., Stelmach S., Współczesne technologie zgazowania węgla [Modern

- technologies of coal gasification] in: *Problemy ekologii*, 13(2), pp. 69-76, (2009)
- 13. An Engineering-Economic Analysis of Syngas Storage, DOE/NETL-2008/1331 Draft Final Report, (2008)
- 14. Rusin A., Stolecka K., Reducing the risk level for pipelines transporting carbon dioxide and hydrogen by means of optimal safety valves spacing, *Journal of Loss Prevention in the Process Industries*, 33, pp.77-87, (2015)
- 15. Phast v6.7, DNV Software

Occupational Safety and Health Administration

Wood Dust

Wood Dust Menu

Workers' Rights

Overview

Wood dust becomes a potential health problem when wood particles from processes such as sanding and cutting become airborne. Breathing these particles may cause allergic respiratory symptoms, mucosal and non-allergic respiratory symptoms, and cancer. The extent of these hazards and the associated wood types have not been clearly established.

Standards

Exposures to wood dust are addressed in specific OSHA standards for general industry.

More »

Hazard Recognition

Provides web pages that list different types of woods and provide information about each one and how they may affect humans.

More »

Submit Feedback

Evaluating Exposure

Provides information about evaluating the level of wood dust in the workplace.

More »

Possible Solutions

Provides resources that contain information to help control exposures to wood dust.

More »

Additional Resources

Provides links and references to additional resources related to exposures to wood dust.

More »

Highlights

- <u>Combustible Dust National Emphasis Program (Reissued)</u>. OSHA Directive CPL 03-00-008, (March 11, 2008). Contains policies and procedures for inspecting workplaces that create or handle combustible dusts.
- <u>Wood Products: Sawmills</u>. OSHA eTool. Provides an interactive web-based training tool on the hazards associated with working in sawmills. Includes a section on wood dust and provides information on topics such as lumber storage, log handling, and plant-wide hazards.
 - o Health Hazards: Wood Dust

Submit Feedback

 Wood Products: Woodworking. OSHA eTool. Provides an interactive web-based training tool on the hazards associated with woodworking. Proposes measures to prevent those hazards, and contains modules specific to wood dust as a health hazard plantwide as well as when it is associated with rough mill and production work.

Health Hazards: Wood Dust - Carcinogens

Rough Mill: Wood Dust

o Production: Wood Dust

| OSHA | Standards | Enforcement | Topics | Media Center | Contact Us |
|------|-----------|--------------------|--------|---------------------|-------------------|
| | | | | | |



U.S. DEPARTMENT OF LABOR

Occupational Safety and Health Administration 200 Constitution Ave NW Washington, DC 20210 1-800-321-OSHA 1-800-321-6742 www.osha.gov

White House Frequently Asked Questions

Benefits.gov A - Z Index

Coronavirus Resources Freedom of Information Act - OSHA

Disaster Recovery Assistance Read The OSHA Newsletter

DisasterAssistance.gov Subscribe to the OSHA Newsletter

USA.gov OSHA Publications

Notification of EEO ViolationsOffice of Inspector General

ABOUT THE SITE⊞

Freedom of Information Act

Disclaimers

Plug-ins Used on DOL.gov

Accessibility Statement

Connect With OSHA



Site Map

Important Website Notices

Privacy & Security Statement



Chemicals and Materials

☼ Share this page

Download PDF (http://www.ccohs.ca/oshanswers/chemicals/wood_dust.pdf)

Wood Dust - Health Effects

On this page

Why is wood dust a health concern?

What activities are likely to produce wood dust?

What are examples of the health issues associated with wood dust?

What occupations are at increased risk for exposure to wood dust?

How can exposure to wood dust be controlled?

What is the American Conference of Governmental Industrial Hygienists (ACGIH®) recommended exposure limit for wood dusts?

If required, what respirators are recommended?

Why is wood dust a health concern?

Back to top

Exposure to wood dust has been associated with health issues due to the natural chemicals in wood or substances in the wood, such as bacteria, moulds, or fungi.

Wood dust is considered carcinogenic to humans (Group 1) according to the International Agency for Research on Cancer (IARC). IARC states that wood dust causes cancer of the nasal cavity (nose area) and paranasal sinuses (spaces in and around the nasal cavity) and of the nasopharynx (upper part of the throat, behind the nose).

Wood dust is also associated with toxic effects, irritation of the eyes, nose and throat, dermatitis, and respiratory system effects which include decreased lung capacity and allergic reactions.

NOTE: This document focuses on the health concerns associated with wood dust from untreated wood. Wood dust is also a safety concern because it can cause a fire or explosion. Please see the OSH Answers on Combustible Dusts (https://www.ccohs.ca/oshanswers/chemicals/combustible_dust.html) for more information.

What activities are likely to produce wood dust?

Back to top

Wood dust is created during all stages of wood processing such as sawing, routing, sanding and other operations. Workers can also be exposed when the dust becomes airborne such as when removing dust from furniture, maintenance activities, or when cleaning equipment (e.g., emptying the bag from a dust extraction system or vacuum).

What are examples of the health issues associated with wood dust? Back to top

Irritation, coughing or sneezing are caused by the dust itself. Exposure to excessive amounts of wood dust may irritate the eyes, nose, and throat. Workers may also experience shortness of breath, dryness and sore throat, conjunctivitis (inflammation of the mucous membranes of the eye), and rhinitis (runny nose).

Dermatitis (https://www.ccohs.ca/oshanswers/diseases/dermatitis.html) is common and may be caused by the chemicals in the wood. For dermatitis, the skin may become red, itchy, dry, or blister. Allergic contact dermatitis

(https://www.ccohs.ca/oshanswers/diseases/allergic_derm.html) may also develop.

Respiratory system effects include decreased lung capacity, and allergic reactions in the lungs such as hypersensitivity pneumonitis (inflammation of the walls of the air sacs and small airways), and occupational asthma

(https://www.ccohs.ca/oshanswers/diseases/asthma.html). Hypersensitivity pneumonitis may develop within hours or days following exposure and is often confused with cold or flu symptoms because it begins with headaches, chills, sweating, nausea, breathlessness, etc. Tightness of the chest and breathlessness can be severe, and the condition can worsen with continued exposure. Some hypersensitivity pneumonitis

conditions may be caused by moulds that grow on the wood (and not by the wood itself). Occupational asthma may also develop. Western red cedar is a wood that has a clear association with the development of asthma.

Toxic effects are specific to the species of wood. The chemicals in the wood may be absorbed into the body through the skin, lungs, or digestive system. When the body absorbs the chemical, the chemical may cause headaches, loss of weight, breathlessness, giddiness, cramps and irregular heartbeat.

While many species of trees have been associated with health effects, table 1 summarizes the health effects from some common types of wood.

| Table 1: Health Effects Reported with Various Types of Woods [Adopted from Work Safe Alberta (2009)] | | |
|---|---|--|
| Wood Type | Health Effects | |
| Alder (common, black, red) | Dermatitis (black alder); decrease in lung function (red alder) | |
| Aspen | No health effects reported | |
| Beech | Dermatitis (wood cutter's disease) due to lichens growing on the bark of beech trees, rhinitis, asthma, nasal cancer | |
| Birch | Irritant dermatitis | |
| Cedar (western red) | Asthma, allergic contact dermatitis, sensitizer, decrease in lung function, eye irritation and conjunctivitis, rhinitis | |
| Douglas Fir | Contact eczema, decrease in lung capacity | |
| Fir (grand, balsam, silver, alpine) | Skin irritation, dermatitis, rhinitis, asthma, possible decrease in lung function | |
| Hemlock | Skin irritation, decreased lung function | |
| Larch (European, western) | Allergic dermatitis from European larch; no reports with western larch | |
| Mahogany | Dermatitis, sensitizer | |
| Maple | Rhinitis, asthma, Maple Bark Stripper's disease (mould spores in bark) | |
| Oak | Nasal cancer | |
| Pine (white, lodgepole, jack) | Skin irritation, contact dermatitis, Wood-pulp worker's disease (mould in bark), rhinitis, asthma | |

| Table 1: Health Effects Reported with Various Types of Woods [Adopted from Work Safe Alberta (2009)] | | |
|---|---|--|
| Wood Type | Health Effects | |
| Poplar | Contact dermatitis, sensitizer | |
| Rosewood | Eczema, allergic contact dermatitis | |
| Spruce | Skin irritation, Wood-pulp worker's disease (mould spores in bark), decrease in lung function | |
| Teak | Toxic, dermatitis, sensitizer | |
| Walnut (black) | Skin irritation, rhinitis, possible asthma | |
| Yew | Irritation of skin, dermatitis, toxic | |

Be aware that other products used on or in wood may also have hazards. Resins, pesticides, paint, paint strippers, glues, adhesives, waterproofing compounds, lacquers, varnishes, sealants, dyes, and other products are examples. Always read and understand the safety data sheet associated with these products to make sure they are being used, handled, and stored appropriately.

What occupations are at increased risk for exposure to wood dust?

Back to top

Some of the occupations at increased risk for exposure to wood dust include the
following:

- · Workers employed in logging, sawmills, furniture, and cabinet making
- Carpenters (https://www.ccohs.ca/oshanswers/occup_workplace/carpenter.html)
- Cleaning or maintenance staff activities where wood dust is generated or reintroduced
- Construction workers
- Shipbuilding workers

Fine dust that results from the processes such as shaping, routing and sanding are associated with higher exposure levels. Hardwoods generally produce more dust than softwoods when worked in similar conditions. Dry wood tends to produce more dust.

National Institute for Occupational Safety and Health (NIOSH) notes that the chemicals associated with allergic reactions are usually found in the inner parts of a tree, e.g., the heartwood. The workers most often showing reactions are those who do secondary wood

How can exposure to wood dust be controlled?

Back to top

- Know which type of wood is being used and all hazards associated with that wood.
- Substitute with another type of wood with no or fewer known health effects, where possible.
- Reduce dust generation. For example, reduce the need to cut or shape the wood.
- Use an appropriately designed industrial ventilation system (https://www.ccohs.ca/oshanswers/prevention/ventilation/), including local ventilation exhaust and the use of high-efficiency particulate (HEPA) filters. The design of the ventilation system will depend on the equipment being used (sanders, shapers, routers, saws, etc.).
- · Use on-tool extraction systems.
- Keep tools and blades sharp. As tools dull, they may release more dust into the air.
- Be aware that significant exposure can happen when cleaning (e.g., emptying dust bags) or maintaining equipment.
- Practice good housekeeping. Keep surfaces and floors clear.
- Use cleaning methods that reduce re-introducing the dust into the air. Use wet clean-up methods (e.g., wipe surfaces with a wet rag or mop) or use a vacuum with a HEPA filter.
- Read, understand, and follow health and safety information on the safety data sheet (where available and applicable).
- Provide appropriate education and training that informs employees about the hazards of wood dust exposure, safe work procedures, how to identify when a ventilation system is working appropriately, and the importance of control measures.
- Wear respiratory protection when appropriate.
- Use protective clothing and gloves to reduce skin exposure.
- Practice good personal hygiene (e.g., wash or shower to remove dust from the skin). Wash hands and face when finished a task, and before eating, drinking or smoking.

Clean clothes by washing or using a vacuum when washing facilities are not available.

- Bag and seal dust waste to prevent dust from re-entering the air.
- DO NOT use compressed air to blow the dust off of furniture, equipment or clothing.
- To prevent a combustible dust explosion, DO NOT allow wood dust to accumulate, including on ledges, ceiling beams, light fixtures, hidden areas, etc.

What is the American Conference of Governmental Industrial Hygienists (ACGIH®) recommended exposure limit for wood dusts?

Back to top

ACGIH® TLV® - Western Red Cedar TWA: 0.5 mg/m3 (I), DSEN, RSEN, A4

ACGIH® TLV® – All other species TWA: 1 mg/m³

ACGIH® Carcinogenicity: Oak and beech = A1; Birch, mahogany teak, walnut = A2; All other wood dusts = A4

Exposure Guideline Comments: TLV® = Threshold Limit Value. TWA = Time-Weighted Average. (I) = Inhalable particulate matter. DSEN = Dermal sensitization. RSEN = Respiratory sensitization. A1 = Confirmed human carcinogen. A2 = Suspected human carcinogen. A4 = Not suspected as a human carcinogen.

If required, what respirators are recommended?

Back to top

Use respirators as part of a personal protective equipment program (https://www.ccohs.ca/oshanswers/prevention/ppe/designin.html). The National Institute for Occupational Safety and Health (NIOSH) recommends the following:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus.

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter.

Any appropriate escape-type, self-contained breathing apparatus.

APF = Assigned Protection Factor

Recommendations apply only to National Institute for Occupational Safety and Health (NIOSH) approved respirators. Refer to the NIOSH Pocket Guide to Chemical Hazards (https://www.cdc.gov/niosh/npg/) for more information.

Fact sheet first published: 2017-08-03

Fact sheet last revised: 2023-03-28

Disclaimer

Although every effort is made to ensure the accuracy, currency and completeness of the information, CCOHS does not guarantee, warrant, represent or undertake that the information provided is correct, accurate or current. CCOHS is not liable for any loss, claim, or demand arising directly or indirectly from any use or reliance upon the information.

- **Search All Fact Sheets** (http://www.ccohs.ca/search/?section=oshanswers)
- **Back to Chemicals and Materials** (http://www.ccohs.ca/oshanswers/chemicals)

Related Content

CCOHS Products and Services

Browse our full range of workplace health and safety products and services.

Need more help?

Contact our Safety InfoLine (http://www.ccohs.ca/safetyinfoline.html) **905-572-2981**.

Toll free **1-800-668-4284**

(in Canada and the United States)

CCOHS Safe Work App

Have the answers at your fingertips. Download the CCOHS Safe Work app for free.



(https://apps.apple.com/ca/app/ccohs-safe-work/id1572293783)



(https://play.google.com/store/apps/details?id=ca.ccohs.covidanswers)

C Share this page



TOP OF PAGE

Date modified:

2024-05-10



California Forest Pest Conditions



A publication of the California Forest Pest Council





Table of Contents

| Drought and Weather | 2 |
|---|--|
| Aerial Detection Survey | 4 |
| Forest Pest Observation Database | 6 |
| Forest Insect Conditions | 7 |
| Native Insects Bark and Woodboring Beetles Foliar Insects Exotic Invasive Insects Emerging Pest Highlights | 7 7 12 14 17 |
| Forest Disease Conditions | 19 |
| Native Diseases Root Diseases Foliar Diseases Trunk and Stem Cankers Decay Rust Diseases Non-Native/Invasive Diseases Possibly Invasive/Recently Recognized Diseases Invasive Pathogens | 19 19 23 24 24 27 27 27 29 |
| Tree Damage Caused by Abiotic Conditions | 31 |
| Tree Damage Caused by Animals | 32 |
| Invasive Plants | 33 |
| Research | 35 |
| About the Pest Council | 37 |
| Contributors | 39 |

Cover photo: Need Caption

Photo Credit: B. Bulaon, USDA Forest Service

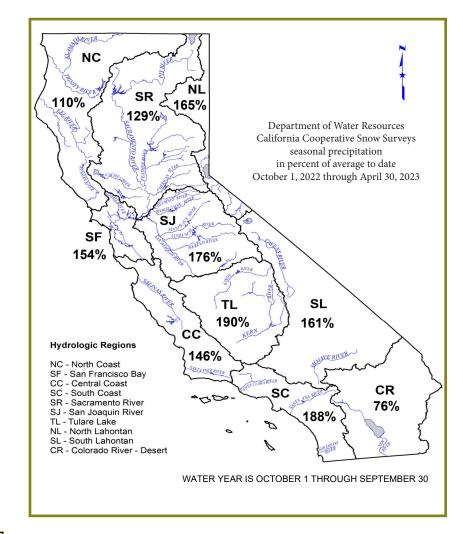
VISIT US ON THE WEB: http://caforestpestcouncil.org/

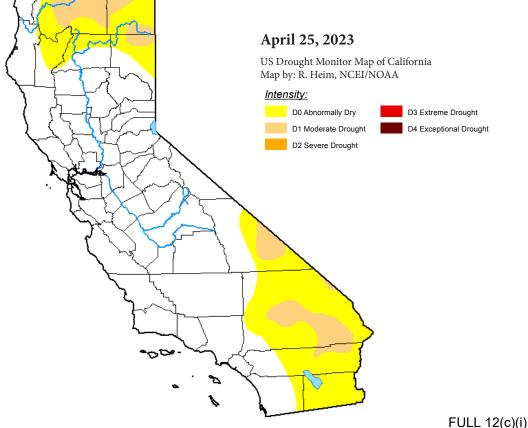
Statewide precipitation was 141% of average from October 2022 - April 2023, compared to 70% of average for the same time period in 2021 - 2022. In Northern California forested area rainfall totals were 110 - 165% of average, and Southern California areas were 76 - 188% of average (see map on right). The 2022 – 2023 water year (water year is from October 1 – September 30) was the 14th wettest on record (since January 1895). Precipitation was below average in October (11th driest on record), but was followed by a very wet winter. Both March and the four month period of December through March were the 7th wettest on record (4.2" and 10.30" above average, respectively). The exceptionally wet winter brought the majority of the state out of precipitation deficit (see map below).

Statewide temperatures aligned with historical averages (1895 – 2022) with the 2022 – 2023 water year being the 62nd warmest and 67th coolest on record. While October 2022 was the 7th warmest, it was followed by an exceptionally cool winter. November was the 10th coldest, March was the 5th coldest, and the five month period of November through March was the 12th coldest on record (3.0°F, 4.6°F, and 1.9°F below average, respectively). Summer temperatures warmed with July being the

the two month period of June to July being the 7th warmest (4.2°F and 3.2°F above average, respectively) (https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/statewide/rankings).

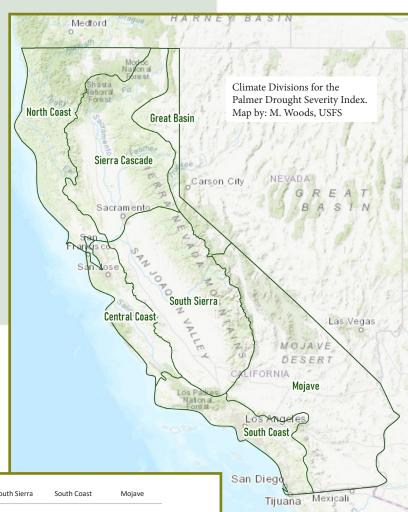
5th warmest, and



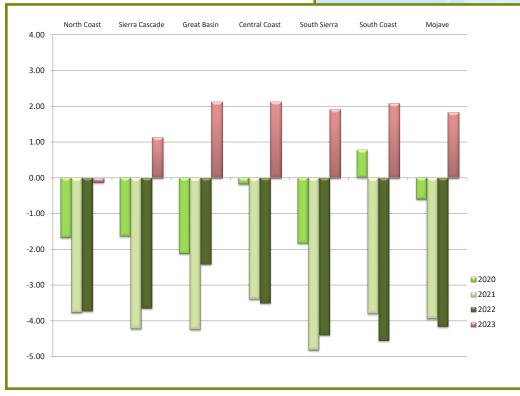


Palmer Drought Index

The Palmer Drought Severity Index (PDSI) is an indicator of drought and moisture excess, with negative values denoting degree of drought. For the 2022 – 2023 water year, the yearly average PDSI values ranged from -0.13 in the North Coast (driest zone) to 2.12 in the Central Coast (wettest zone) (see map). The majority of the state of California had a precipitation surplus as of Sept. 30, 2023.



Palmer Drought Severity Index (PDSI) for California, 2020 - 2023



Palmer Classifications

| 4.0 or more | extremely wet |
|---------------|---------------------|
| 3.0 to 3.99 | very wet |
| 2.0 to 2.99 | moderately wet |
| 1.0 to 1.99 | slightly wet |
| 0.5 to 0.99 | incipient wet spell |
| 0.49 to -0.49 | near normal |
| -0.5 to -0.99 | incipient dry spell |
| -1.0 to -1.99 | mild drought |
| -2.0 to -2.99 | moderate drought |
| -3.0 to -3.99 | severe drought |
| -4.0 or less | extreme drought |
| | |

Source: National Climatic Data Center, U.S. Department of Commerce, https://www.ncei.noaa.gov/pub/data/cirs/climdiv

Survey Summary

Acres aerially surveyed 2023: 38.2 million acres

Acres aerially surveyed 2022: 39.6 million acres

The USDA Forest Service, Pacific Southwest Region, State and Private Forestry staff conducts annual aerial surveys throughout forested areas of California to detect recent tree mortality, defoliation, and other damage. Aerial Detection Surveys (ADS) are flown in small, fixed-wing aircraft on a 4–5-mile grid pattern with two observers recording from opposite sides of the plane. Most National Forests (NF) and National Parks (NP) in California are surveyed, along with other federal, state, and private forested lands.

Approximately 38.2 million acres were surveyed during the 2023 flight season (June - September). Several large areas were excluded from surveys in 2023 due to large wildfires that were active or occurred within the previous two years. Insect and disease activity is difficult to discern in forests that have burned recently. Active fires late in the 2023 season prevented survey in northern parts of the Coast Range.

Elevated levels of tree mortality (i.e. more than 1% of forested area affected) caused primarily by insects or diseases were recorded on more than 2.4 million acres, totaling an estimated 28.8 million dead trees. Most of the trees killed were recorded as fir (*Abies* spp.), followed by ponderosa pine (*Pinus ponderosa*), and Douglas-fir (*Pseudotsuga menziesii*). The following information was collected for each area with tree mortality or damage: a) damage type (mortality, top kill, defoliation, branch flagging, dieback, or discoloration), b) percent of area affected (see below for severity scale), c) affected tree species or genus, and d) probable damage agent (root disease, bark beetles, etc.).

Not all trees in reported acres are dead or damaged. Tree mortality and damage were recorded on a severity scale based on the percent

FOREST HEALTH PROTECTION AERIAL DETECTION MONITORING 2023 SURVEY Survey Excludes Recent Wildfires Tree mortality Surveyed Area National Forest - National Park County boundary Percent Trees Affected Very Light (1-3%) Moderate (11-29%) Severe (30-50%) Very Severe (>50%) 2022 Tree Mortality FOREST SERVIC

USDA Forest Service Aerial Detection Survey Results, California, 2023. Map by: M. Woods, USDA Forest Service

of trees affected within a given area. Severity of mortality and damage was rated as follows: very light (1-3% of mapped area affected), light (4-10%), moderate (11-29%), severe (30-50%) and very severe (>50%). Below we report the estimated number of acres affected, the severity of mortality or damage within those acres, and estimated number of trees affected within those acres.

Acres of mortality or damage may be noted in more than one bullet below as multiple damage agents can occur in the same location.

Bark Beetles and Wood Borers

- California/Shasta red fir (*Abies magnifica*, *A. magnifica var. shastensis*), white fir (*A. concolor*) and grand fir (*A. grandis*) comprised over 84% of the tree mortality recorded in 2023 and was the second largest attributed to fir engraver beetle (*Scolytus ventralis*) ever recorded the Pacific Southwest Region, Region 5.
- Approximately 24.3 million dead firs were recorded across 1.9 million acres, compared to ~28.1 million dead firs across 1.9 million acres recorded in 2022. Both years, mortality was most severe and widespread throughout the central Sierra Nevada Range. Additionally, live trees with dead tops (top killed trees) were uncommon in 2023 unlike the two years prior. Because fir engraver beetle often top or strip kills trees before successive generations kill them outright, mortality should improve.
 - White fir mortality was widespread but generally light to moderate in intensity and associated with heavily stocked mixed conifer conditions.
 - Red fir mortality generally occurred in mature pure high elevation stands at moderate to severe intensities. Mortality
 was most intense and widespread in the central Sierra Nevada Range from northern Stanislaus to the Southern Plumas
 NF (southern Plumas County south to northern El Dorado County).
- Pine mortality attributed to western pine beetle (*Dendroctonus brevicomis*) remained elevated with an estimated 2.9 million dead trees across 330,000 acres in 2023, ~3.5 million dead trees across 280,000 acres in 2022 and occurred throughout its

Aerial Detection Page 5

range. Mortality was most widespread in the northern interior, especially north and west of the greater Redding area (Shasta County), and was also detected in high-severity, expanded pockets in the northern Sierra Nevada Range.

- Douglas-fir mortality caused by flatheaded fir borer (*Phaenops drummondi*) in 2023 decreased substantially to an estimated 800,000 dead trees across 93,000 acres, compared to an estimated 3 million dead trees across 190,000 acres in 2022. Mortality was common throughout the northern interior but particularly severe and widespread in the greater Redding area (Shasta County), with a significant reduction of mortality in the Coast Range, especially in Lake County.
- Pine mortality attributed to mountain pine beetle (*D. ponderosae*) remained elevated but decreased from an estimated 390,000 dead trees across 40,000 acres in 2022 to ~270,000 dead trees across 36,000 acres in 2023. Mortality was common throughout the Region but was particularly widespread in areas around Mammoth and Mono County and most severe in limber pine (*P. flexilis*) in the southern White Mountains.
- High-elevation five-needle pine (i.e. limber, whitebark (*P. albicaulis*), western white (*P. monticola*), and foxtail (*P. balfouriana*)) mortality remained elevated but decreased from an estimated 310,000 dead trees across 26,000 acres in 2022 to ~190,000 dead trees across 21,000 acres in 2023. Decreased high-elevation five-needle pine mortality in 2023 may be due to lack of viable hosts for mountain pine beetle in many areas.
- Jeffrey pine (*P. jeffreyi*) mortality attributed to Jeffrey pine beetle Photo by: J. Moor (*D. jeffreyi*) or *Ips* spp. decreased from ~350,000 dead trees across 52,000 acres in 2022, to ~170,000 dead trees across 27,000 acres in 2023.



