SW DIXON – HARVEST PROPERTY
OPERABLE UNIT 3-EAST (OU-3 EAST)
DIXON, CALIFORNIA

REMOVAL ACTION WORK PLAN

SUBMITTED TO
Ms. Karri Peters
Department of Toxic Substances Control
8800 Cal Center Drive
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PREPARED BY
ENGEO Incorporated

May 19, 2022

PROJECT NO.
16796.001.000

ENGEO
Expect Excellence

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SW DIXON – HARVEST PROPERTY
OPERABLE UNIT 3-EAST (OU-3 EAST)
DIXON, CALIFORNIA

PREPARED FOR:

JEN CALIFORNIA 6, LLC
1478 STONE POINT DRIVE, SUITE 100
ROSEVILLE, CALIFORNIA 95661

PREPARED BY:

ENGEO INCORPORATED
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May 19, 2022

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EXECUTIVE SUMMARY

This Removal Action Work Plan (RAW) was prepared for the SW Dixon – Harvest Property Operable Unit 3-East (OU-3-East or Site), located in Dixon, California. The purpose of the RAW is to identify the preferred remedial alternative and to describe the proposed procedures and protocols for remediation of toxaphene-impacted soil at the Site to allow for future residential development.

A RAW is one of two remedy selection documents that may be prepared for a hazardous substance release site pursuant to California Health and Safety Code (HSC) Section 25356.1. A RAW is appropriate for removal actions that are projected to cost less than $2,000,000.

OU-3-East is part of a larger approximately 330-acre proposed development that is located generally south of West A Street and east of Interstate 80 in the City of Dixon, California (Figure 1). The approximately 45-acre Site consists of an assemblage of parcels, including Assessor's Parcel Numbers (APNs) 0114-012-010 (portion), 0114-012-050, and 0114-012-060. The Site, which is intended for residential development, has historically been utilized for agriculture (row crops).

The Preliminary Endangerment Assessment Report (PEA) for OU-3 East (ENGEO, 2022) identified and delineated toxaphene impact to the shallow soil at the Site. The depth of the impacted soil was found to be limited to the upper 12 inches of soil measured from the ground surface. Based on the vertical and lateral delineation, as determined by soil characterization activities detailed in the PEA, the volume of toxaphene impacted soil at the Site is approximately 56,000 cubic yards.

Based on the planned residential development proposed within OU-3-East, ENGEO's 2022 PEA report recommended the development of a RAW for the Site to address the identified toxaphene impact to the upper 12 inches of soil within portions of OU-3-East.

The removal action objective (RAO) is to reduce the human health risks associated with the Chemical of Potential Concern (COPC) in Site soil to a level that is acceptable for possible future development. Based on the RAO, cleanup levels have been established that are protective of human health and the environment and reduce the potential for exposure to the COPC in soil encountered at the Site. The established cleanup level for toxaphene is 450 micrograms per kilogram (µg/kg) (CAL-EPA residential screening level).

The selected remedial approach for the Site is excavation and off-site disposal. This approach includes the following:

- Excavation of an estimated 56,000 cubic yards of toxaphene-impacted soil.
- Stockpiling of the excavated soil for off-haul.
- Transport of the soil to an appropriate permitted disposal facility.
- Collection of confirmation soil samples across the excavation area and excavation sidewalls to verify the removal of toxaphene-impacted soil.

This document details past investigations, health risk assessments, and details regarding the proposed removal action. The RAW also includes details regarding implementation of the removal action, including sampling protocols, quality control/quality assurance, dust control measures, a transportation plan, and a site-specific health and safety plan. Implementation of this RAW will mitigate health-based risks associated with the noted toxaphene in near-surface soil and allow for possible future development.

1.0 INTRODUCTION

A Removal Action Work Plan (RAW) is one of two remedy selection documents that may be prepared for a hazardous substance release site pursuant to California Health and Safety Code (HSC) Section 25356.1. It is appropriate for removal actions that are projected to cost less than $2,000,000. This RAW has been prepared in compliance with the California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control (DTSC) September 23, 1998, guidance memorandum entitled *Removal Action Workplans – Senate Bill 1706.*

1.1 REMOVAL ACTION PROCESS

The RAW process, including the regulatory background and the RAW objectives, is described in the following sections.

1.1.1 Regulatory Basis for the RAW

In California HSC 25323.1, a RAW is defined as, "A work plan prepared or approved by the Department (DTSC) or a California Regional Water Quality Control Board (RWQCB), which is developed to carry out a removal action, in an effective manner, that is protective of the public health and safety and the environment." A RAW is appropriate when the estimated cost of the removal action is less than $2,000,000. If the estimated capital cost of implementing the chosen action will exceed $2,000,000, a Remedial Action Plan should be prepared.

The estimated cost of the selected removal alternative recommended in this RAW is less than $2,000,000.

1.1.2 Objectives of the RAW

The objectives of this RAW are to:

- Present and evaluate existing site conditions.
- Establish soil cleanup levels for protection of human health and the environment.
- Evaluate alternatives and identify a final recommendation for a removal action at the Site that is protective of human health and the environment.

1.1.3 Elements of the RAW

To accomplish the objectives stated in the preceding section and satisfy regulatory requirements, this RAW includes the following elements:

- A description of the nature and extent of the Chemical of Potential Concern (COPCs) at the Site
- The goals and soil cleanup levels to be achieved by the removal action
- A description of the remedial approach and preparation of an implementation plan

1.2 SITE DESCRIPTION

OU-3-East (Site) is part of a larger approximately 330-acre proposed development that is located generally south of West A Street and east of Interstate 80 in the City of Dixon, California (Figure 1). The Site consists of an assemblage of parcels, including Assessor's Parcel Numbers (APNs) 0114-012-010 (portion), 0114-012-050, and 0114-012-060.

The Site, which is intended for residential development, has historically been utilized for agriculture (row crops).

To address phasing of development, the proposed development was divided into three contiguous Operable Units: OU-1, OU-2, and OU-3. Following additional site characterization activities and based on revisions to the development schedule, OU-3 was further divided into OU-3-West and OU-3-East. Figure 1 depicts the boundaries of the operable units. OU-3-East has been in continuous operation by the same farmer. OU-1 and OU-2 had more than one farmer cultivating the land at any given point in time. DTSC and the project area owner agreed to divide the project area into the three OUs at a January 29, 2020, meeting at DTSC offices, as referenced in the current Standard Voluntary Agreement (SVA) Amendment executed by DTSC and dated June 17, 2020. The further subdividing of OU-3 was approved by DTSC via an email from Ms. Karri Peters, dated February 19, 2021. PEA reports were submitted to DTSC for OU-1, OU-2, OU-3-West, and OU-3-East. Following review of these PEA reports, DTSC issued No Further Action determinations for the OU-1, OU-2, and OU-3-West portions of the development. The operable units include the parcels listed in Table 1.2-1. The findings of the OU-3-East PEA determined that remedial action is necessary for future residential development of the Site.

TABLE 1.2-1

OPERABLE UNIT	ASSESSOR'S PARCEL NUMBERS	APPROXIMATE ACREAGE
Operable Unit 1 (OU-1)	0114-012-030, 0114-020-010, 0114-031-050, 0114-040-040, 0114-154-060	117
Operable Unit 2 (OU-2)	0114-011-010, 0114-011-150, 0114-011-160	78
Operable Unit 3 West (OU-3-West)	0114-012-040	75
Operable Unit 3 East (OU-3-East)	0114-012-010 (portion), 0114-012-050, 0114-012-060	45

According to published topographic maps, the Site is relatively level with little topographic relief. Elevation ranges from approximately Elevation 69 feet above mean sea level (msl) in the northwest to approximately Elevation 63 feet above msl in the southeast. Review of the Preliminary Geologic Map of Solano County and parts of Napa, Contra Costa, Marin, and Yolo Counties, California, found that the Site is underlain by alluvium (Holocene and Pleistocene). The alluvium is described as mainly unconsolidated flood-plain deposits, sand, silt, gravel, and clay irregularly interstratified (Qal).

1.2.1 Current and Historic Land Use

The approximately 45-acre Site currently consists of an undeveloped agricultural field, most recently utilized for the cultivation of hay. Adjoining parcels to the south and west consist residential properties, currently in varying stages of construction. Parcels to the north and east consist of developed residential properties.

Review of historical records indicates that the Site was historically utilized for agricultural purposes since at least 1937.

1.3 NATURALLY OCCURRING ASBESTOS EVALUATION

The Site is located in an area of primarily Holocene-age alluvial deposits, described as mainly unconsolidated flood-plain deposits, sand, silt, gravel, and clay irregularly interstratified (Qal). No ultramafic rocks are mapped on the Site or the surrounding areas.

Based on the geologic maps reviewed, only alluvial deposits have been reported at and near the Site. Naturally occurring asbestos is not anticipated to be present on the Site.

1.4 SITE OWNER

The Property title is vested in JEN California 6, LLC.

2.0 SITE CHARACTERIZATION

2.1 PREVIOUS INVESTIGATIONS

Wallace Kuhl & Associates, Soil Sampling and Analysis Report Taylor Builders Dixon Property; January 9, 2018

In December 2017, WKA collected 346 soil samples throughout the approximately 252-acre property. The Taylor Builders property includes portions of OU-1, OU-2, and all of OU-3 (OU-3-West and OU-3-East).

There were 304 samples recovered from the agricultural field portions of OU-1, OU-2, and OU-3. Samples were recovered on a 180-foot sampling grid to evenly distribute the samples throughout the agricultural portion of the property. Soil samples were collected from 0 to 6 inches below the surface.

The 304 samples (S01-S304) were composited at a 4:1 ratio to produce 76 soil samples for the analysis of organochlorine pesticides (OCPs). Eighteen of these 4:1 composite samples were collected from OU-3-East. One sample from each composited set was analyzed discretely for arsenic by EPA Method 6010B. Five of the 4:1 composited samples were composited with samples from adjacent agricultural fields outside of the boundary of OU-3-East. In four of these composite sets the discrete arsenic analysis was conducted on a sample collected outside of the OU-3-East boundary; therefore, there are 14 discrete samples from within OU-3-East that were analyzed for arsenic. Reported arsenic concentrations ranged from 4.2 mg/kg to 7.6 mg/kg.

Seven of the 18 composite samples exhibited toxaphene concentrations exceeding the respective DTSC residential SL. The 26 of the associated samples were analyzed discretely. Following discrete analysis, seven of the 26 samples (S212, S213, S216, S227, S231, S244, and S257) exhibited toxaphene concentrations exceeding the respective DTSC residential SL. Reported toxaphene concentrations in these seven samples ranged from 460 micrograms per kilogram (µg/kg) to 580 µg/kg. All seven of these samples were collected from OU-3-East.

Tetra Tech, Report of Findings, Harvest Property; June 2019

The Report of Findings (ROF) (Tetra Tech, June 2019) documents the remedial activity and confirmation sampling within OU-2 and OU-3. Laboratory results from previous Phase II sampling activities, as well as the supplemental sampling activities proposed in the January 2019 Work Plan, informed the extent of remedial excavations in the structure areas in OU-2 (Banner property) and OU-3-West (Area 2). Based on a statistical evaluation, Tetra Tech concluded that the concentration of OCPs within the former agricultural field portion of OU-3 (OU-3-East) did not require remedial action.

Identified impacted soil associated with former structures within OU-2 and OU-3-West was removed from the Site and confirmation samples were recovered. Subsequent confirmation samples, recovered from 18 inches bgs, indicate that the remaining soil exhibits concentrations of OCPs and lead below respective residential SLs.

After the required excavation activities were performed, a statistical evaluation was completed for constituents of concern for all soil sample locations proposed to remain on Site. These included the confirmation sample locations. Tetra Tech's ROF conclusion stated that "based on the completed statistical evaluation, arsenic is the only constituent remaining above the appropriate residential screening level; however, concentrations are generally consistent with expected background concentrations found within Solano County (USGS, 2014)". Tetra Tech concluded that the concentrations of the constituents of concern remaining in soil present no significant risk to human health under a residential exposure scenario.

ENGEO; Preliminary Endangerment Assessment-Equivalent Report; SW Dixon – Harvest Property Operable Unit 3-East, Dixon, California; March 30, 2022; Project No. 16796.001.000.

Following review of the previous investigations and review of comments provided by DTSC, ENGEO prepared a Preliminary Endangerment Assessment-Equivalent report (PEA). The PEA provided the following discussion and conclusions related to the potential remaining impact to Site soil within OU-3-East.

OU-3-East

Seven 4:1 composite samples recovered from OU-3-East exceeded the respective DTSC SL for toxaphene (WKA 2018). Subsequent discrete analysis of the 28 associated samples identified seven discrete samples exhibiting elevated toxaphene concentrations. The Report of Findings (ROF) (Tetra Tech, June 2019) indicated that a statistical evaluation of laboratory results of soil samples recovered from the agricultural field portion of OU-3 yielded a 95 percent upper confidence limit ($UCL_{95\%}$) for toxaphene below the respective DTSC SL for residential soil.

Based on DTSC's Comment Letter, the application of a sitewide UCL for toxaphene was deemed inappropriate due to the proposed redevelopment of the Site. DTSC recommended that the $UCL_{95\%}$ evaluation should consider each proposed residential lot as a separate exposure unit. When reviewing the agricultural field sample plan throughout OU-3, the seven samples exhibiting elevated toxaphene (S212, S213, S216, S227, S231, S244, and S257) are located on seven different proposed residential lots within OU-3-East (Figures 2 and 3). Therefore, there is not sufficient data to perform a statistical evaluation of the toxaphene concentration for an individual residential lot exposure unit within OU-3-East. Ten samples (WKA 2018) were identified to have been composited with samples from OU-3-East and a different agricultural field. These ten sample locations are identified on Figure 2. DTSC identified these samples as a potential data gap due

to compositing samples across different properties and potentially creating data for OU-3-East samples that are biased low. Additionally, two samples within OU-3-East, recovered by WKA in 2017 (S296 and S297) were part of a 4-point composite that exhibited an elevated toxaphene concentration. The other samples in the 4-point composite (S268 and S282) were analyzed discretely and toxaphene concentrations were non-detectable; however, samples S296 and S297 were never analyzed discretely.

Based on these identified data gaps additional surface soil samples were recovered from OU-3-East, as proposed in the January 2021 Supplemental Site Investigation (SSI) Work Plan (Figures 2 to 4). The SSI activity performed in OU-3-East is discussed below.

Fourteen soil samples collected by WKA in 2017 were analyzed for arsenic on a discrete basis. Reported arsenic concentrations ranged from 4.2 mg/kg to 7.6 mg/kg. While these reported concentrations exceed the established DTSC SL of 0.11 mg/kg for residential soil, they are well within the range of expected background concentrations for the region (Duverge, 2011)[1]. Previous PEA reports for OU-1, OU-2, and OU-3-West evaluated the arsenic concentrations identified in site soil and concluded that the concentrations are within the range of expected background concentrations for the region, as supported by the Duverge study. DTSC concurred with these previous conclusions; therefore, ENGEO continues to conclude that the arsenic concentrations in soil within OU-3-East are within expected background concentrations and do not represent an environmental concern for the Site.

SUPPLEMENTAL SITE INVESTIGATION

Scope of Work – January 2021

Initial field sampling activities associated with the SSI within OU-3-East were conducted on January 21, 2021. Hand-sampling techniques were utilized to recover four surface soil samples from each of the seven identified proposed lots within OU-3-East that exhibited elevated toxaphene concentrations (Figure 3). Additionally, one sample was collected from each of the 12 original sample locations (WKA 2018) that were either composited across separate agricultural fields or were not further analyzed discretely in the past characterization activities (Figures 2 and 3). A total of 40 samples were recovered in laboratory-provided glass jars with threaded Teflon® coated lids. Upon collection of samples, a sample label was placed on the sample, which included a unique sample number, sample location, and time/date collected. The soil samples were placed in an ice-cooled chest and submitted under documented chain-of-custody to Torrent Laboratory, Inc., a State-certified laboratory located in Milpitas, California.

- The 40 samples were analyzed on a discrete basis for organochlorine pesticides (OCPs) by EPA Method 8081A.

[1] Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay region, Duverge, 2011.

Additional Scope of Work – February 2021

Based on the initial SSI sampling activity conducted in OU-3-East in January 2021, ENGEO performed additional characterization activity within OU-3-East. Several samples recovered during the January 2021 sampling event exhibited elevated toxaphene concentrations (> 450 µg/kg). Additionally, our observations during the January 2021 sampling event indicated that OU-3-East was currently being cultivated for hay and had been actively cultivated since the previous sampling activity conducted by Wallace Kuhl and Associates in 2017.

The January 2021 sampling event included the recovery of surface soil from 19 of the original WKA soil sample locations (WKA, 2018) within OU-3-East. ENGEO proposed to recover soil samples from the remaining 43 original sample locations in order to re-characterize the Site and develop an accurate and current data set (Figure 3).

On February 26, 2021, a C-57 licensed direct-push contractor was utilized to advance 20 soil borings at the Site (Figure 3). Soil borings were advanced to a depth of 3-feet below the ground surface. Soil samples were retrieved within continuous Geoprobe® acetate core liners. Continuous soil cores from each boring were observed by an ENGEO representative. Specific soil samples were collected for laboratory analysis by cutting 6-inch portions of the Geoprobe soil core liners corresponding to the respective desired sampling depths in each location. New one-time-use acetate sleeves were used at each sampling location to prevent cross contamination. Samples were recovered from the following depth intervals:

- 0 to 6 inches
- 12 to 18 inches
- 24 to 36 inches

Soil samples were analyzed on a discrete basis for the following analyte:

- Organochlorine pesticides (EPA Method 8081)

The laboratory was instructed to hold the 24- to 36-inch samples pending the analysis of the shallow samples.

Additionally, ENGEO collected 23 surface soil samples (Figure 3). Samples were recovered in laboratory provided 4oz glass jars utilizing hand-sampling techniques. Samples were analyzed on a discrete basis for the following analyte:

- Organochlorine pesticides (EPA Method 8081)

Additional Scope of Work – July 2021

Based on the February 2021 sample results, step-out sampling activity was conducted to further delineate the lateral extent of toxaphene impacted soil. The previous SSI activity identified portions of the surface soil within OU-3-East that did not exhibit toxaphene concentrations exceeding the respective DTSC SL. In order to identify additional soil suitable for residential reuse, ENGEO collected 62 surface soil step-out samples from 0 to 6 inches below ground surface. Step-out samples were collected from approximately 75 feet and 100 feet laterally from previous sample locations where toxaphene concentrations were reported below 450 µg/kg (Figure 4). The step-out samples were placed between sample locations exhibiting no toxaphene

impact and sample locations with identified concentrations of toxaphene exceeding the respective SL. Soil samples were submitted to a State-certified analytical laboratory for discrete analysis of OCPs by EPA Method 8081.

Additional Scope of Work – Homestead Way

Based on a project requirement associated with providing public utility access for the greater Homestead development, utility installation was conducted within the future alignment of Homestead Way. Approximately 1,300 feet of Homestead Way extends from Pitt School Road west through OU-3-East. The presence of an irrigation water supply pipeline, owned and operated by the Solano Irrigation District (SID), presented a time constraint for the installation underground utilities. The utility installation was necessary to avoid irrigation water service interruptions to the region. Prior to the installation of utilities within Homestead Way, approximately 3 feet of soil was cut from the future roadway alignment. The material excavated from the roadway was placed to the north of Homestead Way within OU-3-East. The excavated soil was spread over portions of OU-3-East previously identified to exhibit toxaphene impact.

On January 18, 2022, following the rough grading of the roadway, ENGEO collected surface soil samples at street subgrade approximately 2 to 3 feet below the original grade at the Site. Samples were recovered in laboratory-provided 8 oz glass jars utilizing hand-sampling techniques. Thirteen samples (S1-S13) were collected at a frequency of one sample every 100 feet (Figure 4). Samples were analyzed on a discrete basis for the following analyte:

- Organochlorine pesticides (EPA Method 8081)

FINDINGS OF THE PEA

Arsenic

Based on the soil sampling conducted by WKA in 2017 and presented in their *Soil Sampling and Analysis Report* dated January 9, 2018, the arsenic concentrations in soil within OU-3-East range from 4.2 mg/kg to 7.6 mg/kg. While these reported concentrations exceed the established DTSC SL of 0.11 mg/kg for residential soil, they are well within the range of expected background concentrations for the region. DTSC has established that the findings of the Duverge study are applicable to the Site, as demonstrated by the approval of previous PEA reports for other portions of the overall development (OU-1 PEA and the OU-2 & OU-3-West PEA). Therefore, ENGEO continues to conclude that the arsenic concentrations in soil within OU-3-East are within expected background concentrations and do not represent an environmental concern for the Site.

Toxaphene

Based on previous sampling activity conducted by WKA in 2017, and the SSI activity conducted by ENGEO in January, February, and July 2021, portions of the shallow soil within OU-3-East (upper 12 inches) exhibits concentrations of toxaphene that exceed the respective DTSC SL for residential soil. The initial SSI activity identified locations of impacted soil throughout the Site. Additional samples collected from the Site identified that a majority of the upper 6 to 12 inches of the Site exhibits toxaphene concentrations exceeding the respective DTSC SL for residential soil. All of the soil samples recovered from the 12- to 18-inch depth interval exhibited toxaphene concentrations below the respective DTSC SL for residential soil. Subsequent step-out sampling performed in July 2021 served to further delineate the toxaphene impact laterally throughout the Site.

Based on the laboratory results, concentrations of toxaphene in soil from 12 inches or deeper does not represent an environmental concern for the Site; however, it is apparent that toxaphene concentrations present in shallow soil, excluding Homestead Way, exceed the respective DTSC SL for residential soil. Additional soil sampling activity performed in January 2022, throughout the OU-3-East portion of Homestead Way, indicates that the roadway does not exhibit toxaphene impact and no further action is necessary for the soil within the alignment of Homestead Way.

Based on the planned residential development proposed within OU-3-East, ENGEO recommended the development of a Removal Action Work Plan (RAW) for the Site.

2.2 NATURE AND EXTENT OF CONTAMINATION

Review of the soil data indicates toxaphene is the only COPC for the Site. Based on the findings of the soil sampling and laboratory testing, the soil impacts appear to be limited to approximately 35 of the 45 acres of the Site (Figure 4). The depth of the impacted soil is likely limited to 12 inches below the ground surface, equating to an approximate volume of 56,000 cubic yards.

3.0 REMOVAL ACTION OBJECTIVE AND SOIL CLEANUP LEVELS

Site characterization has revealed the presence of COPCs, specifically toxaphene, above acceptable levels in soil at the Site. The removal action objective (RAO) is to reduce the human health risks associated with the COPCs in Site soil to a level that is acceptable for possible future development.

Based on the RAO, a soil cleanup level was developed that establishes the specific toxaphene concentration that is protective of both human health and the environment. The soil cleanup level has been developed for the Site from: (1) information obtained during characterizations conducted at the Site; and (2) risk management decisions based upon the current and possible future development of the Site. The following soil cleanup level was developed for the Site:

- Toxaphene – 450 µg/kg (DTSC-SL for a residential [unrestricted] land use scenario).

A review of pertinent laws, regulations, and other criteria was performed to identify applicable or relevant and appropriate requirements (ARARs) and other criteria to be considered (TBC) for remediating the Site. These ARARs and TBCs are included as Appendix F to this document.

4.0 EVALUATION OF REMOVAL ACTION ALTERNATIVES

The purpose of this Section of the RAW is to identify and screen possible removal action alternatives that may best achieve the RAOs discussed in Section 3.0. The removal action alternatives were screened and evaluated on the basis of their effectiveness, implementability, and cost.

4.1 IDENTIFICATION AND ANALYSIS OF REMOVAL ACTION ALTERNATIVES

The response actions to address the identified COPCs in Site soil include Alternative 1: no further action, Alternative 2: on-site encapsulation with institutional controls, and Alternative 3: excavation and off-site disposal. These response actions are considered the appropriate removal action alternatives for the Site.

4.1.1 Alternative 1 – No Further Action

As required by the DTSC, the No Further Action alternative has been included to provide a baseline for comparisons among other removal action alternatives. The No Further Action alternative would not require implementing any measures at the Site, and no costs would be incurred. This action includes no institutional controls, no treatment of soil, and no monitoring.

4.1.2 Alternative 2 – On-Site Encapsulation

This alternative would consist of removing approximately 56,000 to 60,000 cubic yards of the impacted soil and placing the affected soil within the street sections of a future residential development, below the depth of future utilities. Excavation/encapsulation includes using loaders, backhoes, and/or other appropriate equipment. This alternative would include the following components:

- The area of future street sections would be over-excavated to a sufficient extent to allow for placement of the impacted soil below the depth of any future utilities. A clean soil cap would be placed over the impacted material, below future utilities.
- Following soil excavation, a confirmation sampling would be performed to verify removal of soil exceeding the RAOs.
- A land use covenant would be executed between DTSC and the property owner and recorded to ensure that the cap integrity is maintained and that future uses of the Site are consistent with the operation and maintenance of the cap. An operation and maintenance plan would be submitted and approved by DTSC.
- An operation and maintenance agreement signed with DTSC specifying the operation and maintenance requirements and providing financial assurance for future operation and maintenance of the cap.

4.1.3 Alternative 3 – Excavation/Off-Site Disposal

The excavation/off-site disposal alternative would consist of removing and transporting impacted soil to an appropriate, permitted off-site facility for disposal. Excavation includes using loaders, backhoes, and/or other appropriate equipment. This alternative would include the following components:

- Excavation of the estimated 56,000 cubic yards of toxaphene-impacted soil.
- Stockpiling of the excavated soil for loading.
- Transport of the soil to an appropriate permitted disposal facility.
- Collection of confirmation soil samples across the excavation area to verify the removal of toxaphene-impacted soil.
- Import of clean soil to restore grades at the Site.

- Since no soil exceeding RAOs would remain on site, a land use covenant would not be required.

4.2 EVALUATION CRITERIA

Each removal action alternative was independently analyzed without consideration to the other alternatives. Each of the removal action alternatives is screened based on effectiveness, implementability, and cost.

4.2.1 Effectiveness

In the effectiveness evaluation, the following factors are considered:

- *Overall Protection of Human Health and the Environment* – This criterion evaluates whether the removal action alternative provides adequate protection to human health and the environment and is able to meet the Site's RAOs.

- *Compliance with ARARs/TBCs* – This criterion evaluates the ability of the removal action alternative to comply with ARARs and TBCs.

- *Short-Term Effectiveness* – This criterion evaluates the effects of the removal action alternative during the construction and implementation phase until removal action objectives are met. It accounts for the protection of workers and the community during removal activities and environmental impacts from implementing the removal action.

- *Long-Term Effectiveness and Permanence* – This criterion addresses issues related to the management of residual risk remaining on Site after a removal action has been performed and has met it objectives. The primary focus is on the controls that may be required to manage risk posed by treatment residuals and/or untreated wastes.

- *Reduction of Toxicity, Mobility, or Volume* – This criterion evaluates whether the remedial technology employed results in significant reduction in toxicity, mobility, or volume of the hazardous substances.

