APPENDIX C3
REMOVAL ACTION WORKPLAN SAMPLE

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PREFACE TO REMOVAL ACTION WORKPLAN SAMPLE

This version of the Removal Action Workplan (RAW) Sample is the result of efforts of the Voluntary Cleanup Program (VCP) and Proven Technologies and Remedies (PT&R) teams. In preparing this RAW Sample, the VCP team had a broader perspective than the PT&R team which focused on the cleanup of metals in soil (for the *PT&R Guidance -- Remediation of Metals in Soil*). As of February 2008, the RAW Sample was the same for both the VCP and PT&R team purposes. The RAW Sample is expected to change in the future as the VCP team continues its efforts to streamline a final version of the document. The VCP team will maintain the master version of the RAW Sample.

When applying the PT&R approach, please contact DTSC staff for the most current version of the master RAW Sample.

The following Sample provides a typical table of contents for a RAW. In general, the RAW should look similar to the outline presented in this Sample. However, this Sample is not intended to be prescriptive and should be adjusted as appropriate for the site-specific conditions. Although the language in this Sample is primarily focused on the soil matrix, it can easily be modified to address other media.

This document is for guidance only, and is applicable on a case-by-case basis. Some elements of this Sample may apply to your site, and others may not. Additional elements than are addressed by this Sample may also be needed.

Instructions for suggested content (denoted by boxed text) are included under most major headings. Some sections provide example text that could be applied to any site. The example text intended for general application is shown as normal text with brackets and underline to indicate locations for inserting site-specific information.

BACKGROUND

A Removal Action Workplan (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, and is appropriate for removal actions that are projected to cost less than $1,000,000. In California HSC 25323.1, RAW is defined as "a workplan 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, which is protective of the public health and safety and the environment."

The RAW is a public document that should be written in a clear and concise manner (avoid using technical language if possible). It presents DTSC/RWQCB preliminary decisions and/or the DTSC/RWQCB (or RP) preliminary recommendations for a site. A RAW must clearly and concisely reflect the removal action decision reached by: identifying the preferred alternative for a removal action and explaining the reasons for the preference; describing the other removal alternatives considered; and soliciting public review and comments on all the alternatives described. The RAW should not

make definitive findings or statements concerning the alternatives that would later be difficult to revise after public comments or additional data are received. The RAW must include a description of onsite contamination; goals to be achieved by the removal action; any alternative removal options considered in an analysis of the alternatives considered evaluated against effectiveness, implementability and cost criteria; the recommended alternative and the reasons for the recommendations; the basis for rejecting other alternatives; a detailed engineering plan for conducting the removal action and an Administrative Record List.

The public is encouraged to submit comments and participate in the remedy selection process. Public participation requirements include preparation of a Community Profile Report, public notice, minimum 30-day public comment period and preparation of a written responsiveness summary. The RAW must comply with applicable requirements of the California Environmental Quality Act (CEQA).

DRAFT FINAL
REMOVAL ACTION WORK PLAN
[PROJECT NAME]
[SITE ADDRESS]

Prepared for:

[PROPONENT NAME]
[PROPONENT ADDRESS]

Prepared by:

[CONSULTANT NAME]
[CONSULTANT ADDRESS]

[Date]

Reviewed by:

[Name]
[Title]
[Geologist/Engineer License Number]

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Instructions: The user has the choice to include the detailed attachments for the following as appendices. Adjust the Table of Contents as needed.

ABBREVIATIONS AND ACRONYMS

AQMD	Air Quality Management District
ARARs	Applicable or Relevant and Appropriate Requirements
bgs	below ground surface
Cal/EPA	California Environmental Protection Agency
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHHSL	California Human Health Screening Level
COC	chemical of concern
COPC	chemical of potential concern
DQO	data quality objective
DTSC	California Department of Toxic Substances Control
EPA	U.S. Environmental Protection Agency
HASP	Health and Safety Plan
HHRA	Human Health Risk Assessment
HSC	California Health and Safety Code
LUC	land use covenant
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mph	miles per hour
msl	mean sea level
NCP	National Oil and Hazardous Substances Pollution Prevention Contingency Plan
ND	Negative Declaration
NEPA	National Environmental Protection Act
OEHHA	Office of Environmental Health Hazard Assessment
OSHA	Occupational Safety and Health Administration
PEA	Preliminary Endangerment Assessment
PPE	personal protective equipment
PRD	Permit Registration Document
PT&R	Proven Technologies and Remedies
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
RA	removal action
RAOs	Removal Action Objectives
RAW	Removal Action Workplan
RCRA	Resource Conservation and Recovery Act
RWQCB	Regional Water Quality Control Board
STLC	soluble threshold limit concentration
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCLP	toxicity characteristic leaching procedure
USA	Underground Service Alert
$\mu g/m^3$	micrograms per cubic meter