Severe Shasta red fir mortality located south of The Whaleback, Klamath NF. Photo by: N. Stevens, USDA Forest Service



Ongoing severe limber pine mortality west of Mount Inyo, Inyo County. Photo by: J. Moore, USDA Forest Service

- Goldspotted oak borer (*Agrilus auroguttatus*)-caused oak (*Quercus* spp.) mortality decreased from ~8,000 dead trees across 1,600 acres in 2022 to ~4,300 dead trees recorded across 1,400 acres in 2023. Most mortality detected via aerial surveys occurred in and near the Palomar Ranger District on the Cleveland NF (San Diego County).
- Pinyon pine (*P. monophylla*) mortality attributed to *Ips* spp. decreased to an estimated 77,000 dead trees across 5,700 acres in 2023 from ~220,000 dead trees across 16,000 acres in 2022. Mortality was concentrated primarily in the White Mountains (Mono County) and in the Mt. Pinos Ranger District of the Los Padres NF (Ventura County).

Defoliation

- White fir defoliation caused by Douglas-fir tussock moth (*Orgyia pseudotsugata*) increased from ~800 acres in 2022 to approximately 9,600 acres in 2023 and was observed spreading westward near Bucks Lake and La Porte, Plumas NF (Plumas County).
- Severe defoliation of lodgepole pine (*P. contorta*) by lodgepole needleminer (*Coleotechnites milleri*) increased from ~380 acres in 2022 to ~9,700 acres, and was observed in eastern Yosemite NP and Inyo NF (Tuolumne and Mono Counties).

Diseases

• Tanoak (*Notholithocarpus densiflorus*) mortality attributed to sudden oak death (*Phytophthora ramorum*) continued to decrease to an estimated 2,300 dead tanoak trees across 620 acres compared to 36,000 dead tanoak trees across 7,300 acres in 2022. Several consecutive years of dry spring weather has inhibited the spread of this invasive disease.

Drought

- Oaks throughout the interior of California looked healthier than in the past several years. Actual mortality is difficult to detect from a distance, but scattered older dead trees were common and likely died during the recent drought.
- Mortality in the north interior was a mix of conifers often in the same areas consisting of white fir, Douglas-fir, ponderosa pine, knobcone pine, and incense cedar (*Calocedrus decurrens*).



A mobile pest detection data entry form was developed and released in 2018 and has been adopted across the USDA Forest Service Forest Health Protection Service Areas. Ground-based observations are located in a database on ArcGIS Online (AGOL).

For 2023, all observations were submitted via the mobile data entry form and supplement the Aerial Detection Survey data. This map shows the locations of pest observations made by forest health professionals in 2022. The most frequently reported damage-causing agent was western pine beetle, followed by mountain pine beetle, Heterobasidion root disease, and Ganoderma. The most frequently reported host species was ponderosa pine, followed by Jeffrey pine, California live oak, and white fir.

Native Insects

Bark and Woodboring Beetles

Western Pine Beetle (Dendroctonus brevicomis)

North Interior

Western pine beetle-caused mortality of ponderosa pine (*Pinus ponderosa*) remains above background levels, primarily at dry sites below 4,000 feet. Groups of 5-20 ponderosa pine were killed in low-elevation oak (*Quercus* spp.)-pine stands on most south-facing slopes along Shasta Lake, Shasta-Trinity NF (Shasta County). Scattered ponderosa pine mortality was also noted in the low elevation ponderosa pine and Douglas-fir (*Pseudotsuga menziesii*) stands around Scott Valley above the community of Fort Jones (Siskiyou County).

Southern California

In southern California, western pine beetle was found infesting medium to large diameter (>15-inch DBH) ponderosa and ponderosa x Jeffrey hybrid pines (*P. ponderosa* x *P. jeffreyi*) near Crystal Lake Recreation Area, San Gabriel Mountains National Monument, Angeles NF (Los Angeles County). Mortality was centered around 30 dead and dying trees adjacent to a picnic area, with additional mortality dispersed throughout the Crystal Lake Campground. Removal of infested trees began in summer 2023 and treatment of uninfested hosts will begin in the spring of 2024. Mortality due to western bark beetle continued around Lakes Gregory and Arrowhead in the Mountaintop Ranger District of the San Bernardino NF (San Bernardino County). Scattered mortality of Coulter (*P. coulteri*) and ponderosa pines attributed to western pine beetle was also observed on San Jacinto Mountain, San Bernardino NF, along the North Fork of the San Jacinto River (Riverside County).

Jeffrey Pine Beetle (*Dendroctonus jeffreyi*)

Northern Sierra Nevada

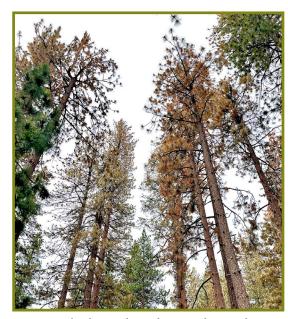
Jeffrey pine beetle was observed attacking three Jeffrey pines at Little Grass Valley Reservoir (Plumas County). Although Jeffrey pine beetle is often attributed by ADS as the pest agent responsible for Jeffrey pine mortality in northeast California, ground checks over the past several years have found only California flatheaded borers (*Melanophila californica*) and pine engravers (*Ips* spp.) in dead trees. This was the first confirmed activity of this beetle species in this area in several years.

Southern Sierra Nevada

Jeffrey pine beetle caused mortality of mature Jeffrey pine trees north of Mammoth Lakes (Mono County). Three green trees were killed by Jeffrey pine beetle next to large groups of 30-50, large diameter trees (>20-inch DBH) that were killed in previous years. Jeffrey pine beetle attacks were also observed on large, canopy dominant Jeffrey pine trees throughout the Inyo NF (trees with crowns above the rest of the forest canopy) but trees were not killed. Multiple groups of Jeffrey pine trees were killed by *Ips emarginatus* and Jeffrey pine beetle (20-100 trees) throughout Dry Creek Road since activity started in 2017, north of Mammoth Lakes (9,000 ft elevation, Mono County). Approximately 700 acres have been affected over multiple years of infestation by the two species.

Southern California

A single dead, large diameter (>17-inch DBH) Jeffrey pine containing Jeffrey pine beetle galleries was identified in San Jacinto State Park. This is the first confirmed report of Jeffrey pine beetle activity in the San Jacinto Mountains. Trapping for Jeffrey pine beetle and additional surveys will be conducted in the spring of 2024.



Western pine beetle-caused mortality in ponderosa and ponderosa x Jeffrey hybrid pines, Crystal Lake Campground, San Gabriel Mountains NM, Angeles NF (Los Angeles County). Photo by: B. Kyre, USDA Forest Service



Western pine beetle galleries in a recently dead Coulter pine, San Jacinto Mountain, San Bernardino NF (Riverside County). Photo by: B. Kyre, USDA Forest Service



Jeffrey pine beetle galleries in Jeffrey pine, Mount San Jacinto State Park (Riverside Count PULL 12(c)(i)
Photo by: B. Kyre, USDA Forest Service

Mountain Pine Beetle

(*Dendroctonus ponderosae*)
North Interior

In northwest California, mountain pine beetle-caused mortality of whitebark pine (P. albicaulis) was found on Goosenest Mountain, Klamath NF, inside and surrounding the crater in groups of 1-5 trees covering approximately 150 acres (Siskiyou County). This follows a small outbreak in 2020 with new mass attacks on green trees often associated with white pine blister rust (Cronartium ribicola). Mountain pine beetle was found in association with dwarf mistletoe (Arceuthobium monticola) causing mortality in western white pine (P. monticola) in several groups of 1-3 trees in the 60 acres surrounding Deadfall Lakes, Shasta-Trinity NF (Siskiyou County).



Mountain pine beetle mass attack on a green whitebark pine, Goosenest Mountain, Klamath NF. Photo by: C. Snyder, USDA Forest Service



Western white pines killed by mountain pine beetle and dwarf mistletoe, Deadfall Lakes, Shasta-Trinity NF. Photo by: C. Snyder, USDA Forest Service

Northern Sierra Nevada

In the northern Sierra Nevada,

mountain pine beetle-caused mortality of lodgepole pine (*P. contorta*) continued to increase at Medicine Lake, Modoc NF (Siskiyou County). Multiple groups of 3-15 trees were observed within and adjacent to recreation areas that encompass approximately 300 acres. Recent verbenone applications were mostly effective in protecting trees within campsites and day-use areas, but three notable groups of attacked trees (10-12 trees, >14-inch DBH) were located within treated areas. The infested trees were removed in fall 2023, well before beetle emergence. Mountain pine beetle activity also continued in the Warner Mountains, Modoc NF, where beetles attacked larger diameter whitebark and western white pine (>12-inch DBH) at the edges of previous years' group kills. At least ten large, green, mountain pine beetle-infested whitebark pine trees were observed at Homestead Flat (Modoc County) and Buck Mountain (Lassen County). The whitebark pine on Buck Mountain were previously infected with white pine blister rust.

Mountain pine beetle also attacked fire-injured western white and lodgepole pines with cambium injury on the lower trunk sustained during the 2021 Dixie Fire near Silver Lake and Caribou Wilderness, Lassen NF (Lassen County). Several hundred trees over approximately 2,000 acres were infested.



Mountain pine beetle-infested lodgepole pine with verbenone, Medicine Lake, Modoc NF. Photo by: D. Cluck, USDA Forest Service

Southern Sierra Nevada

Mountain pine beetle was detected in nearly all preferred hosts in the southern Sierra Nevada at various locations and elevations despite the above average winter precipitation. Activity occurred in locations disturbed by recent thinning, fuel reduction treatments, and wildfire. Mountain pine beetle continued to attack lodgepole and whitebark pine trees in equal severity at Minaret Summit (Mono County). Approximately 100 acres of lodgepole and whitebark pines, reported as only whitebark pines in ADS, were attacked in 2022 at moderate levels of severity. This year, targeted lodgepole pine trees were single stemmed and much larger in diameter (>25-inch average DBH) than whitebark pine trees attacked in 2022. Whitebark pine trees were attacked in groups, where beetles attacked and killed all trees greater than 5-inches DBH.

Small amounts of lodgepole pine mortality (1-2 dead trees per acre) occurred on the eastern side of the Minaret Summit and towards Deer Mountain. Mortality mostly occurred around the edges of groups of previously killed lodgepole pine. Lodgepole pine mortality also occurred at the edges of dead, high elevation whitebark pine-dominated stands.

FULL 12(c)(i)



Mountain pine beetle attacked whitebark pine at Minaret Summit (Mono County). Photo by: B. Bulaon, USDA Forest Service



Mountain pine beetle-attacked lodgepole pine, Lakes Basin, Inyo NF (Mono County). Photo by: B. Bulaon, USDA Forest Service

Mortality of mature western white pine trees injured in the 2020 Caldor Fire and attacked by mountain pine beetle in 2022 occurred at Sierra-At-Tahoe Ski Resort (El Dorado County). This year, mortality was mostly of whitebark pines at the top of ski runs.

Mountain pine beetle-caused mortality occurred in limber pine trees (*P. flexilis*) on Telescope Peak, Death Valley NP, around five previously attacked limber pines along Rogers Peak service road (Inyo County). Mountain pine beetles appear to have attacked pines in this area twice: once in early June where re-emerging females attacked green trees, and again in mid-summer when the next generation emerged, and mass attacked the same trees. One Great Basin bristlecone pine (*P. longaeva*) (approximately 20-inch DBH) was found newly mass-attacked along the trail, adjacent to a limber pine which received only strip-attacks.

Personnel implementing a prescribed fire in the North Grove of Calaveras Big Trees State Park found mountain pine beetle attacks on three large sugar pines (*P. lambertiana*) but trees did not die (Calaveras County). In Goat Meadow, Sierra NF, mountain pine beetle killed fire-injured sugar pines (Madera County). Trees were potentially weakened by blister rust infections and pine engraver beetles in the upper crowns. Mountain pine beetles attacked but did not kill two legacy-sized sugar pines that sustained deep root burn during a prescribed fire in early July on Calaveras Ranger District, Stanislaus NF (Calaveras County).

Lodgepole pines in Mammoth Lakes and the Lakes Basin area (Inyo NF) have been heavily infested by mountain pine beetle for the

past few years, resulting in a large amount of dead standing trees (Mono County; see previous pest conditions reports). Lodgepole pine mortality was obscured by overwhelming levels of red fir (*Abies magnifica*) mortality and was not reflected in ADS data. Thinning treatments are currently underway in and around Lake Mary (approximately 70 acres) to significantly reduce overall basal area. As a result, the density of lodgepole pine around campgrounds and administrative sites along Lake Mary Road, Mammoth Lakes, Inyo NF has been reduced by 30-40% (Mono County).

Douglas-fir Beetle (*Dendroctonus pseudotsugae*) North Coast

In 2023, Douglas-fir beetle activity abated but did not stop in a five-acre redwood (*Sequoia sempervirens*)-dominated stand in Jackson Demonstration State Forest, in the South Fork Noyo River drainage (Mendocino County). Beetles continued to attack the remaining Douglas-fir in the stand which had been selectively harvested for redwood over the previous two years. Affected Douglas-firs exhibited pitch streaming from various parts of the bole, but boring dust was not present. Although this may indicate an attempt at active defense by the trees, it is uncertain whether they will live, since nearly all the trees have poor live crown ratios and the root-rotting fungus *Phaeolus schweinitzii* has colonized many trees in the stand.



Pitch streaming on Douglas-fir at Jackson Demonstration State Forest, with trees previously killed by Dougla-Fild blettle 2(16) ground (Mendocino County). Photo by: C. Lee, CAL FIRE

Red Turpentine Beetle

(Dendroctonus valens)
Southern Sierra Nevada
Heavy red turpentine beetle
activity was observed in
moderately scorched ponderosa
and sugar pines after recent
prescribed fires on Stanislaus
NF and Calaveras Big Trees
State Park (Calaveras County).
Mortality of infested trees is
limited to date.

Red turpentine beetle was found in several whitebark pines that were also infested with



Moderately scorched sugar pine with red turpentine beetle frass, Calaveras Big Trees State Park (Calaveras County). Photo by: B. Bulaon, USDA Forest Service

mountain pine beetle around 9,000 feet on Minaret Summit (Mono County). Red turpentine beetles have rarely been detected in high-elevation five-needle pines in the Eastern Sierra Nevada.

At the eastern base of Waucoba Mountain, Inyo NF around 7,000 feet, red turpentine beetle was found in a remote stand of single-leaf pinyon pine (*P. monophylla*) that also sustained severe dwarf mistletoe (*A. divaricatum*) infection and pinyon pine engraver (*I. confusus*) attack (Mono County). Mortality is occurring at a rate of one tree per acre.

Pinyon lps (lps confusus)

Central Coast

Pinyon ips-caused mortality of single-leaf pinyon pine continued throughout the Tejon Pass, Los Padres NF (Los Angeles and Kern Counties). The most notable infestation of 20-30 trees occurred in the immediate two-acre area surrounding the USDA Forest Service Apache Saddle Fire Station west of Pine Mountain Club. Infested trees were removed, and the slash was burned as capacity allowed.

Fir Engraver (Scolytus ventralis)

North Interior

White fir (*A. concolor*) mortality was observed in mid-elevation stands extending upslope into Shasta red fir (*A. magnifica* var. *shastensis*) stands on the north flank of Mt. Shasta, Shasta-Trinity NF (Siskiyou County). Shasta red fir mortality was also heavy on the southern flank, though white fir was less affected. On the north flank, mortality was most associated with fir engraver beetle attacks in overstocked mid-elevation stands and scattered at approximately 3-5 trees per acre over at least 5,000 acres. Mortality found on the south flank of Mt. Shasta was caused by fir engraver beetle attack on trees infected with dwarf mistletoe (*A. abietinum* f.sp. *magnificae*) in contiguous stands of Shasta red fir covering over 1,000 acres.

Northern Sierra Nevada

White and red fir mortality was moderate to severe between Medicine Lake and Burnt Lava Flow Geologic Area, Modoc NF (Modoc and Siskiyou Counties). Mortality was most associated with fir engraver beetle attacks and Heterobasidion root disease (*Heterobasidion occidentale*) infections in overstocked stands. Mortality affected 10-50% of the white fir in lower elevation stands over several thousand acres. Mortality of red fir was generally less severe than white fir but large patches of high severity mortality of over 50% occurred over more than 100 acres. Recent mortality, and corresponding loss of canopy cover, has likely made some of these stands unsuitable for wildlife habitat objectives.



Red turpentine beetle-attacked pinyon pine, Waucoba Mountain, Inyo NF. Photo by: B. Bulaon, USDA Forest Service



Sap flow on ips-attacked pinyon pine, Los Padres NF. Photo by: B. Kyre, USDA Forest Service



Y-shaped pinyon ips galleny in pinyon sine, Los Padres NF. Photo by: B. Kyre, USDA Forest Service

Southern Sierra Nevada

While true fir mortality and damage caused by fir engravers (*Scolytus* spp.) were confirmed throughout the southern Sierra Nevada in high numbers (reported by ADS in 2022); this year there were fewer attacks on green trees. Several common factors were noted among the firs attacked: multiple leaders, thin or small crowns in comparison to tree size, moderate to severe dwarf mistletoe infections, and top kill from previous year's infestations. Fading large firs were also found with profuse amounts of ambrosia beetle boring dust at their bases.

From a distance, red firs of all size classes appeared ragged or declining from branch dieback in the crown. Upon closer inspection, all dying branches had older dwarf mistletoe infections hidden in the dense crown. Some trees with no outward symptoms of mistletoe infection or beetle activity are still fading sporadically. This phenomenon is widespread in red fir forests in the Eldorado, Stanislaus, Sequoia, and Inyo NFs, and much of the current red fir mortality may be only partially attributed to fir engraver.



White fir killed by fir engraver and Heterobasidion root disease near Burnt Lava Flow Geologic Area, Modoc NF. Photo by: D. Cluck, USDA Forest Service

Southern California

Fir engraver beetle activity in white fir increased in the residential areas of Lake Arrowhead and Crestline, San Bernardino NF with a majority of the mature white fir along Highways 173 and 189 exhibiting partial to total upper crown loss (San Bernardino County).

Flatheaded Fir Borer (*Phaenops drummondi*)

North Interior

Flatheaded fir borer activity has been elevated across northern California for several years and continues to kill Douglas-fir trees across the lower elevations of the Shasta-Trinity and Klamath NFs (Shasta, Trinity, and Siskiyou Counties).

Northern Sierra Nevada

Douglas-fir mortality caused by drought and flatheaded fir borer continued in the same locations as 2022. Mortality was most intense (several hundred to potentially thousands of trees over a few hundred acres) in the Pit River drainage near Lake Britton (Shasta County) and the Deer Creek drainage at the western boundary of Lassen NF (Butte County). These are drier sites for Douglas-fir with a significant oak component and a common species composition for most areas of Douglasfir mortality in northern California. Flatheaded fir borer also attacked and killed several hundred Douglas-fir at lower elevation and south facing slopes around Quincy (Plumas County).



Red fir declining from multiple-branch dieback, possibly caused by insects or dwarf mistletoe infection, Stanislaus NF. Photo by: B. Bulaon, USDA Forest Service



Multiple leaders and large terminal die-off on this red fir are indicators of previous follythe and indicators, Devils Postpile NP. Photo by: B. Bulaon, USDA Forest Service

For all locations, 2023 Douglas-fir mortality was mostly the result of drought-associated beetle attacks that occurred in 2022 and possibly earlier. Any benefits of the wet winter of 2022/2023 on Douglas-fir health will likely be observed as reduced mortality in 2024.

Ambrosia Beetles

(Gnathotrichus; Treptoplatypus; Trypodendron)

Southern Sierra Nevada

Large amounts of ambrosia beetle boring dust were observed at the base of ten large fire-injured red firs that survived the 2020 Creek Fire on the Bass Lake Ranger District, Sierra NF (Madera County). Crowns were slightly fading at the time of survey, but significant dust was found in the crevices and encircling boles.

The ambrosia beetle, *Treptoplatypus wilsoni* was confirmed on two dying mature (>30-inch DBH) red fir trees along Rattlesnake Creek, Stanislaus NF (Calaveras County). Evidence of infestation by other woodboring insects and fir engraver beetles was observed on smaller diameter trees.



Current-year and older Douglas-fir mortality caused by flatheaded fir borer near Lewiston Reservoir (Trinity County). Photo by: C. Lee, CAL FIRE

Cedar Bark Beetles (Phloeosinus sp.)

Southern Sierra Nevada

The historic snow load in the southern Sierra Nevada this winter caused widespread mechanical injury with broken limbs, broken stems, and uprooted trees. Snow damage at the highest peaks and ridges was observed on nearly every whitebark pine at Sierra-At-Tahoe Ski area (El Dorado County) and Minaret Summit (Mono County). Phloeosinus spp. responded to the abundance of

damaged trees by mostly infesting broken branches. Inventory crews working in whitebark pine plots on June Mountain Ski Area (Mono County) noted similar conditions at the top of the mountain.

Foliar Insects

Spruce Aphid (*Elatobium abietinum*)

North Coast

In 2023, defoliation associated with the spruce aphid was the worst observed to date in Humboldt County. Many trees, particularly those in the Ferndale and Loleta areas, McKinleyville and Big Lagoon, and the Highway 101 corridor between these communities, were nearly completely defoliated, with only a few branch whorls of green needles at the tops of the trees. Additionally, branch tip dieback exceeded the levels noted in the 2021 California Forest Pest Conditions Report, prompting the hypothesis that a fungal pathogen may have been responsible, although none could be isolated. Spruce aphid adults were easily found on spruces (*Picea* sp.) in certain locations in April. Numerous eggs of giant conifer aphids (Cinara spp.) along with an adult or two, low numbers of spruce spider mites (Oligonychus ununguis), and a few small larvae of the greenstriped forest looper (Melanolophia imitata) were also found on defoliated spruces.

Black Oak Leafminer (*Eriocraniella aurosparsella*)

Northern Sierra Nevada

Extensive blotch mining of black oak (Quercus kelloggii) leaves by black oak leaf miner was observed for the first time since



Sitka spruce defoliation near Loleta (Humboldt County). Photo by: C. Lee, CAL FIRE



Spruce aphids on a Sitka spruce branch near Trinidad (thuhb 12(c)(i) ty). Photo by: C. Lee, USDA Forest Service



Early instar satin moth caterpillar on aspen in south Warner Mountains, Modoc NF. Photo by: D. Cluck, USDA Forest Service



Pinyon needle scale egg masses under the bark of a pinyon pine, White Mountains, Inyo NF. Photo by: B. Bulaon, USDA Forest Service



Pinyon pine recovering after pinyon needle scale infestation, White Mountains, Inyo NF. Photo by: B. Bulaon, USDA Forest Service

2017 near Blue Canyon, Tahoe NF (Placer County). Nearly every black oak was partially defoliated over approximately 7,000 acres of mixed conifer and hardwood forest along Highway 20 near Bear Valley and along Interstate 80 from Baxter to Emigrant Gap.

White Satin Moth (Leucoma salicis)

Northern Sierra Nevada

Defoliation of quaking aspen (*Populus tremuloides*) caused by white satin moth was detected both by ADS and ground observation in the south Warner Mountains, Modoc NF (Lassen County). The two principal locations consisted of approximately 20 acres and 100 acres of severe aspen defoliation. Many trees had grown new foliage in at least a portion of previously defoliated crown by late summer. These locations will be monitored for further activity in the spring of 2024.

Pinyon Needle Scale (*Matsucoccus acalyptus*)

Southern Sierra Nevada

The distribution of pinyon needle scale appeared to be more widespread at the southern base of the White Mountain Range, along Westgard Pass (Mono County). Top kill of pole-sized single-leaf pinyon pine trees by pinyon needle scale was severe (>50% of trees per acre) over a ten-mile stretch of the Westgard Pass Road, centered around Cedar Flat Campground. No mortality was observed, but the overall decline resulted from several years of repeated infestation by pinyon needle scale. Many trees looked gray and dead from afar, but ground surveys indicated these trees were alive and slowly recovering. Trees had fading crowns but experienced epicormic sprouting this spring despite losing more than 80% of their needles. Infestation of scale was still evident: adult scales were noted on older needles, and cottony egg masses were found under flakes of outer bark. Pinyon needle scale was also observed in the Inyo Mountains on the eastern side of Waucoba Mountain where thinning crowns were visible from the road and could easily be mistaken as dead trees (Inyo County).

Douglas-fir Tussock Moth (Orgyia pseudotsugata)

Northern Sierra Nevada

Douglas-fir tussock moth-caused white fir defoliation was observed near Bucks Lake and La Porte, Plumas NF (Plumas County). These areas were detected by ADS and ground verified. Defoliation was mostly light to moderate. Tussock moth caterpillars were also observed in other locations, including caterpillars beginning to pupate at Morgan Summit, Lassen NF, but no defoliation was reported (Tehama County).

Southern California

Feeding by Douglas-fir tussock moth larvae was observed on at least 20 white fir trees near Heaps Peak in San Bernardino NF. Trap catches in Heaps Peak Arboretum and near the Hubert Eaton Scout Reservation were not indicative of a population increase, but a severe tropical storm mid-trapping season may have disrupted adult flight resulting in reduced detection (San Bernardino County).



Douglas-fir tussock moth-cars la (a) (b) (ii) on Douglas-fir, San Bernardino NF. Photo by: B. Kyre, USDA Forest Service

Exotic Invasive Insects

Balsam woolly adelgid (Adelges piceae)

North Coast

In 2023, balsam woolly adelgid continued to infest grand fir (*A. grandis*) in the North Coast. Areas where infestations were observed included Salt Point State Park in Sonoma County (the southernmost observation in California to date), points along Highway 20 near Fort Bragg in Mendocino County, Sequoia Park in Eureka (Humboldt County), Walker Point Road between Arcata and Eureka (Humboldt County), and Azalea State Preserve in McKinleyville (Humboldt County).

Goldspotted Oak Borer (GSOB) (Agrilus auroguttatus)

www.gsob.org

Southern California

Goldspotted oak borer activity remained consistent in areas of known infestation and continued its spread east, primarily through the transport of oak firewood. Common points of ingress include campsites, mountain communities, and permitted cabins as firewood is often the primary heat source for residents and permit holders.