4.2.2 Implementability

This criterion evaluates the technical and administrative feasibility of implementing the alternative, as well as the availability of the necessary equipment and services. This includes the ability to design and perform a removal action alternative, ability to obtain services and equipment, ability to monitor the performance and effectiveness of technologies, and the ability to obtain necessary permits and approvals from agencies, and acceptance by the State and the community.

4.2.3 Cost

This criterion assesses the relative cost of each technology based on estimated fixed capital for construction or initial implementation and ongoing operational and maintenance costs. The actual costs will depend on true labor and material cost, competitive market conditions, final project scope, and the implementation schedule.

4.3 ANALYSIS OF REMOVAL ACTION ALTERNATIVES

Each alternative is discussed in the following sections.

4.3.1 Alternative 1 – No Further Action

The No Further Action alternative would not require implementing any measures at the Site, and no costs would be incurred. Consequently, there would be no activities that would disturb Site soil, and, therefore, no short-term risks to Site workers or the community, as a result of implementing this alternative.

However, under the No Further Action alternative, the impacts due to the presence of elevated toxaphene concentrations in soil would not be addressed and there would be no reduction in the potential risks. This alternative, therefore, does not meet the effectiveness criterion. As a result, acceptance by the State and the community would be unobtainable.

4.3.2 Alternative 2 – On-Site Encapsulation

Effectiveness

Potential short-term risks to on-site workers, public health, and the environment could result from dust or particulates that may be generated during excavation, soil handling, and encapsulation activities. These risks could be mitigated using personal protective equipment for on-site workers and engineering controls, such as dust suppression and monitoring, and additional traffic and equipment operating safety procedures, for protection of the surrounding community.

With regard to long-term effectiveness, on-site encapsulation would not lessen toxicity or volume of the COPCs, but would limit or eliminate direct contact for future residents and workers. Under the operation and maintenance agreement, required as part of this alternative, periodic inspections would be required for settlement, cracking, ponding of liquids, erosion, and naturally occurring invasion by deep-rooted vegetation. On-site encapsulation would also require long-term inspection and maintenance and a land use covenant to provide long-term effectiveness and to ensure that the integrity of the cap is not compromised by land use activities.

Implementability

Encapsulation is a relatively simple technology that is readily implemented. However, as COPCs would remain on Site, obtaining permits and regulatory approval is more difficult. In addition, community acceptance for this alternative may be more difficult since the COPCs would remain on Site. Encapsulation may require “triple” handling of soil and a longer period of time (6 to 8 weeks) to complete the encapsulation. This alternative would result in the potential for a greater degree of dust generation and noise from operations.

Cost

Containment technologies typically involve low to moderate costs. Based on previous estimates, costs for this alternative are in the range of $84 per cubic yard. Total project cost for Alternative 2, based on 56,000 cubic yards, would be approximately $4,695,500, including additional in future operation and maintenance costs (Section 4.4.3, Table 4.4.3-1).

4.3.3 Alternative 3 – Soil Excavation/Off-Site Disposal

Effectiveness

Potential short-term risks to on-site workers, public health, and the environment could result from dust or particulates that may be generated during excavation and soil handling activities. These risks could be reduced using personal protective equipment for on-site workers and engineering controls, such as dust suppression and monitoring, and additional traffic and equipment operating safety procedures for protection of the surrounding community. Excavation and disposal would remove the COPCs from the Site, and therefore, eliminate the long-term risks and accomplishes the RAO.

Implementability

Excavation/off-site disposal is a well-proven, readily implementable technology that is a common method for cleaning up contaminated sites. It is a relatively simple process, with proven results. Equipment and labor required to implement this alternative are uncomplicated and readily available. The shallow depths of the identified contamination make excavation readily implementable. It is anticipated that regulatory approval would be granted since it is a proven and permanent technology. Acceptance by the State and the community for this alternative is considered high. Alternative 3 will result between 4,500 and 4,700 truck trips between the Site and the Hay Road Landfill (approximately 11 miles away) to off-haul soil.

Cost

The estimated cost for excavation, transportation, and disposal of the impacted soil is approximately $35 per cubic yard. This estimate includes permitting, excavation/removal, confirmation sampling/reporting, transportation, disposal at an approved off-site disposal facility, and import fill. The total estimated cost for implementation of Alternative 3, based on 56,000 cubic yards, is $1,997,500.

4.4 COMPARATIVE ANALYSIS OF REMOVAL ACTION ALTERNATIVES

A comparative analysis was conducted to identify the advantages and disadvantages of each removal action alternative. The comparative analysis of the removal action alternatives was conducted to address the criteria listed in Section 4.2.

4.4.1 Effectiveness

Under the no further action alternative (Alternative 1), the impacts associated with the site-specific COPCs would not be addressed. Consequently, there would be no reduction in the potential risks and the RAO would not be achieved. The no further action alternative does not involve activities that would disturb the impacted soil; therefore, there would be no short-term risks to on-site workers or the community as a result of implementing these alternatives. Alternatives 2 and 3 would require removing, handling, and transporting the impacted soil, resulting in higher short-term exposure risks; however, it is expected that these risks can be sufficiently mitigated through site control measures.

Alternatives 2 and 3 reduce or eliminate, respectively, potential exposure to COPCs, and therefore, accomplish the RAO. Once implemented, the encapsulation alternative presented in Alternative 2 would require long-term monitoring to ensure its effectiveness. In addition, future changes in land use could disturb the soil. The excavation/off-site disposal alternative present in Alternative 3 would remove the COPCs from the Site and would not require any further management or Site controls.

Based upon this evaluation, Alternative 3 is favored under this criterion.

4.4.2 Implementability

No measures would be implemented for the no further action alternative. Alternatives 2 and 3 are both well proven, readily implementable technologies. However, Alternative 2 requires additional handling of soil, and therefore, a potential increase in dust and noise generation, and also requires a long-term Operations and Maintenance program. Alternative 3 will result in greater impacts to transportation/traffic; however, the impacts are of short duration and can be effectively managed to minimize disturbances with the proposed transportation management plan. Accordingly, Alternative 3 is favored by this criterion.

4.4.3 Cost Effectiveness

A summary of estimated costs to implement the proposed alternatives is presented in the following table. Costs are based on encapsulation or excavation/off-site disposal of 56,000 yards of soil.

TABLE 4.4.3-1: Summary of Estimated Costs for Removal Action Alternatives

COSTS	REMOVAL ACTION ALTERNATIVE		
	ALTERNATIVE 1 NO FURTHER ACTION	ALTERNATIVE 2 ENCAPSULATION	ALTERNATIVE 3 EXCAVATION AND DISPOSAL
Direct Capital Costs			
Equipment Costs, excavation, Backfill & Compaction Costs	0	$4,480,000	$1,400,000
Disposal &Transport Costs	0	0	$560,000
Indirect Capital Costs			
Engineering and Design Expenses	0	$40,000	$32,500
Oversight and Permit Costs	0	$8,000	$5,000
Annual Post Removal Action Site Control Costs			
Operational Costs – Including Annual Inspections ($4,000/year for 30 years)	0	$120,000	0
Maintenance Costs ($1,000/year for 30 years)	0	$30,000	0
5- year reviews ($3,500/ 5 years for 30 years)		$17,500	0
TOTAL	**0**	**$4,695,500**	**$1,997,500**

4.5 RECOMMENDED REMOVAL ACTION ALTERNATIVE

Based on the comparative analysis described in Section 4.4, Alternative 3, Excavation and Off-Site Disposal is the preferred and recommended removal action alternative for addressing the Site.

5.0 REMOVAL ACTION IMPLEMENTATION

Remedial activities will be performed by a California-licensed contractor, under supervision of a California-licensed professional geologist and/or civil engineer.

The removal, transport, and disposal of soil will be performed in accordance with all applicable federal, state, and local laws, regulations, ordinances, and requirements. Field operations shall follow the suggested operational guidelines to prevent cross-media transfer of contaminants, as specified in "Best Management Practices (BMP) for Soils Treatment Technologies" (U.S. EPA 530-R-97-007).

5.1 PERMITTING AND SITE PREPARATION

The removal action will be conducted in accordance with all applicable California Code of Regulations, including Cal/OSHA regulations. Prior to implementation of the RAW, a grading permit will be obtained from the City of Dixon. A hauling plan/permit will also be submitted to the City of Dixon for approval.

5.2 EXCAVATION METHODOLOGY

Excavation work will be conducted by a licensed grading contractor with current hazardous material certifications. Work activities will be conducted Monday through Friday between 7:00 a.m. and 6:00 p.m. Excavations will be performed using a combination of backhoes, scrapers, track-mounted excavators, and loaders. The approximate extent of the proposed excavation areas is shown on Figure 5. Since the excavations will be shallow (approximately 12 inches in depth), shoring and/or sloping is not anticipated.

The excavated soil will be stockpiled outside of the planned excavation area. As necessary, soil stockpiles will be covered with 10-mil plastic sheeting and secured to prevent dust or runoff during storm events. Stockpiles will be managed in accordance with the Dust Control Plan (Appendix A).

Details regarding transportation and disposal, including landfill locations and trucking routes, are provided in the Transportation Plan (Appendix B).

5.3 BACKFILLING OF EXCAVATIONS

Following the completion of the excavation and confirmation sampling activity, clean import soil will be utilized to restore Site grades. The import soil will be sourced from the greater SW Dixon – Harvest Property. Import soil will originate from portions of the SW Dixon – Harvest Property that have received No Further Action determinations from DTSC and received such determination for a residential use scenario. The exact source of the import soil is not known at this time; however, once the soil is identified within the SW Dixon – Harvest Property, DTSC will be notified.

5.4 CONTROL MEASURES

The Site will be cordoned off to protect the general public, and access to the Site will be restricted through a specific locked entrance. Dust control measures will be performed in accordance with applicable BAAQMD Standards and the Dust Control Plan. The applicable guidelines are available in Tables 8-1 and 8-2 of the *California Environmental Quality Act - Air Quality Guidelines* (updated May 2011). Dust control procedures are described in Appendix A. On-site health and

safety measures are detailed in Appendix E. Please refer to the Sampling and Analysis Plan (Appendix C) for decontamination procedures.

Noise control measures implemented within the Site will be undertaken in accordance with applicable City of Dixon requirements. Anticipated construction activities will be conducted between 7:00 a.m. and 6:00 p.m. on any day, except Saturday or Sunday. Work conducted on Saturday or Sunday would be completed between 8:00 a.m. and 5:00 p.m., subject to the approval of the City of Dixon. Noise control measures will include, but are not limited to:

- All equipment driven by internal combustion engines will be equipped with appropriate mufflers in good operating condition.
- When feasible, "quiet" models of stationary equipment such as air compressors, generators, and other noise sources will be utilized.
- Stationary noise-generating equipment will be located as far as possible from sensitive receptors.
- Idling of inactive internal combustion engines for more than five consecutive minutes shall not be permitted on Site.

5.5 FIELD VARIANCES

Significant variances from the work plan will be discussed with DTSC prior to any action being taken, except for emergencies (when immediate response is required). DTSC will be notified if an emergency response is implemented. The field variances will be documented in the Removal Action Completion Report.

6.0 SAMPLING AND ANALYSIS PLAN

The proposed removal action will require the collection and analysis of samples to confirm the removal of impacted soil and to determine the proper waste classification of excavated soil for disposal purposes. All sampling will be conducted in general accordance with the Sampling and Analysis Plan (Appendix C). In the following sections, confirmation sampling is discussed.

6.1 CONFIRMATION SAMPLING OF EXCAVATED AREAS

The affected area of the Site that exhibits toxaphene concentrations above the soil cleanup level will be divided into grids, approximately 100 feet by 100 feet (10,000 square feet). Figure 5 identifies the portions of the Site with toxaphene concentrations above the soil cleanup level; this is the area proposed for initial excavation.

The grids with affected soil will initially be excavated to a depth of 12 inches. Following excavation, each of the excavated grids will be sampled by the collection of one discrete soil sample from the center-base of the grid (approximately 150 samples). The grid samples will all be analyzed for toxaphene. Grids with confirmation sampling concentrations exceeding the soil cleanup levels will be re-excavated an additional 6 inches and resampled. Confirmation samples will also be collected from the resulting sidewalls of the excavation. Sidewall samples will be collected on a frequency of one sample per approximately 100 linear feet of sidewall. Sidewall samples will be collected from the center of the 100-foot portion of sidewall and approximately 6 inches below the surface elevation

of the existing grade surrounding the proposed excavation. Sidewall samples will be analyzed for toxaphene. In locations where the sidewall confirmation samples exceed the soil cleanup levels, the representative portion of the sidewall, will be excavated an additional 2 feet laterally and resampled. Excavation activities will proceed until the soil cleanup levels are achieved on the base and the sidewalls of the excavation. The additional lateral excavation of any sidewall will not extend beyond the Site boundary. All excavated soil will be managed as discussed in the excavation methodology section presented above. All resulting stockpiles will be characterized for off-haul and disposal as discussed in Section 6.2. Grids and sidewalls with confirmation samples below the soil cleanup levels will be considered complete with no further excavation conducted.

6.2 SOIL STOCKPILE CLASSIFICATION

The excavated soil will be stockpiled for off-haul and disposal. Based on the extensive existing laboratory data, the soil will be off-hauled to a Class II disposal facility. The existing laboratory data will be provided to the recipient disposal facility for profiling and acceptance.

As noted in the Transportation Plan (Appendix B), it is anticipated that the soil will be categorized as Class II non-hazardous waste and will be disposed of at the Hay Road Landfill in Vacaville, California. Based on the extensive soil characterization activities that have occurred at the Site, there is no reason to expect any of the soil to be classified as Class I hazardous waste and/or RCRA waste.

7.0 CONTINGENCY PLAN

In the event the RAW cannot be successfully implemented, for example, cleanup levels for unrestricted use are not achieved, DTSC will be consulted to determine the appropriate course of action.

8.0 HEALTH AND SAFETY PLAN

All contractors will be responsible for operating in accordance with the most current requirements of Title 8, California Code of Regulations, Section 5192 (8 CCR 5192) and Title 29, Code of Federal Regulations, Section 1910.120 (29 CFR 1910.120), Standards for Hazardous Waste Operations and Emergency Response (HAZWOPER). On-site personnel are responsible for operating in accordance with all applicable regulations of the Occupational Safety and Health Administration (OSHA) outlined in 8 CCR General Industry and Construction Safety Orders and 29 CFR 1910 and 29 CFR 1926, Construction Industry Standards, as well as other applicable federal, state, and local laws and regulations. All personnel shall operate in compliance with all California OSHA requirements.

A Site-specific Health and Safety Plan (HASP) has been prepared in accordance with current health and safety standards as specified by the federal and California OSHAs. A copy of the HASP is included as Appendix E.

9.0 PUBLIC PARTICIPATION

The public participation components for the RAW will include: (1) the development of a community profile, (2) publishing a notice of the availability of the RAW for public review and comment in a local newspaper, (3) making the RAW and other supporting documents available at the DTSC

office and in the local information repository, and (4) responding to public comments received on the RAW and CEQA documents.

In accordance with the Community Profile prepared for this site, the following additional activities will be conducted: (1) a fact sheet will be sent out to the Site mailing list describing the Site and the proposed removal action; (2) the length of the public review and comment period will be 30 days; (3) a public meeting or workshop will be held if there is sufficient community interest; and (4) site documents will be available in electronic format on DTSC's publicly accessible EnviroStor database.

Following completion of the public comment period, DTSC will consider and respond to the comments received, if any. The RAW will be revised, as necessary, in response to the comments received. If significant changes are not required, DTSC will then approve the RAW for implementation.

10.0 CEQA DOCUMENTATION

The California Environmental Quality Act (CEQA) (Pub. Resources Code §§ 21000 et seq.), modeled after the National Environmental Policy Act (NEPA) of 1969, was enacted in 1970 as a system of checks and balances for land-use development and management decisions in California. It is an administrative procedure to provide for comprehensive environmental review of individual and cumulative impacts prior to project approval.

Under CEQA, "project" means the whole of an action, which has a potential for resulting in a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment. CEQA applies to all discretionary actions proposed to be carried out or approved by California public agencies, unless an exemption applies.

The City of Dixon is the lead agency for CEQA and DTSC will rely on their findings to satisfy CEQA requirements for the Site cleanup.

11.0 REPORTING

Upon completion of soil excavation, disposal, and confirmation sampling, we will prepare a final Removal Action Completion Report documenting all Site activities. The report will provide all compiled laboratory data and disposal manifests for the project. The report will be signed by a California professional engineer and/or professional geologist.

12.0 ADMINISTRATIVE RECORD LIST AND REFERENCES

This Administrative Record list is provided in general accordance with the DTSC RAW Memorandum dated September 29, 1998, and the 1994 DTSC Management Memo #EO-94-004-MM. The purpose of this list is to identify all documents that were relied on or considered in selecting the removal action and in preparing the DTSC-approved RAW. An information repository was established to contain selected documents from the Administrative Record including technical reports and project correspondence.

Administrative Record List

CAL-EPA Department of Toxic Substances Control (DTSC) Human and Ecological Risk Office Human Health Risk Assessment Note 3, DTSC-modified Screening Levels, April 2019.

CAL-EPA Department of Toxic Substances Control (DTSC), Comments on The Preliminary Endangerment Assessment Report Equivalent for The SW Dixon, Plan – Harvest Property Located At 630 South Lincoln Street, Dixon, California 95620; November 15, 2019. (SITE CODE: 102381).

DTSC; Removal Action Workplan Sample; February 13, 2008.

Department of Toxic Substances Control (DTSC), Selecting Inorganic Constituents as Chemicals of Potential Concern at Risk Assessments at Hazardous Waste Sites and Permitted Facilities; February 1997.

Department of Toxic Substances Control (DTSC), Arsenic Strategies Determination of Arsenic Remediation Development of Arsenic Cleanup Goals for Proposed and Existing School Sites. California Environmental Protection Agency, Sacramento, California; March 2007.

Department of Toxic Substances Control; Review of Preliminary Endangerment Assessment-Equivalent Report, SW Dixon – Harvest Property OU-3 East, 630 South Lincoln Street, Dixon (Site Code: 102381); March 25, 2022

Dibblee, T.W., and Mich, J.A., 2006, Geologic map of the Antioch South and Brentwood quadrangles, Contra Costa County, California: Dibblee Geologic Foundation, Dibblee Foundation Map DF-193, scale 1:24,000.

ENGEO, Response to DTSC Comments, SW Dixon Plan – Harvest Property (Homestead); January 7, 2020.

ENGEO, Supplemental Site Investigation Work Plan, SW Dixon Plan – Harvest Property Operable Units 2 and 3 (OU-2 and OU-3); January 14, 2021.

ENGEO, Preliminary Endangerment Assessment – Equivalent Report, SW Dixon Plan – Harvest Property Operable Units 3-East (OU-3 East); March 30, 2022.

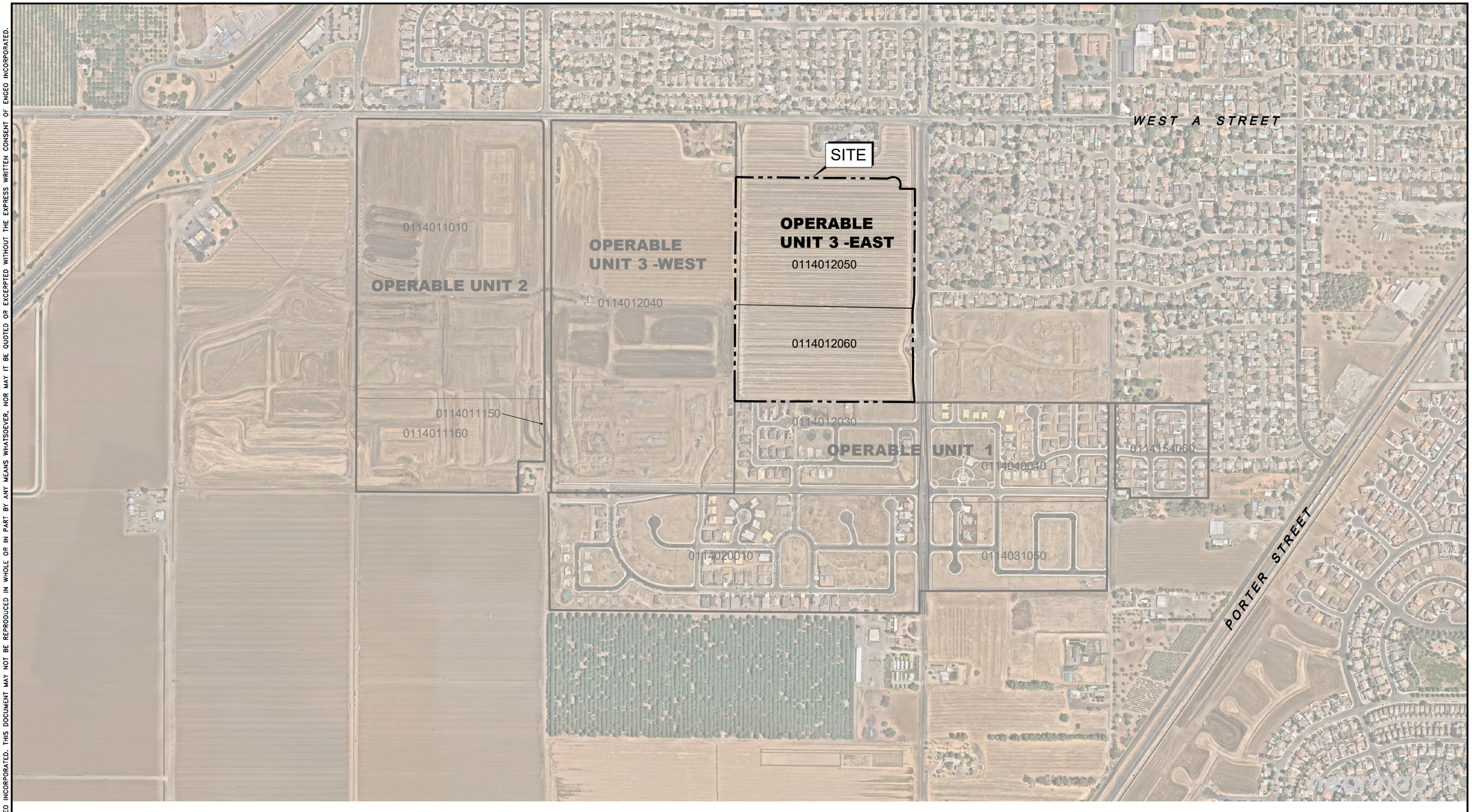
Tetra Tech, Report of Findings, Harvest Property; June 2019.

Sims, J.D., Fox, K.F., Bartow, J.A., and Helley, E.J., 1973, Preliminary geologic map of Solano County and parts of Napa, Contra Costa, Marin, and Yolo Counties, California: U.S. Geological Survey, Miscellaneous Field Studies Map MF-484, scale 1:62,500.

Wallace Kuhl & Associates, Phase I Environmental Site Assessment, Taylor Builders Dixon Property; December 20, 2017.

Wallace Kuhl & Associates, Soil Sampling and Analysis Report Taylor Builders Dixon Property; January 9, 2018.

FIGURES



N

0 650
FEET

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

SITE BOUNDARY

BASE MAP SOURCE: NEARMAP MAPPING SERVICE (5/20/2021) AND CBG

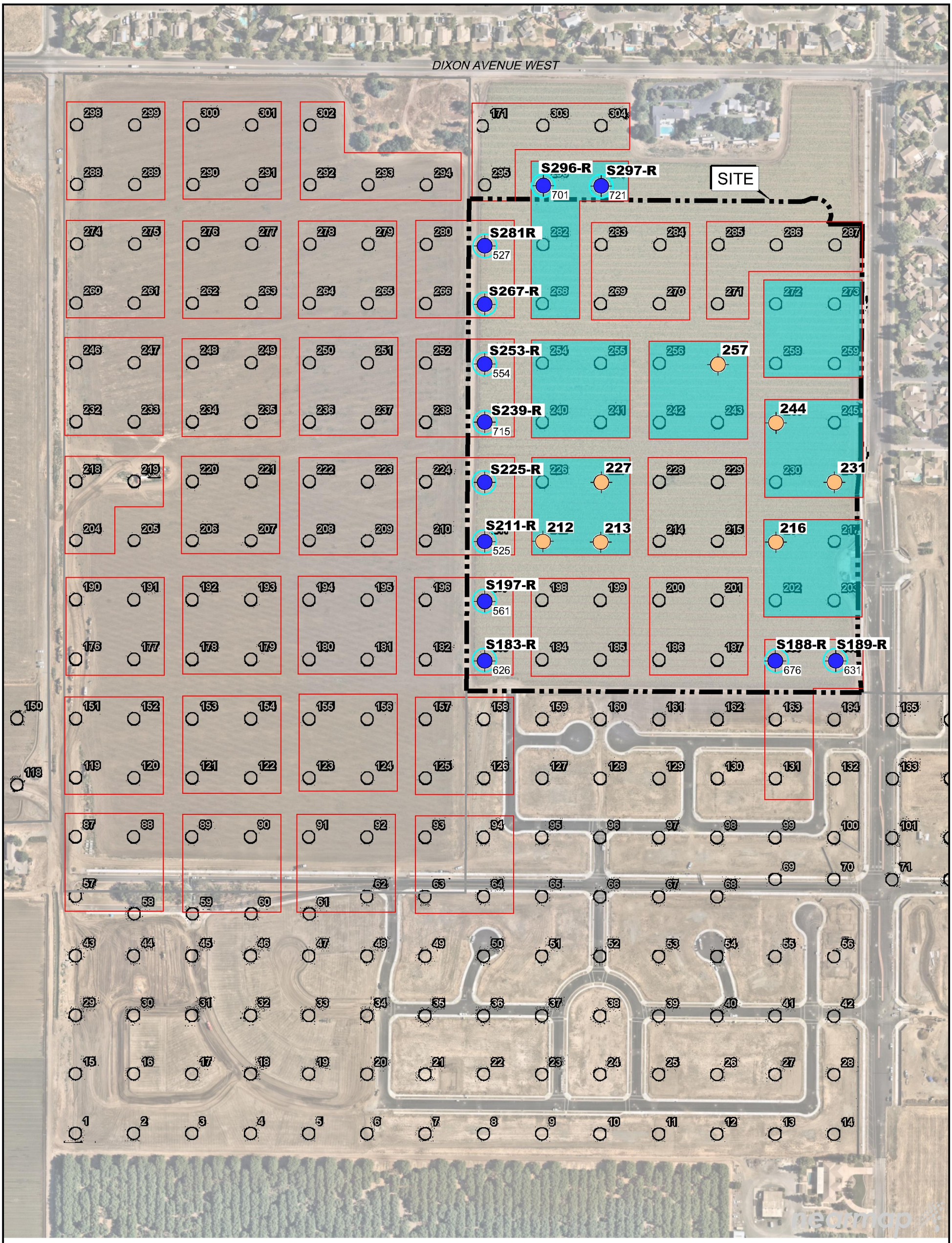
ENGEO Expect Excellence

SITE PLAN
HOMESTEAD OU-3 EAST
DIXON, CALIFORNIA

PROJECT NO.: 16796.001.000	FIGURE NO. 1
SCALE: AS SHOWN	
DRAWN BY: JV	CHECKED BY: SPM

ORIGINAL FIGURE PRINTED IN COLOR

FILE PATH: G:\Drafting\PROJECTS_16000 to 17999\16796\16796001000\PEA\16796001000-PEA-1-SitePlan-0122.dwg SAVE DATE: 1/7/2022 12:57:33 PM SAVED BY: jvergara



EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- COMPOSITE SAMPLE SET (WKA, 2017)
- COMPOSITE SAMPLE: TOXAPHENE > 450 mg/kg (WKA, 2017)
- 257 — DISCRETE SAMPLE: TOXAPHENE > 450 mg/kg (WKA, 2017)
- S297-R 721 — DISCRETE RESAMPLE OF ORIGINAL SAMPLE: (TOXAPHENE LEVELS SHOWN IF > 450 mg/kg) (ENGEO, JANUARY 2021)

N

0 300
FEET

BASE MAP SOURCE: NEARMAP MAPPING SERVICE (2021), AND WALLACE KUHL (2018)

ENGEO Expect Excellence

OU-3-EAST SUPPLEMENTAL SAMPLING PLAN

HOMESTEAD OU-3-EAST

DIXON, CALIFORNIA

PROJECT NO.: 16796.001.000	FIGURE NO. 2
SCALE: AS SHOWN	
DRAWN BY: CC	CHECKED BY: SPM

ORIGINAL FIGURE PRINTED IN COLOR

PITT SCHOOL ROAD

SITE

S171-R
S303-R
S304-R
S295-R
S296-R 701
S297-R 721
S281R 527
S282-R
S283-R
S284-R
S285-R
S286-R
S287-R
S267-R
S268-R
S269-R
S270-R
S271-R
S272-R
S273-R
257D 672
257C 772
257A 711
257B 790
257
S253-R 554
S254-R
S255-R
S256-R
S258-R
S259-R
S239-R 715
S240-R
S241-R
S242-R
S243-R
244D
244C 826
244A 779
244 852
244B 803
S245-R
227D
227C
563
227A
227
227B 575
S225-R
S226-R
S228-R
S229-R
S230-R
231D 574
231C 493
231 642
231A
231B 912
216D 524
216C 477
216B 518
216A 646
216
S211-R 525
212C 864
213D
212D
212
213C
213
212A
212B
213A
213B
S214-R
S215-R
S217-R
S197-R 561
S198-R
S199-R
S200-R
S201-R
S202-R
S203-R
S183-R 626
S184-R
S185-R
S186-R
S187-R
S188-R 676
S189-R 631

nearmap

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

257D 672 — ORGANOCHLORINE PESTICIDE SAMPLE: (TOXAPHENE LEVELS SHOWN IF > 450 mg/kg) (ENGEO, JANUARY 2021)

S297-R 721 — DISCRETE RESAMPLE OF ORIGINAL SAMPLE: (TOXAPHENE LEVELS SHOWN IF > 450 mg/kg) (ENGEO, JANUARY 2021)

257 — PREVIOUS SAMPLE LOCATION EXCEEDING 450 mg/kg TOXAPHENE (WKA, 2017)

SURFACE SAMPLE LOCATION (ENGEO, FEBRUARY 2021)

BORING TO 3 FEET (ENGEO, FEBRUARY 2021)

BASE MAP SOURCE: NEAR MAP MAPPING SERVICE (2021) AND CBG

N

0 150
FEET

ENGEO Expect Excellence

OU-3-EAST
ADDITIONAL SUPPLEMENTAL SAMPLING PLAN
HOMESTEAD OU-3 EAST
DIXON, CALIFORNIA

PROJECT NO.: 16796.001.000	FIGURE NO. 3
SCALE: AS SHOWN	
DRAWN BY: CC	CHECKED BY: SPM

ORIGINAL FIGURE PRINTED IN COLOR

PITT SCHOOL ROAD

0 150 FEET

N

SITE

S296-R 701

S297-R 721

S281R 527

267-N-100 267-N-75 268-N-100 268-N-75

S267-R 268-E-75 268-E-100

267-S-75 267-S-100 268-S-75 268-S-100

257D 672 257C 772

257A 711 257B 790

257

S253-R 554

240-N-100 240-N-75

S239-R 715 240-E-75 240-E-100

240-W-100 240-W-75

240-S-75 240-S-100

225-N-100 225-N-75

227D 563 227C

S12 225-E-100

S13 S225-R 227A 227 227B 575

S11 225-E-75

225-S-75 225-S-100

213D-N-50 213D-N-25 S10

213-N-100 S9

212C 864 213-N-75 S8

213D

S211-R 525 212D 212 213C S7

212A 212B 213A 213 213-E-100 S6

213-E-75 213B S5

213A-S-50 213-S-75 S4

213A-S-75 213-S-100 S3 S2 S1

201-N-100 201-N-75

S197-R 561

201-W-100 201-E-75 201-W-75 201-E-100

201-S-75 201-S-100

184-N-100 184-N-75

184-W-100 184-E-75

S183-R 626 184-W-75 184-E-100

S188-R 676

S189-R 631

244D 244C 826 244A 779 244 852 244B 803

245-N-100 245-N-75

245-W-100 245-W-75

245-S-75 245-S-100

229-N-100 229-N-75

229-W-100 229-E-75 229-E-100

229-W-75

229-S-75 229-S-100

231D 574 231C 493 231 231A 642 231B 912

216D 524 216C 477

216B 518

216A 646 216

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

BASE MAP SOURCE: NEAR MAP MAPPING SERVICE (2021) AND CBG

S13 — SOIL SAMPLE (ENGEO, 2022)

184-W-100 — STEP OUT ORGANOCHLORINE PESTICIDE SAMPLE (ENGEO, JULY 2021)

257D 672 — ORGANOCHLORINE PESTICIDE SAMPLE: (TOXAPHENE LEVELS SHOWN IF > 450 mg/kg) (ENGEO, JANUARY 2021)

S297-R 721 — DISCRETE RESAMPLE OF ORIGINAL SAMPLE: (TOXAPHENE LEVELS SHOWN IF > 450 mg/kg) (ENGEO, JANUARY 2021)

257 — PREVIOUS SAMPLE LOCATION EXCEEDING 450 mg/kg TOXAPHENE (WKA, 2017)

0-6" SAMPLE RESULTS

TOXAPHENE > 450 ug/kg

TOXAPHENE < 450 ug/kg

ENGEO Expect Excellence

OU-3-EAST STEP-OUT SAMPLING PLAN

HOMESTEAD OU-3-EAST

DIXON, CALIFORNIA

PROJECT NO.:	16796.001.000
SCALE:	AS SHOWN
DRAWN BY:	CC
CHECKED BY:	SPM

FIGURE NO. 4

ORIGINAL FIGURE PRINTED IN COLOR

APPENDIX A

COMMUNITY AIR MONITORING PLAN

COMMUNITY AIR MONITORING PLAN

This plan details potential dust control and monitoring measures that the contractor and ENGEO will implement to minimize dust emissions and concentrations of COPCs in fugitive dust during removal activities at the Site. Dust emissions may result from activities during the removal action and from wind erosion. These sources are most effectively controlled using wet suppression. A high wind threshold will also be established to minimize wind erosion during extreme meteorological conditions. Stockpiles will be covered, unless being loaded, and water will be sprayed on areas that have already been excavated and are subject to wind erosion. Dust control measures will be performed in accordance with applicable Bay Area Air Quality Management District (BAAQMD) standards.

SOURCES OF EMISSIONS

Construction Traffic – Movement of construction equipment around the construction area is capable of creating construction emissions in excavated or cleared areas. There is also the potential for vehicular traffic on paved or unpaved roads and parking lots to produce construction emissions.

Excavation – Excavation activities and backfilling operations can produce both fugitive dust and vehicle emissions.

Off-haul – Removal of stockpiled soil from the Site for disposal off Site can produce both fugitive dust and vehicle emissions.

Material Stockpiles and Inactive Areas – Stockpiles of soil generated from excavation activities and exposed areas where soil has been disturbed may contribute to windborne dust emissions.

FUGITIVE DUST EMISSION CALCULATIONS (BASED ON PM_{10}=50 µg/m^3 DIFFERENTIAL)

Cancer risk for the outdoor air exposure pathway was calculated for a residential scenario using the equations presented in Figures 2.9 and 2.10 of the DTSC PEA guidance manual (October 2015). The calculations are based on fugitive dust emissions of PM_{10} at 0.050 mg/m^3, per the California Ambient Air Quality Standards for particulate matter. The toxicity factors used to calculate risk were obtained from the California Office of Environmental Health Hazard Assessment (OEHHA) Toxicity Criteria Database.

The exposure point concentrations for outdoor air were estimated using the following equation presented in Figure 2.10 of the PEA guidance manual.

$C_a = C_s / PEF \times 1{,}000\ \mu g/mg$

Where:

C_a = *concentration in air, µg/m^3*
C_s = *concentration in soil, mg/kg*
PEF= 9.06x10^8 m^3/kg

- Using the maximum toxaphene concentration of 1.68 mg/kg, we calculated an air concentration of 1.85E^{-6} µg/m^3.

The cancer risk for the inhalation of outdoor air pathway was calculated using the following equation presented in Figure 2.9 of the PEA guidance manual.

$Risk_{air} = IUR \times C_a \times 0.356$

Where:

IUR = Inhalation Unit Risk ($\mu g/m^3$-day)$^{-1}$
[OEHHA Toxicity Criteria Database]
C_a = maximum concentration in outdoor air, $\mu g/m^3$

- Using the toxaphene outdoor air exposure point concentration of $1.85E^{-6}$ µg/m^3, we calculated a cancer risk of $2.24E^{-10}$ for the outdoor air pathway. The cancer risk for toxaphene does not exceed the acceptable risk level of $1E^{-6}$.

The risk values were calculated using a conservative PEF value of *$9.06x10^8$ m^3/kg,* which utilizes a vegetative cover factor of only 25 percent. Calculating the risk values in this way ensures a conservative estimate with regard to with worker and public safety. Additionally, this cancer risk calculation is based on chronic exposure levels to residents for 26 years, 350 days/year, 24 hours/day. The proposed remediation of this Site will be short-term in nature; however, as sensitive receptors (residential lots) are located near the Site, conducting dust monitoring will be required. This calculation reinforces the need for this work to be completed, as this short-term work will remove a potential long-term hazard.

SITE-SPECIFIC ACTION LIMITS

To ensure the protection of on-site workers and potential off-site receptors from airborne particulate matter generated during the proposed removal action, a site-specific action limit (SSAL) for toxaphene in ambient air has been established. The SSAL is a conservative estimate that off-site receptors can be safely exposed to during the course of the on-site removal action. The SSAL was developed using the guidance set forth in the DTSC Community Air Monitoring Plan Guidance (CAMP) (January 2020).

Cancer-Based SSAL

The cancer-based SSAL was calculated for toxaphene using the following equation.

SSALc = TR x (1/IUR) x ATc / (ET x EF x ED)

Where:

SSALc = cancer-based action limit for COC in air ($\mu g/m^3$)
TR = target inhalation cancer risk (unitless)
IUR[2] = inhalation risk (per $\mu g/m^3$)
ATc = averaging time for carcinogenic effects (hours)
ET = exposure time (hours/day)
EF = exposure frequency (days/year)
ED = exposure duration (year)

[2] California Office of Environmental Health Hazard Assessment (OEHHA) Chemical Database.

- *SSALc = $1E^{-6}$ x ($1/3.40E^{-4}$) x 613,200 / (10 x 30 x 1)*
- SSALc = *6.01 µg/m^3*

Using the CAMP Guidance, based on the duration of the proposed removal action, the cancer-based action limit for toxaphene in air is 6.01 µg/m^3. As shown in the previous calculation, the concentration of toxaphene in air, based on the maximum exposure point concentration of toxaphene in soil, was found to be $1.85E^{-6}$ µg/m^3, well below the SSALc.

Dust Action Level

CAMP Guidance provides an equation for real-time dust action levels. A dust concentration limit (DCL) assumes that the concertation of the COC in dust is proportional to the concentration detected in soil. The DCL represents the allowable maximum concentration of dust in air during on-site activity. The equation for the DCL is provided below.

DCL = SSALcoc / (Ccoc x CF)

Where:

DCL = health-based dust concentration limit (µg/m3)
SSALcoc = site-specific action limit for COC in air (µg/m3)
Ccoc= maximum concentration of COC in soil (mg/kg)
CF = unit conversion factor (1x 10-6 kg soil/mg soil)

- *DCL = 6.01 / (1680 x $1E^{-6}$)*
- DCL = *$3.58E^{+3}$ µg/m^3*

Based on the calculations above, the proposed removal action does not represent a risk to on-site workers or off-site receptors. The DCL calculated using the cancer-based SSAL for the Site is $3.58E^{+3}$ µg/m^3, the application of this DCL is not practical. If PM_{10} concentrations were at calculated DCL visibility would be hindered, which could lead to other unacceptable risks to on-site workers and off-site receptors. For the purposes of the proposed removal action, we propose to utilize the fugitive dust action level of 50 µg/m^3 when determined by simultaneous air monitoring as the difference between upwind and downwind PM_{10} concentrations.

DUST MITIGATION MEASURES

This section presents mitigation measures to control sources of fugitive dust generated by excavation and off-haul activities.

Track-Out Prevention and Control

Visible track-out from the Site to a paved public road at any location where vehicles exit the worksite will be prevented and/or removed. All of the following measures will be implemented at all times during the removal action activities at the Site.

1. Any visible track-out on a paved public road at any location where vehicles exit the worksite will be removed using a wet sweeping HEPA vacuum device at the end of the workday.

2. A gravel pad designed using good engineering practices to clean tires of exiting vehicles will be placed at the Site exit.

3. All hauling vehicles will exit the construction Site through a stabilized construction entrance/exit consisting of a gravel pad to prevent tracking of soil onto public roadways.

Active Storage Piles

Active storage piles will be adequately wetted or covered with tarps. Fugitive dust emissions from active soil storage piles will be controlled using the following methods during construction and grading activities at the Site.

1. All storage piles will be kept adequately wetted. Watering will occur at least three times per shift per day, or as often as necessary to prevent dust emissions from crossing the property line. Active storage piles will be kept tarped on weekends and holidays.

Inactive Disturbed Surface Areas and Storage Piles

Stabilization of inactive (no disturbance for more than 7 days) disturbed surface areas and storage piles by means of wetting, covering, and/or application of chemicals. Fugitive dust emissions from inactive disturbed surface areas or storage piles within the Site will be controlled with the following mitigation measures during removal action activities at the Site.

1. Inactive disturbed surface areas and storage piles will be covered with a tarp that consists of a 10-mil (0.01-inch) polyethylene plastic, or equivalent, with bracing to hold it down, hydroseeded, or by applying non-toxic soil stabilizers.

2. Inactive surface areas and storage piles will be adequately wetted, or will be stabilized with chemical stabilizers within 7 days of completion or excavation activities.

On-Site Traffic Control

On-site traffic speeds will be limited to 15 miles per hour (mph) (24 kilometers per hour [km/h]). Unpaved roads, vehicle parking areas, and equipment staging areas will be stabilized by means of wetting, covering, and/or application of chemicals such as dust palliatives (calcium chloride or lignin sulfonate additive to water trucks).

Earth-Moving Activities

Excavation areas will be wetted before and during excavation activities. Operations will be suspended when wind speeds cause dust to migrate beyond the property line. Fugitive dust emissions from excavation and off-haul activities will be controlled using all the following methods during construction and grading work at the Site.

1. The ground will be pre-wetted to the depth of anticipated cuts.

2. The surfaces of active areas will be watered prior to the start of and during excavation, grading, or movement of any equipment (other than water trucks).

3. Prior to completion of excavation activities, water will be applied to disturbed areas as needed to prevent visible emissions. Areas of active soil disturbance will be watered or covered prior to weekends and holidays as necessary.

4. Excavation and off-haul operations will be suspended during periods of sustained winds strong enough to result in dust emissions crossing the property line, despite the application of dust mitigation measures.

CONTROL FOR OFF-SITE TRANSPORT

Trucks transporting excavated materials off site shall be wetted, loaded, and/or tarped such that spillage will not occur. Fugitive dust emissions from loading and off-haul of waste materials will be controlled using all the following methods at the Site.

1. Loads will be adequately wetted prior to loading into trucks for off-haul.

2. Trucks will be maintained such that no spillage can occur from holes or other openings in the cargo compartments.

3. Loader buckets will be emptied slowly and drop height from loader bucket minimized.

4. Loading activities will be suspended when wind speeds are high enough to result in dust emissions crossing the property line, despite the application of dust mitigation measures.

5. Vehicles that are used to transport solid bulk materials will have loads covered with tarps. Materials will be adequately wetted and loaded onto the trucks in a manner to provide at least 1 foot of freeboard to prevent potential spillage.

6. Vehicles that are used to transport solid bulk materials will be checked to ensure that their loads are tarped and any excess material on the shelf or exterior surfaces of the cargo compartment has been removed.

Contingency Mitigation Measures

In the event that above measures are unsuccessful at controlling dust emissions from excavation and off-haul activities, one or more of the following secondary measures will be implemented until the condition stabilizes.

1. Install dust enclosures, curtains, dust collectors, plastic tarps, screens, windbreaks, misting systems, or fencing on windward and down windward sides of active stockpile areas and/or active excavation areas.

2. Paved roads on Site will be swept at least twice per day or more frequently as necessary to control windblown dust and dust generated by vehicle traffic. Streets adjacent to the construction Site will be swept as necessary to remove accumulated dust and soil. Water may also be applied to the paved roads. Only wet sweeping methods or HEPA filter equipped vacuum device will be used. Dry rotary sweeping methods will not be used.

3. Vehicle trips will be reduced to the extent practicable.

AIR MONITORING PROTOCOLS

Air Monitoring Equipment

TSI DustTrak II aerosol monitors or equivalent will be used to measure real-time total dust concentrations at one upwind and two downwind locations. The monitors will be mounted approximately 5 feet above the ground surface. Dust meters will be equipped with data recorders and set to log dust concentrations at a 1-minute logging interval.

Air Monitoring Locations

The location of the monitors will initially be based on the prevailing wind direction at the Site. Air monitoring locations will be adjusted from day to day or throughout the day based on Site activity and wind direction data obtained from the on-site meteorological station. Monitoring locations will be recorded using hand-held GPS equipment.

Meteorological Station

A portable meteorological station will be setup on Site during air monitoring activities. The meteorological station will be capable of measuring, at a minimum, wind speed and direction. The on-site meteorological station will be used to determine the appropriate location of upwind and downwind dust monitoring locations. Wind speed and direction will be observed at least once per hour throughout the workday.

Equipment Calibration

Instrument calibration will be performed in accordance with the manufacturer's instructions at the beginning of each workday. All instrument calibration will be documented in field logs.

Training

All persons responsible for calibration, handling, or interpreting air monitoring meters, samplers, or sampling data shall have sufficient experience with such work.

Baseline Monitoring

Two days of baseline dust monitoring will be conducted using one upwind and one downwind TSI DustTrak II aerosol monitors to measure real-time dust concentrations at one upwind and two downwind locations. The monitors will be mounted approximately 5 feet above the ground surface. Dust meters will be equipped with data recorders and set to log dust concentrations at a 1-minute logging interval.

Fugitive Dust Action Level

Based on the PEA and CAMP Guidance documents, the fugitive dust action level for the project will utilize a 50 µg/m^3 differential between upwind and downwind measurements. If the action level is exceeded for a period greater than 30 minutes, work operations will cease until adequate dust mitigation measures can be implemented. In regards to the COC in soil, the fugitive dust action level is significantly conservative and, based on the previous risk calculations, this conservative action level will prevent toxaphene concentrations in dust from reaching a level that would result in an unacceptable risk to workers and off-site receptors.

Sampling

Based on risk calculation and site-specific action limits per PEA and CAMP Guidance documents, the potential for elevated toxaphene concentrations in fugitive dust is well below any risk level that would be considered unacceptable to Site workers or off-site receptors. The concentrations of dust required to generate airborne toxaphene at a concentration that would pose an unacceptable risk to workers and off-site receptors during the removal action was determined to be more than 70 times the proposed fugitive dust action level that will be used during the removal action. The conservative application of the proposed dust action level is extremely protective of Site workers and off-site receptors. The combination of the conservative dust action level and use of the dust mitigation/control measures discussed above will be protective of on- and off-site receptors. Based on the concentrations of COCs in soil at the Site, the use of direct-reading instruments can be used as a surrogate for airborne COC concentrations in lieu of sampling for airborne concentrations of COCs.

Contingency Sampling

Air monitoring will be performed using direct-reading instruments as discussed above; however, if the daily PM_{10} average of any one downwind monitoring location exceeds the fugitive dust action level of 50 µg/m^3 differential between upwind and downwind measurements, air sampling will be performed as a contingency measure. Sampling will be performed using NIOSH method 5510. The NIOSH methods utilize an air-sampling pump with a volumetric flow rate of approximately 0.5 to 1 liter per minute (lpm). The sampling cassette is a 0.8-micrometer (µm), cellulose ester membrane filter. Sample pumps and cassettes will be co-located with the dust monitors and will sample for the duration of the workday for which they are required for a maximum sample volume of 200 liters. These samples will be submitted to a certified laboratory (i.e., EMSL Analytical, Inc., San Leandro, CA or Torrent Laboratory, Inc., Milpitas, CA) under documented chain-of-custody. The results will be compared to the direct-reading dust data to further confirm that real-time dust measurements are representative and appropriately protective of on- and off-site receptors.

Reporting of Values Greater than Action Limits

If the fugitive dust action limit is exceeded during a workday, a report will be sent to the DTSC project manager for the Site. The report will list the action limits and will include the dust monitoring data collected during the period of elevated concentrations. The report will provide a summary of all routine and unusual on-site and off-site activities occurring during the period of elevated concentrations. The report will describe any corrective actions taken to mitigate the elevated concentration of fugitive dust and what future actions will be taken to prevent elevated concentrations of fugitive dust in the future.

REPORTING

Monitoring data will be downloaded and reviewed at the end of each day of monitoring. Dust monitors will be checked throughout the day at a minimum frequency of once per hour. Weekly dust monitoring reports will be sent to the DTSC project manager. Weekly reports will include a summary of the monitoring data for each day of monitoring conducted. The summary will include a daily PM_{10} average for each monitoring location, a comparison of downwind PM_{10} concentrations to the upwind concentration, and a summary of the wind speed and direction for each monitoring day. Weekly reports will include any lab results for contingency sampling, if such sampling occurs.

Project Summary Report

A project summary report will be provided to DTSC within 30 days of completion of the removal action. The project summary report will contain the following information in electronic format.

- A report narrative.
- All air monitoring data, in electronic format, for the full project.
- A summary of exceedances over the action level and of the average daily PM_{10} values at each air monitoring location.
- All meteorological data, in electronic format, for the full project.

APPENDIX B

TRANSPORTATION PLAN

CHARACTERISTIC AND DESTINATION OF SOIL TO BE TRANSPORTED

Elevated levels of toxaphene have been detected in site soil. Based on the extensive soil characterization data available for the site, the excavated soil is anticipated to be categorized as Class II non-hazardous waste or designated waste.

If California or RCRA hazardous waste is identified during the removal action process, JEN California 6, LLC, will secure an EPA Identification Number from DTSC for proper management of the hazardous waste. California or RCRA hazardous waste generation is not anticipated. Compliance with the DTSC requirements of hazardous waste generation, temporary on-site storage, transportation, and disposal, is required. Any shipment of hazardous wastes in California will be transported by a registered hazardous waste hauler under a uniform hazardous waste manifest. Land ban requirements will also be followed, as necessary. Any shipment of non-hazardous waste in California will be transported under a non-hazardous waste manifest or bill-of-lading.

Soil classified as Class II waste will likely be transported to the Hay Road Landfill for disposal. This disposal facility is a licensed Class II landfill and is located at the following address.

Hay Road Landfill
Recology
6426 Hay Road
Vacaville, CA 95687
EPA ID#: FRS 110070111135
Phone: (707) 678-4718

If needed, soil classified as Class I Title 22 hazardous waste or RCRA hazardous waste will likely be transported to the following facility.

Clean Harbors Buttonwillow, LLC
2500 W Lokern Rd
Buttonwillow, California 93206
EPA ID # FRC 110000500912
Phone: 661-762-6200

Truck Transportation

It is anticipated that work will require approximately 4-6 weeks for completion. Up to approximately 56,000 cubic yards (84,000 tons) of soil will be removed from the Site. Assuming each truck carries 18 tons, approximately 4,667 trucks will be needed to transport the impacted soil. All permitted disposal facilities operate a certified weight station at their facility. As such, each truck will be weighed before offloading its payload. Weight tickets or bills-of-lading will be provided to the removal action subcontractor after all the soil has been shipped off site. A hauling plan/permit will be submitted to the City of Dixon prior to work activities. Truck routes will be approved by the City of Dixon prior to work activities. Below is a summary of the truck route from the Site to the disposal facilities listed above.

Hay Road Landfill (11 miles)

This truck route is illustrated in Exhibit 1.

1. Head east on W A Street toward Pitt School Road ..... 0.1 mi
2. Turn right onto Pitt School Road ..... 2 mi
3. Turn left onto Midway Road..... 1 mi
4. Turn right at the 1st cross street onto CA-113 S..... 7 mi
5. Turn right onto Hay Road ..... 0.8 mi
6. Turn left..... 0.1 mi
7. 6426 Hay Road

Clean Harbors, Buttonwillow (271 miles)

This truck route is illustrated in Exhibit 2.

1. Head east on W A Street toward Pitt School Road ..... 0.1 mi
2. Turn right onto Pitt School Road ..... 2 mi
3. Turn left onto Midway Road..... 1 mi
4. Turn right at the 1st cross street onto CA-113 S..... 9.1 mi
5. Turn left to stay on CA-113 S ..... 8.0 mi
6. At the traffic circle, take the 3rd exit onto CA-12 E ..... 23.3 mi
7. Use right lane to merge onto I-5 S to Stockton/Los Angeles..... 0.5 mi
8. Follow I-5 S to CA-46 W Lost Hills. Take exit 278 from I-5 ..... 207 mi
9. Turn right onto CA-46 W ..... 1.9 mi
10. Turn left onto Woodward Street ..... 0.3 mi
11. Continue onto Lost Hills Road..... 12.1 mi
12. Turn left onto CA-33 S..... 3.1 mi
13. Turn left onto Lokern Road..... 3.2 mi
14. 2500 Lokern Road, destination on the left

Loading and transportation will be conducted between 7:00 a.m. and 6:00 p.m., Monday through Friday, unless directed otherwise by the City of Dixon. In the event traffic conditions or road repairs prevent the primary designated routes, alternate routes will be developed prior to transportation activities. These alternate routes will be approved by the City of Dixon prior to work activities.

Before leaving the Site, each truck driver will be instructed to notify the site manager. Each truck driver will be provided with a Uniform Hazardous Waste Manifest, Non-Hazardous Waste Manifest, or bill-of-lading and the cellular phone number for the site manager. It will be the responsibility of the site manager to notify DTSC and JEN California 6, LLC of any unforeseen incidences. Each truck driver will be instructed to use the freeway Call Box System (if available), a cellular telephone, and/or their radio dispatch system to call for roadside assistance and report roadside emergencies.

