

**DUST CONTROL and DECONTAMINATION
PLAN**

FOR

CRESCENT MILLS INDUSTRIAL SITE

15690 CALIFORNIA HIGHWAY 89

CRESCENT MILLS, CALIFORNIA

Prepared for:

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1 INTRODUCTION

This Dust Control and Decontamination Plan (DCDP) describes material handling, dust control, and decontamination protocols to reduce the release of contaminated soil or dust into the atmosphere during remediation activities at the Crescent Mills Industrial Site (site) located in Crescent Mills, California. The DCDP is an element of the Removal Action Workplan (RAW) for soil remediation at the site. The RAW describes procedures for remedial activities for the site including excavation and relocation of wood waste stockpiles, excavation and on-site placement of clean fill over areas of impacted soil, excavation, reprocessing and placement of concrete and asphalt pavement, excavation and fill placement in clean utility corridors.

2 PURPOSE

The purpose of this DCDP is to:

1. Outline engineering controls to be implemented during remediation activities, including fugitive dust prevention, track-out prevention, surface and stockpile protection, ingress/egress development, vehicle movement, and implementation of best management practices (BMPs).
2. Outline protocol for confirming that engineering controls, as designed, are implemented during mechanical soil disturbance, including site clearing, site grading, underground utility work, transportation, and disposal activities.
3. Outline post-remediation stabilization controls to be implemented after excavation and onsite placement of affected soil.

3 NOTIFICATION OF COMMENCEMENT OF GRADING

The Plumas County Public Works Department shall be notified at least ten days in advance of commencement of grading. Contact information is provided below:

Bob Perreault
Director
1834 East Main Street
Quincy, California 95971
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4 ENGINEERING CONTROLS

Engineering controls and dust control measures apply to all mechanical soil disturbances including processing of concrete and asphalt, in affected areas on the site. Construction activities are defined in this document as any mechanical soil disturbance in the affected soil areas. Mechanical soil disturbance may result from activities such as clearing, grading, excavation, stockpiling, loading, processing, fill placement, compaction, and movement of equipment over unprotected surfaces.

4.1 SUMMARY OF GENERAL CONTROLS

The engineering controls described below shall be implemented during any mechanical soil disturbance associated with the proposed remediation activities. Alternate engineering controls proposed by the contractor that are not included in this DCDP must be approved by the Plumas County Environmental Health Department prior to commencement of any soil disturbance.

4.1.1 Area of Disturbance

The areas of disturbance should be delineated by staking or marking prior to commencement of construction activity, including vertical extent of excavation and fill placement.

4.1.2 Decontamination and Track Out Prevention

No soil is allowed to leave the work areas through vehicle track-out or any other means. Track-out controls shall be implemented as follows:

- The ingress and egress route is to be developed prior to construction. If more than one ingress/egress route is used, decontamination and track-out prevention protocol shall be maintained at each location. This includes operations relocating material within the site such as moving stockpiles DU-16 and DU-17. Separate decontamination areas will be established for ingress and egress locations where material is transported across clean areas of the Site.
- Vehicles and equipment shall be visually inspected for soil or mud accumulation, and shall be washed (during wet weather) or brushed down (during dry weather) as necessary at the ingress/egress location before leaving the property.
- A gravel pad or metal screen (“decontamination pad”) will be used to decontaminate trucks at the ingress/egress locations. The gravel pad should be composed of gravel at least 1-inch or larger, with a silt content of less than 5 percent. The gravel pad, if used, is to be maintained in good condition, and repaired as necessary to maintain the integrity of the pad.
- Truck decontamination will occur on the decontamination pad. Decontamination will include removal of soil or mud (anything larger than approximately ½-inch). Decontamination of trucks will be performed on truck tires, wheel wells, mud flaps, the inside of fenders, tailgates, and the outsides of the truck bed and other areas where significant accumulations of dirt may be present.
- BMPs shall be implemented at the ingress/egress location in accordance with the Stormwater Pollution and Prevention Plan (“SWPPP”). BMPs shall be adhered to during road wetting and rinsing of vehicles.
- All field equipment used during construction activities that encounter native soil at the site will be decontaminated by the Contractor prior to transporting the equipment off-site.