Los Angeles County

Goldspotted oak borer continued to infest oaks in the unincorporated community of Green Valley located in San Francisquito Canyon, Angeles NF. The Inland Empire Resource Conservation District (IERCD) identified 103 infested oak trees of varying species, 60 of which were removed. Goldspotted oak borer has also been detected in nearby Bouquet Canyon in areas adjacent to private inholdings and permitted cabins within the forest boundary. The National Forest Foundation surveyed for GSOB-infested trees in the Angeles NF and surrounding areas in fall and early winter 2023.

In the community of Wrightwood in the San Gabriel Mountains National Monument, Angeles NF, IERCD documented nine isolated infestations on individual residential properties along Flume and Acorn Canyons. Goldspotted oak borer has not yet been detected in the surrounding forest, but surveys are ongoing.

Orange County

Irvine Ranch Conservancy staff identified six coast live oak (*Q. agrifolia*) trees with GSOB emergence holes in upper Fremont Canyon. In April, a total of 1,443 trees in Weir Canyon and Gypsum Canyon were treated using externally-applied preventative insecticide spray, and three infested trees in upper Fremont Canyon were treated via injection of a systemic insecticide. Due to the success of ongoing management efforts, the treatment buffer around infested trees was reduced to approximately 30 meters to reduce non-target impacts of chemical treatment.

The Arden Modjeska House and the adjoining Modjeska preserve in Silverado treated a total of 86 oak trees with preventative insecticides in 2023. Just south of Silverado in Trabuco Canyon, O'Neill Regional Park identified 19 infested trees, two of which were removed. In response, 199 trees immediately adjacent to the infestation were treated with preventative insecticides.

Contractors under a CAL FIRE grant to the Orange County Fire Authority removed three heavily infested amplifier trees and treated an additional 96 coast live oak trees with preventative insecticides in Bell Canyon on Audubon California Starr Ranch Sanctuary.

Riverside County

California State Parks continued and expanded GSOB monitoring and management of approximately 800 tagged trees over 350 acres at Mt. San Jacinto State Park. One hundred thirty-five trees had evidence of past GSOB infestation. Continued monitoring included surveys at Idyllwild and Stone Creek Campgrounds. Both campgrounds received annual basal applications of dinotefuran with a surfactant and infested trees were removed as needed.

Beginning in January of 2022, the Mountain Communities Fire Safe Council extensively surveyed for goldspotted oak borer in the community of Idyllwild-Pine Cove and surrounding areas, San Jacinto Mountain, San Bernardino NF. To date, GSOB emergence holes have been recorded in approximately 709 trees, predominantly California black oak. Of the 709 GSOB-infested trees, 35 were severely infested (>50 emergence holes), 38 were moderately infested (30-49 emergence holes), and the remainder were lightly infested (1-29 emergence holes).

San Bernardino County

CAL FIRE surveyed communities in the Sugarloaf area of Big Bear located in the Mountaintop District of the San Bernardino NF and documented 22 California black oak trees with evidence of past GSOB infestation. GSOB is well established in Sugarloaf. No trees in the surrounding forest land have been found to be infested with GSOB, but surveys by USDA Forest Service staff are ongoing.



GSOB-caused mortality of coast live oak on the Sycuan Reservation (San Diego County). Photo by: B. Kyre, USDA Forest Service

San Bernardino NF staff and IERCD surveyed around the community of Forest Falls in Mill Creek Canyon and identified emergence holes on 49 California black oak trees. GSOB activity continues to impact the community of Oak Glen, covering approximately 117 acres of oak



GSOB-caused mortality of coast live oak on the Sycuan Reservation (San Diego County). Photo by: B. Kyre, USDA Forest Service

woodland, hillsides, and the stream corridors of Oak Glen Preserve. In late 2022 and 2023 IERCD staff identified an additional 112 California black oak trees with GSOB infestations. Mitigation efforts are ongoing.

Two GSOB-infested coast live oak trees were identified and removed following 2022 surveys in Wildwood Canyon, California State Parks. Additional surveys in 2023 of 375 trees identified seven more trees with confirmed infestations. Preventative applications of dinotefuran and a penetrating surfactant have been completed in the surrounding oak woodland.

In July 2023, four California black oak with GSOB emergence holes were found in Miller Canyon and one infested black oak was identified on the shore of Silverwood Lake State Recreation Area, California State Parks, near highway 138. San Bernardino NF staff inspected 300 trees on the national forest side of Highway 138, none of which were infested with GSOB. Removal of the infested trees and preventative insecticide treatments of surrounding oaks are planned for spring 2024. Park staff conducted another inspection of the state park in conjunction with national forest staff who surveyed the adjacent national forest land in fall 2023.

San Diego County

Management efforts on the Cleveland NF shifted from suppression to long-term management. Annual carbaryl applications and tree removal continue in high priority sites such as picnic areas, campgrounds, and along heavily used roads. Treatment funding was provided by Forest Health Protection (FHP), a division of State, Private, and Tribal Forestry, USDA Forest Service for treatments on the Palomar Ranger District, and a CAL FIRE Forest Health grant awarded to the National Forest Foundation.

For the seventh consecutive year, the contact insecticide carbaryl was applied to ~256 coast live oaks at four sites on the Palomar Ranger District, Cleveland NF: Oak Grove Campground and Fire Station (both west of Warner Springs), Inaja Memorial Picnic Area, and the Pine Hills Fire Station near Julian.

Carbaryl was applied to ~1,157 coast live oak trees for the fifth consecutive year at eight developed recreation sites located adjacent to Ortega Highway and west of Lake Elsinore: Blue Jay Campground, Falcon Group Campground, adjacent oak woodland along Long Canyon Road, areas between the aforementioned sites, Wildland Firefighters Memorial, El Cariso Picnic Areas (North and South), El Cariso Campground, and the shared USDA Forest Service, Riverside County Fire Station (Trabuco Ranger District, Cleveland NF). Surveys performed in early 2023 identified GSOB infestations in Silverado, Hot Springs, and San Juan Canyons. Tree removal is scheduled for spring 2024.

The La Jolla Band of Luiseño Indians continued implementing their GSOB Pest Management Plan for the La Jolla Indian Reservation which includes continued surveys, removal and processing of infested trees, and the planting of coast live oak seedlings in campgrounds. The tribe continues to work closely with the University of California, Riverside to develop indigenous cultural and prescribed burning recommendations funded by the USDA Forest Service Special Technology Development (i)

The Pala Band of Mission Indians documented a slight spread of GSOB from two to six infested trees in 2023 and will continue suppression efforts to contain the localized infestation using both mechanical and chemical means.

In 2023, the Pechanga Band of Indians received USDA Forest Service Landscape Scale Restoration Funds to augment the implementation of their GSOB Management Plan on the Pechanga Reservation. GSOB management on the reservation is ongoing and includes the preventative treatment of high value trees, the removal of infested trees, and the propagation of coast live oak seedlings for oak restoration.

The Sycuan Band of the Kumeyaay Nation reignited efforts for GSOB suppression and management in 2023. In October 2023, windshield surveys were conducted on the approximately six square miles of Sycuan Reservation and off-reservation trust lands. Crown thinning and dieback was noted in 50% of the coast live oak areas surveyed. Foot surveys of a subset of 19 acres showed high levels of infestation in living trees and scattered mortality indicating a long-term infestation. The Sycuan Band of the Kumeyaay Nation also applied for USDA Forest Service suppression funds supported by Region 5 FHP staff to renew a long-term GSOB management program.

Spotted Gum Lerp Psyllid (Eucalyptolyma maideni)

Southern California

Approximately 12 lemon gum eucalyptus (*Corymbia citriodora*, formerly *Eucalyptus citriodora*) were heavily infested with spotted gum lerp psyllid in Rancho Cucamonga (San Bernardino County). This psyllid is native to Australia and has been found throughout Southern California. This psyllid may weaken trees and cause leaf drop in heavy infestations. Like other psyllids, spotted gum lerp psyllid produces copious amounts of honeydew, which is then covered by sooty mold on leaf surfaces. Feeding may eventually cause death of host trees. Unlike the red gum lerp psyllid, spotted gum lerp psyllid larvae can move freely in and out of a lerp, the structure created by larvae through excreting a gelatinous honeydew. In addition, more than one spotted gum lerp psyllid larva has been observed occupying a lerp. Outbreaks have been assisted by man-made eucalyptus monocultures that occupy city streets and parks. Infestations are characterized by heavy sooty mold of old and fully mature leaves. Spotted gum lerp psyllid has been found in Los Angeles and Orange Counties.

Invasive Shot Hole Borer (ISHB) (Euwallacea fornicatus and E. kuroshio)

http://www.iscc.ca.gov/ishb.html

http://www.ishb.org

Southern California

Region 5 is impacted by two species of exotic ambrosia beetles known as invasive shot hole borers (ISHB). The two species, polyphagous shot hole borer (*Euwallacea fornicatus*) and Kuroshio shot hole borer (*E. kuroshio*), are nearly indistinguishable morphologically making species level identification difficult.

Los Angeles County

The Los Angeles County Agricultural Commissioner reported that approximately 95 parks were surveyed for ISHB in 2023. Surveys found seven parks in Los Angeles County with moderate infestations, and six with heavy to severe infestations. Lightly to moderately infested tree species include London plane (*Platanus* x *hispanica*), black cottonwood (*Populus trichocarpa*), palo verde (*Parkinsonia aculeata*), boxelder (*Acer negundo*), and sycamore (*Platanus* spp.). The only tree species severely infested was western sycamore (*P. racemosa*). Numerous previously infested trees show signs of recovery. One western sycamore and one black cottonwood in Bixby Marshland tested positive for the pathogenic fungus, *Fusarium kuroshium*. These two trees are the only confirmed infestations of Kuroshio shot hole borer in the county. All other ISHB identified to species in Los Angeles County have been polyphagous shot hole borers.

Orange County

California State Parks is working with Orange County Fire Authority, University of California Cooperative Extension (UCCE), and other partners to monitor and manage ISHB infestations at Chino Hills State Park, located at the convergence of Orange, Riverside, and San Bernadino Counties. In 2023, State Park staff identified 24 infested hosts surrounding the Discovery Center. Affected species included arroyo willow (*Salix lasiolepis*), western sycamore, and one castor bean (*Ricinus communis*).

San Diego County

In late 2022, San Diego Natural History Museum's Entomology Department identified ISHB from traps collected along the southern boundary of Camp Pendleton located in San Diego County. In spring 2023, an additional five beetles were trapped. Canopy dieback, staining, and boring holes were observed on arroyo willow along the Margarita River. University of California Agriculture and Natural Resources (UCANR) staff confirmed ISHB presence from live specimens that were retrieved from an infested tree.

Imported Willow Leaf Beetle (Plagiodera versicolora) Central Coast

Imported willow leaf beetle-caused defoliation was detected along Coon Creek Trail in Montaña de Oro State Park (San Luis Obispo County). There was significant damage on arroyo willows over approximately 11 acres.

Mediterranean Oak Borer (*Xyleborus monographus*) North Coast

The first report of Mediterranean oak borer (MOB) attack on Oregon white oak (*Q. garryana*) in California was documented in May 2023. Two Oregon white oaks in Bothe-Napa Valley State Park were charred during the Glass Fire of 2020 and had extensive MOB infestations in areas with fire-damaged bark. MOB range expansion was greatest in Sonoma County. In 2022, confirmed infestations were limited to the Highway 101 corridor from Cotati north to Santa Rosa. In 2023, infestations were confirmed in Cloverdale and a major infestation was identified in west Santa Rosa. In Lake County the range expanded north to Clear Lake. In Sacramento County the verified range expanded from the previously identified infestation in Citrus Heights to the south and southwest into Fair Oaks and the City of Sacramento respectively.

Emerging Pest Highlights

The following exotic invasive pests are not currently causing widespread damage to trees in California but have been caught in monitoring traps or intercepted at airports and agricultural checkpoints and therefore pose a potential risk.

Spongy Moth (formerly known as gypsy moth) (*Lymantria dispar*)

Seven male moths were trapped in the California Department of Food and Agriculture (CDFA) trap grids in 2023. One flightless 'Siberian' spongy moth was trapped in Los Angeles County. Six European spongy moths were trapped in Los Angeles, San Diego, Monterey, Santa Clara, and Ventura Counties. The finds led to delimitation grid trapping in six locations in addition to an ongoing site in Contra Costa County.

Spotted Lanternfly (Lycorma delicatula)

The spotted lanternfly is native to China but has become established in the Northeastern United States. It is a potential pest for many tree species as well as numerous woody agricultural crops, including grapes and fruit trees. In 2023, live adult lanternflies and a viable egg mass were discovered in aircraft as part of the CDFA pest detection program.

Japanese Beetle (*Popillia japonica*)

Although primarily a pest of grasses, ornamental shrubs, and agricultural crops, the Japanese beetle has a host range of over 300 species including oaks, alders (*Alnus* spp.), maples (*Acer* spp.) and sycamores. Larvae feed on roots while adults are defoliators. In 2023, there was an ongoing spot eradication effort of Japanese beetle in Sacramento County and viable life stages were found in aircraft as part of the CDFA pest detection program.



Willow leaf beetle feeding on arroyo willow on Coon Creek Trail, Montaña de Oro State Park (San Luis Obispo County). Photo by: J. Gee, CAL FIRE



Verified distribution of MOB in Sonoma, Napa, Lake, and Sacramento Counties, Fall 2023. Map by: C. Ewing, CAL FIRE



More detailed view of MOB in Sonoma, Napa, and Lake Counties, Fall 2023. Map by: C. Ewing, CAL FIRE



Verified distribution of MOB in Sacramento C年时以巨科20会(i) Map by: C. Ewing, CAL FIRE

Emerald Ash Borer (*Agrilus planipennis*)

The recent discovery of emerald ash borer in Oregon instigated efforts to survey, trap, and monitor for the insect in California. A grid of traps will be deployed at areas along the Oregon Border, the Interstate 5 corridor, and campgrounds and parks with an ash (*Fraxinus* spp.) component that may be suitable for the insects. Movement of infested firewood into California is the primary concern.

Native Diseases

Root Diseases

A group of Douglas-fir (*Pseudotsuga menziesii*) trees infected with *Leptographium wageneri*, the cause of black stain root disease, was observed along South Fork Road in Del Norte County. The trees were on the shoulder of the county road and contained 10-15 Douglas-firs in various stages of health, decline, and mortality. Black stain root disease was also detected in Douglas-firs near where Essex Gulch empties onto Highway 299 between Arcata and Blue Lake (Humboldt County). One or two trees die every year at this site; approximately 6-8 trees have died in past years, and two were newly dead in 2023.

USDA Forest Service Forest Health Protection (FHP) examined twelve five-acre black stain root disease plots established in 1996 on the Devils Garden Ranger District, Modoc NF. Occasional disease-related new mortality of ponderosa pine was observed in and around the plots. The plots that were thinned in 1996 and then under-burned in 2002 by the Muldoon Fire had the least recent black stain root disease activity. Fire may have hastened the death of infected trees and prevented further pathogen spread.

Bristlecone pine (*Pinus longaeva*) and single-leaf pinyon (*P. monophylla*) were surveyed for black stain root disease in the Ancient Bristlecone Pine Forest and adjacent Inyo NF, respectively (Inyo County). Disease severity was roughly the same for both pine species at less than 10%. Samples were taken for comparative DNA analysis and results are pending.

Armillaria Root Disease (*Armillaria* spp.)

Armillaria was detected in many areas of the north coast in 2023, although in each case its role was unclear, as is typical for this versatile fungus. Fruiting was observed on downed alder (Alnus sp.) in Del Norte County early in the year, on woody debris near College Cove in Humboldt County in early November, and in association with ongoing grand fir (Abies grandis) mortality near Fortuna, also in November. Numerous fruiting bodies, some very large, were observed in December throughout coastal Humboldt and Del Norte Counties on dead red alder (A. rubra) as well as at the bases of nearby living red alders; identification is ongoing. Rhizomorphs and mycelial fans of the fungus were found on about five windthrown grand fir at Berta Road in Eureka, but numerous standing grand firs had copious pitching at their bases, indicative of possible Armillaria infection. In one tree, a long column of sapwood decay caused by the pathogen was bordered by new patches of dead wood with galleries of fir engraver beetle (Scolytus ventralis) (Humboldt County). In each of these cases, identification to species was ongoing, except at the Del Norte site, where the species was suspected to be A. nabsnona. Both A. gallica and A. mellea had been identified in Del Norte County in past years. Previous years' fruiting bodies in association with red alder near the College Cove area in Humboldt County were identified as A. gallica.

Armillaria mycelium was also present at the base of a 10-inch DBH Douglas-fir along Blue Lake Boulevard at the eastern edge of Blue Lake



Staining typical of black stain root disease (variety unknown) at the base of a dead bristlecone pine in the Ancient Bristlecone Pine Forest. Photo by C. Barnes, USFS



Armillaria sp. fruiting on a dead red alder at Headwaters Forest Reserve. Photo by: C. Lee, CAL FIRE



One side of a long decay column caused by Armillaria sp. at Berta Road south of Eureka (Humboldt County). The decayed wood (black, at right) features Armillaria mycelium and rhizomorphs; the healthier wood (brown, at left) displays egg galleries of the fir englatele (c)(i) Photo by: C. Lee, CAL FIRE

resulting in a copious distress cone crop apparently before the tree died in 2023 (Humboldt County). The tree was growing at the edge of a drainage ditch, a location likely advantageous to the fungus and too wet for the tree to thrive.

Armillaria sp. rhizomorphs were found on the outsides of snapped-off root systems of three large windthrown tanoak (*Notholithocarpus densiflorus*) in Montgomery Woods State Natural Reserve (Mendocino County).

Armillaria sp. was fruiting in several locations along Highway 44 in eastern Shasta County, including at the Eskimo Hill Recreation Area. The fruiting bodies were associated with mature grand fir that were also infected with other pests and pathogens, including Heterobasidion occidentale. Armillaria sp. mycelium and rhizomorphs were associated with a small ponderosa pine mortality center near the Turntable Bay Exit off Interstate 5 near Shasta Lake; this stand of pine was also heavily infested with dwarf mistletoe (Arceuthobium vaginatum). Material was collected for identification to species in all these cases.

California State Parks, Inland Empire District staff identified *Armillaria* symptoms on a downed black oak (*Quercus kelloggii*) in July 2023. The identification was confirmed by a USDA Forest Service forest pathologist in August 2023. This disease site had significantly increased in size and was located at the Silverwood Lake State Recreation Area, Black Oak Day Use Area in Miller Canyon, primarily in the southeastern area of the park (San Bernardino County). Only California black oaks were currently infected in a 14-acre area, but there are approximately 350 acres of susceptible vegetation adjacent to the known infection. Follow up actions were focused on monitoring, delimiting the infested area, and managing for hazard trees. Monitoring was still in the initial stage, so the entire infestation footprint was not yet known.

An approximately 15-acre *Armillaria* root disease center was found in an Engelmann spruce (*Picea engelmannii*), white fir (*A. concolor*), ponderosa pine (*P. ponderosa*) mixed stand along South Russian Creek in the Klamath NF (Siskiyou County). *Armillaria* sporocarps were found fruiting from the base and roots of white fir and Engelmann spruce, and mycelial fans were found under the bark at the root collar and root bark of white fir, Engelmann



Armillaria sp. mycelial fans on the same decayed grand fir as in the previous figure. While standing, the tree attempted to compartmentalize the decay with new "callus" wood. After the tree blew down in the 2022-2023 winter, Armillaria mycelium began to colonize this new tissue. Photo by: C. Lee, CAL FIRE



Witches' broom caused by ponderosa pine dwarf mistletoe (*A. campylopodum*) on ponderosa pine, and associated with *Armillaria* sp. and windthrow, along the shore of Shasta Lake.

Photo by: C. Lee, CAL FIRE



Armillaria/Heterobasidion root disease center in an Engelmann spruce, white fir, ponderosa pine stand in the Klamath NF. Photo by A. Hawkins, USDA Forest Service

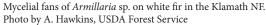


Fruiting bodies of *Armillaria* sp. on the roots of a white fir in the Klamath NF. Photo by A. Hawkins, USDA Forest Service



Engelmann spruce and white fir killed by *Armillaria* sp. in the Klamath NF. Photo by A. Hawkins FUIDA Fb2(c)(i)vice







A. mellea fruiting bodies on Siberian elm. Photo by C. Barnes, USDA Forest Service

spruce, and ponderosa pine. *H. occidentale* sporocarps and decay were found on white fir as well. The disease center consisted of a mix of healthy trees, declining trees with thinning and rounded crowns, and recently dead as well as older dead trees. *Armillaria* fruiting bodies were collected for species determination.

A. mellea was found in numerous locations across both the Angeles and San Bernardino NFs in 2023. The list of hosts includes California black oak, blue oak (Q. douglasii), coast live oak (Q. agrifolia), and Siberian elm (Ulmus pumila). The flush of fruiting bodies followed the atmospheric rivers and copious rainfall at the beginning of 2023. DNA sequencing of fruiting bodies provided by USDA Forest Service, Pacific Northwest Research Station was used to identify the Armillaria species infecting a Siberian elm and a black oak that were approximately 250 m (273 yds) apart. Both are A. mellea. Significant differences in the ITS sequences suggest the isolates belong to different genets (vegetative clones).

Heterobasidion root disease

(Heterobasidion occidentale and H. irregulare)

H. occidentale was commonly observed in stands containing true firs in Humboldt County in 2023. In the Arcata Community Forest, the presence of H. occidentale fruiting bodies on recently fallen trees and on standing snags is associated with what appears to be the gradual elimination of grand fir and, in some places Sitka spruce (P. sitchensis), from these redwood (Sequoia sempervirens)-dominated stands. H. occidentale fruiting bodies were noted along the Skunk Cabbage Trail in Redwood NP, on Sitka spruce logs and stumps at the Ma-le'l Dunes in Manila, and on redwood stumps in the Arcata Community Forest.

H. irregulare was infecting a ponderosa pine along the Twin Bridges Road in eastern Shasta County. This same pathogen was identified in a nearby ponderosa pine in this area in 2017. Fruiting bodies were not found in either instance; instead, discolored wood incubated in moist conditions yielded the diagnostic asexual state of the pathogen. The pathogen appeared widespread in the area as evidenced by many dead sapling-sized ponderosa pine and sporadic bark beetle (Dendroctonus spp.) activity in the pines along the road.



A fallen Jeffrey pine with symptomatic stringy white rot of *H. irregulare*. Photo by C. Barnes, USDA Forest Service



H. occidentale conk in white fir stump, Burnt Lava Flow Geologic Area, Modoc NF. Photo by D. Cluck, USDA Forest Service

Heterobasidion root disease caused by *H. occidentale*, was found associated with recently and older dead white fir in areas south of Medicine Lake around Burnt Lava Flow Geologic Area, Modoc NF (Modoc and Siskiyou Counties). Drought and fir engraver beetle activity caused high levels of mortality in this area but root disease was suspected to be playing a significant role in ongoing tree stress due to classic root disease symptoms.

Fallen trees with symptoms of Heterobasidion root disease (*H. irregulare* on Jeffrey pine and *H. occidentale* on white fir) were found in multiple areas in the Mount San Jacinto State Park (Riverside County). Classic symptoms of pitting on one side of the laminae and stringy white rot on both the pine and fir suggest that both *Heterobasidion* species are prevalent in the area.

Onnia Root Rot (*Onnia subtriguetra*)

Onnia was associated with continued deterioration of shore pines (P. contorta) at Hiller Park in McKinleyville (Humboldt County) and bishop pines (P. muricata) near Russian Gulch (Mendocino County). Approximately 10-20 acres were affected at both locations, and numerous other native pine pests were also observed, including Phaeolus schweinitzii, western gall rust (Cronartium harknessii), sequoia pitch moth (Synanthedon sequoiae), native bark beetles such as Pseudips/Ips spp., and Armillaria spp.

Phytophthora Root Rot (*Phytophthora* spp.)

Phytophthora cinnamomi was detected at Sunny Brae Park in Arcata (Humboldt County). The park is near a utility line corridor and walking trail, where 10-15 madrones (Arbutus menziesii) in various stages of decline and death were present. A large, declining redwood that is also likely infected with the pathogen was observed at the bottom of the slope.

P. cinnamomi and *P. x cambivora* were also detected by both soil baiting and direct isolations from the roots of dying tanoak and shore pine in Mendocino County near Iversen Road, and at Jughandle State Preserve on the west side of Highway 1 south of Fort Bragg. Additionally, *P. x cambivora* was baited from soil beneath a stand of non-native plum trees (*Prunus domestica*) one mile south of the Jughandle site. Only the plum trees' small lateral roots were symptomatic.

Other Oomycete Pathogens (various species)

Several oomycetes of uncertain pathogenicity were isolated from a large stand of dead and dying Monterey cypress (*Hesperocyparis macrocarpa* formerly *Cupressus macrocarpa*) trees in Manchester (Mendocino County). The cypresses are very large, mature trees that have been dying for at least a decade. Most of the stand occupies a very wet, lowlying area. In this stand, *Elongisporangium anandrum* and an unknown *Globisporangium* sp. (formerly *Pythium*) were baited from soil and *Pythium coloratum*, the same unknown *Globisporangium* sp., and *G. macrosporum* (also formerly *Pythium*) were isolated from root lesions. It is unknown whether the isolated organisms are pathogenic to cypress or if they are secondary pathogens or saprophytes that invaded after initial infection by some other pathogen. The same unknown *Globisporangium* sp. was baited from soil underneath a declining mature coast redwood on the campus of Cal Poly Humboldt in Arcata (Humboldt County).