Site Traffic Control

Truck ingress and egress shall be approved by the City. A flag person will be on Site to assist the truck drivers to safely drive on and off the Site. Transportation will be coordinated in such a manner that at any given time, on-site trucks will be in communication with the site trucking coordinator. In addition, all vehicles will be required to maintain slow speeds (i.e., less than 5 mph) for safety and for dust control purposes. The flag person will also be responsible for preventing trucks from causing blocks in traffic. The flag person will determine when it is acceptable for trucks to exit the Site to prevent traffic blockages. The flag person will also monitor sidewalks/crosswalks for pedestrians. The flag person will inform the trucks when pedestrians are present and instruct them to leave once the exit area is clear of any pedestrians.

Prior to exiting the Site, the vehicle will be swept to remove any extra soil from areas not covered or protected. This cleanup/decontamination area will be set up as close to the loading area as possible to minimize spreading the impacted soil. Prior to the off-site transport, the site manager will be responsible for inspecting each truck to ensure that the payloads are adequately covered, the trucks are cleaned of excess soil and properly placarded, and that the truck's manifest or bill-of-lading has been completed and signed by the generator (or its agent) and the transporter. As the trucks leave the Site, the flag person will assist the truck drivers so that they can safely merge with traffic onto West A Street.

Record Keeping

The removal action contractor will be responsible for maintaining a field logbook, which will serve to document observations, personnel on site, equipment arrival and departure times, and other important project information. Logbook entries will be complete and accurate enough to permit reconstruction of field activities. Logbooks will be bound, with consecutively numbered pages, and each page will indicate the date and time of the entry. All entries will be legible, written in black or blue ink, and signed by the author. Language will be factual and objective. If an error is made, corrections will be made by crossing a line through the error and entering the correct information. Corrections will be dated and initialed.

In the event off-haul soil material is classified as hazardous waste under California or EPA regulations, the Uniform Hazardous Waste Manifest (hazardous waste manifest) form will be used to track the movement of soil from the point of generation to the point of ultimate disposal. The hazardous waste manifests will include the following information.

- Name and address of the generator, transporter, and the destination facility.
- United States Department of Transportation description of the waste being transported and any associated hazards.
- Waste quantity.
- Name and phone number of a contact in case of an emergency.
- EPA Hazardous Waste Generator Number.
- Other information required either by the EPA and/or the DTSC.

Any soil that is profiled as non-hazardous and sent off site for disposal will be documented using a Non-Hazardous Waste Manifest or Bill-of-Lading form. At a minimum, this form will include the following information.

- Generator name and address
- Transportation company
- Accepting facility name and address
- Waste shipping name and description
- Quantity shipped

Prior to transporting the excavated soil off Site, an authorized representative of Jen California 6, LLC will sign each hazardous and/or non-hazardous waste manifest. The removal action site manager will maintain one copy of all hazardous and/or non-hazardous waste manifests on Site.

EXHIBIT 1: HAY ROAD LANDFILL, VACAVILLE
TRUCK ROUTE

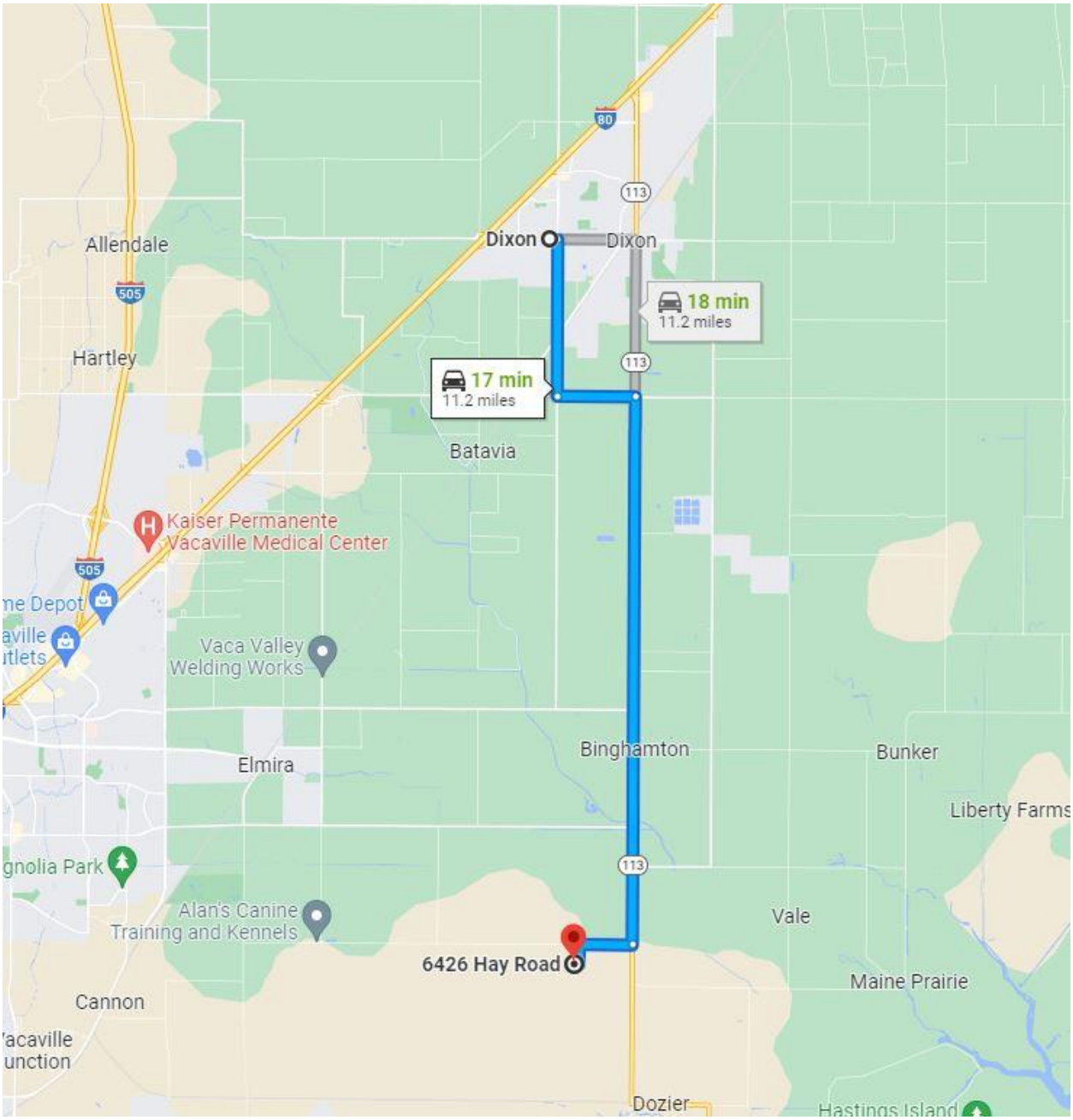
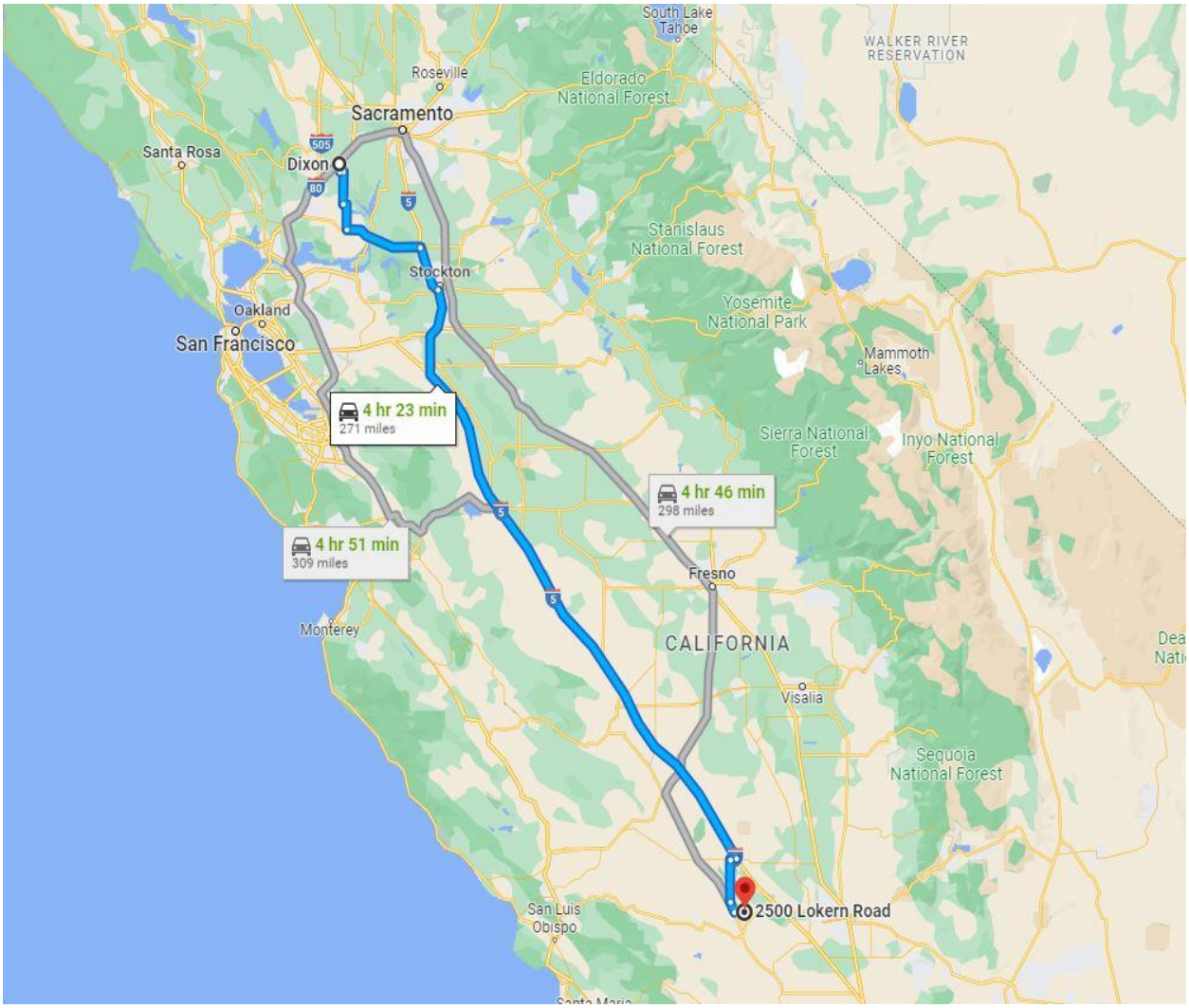


EXHIBIT 2: CLEAN HARBORS, BUTTONWILLOW TRUCK ROUTE



APPENDIX C

SAMPLING AND ANALYSIS PLAN

INTRODUCTION

The purpose of this Sampling and Analysis Plan (SAP) is to provide field sampling procedures and data gathering methods that will be used to support the Removal Action Work Plan (RAW) prepared for the property located at in Dixon, California (Site). This SAP will be used by field personnel as a reference for sampling and analysis during the removal action.

SAMPLING OBJECTIVES

The proposed removal action will require the collection and analysis of samples to confirm the removal of toxaphene-impacted soil from the Site. Sampling activities will include the following, which are discussed in detail in subsequent sections of this SAP.

Post-Excavation Confirmation Sampling

The objective of this task is to determine whether all soil above the cleanup level has been removed after the excavation of the top 12 inches of soil. The proposed cleanup level is discussed in Section 3.0 of the Removal Action Work Plan (RAW).

Soil Stockpile Characterization and Off-site Disposal

It is anticipated that the excavated soil will be placed into stockpiles. The soil stockpiles will be managed in accordance with this main RAW document and Appendix A and B of the RAW. Additional analytical testing may be required to satisfy the profiling and waste acceptance criteria of the receiving facility; however, based on the extensive characterization data available, it is expected that the soil can be profiled and off-hauled relying on the existing data. Transportation activities will be conducted in accordance with Appendix B of the RAW.

SAMPLE LOCATIONS AND FREQUENCY

This section discusses the locations and frequency of soil samples that will be collected for analytical testing.

Post Excavation Confirmation Sampling

The affected portion of the Site that exhibits toxaphene concentrations in excess of the soil cleanup levels will be divided into grids measuring approximately 100 feet by 100 feet (10,000 square feet). Figure 4 depicts the areas exhibiting toxaphene concentrations in excess of the soil cleanup levels, these are the areas proposed for initial excavation.

The grids with affected soil will initially be excavated to a depth of 12 inches. Following excavation, each of the excavated grids will be sampled by the collection of one discrete soil sample from the center-base of the grid (approximately 150 samples). The grid samples will all be analyzed for toxaphene. Grids with confirmation sampling concentrations exceeding the soil cleanup levels will be re-excavated an additional 6 inches and resampled. Confirmation samples will also be collected from the resulting sidewalls of the excavation. The sidewall samples will be collected on a frequency of one sample per approximately 100 lineal feet of sidewall. Sidewall samples will be collected from the center of the 100-foot portion of sidewall and approximately 6 inches below the surface elevation of the existing grade surrounding the proposed excavation. Sidewall samples will be analyzed for toxaphene. In locations where the sidewall confirmation samples exceed the soil cleanup levels, the representative portion of the sidewall will be excavated an additional 2 feet laterally and

resampled. Excavation activities will proceed until the soil cleanup levels are achieved on the base and the sidewalls of the excavation. Sidewall excavations will not extend laterally beyond the Site boundaries. All excavated soil will be managed in accordance with the RAW document and Appendix A and B of the RAW. All resulting stockpiles will be profiled for landfill acceptance as discussed in Section 6.2 of the RAW document and as discussed below. Grids and sidewalls with confirmation samples below the soil cleanup levels will be considered complete with no further excavation conducted.

Soil Stockpiles

The excavated soil will be stockpiled for off-haul and disposal. Based on the extensive existing laboratory data the soil is planned to be off-hauled to a Class II disposal facility. The existing laboratory data will be provided to the recipient disposal facility for profiling and acceptance.

As noted in the Transportation Plan (Appendix B of the RAW), it is anticipated that the soil will be categorized as Class II non-hazardous waste and will be disposed of at the Hay Road Landfill in Vacaville, California. Based on the extensive soil characterization activities that have occurred at the Site, there is no reason to expect any of the soil to be classified as Class I hazardous waste and/or RCRA waste.

SAMPLING EQUIPMENT AND PROCEDURES

This section describes sampling equipment and procedures associated with post-excavation confirmation sampling and stockpile soil sampling. This section also includes a discussion of equipment blank sampling and decontamination procedures for sampling equipment.

General Procedures

A licensed contractor will be retained to excavate approximately 56,000 cubic yards of soil from the top 12 inches of the study area. On-site workers will possess OSHA HAZWOPER training (24/40 hour).

Post-Excavation Confirmation and Stockpile Sampling

Confirmation and stockpile soil samples associated with the excavation will be sampled by following the sampling procedures.

- Obtain one 4-ounce laboratory-supplied sampling jar.
- Put on a new, clean, and chemical-resistant pair of disposable gloves.
- Completely fill the jar with soil.
- Place the samples in a cooler maintained at 4 degrees Celsius (Cº) with ice.
- Samples will be transported to the laboratory under a chain-of-custody documentation as discussed in below.

Analytical Test Method

The confirmation samples will be tested for the following.

SOIL-EXCAVATION CONFIRMATION				
PARAMETER	PRESERVATIVE	HOLDING TIME	EPA METHOD #	CONTAINER
Toxaphene	4°C	14 days	8081A	4-ounce jar

SAMPLE LABELING, DELIVERY, AND CHAIN-OF-CUSTODY

This section describes how samples will be labeled, picked up, delivered, and tracked.

Sample Labeling

Sample labels will be completed using indelible, black ink, and affixed to each sample container. Sample containers will be placed into resealable plastic bags to protect the sample from moisture during transportation to the laboratory. Each sample container will be labeled at a minimum with the following.

- Unique sample identification number
- Sample collection date (month/day/year)
- Time of collection (24-hour clock)
- Project number
- Sampler initials
- Analyses to be performed; and preservation, if any

Sample Delivery

This section applies to samples that will be picked up by the analytical testing laboratory or samples delivered to the off-site analytical laboratory. Samples may be picked up in the field or at the field geologist/engineer's office by the analytical testing laboratory. The soil samples will be maintained at 4 degrees Celsius. The chain-of-custody documentation will be completed and signed by the laboratory-assigned courier. The samples may then be relinquished to the courier for transportation to the laboratory. Each cooler will contain a temperature blank. A temperature blank is a sample container filled with tap water and stored in the cooler during sample collection and transportation. The laboratory will record the temperature of the temperature blank immediately upon receipt of the samples.

Chain-of-Custody

A chain-of-custody is a vital tool for tracking samples and is a written record of sample possession from the time the sample is collected until it is analyzed. The following will be recorded on the chain-of-custody forms.

- Project name
- Project location
- Project number
- Project contact
- Client
- Project Manager
- Sample identification
- Date and time sample was collected
- Sample type (soil, wastewater etc.)
- Number of sample containers
- Required analytical test methods

- Remarks/observations specific to the sample
- Number of samples to be relinquished to the analytical laboratory
- Transfer signatures associated with relinquishing samples (the sampler will initiate the chain-of-custody procedure)
- Courier/laboratory representative signature (for commercial carrier, record air bill number)
- Date/time of custody transfers
- Comments regarding the condition of the samples, (e.g., cooled with ice, etc.)
- Additional comments
- Written request for electronic file for all samples analyzed
- Information regarding sample storage/disposal
- Turn-around-time requirement; Sampler signature
- Courier signature

SITE MANAGEMENT AND RECORD KEEPING

Sampling information will be recorded on chain-of-custody forms, in a dedicated field logbook, and on the appropriate excavation or stockpile map/plan. These documents will be completed in the field at the time of sample collection. Entries will be legible and recorded in indelible black ink. A dedicated bound field logbook with consecutively numbered pages will be assigned to this project. If it is necessary to transfer the logbook to another person, the person relinquishing the logbook will sign and date the last page used and the person receiving the logbook will sign and date the next page to be used.

At a minimum, the logbook will contain the following information.

- Project name and location
- Date and time of entries
- Personnel in attendance, including any visitors to the Site; General weather conditions
- Work performed on a daily basis
- Field observations
- Sampling information (including sample identification, sample location, sample description/ type, and analytical testing)
- Field measurements data (including air monitoring results, instrument calibration records, and problems, if encountered)
- Detailed record of oral and/or written requests by the regulatory agencies, client, subcontractor
- Any other events that may affect the sampling and analyses

APPENDIX D

QUALITY ASSURANCE PROJECT PLAN

INTRODUCTION

ENGEO prepared this Quality Assurance Project Plan (QAPP) to provide Quality Assurance (QA) and Quality Control (QC) procedures for the data collected during implementation of the Removal Action Work Plan (RAW) at the OU-3-East portion of the SW-Dixon Harvest Property located in Dixon, California (Site). The QAPP outlines the project organization and responsibilities with respect to the site work and provides procedures and methodologies to ensure that the proposed field and laboratory activities generate reliable data.

PROJECT DESCRIPTION

OU-3-East is part of a larger approximately 330-acre proposed development that is located generally south of West A Street and east of Interstate 80 in the City of Dixon, California. The approximately 45-acre Site consists of an assemblage of parcels, including Assessor's Parcel Numbers (APNs) 0114-012-010 (portion), 0114-012-050, and 0114-012-060.

PROJECT TEAM AND RESPONSIBILITIES

The following section provides a description of the organizational structure and responsibilities of the individual positions for this project.

ENGEO

ENGEO is the consulting firm for JEN 6 California, LLC, and is responsible for implementing the investigation and reporting described in the RAW. The project management team consists of the Project Manager (PM), Project Field Manager, QA Manager, and Site Safety Manager. Roles and responsibilities of the ENGEO management team are presented as follows.

Project Manager – Shawn Munger, CHG

The project manager will hold overall responsibility for technical and quality-related project matters. The project manager will be responsible for committing the necessary resources of ENGEO for the timely completion of the project tasks. Final decisions on recommendations, personnel assignments, and the submittal of final reports to DTSC will be made by the project manager. All of the documents prepared by ENGEO will be reviewed and signed by the project manager.

Project Field Manager – Robert Peck

The project field manager will be responsible for managing the field personnel and ensuring that field activities are completed pursuant to the work plan. The project field manager will be responsible for day-to-day coordination of field activities, including the coordination of subcontractors. The project field manager will schedule pick up or delivery of samples to the appropriate analytical laboratory.

Quality Assurance Manager – Jeff Adams, PE

The quality assurance manager will work with the project field manager to ensure that field activities are carried out in compliance with the QAPP. The quality assurance manager shall approve QA and technical procedures and deliverables from the field and the laboratory.

Site Health and Safety Manager – Robert Peck

The site health and safety manager will ensure that requirements specified in the Health and Safety Plan are being met.

Laboratory Subcontractors

An off-site laboratory will be utilized for chemical analysis of media and waste materials. The laboratory will be responsible for providing data subject to their own QAPP, as well as this QAPP, and will designate a laboratory quality assurance manager. The laboratory quality assurance manager will review laboratory QA/QC reports, identify problems, and ensure the proper use maintenance, and storage of analytical equipment. Pursuant to California Health and Safety Code Section 25198, all subcontractor laboratories will be certified by the State of California Department of Health Services under the Environmental Laboratory Accreditation Program (NELAP) for the requested analyses. The laboratory quality assurance manager will report to the project field manager.

Training

All personnel will be trained and qualified to perform the assigned tasks and will have completed the necessary safety training.

DATA GENERATION AND ACQUISITION

A description of the sampling scope, including types and numbers of samples required, locations of samples, rationale for design, and sampling methods, is detailed in the Work Plan. This section presents the activities associated with data generation and acquisition to ensure that appropriate methods for sampling, measurement and analysis, and QC activities are employed throughout the project.

Sample Handling and Documentation

Sample Containers

All containers used to hold collected samples will be new containers supplied by the laboratory or an environmental equipment supply company. Appropriate measures shall be made to ensure that the samples are stored at the appropriate temperature while they are held at the Site, during transport to the laboratory, and during storage at the laboratory.

Sample Labeling

Each sample taken will be labeled appropriately prior to submittal to the laboratory. All samples subject to analysis will require a sample ID that indicates where the sample was retrieved and the matrix associated with the sample (i.e., groundwater). The sample label will include the following information.

- Sample identification
- Sampling date and time
- Name of the person who collected the sample
- The type of analysis to be performed on the sample

- Site name
- Type of preservative

Chain-of-Custody Record

All samples will be collected, transported, and received under chain-of-custody (COC) protocols. The COC will contain the following information.

- Project name
- Sample identifications
- Date and time of sample collection
- Analyses to be performed
- Signatures of personnel relinquishing and receiving the samples

The COC forms shall accompany the samples at all times. When transferring possession of the samples, the transferor shall sign the form and enter the date/time the samples were relinquished. The receiver shall also sign and date the form upon receiving the samples.

Hold Time Compliance

For each sample collected, the time a sample is held prior to analysis will be verified with the laboratory prior to submittal. It is the responsibility of the laboratory to analyze the submitted samples within the time indicated on the chain-of-custody form as the hold time, or turnaround time.

Equipment Decontamination

As necessary, equipment used in the field will be decontaminated prior to collection of each sample. The equipment will be rinsed with a biodegradable cleanser, along with a subsequent rinse with potable water, and a final rinse with de-ionized water.

Analytical Methods

Analytical methods for the collected samples are discussed in the RAW. The analytical methodologies, required equipment, and laboratory procedures shall meet the standards for the associated EPA methodology.

Quality Control

QC procedures will be implemented during field sampling and laboratory analysis activities. QC procedures in the field will consist of strict protocols for field sampling and decontamination procedures. Laboratory QC procedures will include the analysis of matrix spike and matrix spike duplicates. A description of the QC procedures is presented in the following sections.

Laboratory QC Samples

Laboratory QC samples will consist of method blanks, laboratory control samples, matrix spikes, matrix spike duplicates, and surrogate spikes.

- Method blanks will be analyzed at a minimum frequency of one per batch, and the concentration of target compounds in the blank must be less than the practical quantitation limit (PQL).
- Laboratory control samples (LCSs) will be analyzed at a minimum frequency of one per batch. LCSs consist of blank spikes, which are used to determine the accuracy of the analytical procedure by measuring a known concentration of an analyte of interest.
- Surrogate spikes will be performed for all organic standards, samples, and blanks. Each organic standard sample matrix spike, matrix spike duplicate, LCS, and blank is spiked with surrogate compounds prior to purging or extraction. Surrogate spike recoveries must fall within the limits established by the analytical method and if a surrogate spike recovery is outside of acceptable ranges, then a corrective action will be taken.
- Matrix spike/matrix spike duplicates (MS/MSD) are conducted to evaluate the matrix effect of the sample on the analytical method. The MS/MSD analyses will be performed at a minimum frequency of one per each group of 20 samples of the sample matrix. As a result, it is necessary to collect triplicate sample volumes in the field for one sample out of every 20. The RPD goal will be 20 percent.

Precision, Accuracy, and Completeness

The procedures used to assess data are precision, accuracy, and completeness. In the absence of laboratory-specific precision and accuracy limits, the QC limits presented in this section must be met.

Precision

Precision refers to the reproducibility of data under a specified set of conditions. Precision will be evaluated in conjunction with accuracy for the LCS samples. Precision will be determined using the MS/MSD samples and will be expressed as **RPD. RPD** is defined as:

$$\% RPD = ((|X_1 – X_2|) / ((X_1 + X_2)/2)) x 100\%$$

Here, X_1, and X_2 refer to the larger and smaller of the two observed values, respectively.

Acceptable levels of precision vary with the sample matrix, analytical method, and sample concentration. EPA precision data will be used as a basis for developing acceptance criteria for assessing precision.

Accuracy

Accuracy refers to the degree of agreement between a measurement or set of measurements to an accepted reference value. Accuracy is assessed by means of reference samples and percent recoveries.

The calculation of percent recovery (AR) or accuracy is given by the equation.

$$\%R \; 100x_x$$
$$IL_s – LI$$

Here, L_s refers to the measured value of the spiked sample, L refers to the measured value of the unspiked sample, and X refers to the known value of the spike solution. Acceptable levels of accuracy vary with the sample matrix, analytical method, and sample concentration. EPA accuracy data will be used as a basis for developing acceptance criteria for assessing precision.

Field accuracy will be assessed through the analysis of field equipment blanks. The goal for field equipment blanks is that all values are less than the reporting limit for each target constituent.

Completeness

Completeness is the amount of valid data collected as compared to the amount of data that was expected to be collected under normal operating conditions. Two completeness values will be calculated: total number of samples collected and total number of samples reaching the laboratory intact. The objective for completeness is to recover at least 90 percent of the planned data. The formula for completeness is:

% completeness =100% x number of valid results/ number of expected results

INSTRUMENT CALIBRATION AND MAINTENANCE PROCEDURES

Laboratory analytical instruments will be calibrated in accordance with the procedures specified in the applicable method. All analytes that are reported shall be present in the initial and continuing calibrations, and these calibrations must meet the acceptance criteria specified in the reference method. Records of standard preparation and instrument calibration will be maintained. Records shall unambiguously trace the preparation of standards and their use in calibration and quantitation of sample results. Calibration records will be traceable to standard materials.