4.1.3 Wood Waste and Fill Stockpiles

Wood Waste and fill stockpiles shall be protected by sufficient wetting with water spray, application of chemical dust suppressant, or by tarp or plastic covering.

- Active stockpiles are to be adequately wetted or covered with tarps.
- Inactive stockpiles (stockpiles that will remain inactive for more than seven days) shall be protected by:
 - (1) Keeping the surface adequately wetted;
 - (2) Applying chemical dust suppressants or stabilizers according to manufacturer's directions; or
 - (3) Covering with tarps.
- Long Term stockpiles (stockpiles to be left in place after completion of the RAW) shall be protected by:
 - (1) Stabilization stockpile surface including compaction or revegetation; and
 - (2) Placement of fiber rolls around perimeter of stockpiles and other applicable BMPs in accordance with the SWPPP.

4.1.4 Traffic Control

Only limited truck travel will occur to and from the site as there is no proposed off-haul or imported fill from off-site. Therefore, preparation of a Traffic Control and Waste transportation Plan per DTSC guidance is not applicable.

Proposed on-site travel routes, parking areas, and staging areas must be established prior to commencement of grading.

- Maximum vehicle speed for any vehicle or equipment on the site and on the site shall be 5 miles per hour. Slower vehicle speeds may be necessary to reduce soil disturbance or dust generation.
- Vehicular and equipment travel should be limited to designated areas.
- Only vehicles and equipment directly involved with site grading and utility work, including refueling and maintenance vehicles, should be allowed in the designated work area during excavation and grading activities. All other vehicles and equipment shall remain parked in a designated clean area on-site.
- Access routes within the site must be stabilized by watering or applying chemical dust suppressants, according to manufacturer's directions, as necessary to control fugitive dust emissions.
- The remediation contractor is responsible for traffic control on-site and on public roadways.

4.1.5 Earthmoving Activities

Dust mitigation measures shall be initiated prior to commencement of remediation activities, and should continue until confirmation that waste and affected soil has been relocated to designated on-site areas. Dust control measures to be implemented during site excavation and grading are provided below.

- Prior to and during any ground disturbance, water shall be sprayed to sufficiently wet areas of disturbance and stockpiled soil. The contractor shall supply a water truck of adequate size and capacity for this purpose or secure sufficient water from a local municipal source. Wetting should fully extend to the anticipated depths of the excavation. All soil/wood waste material shall be adequately wetted such that no visible dust emissions occur. Sufficient moisture may be determined by the field test described below.
- Grading operations shall be suspended when, despite application of dust mitigation measures, wind speeds are high enough to result in fugitive dust emissions.
- Drop heights will be kept to a minimum while loading transport vehicles.
- BMPs shall be implemented during construction activities. All water that could potentially contain affected soil shall be retained on-site. All sediment collected shall be retained on-site.

4.1.6 Field Determination of Moisture

Field testing for determination of sufficient moisture content will be conducted as follows:

1. A one-quart soil sample shall be taken from the top 3 inches of the disturbed area or stockpile;
2. The sample shall be poured from a height of 4 feet above a clean hard surface; and
3. The material will be considered adequately wetted if no observable dust is emitted when the material is dropped.