Bishop pine stem decay associated with *O. subtriquetra* infection at Russian Gulch State Park. Photo by C. Lee, CAL FIRE



Declining trees in Arcata associated with *P. cinnamomi* soil infestation. Dead and dying madrones are in the middle background. An unhealthy coast redwood in foreground contrasts with healthy ones higher on the slope. Photo by C. Lee, CAL FIRE



Another species formerly classified in the genus *Pythium* - now called *Elongisporangium undulatum* - was baited from soil underneath several species of damaged or dying trees and shrubs in Mendocino County. These trees included tanoaks, shore pines, and wax myrtles (*Morella californica*), and locations ranged from the southernmost part of the county near Iversen Road to McKerricher State Park in the north.

Velvet Top Fungus (*Phaeolus schweinitzii*)

This pathogen was observed extensively throughout the north coast in 2023. It was associated with root decay and tree failure from Marin County up through Humboldt County, primarily in Douglas-fir and Sitka spruce. It was also associated with Douglas-fir beetle attack on standing mature trees in Jackson Demonstration State Forest (Mendocino County; see "Douglas-fir beetle," in the Insects section), and with dead and dying bishop pines within a Monterey cypress mortality center at Manchester (Mendocino County; see "Other Oomycete Pathogens," above).

Ilyonectria (*Ilyonectria* sp.)

The fungus was detected in roots of Monterey cypress near Manchester (Mendocino County). This genus, also called by the asexual form-name *Cylindrocarpon*, was detected in a large (approximately five-acre) group of cypresses that have been dying for at least a decade. The cypress from which it was isolated was alive but had extensive decay in large, structural roots. In the past, this fungus has been associated in the north coast with damage to a wide variety of conifers situated in low-lying or recently flooded areas. Affected species include coast redwood, exotic planted Podocarpus (*Podocarpus* spp.), and shore pine.

Foliar Diseases

Marssonina Blight of Poplars (Marssonina populi)

Marssonina blight of aspen was observed in the south Warner Mountains, Modoc NF on poplars (*Populus* spp.) (Lassen County). Light infections were observed in most stands throughout the area but had not resulted in leaf browning and drop. However, three stands were nearly or completely defoliated due to blight. These stands ranged from 0.5-20 acres consisting of sapling to pole sized stems.

Diplodia Blight (Sphaeropsis sapinea)

Diplodia blight continued to affect ponderosa pines along the Sacramento River near Interstate 5 in Shasta and Siskiyou Counties and along the Trinity River and East Weaver Creek off Highway 299 in Trinity County.

Needle Browning of Ponderosa Pine (*Sydowia polyspora*) Ponderosa pine along Highway 299 in eastern Trinity County

Ponderosa pine along Highway 299 in eastern Trinity County and along Interstate 5 throughout Shasta and Siskiyou Counties exhibited browning of one-year-old and/or earlier needles, premature needle-drop and, in some cases, necrotic lesions on green needles. Molecular and culture-based diagnosis performed by the California Department of Food and Agriculture (CDFA) revealed the presence of *Sydowia polyspora* in needles with necrotic lesions. *S. polyspora* is thought to be an endophyte and a weak pathogen of conifers. The ubiquity of browning and premature needle drop suggests an underlying abiotic cause to the disease issue.

Madrone Leaf Blight (cause uncertain)

Pacific madrones along Highway 299 in Trinity County were severely affected by branch dieback and leaf blight. This was especially apparent along the Trinity River where more than 75% of trees were affected. Although samples were not collected for diagnosis, symptoms were consistent with known shoot canker and leaf blight on madrone caused by various fungi.

Elytroderma Needle Blight (*Elytroderma deformans*)

Elytroderma disease symptoms were widespread on ponderosa pine along Highway 89 and Esperanza and Pilgrim Creek Roads in



Madrone showing severe leaf blight and branch Aldback 12(p)(i)s along Highway 299 in Humboldt County. Photo by A. Hawkins, USDA Forest Service

the McCloud Flats area (Shasta and Lassen Counties). Samples collected and sent to CDFA for diagnosis revealed the presence of an *Elytroderma* sp. in affected tissue. *S. polyspora* was also detected in some samples.

Tubakia (*Tubakia californica*)

Extreme defoliation most likely caused by *Tubakia californica* was observed on scattered individual tanoak and true oak trees along South Fork Road in Del Norte County, near Orleans in northeastern Humboldt County, just west of Willow Creek along Highway 299 in Humboldt County, and east of Salyer in Trinity County. The pathogen was either previously confirmed or was confirmed in 2023 at all the sites through molecular analysis.

Trunk and Stem Cankers

Sooty Canker of Honey Mesquite (*Neoscytalidium dimidiatum*)

The presence of sooty canker led to red oozing cracked bark, cankering, yellow leaves, and dying branches of honey mesquite (*Prosopis glandulosa*) in Death Valley NP (Inyo County). A very wet winter followed by typical high temperatures in the Park of 85-105°F encouraged the fungus to become widespread, particularly in the Cow Creek area. Cankering was often associated with flatheaded borer damage, pruning wounds, waterlogged soils, and overall stress. Careful removal of infected branches was recommended since the disease typically attacked individual branches. Main trunks of the trees were not impacted unless the disease had spread from individual branch infections.

Botrytis Tip Dieback (Botrytis sp., Diplodia sp., Sydowia sp.)

Botrytis was isolated from extensive tip dieback in outdoor-grown, clonal redwood seedlings at a timber company nursery in Humboldt County. The symptoms on these redwoods were unlike the typical symptoms caused by Botrytis on nursery seedlings, which are usually seen at the bases of trees where humid conditions persist. Investigation by CDFA diagnosticians revealed that this Botrytis sp. does not match any previously identified species, except for one report of extensive damage to peony (Paeonia sp.) in Alaska. It was possible that the same Botrytis species was responsible for widespread tip dieback on other conifers including redwood, Douglas-fir, Sitka spruce, and grand fir in Humboldt County in 2023. In all these cases - collected and identified before awareness of the unnamed Botrytis species mentioned above - only Botrytis could be isolated from the tip dieback symptoms but was generally dismissed as a secondary or contaminating fungus. Further investigation is needed to clarify the identity and distribution of the fungus and its role, if any, as a primary pathogen.

Another tip dieback-causing fungus, *Sydowia* sp., was isolated from branch tip cankers on ponderosa pine north of Laytonville (Mendocino County), coast redwood sprouts near the southern Mendocino County coast, and Douglas-fir near Bridgeville (Humboldt County). *Sydowia* is a common tip-killing fungus that has been isolated from a wide spectrum of conifers and

hardwoods in California. It may be a latent endophytic pathogen that only kills tissue during times of stress. (Also see the Foliar Diseases section above.)

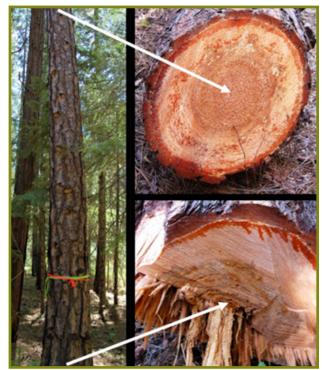
Diplodia was isolated from tip dieback of ponderosa pine along Highway 101 north of Laytonville in Mendocino County causing a bot canker. However, symptoms of this shoot-blighting pathogen were generally much diminished in northwestern California in 2023 relative to the previous two years, perhaps because its pathogenicity was exacerbated by drought stress in the past. (Also see the Foliar Diseases section above.)

Decay

Several decay fungi were noted in 2023 that neither caused disease to the host nor posed a significant hazard:

Ponderosa Pine Decay (*Porodaedalea pini*)

Fruiting bodies of *Porodaedalea pini* were found on 48 large ponderosa pine trees in Greenville Campground, Plumas NF (Plumas County). The average infected tree was 24-inch DBH and 120-feet tall. Most of the trees had 5-10 conks on the bottom 16 feet of the trunk. About five of the trees had up to ten more conks higher on the bole. In May, the Mt. Hough Ranger District fire crew cut down 37 of the infected trees, all of which had at least five conks. Freshly cut stumps were treated with



P. pini decay in ponderosa pine. FULL 12(c)(i) Photo by W. Woodruff, USDA Forest Service



Paint fungus (*E. tinctorium*) on white fir in the Mount San Jacinto State Park. Photo by C. Barnes, USDA Forest Service

a fungicide (disodium octaborate tetrahydrate) to prevent Heterobasidion root disease from becoming established. After examination of the log ends, the observed decay was much less than anticipated and did not appear serious enough to cause imminent tree failure. However, since decay increases over time, mitigation of the hazard was deemed warranted.

Paint Fungus (*Echinodontium tinctorium*)

In July 2023, more than 2,100 white firs over approximately 180 acres in the Mt. San Jacinto State Park were evaluated for paint fungus, with an overall infection rate of 5.2% (Riverside County). Trees were categorized as small <10-inch DBH, medium 10-20-inch DBH, and large >20-inch DBH. In the survey, 1% of the small trees, 3% of the medium trees, and 15% of the large trees were infected with paint fungus. Disease levels were within expected ranges for this forest type and age class, and not considered a management concern.

Red-belt Fungus (Fomitopsis schrenkii)

In July 2023, red-belt fungus was found on white fir throughout the Mt. San Jacinto State Park (Riverside County). The fungus has likely been in the area for years, as very old, bleached conks and newly forming conks were present in relatively equal numbers. The infection rate was 1-5%.



Red-belt fungus (*F. schrenkii*) on white fir was observed in the San Jacinto State Park in July 2023. Photo by C. Barnes, USDA Forest Service



Pholiota species on white fir on the Angeles NF. Photo by C. Barnes, USDA Forest Service



Fruiting body of *I. munzii* found on box elder in a city park in Redlands California in December 2022. Photo by C. Barnes, USDA Forest Service

Pholiota Decay Fungus (*Pholiota* sp.)

Pholiota sp. was observed on multiple white fir over ~50 acres near the Grassy Hollow Visitor Center and Jackson Campground on the Angeles NF (Los Angeles County). All trees observed with *Pholiota* were standing dead with no other pathogens observed.

In December 2023, a *Pholiota* sp., tentatively identified as *P. alnicola*, was observed growing at the base of a group of red alder at Headwaters Forest Reserve (Humboldt County). Some of the red alders were alive; the fruiting bodies were growing on living trees, standing dead trees, and woody debris on the ground. Some of the woody debris was occupied by rhizomorphs of *Armillaria* spp., which was fruiting synchronously on red alder in many other parts of the Reserve (see "Armillaria Root Disease," above).

Inonotus (Inonotus munzii)

Inonotus munzii has been found in the United States and Mexico and is considered an aggressive pathogen attacking angiosperm trees, notably on *Quercus*, *Salix*, and *Schinus* in Mexico. In late 2022, *I. munzii* was found on a box elder (*Acer negundo*) in a Redlands city



Close up of pores of *I. munzii* on box elder. Photo by FUBarn (2) (6) Forest Service



P. dryadeus fruiting at the base of an old-growth white fir at Horse Mountain (Humboldt County). Photo by C. Lee,



Western Jack-o-lantern (O. olivascens) on a dead coast live oak in the Cleveland NF, southwest of Lake Elsinore. Photo by C. Barnes, USDA Forest Service



G. brownii on white alder. Photo by C. Barnes, USDA Forest Service

park (San Bernardino County). The species was confirmed through DNA analysis by the Department of Plant Pathology, University of Minnesota, St. Paul MN. Based on host information provided with the sequences available in GenBank, I. munzii has now been found in Arizona on cottonwood (*Populus* sp.), in New Mexico on pecan (Carya illinoinensis), and on box elder in California (a first detection in California).

Fir and Hemlock Decay (*Pseudoinonotus dryadeus*)

Pseudoinonotus dryadeus fruiting bodies were observed in two sites along the main stem of the Smith River (Del Norte County). At one site near State Route 197, fruiting occurred at the base of a living grand fir, while at the other site located near Walker Road, the fungus was associated with many living and dead western hemlock (Tsuga heterophylla) trees, many of which were also infected by hemlock dwarf mistletoe (A. tsugense). This decay fungus was also observed fruiting on old-growth white fir at Horse Mountain in Humboldt County.

Western Jack O'Lantern (Omphalotus olivascens)

Western Jack O'Lantern was found on a dead coast live oak on the Cleveland NF, east of Lake Elsinore (Riverside County). While this is only a single sample, the same fungus was found in previous years

infecting the same host species 75 miles to the south near the Mexican border.



Heartwood decay associated with Ganoderma sp., most likely G. brownii, in a recently cut bay laurel stump in Hiouchi. Fruiting body of the fungus is at bottom. Photo by C. Lee, CAL FIRE

Ganoderma (Ganoderma brownii)

Ganoderma sp. (most likely G. brownii) was observed fruiting on numerous tree species throughout the north coast in 2023, including bay laurel (Umbellularia californica) and grand fir. One infected bay laurel cut in Hiouchi revealed the extent of decay in the tree's heartwood (Del Norte County). G. brownii (identity confirmed through PCR) was also fruiting at the base of a large eucalyptus (Eucalyptus globulus) in a group of eucalyptus trees that had been dying back for several years at the intersection of Highway 101 and Highway 299 in Humboldt County.

In early June 2023, G. brownii was also found on California bay laurel and white alder (A. rhombifolia) at the Fairfield Osborn Preserve (Sonoma County).

Laughing Jim on Giant Sequoia (Gymnopilus junonius)

Large mushroom fruiting bodies were found around the base of a dying old-growth giant sequoia (Sequoiadendron giganteum) in the Mountain Home Demonstration State Forest (Tulare County). Giant seguoia trees were examined due to recent wildfires and concern for high rates of mortality of the old-growth trees. Initially, the fruiting bodies were thought to be an Armillaria sp. but further examination found they were this secondary decay fungus known to follow tree mortality. FULL 12(c)(i)

The same mushrooms were observed fruiting prolifically at the same time (November/December) in Fortuna and Arcata (Humboldt County). In both cases they were associated with dead or nearly dead grand fir trees.

Brown Rot Decay (*Laetiporus conifericola*)

Laetiporus conifericola, a brown-rotting decay fungus, was noted on the base of a large windthrown western hemlock and on a coast redwood stump, both along the Skunk Cabbage Trail in Redwood NP (Humboldt County).

Rust Diseases

Stalactiform Rust

(*Cronartium coleosporioides,* formerly *C. stalctiforme*) Stalactiform rust on lodgepole pine (*P. contorta*) was observed in the Mt. San Jacinto State Park (Riverside County). The stand was dominated by white fir, however, rust infection was present on 5-10% of the lodgepole pines.



Laughing Jim (*G. junonius*) on Giant Sequoia in Mountain Home Demonstration State Forest. Photo by T. Smith, CAL FIRE

Western Gall Rust (Cronartium harknessii)

In early June 2023, western gall rust was found on Monterey pine (*P. radiata*) at the Fairfield Osborn Preserve in Sonoma County. Galls were observed on several small seedlings in an approximately 15 square-meter area. Also in June 2023, western gall rust was found on multiple bishop pines at the Gerstle Cove Campground near the Salt Point State Marine Conservation Area (Sonoma County). The two areas were roughly 64 kilometers (40 miles) apart.

Non-Native/Invasive Diseases

Possibly Invasive/Recently Recognized Diseases

Ghost Canker of Pines (*Neofusicoccum mediterraneum*, *N. parvum*)

Beginning in 2018, Monterey, Aleppo (*P. halepensis*) and Canary Island (*P. canariensis*) pines were observed dying or exhibiting severe branch dieback in urban areas in eastern Orange County. These host species are not native to that area of California but are commonly planted. Approximately 30-50 weak trees were scattered over ~100 acres. Faint cankers were found in the cross sections of infected and dying stems. DNA analyses are ongoing, but to date samples have yielded two native fungi: *N. mediter*-



Stalactiform rust on lodgepole pine observed in the San Jacinto State Park in July 2023. Photo by: C. Barnes, USDA Forest Service



Western gall rust on bishop pine at the Gerstle campground in Sonoma County.
Photo by: C. Barnes, USDA Forest Service



Ghost canker of pine caused by *Neofusicoccum* sp. in Orange County. Slightly Takker 142(a)(ii) the edge of the canker. Photo by: T. Smith, CAL FIRE

raneum and N. parvum, that typically cause diseases in grape, avocado, citrus, and nut crops. Although these fungi have previously been identified on other conifer species, this disease constituted a major host jump for the pathogens moving from woody, broadleaf crops to pines. Microscopic fruiting bodies were found on the infected bark of the trees. Infection does not appear to require a wound for entrance. Due to the faint nature of the cankered material, the disease was given the name of "ghost canker" of pines. The potential for spread to other parts of California or to other pine species is not yet known. (For more information see, Bustamante, M.I.; Lynch, S.C.; Elfar, K.; [and others]. 2023. First report of Neofusicoccum mediterraneum and Neofusicoccum parvum causing pine ghost canker on Pinus spp. in Southern California. Plant Disease. 107(7): 2236.)

Sooty Bark Disease of Maple (*Cryptostroma corticale*)

No new sites of sooty bark disease of maples (*Acer* spp.) were found in 2023. Research by the Garbelotto Lab at the Univeristy of California (UC), Berkeley confirmed that both silver maple (*A. saccharinum*) and Norway maple (*A. platanoides*) are hosts to the fungus. To date, known infections in California are limited to five trees at two locations: one site in Elk Grove (Sacramento County)

and one in El Dorado Hills (El Dorado County). It is not known whether the disease is more widespread and whether it is native or exotic to the state. Typical symptoms include wilting or yellowing of foliage, dark black bole cankers, and mortality. All known infested trees in California are either dead or dying. *Cryptostroma corticale* may be an endophyte in the wood that only forms bark cankers when the maples are dying from other causes. Big leaf maple (*A. macrophyllum*) is a known host in the state of Washington; however, no big leaf maples have been identified as infected in California as of 2023.

Acute Oak Decline

A stand of blue oaks in Hollister were observed to be dying or showing signs of severe decline and dieback (San Benito County). The area had been heavily damaged by rooting wild pigs (Sus scrofa). The trees had oozing basal trunk cankers with some cankers reaching up a couple of feet. The cankers were sampled for Phytophthora species but came back negative. The trees tested positive for several bacteria including Rahnella victoriana, Brenneria goodwinii, Gibbsiella quercinecans, and Erwinia sp. This group of bacteria has been associated with acute oak decline disease in Great Britain and elsewhere. In Britain, the disease is often associated with attack by oak bark beetles (Agrilus biguttatus) or other stressors. On the Hollister property, half of the trees have died and the other half appear to be recovering (a total of around 20 large trees).

Approximately 15 mature blue oaks were dying throughout a campground near Castaic (Los Angles County). The isolated bacteria were the same as the ones found in Hollister. At this site, no other contributing factors were found associated with the oozing cankers at the base of the trees. Five coast live oaks infested with goldspotted oak borer (*A. auroguttatus*) also exhibited oozing cankers near the base of the trunks at a second site in Green Valley (Los Angeles County). The same suite of bacteria causing acute oak decline were isolated from the trees.



Dead branches caused by ghost canker of pines caused by *Neofusicoccum* sp. Photo by: T. Smith, CAL FIRE



Oozing canker from acute oak decline at the base of a blue oak in Hollister, CA. Photo by: K. Corella, CAL FIRE



Blue oak exhibiting dieback and mortality due to acute delta de 2(e)(i) Hollister, CA. Photo by: K. Corella, CAL FIRE

Two coast live oak showed symptoms of staining on the base of the trees in Descanso Gardens (Los Angeles County). Upon initial sampling, one tree was found to be infested with *Stutzerimonas kirkiae* and *Pluribacterium* sp. aff. *corticola*. Additional sampling found other bacteria which included *Pseudomonas daroniae*, *Pseudomonas dryadis*, and *Brenneria goodwinii*. The second coast live oak was sampled and found to be infected with *Pantoea agglomerans*, *Erwinia billingiae*, *Brenneria goodwinii*, *Pantoea* sp., *Gibbsiella quercinecans*, and *Brenneria rosae* subsp. *americana*. All these bacteria have been associated with acute oak decline in Britain. Other coast live oaks showing symptoms were also observed.

Although all the bacteria have been identified to potential species, the DNA sequences are not exact matches to known species. The bacteria involved in acute oak decline in these sites may be new species, previously unknown to science.

Invasive Pathogens

Port-Orford-Cedar Root Disease (*Phytophthora lateralis*) *Phytophthora lateralis* was observed killing scattered Port-Orford-cedar (*Chamaecyparis lawsoniana*) along South Fork Road, which follows the South Fork Smith River (Del Norte County) and killing a large Port-Orford-cedar at a residence in downtown Arcata (Humboldt County). Port-Orford-cedar mortality consistent with this pathogen was also widespread along the length of Myrtle Creek (Del Norte County).

Soil sampling in low-elevation mixed-conifer (mostly redwood) forest along the northeast bank of the Smith River along State Route 197 revealed the presence of several oomycete pathogens on the site, including *P. cinnamomi* and *E. senticosum* (Del Norte County). Abundant dead and dying Port-Orford-cedars at this site also indicate that Port-Orford-cedar root disease is likely present.

In late 2023, the non-native pathogen *P. lateralis* was found killing Port-Orford-cedar along the South Fork of the Sacramento River. The pathogen had not been found in the South Fork Sacramento watershed since the early 2000s when the only known infestation was eradicated; however, there are at least eleven known infestations along the main stem of the Sacramento River. It likely spread from an infestation along the main stem to the South Fork via recreation activity.



A Port Orford-cedar likely killed by *P. lateralis* at the headwaters of Myrtle Creek (Del Norte County), next to a currently healthy cedar. Photo by: C. Lee, CAL FIRE

Sudden Oak Death/Ramorum Blight

(*Phytophthora ramorum*)

The UC Berkeley Forest Pathology and Mycology Laboratory coordinated 28 Sudden Oak Death (SOD) Blitzes in 2023. SOD Blitzes are citizen science events in which interested participants sample symptomatic California bay laurel and tanoak leaf and twig tissue in their local areas and submit them for laboratory analysis at UC Berkeley. This year the blitzes stretched from San Luis Obispo County to the Oregon border (Del Norte County). Similar to 2022, 2023 SOD blitzes found that *P. ramorum* levels were close to the lowest recorded since monitoring of this disease began - despite the very wet winter in 2023. Most precipitation fell in very cold fall/winter conditions or in the late spring after many of the blitzes had already occurred.

In general, the later SOD Blitzes (May and June) recorded more positives than the earlier events in 2023. The Carmel/Monterey/ Big Sur and South San Francisco Bay regions in the south and Sonoma County in the north had more positive samples than other areas. Warmer and drier areas, such as Napa County, Geyserville, and Cloverdale (Sonoma County), were negative. SOD Blitz Survey did not detect infected trees in San Luis Obispo County, despite frequent past detections of *P. ramorum* in some streams there.

Similar to past years, the Big Sur region tended to support higher levels of *P. ramorum* symptoms and tree mortality than most other coastal areas. In northern Big Sur, recent wildfires appear to have reduced the disease, but tanoak sprouts from trees burned in 2008 were beginning to show symptoms. High levels of tanoak mortality continued in areas of southern Big Sur that have not burned since before 1999. However, there were few new symptoms on sprouts and understory vegetation, a surprising occurrence after the very wet 2022-2023 winter and spring.

FULL 12(c)(i)

2023 SOD Blitzes also confirmed ongoing monitoring results in Del Norte County, the only area of California where the EU1 lineage of P. ramorum has established in a forest. This EU1 outbreak spread from the area of first detection in 2020 to infect tanoaks in neighboring watersheds to the north (Hutsinpillar Creek) and south (Little Mill Creek). The EU1 strain was confirmed in Myrtle Creek and subsequent ground surveys were initiated along the watercourse, although the middle reaches of the stream remain hard to access. The NA1 lineage (first detected in Del Norte County in 2019) was detected again for the first time since that year. At that time the NA1 infestation covered an area of 5-10 acres along Mill Creek, a major tributary to the main stem of the Smith River, in Jedediah Smith State Park. The Myrtle Creek stream detections show the EU1 and NA1 strains are close to each other, potentially within 1-3 miles depending on the location of infected vegetation in the Myrtle Creek corridor.

Stream monitoring for *P. ramorum* in 2023, coordinated by the Rizzo Laboratory, UC Davis, sampled 63 streams in San Luis Obispo, Monterey, Humboldt, and Del Norte Counties (at the southern and northern ends of the pathogen's known distribution in California forests). Of these, 11 streams were positive: one in San Luis Obispo County, two in Monterey County, one in Humboldt County, and seven in Del Norte County. Although San Carpoforo Creek in San Luis Obispo County tested positive, no infected vegetation was found, similar to past results. In Del Norte County, three streams that were not previously confirmed positive (Rowdy Creek, Morrison Creek, and Myrtle Creek) represent likely extensions of the EU1 infestation to the north and east, although infected tanoak trees have not yet been confirmed on the landscape.

White Pine Blister Rust (*Cronartium ribicola*)

White pine blister rust was observed on more than 20 mature whitebark pine (*P. albicaulis*) scattered on the upper east slope of Buck Mountain in the south Warner Mountains (Lassen County). Infections were restricted to single upper branches and tops that had recently died. Infection sites were associated with squirrel chewing and sap flow and appeared to have been present for many years. Aecia were observed on a few trees.

Rust on Ribes

Rust has been observed on five *Ribes* species in multiple locations running roughly along the southern edge of the Angeles and San Bernardino NFs (Los Angeles and San Bernardino Counties). On *R. aureum* the rust had been confirmed as *C. ribicola*, cause of



Ribes sp. Infected with white pine blister rust at 5,000-foot elevation in Los Angeles County. Photo by C. Barnes, USDA Forest Service



Close-up of white pine blister rust infected *Ribes* leaves in the Descanso Gardens, Los Angeles County. Photo by: T. Smith, CAL FIRE

white pine blister rust. That confirmation was made by DNA sequencing, with the other rust species identifications still pending. The elevation of the infected *Ribes* plants ranged from just under 700 feet to nearly 5,000 feet. Uredinia and telial horns were observed. To date, rust has not been observed on any five-needle white pines in the area.

