

County of Tehama Air Pollution Control District

P.O. Box 1169 • Red Bluff, California 96080

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Tehama County Air Pollution Control District Request for Proposals

2:11D Indirect Source Program Grant Funding

The Tehama County Air Pollution Control District is seeking proposals for emission mitigation projects that demonstrate reductions in emissions of ozone precursors such as oxides of nitrogen or volatile organic compounds, or of particulate matter including diesel particulate, smoke, or dust.

Submittal:

One electronic or hard copy of each proposal must be received at

the address below.

Address to:

Lisa Mann

1834 Walnut St

Red Bluff, CA 96080

lmann@tehcoapcd.net

Issuance Date:

August 17, 2021

Air Pollution Control District Proposal Project Name: RCDTC Carbonizer Project

Lead Agency: Resource Conservation District of Tehama County

P.O. Box 1232 Red Bluff, CA 96080

Lead Agency Contact: Lisa Krumwide, Project Coordinator 530-727-1280

Project Location: PATH House 380 Sale Lane

Red Bluff, CA 96080

Contractor: Lepage Company

Calculated Emission Reduction: \$21,846.85 per weighted ton emission reduction

Mitigation Project Report

The Resource Conservation District of Tehama County (RCDTC), a public agency, is partnering with Lepage Company, a private contractor (Attachment 1), to create biochar and reduce air pollution, through the use of their Tiger Cat 6040 Carbonizer. This Carbonizer will be used on site to incinerate 80 acres of prune trees, on the Poor And Homeless Housing property (PATH), 380 Sale Lane, Red Bluff, CA (Attachment 2).

RCDTC will coordinate with Lepage Company to streamline invoicing, reporting and compliance under the current Authority to Construct Permit 1262 (Attachment 3) that was issued by the Air Pollution Control District (District) on January 29, 2025. Project work is anticipated to start between May-June 2025 and will be completed by June 2025. All Project work is dependent on contracting.

Once funding is made available, Lepage Company will transport the carbonizer to the Sale Lane property along with any equipment needed to perform construction and incineration. Lepage Company will knockover and pile the whole prune trees. Piled prune trees will then be placed into the carbonizer for incineration. Once the trees have been incinerated, Lepage Company will use a spreader to place the biochar onto the property.

The RCDTC performed a thorough emission reduction analysis for the proposed mitigation project using US EPA document AP-42 (1) and Air Curtain Incinerator Emissions Factor Determination (2). The following information is the RCDTC's findings.

An air curtain incinerator reduces burn emissions from forest and agricultural woody biomass when compared to open pile burning. Open pile burning of prune as an orchard crop, with 30 ton/acre of waste due to orchard removal, creates 3 lb/ton PM10 (1). NOx was not measured for prune, however, open pile forest burning creates 4 lb/ton of NOx (1). Therefore, removal of an 80-acre prune orchard, at 30 ton/acre of waste would result in 240 tons of waste needing incineration.

80 ac * 30 tons waste/acre = 240 tons waste

PM10 production from 240 tons of waste woody biomass, at 3 lb/ton, will output 720 particulate pounds.

240 tons waste * 3 lb particulate/ton waste = 720 pounds (0.36 tons) PM10.

NOx production from 240 tons of waste woody biomass, at 4 lb/ton will be 960 pounds of NOx.

240 tons waste * 4 lb NOx/ton waste = 960 lbs (0.48) of NOx

Using Table 3 from *Air Curtain Incinerator Emissions Factor Determination* (2), accepted emission factors for burning woody biomass of agriculture and forest vegetation are 1.0 lb/ton NOx and 1.3 lb/ton for PM10.

Approximately 240 tons of prune waste will be removed from the 80-acre farm and burned in an air curtain incinerator. Using the emission factor of 1.0 lb NOx/ton waste times 240 tons, results in 240 lbs (0.12 tons) of NOx.

1.0 lb NOx/ ton waste * 240 tons waste = 240 lbs (0.12 tons) NOx

Using the air curtain incinerator PM10 emission factor of 1.3 lb/ton times 240 tons of prune waste will result in 312 pounds of PM10.

240 tons waste * 1.3 lbs PM10/ton waste = 312 lbs (0.156 tons) PM10

Pile burning will produce a NOx of 960 pounds versus 240 pounds using an air curtain incinerator for a total project savings of (960-240=720) 720 pounds (0.36 tons) of NOx. Pile burning will produce a PM10 of 720 pounds versus 312 pounds using an air curtain incinerator for a total savings of (720-312=408) 408 pounds (0.204 tons) PM10.

Using the Carl Moyer Program cost-effectiveness criteria for PM10 and Ozone Precursors, RCDTC concludes the following.

Formula C-2: Annual Weighted Surplus Emissions Reductions (3):

NOx reductions (tons/yr) + ROG reductions (tons/yr) + [20 * (PM10 reductions (tons/yr)]

0.36 tons NOx + [20 * 0.204 tons PM10] =

0.36 tons NOx + 4.08 tons PM10 =

4.44 tons reduction of NOx and PM10

The result of formula C-2 is used to complete formula C-1 to determine the cost-effectiveness of surplus emission reductions.