4.1.8 Perimeter Air Monitoring

The following equation was used to estimate worst-case scenario 8-hour time-weighted average (TWA) allowable total dust concentration at the site perimeter based on the Office of Environmental Health Hazard Assessment (OEHHA) chronic 8-hour Reference Exposure Level (REL) and the maximum concentration of arsenic in soil based on the phase of work. The first phase of work will consist of relocation of selected stockpiles to the southern portion of the site. The second phase of work will consist of grading soil placement areas in preparation for capping with soil from the proposed on-site borrow area. The third phase of work will consist of excavating soil from the proposed on-site borrow area to be used as cover soils on the soil placement areas in the northern portion of the site.

$$\text{TSP}_{8\text{-hour-TWA}} = \text{PM10}_{8\text{-hour-TWA}} = \frac{C_{\text{air-8-hour}} \times 10^6 \text{ (mg/kg)}}{C_{\text{soil}}}$$

where

$C_{\text{air-8-hour}}$ = maximum hypothetical chemical concentration in air (mg/m^3) equivalent to the OEHHA chronic 8-hour REL

$\text{PM10}_{8\text{-hour-TWA}}$ = 8-hour TWA PM10 for an 8-hour shift (mg/m^3)

$\text{TSP}_{8\text{-hour-TWA}}$ = 8-hour TWA total suspended particulates (TSP) (i.e. total dust) (mg/m^3)

C_{soil} = maximum chemical concentration in soil (mg/kg)

Chemical of Concern	Phase of Work	OEHHA Chronic 8-hr REL ¹ ($C_{\text{air-8-hour}}$; mg/m^3)	Maximum Detected Soil Concentration (C_{soil} ; mg/kg)	Maximum Allowable 8-hour TWA Hypothetical Total Dust Concentration ($\text{TSP}_{8\text{-hour-TWA}}$; mg/m^3)
Arsenic	Proposed Stockpiles To Be Relocated	0.000015	25	0.6
Arsenic	Proposed Soil Placement Areas for Capping	0.000015	65	0.23
Arsenic	Proposed On-site Borrow Area	0.000015	9.8	1.5

n/a = not available

The OEHHA chronic 8-hour REL is applicable for respirable dust (i.e., airborne particulate matter with effective particle diameters less than or equal to 10 microns; "PM10"). Since dust particles larger than 10 microns are likely to be associated with excavation activities, applying the calculated allowable PM10 dust concentration as a total dust (i.e. TSP) concentration is considered to be protective.

The presence of visible dust generally corresponds to approximately $1 \text{ mg}/\text{m}^3$ TSP, which generally corresponds to the presence of visible dust. Based on the maximum allowable 8-hour TWA TSP concentrations in the table above, control of visible dust will likely not be protective of potentially exposed receptors at the perimeter of the site during proposed relocation of stockpiles and proposed grading activities of soil placement areas for capping but may likely be protective during excavation of soil from the proposed on-site borrow areas where detected concentrations of arsenic in soil are at or below the site-specific background concentration of $9.8 \text{ mg}/\text{kg}$. Therefore, perimeter air monitoring is recommended during the proposed relocation of stockpiles and during grading of soil placement areas for capping.

¹ <https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary>

At this time, perimeter air monitoring will be required for the project activities described above. Air monitoring shall be conducted in accordance with this DCDP. Results of air monitoring will be included in the project completion report.

4.2 ENGINEERING CONTROLS BY TASK

The engineering controls noted below are provided to assist in task planning. Engineering controls shall be modified, if necessary, based on observation of fugitive dust emission or air sampling results.

4.2.1 Site Preparation

Prior to commencement of any mechanical disturbance at the site, the following engineering controls should be in place:

- Proposed areas of disturbance, including the vertical extent of excavation and fill placement, should be clearly delineated.
- Ingress/egress and wheel-wash areas should be constructed prior to commencement of grading. The ingress/egress and wheel-wash areas are to be maintained throughout all phases of the project.
- BMP features such as jute mats, fiber rolls, basins, or silt traps should be installed.
- Parking areas should be clearly defined outside the area of disturbance.