Snow Damage

In February 2023, wet snow fell at low elevations in San Luis Obispo County and affected about 40 acres of coast live oak (*Quercus agrifolia*) forest along Hi Mountain Road in San Luis Obispo County (on both private property and the Los Padres NF), leading to breakage of large branches in random sections of the tree crowns.

Storm-related damage was locally significant in many parts of Mendocino, Humboldt, and Del Norte Counties in 2023. A rapid assessment of 315 trees in damaged stands from Marin north through Del Norte Counties showed that tree failures occurred on all aspects and at various elevations. Larger trees primarily uprooted or had top breakage, while smaller trees were more likely to snap. A relatively small proportion (~17%) of windthrown or wind-snapped trees was associated with a variety of biotic damage agents. Some of these, such as *Phaeolus schweinitzii*, clearly helped lead to tree failure, but others such as Douglas-fir beetle (*Dendroctonus pseudotsugae*) were taking advantage of the fallen trees as breeding material.

Fire Damage to Giant Sequoia

Old-growth giant sequoia (*Sequoiadendron giganteum*) had high levels of mortality in the years following the 2020 and 2021 mega-fires in the central and southern Sierra Nevada Range. An estimated 10% of all the old-growth giant sequoias have been lost either due to direct fire-related mortality or delayed mortality in the following years.

In 2023, dead and dying giant sequoias were examined at Mountain Home Demonstration State Forest (Tulare County). The Forest conducted a prescribed burn throughout the property prior to the devastating 2020 SQF Fire Complex (also called the Sequoia Lightning Complex Fires). Trees appeared healthy after the prescribed burn, but old-growth sequoia trees began dying following the wildfire. The SQF Complex Fire was patchy in intensity with areas of complete devastation and mortality next to areas of only minor burn intensity. Sequoias were dying both in areas of high intensity and in areas where thinner-barked neighboring pines and true firs (*Pinus* spp. and *Abies* spp.) survived with minimal damage.

All the dying sequoias showed severe burn damage to the cambium at the bases of the trees. In most cases the surrounding duff layer had been raked back to protect the trees from long burn periods prior to the prescribed burn. The bark often appeared to be visibly thinner in areas that had previously been covered in duff. It is uncertain whether the removal of duff contributed to higher-intensity fire and increased cambium loss during the



Coast live oak branch breakage from low elevation snow fall. Photo by: K. Corella, CAL FIRE



Fire damage to cambium of giant sequoia. Photo by: T. Smith, CAL FIRE.

SQF Complex Fire, or if the intensity of the wildfire alone damaged the cambium enough to cause tree mortality. For most of the dead and dying sequoias, the cambium appeared to be dead or severely damaged around the entire circumference of the trees.

Coast Live Oak Decline

About 30 acres of coast live oak were heavily stressed and in decline in Steckel Park (Ventura County). No specific pathogen or insect was found associated with the declining trees. The cause was thought to be environmental but remains unknown.

Black Bear (*Ursus americanus*)

Reports of extensive damage, primarily to coast redwood (*Sequoia sempervirens*), from black bear continued in 2023. These reports ranged throughout Mendocino, Humboldt, and Del Norte Counties. Examination of affected stands in the Hutsinpillar Creek watershed in Del Norte County (~10 acres affected) and near Loleta in Humboldt County (1 acre affected) showed many examples of previously bear-girdled or partially girdled trees that had suffered subsequent fungal decay before snapping off in the 2023 winter windstorms.



Coast redwood girdled by black bear and then extensively decayed by fungi prior to being broken in a storm during the 2022-2023 winter at Hutsinpillar Creek (Del Norte County).

Photo by: C. Lee, CAL FIRE

Invasive Plants Page 33

Giant Asian Dodder (Japanese Dodder) (Cuscuta japonica)

Giant Asian dodder (also known as Japanese dodder) continued to infest some properties in the City of Sacramento (Sacramento County). The plant is parasitic on trees, shrubs, and perennial plants. It tends to prefer citrus species but can attack most native and ornamental trees. The seeds and plants are sometimes used in traditional herbal remedies and when disposed of improperly can parasitize other plants. Eradication efforts (complete removal and disposal of both the dodder and the host plants) were ongoing at the infected site.

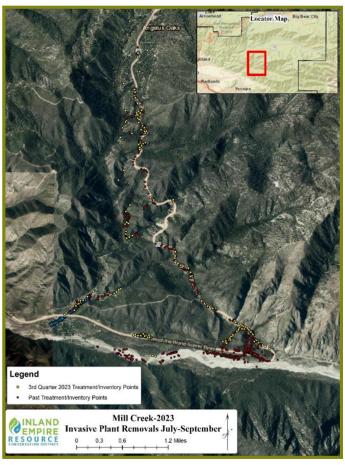
Spanish Broom (*Spartium junceum*) **and Others**

USDA Forest Service Bipartisan Infrastructure Law (BIL) grantfunded projects, in collaboration with the Inland Empire Resource Conservation District (IERCD), made progress in mapping and treating high priority invasive species in the Upper Santa Ana Watershed. The target invasive species for these projects included Spanish broom (*Spartium junceum*), *Arundo donax*, fennel (*Foeniculum vulgare*), and tree of heaven (*Ailanthus altissima*) across the Mill Creek and Cajon Creek sub-watershed areas (San Bernardino County). These highly invasive species distribute seeds and propagules in a downstream direction, allowing for efficient removal and destruction of these target species by IERCD staff working downstream from the highest elevation populations.

In 2023, a total of 6,388 and 1,063 Spanish broom plants were treated across Mill Creek and Cajon Creek areas, respectively. The treatments in Mill Creek occurred over the course of multiple field days along Highway 38 and Angelus Oaks, with a total of 337 GPS points collected to visualize the extent of the treatments. The treatments in Cajun Creek occurred over the course of three field days along County Road and Interstate 15, with 51 GPS points collected of the treated areas.

Forest Health Protection – Invasive Plants Grants

In 2023, two USDA Forest Health Protection Special Technology Development Program (STDP) grants were funded with the California Invasive Plants Council (Cal-IPC) to improve the CalWeedMapper tool and develop a climate-matching tool (CMT). CalWeedMapper prioritizes invasive plant species for rapid response at the landscape level and currently relies on a static map of each plant's distribution.



Map of GPS location coordinates for Spanish broom individuals treated across Mill Creek. Red dots represent individuals treated from July-September. Yellow dots represent individuals treated from May-June. Map by: IERCD

This project will add the functionality to track changes over time, allowing planners to prioritize work based on documented spread, to show progress of control work, and to demonstrate the cost of inaction. The proposed CMT will use the growing number of global climate datasets and global species distribution data available through the Global Biodiversity Information Facility to assess a plant's potential for spreading to a new region. That potential will be based on whether that plant is known to grow in other parts of the world that have similar climatic conditions. CAL-IPC is currently working with partners in Arizona, Nevada, Oregon, and Washington on screening emerging weeds to guide the development of the CMT and intends to integrate the tool into Weed Risk Assessment methodologies.

The USDA Forest Service also partnered with Cal-IPC on an Early Detection, Rapid Response (EDRR) grant focused on preventive measures implementing control of priority invasive species. The goal of this project is to address key instances across the state where immediate control may make a significant impact in halting the imminent spread of plants identified as EDRR priority species by National Forest botanists and to protect surrounding forest habitat from future damage. Partners for each project will report on work completed, which CAL-IPC will use to estimate the acreage protected and generate a workplan for future years.

A USDA Forest Service Landscape Scale Restoration (LSR) grant has been awarded to the Elkhorn Slough Foundation to replace highly invasive eucalyptus forests in Las Lomas, Elkhorn, Moss Landing, and Castroville (Monterey County). This project will replace eight eucalyptus forests with native habitats to benefit people and rare animals. Eucalyptus removal reduces fuel loads and fire danger in canyons surrounded by neighborhoods and habitat restoration will bring back wetlands, grasslands, chaparral, and woodlands critical for supporting federally listed amphibians.

Invasive Plants Page 34

USDA Forest Service, Pacific Southwest Region - Invasive Plants Webpage

In 2023, as part of a larger effort to redesign the State, Private & Tribal Forestry webpages, Forest Health Protection staff updated and improved the <u>Invasive Plants of California</u> webpage to include more salient and current information about invasive plants throughout the state. The redesign includes a focus on priority invasive species and highlights recent partnerships.

Research Page 35

In 2023, scientific publications concerning California forest pests and wildland conditions included:

Albu, V.; Albu, S. 2023. Lepidoptera assemblages along a western slope elevation gradient of the South-Central Sierra Nevada Mountains in California. The Journal of the Lepidopterists' Society. 77(1): 43-58.

Bentz, B J.; Cluck, D.R.; Bulaon, B.M.; Smith, S.L. 2023. Western pine beetle voltinism in a changing California climate. Agricultural and Forest Entomology. 25(4): 637-649.

Bernal, A.A.; Kane, J.M.; Knapp, E.E.; Zald, H.S. 2023. Tree resistance to drought and bark beetle-associated mortality following thinning and prescribed fire treatments. Forest Ecology and Management. 530: 120758.

Bustamante, M.I.; Lynch, S.C.; Elfar, K.; Kabashima, J.N.; Wood, R.; Neault, H.F.; Rauhe, M.B.; Crain, J.; Lopez, J.A.; Penicks, A.; Mojica, H. 2023. First report of *Neofusicoccum mediterraneum* and *Neofusicoccum parvum* causing pine ghost canker on *Pinus* spp. in Southern California. Plant Disease. 107(7): 2236.

Bourret, T.B.; Fajardo, S.N.; Frankel, S.J.; Rizzo, D.M. 2023. Cataloging *Phytophthora* species of agriculture, forests, horticulture, and restoration outplantings in California, USA: A sequence-based meta-analysis. Plant Disease. 107(1): 67-75.

Bourret, T.B.; Mehl, H.K.; Aram, K.; Rizzo, D.M. 2023. Rhododendron leaf baiting of coastal California watersheds for *Phytophthora* and *Nothophytophthora*. Mycological Progress. 22(8): 62.

Dudney, J.; Latimer, A.M.; van Mantgem, P.; Zald, H.; Willing, C.E. Nesmith, J.C.; Cribbs, J.; Milano, E. 2023. The energy-water limitation threshold explains divergent drought responses in tree growth, needle length, and stable isotope ratios. Global Change Biology. 29(15): 4368-4382.

Fettig, C.J.; Audley, J.P.; Homicz, C.S.; Progar, R.A. 2023. Applied chemical ecology of the western pine neetle, an important pest of ponderosa pine in Western North America. Forests. 14(4): 757.

Flores, D.A.; Poloni, A.L.; Frankel, S.J.; Cobb, R.C. 2023. Changes to relative stand composition after almost 50 years of Heterobasidion root disease in California true fir and pine forests. Forest Pathology. 53(3): e12811. DOI: 10.1111/efp.12811.

Gilbert, G.; Parker, I. 2023. The Evolutionary Ecology of Plant Disease. Oxford University Press.

Halpern, A.A.; Sousa, W.P.; Lake, F.K.; Carlson, T.J.; Paddock, W. 2022. Prescribed fire reduces insect infestation in Karuk and Yurok acorn resource systems. Forest Ecology and Management. 505: 119768.

Kelsey, R.G.; Westlind, D.J.; Gaylord, M.L. 2023. Red turpentine beetle primary attraction to β-pinene or 3-carene (with and without ethanol) varies in western US pine forests. Agricultural and Forest Entomology. 25(1): 111-118.

Lanning, K.K.; Kline, N.; Elliott, M.; Stamm, E.; Warnick, T.; LeBoldus, J.M.; Garbelotto, M.; Chastagner, G.; Hulbert, J.M. 2023. Citizen science can add value to *Phytophthora* monitoring: five case studies from western North America. Frontiers in Environmental Science. 11: 1130210. DOI: 10.3389/fenvs.2023.1130210

Looney, C.E.; Long, J.W.; Fettig, C.J.; Fried, J.S.; Wood, K.E.; Audley, J.P. 2023. Functional diversity affects tree vigor, growth, and mortality in mixed-conifer/hardwood forests in California, USA, in the absence of fire. Forest Ecology and Management. 544: 121135.

MacDonald, G.; Wall, T.; Enquist, C.A.; LeRoy, S.R.; Bradford, J.B.; Breshears, D.D.; Brown, T; Cayan, D.; Dong, C.; Falk, D.A.; Fleishman, E. [and others]. 2023. Drivers of California's changing wildfires: a state-of-the-knowledge synthesis. International Journal of Wildland Fire. 32(7): 1039-1058.

Nepal, S.; Eskelson, B.N.I.; Ritchie, M.W.; Gergel, S.E. 2023. Spatial patterns of vigor by stand density across species groups and its drivers in a pre-harvest ponderosa pine-dominated landscape in northern California. Forest Ecology and Management. 534: 120867.

Pascoe, E.L.; Vaughn, C.E.; Jones, M.I.; Barrett, R.H.; Foley, J.E.; Lane, R.S. 2023. Recovery of western black-legged tick and vertebrate populations after a destructive wildfire in an intensively-studied woodland in northern California. Journal of Vector Ecology. 48(1): 19-36.

FULL 12(c)(i)

Research Page 36

Quiroga, G.B.; Simler-Williams, A.B.; Frangioso, K.M.; Frankel, S.J.; Rizzo, D.M.; Cobb, R.C. 2023. An experimental comparison of stand management approaches to sudden oak death in restoration and prevention contexts. Canadian Journal of Forest Research. https://doi.org/10.1139/cjfr-2022-0328.

Reed, C.C.; Hood, S.M.; Cluck, D.R.; Smith, S.L. 2023. Fuels change quickly after California drought and bark beetle outbreaks with implications for potential fire behavior and emissions. Fire Ecology. 19(1): 16.

Robbins, Z.J.; Xu, C.; Jonko, A.; Chitra-Tarak, R.; Fettig, C.J.; Costanza, J.; Mortenson, L.A.; Aukema, B.H.; Kueppers, L.M.; Scheller, R.M. 2023. Carbon stored in live ponderosa pines in the Sierra Nevada will not return to pre-drought (2012) levels during the 21st century due to bark beetle outbreaks. Frontiers in Environmental Science. 11: 281.

Robinson, W.; Kerhoulas, L.P.; Sherriff, R.L.; Roletti, G.; van Mantgem, P.J. 2023. Drought survival strategies differ between coastal and montane conifers in northern California. Ecosphere. 14(3): e4480.

Steel, Z.L.; Jones, G.M.; Collins, B.M.; Green, R.; Koltunov, A.; Purcell, K.L.; Sawyer, S.C.; Slaton, M.R.; Stephens, S.L.; Stine, P.; Thompson, C. 2023. Mega-disturbances cause rapid decline of mature conifer forest habitat in California. Ecological Applications. 33(2): e2763.

ter Horst, A.M.; Fudyma, J.D.; Bak, A.; Hwang, M.S.; Santos-Medellín, C.; Stevens, K.A.; Rizzo, D.M.; Rwahnih, M.A.; Emerson, J.B. 2023. RNA viral communities are structured by host plant phylogeny in oak and conifer leaves. Phytobiomes Journal. 7(2): 288-296.

van Mantgem, P.J.; Milano, E.R.; Dudney, J.; Nesmith, J.C.; Vandergast, A.G.; Zald, H.S. 2023. Growth, drought response, and climate-associated genomic structure in whitebark pine in the Sierra Nevada of California. Ecology and Evolution. 13(5): e10072.

Vilanova, E.; Mortenson, L.A.; Cox, L.E.; Bulaon, B.M.; Lydersen, J.M.; Fettig, C.J.; Battles, J.J.; Axelson, J.N. 2023. Characterizing ground and surface fuels across Sierra Nevada forests shortly after the 2012–2016 drought. Forest Ecology and Management. 537: 120945.

Young, D.J.N.; Slaton, M.R.; Koltunov, A. 2023. Temperature is positively associated with tree mortality in California subalpine forests containing whitebark pine. Ecosphere. 14(2): e4400.

The California Forest Pest Council (CFPC), a 501(c)(3) non-profit organization, was founded in 1951 as the California Forest Pest Control Action Council. Membership is open to public and private forest managers, foresters, silviculturists, entomologists, plant pathologists, biologists, and others interested in the protection of California's urban and wildland forests from injury caused by biotic and abiotic agents. The Council's objectives are to establish, maintain, and improve communication among individuals who are concerned with these issues. These objectives are accomplished by:

- 1. Coordinating the detection, reporting, and compilation of pest injury, primarily from forest insects, diseases, and animal damage.
- 2. Evaluating pest conditions, primarily those of forest insects, diseases, and animal damage.
- 3. Making recommendations on pest control to forest managers, protection agencies, and forest landowners.
- 4. Reviewing policy, legal, and research aspects of forest pest management and submitting recommendations to appropriate authorities.
- 5. Fostering educational work on forest pests and forest health.

The California Board of Forestry and Fire Protection recognizes the Council as an advisory body in forest health protection, maintenance, and enhancement issues. The Council is a participating member in the Western Forest Pest Committee of the Western Forestry and Conservation Association.

This report was prepared by Forest Health Protection, US Forest Service, Pacific Southwest Region and the California Department of Forestry and Fire Protection with other member organizations of the Council.

2023 Field Tours: Weed Tour, Humboldt County, June 21-22; Insect & Disease Tour, El Dorado County, July 18 2023 Annual Meeting: November 14-15, UC Davis, virtual option

California Forest Pest Council Executive Board and Officers

Council Chair

Danielle Lindler

Jefferson Resource Company

Council Vice-Chair

Steve Jones

Council Secretary

Kim Corella

California Dept. of Forestry and Fire Protection

Council Treasurer

Shelly Hoy

At-Large Directors

Ted Swiecki, Phytosphere Research Akif Escalen, UC Cooperative Extension Wolfgang Schweigkofler, Dominican University

Standing Committees

Animal Damage Committee Chair

Vacant

Annual Meeting Program Chair

Chris Lee

California Dept. of Forestry and Fire Protection

Disease Committee Chair

Tom Smith

California Dept. of Forestry and Fire Protection

Editorial Committee Chair

Tom Smith

California Dept. of Forestry and Fire Protection

Editorial Committee Editor in Chief

Tom Smith

California Dept. of Forestry and Fire Protection

Insect Committee Chair

Michael Jones

University of California Cooperative Extension

Southern California Committee Chair

Rachel Burnap

LA County Agricultural Commissioner Weights and Measures

Steve Kafka

Sierra Pacific Industries

Weed Committee Chair

California Department of Forestry and Fire

Protection (CAL FIRE)

Kim Corella, Forest Pathologist

Curtis Ewing, Forest Entomologist Chris Lee, Forest Pathologist

Ian McBride

Tom Smith, Forest Pathologist

California Department of Food and Agriculture

Sebastian Albu, Plant Pathologist

Kyle Beucke, Primary State Entomologist

Cheryl Blomquist, Senior Environmental Scientist

Suzanne Latham, Senior Plant Pathologist

David Pegos, Special Assistant

USDA Forest Service

Charlie Barnes, Plant Pathologist Beverly Bulaon, Entomologist

Phil Cannon, Regional Plant Pathologist

Stacey Clark, Invasive Plants/Pesticide Use Program Manager

Danny Cluck, Entomologist

Karen Endres, Geospatial Analyst

Susan Frankel, Plant Pathologist

Ashley Hawkins, Plant Pathologist

Stacy Hishinuma, Entomologist

Nick Holomuzki, Forest Health Monitoring Program Manager

Mee-Sook Kim, Plant Pathologist, PNW

Bethany Kyre, Entomologist

Moss Le, Resource Assistant

Brian Lewis, Ecologist

Irene Lona, Resource Assistant

Martin MacKenzie, Plant Pathologist

Jeffrey Moore, Aerial Detection Survey Manager

Leif Mortenson, Biological Science Technician

Micha Salomon, Geospatial Analyst

Cynthia Snyder, Entomologist

Nick Stevens, Aerial Survey Specialist

Bill Woodruff, Plant Pathologist

Meghan Woods, Geospatial Analyst (Report Layout & Design)

University of California/UC Cooperative Extension

Julie Clark De Blasio, Education Specialist, UCCE

Akif Eskalen, Plant Pathologist, UCCE

Kerri Frangioso, Research Biologist

Matteo Garbelotto, Extension Specialist, UCCE/UC Berkeley

Jan Gonzales, Project Coordinator, UC ANR

Krysta Jennings, Dept. of Plant Pathology, UC Davis

Michael Jones, Forestry Advisor, UCCE

Shannon Lynch, Environmental Biology, Assistant Professor

Beatriz Nobua-Behrmann, Urban Forestry/Natural Resources UCCE

Tina Popenuck, Forest Pathology and Mycology Lab, UC Berkeley

Dave Rizzo, Plant Pathologist, UC Davis

Wallis Robinson, Staff Research Associate, UCCE

Doug Schmidt, Forest Pathology and Mycology Lab, UC Berkeley

Yana Valachovic, County Director – Forest Advisor, UCCE

California State Parks

Katie Drozd, Park Aide

Terra Fuller, Environmental Scientist

Siena Vasquez, Forestry Aide

LA County Agricultural Commissioner/Weights and Measures

Rachel Burnap, Associate Inspector

Fayek Girgis, Inspector

Inland Empire Resource Conservation District

Jocelyn Perez, Forest Ecologist

Adrian Poloni, Forester

Green Diamond Resource Company

Tom Dols, Chief Forester

Elicia Goldsworthy, Policy and Communications Manager

Brad Henderson, Nursery Coordinator

Other Contributors

Robert Blanchette, Plant Pathology Professor, Univ. of Minnesota Sandy DeSimone, Audubon California Starr Ranch Sanctuary

Kathleen Edwards, Black Box Timber Management Group

Anna Gibson, Soil Conservationist, NRCS Lisa Ordonez, San Diego State University

Tedmund Swieki, Principal and Plant Pathologist, Phytosphere

Research

Ian Torrence, Biologist, National Park Service









The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

Location: 755 E State Highway 20, Upper Lake, CA

40 acres of prime agricultural land

1995 - 2015: High yielding vineyard planted with Merlot grapes

- Robinson Lake Vineyard, LLC
- Previously produced grapes for Mondavi,
 Charles Krug, Buena Vista



Photo: Robinson Lake Vineyard, LLC https://www.flickr.com/photos/rlvineyard/























Current Condition Under Watershed Protection District Ownership





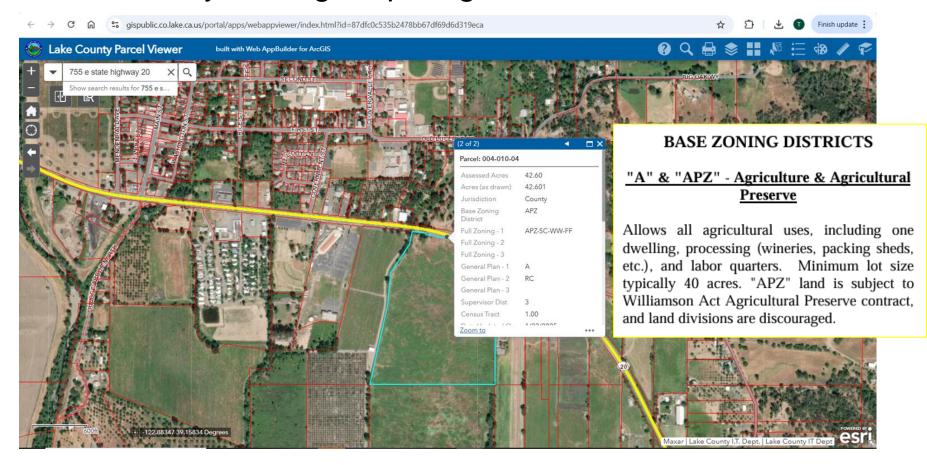




Current Condition Under Watershed Protection District Ownership

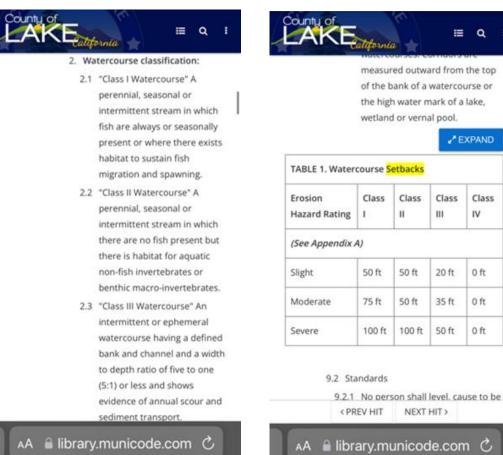


Lake County Zoning Map - Agriculture Preserve



Lake County Grading Ordinance Chapter 30

Grading is defined in the County Code as "Any mechanical excavating, clearing, filling, or combination thereof."



Q I

Class

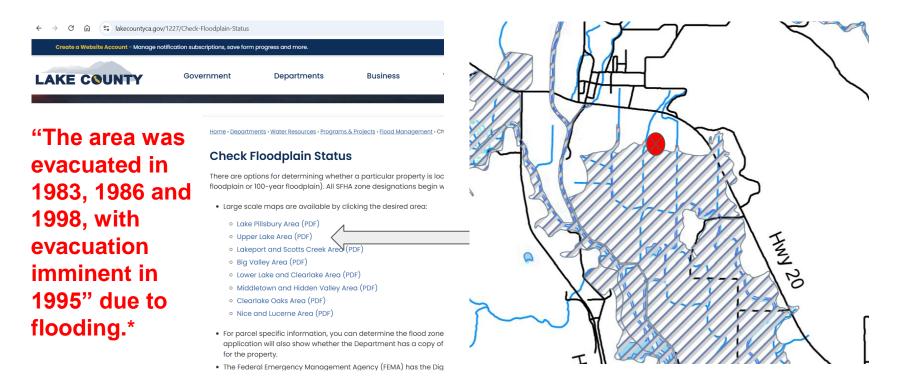
IV

0 ft

0 ft

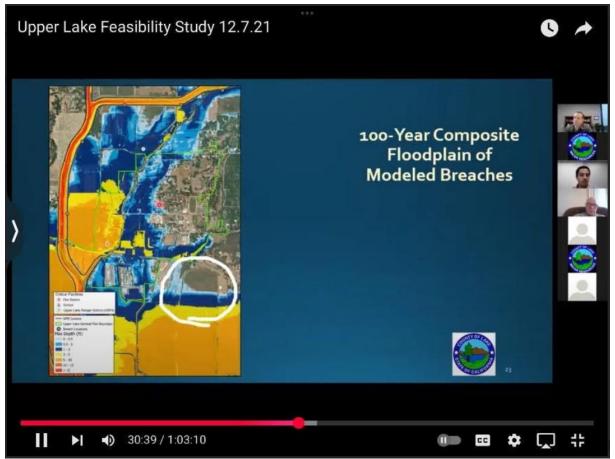
0 ft

Floodplain



^{*}Source: "Overview Middle Creek Flood Damage Reduction and Ecosystem Restoration Project" report, October 3, 2012.