At the onset of analysis, instrument calibrations will be checked using all of the analytes of interest. At a minimum, calibration criteria will satisfy method requirements. Analyte concentrations can be determined with either calibration curves or response factors, as defined in the method. Guidance provided in USEPA SW-846, or applicable method, should be considered to determine appropriate evaluation procedures.

All equipment and instruments used in the field will be maintained and calibrated to operate within the manufacturer's specifications to ensure the required sensitivity and QA/QC parameters.

As applicable, use of all field instruments will be documented by maintaining a log for each individual instrument. Calibration and maintenance requirements of the field instruments follow the manufacturer's specifications. Any required modifications, adjustments, repairs, or replacement of parts for any piece of equipment are recorded in the instrument's logbook. The effects of the modifications will be tested with appropriate standards and the related procedures recalibrated, if required, prior to continued use of the equipment.

DATA MANAGEMENT

Data measured by field instruments will be recorded in field notebooks or log sheets. The field data will be reviewed by the project field manager to evaluate completeness of the records, problems encountered in the field, and compliance with work plan-specified field methods. All field records will be retained in the project files.

Laboratory reports will be consistent with Level II documentation and include the following data.

- Narrative, chain-of-custody, and method references
- Analytical results
- Laboratory QC results including surrogate recoveries and LCS recoveries
- Sample spike recoveries
- Acceptance criteria for applicable QC samples

The laboratory QA/QC manager will determine if the data quality objectives (DQOs) for the analytical data have been met. Results will be documented and summarized in a data validation memorandum, which is reported along with the associated data.

Data Validation

Data validation is the process of screening and accepting or rejecting data to use for project evaluation and decision-making. Whether or not data is acceptable is based on compliance with specified criteria, including meeting holding times, verifying calibration results, and meeting goals for laboratory QC sample results (i.e., blank and duplicate sample results).

Data validation activities include the following.

- Confirmation that the calibration standards are within the expected values.
- Review of all associated blank, duplicate, spike, standard, and QC data to ensure that results meet analytical objectives.
- Flagging laboratory results that may be suspect. Suspect data will be assessed to determine whether the information is usable or not.

Corrective Action

Corrective action will be initiated when deficiencies are encountered during the project or when QAPP guidelines/objectives are not met. Corrective action will be performed prior to analysis of the next batch of data to help prevent recurrent erroneous data. Corrective actions may consist of one or more of the following.

- Datum is annotated
- Documentation is reviewed for adherence to QA/QC procedures
- Measurement is repeated to check the error
- Duplicate sample is reanalyzed
- Calibrations are checked and/or repeated
- Measuring device is repaired or replaced
- Sample is recollected

The quality assurance manager will be responsible for initiating and approving corrective actions. All corrective actions will be handled individually.

APPENDIX E

HEALTH AND SAFETY PLAN

SW DIXON – HARVEST PROPERTY
OPERABLE UNIT 3-EAST (OU-3 EAST)
DIXON, CALIFORNIA

HEALTH AND SAFETY PLAN

SUBMITTED TO
Ms. Karri Peters
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826

PREPARED BY
ENGEO Incorporated

May 19, 2022

PROJECT NO.
16796.001.000

ENGEO
Expect Excellence

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GLOSSARY

APR	Air Purifying Respirator
ACGIH	American Conference Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
CCR	California Code of Regulations
CFR	Code of Federal Regulations
COPC	Contaminant of Potential Concern
CPR	Cardiopulmonary resuscitation
CRZ	Contaminant Reduction Zone
dBA	Decibels on the A scale
DOT	Department of Transportation
DTSC	California Department of Toxic Substance Control
EPA	U.S. Environmental Protection Agency
^{0}F	Degrees Fahrenheit
eV	Electron Volt
EZ	Exclusion Zone
FEV	Forced expiratory volume
FVC	Forced vital capacity
GISO	General Industry Safety Order
GPS	Global Positioning System
HEPA	High Efficiency Particulate Air
HSM	Health and Safety Manager
mg/m^3	Milligrams per cubic meter
MSDS	Material Safety Data Sheets
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PID	Photoionization Detector
PM	Project Manager
ppb	Parts per Billion
PPE	Personal Protective Equipment
ppm	Parts per million
PSHM	Program Safety and Health Manager
ROPS	Roll over protection structure
RV	Reserve volume
HASP	Health and Safety Plan
SSO	Site Safety and Health Officer
SVOC	Semi-volatile organic compound
TLV	Threshold Limit Value
TWA	Time Weighted Average

DISCLAIMER

This Health and Safety Plan (HASP) was prepared in support of the Removal Action Work Plan (RAW) prepared for the OU-3-East Property in Dixon, California (Site). The Plan was prepared based on the best available information regarding the physical and chemical hazards known or suspected to be present at the Site and for the execution of the proposed scope of work. It is not possible in advance to discover, evaluate, and protect against all possible hazards, which may be encountered during the duration of this project. Therefore, this HASP may not be appropriate if the work is not performed by or using the methods presently anticipated. In addition, as the work is performed, conditions different from that anticipated may be encountered and this HASP may have to be modified.

Adherence to the requirements of this HASP will significantly reduce, but not eliminate, the potential for occupational injury and illness at the Site. The guidelines contained in this HASP were developed specifically for the soil removal project at the Site described herein and should not be used at any other site without the review and approval of a qualified health and safety professional.

1.0 INTRODUCTION

This Health and Safety Plan (HASP) sets forth the minimum health, safety, and emergency response requirements for activities involving, or potentially involving, employee exposure to physical or chemical health hazards associated with the soil removal activities at the OU-3-East portion of the SW Dixon – Harvest Property located in Dixon, California (Site). The HASP was prepared in support of the Removal Action Work Plan (RAW) prepared for the Site.

The Site consists of undeveloped agricultural land. The proposed work will consist of remedial excavation activity. The scope will include the excavation of soil to a maximum estimated depth of 12 inches across an approximate 35-acre portion of the 45-acre Site. The anticipated duration of the removal activity is 4 to 6 weeks.

2.0 SITE SAFETY REGULATORY REQUIREMENTS

Work performed under this HASP will comply with applicable Federal, State of California, and local safety and occupational health laws and regulations. Applicable regulations include, but are not limited to, Occupational Safety and Health Administration (OSHA) Standards 29 CFR, Part 1910.120, "Hazardous Waste Site Operations and Emergency Response".

3.0 STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES

3.1 GENERAL

This section of the HASP outlines the organizational structure and Site personnel responsible for the safety and health of personnel during the proposed work. The replacement of any member of the Health and Health Staff requires the acceptance of the project manager. Replacement requests will include the names, qualifications, duties, and responsibilities of each proposed replacement.

3.2 PROJECT MANAGERS

The Project Manager (PM) for ENGEO is Robert Peck. Mr. Peck is responsible for:

- Oversight of Site activities required to implement this HASP.
- Directing work performed under this contract.
- Verifying that work is completed in accordance with the project work plan.

The Project Manager (PM) for DTSC is identified below:

Ms. Karri Peters
Site Evaluation and Remediation Unit
916-255-3614

3.3 HEALTH AND SAFETY MANAGER

The Site Health and Safety Manager (HSM) is Robert Peck. Mr. Peck is responsible for:

- Implementing and enforcing of the HASP.

- Providing the initial and periodic site-specific training.
- Monitoring of remediation activities.
- Coordinating activities in the event of an on-site emergency.
- Evaluating air monitoring data and changes to engineering controls, work practices, and personal protection equipment (PPE) that may be warranted.
- Receiving on-site accident reports.

3.4 SITE SAFETY OFFICER

The Site Safety Officer (SSO) is Robert Peck. Mr. Peck is responsible for the following activities.

- Conduct on-site training and the day to day on-site implementation and enforcement of the HASP.
- Be assigned to the site for the duration of field activities.
- Have authority to ensure Site compliance with specified safety and health requirements, Federal, and State of California OSHA regulations and all aspects of the HASP including, but not limited to, activity hazard analyses, air monitoring, use of PPE, decontamination of personnel and equipment, site control, standard operating procedures used to minimize hazards, safe use of engineering controls, the emergency response plan, confined space entry procedures, spill containment-program, and preparation of records by performing a daily safety and health inspection and documenting results on the Daily Safety Inspection Log.
- Have the authority to stop work if unacceptable health or safety conditions exist, and take necessary action to re-establish and maintain safe working conditions.
- Consult with proper authorities and coordinate any modifications to the HASP with the project manager.
- Serve as a member of ENGEO's quality control staff on matters relating to safety and health.
- Conduct accident investigations and prepare accident reports (Attachment A).
- Review results of daily quality control inspections and document safety and health findings into the Project Manager's Daily Log (Attachment B).
- In coordination with site management recommend corrective actions for identified deficiencies and oversee the corrective actions.

3.5 PERSONS CERTIFIED IN FIRST AID AND CPR

CPR, if needed, will be conducted by trained personnel, or off-site emergency responders (i.e., paramedics, fire fighters). Many personnel with 40-hour Hazardous Waste Operations and Emergency Response training will have completed CPR and first aid courses as part of their training. The consultant/contractor is responsible for identifying and informing workers of designated first aid trained personnel. These persons may perform other duties but will be immediately available to render first aid when needed. The identity of these persons will be posted and made known to all personnel involved in this project.

4.0 HAZARD/RISK ANALYSIS

4.1 IDENTIFIED TASKS

The tasks identified for the conduct of this removal project include the following.

- Mobilization/demobilization
- Shallow soil excavation (backhoe and/or excavator)
- Soil Stockpiling
- Soil Sampling
- Loading of soil
- Inhalation of dust and dermal contact during
- Personnel may experience poor air quality due to wildfires
- Personnel may come into contact with individuals or surfaces infected with the COVID-19 virus

4.2 POTENTIAL HAZARDS

4.2.1 Exposure to Poor Air Quality (Smoke from Wildfires)

During the removal action, there is the potential for personnel to exposed to poor air quality due to the presence of massive wildfires in nearby areas. A variety of online resources are available to identify the air quality index (AQI) for the Site on a daily basis.

The California Air Resources Board (CARB) has developed ranges of AQIs that correspond to various levels of health impacts, and it relates it to various receptors. The AQI table is provided below.

Based on our review, the Cal/OSHA regulation does not have a threshold for the AQI, which would result in a job shutting down. The regulation provides guidance on what type of health and safety protocols (PPE, protocols, etc.) must be followed depending on AQI values for PM2.5. For AQI greater than or equal to 151, employers need to have masks that filter particles (such as N95) available for employees' voluntary use. For AQI greater than 500, respirator use is required.

If the AQI for the Site reaches a value greater than 151, then remediation work will either be stopped until conditions improve or respiratory protection will be provided to workers. A N95 or N100 dust mask or respirator with particulate filters will be provide to workers in this case. If workers with underlying health conditions are working at the Site, that would be considered a sensitive receptor, then they may need to consult with their doctors to determine if they can safely work when AQIs are greater than 101.

Source: https://ww2.arb.ca.gov/protecting-yourself-wildfire-smoke

TABLE 4.2.1-1: Job Hazard Analysis Form

Job Locations: West A Street and Pitt School Road, Dixon, California	**Analyst**: Robert Peck	**Date**: May 19, 2022
Task Description: ENGEO personnel will be providing observation and monitoring services during excavation and off-haul activities. Soil samples will also be collected for laboratory analysis.		
Hazard Description: Personnel could be exposed to poor air quality caused by wildfires. The AQI should be checked each day to understand the potential hazards.		
Hazard Controls: 1. Personnel will check the AQI for the Site each day. 2. Work stoppage or respiratory protection will be utilized to ensure worker safety. 3. Personnel should wear appropriate breathing apparatus if the AQI exceeds 151 for healthy individuals and if it exceeds 101 for sensitive receptors (workers with health conditions) 4. Workers with health conditions that could classify them as sensitive receptors should speak to their health care professional to understand their relative level of risk to being exposed to poor air quality.		

4.2.2 Specific Safety Hazards

Specific work task hazards are described below.

4.2.2.1 Mobilization / Demobilization

Many of the work-related hazards associated with this task are addressed in the General Safety Hazard section that follows (Section 4.2.3).

In addition, the following safety hazards may be encountered during this work task.

- Vehicle operation
- Struck by vehicle or equipment

4.2.2.2 Equipment and Vehicle Operation

Operation of motor vehicles shall be performed following the standard operating procedures found in the California Driver Handbook, available on the Department of Motor Vehicles (DMV) website. All laws and statutes shall be followed during the course of the mobilization and demobilization. Operators of motor vehicles shall carry an appropriate and valid driver's license for the vehicle being operated with them at all times during operation.

ENGEO personnel will not be operating excavation equipment

4.2.2.3 Movement and Use of On-site Equipment

Movement and operation of excavation, grading, compaction equipment, and haul trucks shall be completed in accordance with the manufacturer's specifications and standard operating procedures. General hazards related to operation of the rig are covered in Section 4.2.3.

TABLE 4.2.2.3-1: Job Hazard Analysis Form

Job Locations: West A Street and Pitt School Road, Dixon, California	**Analyst**: Robert Peck	**Date**: May 19, 2022
Task Description: Contractors operating and moving excavation, grading, compaction equipment, and haul trucks.		
Hazard Description: On-site equipment could malfunction and injure any person working nearby. Operators may not see personnel and strike them.		
Hazard Controls: 1. Operator should follow manufacturer's specification and standard operating procedures. 2. Operator should take precautions when moving the operating and moving equipment. Personnel should not assume that they are seen by operators. 3. Ensure to make eye contact with operators. 4. Operator should not operate equipment if impaired. 5. Operator and other personnel working near the equipment should wear high-vis protective clothing (gloves and other appropriate PPE).		

4.2.2.4 Exposure to Impacted Soil and Dust

During the remediation, there is the potential for personnel to come into contact with Site contaminants. Exposure can come in the form of direct dermal contact or inhalation of dust in the air, or inhalation of dust particles containing contaminants.

Nitrile gloves and PPE will be worn by personnel to eliminate the dermal contact exposure pathway. Inhalation of dust at levels above Permissible Exposure Limit (PEL) are not anticipated, as shown below. A Community Air Monitoring Plan (CAMP) will be developed separately from this HASP to manage dust monitoring and safety protocols required related to dust management.

Cancer risk for the outdoor air exposure pathway is calculated for a residential scenario using the equations presented in Figure 2.10 of the Department of Toxic Substances Control (DTSC) Preliminary Endangerment Assessment (PEA) guidance manual (October 2015). The calculations are based on fugitive dust emissions of PM_{10} at 0.050 µg/m^3, per the California Ambient Air Quality Standards for particulate matter. The toxicity factors used to calculate risk were obtained from the California Office of Environmental Health Hazard Assessment (OEHHA) Toxicity Criteria Database.

The exposure point concentrations for outdoor air were estimated using the following equation presented in Figure 2.10 of the PEA guidance manual.

$C_a = C_s / PEF \times 1{,}000\ \mu g/mg$

Where:

C_a = *concentration in air,* $\mu g/m^3$
C_s = *concentration in soil, mg/kg*
$PEF = 9.06 \times 10^8\ m^3/kg$

- Using the maximum toxaphene concentration of 1.68 mg/kg, we calculated an air concentration of $1.85E^{-6}$ µg/m^3.

The permissible exposure limit (PEL) for toxaphene is as follows.

- Toxaphene PEL: 8-hour TWA = 0.50 mg/m^3 (500 µg/m^3)

As such, the concentrations of toxaphene which workers are conservatively anticipated to be exposed are orders of magnitude below the PEL. In addition, the remediation is relatively short duration, further limiting worker exposure. Respiratory protection is not anticipated to be necessary. Dust management and monitoring activities will ensure fugitive dust levels meet DTSC requirements.

TABLE 4.2.2.4-1: Job Hazard Analysis Form

Job Locations: West A Street and Pitt School Road, Dixon, California	**Analyst**: Robert Peck	**Date**: May 19, 2022
Task Description: ENGEO personnel will be providing observation and monitoring services during excavation and off-haul activities. Soil samples will also be collected for laboratory analysis.		
Hazard Description: Personnel could come in contact (dermal contact and inhalation of dust) with impacted soils.		
Hazard Controls: 1. Personnel working near soil should wear gloves and other appropriate PPE to avoid dermal contact with impacted soils. 2. Per the calculations provided above, the worker exposure to contaminants via inhalation of dust is unlikely, due to expected concentrations of contaminants in air being orders of magnitude below PELs. 3. Dust monitoring and management protocols will ensure that dust levels remain low as a precaution for on-site workers and the neighboring public are protected from fugitive dust. 4. A separate document, the CAMP will provide dust monitoring and management protocols.		

4.2.3 General Safety Hazards

Potential safety hazards will include, but are not limited to, general construction hazards, such as:

- Physical contact with heavy equipment.
- Physical contact with motor vehicles.
- Slips/trips/falls due to unstable surfaces, or uneven terrain.
- Exposure to site contaminants including dust.
- Equipment noise.

- Buried utility lines and energized overhead and underground power lines.
- Heat stress and cold stress.
- Lifting heavy objects.
- Sunburn.
- Biological hazards.

These hazards are described below.

4.2.3.1 Noise

Most worksite noise will originate from heavy equipment. As a result, equipment operators and observers will be required to use hearing protection when exposed at or above 85 decibels. A copy of the OSHA Occupational Noise Standard, 29 CFR 1910.95 will be available and copies will be made available to employees upon request.

4.2.3.2 Buried Utility Lines and Energized Overhead or Underground Power Lines

Proposed excavation activity on Site is expected to extend to a depth of 12 inches below existing grades. The Site is undeveloped fallow agricultural land and it is unlikely that underground utilities extend through the Site in the proposed excavation areas; however, in order to avoid encountering utilities during the removal action, ENGEO will call in a ticket request to Utility Service Alert (USA) North a minimum of 72-hours prior to any excavation activity on the Site. Overhead utility lines are not located in the location of the proposed removal action.

4.2.3.3 Heat Stress

A worker's risk for developing heat stress is greatly increased when wearing impermeable clothing or respirators. This type of clothing interferes with the body's normal cooling mechanisms by preventing the evaporation of perspiration. For workers who wear permeable clothing, work/rest schedules recommended in the current ACGIH Threshold Limit Values (TLV) for Heat Stress will be followed. For workers who wear semi-permeable or impermeable clothing, technical guidelines in "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities" will be followed. Monitoring of personnel wearing impermeable clothing will commence when the ambient temperature is above 70 degrees Fahrenheit. Monitoring frequency will increase as the ambient temperature increases or as slow recovery rates are observed. A shady rest area and an adequate supply of cool drinking water will be provided for the workers.

4.2.3.4 Cold Stress

Cold stress may be an exposure hazard during the project based on the current work schedule and anticipated weather conditions. Exposure to cold weather can lead to frost bite and/or hypothermia. The signs and symptoms of excessive exposure to cold are listed in Table 4.2.3.4-1.

TABLE 4.2.3.4-1: Different Levels of Cold Exposure and Associated Symptoms

CONDITION	SIGNS AND SYMPTOMS
Hypothermia - A condition when a person's body loses heat faster than it can be produced.	Vague, slow, slurred speech, impaired judgment, forgetfulness, memory lapses, drowsiness, inability to use the hands.
Frostbite - A condition where a part of the body is frozen	Loss of the sensation of touch, pressure and pain in the affected part of the body. This may occur without awareness of any numbness. Just before freezing, the skin becomes bright red and at freezing, small patches of white appear on the skin.

When weather conditions are cold, wet, and windy, the following precautions will be instituted.

- Field personnel should wear layered clothing. Mittens, heavy socks, hats, jackets/vests, long underwear, glove liners, or other suitable clothing should be worn when air temperatures fall below 40 degrees Fahrenheit. Chemical protective clothing will be worn over the warm garments when protective clothing is required by the field operations.
- At temperatures below 30 degrees Fahrenheit, temperature insulating suits and gloves should be considered.
- Protective outerwear should be used to prevent wetting of work shoes and feet, when appropriate.
- Additional clothing worn in layers allows gradual removal as work activities generate metabolic heat.
- At temperatures below 35 degrees Fahrenheit, raingear should be worn if an employee could become wet on the job.
- At temperatures below 35 degrees Fahrenheit, employees shall be provided with warm (65 degrees Fahrenheit or above) break areas. If appropriate, space heaters will be provided to warm hands and feet.
- Hot liquids, such as soups and warm drinks, should be consumed during break periods. Caffeine beverages should be limited due to attendant diuretic and circulatory effects.
- A buddy system shall be practiced at all times. An employee that is observed shivering or showing signs of frostbite shall leave the cold area immediately.
- Work should be arranged to avoid sitting or standing for long periods.
- All employees who work in cold areas should be trained in the following subjects.
  - Proper first aid treatment for cold stress
  - Proper clothing practices
  - Proper eating and drinking habits
  - Recognition of impending adverse health effects due to cold
  - Safe work practices

4.2.3.5 Sunburn

Sunburn is caused by overexposure to ultraviolet light (sunshine). The symptoms of exposure are not usually apparent until 2 to 4 hours after the exposure ceases. Depending upon the severity of the exposure, the symptoms can range from reddening of the skin, accompanied by mild discomfort,

to painful deep burns and blisters. Although light-haired, fair-skinned, blue-eyed personnel are at the greatest risk of sunburn, all complexion types can develop sunburn.

The physical hazard of sunburn can be controlled by: (1) providing a shady rest area; (2) wearing appropriate clothing (long pants and tee shirts, i.e., no tank tops); (3) wearing sunscreen with an appropriate protection factor, as appropriate; and (4) working in shifts.

4.2.3.6 Heavy Equipment Operation

The contractor is responsible for all personnel associated with heavy equipment operation. Equipment operators should maintain a constant awareness of their surroundings and associated hazards. Constant visual or verbal contact between the equipment operators and laborers will facilitate such awareness. When operating heavy equipment near an embankment, a spotter shall be present at all times to observe the soil behavior on which the unit is situated. All heavy equipment shall be equipped with a roll over protection structure (ROPS) and seat belts. Operators shall use seat belts at all times when in the cab of operating equipment. All personnel will wear high visibility safety vests and hearing protection if appropriate.

4.2.3.7 Slip/Trip/Fall Hazards

Prevention of slips/trips and fall hazards can be reduced to a minimum if employees use caution when working on slick, uneven, or unsteady surfaces. The risk of injury will be minimized by implementing proper site control measures, such as daily safety meetings, proper footwear, and by keeping the work area free of obstructions.

4.2.3.8 Lifting Hazards

Field operations often require that heavy physical labor tasks be performed. All employees will be instructed by the SSO and contractor in proper lifting techniques through safety meetings and demonstration. Additionally, employees will be instructed to not attempt to lift objects heavier than 60 pounds without mechanical assistance or the assistance of a fellow worker.

4.2.3.9 Tool and Equipment Hazards

Improper tool handling and inadequate tool maintenance will increase risk of injury during their use. Management of these hazards requires rigorous maintenance of tools and equipment. The contractor is responsible for effective training of employees in the proper use of the tools. Hand tools that are damaged shall be tagged and removed from the work area. Equipment in need of maintenance or repair shall be tagged and removed from operation until repairs or replacement is accomplished. Only tools with immediate use will be present on Site. Unused tools shall be assembled at a collection point and removed from underfoot and immediate use.

4.2.3.10 Fire Hazard Control

Caution will be used to prevent sparks or open flames within the vicinity of vegetation. When welding or cutting, be sure hot sparks or slag does not come in contact with flammables. An approved A or B fire extinguisher, sufficient in size, will be immediately available (usually 25 feet) when welding or cutting. All heavy equipment (drill rigs, loaders, backhoes, dozers, etc.) shall have a minimum of one 5-pound AB fire extinguisher mounted on it. A minimum of one AB fire extinguisher shall be at each remediation site. Only approved containers will be used for storing flammable liquids. Oily rags and waste will be placed in appropriate containers. Fire protection equipment will be used for firefighting

only. The proper use and location of fire extinguishers will be known by all employees. Gasoline or other flammable liquids will not be used for cleaning. All fire hazards will be reported to the Site superintendent immediately. Fire and emergency access lanes will be kept clear at all times in order to facilitate equipment entry and exit.

4.3 BIOLOGICAL HAZARDS

Biological hazards have not been identified but the following discussions may be relevant to activities. Potential biological hazards may consist of bees, wasps, snakes, spiders, ticks, fleas, poisonous plants such as poison oak and poison ivy, Hantavirus, and bird excrement.

4.3.1 Ants, Bees, Wasps, Hornets and Yellow Jackets

Nests and hives for ants, bees, wasps, hornets, and yellow jackets often occur in ground, trees, brush and overhangs on buildings. The area will be checked for obvious nests and hives before it is cleared. If a nest or hive is detected, the PM or site SSO will be contacted before the nest is disturbed. If necessary, a pest management consultant will be brought on Site to recommend procedures for by passing or moving the nest. Workers with identified insect allergies will not be allowed to work in the area of a nest or hive. If simple first aid measures do not alleviate the symptoms of a sting, the victim will be taken to the nearest medical center for consultation with a physician. An attempt will be made to kill the offending insect and take it to the emergency room with the victim if this can be done quickly and without endangering personnel.

4.3.2 Spiders, Snakes, and Fleas

These insects exist in cool dark moist areas. The potential for encounters exist when reaching into dark covered places. Suggestions for control include using a long stick to break apart webs or loosen soil from certain areas. A flashlight should also be used before reaching into a dark area. Field personnel shall be aware of their surrounding and avoid contact with all insects.

4.3.3 Rattlesnakes and Scorpions

These creatures are indigenous to many parts of the United States, although are not expected to be encountered at the Site. The SSO will inform field team members at the daily tailgate safety meetings to be on the lookout for rattlesnakes and scorpions. It should be noted that the American Red Cross does not advocate the use of snakebite kits for snakebite injuries. Rather, experience has shown that the victim has a better chance of recovery without permanent damage when the site of the wound is immobilized and the victim rushed to the closest emergency medical facility (preferably within thirty (30) minutes).

4.3.4 Poisonous Plants

Plants such as poison ivy and poison oak grow wild in shady, moist area and at the base of surrounding seedling or adult trees. Many individuals are prone to break out in dermal (skin) rashes upon contact with the plant oil. A visual site inspection and identification of the plants should be completed prior to each work shift so that all individuals are aware of the potential exposure.

4.3.5 Hantavirus

Hazards associated with Hantavirus are not expected.

4.3.6 Bird Excrement and Amplified Fungal Growth

Hazards associated with bird excrement and/or amplified fungal growth are not expected.

4.4 CHEMICAL HAZARDS

Previous sampling and analysis of soils and groundwater on the Site has shown one chemical of potential concern (COPC). During soil exploration activities, Site workers may be exposed to contaminated soils and resulting vapors and dusts. The concentrations expected in nuisance dusts are expected to be below regulatory action levels; however, dust suppression measures will be used as necessary to minimize migration of nuisance dust.