Formula C-1: Cost-Effectiveness of Weighted Surplus Emission Reductions (\$/ton):

Annualized Cost (\$/yr)
Annual Weighted Surplus Emission Reductions (tons/yr)

\$97,000 Le Page removal estimate /4.44 tons emission reduction = \$21,846.85 per weighted ton emission reduction.

This falls well below the Carl Moyers cost-effectiveness limit of \$34,000 per weighted ton of surplus emissions reduced. Furthermore, considering the standard commercial prune orchard development and life span, this 4.44 tons of emissions reduction will extend for 10 years. Standard practice for the removal and replanting of a prune orchard will have a mitigation project life of at least ten years. There will be two years of fallow time followed by at least 8 years of tree growth and production prior to subsequent orchard removal.

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- 1. *US EPA document AP-42*, section 2.5 Open Burning, table 2.5-5 EMISSION FACTORS AND FUEL LOADING FACTORS FOR OPEN BURNING OF AGRICULTURAL MATERIALS, EMISSION FACTOR RATING: D for Prune and forest.
- 2. Air Curtain Incinerator Emissions Factors Determination; Brian Clerico and Errol Villegas; April 04, 2017; Table 3.
- 3. Formulas C-1 and C-2 were obtained from: https://ww2.arb.ca.gov/sites/default/files/classic/msprog/nvepb/mailouts/_MSC/msc0921/msc0921-appendices.pdf; Appendix C.

ATTACHMENTS

Attachment 1:



Lepage Company, Inc 218 Washington St Red Bluff, CA 96080 (530) 529-9901 – Phone (530) 529-9903 – Fox CCL # 743003 – General Building & Engineering, C27 Landscaping, LTO # A10972 SBA Certified, HUBZone Small Business, WOSB & WBE

PROPOSAL

January 27, 2025

TO: Tehama County Resource Conservation District RE: Orchard Removal/Cleanup of approximately 80 acres on Sale Lane. Red Bluff CA

Lepage Company proposes to furnish all equipment, labor and permits necessary to complete the following:

Mobilization, Cut, Skid and Deck 80 acres of dead orchard trees

- Feller Bunchers
- Skidders
- Excavators w/grapple
- Water Tender

\$42,000.00

Process trees to create Biochar

- TigerCat 6040 Carbonizer
- Excavator w/Grapple
- Log Skidder
- Water Tender

\$45,000.00

Load out, haul and broadcast Biochar product approximately 160 yds throughout the 80-acre Orchard

- CAT D6 Dozer
- Frontend Loader
- Fertilizer Spreader

\$10,000.00

Total

\$97,000.00

Respectfully Submitted

James P. Lepage V. President

Accepted_____

EXCLUDES: Any_SWED plans, OSHA permits or plans, engineering, surveying, staking, geo-grid reports, compaction testing. Any excavation that requires breaking, blasting, sawing etc. would be considered extra work, ground stabilization due to unsuitable soil conditions, any emperation, any export, purchasing or installing any soil stabilization treatment. Prevailing wage rates and any items that are not clearly included above, expect to be excluded from this proposal.

Attachment 2:

RCDTC Carbonizer Project Area



Appendix A- Authority to Construct Permit

Authority to Construct

Issued by Tehama County Air Pollution Control District 1834 Walnut St., P.O. Box 1169, Red Bluff CA 96080 Phone: (530) 527-3717 Fax: (530) 527-0959

Permit 1262 Is Hereby Granted on January 29, 2025 To:

Lepage Company Inc. / Tehama Rock Products Attn: Jenifer Waelty 218 Washington St Red Bluff, CA 96080

To Construct:

One (1) TigerCat 6040, Serial Number TBD, carbonizer powered by a FPT NEF6.7 151KW(202HP) Tier 4 Final Engine.

Equipment Location:

Various locations in Tehama County

Permit Conditions:

- This Authority to Construct Permit shall remain in effect until a Permit to Operate or a Letter of Exemption
 is granted or denied pursuant to Tehama County Air Pollution Control District (District) Rule 2:14
 Cancellation of Permits. A Permit to Operate shall be issued if the article or equipment listed above
 conforms to this Authority to Construct Permit, and is in compliance with all Federal and State of
 California laws, as well as all District rules, regulations, and permit conditions governing air pollution.
- 2 The permitted source shall construct the facility to conform to the design and operational characteristics contained in the application for an Authority to Construct as listed below:
 - Submission date:

November 22, 2024

b. Submitted by:

Jenifer Waelty

Submitted for:

Lepage Company Inc. / Tehama Rock Products

d. Contact:

Jenifer Waelty

e. Emission unit(s):

TigerCat 6040 Carbonizer 202HP FPT NEF6.7 Tier 4 Final diesel fired engine

Written authorization shall be obtained from the Air Pollution Control Officer (APCO) prior to making
any change in the construction or operational characteristics specified in this Permit that may cause the
issuance of air contaminants, or the use of which may eliminate or reduce or control the issuance of air
contaminants. (District Rule 2:1)

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