4.2.2 Clearing and Grubbing

The following engineering controls shall be implemented prior to and during clearing and grubbing:

- Prior to commencement of clearing and grubbing activities, vegetation and soil surfaces within the areas to be cleared should be sufficiently pre-wetted to prevent generation of fugitive dust from clearing activities. A sufficient amount of water should be used and allowed to soak into the subsurface. No soil disturbance, including removal of vegetation, may occur in any area that has not been sufficiently pre-wetted. Note that pre-wetting may need to occur over a period of days during dry weather, and that pre-wetting may also be necessary during or following periods of rainy weather.
- Water application should continue throughout clearing operations. Water spraying should be fanned over the site, and directed at specific activities, as appropriate. Proposed routes of site access should be sprayed with an amount of water sufficient to prevent generation of visible dust from equipment travel.

4.2.3 Grading

Prior to any soil disturbance, the area of proposed disturbance must be sufficiently and repeatedly wetted, so that no fugitive dust is generated by the activities.

- No soil disturbance may occur in any area that has not been sufficiently pre-wetted. Areas to be excavated should be sufficiently wetted to the depths of the excavation, so that no dust is generated by the excavation.
- Any soil disturbance that results in generation of dust must cease immediately until the area has been sufficiently wetted to a depth necessary to prevent generation of fugitive dust.
- Disturbed areas are to be maintained in accordance with this DCDP.

4.2.4 Fill Placement

The following engineering controls shall be implemented prior to and during fill placement:

- Fill material and areas where fill is to be placed should be adequately wetted so that no fugitive dust is generated during fill placement.
- The soil shall be sufficiently wetted prior to placement and throughout the work day, as necessary. At the end of each work day, the material should be wetted to enable crusting of the surface, or covered with plastic sheeting.

5 ADMINISTRATIVE CONTROLS

5.1 OCCUPATIONAL SAFETY & HEALTH ACT

All contractor and crew working with potentially impacted soil shall maintain current OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) certification. Personal air monitoring equipment may be required by the lead agency.

5.2 DCDP COMPLIANCE MONITORING

DCDP compliance monitoring is to be conducted during any mechanical soil disturbance activity. The contractor shall provide adequate advance notice and information to the lead agency, local enforcement agency, and SSI about site activities so that they may perform the following tasks:

- Confirm implementation of engineering controls such as ingress/egress areas, wheel wash areas, and parking areas outside the area of construction.
- Confirm that sufficient water is available and applied so that no visual evidence of fugitive dust is observed beyond the site boundaries.
- Confirm on-site travel and wheel-wash protocols are regularly implemented.
- Coordinate perimeter air sampling with contractor for activities where perimeter air monitoring and/or sampling is required (see Section 4.1.8).
- Confirm that the proper transportation protocol is observed by the contractor.

- Confirm that affected soil is contained on-site and stockpiled according to the DCDP specifications.
- Confirm construction activities are in compliance with the guidelines of the DCDP.

5.3 PERIMETER AIR MONITORING PROTOCOL

5.3.1 Perimeter Airborne Action Levels

Perimeter airborne action levels were developed arsenic and dust, as described below.

- Arsenic: The perimeter airborne action level for arsenic for an 8-hour work shift is the OEHHA Chronic 8-hr REL of 0.000015 mg/m³ for arsenic for PM10 dust.
- Total Dust: As calculated above in Section 4.1.8, the perimeter airborne action level for total dust for an 8-hour work shift based on the phase of work is 0.6 mg/m³ during the proposed relocation of stockpiles and 0.23 mg/m³ during grading of soil placement areas for capping. Applying the calculated allowable PM10 dust concentration as a total dust (i.e. TSP) concentration is considered to be protective for dust monitoring for the duration of remediation activities requiring dust monitoring.

A short-term action level of 1 mg/m³ for 5-minutes will be used to evaluate if when dust control measures should be increased and if work should temporarily be stopped to re-evaluate dust control measures.

5.3.2 Perimeter Air Monitoring Procedures

Perimeter air monitoring and sampling is to be performed in accordance with the protocol described below.