TABLE 4.4-1: Chemical of Potential Concern (COPC)

COMPOUND	PEL	IDLH	ROUTE OF EXPOSURE	ACUTE SYMPTOMS	ODOR THRESHOLD	ODOR DESCRIPTION
Toxaphene CAS No. 8001-35-2	TWA 0.5 mg/m^3		Inhalation, skin absorption, ingestion, skin and/or eye contact	nausea, confusion, agitation, tremor, convulsions, unconsciousness; dry, red skin; [potential occupational carcinogen]	None	Piney, Chlorine- and camphor-like odor

PEL = Permissible Exposure Limit
IDLH – Immediately Dangerous to Life and Health
TWA – Time weighted average
N/A = Not available
Reference: NIOSH, Pocket Guide to Chemical Hazards

5.0 MEDICAL SURVEILLANCE

Any employee who is or may be exposed to hazardous substances or health hazards at or above the PELs or, if there is no PEL, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year. Any employee who wears a respirator during any part of a day for a period of 30 days or more in a year, or as required by 8 CCR 5144.

Medical surveillance will not be required based on the duration of the project, the potential exposure scenario, and the lack of respiratory requirements. Further discussion and details follow.

During the remediation, there is the potential for personnel to come into contact with Site contaminants. Exposure can come in the form of direct dermal contact or inhalation of dust in the air, or inhalation of dust particles containing contaminants.

Nitrile gloves and PPE will be worn by personnel to eliminate the dermal contact exposure pathway. Inhalation of dust at levels above permissible exposure limit (PEL) are not anticipated, as shown below. A Community Air Monitoring Plan (CAMP) will be developed separately from this HASP to manage dust monitoring and safety protocols required related to dust management.

Cancer risk for the outdoor air exposure pathway is calculated for a residential scenario using the equations presented in Figure 2.10 of the Department of Toxic Substances Control (DTSC) Preliminary Endangerment Assessment (PEA) guidance manual (October 2015). The calculations are based California Ambient Air Quality Standards for particulate matter. The toxicity factors used to calculate risk were obtained from the California Office of Environmental Health Hazard Assessment (OEHHA) Toxicity Criteria Database.

As discussed in Section 4.2.2.4, the concentrations of toxaphene to which workers are conservatively anticipated to be exposed are orders of magnitude below the PEL. In addition, the remediation is relatively short duration, further limiting worker exposure. Respiratory protection is not anticipated to be necessary. Refer to the Community Air Monitoring Plan for more details.

6.0 AIR MONITORING

6.1 AIR-MONITORING EQUIPMENT

TSI DustTrak™ II Aerosol Monitor, Thermo Scientific™ ADR 1500 Area Dust Monitor, or an equivalent monitor listed in the South Coast Air Quality Management District: Rule 1466 – Executive Officer Pre-Approved PM_{10} Monitors listing will be used to measure real-time dust concentrations at one upwind and two downwind locations. The monitors will be mounted approximately 5 feet above the ground surface. Dust meters will be equipped with data recorders and set to log dust concentrations at a 1-minute logging interval.

6.2 AIR-MONITORING LOCATIONS

The location of the monitors will initially be based on the prevailing wind direction at the Site. Air monitoring locations will be adjusted from day to day or throughout the day based on Site activity and wind direction data obtained from the on-site meteorological station. Monitoring locations will be recorded on a Site plan.

6.3 METEOROLOGICAL STATION

A portable meteorological station will be set up on Site during air monitoring activities. The meteorological station will be capable of measuring, at a minimum, wind speed and direction. The on-site meteorological station will be used to determine the appropriate location of upwind and downwind dust monitoring locations. Wind speed and direction will be observed at least once per hour throughout the workday.

6.4 EQUIPMENT CALIBRATION

Instrument calibration will be performed in accordance with the manufacturer's instructions at the beginning of each workday. All instrument calibration will be documented in field logs.

6.5 TRAINING

All persons responsible for calibration, handling, or interpreting air monitoring meters, samplers, or sampling data shall have sufficient experience with such work.

6.6 BASELINE AIR MONITORING

Two days of baseline dust monitoring will be conducted using dust monitors as described in Section 6.1 to measure real-time dust concentrations at one upwind and one downwind location. The monitors will be mounted approximately 5 feet above the ground surface. Dust meters will be equipped with data recorders and set to log dust concentrations at a 1-minute logging interval.

7.0 FUGITIVE DUST ACTION LEVEL

Cancer risk for the outdoor air exposure pathway was calculated for a residential scenario using the equations presented in Figures 2.9 and 2.10 of the DTSC PEA guidance manual (October 2015). The calculations are based on fugitive dust emissions of PM_{10} at 0.050 mg/m^3, per the California Ambient Air Quality Standards for particulate matter. The toxicity factors used to calculate risk were obtained from the California Office of Environmental Health Hazard Assessment (OEHHA) Toxicity Criteria Database.

The exposure point concentrations for outdoor air were estimated using the following equation presented in Figure 2.10 of the PEA guidance manual.

$C_a = C_s / PEF \times 1{,}000\ \mu g/mg$

Where:

C_a = *concentration in air, µg/m^3*
C_s = *concentration in soil, mg/kg*
PEF= 9.06x10^8 m^3/kg

- Using the maximum toxaphene concentration of 1.68 mg/kg, we calculated an air concentration of 1.85E^{-6} µg/m^3.

The cancer risk for the inhalation of outdoor air pathway was calculated using the following equation presented in Figure 2.9 of the PEA guidance manual.

$Risk_{air} = IUR \times C_a \times 0.356$

Where:

IUR = Inhalation Unit Risk (µg/m^3-day)$^{-1}$
[OEHHA Toxicity Criteria Database]
C_a = *maximum concentration in outdoor air, µg/m^3*

- Using the toxaphene outdoor air exposure point concentration of 1.85E^{-6} µg/m^3 and the IUR for toxaphene of 3.40 E^{-4} we calculated a cancer risk of 2.24E^{-10} for the outdoor air pathway. The cancer risk for toxaphene does not exceed the acceptable risk level of 1E^{-6}.

The risk values were calculated using a conservative PEF value of *9.06x10^8 m^3/kg,* which utilizes a vegetative cover factor of only 25 percent. Calculating the risk values in this way ensures a conservative estimate with regard to both worker and public safety. Additionally, this cancer risk calculation is based on chronic exposure levels to residents for 26 years, 350 days/year, 24 hours/day. The proposed remediation of this Site will be short-term in nature; however, as sensitive receptors (residential lots) are located near the Site, conducting dust monitoring will be required. This calculation reinforces the need for this work to be completed, as this short-term work will remove a potential long-term hazard.

7.1 SITE-SPECIFIC ACTION LIMITS

To ensure the protection of on-site workers and potential off-site receptors from airborne particulate matter generated during the proposed removal action, a site-specific action limit (SSAL) for toxaphene in ambient air has been established. The SSAL is a conservative estimate that off-site receptors can be safely exposed to during the course of the on-site removal action. The SSAL was developed using the guidance set forth in the DTSC Community Air Monitoring Plan Guidance (CAMP) (January 2020).

7.2 CANCER-BASED SSAL

The cancer-based SSAL was calculated for toxaphene using the following equation.

SSALc = TR x (1/IUR) x ATc / (ET x EF x ED)

Where:

SSALc = cancer-based action limit for COC in air (µg/m^3)
TR = target inhalation cancer risk (unitless)
IUR1 = inhalation risk (per µg/m^3)
ATc = averaging time for carcinogenic effects (hours)
ET = exposure time (hours/day)
EF = exposure frequency (days/year)
ED = exposure duration (year)

- *SSALc = 1E^{-6} x (1/3.40E^{-4}) x 613,200 / (10 x 30 x 1)*
- SSALc = *6.01 µg/m^3*

Using the CAMP Guidance, based on the duration of the proposed removal action, the cancer-based action limit for toxaphene in air is 6.01 µg/m^3. As shown in the previous calculation, the concentration of toxaphene in air, based on the maximum exposure point concentration of toxaphene in soil, was found to be 1.85E^{-6} µg/m^3, well below the SSALc.

7.3 DUST ACTION LEVEL

CAMP Guidance provides an equation for real-time dust action levels. A dust concentration limit (DCL) assumes that the concentration of the COC in dust is proportional to the concentration detected in soil. The DCL represents the allowable maximum concentration of dust in air during on-site activity.

The equation for the DCL is provided below.

DCL = SSALcoc / (Ccoc x CF)

Where:

DCL = health-based dust concentration limit (µg/m3)
SSALcoc = site-specific action limit for COC in air (µg/m3)
Ccoc= maximum concentration of COC in soil (mg/kg)

1 California Office of Environmental Health Hazard Assessment (OEHHA) Chemical Database.

CF = unit conversion factor (1x 10-6 kg soil/mg soil)

- *DCL = 6.01 / (1.68 x $1E^{-6}$)*
- DCL = *$3.58E^{+6}$ µg/m^3*

Based on the calculations above, the proposed removal action does not represent a risk to on-site workers or off-site receptors. The DCL calculated using the cancer-based SSAL for the Site is $3.58E^{+6}$ µg/m^3, the application of the calculated DCL is not practical. If PM_{10} concentrations reached the calculated DCL visibility would be hindered, which could lead to other unacceptable risks to on-site workers and off-site receptors. For the purposes of the proposed removal action, we propose to utilize the fugitive dust action level of 50 µg/m^3 when determined by simultaneous air monitoring as the difference between upwind and downwind PM_{10} concentrations.

8.0 SAMPLING

Based on risk calculation and site-specific action limits per PEA and CAMP Guidance documents, the potential for elevated toxaphene concentrations in fugitive dust is well below any risk level that would be considered unacceptable to on-site workers or off-site receptors. The concentrations of dust required to generate airborne toxaphene at a concentration that would pose an unacceptable risk to on-site workers and off-site receptors during the removal action was determined to be more than 71 times the proposed fugitive dust action level that will be used during the removal action. The conservative application of the proposed dust action level is extremely protective of on-site workers and off-site receptors. The combination of the conservative dust action level and use of the dust mitigation/control measures discussed above will be protective of on- and off-site receptors. Based on the concentrations of COCs in soil at the Site, the use of direct-reading instruments can be used as a surrogate for airborne COC concentrations in lieu of sampling for airborne concentrations of COCs.

The Site is well characterized and the removal action will be conducted in a prescribed fashion. The dust action level for the Site will be applied to all aspects of the removal action and will be protective of on- and off-site receptors. The tasks are well defined and there is no expectation of unexpected tasks that will increase airborne concentrations of hazardous substances.

9.0 CONTINGENCY SAMPLING

Air monitoring will be performed using direct-reading instruments as discussed above; however, if the daily PM_{10} average of any one downwind monitoring location exceeds the fugitive dust action level of 50 µg/m^3 differential between upwind and downwind measurements, air sampling will be performed as a contingency measure. The details of the contingency sampling are provided in the project CAMP.

10.0 REPORTING

Monitoring data will be downloaded and reviewed at the end of each day of monitoring. Dust monitors will be checked hourly to record PM_{10} readings. Hourly PM_{10} readings will be recorded in a dedicated field log. Weekly dust monitoring reports will be sent to the DTSC project manager. Weekly reports will include a summary of the monitoring data for each day of monitoring conducted. The summary will include a daily PM_{10} average for each monitoring location, a comparison of downwind PM_{10} concentrations to the upwind concentration, and a summary of the wind speed and direction for each monitoring day.

10.1 REPORTING OF VALUES GREATER THAN ACTION LIMITS

If the fugitive dust action limit is exceeded during a workday, a report will be sent to the DTSC project manager for the Site. The report will list the action limits and will include the dust monitoring data collected during the period of elevated concentrations. The report will provide a summary of all routine and unusual on-site and off-site activities occurring during the period of elevated concentrations. The report will describe any corrective actions taken to mitigate the elevated concentration of fugitive dust and what future actions will be taken to prevent elevated concentrations of fugitive dust in the future.

11.0 SAFETY AND HEALTH TRAINING

11.1 CERTIFICATION OF TRAINING

Certification of 40- or 24-hour OSHA initial training by the consultant/contractor(s) must be provided to ENGEO before work on the Site. Certification records must indicate the type and time period of training. Certification of supervised field experience must also be provided for previous work. If not available, supervised field experience may be obtained at the Site. In addition, workers must demonstrate the completion of annual 8-hour refresher training, as necessary. Requirements for initial training in hazardous substances and supervised field experience contained in 29 CFR 1910.120 and 8 CCR 5192 vary with the degree of anticipated exposure to hazardous substances. The initial training requirements for workers involved in the investigation and remediation activities that may involve exposure to contaminated soils are summarized in the following table.

TABLE 11.1-1: OSHA Initial Training and Field Experience Requirements

ACTIVITY	FUNCTION	INITIAL TRAINING (hours)	SUPERVISED FIELD EXPERIENCE (days)
Excavation and Drilling	Equipment operator and laborer	24- & 8-hour supervisor training	3
Site Safety Officer	Consultant - on site during operations	24	3
Health and Safety Manager/Project Manager	Consultant - on site part time	40- & 8-hour supervisor training	3

On-site supervisors for both the consultant and the contractor will be provided the HASP for review prior to the start of Site activity. Supervisors will have the opportunity to ask questions regarding the content of the HASP and the planned removal action.

11.2 TAILGATE SAFETY MEETINGS

At a minimum, daily tailgate health and safety meetings will be held and documented at the Site for all field personnel. The SSO will be responsible for scheduling and conducting this safety meeting when on Site. All personnel will be required to attend. Hands-on refresher training on PPE, decontamination procedures, work practices, changes in work-tasks, schedule changes, and review of safety discrepancies noted will be discussed. Should an operation change affect the on-site fieldwork, a meeting prior to implementation of the change will be convened to explain the changes to all concerned.

12.0 PERSONAL PROTECTIVE EQUIPMENT

12.1 DUST HAZARDS

Given the nature of the removal action, COPC concentrations are expected to be well below applicable OSHA and NIOSH criteria; therefore, no worker exposure issues are anticipated and no respiratory protection is required. Typical dust control procedures will be followed in Accordance with Appendix A of the RAW.

12.2 LEVELS OF PPE

All personnel working on the project site will wear the appropriate level of protection as described herein. It is anticipated that EPA Level D Modified will be required as the initial level of protection. The SSO, in consultation with the HSM may upgrade or downgrade levels of protection. In general, all on-site work will be conducted in Modified Level D PPE. Level A, B or C work is not anticipated for the project. A description of the PPE ensembles is presented below.

12.2.1 Level D

- Hearing Protection – custom fitted or disposable ear plugs/ear muffs (85dBA or above)
- Hard hat (meets ANSI requirements)
- Safety glasses with side shields (meets ANSI requirements)
- Safety shoes or boots
- Coveralls or long pants and orange shirts or high visibility safety vests
- Leather work gloves

12.2.2 Level D Modified

- Hearing protection as described above
- Work clothing, as dictated by the weather
- Safety shoes or boots
- Hard hat
- Tyvek (or equivalent) coveralls
- Nitrile gloves (when handling or contact may occur with contaminated soils or materials)
- Safety glasses with side shields
- High Visibility Safety vest

12.2.3 Level C

This level of protection is not anticipated for the Scope of Work assigned to this project.

12.2.4 Level B

This level of protection is not anticipated for the Scope of Work assigned to this project.

12.2.5 Level A

This level of protection is not anticipated for the Scope of Work assigned to this project.

12.3 INSPECTION OF PPE

Specific procedures recommended by equipment manufacturers should be followed for inspection of PPE. A general inspection checklist for PPE before use includes:

- Determining that the clothing material is correct for the specified task at hand.
- Visually inspect for imperfect seams, non-uniform coatings, tears, closure malfunctions, hold up to light and check for pinholes.
- Hard Hats – Head harness is intact and installed properly. Check for cracks.
- Safety Glasses/Goggles – Lenses are clear and free of scratches. Side shields are present.
- Safety Shoes/Boots – Free of holes, damage, soles have ample thread, and laces are adequate.
- Air Purifying Respirators, if appropriate – Parts to respirators are intact and in place. Inspect for malfunctions, tears, or disfigurement of the mask, proper cartridges, valves are not torn or warped, head and neck straps have ample elasticity.

13.0 SAFETY PROCEDURES, ENGINEERING CONTROLS, AND WORK PRACTICES

13.1 GENERAL SITE RULES/PROHIBITIONS

During excavation work, all employees, subcontractors, or persons entering the worksite shall sign in with the SSO and shall sign out upon departing. Employees, subcontractors, or persons who will be engaged in hazardous materials or waste operations or have the potential to be exposed to hazardous materials will be informed of the nature, and level of exposure. Each person engaged in such operations will be required to indicate they have been informed of the associated hazards and requirements by signing the project manager's notification form.

13.1.1 Buddy System

Contractor personnel will not conduct work activities alone at any of the Sites. The "Buddy System," as specified in 29 CFR 1910.120 and 8 CCR Section 1532.1 will be implemented. The buddy teams working at the Site will maintain visual and audible contact so that they may provide emergency assistance to each other. Both members of the buddy team need not be in the same Site zone, but each member must be wearing adequate PPE to assist the other member.

13.1.2 Engineering Controls and Work Practices

Engineering controls are not anticipated for the proposed activity. Work practices to minimize exposure to nuisance dust will include the wetting down of dusty operations and relocating employees upwind of dusty areas, if necessary.

13.1.3 Employee Rotation

A schedule of employee rotation will not be implemented as a means of compliance with permissible exposure.

13.1.4 Work Practices and Procedures

The following health precautions will be implemented.

- Avoid skin contact and ingestion of stockpiled soil
- Avoid excessively dusty areas
- Keep work areas clean and well ventilated
- Clean up spills promptly

13.2 MATERIALS HANDLING

13.2.1 Spill and Discharge Control

Should a spill or discharge of petroleum products or contaminated soil occur, the following measures will be taken.

- Take immediate measures to control and contain the spill to the smallest area possible.
- Keep unnecessary people away, isolate the hazardous area, deny entry to unauthorized people, do not allow unauthorized people to touch spilled material.
- Stay upwind.
- Keep out of low areas.
- Keep combustibles away from the spilled material.
- Use a water spray to reduce vapor or dust generation being cautious not to cause the migration of water outside the set boundaries.
- If necessary, take samples for analysis to determine adequate clean-up was performed.
- Remove or retrieve any discharged liquids or slugs. Absorb discharged materials with absorbents such as commercial pillows, kitty litter, sand, clean fill, or other noncombustible absorbent material. Place the absorbent/spill mixture into leak proof containers and dispose per EPA and DOT requirements.

13.2.2 Notification of Spills and Discharges

If the spill or discharge is reportable, and/or human health or the environment is threatened, notify the National Response Center, Solano County Department of Environmental Health, Dixon Police and Fire Department non-emergency line, and the project manager. Spills or leaks, regardless of their quantity will be reported to the project manager immediately following discovery. A follow-up written report will be submitted to the project manager within seven (7) days after the initial report. The written report will be in narrative form, and as a minimum, include the following.

- A description of the material spilled including identity and quantity. Photographs showing the location and extent of the spill.
- A statement as to whether the amount spilled is EPA/State reportable and when and to whom it was reported.
- Exact time and location of the spill, including a description of the area involved.

- Containment procedures initiated and a full description of the cleanup measures taken, or to be taken, including disposal location of the spill residue.

13.2.3 Material Storage and Disposal

Employees will be trained in and will use proper lifting techniques. Material handling devices will be available for the material handling needs of an activity. Whenever heavy or bulky material is to be moved, the material handling needs will be evaluated in terms of weight, size, and distance, and path of move. The following hierarchy will be followed in selecting a means for material handling.

- Elimination of material handling need by engineering controls
- Movement by mechanical device (e.g., lift truck, backhoe, loader, etc.)
- Movement by manual means with handling aid (e.g., dolly or cart)
- Movement by manual means with protective equipment (e.g., lifting belt or lifting monitor)

Materials will not be moved over or suspended above personnel unless positive precautions have been taken to protect the personnel from falling objects. Where the movement of materials may be hazardous to personnel, taglines, or other devices will be used to control the loads being handled by hoisting equipment. These devices will be nonconductive when used near energized lines.

Non-compatible materials will be segregated in storage.

Work areas and means of access will be maintained safe and orderly. Sufficient personnel and equipment will be provided to insure compliance with all housekeeping requirements. Work areas will be inspected daily for adequate housekeeping and findings recorded on daily inspection reports. Work will not be allowed in those areas that do not comply with the requirements of this section.

Waste material and rubbish, if generated, will be placed in suitable containers. Waste material and rubbish will not be stored in areas that are away from the general work areas. Separate covered, non-flammable/non-reactive containers will be provided for the collection of garbage, oily, flammable, and dangerous wastes. The containers will be labeled with a description of their contents. The contents will be properly disposed of on a scheduled basis.

Hazardous material waste (i.e., vehicle and equipment oils and lubricants, containers and drums for solvents, adhesives, etc.) will be collected, stored, and disposed of in accordance with federal, state, and local agencies.

13.3 HAZARD COMMUNICATION

All personnel must follow established work practices to safely handle hazardous materials and chemicals. A hazardous chemical is broadly defined as a chemical that is a health hazard, a physical hazard, or both. A hazard communication program has been developed to limit the risks of personnel exposures, damage to equipment, and the unplanned release of hazardous materials and chemicals to the environment due to normal operations. The written program includes protocols for:

- Assessment of the hazards associated with chemicals on Site.
- Inventory and labeling of chemicals and their containers.

- Communication of hazards to the employee through Material Safety Data Sheets (MSDSs) for chemical products and tailgate meetings to discuss hazards of impacted environmental media, such as impacted soil or water.
- Training on the safe handling of chemicals.
- Acquisition, transportation, and handling of chemicals.
- Emergency response to releases of chemicals.

The requirements of this program will apply to consultant/contractor in the event that they need to store hazardous materials and/or chemicals such as equipment, fuel, caustic compounds for sample preservation, or solvents for equipment decontamination on the Site. The consultant/contractor will be responsible for coordinating the inventory of hazardous materials and chemicals used or stored at the Site. The inventory will be utilized for reporting and emergency response purposes. Data contained in the inventory will include the name, quantity, and location of the chemical. Material Safety Data Sheets shall be readily available on Site for reference.

13.4 SANITATION

Given the expected duration of work (4 to 6 weeks), sanitation facilities should be provided on Site. Personnel will be encouraged to use safe sanitation practices with respect to washing and consumption of potable water.

13.5 PROTECTION OF ADJACENT WORK OR AREAS TO REMAIN

The work will be performed without damage or contamination of adjacent work or surrounding areas. Where such work or surrounding area is damaged or contaminated it will be restored to its original condition and decontaminated at no additional expense to the client as deemed appropriate by the project manager. When satisfactory visual inspection and/or sampling analysis results are obtained and have been evaluated, work may proceed.

13.6 MACHINERY AND MECHANIZED EQUIPMENT

Before any machinery or mechanized equipment is placed in use, the contractor is responsible for the inspection and testing by a competent person and certified to be in safe operating condition. Inspections and tests will be in accordance with manufacturer's recommendations and will be documented in the daily logs. Records of tests and inspections will be maintained at the Site, and will be made available upon request of the designated authority.

Daily/shift inspections and tests:

- All machinery and equipment will be inspected daily (when in use) to ensure safe operating conditions. The Site superintendent will designate competent persons to conduct the inspections. These inspections will be documented and incorporated into the field logs.
- Tests will be made at the beginning of each shift during which the equipment is to be used to determine that the brakes and operating systems are in proper working condition and that all required safety devices are in place and functional.

Whenever any machinery or equipment is found to be unsafe, or whenever a deficiency, which affects the safe operation of equipment, is observed, the equipment will be tagged and immediately taken out of service until the unsafe condition(s) have been corrected. The tag will indicate the equipment will not be operated. The tag will not be removed and will be placed in a conspicuous location on the equipment. The tag will remain in its attached location until it is demonstrated to the individual dead lining the equipment that it is safe to operate. When corrections are complete, the machinery or equipment will be retested and reinspected prior to being returned to service.

Machinery and mechanized equipment will be operated only by designated qualified personnel. Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded. Getting off or on any equipment where it is in motion is prohibited. Machinery and equipment will be operated in accordance with the manufacturer's instructions and recommendations. Inspections or determinations of road conditions and structures will be made in advance to assure that clearances and load capacities are safe for the passage or placing of any machinery or equipment.

Mobile equipment, operating within an off-highway job site not open to public traffic, will have a service brake system and a parking brake system capable of stopping and holding the equipment while fully loaded on the grade of operation. In addition, it is recommended that heavy-duty hauling equipment have an emergency brake system, which will automatically stop the equipment upon failure of the service brake system. This emergency brake system should be manually operable from the driver's position.

Preventive maintenance procedures recommended by the manufacturer will be followed. All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or maintenance is being done. Equipment designed to be serviced while running are exempt from this requirement. All repairs on machinery or equipment will be made at a location, which will protect repair personnel from traffic. Heavy machinery, equipment, or parts thereof which are suspended or held apart by slings, hoist, or jacks also will be substantially blocked or cribbed before personnel are permitted to work underneath or between them. Only authorized factory trained personnel shall do repairs to heavy equipment. Routine daily lubrication, fueling, etc. shall be conducted by the operator.

All vehicles which will be parked or moving slower than normal traffic on haul roads will have a yellow flashing light or four-way flashers visible from all directions.

All industrial trucks will meet the requirements of design, construction, stability, inspection, testing, maintenance, and operation, defined in ANSI/ASME B56.1, Safety Standards for Low Lift and High Lift Trucks.

Self-propelled construction equipment, whether moving alone or in combination, will be equipped with a reverse signal alarm. Equipment designed and operated so that the operator is always facing the direction of motion does not require a reverse signal alarm. Reverse signal alarms will be audible and sufficiently distinct to be heard under prevailing conditions. Alarms will operate automatically upon commencement of backward motion. Alarms may be continuous or intermittent (not to exceed 3-second intervals) and will operate during the entire backward movement. Reverse signal alarms will be in addition to requirements for signal persons. A warning device or signal person will be provided where there is danger to persons from moving equipment, swinging loads, buckets, booms, etc.

All belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, or other reciprocating, rotating or moving parts of equipment will be guarded when exposed to contact by persons or when they otherwise create a hazard. All hot surfaces of equipment, including exhaust pipes or other lines, will be guarded or insulated to prevent injury and fire. All equipment having a charging skip will be provided with guards on both sides and open end of the skip area to prevent persons from walking under the skip while it is elevated. Platforms, foot walks, steps, handholds, guardrails, and toe boards will be designed, constructed, and installed on machinery and equipment to provide safe footing and access. Equipment will be provided with suitable working surfaces of platforms, guard rails, and hand grabs when attendants or other employees are required to ride for operating purposes outside the operator's cab or compartment. Platforms and steps will be of nonskid material. Substantial overhead protection will be provided for the operators of forklifts and similar material handling equipment.

Fuel tanks, if any, will be located in a manner which will not allow spills or overflows to run onto engine, exhaust, or electrical equipment. Exhaust or discharges from equipment will be so directed that they do not endanger persons or obstruct view of operator.

All points requiring lubrication during operation will have fittings so located or guarded to be accessible without hazardous exposure.

13.7 CONFINED SPACE OPERATIONS

All work will be performed at or above current grades at the Site. No work within trenches or other confined spaces will occur during the course of the proposed project.