This project is in the 100-year floodplain according to the Upper Lake Feasibility Study





Source: Upper Lake Feasibility Study 12.7.21 on YouTube, https://www.youtube.com/watch?v=fNa SWs0SH84

Flood Concerns: Woodchips and Biochar stored on-site

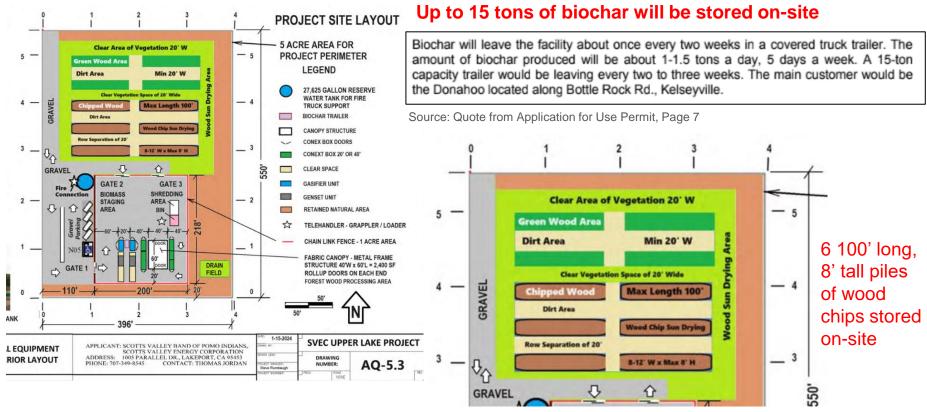


Diagram source: Application for Use Permit, Page 85

Highway 20 through Upper Lake Scenic Corridor



skip to content

Home Bill Information California Law Publications Other Resources My Subscriptions My Favorites

California Law >> >> Code Section

Code Search

Text Search

<u>Up^ << Previous Next >> cross-reference chaptered bills PDF | Add To My Favorites</u>

STREETS AND HIGHWAYS CODE - SHC

DIVISION 1. STATE HIGHWAYS [50 - 897] (Division 1 enacted by Stats. 1935, Ch. 29.)

CHAPTER 2. The State Highway System [230 - 635] (Chapter 2 enacted by Stats. 1935, Ch. 29.)

ARTICLE 2.5. State Scenic Highways [260 - 284] (Heading of Article 2.5 amended by Stats. 1969, Ch. 1352.)

263.3. The state scenic highway system shall also include:

Route 20 from:

- (a) Route 1 near Fort Bragg to Route 101 near Willits.
- (b) Route 101 near Calpella to Route 16.
- (c) Route 49 near Grass Valley to Route 80 near Emigrant Gap.

Site Zoned: Scenic Combining (SC)

This location is eligible to become an official scenic highway.

Source: https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=263.3.&nodeTreePath=2.3.3&lawCode=SHC

Complaints in Red Hills Lawsuit - American Viticultural Area

22. Red Hills has been an approved American Viticultural Area since approximately 2004. (27 C.F.R. § 9.169) This designates an area as an appellation of origin which can be used on wine labels.¹ Over the past several decades, the area has grown considerably as a major appellation in the wine industry, and continues to enjoy considerable success, especially as land prices in Napa and Sonoma Counties have skyrocketed. The climatic conditions in the region are particularly suited to growing high quality grapes, and the relative rarity of conditions which replicate areas like Napa and Sonoma imbues the preservation of the character of Red Hills with a greater degree of importance.

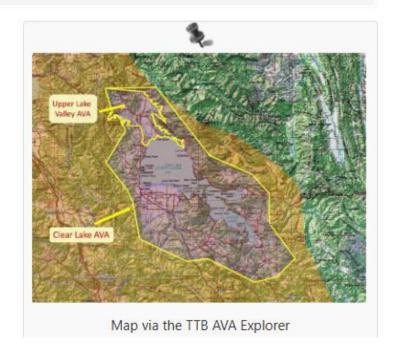
https://www.ttb.gov/wine/american-viticultural-area-ava (9373/002/01165554.DOCX) 6

Welcome to the World, Upper Lake Valley AVA!

By admin | June 11, 2022 | News of The Wine World, Testable Material for the CWE Exam

On June 3 (2022) the TTB (Alcohol and Tobacco Tax and Trade Bureau) of the United States announced the approval of the Upper Lake Valley American Viticultural Area (AVA). The Upper Lake Valley AVA represents the 8th AVA located in Lake County, California.

The newly minted AVA—situated on the north shore of Clear Lake—covers a total of 17, 360 acres and is located entirely within the existing Clear Lake AVA. However, the area of the previously existing Clear Lake AVA was extended (along the northwest corner) in order to accommodate the new appellation within its boundaries.



 According to the original petition—written by Terry Dereniuk and originally submitted in 2018 on behalf of the Growers of

Upper Lake County—the distinguishing features of the Upper Lake Valley AVA include its hydrogeology, soils, and climate, as described below.

- Hydrogeology: The area of the Upper Lake Valley AVA covers a series of valleys running north-northwesterly from the shores of Clear Lake. These valleys (and the surrounding hillsides) sit at elevations of 1,330 feet to 1,480 feet above sea level; vineyards are currently planted along the valley floors and up into the hillsides—as high as 1,450 feet asl. The area—a transitional region between the Mendocino National Forest and the Clear Lake Basin—has a uniquely high water table (the boundary between the surface and the area where groundwater saturates the soil). This allows for a high degree of dry farming.
- Soils: The area contains a wide range of soil types, and varies decidedly between the deep, level soils of the valley floors; the thin, well-drained soils on the hillsides; and the marshy areas closest to the lake. Much of the bedrock is composed of shale and sandstone; topsoils include combinations of silt, gravel, clay, and loam.
- Climate: The climate of the Upper Lake Valley AVA is slightly cooler than the surrounding areas. The median growing degree days (GDD) in the new AVA ranges from a low of 2,809 to a high of 3,343; in other areas of the Clear Lake AVA, the median high climbs as high as 3,811. The Upper Lake Valley AVA is thus classified as heat summation Region III—Region I is the coolest and Region V is the warmest—according to the often-cited Winkler Scale.



Upper Lake Valley AVA



Source: https://www.lakecountywinegrape.org/region/lake-county-ava/upper-lake-valley-ava/

Scotts Valley Energy Corporation FAQ Webpage

Tribal Enterprises » Bioenergy/Biochar »

Enterprise Bio Char FAQ

Font Size: 🚹 📮 1 Share & Bookmark 📮 Feedback 🚔 Prin

Upper Lake Wood Processing Campus

Frequently Asked Questions:

Will the plant impact the water channel nearby that is prominent to local wildlife?

No. The water channel is located outside of the area leased and used for the plant. We also only plan to fence one acre of the five acres so as to minimize as much impact on wildlife as possible.

Source: https://www.scottsvalley-nsn.gov/tribal-enterprises/bioenergy-biochar/enterprise-bio-char-faq

Waterway to Rodman Slough Preserve & Clear Lake

We believe the project's proximity to the west waterway warrants an Environmental Impact Report





U.S. Fish and Wildlife Service National Wetlands Inventory

Estuarine and Marine Wetland

NATIONAL WETLANDS INVENTORY



Riverine

Freshwater Pond

Timeline 2020 - 2023

- October 2020 April 2023: Civil lawsuit continues
- April 2023: Proposed settlement in Red Hills BioEnergy lawsuit
 - Board of Supervisors meet in Closed Session to approve settlement
- May 2023: SVEC creates first plans for BioEnergy site at 755 E. Hwy 20 in Upper Lake
 - County-owned property purchased by LC Watershed Protection District in 2015
 - Purpose of grant funds "to enhance flood protection corridors and wildlife value"

Red Hills Settlement Results in Project Changes

- New footprint is 15,000 ft² (Original permitted footprint was 43,350 ft²)
- 28,350 ft² outdoor biomass processing & storage area was eliminated
- Wood chipper and Hammermill are eliminated
- All biomass will be processed indoors to reduce dust
- Max one truck load per day of chipped biomass
 - Originally permitted for 2-5 truck loads per day of chipped and unchipped biomass
- Delivery trucks must back in and offload the biomass inside the structure
- Elimination of 20' wide lane and turn around area for delivery trucks
- Structure relocated 40 feet east, new location is 180' (vs. 140') away from Red Hills Rd. to reduce the sound transmission to the neighbor to the west

How does the Red Hills lawsuit affect us?

We believe the County of Lake and Scotts Valley Energy Corporation with their legal counsel agreed to move the central biomass processing site to Upper Lake to reach a settlement in the Red Hills lawsuit, thereby reducing the environmental impact and other adverse impacts on Red Hills residents and businesses and passing those negative impacts onto us, the community of **Upper Lake.**

Upper Lake is a more environmentally sensitive site than Red Hills

- Nearby waterways flow into Rodman Slough Preserve and Clear Lake home to sensitive habitat and species
- Nearby sensitive receptors such as preschool, Upper Lake School District, senior citizens in mobile home park
- Highest water table in the County, unique conditions for dry farming
- Zoned Agriculture Preserve
- Within 100-year flood zone based on 2021 Upper Lake Feasibility Study
- Wildlife corridor between west end of Hogback Ridge & Alley Ridge for wildlife seeking freshwater near low-lying wetlands in dry summer months
- Property purchased to "enhance flood protection corridors and wildlife value"

Upper Lake Use Permit and Lease

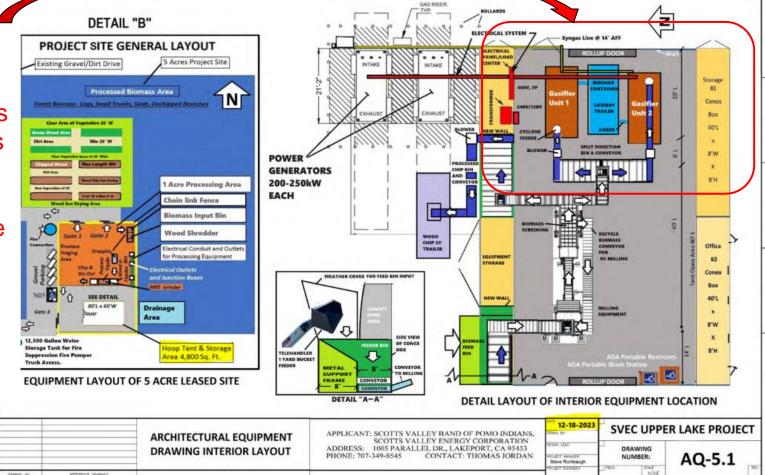
- April 22, 2024: SVEC applies for use permit AG Forest Wood Processing Bioenergy Project
 - 755 E. State Highway 20, Upper Lake
- April 23, 2024: Lease Agreement between LC Watershed Protection District and SVEC
 - 5 acres of 42 acres leased, \$100/year, minimum of 15 years, may be renewed
 - Lease agreement states: "biomass processing depot" in Upper Lake will serve as the
 "central processing system for forest thinning biomass collected throughout
 Lake County"

Safety Precautions Were Avoided

- Original plans include 4,800 ft² structure
- Meetings with North Shore Fire Protection District & Lake County Building Department reveal sprinklers are required for buildings 2,500 ft² or larger
- In January 2024, plans were downsized to 2,400 ft² structure to avoid installing fire protection sprinklers (a safety feature):

"Structure was reduced in size to prevent the requirement to install sprinklers which may have prevented the project from moving forward due to cost" (page 44 of application)

Original site plans with 4,800 ft² structure has gasifier units and biochar container stored inside of the building



Revised site INPUT BIN FOR MILLING BOLLARDS plans with 2,400 ft² PANEL/LOAD TRAILER MILLED WOOD HIPS structure: Gasifier units and biochar container BLECTRICAL CONDUCT BLOWER will be stored 28' L CONVEYOR TO GASIFER MILLED WOOD outside CHIP POWER TRAILER **GENERATORS** MAINTENANCE OPEN SPACE 200-250kW EACH **CANOPY - FABRIC WITH METAL STRUCTURAL SUPPORT** 40' W x 60' L = 2,400 SF DETAIL LAYOUT OF INTERIOR EQUIPMENT LOCATION 1-15-2024 **SVEC UPPER LAKE PROJECT** APPLICANT: SCOTTS VALLEY BAND OF POMO INDIANS, ARCHITECTURAL EQUIPMENT SCOTTS VALLEY ENERGY CORPORATION ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453 DRAWING DRAWING INTERIOR LAYOUT PHONE: 707-349-8545 CONTACT: THOMAS JORDAN AQ-5.1 NUMBER: Steve Rumbaugh

ES10 - 40' Wide - 23' High PROJECT SITE LAYOUT Revised site **5 ACRE AREA FOR** Clear Area of Vegetation 20' W PROJECT PERIMETER plans with **Green Wood Area** LEGEND Min 20' W **Dirt Area** 2,400 ft² 27.625 GALLON RESERVE Clear Vegetation Space of 20' Wide WATER TANK FOR FIRE GRAVEL - 4 ES10-406023-PDM **Chipped Wood** structure: Max Length 100 TRUCK SUPPORT BIOCHAR TRAILER Dirt Area Gasifier **Wood Chip Sun Drying CANOPY STRUCTURE Row Separation of 20** CONEX BOX DOORS __ 3 units and 8-12" W x Max 8" H CONEXT BOX 20' OR 40' GRAVEL CLEAR SPACE biochar GATE 2 GATE 3 **GASIFIER UNIT** BIOMASS SHREDDING container **GENSET UNIT** - 2 STAGING RETAINED NATURAL AREA will be TELEHANDLER - GRAPPLER / LOADER stored CHAIN LINK FENCE - 1 ACRE AREA ABRIC CANOPY - METAL FRAME outside GATE 1 STRUCTURE 40'W x 60'L = 2,400 SF DRAIN FIELD ROLLUP DOORS ON EACH END TYPICAL CONEX BOX FOREST WOOD PROCESSING AREA 110'-NFPA 1142 WATER STORAGE TANK 1-15-2024 **SVEC UPPER LAKE PROJECT** ARCHITECTURAL EQUIPMENT SCOTTS VALLEY ENERGY CORPORATION ADDRESS: 1005 PARALLEL DR., LAKEPORT, CA 95453 DRAWING INTERIOR LANGUE DRAWING AQ-5.3 PHONE: 707-349-8545 CONTACT: THOMAS JORDAN POECT WASHIET NUMBER: Steve Rumbaugh

Production of Synthetic Gas ("Syngas")

Synthetic gas (syngas), a mixture of hydrogen and carbon monoxide, presents fire/explosion and toxicity hazards due to its flammable and toxic components, requiring careful handling and safety precautions at every stage of production, storage, transport, and utilization.



Here's a more detailed explanation of the cautions associated with synthetic gas production:

1. Flammability and Explosiveness:

- Syngas, primarily composed of hydrogen and carbon monoxide, is highly flammable and can explode if ignited in the presence of oxygen.
- Uncontrolled release of syngas can lead to fire and explosion hazards, especially in confined spaces.
- The consequences of an uncontrolled release depend on the type of damage (rupture or puncture) and whether ignition occurs.

Safe Storage of Biochar

dust, or have respiratory problems then the use of an NIOSH-Approved N95 particulate filtering face piece respirator should be used. Use of respirator requires proper fitting and checking with your physician before using.

Biochar Storage

Never store near food and beverages. Biochar should be stored in a cool, dry place away from direct sunlight. It is important to reseal containers immediately after use. Freshly produced Biochar may be prone for auto ignition and spontaneous heating when exposed to air. Consider the volume of biochar being stored and location of your storage site knowing the potential for auto ignition. Large quantities of of stacked biochar have more potential of spontaneous flame when exposed to air.

Finely ground biochar powder suspended in the air in a closed container has the potential to become a fuel if an ignition source is present. If leftover biochar is re-packaged, avoid using tightly sealed rigid containers such as cans or jars, but consider using a bag so that flexible sides and be rolled up leaving little opportunity for dust to become airborne inside the container during transportation or other handling.

Precautions to Take

- Keep biochar dust to a minimum
- Wear safety glasses
- ♦ Wear gloves
- Wear long sleeve shirts
- Consider respirator if needed
- Follow rules for safe storage

This project is supported by Agriculture and Food Research Initiative Competitive Grant No. 2011-68005-30411 from the National Institute of Food and Agriculture.

Source: https://ag-safety.extension.org/wp-content/uploads/2019/05/MasterGardenerSafetySheet2012Final.pdf

- SCOTTS VALLEY ENERGY CORPORATION
- BIOENERGY/BIOCHAR

Enterprise Bio Char FAQ

VALLEY SERVICES COMPANY

THE CLEAN CARBON CORPORATION SCOTTS VALLEY FINANCE COMPANY Tribal Enterprises » Bioenergy/Biochar »

Enterprise Bio Char FAQ

★ Share & Bookmark Feedback

Upper Lake Wood Processing Campus

Frequently Asked Questions:

What impact will there be to air quality? According to the San Joaquin Air Pollution Control District, very little. In fact, a diesel truck driving down Main Street generates more emissions.

Site specific study clearly states results only apply to specific site, test dates, and times



Source Test Report Certification Statement

Alliance Technical Group, LLC (Alliance) has completed the source testing as described in this report. Results apply only to the source(s) tested and operating condition(s) for the specific test date(s) and time(s) identified within this report. All results are intended to be considered in their entirety, and Alliance is not responsible for use of less than the complete test report without written consent. This report shall not be reproduced in full or in part without written approval from the customer.

Business and Professions Code (BPC) Violations

8792. A person who does any of the following is guilty of a misdemeanor:

- (a) Unless the person is exempt from licensure under this chapter, practices, or offers to practice, land surveying in this state without legal authorization.
- (b) Presents as their own the certificate of a land surveyor-in-training or the license of a professional land surveyor unless they are the person named on the certificate or the license.
- (c) Attempts to file as their own any record of survey under the license of a professional land surveyor.
- (d) Gives false evidence of any kind to the board, or to any board member, in obtaining a certificate or a license.
- (e) Impersonates or uses the seal, signature, or license number of a professional land surveyor or who uses a false license number.
- (f) Impersonates or uses the certificate number of a land surveyor-in-training or who uses a false certificate.
- (g) Uses an expired, suspended, surrendered, or revoked certificate or license.
- (h) Represents themselves as, or uses the title of, professional land surveyor, or any other title whereby that person could be considered as practicing or offering to practice land surveying, unless the person is correspondingly qualified by licensure as a land surveyor under this chapter.
- (i) Uses the title, or any combination of that title, of "professional land surveyor," "licensed land surveyor," "land surveyor," or the titles specified in Sections 8751 and 8775, or "land surveyor-in-training," or who makes use of any abbreviation of that title that might lead to the belief that the person is a licensed land surveyor or holds a certificate as a land surveyor-in-training, without being licensed or certified as required by this chapter.
- (j) Unless appropriately licensed, manages, or conducts as manager, proprietor, or agent, any place of business from which land surveying work is solicited, performed, or practiced, except as authorized pursuant to Section 6731.2.
- (k) Violates any provision of this chapter.

(Amended by Stats. 2024, Ch. 588, Sec. 22. (AB 3253) Effective January 1, 2025.)

Business and Professions Code (BPC) Violations

- 5536. (a) It is a misdemeanor, punishable by a fine of not less than one hundred dollars (\$100) nor more than five thousand dollars (\$5,000), or by imprisonment in a county jail not exceeding one year, or by both that fine and imprisonment, for any person who is not licensed to practice architecture under this chapter to practice architecture in this state, to use any term confusingly similar to the word architect, to use the stamp of a licensed architect, as provided in Section 5536.1, or to advertise or put out any sign, card, or other device that might indicate to the public that the person is an architect, is qualified to engage in the practice of architecture, or is an architectural designer.
- (b) It is a misdemeanor, punishable as specified in subdivision (a), for any person who is not licensed to practice architecture under this chapter to affix a stamp or seal that bears the legend "State of California" or words or symbols that represent or imply that the person is so licensed by the state to prepare plans, specifications, or instruments of service.

(Amended by Stats. 2019, Ch. 376, Sec. 6. (SB 608) Effective January 1, 2020.)

- 5536.1. (a) All persons preparing or being in responsible control of plans, specifications, and instruments of service for others shall sign those plans, specifications, and instruments of service and all contracts therefor, and, if licensed under this chapter, shall affix a stamp, which complies with subdivision (b), to those plans, specifications, and instruments of service, as evidence of the person's responsibility for those documents. The failure of any person to comply with this subdivision is a misdemeanor punishable as provided in Section 5536. This section shall not apply to employees of persons licensed under this chapter while acting within the course of their employment.
- (b) For the purposes of this chapter, any stamp used by any architect licensed under this chapter shall be of a design authorized by the board, which shall at a minimum bear the licensee's name, their license number, the legend "licensed architect" and the legend "State of California," and which shall provide a means of indicating the renewal date of the license.
- (c) The preparation of plans, specifications, or instruments of service for any building, except the buildings described in Section 5537, by any person who is not licensed to practice architecture in this state, is a misdemeanor punishable as provided in Section 5536.
- (d) The board may adopt regulations necessary for the implementation of this section.

(Amended by Stats. 2024, Ch. 482, Sec. 4. (SB 1452) Effective January 1, 2025.)

Business and Professions Code (BPC) Violations

5536.2. Each county or city which requires the issuance of any permit as a condition precedent to the construction, alteration, improvement, or repair of any building or structure shall also require as a condition precedent to the issuance of the permit a signed statement that the person who prepared or was in responsible control of the plans and specifications for the construction, alteration, improvement, or repair of the building or structure is licensed under this chapter to prepare the plans and specifications, or is otherwise licensed in this state to prepare the plans and specifications.

The signature and stamp, as provided for in Section 5536.1, on the plans and specifications by the person who prepared or was in responsible control of the plans and specifications shall constitute compliance with this section.

It is the responsibility of the agency that issues the permit to determine that the person who signed and stamped the plans and specifications or who submitted the signed statement required by this section is licensed under this chapter or is otherwise licensed in this state to prepare the plans and specifications.

This section shall not apply to the issuance of permits where the preparation of plans and specifications for the construction, alteration, improvement, or repair of a building or structure is exempt from this chapter, except that the person preparing the plans and specifications for others shall sign the plans and specifications as provided by Section 5536.1.

(Amended by Stats. 1996, Ch. 184, Sec. 7. Effective January 1, 1997.)

6735. (a) All civil (including structural and geotechnical) engineering plans, calculations, specifications, and reports (hereinafter referred to as "documents") shall be prepared by, or under the responsible charge of, a licensed civil engineer and shall include his or her name and license number. Interim documents shall include a notation as to the intended purpose of the document, such as "preliminary," "not for construction," "for plan check only," or "for review only." All civil engineering plans and specifications that are permitted or that are to be released for construction shall bear the signature and seal or stamp of the licensee and the date of signing and sealing or stamping. All final civil engineering calculations and reports shall bear the signature and seal or stamp of the licensee, and the date of signing and sealing or stamping. If civil engineering plans are required to be signed and sealed or stamped and have multiple sheets, the signature, seal or stamp, and date of signing and sealing or stamping shall appear on each sheet of the plans. If civil engineering specifications, calculations, and reports are required to be signed and sealed or stamped and have multiple pages, the signature, seal or stamp, and date of signing and sealing or stamping shall appear at a minimum on the title sheet, cover sheet, or signature sheet.

(b) Notwithstanding subdivision (a), a licensed civil engineer who signs civil engineering documents shall not be responsible for damage caused by subsequent changes to or uses of those documents, if the subsequent changes or uses, including changes or uses made by state or local governmental agencies, are not authorized or approved by the licensed civil engineer who originally signed the documents, provided that the engineering service rendered by the civil engineer who signed the documents was not also a proximate cause of the damage.

(Amended by Stats. 2015, Ch. 430, Sec. 4. (AB 181) Effective January 1, 2016.)

Business and Professions Code (BPC) Violations

6735.3. (a) All electrical engineering plans, specifications, calculations, and reports (hereinafter referred to as "documents") prepared by, or under the responsible charge of, a licensed electrical engineer shall include his or her name and license number. Interim documents shall include a notation as to the intended purpose of the document, such as "preliminary," "not for construction," "for plan check only," or "for review only." All electrical engineering plans and specifications that are permitted or that are to be released for construction shall bear the signature and seal or stamp of the licensee and the date of signing and sealing or stamping. All final electrical engineering calculations and reports shall bear the signature and seal or stamp of the licensee and the date of signing and sealing or stamping. If electrical engineering plans are required to be signed and sealed and have multiple sheets, the signature, seal or stamp, and date of signing and sealing or stamping shall appear on each sheet of the plans. If electrical engineering specifications, calculations, and reports are required to be signed and sealed or stamped and have multiple pages, the signature, seal or stamp, and date of signing and sealing or stamping shall appear at a minimum on the title sheet, cover sheet, or signature sheet.

(b) Notwithstanding subdivision (a), a licensed electrical engineer who signs electrical engineering documents shall not be responsible for damage caused by subsequent changes to or uses of those documents, if the subsequent changes or uses, including changes or uses made by state or local governmental agencies, are not authorized or approved by the licensed electrical engineer who originally signed the documents, provided that the engineering service rendered by the electrical engineer who signed the documents was not also a proximate cause of the damage.