- Ambient air sampling should be conducted to establish base line values for ambient airborne TSP and PM10 concentrations at the project site.
- Perimeter air monitoring stations will be placed at the following locations:
 - Upwind of grading activities (background)
 - At downwind property boundary
 - At property boundary adjacent to residential property (west side of site)

The actual locations and placement of the monitoring stations will depend on the actual observed wind direction.
- The inlets for monitoring and sampling equipment at each perimeter air monitoring station will be positioned at a height of approximately 5 feet to approximate the height of the human breathing zone.
- Engineering controls shall be modified, if necessary, based on the air sampling results.

- TSP Monitoring: Throughout excavation activities, DataRAMs, either data logging aerosol monitors or personal data direct-reading aerosol monitors, will be used to provide immediate information regarding TSP concentrations at each of the perimeter air monitoring stations. The DataRAMs will be factory calibrated and operated in accordance with the manufacturer's instructions. The TSP measurements will provide data to demonstrate that the airborne concentration of arsenic does not exceed its airborne action level for the duration of remediation activities requiring dust monitoring.

The DataRAMs will be programmed to collect and log airborne aerosol data at 5-minute intervals and the instrument will be checked on an approximately hourly basis during the work shift to verify operation and compliance with the short-term action level of 1 mg/m³ and the airborne action level for TSP at the Site perimeter. Collected data will be downloaded at the end of each work day and reviewed to confirm that TSP did not exceed its airborne action level.

- Arsenic Sampling and PM10 Dust Monitoring:
 - Arsenic sampling and PM10 dust monitoring shall be conducted at the downwind perimeter air monitoring station for the first 2 days of remediation work where the highest concentrations of arsenic were detected in soil. If airborne action levels for arsenic are met, then only perimeter air monitoring for TSP will be continued for the duration of remediation activities requiring dust monitoring.
 - PM10 Dust Monitoring: PM10 dust monitoring will be conducted by equipping a DataRAM with a PM10 filter inlet. The DataRAMs will be factory calibrated and operated in accordance with the manufacturer's instructions and the inlets to the DataRAMs will be positioned at a height of approximately 5 feet to approximate the height of the human breathing zone.
 - Arsenic Sampling: Battery-powered air sampling pumps (Casella APEX Personal Sampling Pump or equivalent) will be used to collect 8-hour TWA samples for the analysis of arsenic. The pumps will be running at approximately 4 liters per minute and the units will be fitted with 37 millimeter ("mm") mixed cellulose ester ("MCE") filter cassettes. The battery-powered air sampling pumps will be calibrated in general accordance with the manufacturer's instructions. Flow rates and start/stop times will be recorded on air sampling field logs.

Following sample collection, the filter cassettes will be placed in individual receptacles for shipment to the analytical laboratory under standard chain-of-custody procedures. Arsenic will be extracted from the MCE filter cassettes using National Institute of Occupational Safety and Health ("NIOSH") Method 7303 and analyzed using inductively coupled plasma mass spectrometry (U.S. EPA Method 6020). The expected laboratory reporting limit for these samples is below the Airborne Action Limit for arsenic.

5.3.3 Application of Airborne Action Levels and Air Monitoring Results

Below is a summary of the measures to be taken if airborne action levels are exceeded at the Site perimeter during phases of work that require perimeter air monitoring.

- TSP:
 - If DataRAM logs indicate the 8-hour TWA airborne action level for TSP is exceeded for a specific phase of work, the Contractor will increase dust control measures until it is demonstrated that the 8-hour TWA airborne action level for TSP has been achieved by the Contractor's upgraded control measures.
 - If DataRAM logs indicate the 1 mg/m³ 5-minute TWA airborne action level for TSP (corresponding to the presence of visible dust) is exceeded, the Contractor will temporarily stop work, re-assess remediation activities, and increase dust control measures until it is demonstrated that airborne action levels for TSP have been achieved by the Contractor's upgraded control measures.

- Arsenic:
 - If the 8-hour TWA airborne action level for arsenic is exceeded, the Contractor will re-assess Site activities, increase the magnitude or frequency of dust control measures and/or implement additional measures as determined based on the re-assessment of Site activities.