13.8 SITE ILLUMINATION

All work will be performed during daylight hours. No work is planned within structures at this time. No special illumination devices will be necessary to perform the proposed scope of work. Vehicular headlights will be required in the event that vehicular transport operations are required outside of daylight hours or during times of limited visibility (i.e., fog, rain). Additionally, Site workers will be required to use vehicular headlights in accordance with State of California motor vehicle laws during on-site or off-site transport.

14.0 SITE CONTROL MEASURES

All employees and personnel entering the Site during soil removal work will be required to report to the Site safety officer and sign in and out on the Site control log. In addition, all workers will be required to complete the worker/visitor acknowledgment form informing them of the potential hazards on Site. A copy of the worker/visitor entry log is presented in Attachment C. The purpose of the Site control measures is to prevent the spread of contamination, control the flow of personnel, vehicles, and materials into and out of work areas. Procedures for preventing the spread of contamination include maintaining a Site control log, developing a communications program, and implementing Site security measures are presented below.

14.1 SITE CONTROL LOG

ENGEO will maintain documentation of sign-in/out forms, employee training records, PPE use and applicable medical surveillance records. In addition, any unsafe conditions present or work practices that have been identified and action taken to correct the identified unsafe conditions and

work practices will be identified by the SSO and documented on the Site control log. Record keeping will be performed in accordance with the following.

ENGEO will maintain logs and reports covering the implementation of the HASP. If necessary, the format will include training logs and bi-weekly reports. The training log will include the following information for both initial training and refresher training sessions.

- Date and place
- Area (specific zone) checked
- Employees in a particular area
- Equipment being utilized by employees named
- Protective clothing being worn by employees named
- Protective devices being used by employees named and area assignment

Should this project be extended, the bi-weekly reports will include the following information.

- Summary sheet covering the range of work being done.
- Any incidents of nonuse of protective devices in an area where required, nonuse of protective clothing, disregard of buddy system, violation of eating, smoking, and chewing in prohibited areas, instances of job-related injuries and illness, and monitoring results.
- Copies of medical certificates for employees and the waivers of visitors.

14.2 DECONTAMINATION

14.2.1 Personnel

Decontamination will consist of the removal of disposal of protective coverings (i.e., gloves, coveralls) and washing of skin surfaces that may have been exposed or soiled during operations. Additionally, all on-site personnel will be required to wash hands or any other potentially exposed or soiled skin surface prior to breaks, leaving the Site, and at the end of daily operations.

14.2.2 Equipment

Equipment, including but not limited to, excavators, backhoes, and loaders will have visible soil deposits removed prior to equipment being transported off Site.

15.0 EMERGENCY EQUIPMENT

The following items, at a minimum, will be maintained on Site and available for immediate use.

- First aid equipment and supplies.
- Emergency eyewashes which comply with ANSI Z358.1 will be located near the work areas.
- Fire extinguishers with a minimum rating of 5-A, B, or C will be carried in all vehicles and heavy equipment. Fire extinguishers will also be available at any site where flammables or combustible materials present a fire risk.
- Spill response kit.

16.0 EMERGENCY RESPONSE AND CONTINGENCY PROCEDURES

16.1 PRE-EMERGENCY PLANNING

Emergency response agencies will be contacted and notified of upcoming Site activities and potential emergency situations. The capabilities and commitment of the local agencies will be ascertained and obtained. ENGEO will verify that this Emergency Response Plan is compatible and integrated with disaster, fire, and emergency response plans of the local, state, and federal agencies.

16.2 LINES OF AUTHORITY

The HSM and SSO are responsible for overall Site safety. In the case of a Site safety concern, emergency or accident, the SSO should be contacted immediately. Upon notification, the SSO will make appropriate decision regarding the incident. Pursuant to OSHA 8 CCR § 342, which requires that "Every employer shall report immediately by telephone or telegraph to the nearest District Office of the Division of Occupational Safety and Health any serious injury or illness, or death, of an employee occurring in a place of employment or in connection with any employment." We plan to inform an OSHA district office within 8 hours of any serious injury, or illness, or death on the worksite.

16.3 EMERGENCY RECOGNITION AND PREVENTION

The recognition and prevention of hazards and potential emergencies are discussed in detail elsewhere in this plan. In general, emergency situations occur when personnel are seriously injured and require first aid or hazardous or potentially hazardous materials are spilled or released to the environment. Attachment D provides a checklist for critical information and procedures in cases of emergency.

16.4 PROCEDURES FOR SITE EVACUATION

16.4.1 Emergency Equipment

The following items, as a minimum will be immediately available for on-site use.

- First aid equipment and supplies
- Spill control materials and equipment
- Fire extinguishers
- Telephone

16.4.2 Adverse Weather Conditions

In the event of adverse weather conditions, the SSO will assess if work can continue without sacrificing the health and safety of any field workers. Items to be considered prior to assessing if work should continue include:

- Potential for heat stress and heat-related injuries.
- Limited visibility.
- Potential for electrical storms.
- Potential for high winds resulting in contaminant transport.

16.4.3 Earthquakes

This guidance assumes that personnel will be outdoors. In the event of a major earthquake:

- Field personnel should immediately evacuate any trenches, excavations, or elevated positions in machinery, heavy equipment, or structures.
- Field personnel should move away from structures or overhead electrical transmission poles and wires or any other objects or structures that might topple over or collapse.
- Personnel should move to an area where there is the least chance of something falling from above.
- Personnel should assume a position of low center of gravity to avoid being thrown or falling to the ground. A position on “all fours” can minimize shaking.
- Personnel should remain alert for rolling or traveling objects to avoid injury.

16.4.4 Evacuation Routes and Places of Refuge

Prior to access into the work areas and during soil removal work, workers will be instructed as to designated evacuation routes and procedures. A route map detailing directions to the emergency medical facility will be posted conspicuously at the job Site. Additionally, each support vehicle should be equipped with copies of this map and each driver should be familiar with the route and travel time to that facility. A copy of the hospital route map is included as Attachment E.

Workers will be instructed during the preliminary and subsequent tailgate meetings to proceed away from the hazard in a direction of 90° to the prevailing wind for at least 50 feet prior to heading up wind of the hazard should an emergency evacuation occur. A place of refuge will be identified. The purpose of the place of refuge is to provide an off-site meeting place in the event that Site evacuation is required. The actual place of refuge will be determined during the weekly on-site safety meetings.

Once all employees have gathered at the place of refuge and emergency evacuation is completed, a roll call will be conducted with each present company’s supervisor or foremen to assess whether any employees are missing from the evacuation refuge and still need to be accounted for.

16.5 NEAREST HOSPITAL

The nearest hospital is located in the City of Vacaville, approximately 7.4 miles from the project Site. Attachment E provides a map and directions to the nearest hospital. The address and telephone numbers are as follows.

Kaiser Permanente Emergency Room
Vacaville Medical Center
1 Quality Drive
Vacaville, CA 95688
(707) 624-2600

16.6 EMERGENCY ALERTING AND RESPONSE PROCEDURES

16.6.1 Emergency Alerting Procedures

If physical injury or illness due to accidental exposure to hazardous materials or waste occurs, uninjured/unaffected personnel should do the following.

- Evacuate all non-essential personnel.
- Remove injured/exposed person(s) from the work zone.
- Remove protective gear from injured/exposed person(s).
- Decontaminate exposed person(s).
- Render first aid if necessary.
- **Call 911.**
- *If medical assistance is urgent, decontamination of the victim may not be practical or required.*
- Evacuate other on-site personnel to a safe place until the SSO determines that it is safe to resume work.
- The senior person present will notify the SSO and superintendent and advise them of the incident and the steps taken to prevent recurrence.
- Submit a written report on the incident to the contracting officer or representative within 24 hours. The report will be made part of the final closure file.
- Accident reporting records and investigative reports will be maintained at the site office and ENGEO's corporate office as part of the Department of Labor record keeping requirements.

Following any emergency response, an evaluation of procedures will be performed. The evaluation should include cause and proposed remedy for subsequent incident prevention. Should an emergency situation develop the Site superintendent will notify worksite personnel by handheld radio. Work activities shall be stopped if necessary.

16.6.2 Emergency Telephone Numbers

The universal emergency response number is 911. When 911 is dialed, a public safety answering service will ascertain the type of assistance needed and quickly summon the appropriate emergency service (Fire Department, Police Department, emergency medical or paramedics, ambulance, etc.) to the site. A complete listing of emergency telephone numbers for project personnel is provided In Table 16.6.2-1 below.

TABLE 16.6.2-1: Emergency Contact Telephone Numbers

NAME	TELEPHONE NUMBER	ALTERNATE NUMBER
National Emergency Response Center	1-800-424-8802	
Solano County Environmental Health Services	707-784-6765	
National Poison Control	1-800-876-4766	
Dixon Police Department	707-678-7070	911
Dixon Fire Department	707-678-7060	911
Project Manager, Robert Peck	925-570-8110	925-866-9000
Health and Safety Manager, Robert Peck	925-570-8110	925-866-9000
Site Safety Officer, Robert Peck	925-570-8110	925-866-9000

16.7 COMMUNITY ALERT PROGRAM

The universal emergency response number is 911. When 911 is dialed, a public safety answering service will ascertain the type of assistance needed and quickly summon the appropriate local and/or municipal emergency service (Fire Department, Policy Department, emergency medical or paramedics, ambulance, etc.) to the site.

16.8 PROCEDURES FOR INCIDENT REPORTING

In the event that an incident, such as an explosion or fire, or a spill or release of toxic material occurs during the course of the project, the appropriate government agencies will immediately be notified. ENGEO will notify Cal/OSHA, EPA, and the contractor/subcontractor supervisor(s). A written notification shall be forwarded to the contracting officer within 24 hours. The report should include the following items.

- Name, organization, telephone number, and location.
- Name and title of the person(s) reporting.
- Date and time of the incident.
- Location of the incident, i.e., site location, facility name.
- Brief summary of the incident giving pertinent details, including type of operation ongoing at the time of the incident.
- Cause of the incident, if known.
- Casualties (fatalities, disabling injuries).
- Details of any existing chemical hazard or contamination.
- Estimated property damage, if applicable.
- Nature of damage, effect on contract schedule.

17.0 CERTIFICATE OF WORKER/VISITOR ACKNOWLEDGMENT

A copy of a certificate of worker/visitor acknowledgment will be completed and submitted for each visitor allowed to enter the worksite during soil removal work.

18.0 REPORTING

18.1 LOGS, REPORTS, AND RECORDKEEPING

The following logs, reports, and records will be developed, retained, and submitted to the contracting officer when requested.

- Training logs (site specific and visitor)
- Daily inspection logs
- Equipment safety and maintenance logs
- Employee/visitor register (Site Control Log)
- Environmental and personal exposure monitoring/sampling results

ATTACHMENT A

ACCIDENT/INJURY/ILLNESS INVESTIGATION

Job Site: _____

Please Print - Complete All Items - Submit Immediately

PART I – SUPERVISOR			
Employee	Employee #	Phone # ( )	
Address	City	State	Zip
Date of Birth / /	Age	Sex	Social Security #
Shift ☐ Day ☐ Evening ☐ Night	Date of Hire / /	Occupation	
Date of Injury / /	Time of Injury : AM/PM		
Location of Incident			
Date Reported / /	Time Reported : AM/PM	Reported to Whom?	

PART II - SUPERVISOR			
(1) Was employee given First-Aid?	Yes ☐ No ☐	(3) Was Employee Placed on Transitional Duty?	Yes ☐ No ☐
(2) Sent to: Emergency Room	Yes ☐ No ☐	(4) Will Employee lose time/work?	Yes ☐ No ☐
Preferred Provider	Yes ☐ No ☐	(5) If lost time, approx. days_____	
Personal Physician	Yes ☐ No ☐	(6) Was treatment refused?	Yes ☐ No ☐
Company Nurse	Yes ☐ No ☐		
Other	Yes ☐ No ☐		
Name & Address of Clinic:		Phone number of clinic:	

PART III – SUPERVISOR
Name of Witness, Address, Phone (*Attach statement of all witnesses)*:
(1)
(2)
(3)
Describe in detail what employee was doing at the time of injury (what, how why):
Did employee wear protective equipment? Yes ☐ No ☐ If Yes, specify
Part of body (check) indicate right or left when applicable

1 ☐ Head	5 ☐ Mouth	9 ☐ Arm	13 ☐ Knee	17 ☐ Toe	21 ☐ Groin
2 ☐ Face	6 ☐ Heart	10 ☐ Wrist	14 ☐ Leg	18 ☐ Hip	22 ☐ None
3 ☐ Eye	7 ☐ Back	11 ☐ Hand	15 ☐ Ankle	19 ☐ Neck	23-☐ other____
4 ☐ Ear	8 ☐ Trunk	12 ☐ Finger	16 ☐ Foot	20 ☐ Shoulder	_____

Type of injury (check)	
1 ☐ Reaction to foreign substances/objects	6 ☐ Fracture
2 ☐ Puncture	7 ☐ Amputation
3 ☐ Laceration	8 ☐ Sprain/Strain
4 ☐ Contusion	9 ☐ Other
5 ☐ Burn	6 ☐ Fracture

What type of training has been conducted to prevent recurrence:
Describe what acts or conditions may have contributed to the incident. (Analyze all the facts concerned. If either the injured person, a machine or other physical condition was involved, find out how. Use the Possible Worker's Compensation Accident Causes on the back of this form to complete this section.):
Corrective Action(s) taken:

Investigated by:	Date:

PART IV - MANAGEMENT REVIEW	
Are you satisfied with your review of Part I-III that the accident has been thoroughly investigated? ☐ Yes ☐ No If NO, return for a more detailed report.	
As a result of your review, have you identified any additional reasons why the accident occurred: ☐ Yes ☐ No If YES, list the reasons:	
Corrective action(s) you are taking:	
Who have you made responsible for corrections:	
Signature of Superintendent	Date:
Manager Comments:	
As a result of the Foreman's investigations and my comments above, I am satisfied that the accident has been thoroughly investigated. Corrective actions will be personally followed up by me until complete.	
Signature of Manager	Date:

POSSIBLE WORKER'S COMPENSATION ACCIDENT CAUSES

UNSAFE ACT - PERSONAL FACTORS	UNSAFE CONDITION
Making safety devices inoperable	Inadequate guards or protection
Failure to use guards provided	Defective tools or equipment
Using defective equipment	Unsafe condition of machine
Servicing equipment in motion	Congested work area
Failure to use proper tools or equipment	Poor housekeeping
Operating machinery or equipment at unsafe speed	Unsafe floors, ramps, stairways, platforms
Failure to use personal protective equipment	Improper material storage
Operating without authority	Inadequate warning system
Lack of skill or knowledge	Fire or explosion hazards
Unsafe loading or placing	Hazardous atmosphere: gases, dust, fumes, vapors
Improper lifting, lowering or carrying	Hazardous substances
Taking unsafe position	Inadequate ventilation
Unnecessary haste	Radiation exposures
Influence of alcohol or drugs	Excessive noise
Physical limitation or mental attitude	Inadequate lighting
Unaware of hazards	
Unsafe act or other	

THE PURPOSE OF THIS INVESTIGATION FORM IS NOT TO PLACE FAULT OR BLAME. ITS PURPOSE IS TO INVESTIGATE ALL POSSIBLE CAUSES OF THE ACCIDENT TO TAKE NECESSARY CORRECTIVE ACTIONS AND CONTINUALLY IMPROVE PROJECT SAFETY.

ATTACHMENT B

PROJECT MANAGER DAILY LOG

Date: _____ Project Name: _____

Log Information:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

ATTACHMENT C

WORKER/ VISITOR ENTRY AND EXIT CONTROL LOG

NAME	DATE	TIME	IN	OUT

SSO Signature_____ Date_____

ATTACHMENT D

JOB SITE EMERGENCY PROCEDURES

Job Site: _____ Date: _____

EMERGENCY TELEPHONE NUMBERS:

Fire: _____

Police: _____

Ambulance: _____

Hospital: _____

IN CASE OF FIRE:

- exit the site using the evacuation route
- call the fire department
- go immediately to the assembly point

EVACUATION ROUTE:

_____
_____
_____

ASSEMBLY POINT: _____

IN CASE OF SERIOUS INJURY:

- immediately contact first aid trained personnel
- call for medical assistance

Job site first aid trained personnel:

_____
_____
_____

Trained personnel will take immediate charge of the emergency situation. (Supervision to perform accident investigation)

IN CASE OF NATURAL DISASTER: (CHECK)

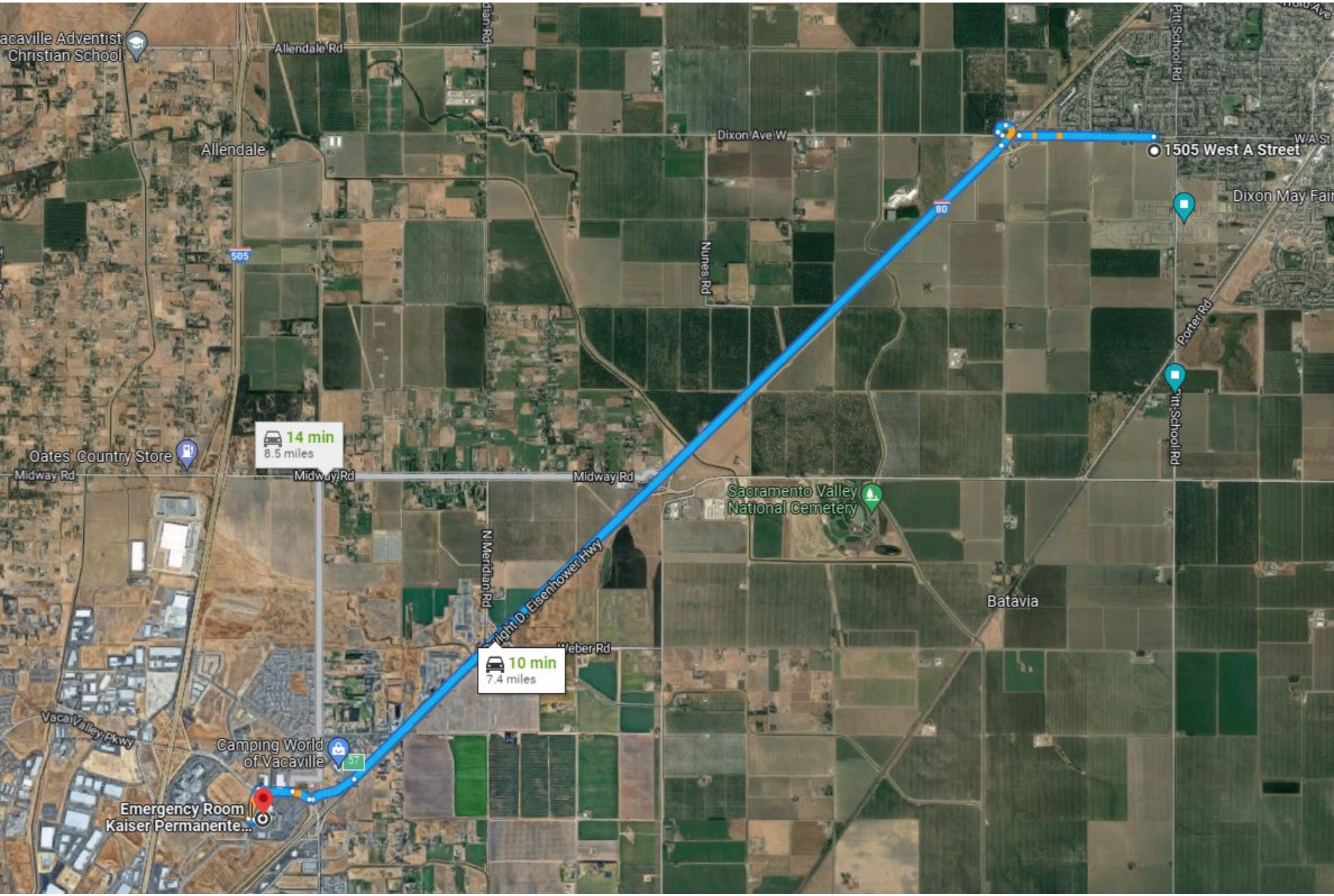
☐ Tornado: Seek inside shelter, preferably underground. Stay away from windows. If outside, move away from the tornado's path at a right angle, or lie flat in a ditch or ravine.

☐ Earthquake: Evacuate the building and go directly to the designated assembly point for instructions.

☐ Other: _____

ATTACHMENT E

HOSPITAL MAP


acaville Adventist Christian School
Allendale Rd
Allendale
Dixon Ave W
1505 West A Street
Dixon May Fair
Pitt School Rd
Porter Rd
Nunes Rd
505
80
14 min
8.5 miles
Oates' Country Store
Midway Rd
Midway Rd
Midway Rd
Sacramento Valley National Cemetery
N Meridian Rd
Batavia
Weber Rd
10 min
7.4 miles
Vaca Valley Pkwy
Camping World of Vacaville
57
Emergency Room | Kaiser Permanente...

Google Maps

1505 W A St, Dixon, CA 95620 to Emergency Room | Kaiser Permanente Vacaville Medical Center

Drive 7.4 miles, 10 min

1505 W A St
Dixon, CA 95620

Get on I-80 W from W A St

3 min (1.2 mi)

1. Head west on W A St toward Evans Rd

0.8 mi

2. Continue onto Dixon Ave W

495 ft

3. Slight right toward Schroeder Rd

194 ft

4. Turn right onto Schroeder Rd

381 ft

5. Take the ramp onto I-80 W

0.2 mi

Follow I-80 W to Leisure Town Rd in Vacaville. Take exit 57 from I-80 W

5 min (5.6 mi)

6. Merge onto I-80 W

5.3 mi

7. Take exit 57 toward Leisure Town Rd

0.3 mi

8. Keep right at the fork, follow signs for Vaca Valley Pkwy/Leisure Town Rd N and merge onto Leisure Town Rd

115 ft

Take Vaca Valley Pkwy and Akerly Dr to your destination

2 min (0.6 mi)

9. Merge onto Leisure Town Rd

0.1 mi

10. Continue onto Vaca Valley Pkwy

0.2 mi

11. Turn left onto Akerly Dr

0.2 mi

12. Turn left at New Horizons Way

194 ft

13. Turn left

Destination will be on the left

358 ft

Emergency Room | Kaiser Permanente Vacaville Medical Center

1 Quality Dr, Vacaville, CA 95688

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

ATTACHMENT F

ACKNOWLEDGMENT

This is to acknowledge my participation in an environmental sampling project. My signature below acknowledges my awareness of the potential for the presence of organochlorine pesticides, specifically toxaphene, in elevated concentrations. I accept the responsibility to protect myself with the appropriate personal protective equipment. In the event I have any safety questions, I will not hesitate to ask the Head Site Safety Officer.

_____
(Signature)

_____
(Date)

APPENDIX F

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) AND OTHER CRITERIA TO BE CONSIDERED (TBC)

APPENDIX F – TABLE 1
Federal Chemical-Specific ARARs

Requirement	Prerequisite	Citation	ARAR Determination	Comments
Soil				
Resource Conservation and Recovery Act (RCRA)41WCA				
Definition of RCRA hazardous waste.	Waste soil	Title 22 CCR 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), 66261.100, and 66262.11	Not Applicable	No hazardous waste to be generated at this site. Wastes are not RCRA.
Toxic Substances Control Act (TSCA)				
Regulates use **and** manufacture of toxic substances **and** storage and disposal of polychlorinated biphenyls (PCBs).	Soils, debris, sludge, or dredged materials contaminated with PCBs at concentrations greater than 50 parts per million (ppm).	40 **CFR** 761.60, excluding 761.60(a)(B) and (D), 761.60(a)(3)(111)(3), 761.60(e), 761.60(t); 761.61 (a)(2), 761.61(a)(6); 761.65(a) and (b); 761.65(c) except 761.65(c)(9); 761.65(e)(6)(ii and iii); 765.65(e)(7) and (8); 761.79 (15 USC 2601, at seq.); 761.265; 761.283 (b)	Not Applicable	PCBs are not considered a COC at the Site.
Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)*				
Procedures recommended **for** all pesticide storage and disposal activities.	Recommendations for the disposal of organic pesticides, metal-organic pesticides, organic mercury, lead, cadmium, arsenic, and all Inorganic pesticides.	40 CFR 165.8	Applicable	Soil is impacted with toxaphene.
Water				
Clean Water Act ICWA) 33 USC 1251-1376				
Regulates discharges of water from a facility or site including site runoff.	Wastewater discharge to a water body	40 CFR 100-149	Not Applicable	Excavation will occur during the dry season.
Safe Drinking Water Act (SDWA)42 USC 300f - 300)				
Regulates the quality of drinking water supply and lists maximum contaminant levels.	Drinking water	40 CFR 141-143	Not Applicable	There is no evidence of groundwater impacts.
Air				
Clean Air Act (CAA), 40 USC 7401 et seq.				
National Ambient Air Quality Standards (NAAQS); Primary and secondary standards for ambient air quality to protect public health and welfare (including standards for particulate matter and lead).	Contamination of air affecting public health and welfare.	40 CFR 50.4 - 50.12	Applicable	Dust generated during removal actions will be controlled and monitored.
Provisions of State Implementation Plan (SIP) approved by EPA under Section 110 of CAA.	Major sources of air pollutants.	40 USC 7410; portions of 40 CFR 52.220 applicable to SCAQMD	Not Applicable	Dust emissions during the removal action will be temporary

*Statutes and policies, and their citations, are provided as headings to Identify general categories of potential ARARs for the convenience of the reader. Listing the statutes and policies does not indicate that the preparer accepts the entire statutes or policies as potential ARARs. Specific potential ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered potential ARARs.

ARARs Applicable or relevant and appropriate requirements
CAA = Clean Air Act

CCR = California Code of Regulations
CFR = Code of Federal Regulations

EPA = U.S. Environmental Protection Agency
FIFRA = Federal Insecticide, Fungicide, and Rodenticide Act
NAAQS = National Ambient Air Quality Standards (primary and secondary)

RCRA = Resource Conservation and Recovery Act

PPM=Parts per Million
PCB=Polychlorinated Biphenyls

RI=Remedial Investigation
SIP=State Implementation Plan

TBC=To Be Considered
TSCA=Toxic Substances Control Act
USC=United States Code

Chemical-specific concentrations used for the FS may not be ARARs indicated in this table, but may be concentrations based upon other rectors.
Such factors may include the following:

Human health risk-based concentrations frisk-based; PRGs 40 CFR 300.430(e)(A)(1) and (2)).
Ecological risk-based concentrations (40 CFR 300.430(e)(G)).
Practical quantitation limits of contaminants (40 CFR 300.430(e)(A)(3)).

Many potential action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific ARAR tables.