(Amended by Stats. 2009, Ch. 368, Sec. 2. (AB 645) Effective January 1, 2010.)

6735.4. (a) All mechanical engineering plans, specifications, calculations, and reports (hereinafter referred to as "documents") prepared by, or under the responsible charge of, a licensed mechanical engineer shall include his or her name and license number. Interim documents shall include a notation as to the intended purpose of the document, such as "preliminary," "not for construction," "for plan check only," or "for review only." All mechanical engineering plans and specifications that are permitted or that are to be released for construction shall bear the signature and seal or stamp of the licensee and the date of signing and sealing or stamping. All final mechanical engineering calculations and reports shall bear the signature and seal or stamp of the licensee and the date of signing and sealing or stamping. If mechanical engineering plans are required to be signed and sealed and have multiple sheets, the signature, seal or stamp, and date of signing and sealing or stamping shall appear on each sheet of the plans. If mechanical engineering specifications, calculations, and reports are required to be signed and sealed or stamped and have multiple pages, the signature, seal or stamp, and date of signing shall appear at a minimum on the title sheet, cover sheet, or signature sheet.

(b) Notwithstanding subdivision (a), a licensed mechanical engineer who signs mechanical engineering documents shall not be responsible for damage caused by subsequent changes to or uses of those documents, if the subsequent changes or uses, including changes or uses made by state or local governmental agencies, are not authorized or approved by the licensed mechanical engineer who originally signed the documents, provided that the engineering service rendered by the mechanical engineer who signed the documents was not also a proximate cause of the damage.

(Amended by Stats. 2009, Ch. 368, Sec. 3. (AB 645) Effective January 1, 2010.)

Business and Professions Code (BPC) Violations

6787. A person who does any of the following is guilty of a misdemeanor:

- (a) Unless the person is exempt from licensure under this chapter, practices or offers to practice civil, electrical, or mechanical engineering in this state according to this chapter without legal authorization.
- (b) Presents or attempts to file as the person's own the certificate of an engineer-in-training or the certificate of licensure of a licensed professional engineer unless they are the person named on the certificate.
- (c) Gives false evidence of any kind to the board, or to any board member, in obtaining a certificate as an engineer-in-training or a certificate of licensure.
- (d) Impersonates or uses the seal, signature, or license number of a licensed professional engineer or uses a false license number.
- (e) Impersonates or uses the certificate number of an engineer-in-training or uses a false certificate.
- (f) Uses an expired, suspended, surrendered, or revoked certificate or license.
- (g) Represents themselves as, or uses the title of, a licensed or registered civil, electrical, or mechanical engineer, or any other title whereby that person could be considered as practicing or offering to practice civil, electrical, or mechanical engineering in any of its branches, unless they are correspondingly qualified by licensure as a civil, electrical, or mechanical engineer under this chapter.
- (h) Unless appropriately licensed, manages, or conducts as manager, proprietor, or agent, any place of business from which civil, electrical, or mechanical engineering work is solicited, performed, or practiced, except as authorized pursuant to Section 8726.1.
- (i) Uses the title, or any combination of that title, of "professional engineer," "licensed engineer," "registered engineer," or the branch titles specified in Section 6732, or the authority titles specified in Sections 6736 and 6736.1, or "engineer-in-training," or makes use of any abbreviation of that title that might lead to the belief that the person is a licensed engineer, is authorized to use the titles specified in Section 6736 or 6736.1, or holds a certificate as an engineer-in-training, without being licensed, authorized, or certified as required by this chapter.
- (j) Uses the title "consulting engineer" without being licensed as required by this chapter or without being authorized to use that title pursuant to legislation enacted at the 1963, 1965, or 1968 Regular Session.
- (k) Violates any provision of this chapter.

(Amended by Stats. 2024, Ch. 588, Sec. 12. (AB 3253) Effective January 1, 2025.)

Business and Professions Code (BPC) Violations

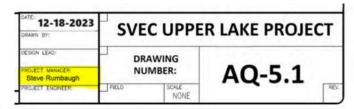
- 8726. (a) A person, including any person employed by the state or by a city, county, or city and county within the state, practices land surveying within the meaning of this chapter who, either in a public or private capacity, does or offers to do any one or more of the following:
- (1) Locates, relocates, establishes, reestablishes, or retraces the alignment or elevation for any of the fixed works embraced within the practice of civil engineering, as described in Section 6731.
- (2) Determines the configuration or contour of the earth's surface, or the position of fixed objects above, on, or below the surface of the earth by applying the principles of mathematics or photogrammetry.
- (3) Locates, relocates, establishes, reestablishes, or retraces any property line or boundary of any parcel of land, right-of-way, easement, or alignment of those lines or boundaries.
- (4) Makes any survey for the subdivision or resubdivision of any tract of land. For the purposes of this subdivision, the term "subdivision" or "resubdivision" shall be defined to include, but not be limited to, the definition in the Subdivision Map Act (Division 2 (commencing with Section 66410) of Title 7 of the Government Code) or the Subdivided Lands Law (Chapter 1 (commencing with Section 11000) of Part 2 of Division 4 of this code).
- (5) By the use of the principles of land surveying determines the position for any monument or reference point that marks a property line, boundary, or corner, or sets, resets, or replaces any monument or reference point.
- (6) Geodetic surveying or cadastral surveying. As used in this chapter:
 - (A) Geodetic surveying means performing surveys, in which account is taken of the figure and size of the earth to determine or predetermine the horizontal or vertical positions of fixed objects thereon or related thereto, geodetic control points, monuments, or stations for use in the practice of land surveying or for stating the position of fixed objects, geodetic control points, monuments, or stations by California Coordinate System coordinates.
 - (B) Cadastral surveying means performing a survey that creates, marks, defines, retraces, or reestablishes the boundaries and subdivisions of the public land survey system of the United States.
- (7) Determines the information shown or to be shown on any map or document prepared or furnished in connection with any one or more of the functions described in paragraphs (1) to (6), inclusive.
- (8) Indicates, in any capacity or in any manner, by the use of the title "land surveyor" or by any other title or by any other representation that they practice or offer to practice land surveying in any of its branches.

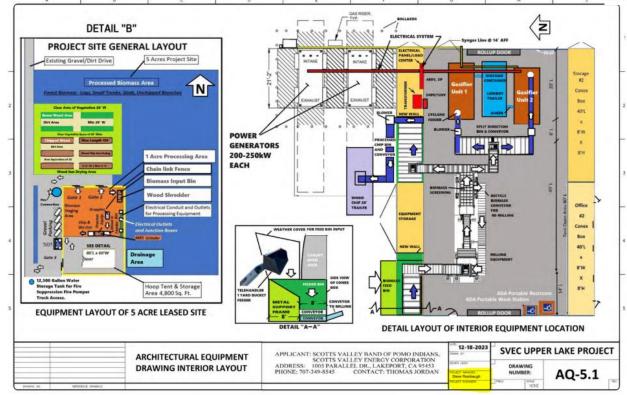
Business and Professions Code (BPC) Violations

- (9) Procures or offers to procure land surveying work for themselves or others.
- (10) Manages, or conducts as manager, proprietor, or agent, any place of business from which land surveying work is solicited, performed, or practiced.
- (11) Coordinates the work of professional, technical, or special consultants in connection with the activities authorized by this chapter.
- (12) Determines the information shown or to be shown within the description of any deed, trust deed, or other title document prepared for the purpose of describing the limit of real property in connection with any one or more of the functions described in paragraphs (1) to (6), inclusive.
- (13) Creates, prepares, or modifies electronic or computerized data in the performance of the activities described in paragraphs (1), (2), (3), (4), (5), (6), (11), and (12).
- (14) Renders a statement regarding the accuracy of maps or measured survey data.
- (b) Any department or agency of the state or any city, county, or city and county that has an unregistered person in responsible charge of land surveying work on January 1, 1986, shall be exempt from the requirement that the person be licensed as a land surveyor until the person currently in responsible charge is replaced.
- (c) The review, approval, or examination by a governmental entity of documents prepared or performed pursuant to this section shall be done by, or under the direct supervision of, a person authorized to practice land surveying.

(Amended by Stats. 2021, Ch. 106, Sec. 1. (SB 414) Effective January 1, 2022.)

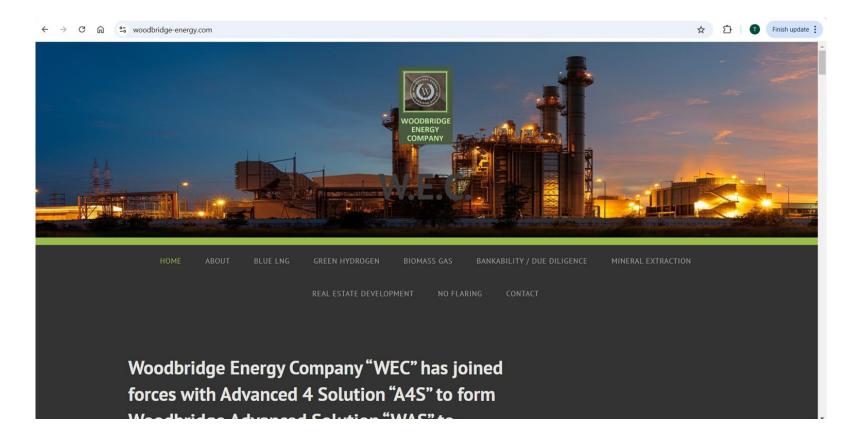
Project Manager - Steve Rumbaugh





- Site plans were prepared by Steve Rumbaugh
- Plans were not signed and stamped by a licensed design professional, as required
- Google search revealed Steve
 Rumbaugh owns Woodbridge Energy
 Company, LLC in Martinez, CA
- Woodbridge Energy Company, LLC addresses:
 - Mailbox in UPS store
 - o Steve Rumbaugh's home

Steve Rumbaugh & Woodbridge Energy Company, LLC











HOME

ABOUT

BLUE LNG

GREEN HYDROGEN

BIOMASS GAS

BANKABILITY / DUE DILIGENCE

MINERAL EXTRACTION

REAL ESTATE DEVELOPMENT

NO FLARING

CONTACT

About

Woodbridge Energy – USA Based Technology & Global Energy Leader

We are founded on a mission to create value, provide energy to the masses and focused on renewable solutions to the world. Woodbridge is relentless in the pursuit of a sustainable future. Sustainability has always been at the forefront of our business — from our energy saving customer projects and clean energy generation assets, to workplace green initiatives and giving back to our communities.

The world is facing climate change and biodiversity loss at levels that threaten the life supporting systems of our planet for future generations. The scientific consensus is that human activity is the cause. Woodbridge takes our responsibility of protecting the environment seriously. Our business is founded on providing clean, green, and sustainable solutions that reduce greenhouse gas emissions.

Woodbridge is committed to continuing to deliver comprehensive projects that help accelerate the globa transition to a negative carbon future. We are also committed to reviewing our own carbon footprint, publishing data on emissions, and preparing plans to achieve negative carbon from our direct operations

BANKABILITY / DUE DILIGENCE

L ESTATE DEVELOPMENT NO FLARING CONT

Steve Rumbaugh

President



Mr. Rumbaugh has been in the engineering and construction business for over 40 years. He has engineer 100's of millions of dollars in construction for major companies and governmental agencies such as, AT & Bechtel, United Technologies, State of Oregon, U.S. Government. Mr. Rumbaugh has held key leadership positions in construction, engineering, real estate, and high-tech companies. As an expert in designing complex systems, he is called upon to provide key assistance by our clients in the renewable energy and communication industries. He holds 9 patents in wireline, powerline and wireless communication, error correction, surround sound audio, real-time transmission, and lighting systems.

His major focus is on Environmental Life Cycle of Biomass, Water, CO2, CO, H2, SNG, RNG and Energy. His relationships within the renewable industry has allowed him develop projects around the United States. Companies around the world have teamed and co-developed projects with Steve. Steve has also taken the lead on multiple developments from site acquisition to NTP to COD. He has traveled extensively the world, engineering, sourcing, partnering and managing projects.

Rumbaugh was Engineering Manager of Aydin Systems (E&W) Electronic Warfare Division leading a group that delivered, installed, and trained the Military Allies and testing of battlefield communications. This included microware, satellite and radio comms. In addition to comms, his division provided equipment or software on almost every missile, aircraft or weapons systems in the western world that included, airborn data comms for the Patriot missile defense technology and tactical air-defense radar and over the horizon radar.

BLUE LNG BANKABILITY / DUE DILIGENCE

CONTACT

Randy Pond

Director and Advisor



Mr. Pond is a director, advisor to and investor in Woodbridge Energy. He is presently at Advance Micro Devices (AMD) after being the CFO and COO at Pensando Systems, a network edge security technology provider. Just as data centers are adopting a "scale-out" approach for compute and storage systems, the networking and security elements of the data center must also adopt a scale-out services architecture, and the network, security, and visibility functions need to find a new home in this model. The ideal place to instantiate these services is at the server edge, where services such as encryption, firewall, visibility, and networking can be delivered in a scalable manner. Pensando Systems raised \$145 million in series C funding, bringing its total raised to date to \$278 million after an earlier founder-led series A of \$71mm & series B of \$62 mm.

PENSANDO SYSTEMS (Acquired by AMD for \$1.9 Billion in 2022)

Distributed Computing Company – Founded in 2017, Pensando Systems is led by Silicon Valley's legendary "MPLS" team from Cisco — Mario Mazzola, Prem Jain, Luca Cafiero, Soni Jiandani, and Randy Pond — who have approximately \$280 Million from Lightspeed Venture Partners, HP Enterprise, Ericsson Ventures, Qualcomm Ventures, John Chambers (Cisco former CEO), Goldman Sachs, etc.

HOME ABOUT BLUE LNG GREEN HYDROGEN BIOMASS GAS BANKABILITY / DUE DILIGENCE MINERAL EXTRACTION

REAL ESTATE DEVELOPMENT NO FLARING CONTACT

Bernard Brown

V.P. of Project Permitting



Mr. Brown has over 20 years of both private and public experience. His background includes hazard mitigation planning, risk analysis, grant writing and management, and conducting vulnerability assessments. Bernard gained valuable energy experience while serving on a utilities committee as an elected official in Delaware. In his private sector experience, Bernard both designed and managed projects involving environmental remediation. Assoc. AIA, REP, ENV SP, Sustainability

He is currently a doctoral candidate at Villanova University researching waste-to-energy processes and the creation of microgrids using waste-to-energy systems. Additionally, he completed his Bachelor's in Urban Planning and Design from Arizona State University. Bernard also holds a Bachelor's Degree in Finance from Christopher Newport University & a Master's in Public Admin. from Clemson University.

BLUE LNG

BANKABILITY / DUE DILIGENCE

MINERAL EXTRACTION

REAL ESTATE DEVELOPMENT

Andrew Campbell

Senior Project Development Officer - Site Assessment and Mitigations



Mr. Campbell has over 24 years of experience in the management, treatment, containment, and disposal of specialized waste streams and land pollution. His work has also included compliance and design of petroleum storage facilities. Andrew's background includes 10 years of developing and managing federal, state, and commercial contracts using time-and-expenses, firm fixed price, and performance-based payment structures.PE, Principal Engineer

He holds a Master's Degree – Civil Engineering from the University of Colorado and a Bachelor's Degree – Biochemistry from the University of California, Davis. He holds professional engineering licenses in Arizona, California, Florida, Maryland, Nevada, New Jersey, Texas, and Washington. Andrew is adept at researching engineering, scientific guidance, practice references and then successfully implementing them in real-world

BANKABILITY / DUE DILIGENCE BLUE LNG MINERAL EXTRACTION

REAL ESTATE DEVELOPMENT

Bill Slaton

Governmental and Energy Advisor



Mr. Slaton is an advisor to Woodbridge Energy for supporting its effort in the renewable energy sector. He brings a vast background in the utility sector, banking, finance, and executive guidance. Bill has been a senior consultant specializing in corporate board governance.

For 16 years he served as an elected board member of the Sacramento Municipal Utility District which provides electric services to 1.5 million Northern California customers. He served three terms as President of the Board. Bill also served from 2012 to 2019 as a gubernatorial appointee to the governing board of the California Public Employees Retirement System (CALPERS), the second-largest public pension fund in America after the federal government.

Prior to his leadership roles on these boards, he served on two publicly traded commercial bank boards as well as on various non-profit boards. Bill is a graduate of the University of Texas.

BLUE LNG BANKABILITY / DUE DILIGENCE GREEN HYDROGEN MINERAL EXTRACTION

REAL ESTATE DEVELOPMENT

Lindi von Mutiu

V.P. of Environmental Relations

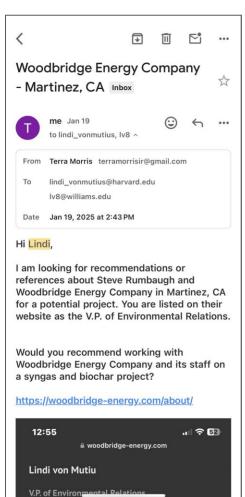


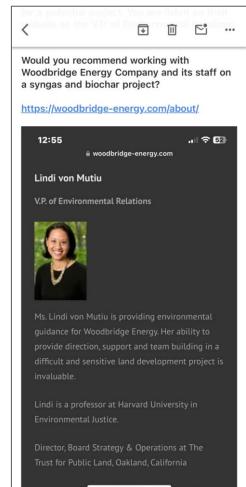
Ms. Lindi von Mutiu is providing environmental quidance for Woodbridge Energy. Her ability to provide direction, support and team building in a difficult and sensitive land development project is invaluable.

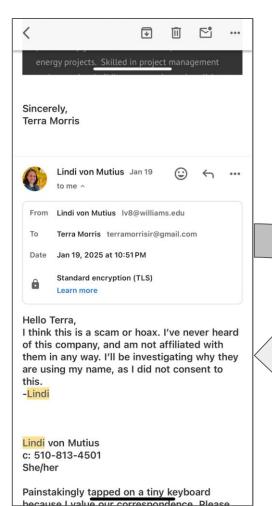
Lindi is a professor at Harvard University in Environmental Justice.

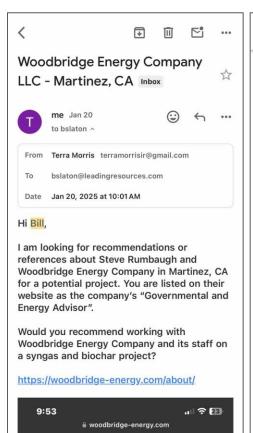
Director, Board Strategy & Operations at The Trust for Public Land, Oakland, California

Experienced Chief of Staff for the Sierra Club and non-profit executive management, coalition building and maintenance, and political advocacy. Her background in both non-profit organizations, government agencies, and corporate law can provide key quidance in the development of energy projects. Skilled in project management and execution, building community and coalitions, often among unlikely partners, implementing change processes around strategic planning, culture, and equity, and pro-bono, corporate bankruptcy, and



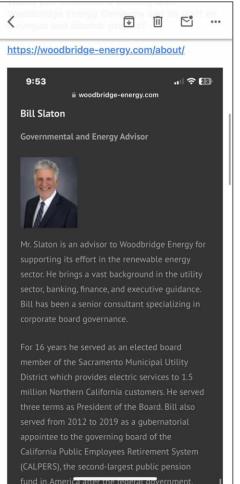


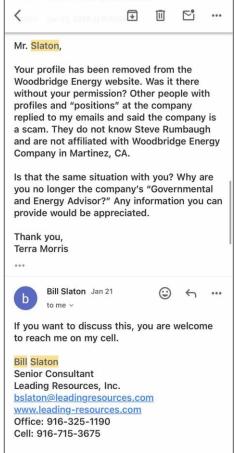




Bill Slaton

Governmental and Energy Advisor





Terra Morris spoke to Mr. Bill Slaton by phone on January 21, 2025.

Mr. Slaton met Steve Rumbaugh three years ago and has not talked to Steve since. Mr. Slaton did not know or consent to his photograph and information being used on the WEC website. He used the "Contact" form on the WFC website to have his profile be removed. He said it was removed from the site within hours.

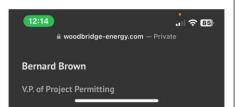


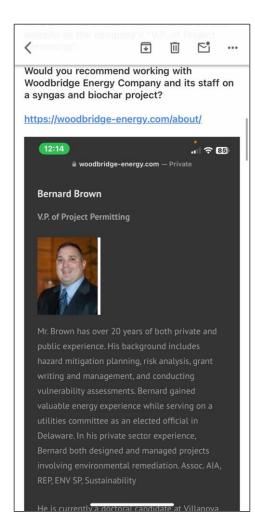
Hi Bernard,

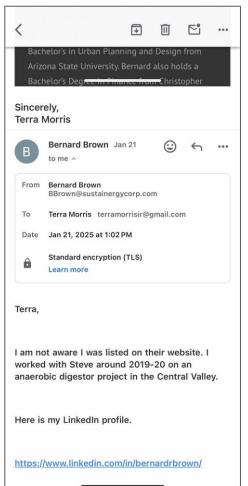
I am looking for recommendations or references about Steve Rumbaugh and Woodbridge Energy Company in Martinez, CA for a potential project. You are listed on their website as the company's "V.P. of Project Permitting".

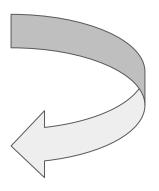
Would you recommend working with Woodbridge Energy Company and its staff on a syngas and biochar project?

https://woodbridge-energy.com/about/









Continued on next slide

Terra,

I am not aware I was listed on their website. I worked with Steve around 2019-20 on an anaerobic digestor project in the Central Valley.

Here is my LinkedIn profile.

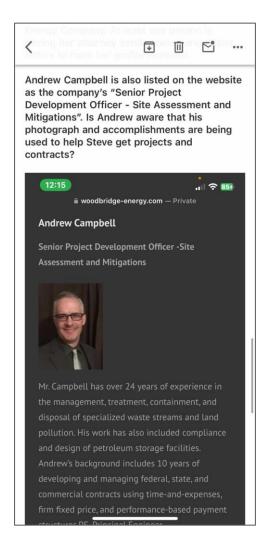
https://www.linkedin.com/in/bernardrbrown/

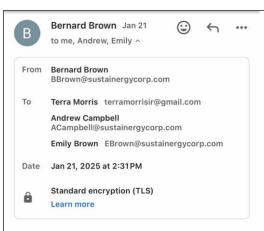
I do have a background in syn gas manufacturing and biochar production. I have developed and completed multiple projects. Additionally, I have successfully led a DOE funding project for the ARCH2 Hydrogen Hub.

My partner (Andrew Campbell) and I own Sustainergy Solutions.

Respectfully,

•••



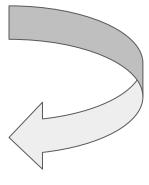


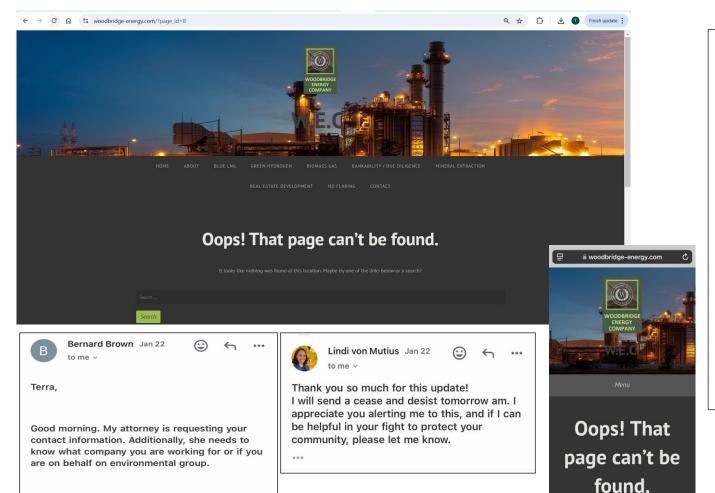
Terra,

Thank you for bringing this our attention. I have looped in Andrew Campbell and Emily Brown here for their awareness. I can assure you that neither Andrew or myself have worked for Woodbridge or Steve. This information is very concerning. Additionally, I was not aware of him submitting any proposals.

I cannot speak to any projects that Steve has worked on other than the AD project that was not pursued.

I will have an internal email with the Sustainergy



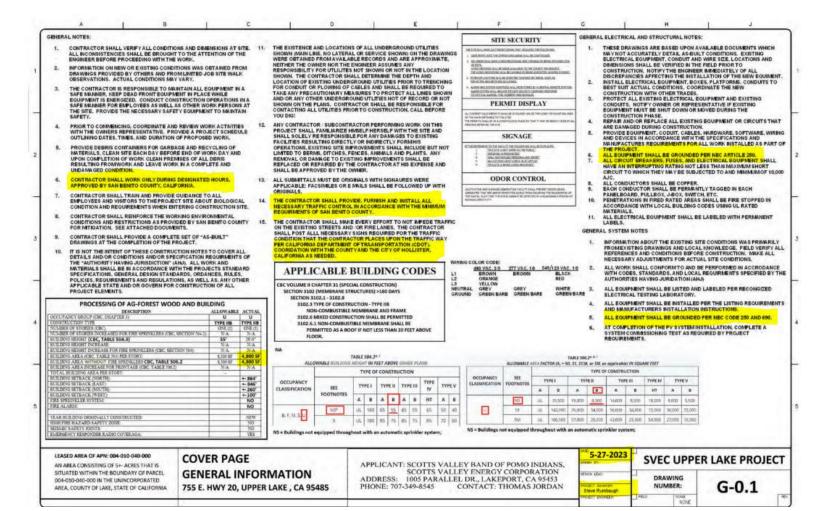


Thank you in advance for providing this

information.

The "About" page on the Woodbridge Energy Company website went offline in late January 2025 after lawyers got involved.

The site remains offline to this day.