APPENDIX F – TABLE 2
State Chemical-Specific ARARs

Requirement	Prerequisite	Citation	ARAR Determination	Comments
Soil				
Cal-EPA Department of Toxic Substances Control (DTSC)				
Definition of 'Non-RCRA hazardous waste"	Waste	22 CCP 66261.22(a)(3) and (4), 66261.24(a)(2) to (a)(8), 66261.101, 66261.3(a)(2)(C), or 66261.3(a)(2)(F)	Not Applicable	No hazardous waste will be generated at this site. All waste disposed will be profiled prior to disposal.
Water				
State and Regional Water Quality Control Board (RWOCB)*				
Authorizes the State and Regional Wafer Boards to establish in Water Quality Control Plans beneficial uses and numerical and narrative standards to protect both surface and groundwater quality. Authorizes regional water boards to Issue permits for discharges to land or Surface or groundwater that could affect water quality, including NPDES permits, and to take enforcement action to protect water quality.	Waste discharge	California Water Code, Division 7, Sections 13241, 13243, 13263(a), and 13380 (Porter-Cologne Water Quality Control Act) and other provisions of the Porter-Cologne Water Quality Control Act	Potentially applicable if excavation activities occur in wet season	Specific actions are focused in remediating soil.
Describes the water basins in the San Francisco Bay Region, establishes beneficial uses of ground and surface waters, establishes water quality objectives, including narrative and numerical standards, establishes implementation plans to meet water quality objectives and protect beneficial Uses, and incorporates statewide water quality control plans and policies.	Waste discharge	Water Quality Control Plan (Basin Plan) San Francisco Bay Region, June 13, 1994	Potentially applicable if excavation activities occur in wet season	Specific actions are focused in remediating soil.

Statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader. Listing the statutes and policies does not indicate that the preparer accepts the entire statutes or policies as potential ARAPs. Specific potential ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered potential ARARS.

ARARs = Applicable or relevant and appropriate requirements
RCRA = Resource Conservation and Recovery Act

Chemical-specific concentrations used for removal action alterative evaluation may not be ARARs indicated in this table, but may be concentrations based upon other factors. Such factors may include the following:

- Human health risk-based concentrations (risk-based: PRGs 40 CFR 300.430(e)(A)(1) and (2))
- Ecological risk-based concentrations (40 CFR 300.430(e)(G))
- Practical quantitation limits of contaminants (40CFR 300.430(e)(A)(3))

Many potential action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific AFIAR tables.

APPENDIX F – TABLE 3
Federal Location-Specific ARARs

Location	Requirement	Prerequisite	Citation	ARAR Determination	Comments
Hazardous Waste Control Act (HWCA)*					
Within 100-year floodplain	Facility must be designed, constructed, operated, and maintained to avoid washout.	RCRA hazardous waste, treatment, storage, or disposal of hazardous waste	22 CCR 66264.18(6)	Not Applicable	Site is located at an elevation of 69 feet above msl. Also, not RCRA waste.
Executive Order 11988, Protection of Floodplains*					
Within 100-year floodplain	Land disturbance restrictions	Flood plain determination based on mean sea level	40 CFR 6, Appendix A (excluding Sections 6(a)(2), (4), and (6)); 40 CFR 6.302	Not Applicable	Site is located at an elevation of 69 feet above msl.
National Historic Preservation Act, 16 USC Section 470*					
Historic project owned or controlled by Federal agency	Action to preserve historic properties; planning of action to minimize harm to national historic landmarks.	Property included in or eligible for the National Register of Historic Places	Substantive requirements of 36 CFR 800	Not Applicable	No known historic property that needs to be preserved.
Endangered Species Act of 1973*					
Critical habitat upon which endangered species or threatened species depend	Action to conserve endangered species or threatened species, including consultation with the Department of the Interior.	Determination of effect upon endangered or threatened species or their habitat	16 USC 1536(a)	Not Applicable	Site is an agricultural field and not a critical habitat.
Executive Order 11990, Protection of Wetlands'					
Wetland	Action to minimize the destruction, loss, or degradation of wetlands.	Wetland as defined by Executive Order 11990, Section 7	40 CFR 6, Appendix A (excluding Sections 6(a)(2), (4), and (6)); 40 CFR 6.302	Not Applicable	Site is an agricultural field with no wetland on or adjacent to the Site.
Clean Water Act, Section 404*					
Wetland	Action to prohibit discharge of dredged or fill material into wetland without permit. Mitigation may be required to avoid net loss of wetlands.	Wetland as defined by Executive Order 11990, Section 7	40 CFR 230.10; 40 CFR 231 (excluding 231.1, 231.2, 231.7, and 231.8)	Not Applicable	No planned discharge of dredged or fill material. Planned work is not within a wetland.
Wilderness Act*					
Wilderness Area	Area must be administered in a manner that will leave it unimpaired as wilderness and preserve its wilderness character.	Federally owned area designated as wilderness area	50 CFR 35.1 et seq.	Not Applicable	Site is urbanized.
National Wildlife Refuge System*					
Wildlife refuge	Only actions allowed under the provisions of 16 USC 668 (c) may be undertaken in areas that are part of the National Wildlife Refuge System.	Area designated as part of the National Wildlife Refuge System	50 CFR 27	Not Applicable	Site Is urbanized

APPENDIX F – TABLE 3
Federal Location-Specific ARARs

Location	Requirement	Prerequisite	Citation	ARAR Determination	Comments
Fish and Wildlife Coordination Act, Section 662*					
Area affecting stream or other water body	Action taken should protect fish or wildlife.	Diversion, channeling, or other activity that modifies a stream or other water body and affects fish or wildlife	16 USC 662	Not Applicable	There will be no physical modification of any water body affecting fish or wildlife
Wild and Scenic Rivers Act*					
Within area affecting national wild, scenic, or recreational river	Avoid taking or assisting in an action that will have direct adverse effect on scenic river.	Activities that affect or may affect any of the rivers specified in 16 USC 1276(a)	16 USC 1271 et seq., Section 7(a)	Not Applicable	There will be no physical modification of any water body affecting fish or wildlife
Coastal Zone Management Act*					
Within coastal zone	Conduct activities in a manner consistent with approved State management programs.	Activities affecting the coastal zone, including lands thereunder and adjacent shore land.	Section 307(c) of 16 USC 1456(c); 15 CFR 930 and 923.45	Not Applicable	Site is greater than 20 miles from the ocean.
Coastal Barrier Resources Act, Section 3504*					
Within designated coastal barrier	Prohibits any new Federal expenditure within the Coastal Barrier Resource System.	Activity within the Coastal Barrier Resource System	16 USC 3504	Not Applicable	Site is greater than 20 miles from the ocean.
Historic Sites, Buildings and Antiquities Act*					
Historic Sites	Avoid undesirable impacts on landmarks,	Areas designated as historic sites	16 USC 461.467	Not Applicable	There are no known historic structures on site.
Rivers and Harbors Act of 1890*					
Navigable waters	Permits required for structures or work in or affecting navigable waters,	Activities affecting navigable waters	33 USC 403	Not Applicable	Site is not located within a waterway
Migratory Bird Treaty Act of 1972*					
Migratory bird area	Protects almost all species of native birds in the United States from unregulated "take", which can Include poisoning at hazardous waste sites.	Presence of migratory birds	16 USC 703	Not Applicable	Site is not a known migratory bird habitat
Marine Mammal Protection Act*					
Marine mammal area	Protects any marine mammal within the United States from unregulated "take" except as provided by international treaties.	Presence of marine mammals	16 USC 1372(2)	Not Applicable	Site is not a marine ecological system

APPENDIX F – TABLE 3
Federal Location-Specific ARARs

Location	Requirement	Prerequisite	Citation	ARAR Determination	Comments
Magnuson Fishery Conservation and Management Act*					
Fishery under management	Provides for conservation and management of specified fisheries within specified fishery conservation zones	Presence of managed fisheries	16 USC 1801 et seq.	Not Applicable	Site is not a marine ecological system

'Statutes and policies, and their citations, *are* provided as headings to identify general categories of potential ARARs.
Specific potential ARARs follow each general heading.
ARARs = Applicable or relevant and appropriate requirements

CCC = California Coastal Commission
CUR = California Code of Regulations
CFR = Code of Federal Regulations
HWCA = Hazardous Waste Control Act
NWS = Naval Weapons Station
RCRA = Resource Conservation and Recovery Act
RWQCB = California Regional Water Quality Control Board
SHPO = State Historical Preservation Officer
USC = United Stales Code

APPENDIX F – TABLE 4
State Location-Specific ARARs

Location	Requirement	Prerequisite	Citation	ARAR Determination	Comments
Fish and Wildlife Game Code*					
Endangered Species Habitat	No persons shall import, export, take, possess, or sell any endangered or threatened species or part or product thereof.	Threatened or endangered species determination on or before 1 January 1985 or a candidate species with proper notification	FGC 2080	Not Applicable	There are no known threatened or endangered species associated with the site.
Endangered Species Habitat	Department policy and legislative findings and definitions for significant natural areas.		FGC 2050-2068	Not Applicable	Procedural, not a "cleanup standard," "standard of control," or "other substantive requirement, criteria or limitation."
Endangered Species Habitat	Procedures tor listing endangered species.		FGC 2070	Not Applicable	Procedural, not a "cleanup standard, "standard of control," or "other substantive requirement, criteria or limitation."
Endangered Species Habitat	Ensures that action taken will not jeopardize the survival and reproduction of any threatened or endangered species.		FGC 2090-2096	Not Applicable	Not effective after January 1, 1994.
California Coast Act of 1976*					
Coastal Zone	Regulates activities associated with development to control direct significant impacts on coastal waters and protect State and national interests in California coastal resources. Requires a consistency determination for federal activities within a coastal zone.		PRC 30000.30900; 14 CCR 13001 136664.4	Not Applicable	Procedural, not a "cleanup standard," "standard of control," or "other substantive requirement, criteria or limitation." However, the CERCLA process contains the functional equivalent in the feasibility study report.

'Statutes and policies, and their citations, are provided as headings to identify general categories of potent al ARARs for the convenience of the reader. Listing the statutes and policies does not indicate that the preparer accepts the entire statutes or policies as potential ARARs. Specific potential ARARs follow each general heading; only substantive requirements of the specific citations are considered potential ARARs.

ARARs = Applicable or relevant and appropriate requirements
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CCR = California Code of Regulations
FGC = Fish and Game Code
NA = Not an ARAR
PRC = Public Resources Code
TBC = To be considered

APPENDIX F – TABLE 5
Federal Action-Specific ARARs

Alternatives:1 – No Further Action, 2 – On-site Encapsulation, 3 – Excavation and Off-site Disposal							
Action	**Requirement**	**Prerequisite**	**Citation**	**ARAR Determination**			**Comments**
				A	**RA**	**TBC**	
Resource Conservation and Recovery Act (RCRA)42 USC 6901 et seq.*							
On-site waste generation	Person who generates waste shall determine if that waste is hazardous.	Generator of hazardous waste in California	22 OCR 66262.11			2,3	No hazardous waste is expected to be generated during these activities.
Hazardous waste accumulation	Generator may accumulate waste on site for 90 days or less or must comply with requirements for operating a storage facility.	Accumulate hazardous waste	22 OCR 66262.34			2,3	No hazardous waste is expected to be generated during these activities.
Recordkeeping	Generator must keep manifests, biennial and exception reports and records of waste determination for at least 3 years.	Generate hazardous waste.	22 CCR 66262.40			2,3	No hazardous waste is expected to be generated during these activities.
Container storage	Containers of RCRA hazardous waste must be 1) maintained in good condition, 2) compatible with hazardous waste to be stored, and 3) closed during storage except to add or remove waste.	Storage of hazardous waste in containers for more than 90 days.	22 CCR 66264,171, 172, 173		2,3		Hazardous wastes could potentially be stored onsite temporarily during excavation activities.
	Inspect container storage areas weekly for deterioration.		22 OCR 66264.174		2,3		No long-term hazardous waste storage planned. Temporary storage may be necessary during excavation activities.
	Place containers on a sloped, crack-free base, and protect from contact with accumulated liquid. Provide containment system with a capacity of 10 percent of the volume of containers of tree liquids. Remove spilled or leaked waste in a timely manner to prevent overflow of the containment system.		22 OCR 66264.175(8) and (b)		2,3		Hazardous waste containers stored during excavation will be properly stored.
	Keep containers of ignitable or reactive waste at least 50 feet from the facility property line,		22 CCR 66264.176		2,3		Hazardous waste containers stored during excavation will be properly stored away from the property line.
	Keep incompatible materials separate. Separate incompatible materials stored near each other by a dike or other barrier.		22 OCR 66264.177		2,3		Hazardous waste containers stored during excavation will be properly stored.
	At closure, remove all hazardous waste and residues from the containment system, and decontaminate or remove all containers, liners.		22 CCR 66264.178		2,3		Hazardous waste containers stored during excavation will be properly removed from the site upon completion.

APPENDIX F – TABLE 5
Federal Action-Specific ARARs

Alternatives:1 – No Further Action, 2 – On-site Encapsulation, 3 – Excavation and Off-site Disposal							
Action	**Requirement**	**Prerequisite**	**Citation**	**ARAR Determination**			**Comments**
				A	**RA**	**TBC**	
Closure of surface impoundments	General performance standard requires elimination of need for further maintenance and control; elimination of post closure escape of hazardous waste, hazardous constituent, leachate, contaminated runoff, or hazardous waste decomposition products.	Land based unit containing hazardous waste_ RCRA hazardous waste placed at site after the effective date of the requirements or placed into another unit. Cleanup to health-based standards that wilt not require long-term management. Not applicable to material treated, stored, or disposed only before the effective date of the requirements, or if treated in-situ, or consolidated within area of contamination.	22 CCR 66264,111 except as it cross-references procedural requirements such as preparation and submittal of closure plans and other notifications.			2	No hazardous waste will be encapsulated at the site.
Clean closure of surface impoundments (removal)	Removal or decontamination of all waste residues, contaminated containment system components, contaminated subsoil, and structures and equipment contaminated with waste and leachate, and management of them as hazardous waste.	Surface impoundments, container or tank liners and hazardous waste residues, or contaminated soil (including soil from dredging or soil disturbed in the course of drilling or excavation) returned to land.	22 CCR 66264.111 and 66264.228(a)(1) and (c), except as it cross-references procedural requirements such as closure plans and annual reports.			2	No hazardous waste will be encapsulated at the site.
Closure of surface impoundments with waste in place (capping)	Requirements include eliminating free liquids, stabilizing remaining waste to support a cover, and covering the surface impoundment. The cover should be constructed to prevent downward entry of water for 100 years, function with minimum maintenance, promote drainage and eliminate erosion, accommodate settling and shear forces, have a permeability of less than or equal to permeability of subsoils present.	Surface impoundment containing hazardous waste.	22 CCP! 66264.226(a)(2), (b) and (d) through (r), except as it cross-references procedural requirements such as closure plans and annual reports			2	No hazardous waste will be encapsulated at the site.
Excavation of soil from vicinity of surface impoundment	Area from which materials are excavated may require cleanup to levels established by closure requirements.	RCRA hazardous waste placed at *site* after the effective date of the requirements.	22 CCR 66264.228(a), (b), (e) through (k), (m), (o) through (q); 22 OCR 66264.258(a) and (b), except as it cross-references procedural requirements			2	No hazardous waste will be encapsulated at the site.

APPENDIX F – TABLE 5
Federal Action-Specific ARARs

Alternatives:1 – No Further Action, 2 – On-site Encapsulation, 3 – Excavation and Off-site Disposal							
Action	**Requirement**	**Prerequisite**	**Citation**	**ARAR Determination**			**Comments**
				A	**RA**	**TBC**	
Groundwater monitoring for surface impoundment	Owners/operators of RCRA surface Impoundment, waste pile, land treatment *unit,* or landfill shall conduct a monitoring and response program for each regulated unit.	Supine Impoundment, waste pile, land treatment unit, or landfill for which constituents in or derived from waste in the unit may pose a threat to human health or the environment.	22 OCR 66264.90(a) and (c), 66264.91(a) and (a), 66264.92-.95, 66264.97-.98 except as it cross-references permit requirements			2	No hazardous waste will be encapsulated at the site.
Excavation	Movement of excavated materials to new location and placement in or on land will trigger land disposal restrictions for the excavated waste or closure requirements for the unit in which the waste is being placed.	Materials containing RCRA hazardous wastes subject to land disposal restrictions are placed in another unit,	22 CCR 66268.40			2	No hazardous waste will be encapsulated at the site.
Treatment when waste will be land disposed	Treatment of waste subject to ban on land disposal must attain levels achievable by best demonstrated available treatment technologies (BOAT) for each hazardous constituent in each listed waste, if residual is to be land disposed.	-Placement of RCRA hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, or underground mine or cave.	22 CCR 66268.40 and 42			3	No hazardous waste is expected to be generated during these activities. Soil will be profiled prior to disposal/treatment.
Placement of waste in land disposal unit	Attain land disposal treatment standards before putting waste into landfill in order to comply with land ban restrictions.		22 CCR 66268,40			3	No hazardous waste is expected to be generated during these activities. Soil will be profiled prior to disposal/treatment.
Clean Air Act (CAA) 40 USC 7401 et seq.							
Discharge to air	Provisions of State Implementation Plan (SIP) approved by EPA under Section 110 of CM.	Major sources of air pollutants	40 USC 7410, portions of 40 CFR 52.220 applicable to SCAQMD		2,3		See Table 6 for SCACIMD ARARs. A Community Air Monitoring Plan is included in this RAW.
	National Primary and Secondary Ambient Air Quality Standards (NAAQS) - standards for ambient air quality to protect public health and welfare (including standards for particulate matter and lead).	Contamination of air affecting public health and welfare	40 CFR Sections 50.4 - 50.12		2,3		See Table 6 for SCACIMD ARARs. A Community Air Monitoring Plan is included in this RAW.

APPENDIX F – TABLE 5
Federal Action-Specific ARARs

Alternatives:1 – No Further Action, 2 – On-site Encapsulation, 3 – Excavation and Off-site Disposal							
Action	**Requirement**	**Prerequisite**	**Citation**	**ARAR Determination**			**Comments**
				A	**RA**	**TBC**	
U.S. Department of Transportation, 49 USC 1802, et seq.*							
Hazardous Materials Transportation	No person shall represent that a container or package is sate unless it meets the requirements of 49 USC 1802, of seq. or represent that a hazardous material is present in a package or motor vehicle if it is not.	Interstate carriers transporting hazardous waste and substances by motor vehicle. Transportation of hazardous material under contract with any department of the executive branch of the Federal government.	49 CFR 171.2(f)			3	No hazardous waste is expected to be generated during these activities. Soil will be profiled prior to disposal/treatment.
	No person shall unlawfully alter **or** deface labels, placards or descriptions, packages, containers, or motor vehicles used for transportation of hazardous materials.		49 CFR 171.2(g)			3	No hazardous waste is expected to be generated during these activities. Soil will be profiled prior to disposal/treatment.
Hazardous Materials Marking, Labeling, *and* Placarding	Each person who offers hazardous material for transportation or each carrier that transports it shall mark each package, container, and vehicle In the manner required.	Person who offers hazardous material for transportation; carries hazardous material; or packages, labels, or placards hazardous material.	49 CFR 172.300			3	No hazardous waste is expected to be generated during these activities. Soil will be profiled prior to disposal/treatment.
	Each person offering non bulk hazardous materials for transportation shall mark the proper shipping name and identification number (technical name) and consignee's name and address.		49 CFR 172.301			3	No hazardous waste is expected to be generated during these activities. Soil will be profiled prior to disposal/treatment.
	Hazardous materials for transportation in bulk packages must be labeled with proper identification (ID) number, specified in 49 CFR 172.101 table, with required size of print. Packages must remain marked until cleaned or refilled with material requiring other marking.		49 CFR 172.302			3	No hazardous waste is expected to be generated during these activities. Soil will be profiled prior to disposal/treatment.
	No package marked with a proper shipping name or ID number may be offered for transport or transported unless the package contains the Identified hazardous material or its residue.		49 CFR 172.303			3	No hazardous waste is expected to be generated during these activities. Soil will be profiled prior to disposal/treatment.

APPENDIX F – TABLE 5
Federal Action-Specific ARARs

Alternatives:1 – No Further Action, 2 – On-site Encapsulation, 3 – Excavation and Off-site Disposal							
Action	**Requirement**	**Prerequisite**	**Citation**	**ARAR Determination**			**Comments**
				A	**RA**	**TBC**	
	The markings must be durable, in English, in contrasting colors, unobscured, and away from other markings.		49 CFR 172.304			3	No hazardous waste is expected to be generated during these activities. Soil will be profiled prior to disposal/treatment.
	Labeling of hazardous material packages shall be specified in the list.		49 CFR 172.400			3	No hazardous waste is expected to be generated during these activities. Soil will be profiled prior to disposal/treatment.
	Non-bulk combination packages containing liquid hazardous materials must be packed with closures upward and marked with arrows pointing upward.		49 CFR 172.312			3	No hazardous waste is expected to be generated during these activities. Soil will be profiled prior to disposal/treatment.
	Each bulk packaging **or** transport vehicle containing any quantity of hazardous material must be placarded on each side and each end with the type of placards listed in Tables 1 and 2 of 49 CFR 172.504.		49 CFR 172.504			3	No hazardous waste is expected to be generated during these activities. Soil will be profiled prior to disposal/treatment.

*Statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs. Specific potential ARARs are addressed in the table below each general heading.

A = Applicable
ACLs = Alternate concentration limits.
AFIAR = Applicable or relevant and appropriate requirement
BACT -= Best available control technology
BOAT = Best demonstrated available technologies
CM Clean Air Act
CAMU = Correction action management unit
CCR = California Code of Regulations
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
CWA = Clean Water Act
DOT = U.S. Department of Transportation

EPA -= U.S. Environmental Protection Agency
IAEA = Lowest achievable emission rale
MCLs Maximum contaminant levels
MCLGs = Maximum contaminant level goals
NAAQS = National Ambient Air Quality Standards (primary and secondary)

NCP = National Contingency Plan
NESHAPs = National emissions standards for hazardous air pollutants
NPDES = National Pollutant discharge elimination system
ppm Parts per million
ppmw = Parts per million by weight
RA = Relevant and appropriate
RCRA = Resource Conservation and Recovery Act
RWQCB California Regional Water Quality Control Board, San Diego Region
SCAQMD = South Coast Air Quality Management District
SDWA = Safe Drinking Water Act
SIP = State Implementation Plan
SMCLs = Secondary maximum contaminant levels

SWRCB = California State Water Resources Control Board
TBC = "To Be Considered" Guidance
UIC = Underground Injection control
USDW = Underground source of drinking water

APPENDIX F – TABLE 6
State Action-Specific ARARs

Alternatives: 1 – No Further Action, 2 – On-site Encapsulation, 3 – Excavation and Off-site Disposal							
Action	**Requirement**	**Prerequisite**	**Citation**	**ARAR Determination**			**Comments**
				A	**RA**	**TBC**	
State Water Resources Control Board (SWRCB) and Regional Water Quality Control Board (RWQCB)•							
Discharge affecting water quality	Authorizes the State and Regional Water Boards to establish in Water Quality Control Plans beneficial uses and numerical and narrative standards to protect both surface and groundwater quality. Authorizes regional water boards to issue permits for discharges to and or surface or ground water that could affect water quality, including NPDES permits, and to take enforcement action to protect water quality.	Discharge to waters of the State	California Water Code, Division 7, Sections 13241, 13243, 13263(a), and 13360 (Porter-Cologne Water Quality Control Act) and other provisions of the Porter-Cologne Water Quality Control Act			2	No groundwater impacts have been identified at the site.
Construction activity that results in 1 or more acres of soil disturbance	Requires discharges from construction sites to 1) submit a Notice of Intent to comply with the General Permit, 2) prepare a Storm Water Pollution Prevention Plan, 3) implement Best Management Practices that prevent construction pollutants from contacting storm water and prevent eroded products from moving off site, 4) eliminate or reduce non- storm water discharges, and 5) inspect Best Management Practices to make sure they are in place.	Soil disturbance	State Water Resources Control Board Water Quality Order No. 99-08-DWQ, National Pollutant Discharge Elimination System General Permit No. CAS 000002, Waste Discharge Requirements for Discharges of Storm Water Associated with Construction Activity	2,3			Site is approx. 45 acres. Coverage under the general stormwater permit will be required.
Remediation of a surface impoundment	Authorizes the RWQCB to regulate surface impoundments containing hazardous waste as defined in 22 CCR, prohibits discharges to such surface impoundments unless they meet specified siting and design requirements. Requires compliance with specific investigation, remediation, and reporting requirements.	Surface impoundment containing waste	HSC Section 25208 (Toxic Pits Cleanup Act)			2	No hazardous waste will be encapsulated at the site.
Groundwater monitoring	Monitoring requirements for waste management units; establishes water quality protection standards for corrective action, including concentration limits for constituents of concern at background levels unless infeasible to achieve.	Surface impoundment containing waste	HSC Sections 2550.0(a) and (d), 2550.1(a) and (c), 2550.2, 2550.3, 2550.4, 2550.5, 2550.7(c), 2550.8	2			No groundwater monitoring has been required or is anticipated.

APPENDIX F – TABLE 6
State Action-Specific ARARs

Alternatives: 1 – No Further Action, 2 – On-site Encapsulation, 3 – Excavation and Off-site Disposal							
Action	**Requirement**	**Prerequisite**	**Citation**	**ARAR Determination**			**Comments**
				A	**RA**	**TBC**	
Closure of surface impoundments with waste in place (capping)	Closure requirements for landfills and surface impoundments Include removing tree liquids, computing residual wastes, and covering the waste. The cover should be designed to function with minimum maintenance and prevent ponding. The discharger shall maintain the cover, maintain monitoring systems, prevent erosion, and protect and maintain surveyed monuments.	Surface impoundment containing waste	HSC Sections 2581 and 2682			2	No encapsulation is planned under the selected alternative
Clean closure of surface impoundments (removal of waste)	Clean closure requirements for surface impoundments include removing all free liquid, all residual wastes, and underlying contaminated soil.	Surface impoundment containing waste	HSC 2582(a) and (b)(1)			2	No encapsulation is planned under the selected alternative
California Department of Fish and Game Code*							
Waste discharge affecting ecological receptors	Prohibits taking animals with nets, poison, cage, etc.		Fish and Game Code Section 3005	1, 2, 3		1, 2, 3	No listed species are identified at the site.
Bay Area Air Quality Management District (BAAQMD)							
Discharges to air	Limits the quantity of particulate matter in the atmosphere by controlling emission rates, concentration, visible emission, and opacity.	Visible emission to the atmosphere	BAAQMD Reg 6, Rule 1	2,3			Dust generated during removal actions will be controlled in accordance with community air monitoring plan in the RAW and City grading permit.
Discharges to air	Limits the quantity of particulate matter in the atmosphere by controlling emission rates, concentration, visible emission, and opacity.	Visible emission to the atmosphere	BAAQMD Reg 2, Rule 5			2,3	Dust generated during removal actions will be controlled in accordance with community air monitoring plan in the RAW and City grading permit.
California Air Resources Board (CARB)							
Construction or grading in soil containing asbestos, serpentinite, or ultramafic rock	This regulation sets forth requirements for road construction and maintenance, and for construction and grading operations in soil containing naturally occurring asbestos, serpentinite, or ultramaphic rock.	Soil containing naturally occurring asbestos, serpentinite, or ultramafic rock.	17 CCR § 93105	Not Applicable			A naturally occurring asbestos (NOA) evaluation was conducted for the Site. The evaluation determined that no serpentinite or ultramafic rock formations are located at the Site or in the vicinity of the Site.

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