First page of project plans come from unrelated projects in San Benito County and City of Hollister

- CONTRACTOR SHALL WORK ONLY DURING DESIGNATED HOURS, APPROVED BY SAN BENITO COUNTY, CALIFORNIA.
- CONTRACTOR SHALL TRAIN AND PROVIDE GUIDANCE TO ALL EMPLOYEES AND VISITORS TO THE PROJECT SITE ABOUT BIOLOGICAL CONDITION AND REQUIREMENTS WHEN ENTERING CONSTRUCTION SITE.
- CONTRACTOR SHALL REINFORCE THE WORKING ENVIRONMENTAL CONDITIONS AND RESTRICTIONS AS PROVIDED BY SAN BENITO COUNTY FOR MITIGATION. SEE ATTACHED DOCUMENTS.
- CONTRACTOR SHALL PROVIDE A COMPLETE SET OF "AS-BUILT" DRAWINGS AT THE COMPLETION OF THE PROJECT.
- 10. IT IS NOT THE INTENT OF THESE CONSTRUCTION NOTES TO COVER ALL
 DETAILS AND OR CONDITIONS AND OR SPECIFICATION REQUIRMENTS OF

- ALL SUBMITTALS MUST BE ORIGINALS WITH SIGNAURES WERE APPLICABLE; FACSIMILES OR E MAILS SHALL BE FOLLOWED UP WITH ORIGINALS.
- 14. THE CONTRACTOR SHALL PROVIDE, FURNISH AND INSTALL ALL NECESSARY TRAFFIC CONTROL IN ACCORDANCE WITH THE MINIMUM REQUIRMENTS OF SAN BENITO COUNTY.
- 15. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO NOT IMPEDE TRAFFIC ON THE EXISTING STREETS AND /OR FIRE LANES. THE CONTRACTOR SHALL POST ALLL NECESSARY SIGNS REQUIRED FOR THE TRAFFIC CONDITION THAT THE CONTRACTOR PLACES UPON THE TRAFFIC WAY PER CALIFORNIA DEPARTMENT OF TRAANSPORTATION (CDOT). COORIDATION WITH THE COUNTY AND THE CITY OF HOLLISTER, CALIFORNIA AS NEEDED.

WIR

Details show plans were for a solar project in San Benito County.

The site in Upper Lake does not have a solar component.

GENERAL SYSTEM NOTES

- INFORMATION ABOUT THE EXISTING SITE CONDITIONS WAS PRIMARILY FROM EXISTING DRAWINGS AND LOCAL KNOWLEDGE, FIELD VERIFY ALL REFERENCES AND CONDITIONS BEFORE CONSTRUCTION. MAKE ALL NECESSARY ADJUSTMENTS FOR ACTUAL SITE CONDITIONS.
- ALL WORK SHALL CONFORM TO AND BE PERFORMED IN ACCRODANCE WITH CODES, STANDARDS, AND LOCAL REQUIRMENTS SPECIFIED BY THE AUTHORITIES HAVING JURIDATION (AHJ)
- ALL EQUIPMENT SHALL BE LISTED AND LABELED PER RECONGIZED ELECTRICAL TESTING LABORATORY.
- 4. ALL EQUIPMENT SHALL BE INSTALLED PER THE LISTING REQUIREMENTS
 AND MANUFACTURERS INSTALLATION INSTRUCTIONS.
- 5. ALL EQUIPMENT SHALL BE GROUNDED PER NEC CODE 250 AND 690.
- AT COMPLETION OF THE PV SYSTEM INSTALLATION, COMPLETE A SYSTEM COMMISSIONING TEST AS REQUIRED BY PROJECT REQUIREMENTS.

NEC Article 690 covers the requirements for designing and installing solar photovoltaic (PV) systems, including array circuits, inverters, and controllers, and supplements the general requirements in Chapters 1-4 of the NEC.

Senior Planner Laura Hall's LinkedIn Profile Shows Previous Work with San Joaquin Valley Air Pollution District, San Benito County & City of Hollister

Contact

www.linkedin.com/in/laura-l-hall-b08687212 (LinkedIn)

Top Skills

Analytical Skills

Research and Analysis

Project Managment

Certifications

Dust Control Certification

Publications

Development of a Cleanup Management Plan for the San Benito River in San Benito County, CA

Laura L. Hall

Environmental Planner

Lucerne, California, United States

Summary

Environmental Planner with over 19 years of experience working for private consulting firms and government agencies.

Experience

County of Lake Senior Planner

August 2021 - Present (3 years 7 months)

Lakeport, California, United States

Senior planner duties include managing and processing land use permit applications and preparing supporting environmental documents for a wide range of development projects. Assist the public with development questions and determining compliance with the Lake County Municipal Code Zoning Ordinance and Lake County General Plan. Process affordable housing projects. Prepare Annual Progress Reports for the County's General Plan and

QK

Senior Associate Environmental Planner 2011 - 2015 (4 years)

Bakersfield, California, United States

Wrote environmental impact statements and environmental impact reports in compliance with the National Environmental Policy Act and CEQA for a diverse set of projects including: habitat conservation plans, residential and commercial development, renewable energy, big oil and gas, and school and water

districts throughout California. Was part of a team who prepared, incidental take permits, 1602 permits, SWPPPs, and dust control plans. Coordinated with clients and the San Joaquin Valley Air Pollution Control District in preparation of air quality and greenhouse gas analysis reports. Conducted modeling using the California Emissions Estimator Model (CalEEMod).

County of San Benito Assistant Land Use Planner 2009 - 2011 (2 years) Hollister, California, United States

Assisted applicants at the front counter and over the phone with entitlement questions and applications. Reviewed and processed applications for residential, commercial, and agricultural (agritourism) projects. Conducted site assessments for preparation of environmental documents in compliance with CEQA. Prepared staff reports and presentations, and other meeting materials for presentation to the planning commission. Overseen the county's tentative HCP and coordinated with the California Department of Fish and Wildlife to discuss development of the plan. Scheduled pre-application meetings with county agencies and applicants to review proposed project applications.

Source: https://www.linkedin.com/in/laura-l-hall-b08687212/

Contact

www.linkedin.com/in/laura-l-hall-b08687212 (LinkedIn)

Top Skills

Analytical Skills
Research and Analysis
Project Managment

Certifications

Dust Control Certification

Publications

Development of a Cleanup Management Plan for the San Benito River in San Benito County, CA

Laura L. Hall

Environmental Planner

Lucerne, California, United States

Summary

Environmental Planner with over 19 years of experience working for private consulting firms and government agencies.

Experience

County of Lake Senior Planner

August 2021 - Present (3 years 7 months)

Lakeport, California, United States

Senior planner duties include managing and processing land use permit applications and preparing supporting environmental documents for a wide range of development projects. Assist the public with development questions and determining compliance with the Lake County Municipal Code Zoning Ordinance and Lake County General Plan. Process affordable housing projects. Prepare Annual Progress Reports for the County's General Plan and Housing Element. Work on the County's General Plan Update date collection and file structure. Write requests for proposals for long range projects including the County's General Plan Update. Conduct consultations under Assembly Bill 52 and Senate Bill SB 18 with eleven local tribal governments. Work to improve relationships with local tribal governments by implementing new processes. Coordinate and meet with federal and State agencies on a wide range of development projects.

Previously filled in as the County Resource Planner. Assisted County departments, special districts, and the public with the following types of projects: renewable energy/geothermal, mining and grading, lakebed and creek/ wetland restoration, parks/recreation, etc.

Laura Hall Consulting Environmental Planning Consultant December 2015 - 2021 (6 years)

California, United States

Provide a full range of permitting services to clients needed for a state annual cannabis cultivation license including: site assessments, Order WQ 2019-0001-DWQ enrollment/ site management plans, water rights reporting

Page 1 of 3

and registrations, Lake and Streambed Alteration Notifications, cannabis cultivation annual license applications, GIS mapping, local permitting/ licensing requirements in compliance with the California Environmental Quality Act (CEQA), license/ permit renewals, and cross-agency coordination. Currently only serving a select few of my favorite clients. As sole proprietor, also responsible for all other functions required to operate a business (marketing, billing, administration, etc.).

QK

Senior Associate Environmental Planner 2011 - 2015 (4 years)

Bakersfield, California, United States

Wrote environmental impact statements and environmental impact reports in compliance with the National Environmental Policy Act and CEQA for a diverse set of projects including: habitat conservation plans, residential and commercial development, renewable energy, big oil and gas, and school and water

districts throughout California. Was part of a team who prepared, incidental take permits, 1602 permits, SWPPPs, and dust control plans. Coordinated with clients and the San Joaquin Valley Air Pollution Control District in preparation of air quality and greenhouse gas analysis reports. Conducted modeling using the California Emissions Estimator Model (CalEEMod).

County of San Benito Assistant Land Use Planner 2009 - 2011 (2 years)

Hollister, California, United States

Assisted applicants at the front counter and over the phone with entitlement questions and applications. Reviewed and processed applications for residential, commercial, and agricultural (agritourism) projects. Conducted site assessments for preparation of environmental documents in compliance with CEQA. Prepared staff reports and presentations, and other meeting materials for presentation to the planning commission. Overseen the county's tentative HCP and coordinated with the California Department of Fish and Wildlife to discuss development of the plan. Scheduled pre-application meetings with county agencies and applicants to review proposed project applications.

Willdan Assistant Planner 2006 - 2009 (3 years) Redding, California, United States Researched federal, state and local regulations to write housing elements for cities and counties throughout California. Provided land use planning services to cities and counties in northern California. Prepared environmental documents in compliance with CEQA. Assisted with writing proposals for various residential and commercial projects. Acted as the interim planner for the City of Live Oak for over one year.

Education

University of Denver

Masters of Applied Science, Environmental Policy and Management/Natural Resource Management · (2007 - 2011)

California State University, Chico
Bachelor's of Art, Geography/Planning and Development of the Rural
Environment · (2002 - 2005)

Shasta College

Associate of Science - AS, General Science · (1999 - 2002)

SAN BENITO SMART PARK, LLC (201108710027)





File File Statement of Information



Request

Initial Filing Date 03/14/2011

Status Suspended - FTB

Standing - SOS Good

Standing - FTB Not Good

Standing - Agent Good

Standing - VCFCF Good

Formed In

Inactive Date 11/02/2015

Entity Type Limited Liability Company -

CALIFORNIA

CA

Principal Address 6360 CHATTSWORTH DR

MARTINEZ, CA 94553

Mailing Address | I

s N/A

Statement of Info Due Date 03/31/2013

Agent Individual

STEVE RUMBAUGH 6360 CHATTSWORTH DR MARTINEZ, CA 94553

AMERICAN SOLAR UTILITY, LLC (201221510332)









Request

Initial Filing Date 07/20/2012

Status Suspended - FTB

Standing - SOS Good

Standing - FTB Not Good

Standing - Agent Good

Standing - VCFCF Good

Inactive Date 11/01/2016

Formed In CALIFORNIA

Entity Type Limited Liability Company -

CA

Principal Address 6680 ALHAMBRA AVE.,

#109

MARTINEZ, CA 94553

Mailing Address 6680 ALHAMBRA AVE.,

#109

MARTINEZ,CA94553

Statement of Info
Due Date

.

07/31/2020

Agent Individual

STEPHEN RUMBAUGH 6680 ALHAMBRA AVE.,

#109

MARTINEZ, CA 94553

CONCORD SMART ENERGY PARK, LLC (201221510331)





Initial Filing Date 07/20/2012

Status Suspended - FTB

Standing - SOS Good

Standing - FTB Not Good

Standing - Agent Good

Standing - VCFCF Good

Inactive Date 11/01/2016

Formed In CALIFORNIA

Entity Type Limited Liability Company -

CA

Principal Address N/A

Mailing Address 6360 CHATTSWOOD DR

MARTINEZ,CA94553

Statement of Info

Due Date

07/31/2014

Agent Individual

STEPHEN R RUMBAUGH 6360 CHATTSWOOD DR MARTINEZ, CA 94553



View History



Request Access

CALIFORNIA WATER AND POWER (3557401)



Initial Filing Date 04/23/2013

Status Suspended - FTB/SOS

Standing - SOS Not Good

Standing - FTB Not Good

Standing - Agent Good

Standing - VCFCF Good

Inactive Date 02/28/2017

Formed In CALIFORNIA

Entity Type Nonprofit Corporation - CA -

Public Benefit

Principal Address 1470 CIVIC CT STE 309

CONCORD, CA 94520

Mailing Address 6360 CHATTSWOOD DR

MARTINEZ, CA94553

Statement of Info **04/30/2015**

Due Date

Agent Individual

CALVIN KENNEDY 1401 COLTON PL MARTINEZ, CA 94553



View History



AMERICAN SOLAR CONSTRUCTION LLC (201415310486)





Request Certificate

Initial Filing Date 05/27/2014

Status Suspended - FTB

Standing - SOS Good

Standing - FTB Not Good

Standing - Agent Good

Standing - VCFCF Good

Inactive Date 12/02/2019

Formed In CALIFORNIA

Entity Type Limited Liability Company -

CA

Principal Address 6680 ALHAMBRA AVE., #109

MARTINEZ, CA 94553

Mailing Address 6680 ALHAMBRA AVE., #109

MARTINEZ, CA94553

Statement of Info Due Date 05/31/2020

Agent Individual

STEPHEN RUMBAUGH 6680 ALHAMBRA AVE., #109

MARTINEZ, CA 94553



View History



STEPHEN RUMBAUGH - PLEASANT HILL, CA



Debtor Name AMERICAN SOLAR CONSTRUCTION LLC

Debtor Address 1470 CIVIC CT STE 309,

CONCORD, CA 94520

Debtor Name RUMBAUGH, ANDREW

Debtor Address 48 ROLLING GREEN CIR,

PLEASANT HILL, CA 94523

Debtor Name RUMBAUGH, STEPHEN

Debtor Address 48 ROLLING GREEN CIR,

PLEASANT HILL, CA 94523

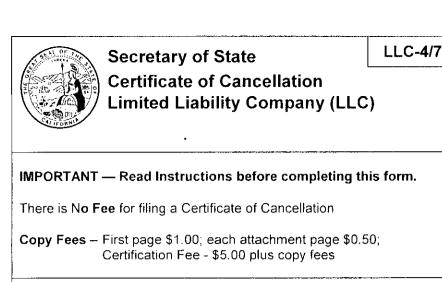
Secured Party CORPORATION SERVICE COMPANY, AS

COMPANY, AS REPRESENTATIVE

Secured Party P.O. BOX 2576,

Address UCCSPREP@CSCINFO.COM,

SPRINGFIELD, IL 62708





This Space For Office Use Only

 Limited Liability Company Name (Enter the exact name of the LLC as it is recorded with the California Secretary of State)

Megawatt Development Holdings LLC.

2. 12-Digit Secretary of State File Number

200914710038

| 3. Dissolutior | (California LLCs ONLY | Check the box if the vote to dissolve was m | ade by the vote of ALL the members.) |
|----------------|-----------------------|---|--------------------------------------|
|----------------|-----------------------|---|--------------------------------------|

 $\overline{\checkmark}$: The dissolution was made by a vote of **ALL** of the members of the California Limited Liability Company.

Note: If the above box is not checked, a Certificate of Dissolution (Form LLC-3) must be filed prior to or together with this Certificate of Cancellation. (California Corporations Code section 17707.08(a).)

4. Tax Liability Statement (Do not alter the Tax Liability Statement.)

All final returns required under the California Revenue and Taxation Code have been or will be filed with the California Franchise Tax Board.

5. Cancellation Statement (Do not alter the Cancellation Statement.)

Upon the effective date of this Certificate of Cancellation, the Limited Liability Company's registration is cancelled and its powers, rights and privileges will cease in California.

6. Read and Sign Below (See instructions for signature requirements. Do not use a computer generated signature.)

| By signing this document, I certify that the information is true and that I am authorized by California law to sign. | | |
|--|--------------------|--|
| le Broself | John Bissell | |
| Signature | Type or Print Name | |
| STEN | Stephen Rumbaugh | |
| Signature | Type or Print Name | |
| | | |
| Signature | Type or Print Name | |
| | | |





| Initial Filing Date | 05/18/2020 |
|---------------------|------------|
|---------------------|------------|

Status Active

Standing - SOS Good

Standing - FTB Good

Standing - Agent Good

Standing - VCFCF Good

Formed In CALIFORNIA

Entity Type Stock Corporation - CA -

General

Principal Address 6680 ALHAMBRA AVE., #109

MARTINEZ, CA 94553

Mailing Address 6680 ALHAMBRA AVE., #109

MARTINEZ,CA94553

Statement of Info

Due Date

05/31/2023

Agent Individual

STEPHEN RUMBAUGH 48 ROLLING GREEN CIR PLEASANT HILL, CA 94523

PLEASANT HILL, CA 94525

View History

#\\\

Request Access

WOODBRIDGE ENERGY LLC (202021311121)





| Initial Filing Date | | 07/29/2020 |
|---------------------|--|------------|
|---------------------|--|------------|

Status Active

Standing - SOS Good

Standing - FTB Good

Standing - Agent Good

Standing - VCFCF Good

Formed In CALIFORNIA

Entity Type Limited Liability Company -

CA

Principal Address 48 ROLLING GREEN CIR

PLEASANT HILL, CA 94523

Mailing Address 6680 ALHAMBRA AVE.,

#109

MARTINEZ,CA94553

Statement of Info

Due Date

07/31/2026

Agent Individual

STEPHEN RUMBAUGH 6680 ALHAMBRA AVE.,

#109

MARTINEZ, CA 94553



HOME

ABOUT BMP

PROJECTS

NEWS

DEVELOPMENT

CONTACT US

OUR COMPANY

Our Origin

The evidence of human-caused climate change continues to grow, and we are already witnesses to its effects on human health, agricultural production and sea levels. The risks of fracking to health and water supplies have not fully revealed themselves. Carbon speculative fixes for coal emissions are a costly waste of public funds and divert attention and resources from the timely, fundamental change.

BmP was founded to work on behalf of the clients that want to develop an environment initiative, help protect public health, ensure access to clean water, and combat global climate change.

Further, it is BmP's responsibility to ensure that the aforementioned activities take place whether taking an advisory position or developing its own solar projects. We are laying the basis for an adequate standard of living for today's populations and future generations.

Mission Statement

Biomass-Power.net was created with the goals of; promoting and building renewable resources, providing efficiency resources to clean energy and water projects, developing procedures and methods to protect the environment, and providing long term benefits to the environment and economy.

Call to Action

The time is now for a new, grassroots-driven renewable energy plan. BmP is working hard to implement a new plan that utilizes the environmental attributes of clean resources through community funding. As Congress debates major public policy in energy, nothing gets done. We need to ensure that our dollars directly support energy and water resources that protect public health. BmP has taken on the challenge of improving our environment by developing and supporting clean energy and water projects around the US. Your investment in BmP will help protect and ensure that future generations' environment is livable. Our policies will not only benefit Californians but all the country and world.

Project Development in Practice

BmP develops, installs, and operates photovoltaic electricity production facilities to the highest standard of environmental responsibility. Our developments do not include any grading, other than road construction required for fire access by the permitting authority, and actively seek to minimize any other ground disturbance. One method that we have selected as a best practice is the driving of pipes to support the racking as they disturb much less surface area than other methods of anchoring.

Each project has multiple biological assessments, to assure that; any animals found on-site are given proper space, as not to disturb them, no endangered or threatened species are on the property, and no plants of importance are within the project area or damaged during the construction of the project. The biologist then puts together a plan of preventative measures for design and construction to minimize the impact on the animal and plant species that are in the general vicinity of the project.

Each project has an archeological assessment, to identify the existence of any archeological remnants of importance, and put in place a plan for the possible discovery of any archeological remnants of importance during construction.

Finally, each system and construction plan is designed for maximum efficiency, as to not waste the materials used in the components of the Solar system and minimize the dust and emissions associated with the construction of the project.

OUR TEAM

OUR TEAM

OUR TEAM

Dennis Mueller - Director and CTO.

Mr. Mueller has 8 years of renewable energy system; engineering, consulting, sales, systems component design, and installation experience. Mr. Mueller has won several industry awards for technological innovation. Mr. Mueller helped launch, manage, and engineer a Dual-Axis Tracking product for JKB Energy, which has grown to 8 MW of systems. His previous



Steve Rumbaugh - Chairman and President.

Mr. Rumbaugh has been in the Engineering and
Construction business for over 40 years. He has
engineered 100's of millions of dollars in construction for major
companies such as, AT&T, Bechtel, United Technologies, Pacific
Utility. He co-founded Internet Mortgage Exchange (IMX)
which developed and patented the first business methods patent
ever upheld by the U.S. Federal Courts. Mr. Rumbaugh has held
key leadership positions in construction, engineering, real estate,
and high tech companies. As an expert in designing complex
systems he is called upon to provide key assistance by our clients
in the renewable energy and communication industries. He
holds 9 patents in wireline, powerline and wireless
communication, error correction, surround sound audio, realtime transmission and lighting systems.

experience includes 11 years as a mechanical/project engineer for the Trident II D5 Submarine launched ballistic missile systems program at Lockheed Missiles and Space Co. He worked for 6 years at C&K Systems.



| FIND US ON | G ACEBOOK |
|------------|------------------|
| FIND US ON | W ACEBOOK |

| NEWS | CLIENTS | ABOUT BMP | |
|--------------------|---|-------------------------------|--|
| Development News | Telamon Energy | BmP is a Nationwide Property | |
| Market News | Cenergy Power | Developer | |
| Environmental News | RER Energy Group | • | |
| | AT&T | | |
| | United Renewable Energy (URE) and Neo Solar Power (HSP) | | |

 $\@$ Copyright 2020. "Biomass-Power.Net" by Biomass-Power.Net Design. All rights reserved.

ecomotiv.bio About

Sustainability – EcoMotiv is Providing Real, Clean and Green Hydrogen Gas, Renewable Diesel, SAF Fuel from Waste Biomass

We are pioneering the Hydrogen vehicle fueling market by making reliable H2 for fueling station and distributed hydrogen delivery. Our site located between Sacramento and San Francisco Bay Area is a key driver in increasing reliable H2 delivery to fueling stations and transit agencies.

About us



EcoMotiv Hydrogen Biomass Gas Ball

Watch, Read, Listen

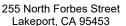
EcoMotiv is Moving Fast into Renewable Diesel, SAF and Hydrogen Production and Distribution. Get on Board and be a Part of this Clean, Green Fuel Industry using Waste Biomass.

Jun 30, 2024 — by steverum2 in Uncategorized

Join 900+ subscribers

Stay in the loop with everything you need to know.

Sign up



COUNTY OF LAKE



Memorandum

7/21/2015 Item#:9.5

MEMORANDUM

TO: Board of Directors, Lake County Watershed Protection District

FROM: Scott De Leon, Water Resources Director

DATE: July 6, 2015

SUBJECT: Consent Agenda Item for July 21, 2015

Property Acquisition - Middle Creek Flood Damage Reduction and Ecosystem Restoration Project - Approval of Purchase Contract

APN 004-010-04 & 004-013-18, 755 & 737 E State HWY 20, Upper Lake

EXECUTIVE SUMMARY: On March 23, 2004 the Lake County Watershed Protection District (District) entered into an agreement with the California Department of Water Resources (CDWR) for the Flood Protection Corridor Program Grant (5.214 million dollars). Grant funds were frozen in December 2008 due to the State's fiscal problems. The agreement was amended in May 2011 extending the grant and adding additional funds (total funds of 12.714 million dollars). The grant provides funds for the purchase of flood prone properties, from willing sellers in the Middle Creek Flood Damage Reduction and Ecosystem Restoration Project (Project) area. The Project is one step in the process of restoring damaged habitat and the water quality of the Clear Lake watershed. To date, seventeen properties have been appraised and purchased.

The grant requires that the acquisition of the real properties and the relocation of the occupants be conducted in the conformance with applicable Federal and State policies and procedures. The State Uniform Relocation Assistance and Real Property Acquisition Policies Act, provides that any public entity may, in order to prevent unnecessary expenses and duplication of functions, and to promote uniform and effective administration of relocation assistance programs, utilize the services of other agencies having an established organization to manage and implement relocation assistance programs. In October of 2012 the Board entered into an agreement with Paragon Partners LLC to provide acquisition and relocation services.

Paragon Partners LLC recently completed the appraisal process on several properties and presented offers to those property owners. Today's item presents an accepted offer for the following property:

7/21/2015 Item#:9.5

APN 004-010-04 & 004-013-18, 755 & 737 E State Highway 20, Upper Lake: The 115.25 acre property has a 49 acre vineyard and vacant land (formerly vineyard) and is owned by Robinson Lake Vineyard LLC. The fair market value is \$1,510,000 as established by an independent fee appraisal and review by the State of California, Department of Water Resources, Real Estate Division. This acquisition is fully funded by the DWR Grant. The northern portion of the property (approximately 40 acres) is outside of the Project boundaries. Staff is investigating options for this portion of the property. Attached as Exhibit "A" is a vicinity map showing the location of the subject property.

This acquisition is necessary for the purpose of flood control protection as provided in the State of California Water Code Section 79037, Division 26, Chapter 5, Article 2.5.

It is recommended that the Board of Supervisors, sitting as the Board of Directors of the Lake County Watershed Protection District, authorize the Chair to sign the real property purchase contract along with instructions to the Clerk to certify the grant deed for recordation. The grant deed will be recorded by a Title guarantee company upon the Board's acceptance.

To minimize reproduction costs, the original documents are attached to the Clerk's copy of the original cover memo and only a copy of this memo is furnished for each individual Board member.

FISCAL IMPACT: __ None X__Budgeted __Non-Budgeted

Estimated Cost: \$1,510,000

Amount Budgeted:
Additional Requested:

Annual Cost (if planned for future years):

FISCAL IMPACT (Narrative):

STAFFING IMPACT (if applicable):

RECOMMENDED ACTION: It is recommended that the Board of Supervisors, sitting as the Board of Directors of the Lake County Watershed Protection District, authorize the Chair to sign the real property purchase contract along with instructions to the Clerk to certify the grant deed for recordation. The grant deed will be recorded by a Title guarantee company upon the Board's acceptance.