EXECUTIVE SUMMARY

Instructions: The Executive Summary should present an overview of the entire workplan. The Executive Summary should be clear and concise, yet contain enough information to give the reviewer a basic understanding of the site, the nature and extent of contamination, potential receptors, and the proposed removal action. Generally, the Executive Summary should be no more than 4 to 5 pages, but should adequately represent the issues at the site. The Executive Summary should briefly summarize the following:

- *Purpose of the RAW;*
- *Site name and location;*
- *Site description (the physical features, buildings, brief site history of ownership and site operations, and include a description of the scope and role of the remediation or operable unit);*
- *Contaminants and chemicals involved within each environmental medium (soil, groundwater, surface water, and air);*
- *Proposed alternative, and the reasons for proposing that alternative;*
- *Other removal alternatives that were considered; and the reasons for rejecting them;*
- *If applicable, indicate that the PT&R process is being used;*
- *Information on how the public can be involved in the remedy selection process.*

1.0 INTRODUCTION

Instructions: Identify the purpose and objectives of the RAW. Describe the RAW process as it will apply to the site. Provide a brief introduction to the site.

A Removal Action Workplan (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, and is appropriate for removal actions that are projected to cost less than $1,000,000. This RAW has been prepared in compliance with the Site [Agreement/Order] Docket No. [Docket #], California Health and Safety Code sections 25323.1 and 25356.1 and the California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control (DTSC) 23 September 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 workplan 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." As mentioned previously, a RAW is appropriate when the estimated cost of the removal action is less than $1,000,000. If the estimated capital cost of implementing the chosen action will exceed $1,000,000, a Remedial Action Plan should be prepared.

The estimated cost of the selected removal alternative recommended in this RAW is estimated to be less than $1,000,000.

1.1.2 Objectives of the RAW

The objectives of this RAW are to:

- Present and evaluate existing site conditions;
- Establish appropriate removal action objectives (RAOs) for protection of human health and the environment; and
- 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 COCs at the Site;
- The goals to be achieved by the removal action;
- An analysis of the alternatives considered and rejected, and the basis for the rejection, including a discussion of effectiveness, implementability, and cost of each alternative;
- A description of the recommended alternative and an implementation plan; and
- An administrative record list (see Appendix [X]).

1.2 SITE DESCRIPTION

Instructions: Basic information about the site and its owners/operators should be provided. The site name should be provided and the site location should be depicted on a site location map. This section should also present information about the physical setting of the site at local as well as regional scales.

The site is located at [address] in [city], California. The property consists of [#] parcels with [County] Assessor's Parcel Number(s) [APN Number(s)]. See Figure [#] for a site location map.

The subject property lies at an elevation of [#] feet above mean sea level (msl) and is generally [Describe the ground surface, e.g., flat]. The slope across the site is generally directed towards the [direction, describe any controlling features]. [Describe onsite structures and features, if the site is occupied or vacant, paved or unpaved, and whether there are access controls] [Describe nearby water bodies.] Figure [#] depicts the site plan.

[Discuss cultural resources, sensitive habitat, if present.]

1.2.1 Land Use

The site occupies approximately [#] acres ([lot dimensions]) of real property. The site is in a [commercial/residential/industrial] area. [Provide general description of nearby landuses and features. Describe site zoning.] Figure [#] depicts the regional site plan.

1.2.2 Historic Uses

[Describe historical uses of property, providing more detailed information on those that may have contributed to the contamination.]

1.2.3 Adjacent Properties

[Describe property uses adjacent to the site and in the general vicinity.]

1.3 SITE OWNER

Instructions: Information on both current and previous owners, if applicable, should be provided in this section.

The site is currently owned by the [entity]. [Entity] has owned the site since [insert date]. Previous owners have included [previous owner name], who owned the site from [insert date] through [insert date].

1.4 PURPOSE

Based on the information developed during the site characterization activities, the DTSC has determined that further action is required for the site due to elevated concentrations of [list contaminants] detected in soil samples collected from the site. Following completion of the public comment period, DTSC will consider and respond to the comments received. 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. When the remedy has been implemented, a removal action completion report will be submitted to DTSC for review and certification.

2.0 SITE CHARACTERIZATION

Instructions: Provide an overview of investigation activities conducted at the site. Describe the site geology and hydrogeology. Clearly describe the nature and extent of contamination and reference supporting figures and tables. Summarize the results of the human health risk assessment.

Characterization of the site was conducted in [timeframe]. A summary of the activities and results are discussed in the sections below.

2.1 SITE CHARACTERIZATION

Instructions: Provide an overview of the activities conducted to characterize the Site. Subsections can be used to describe each investigation, a group of investigations or a summary of all of the investigation activities. If a separate report is not developed for the last sampling event, a separate section should be used to describe the activities in more detail.

2.1.1 Phase I Environmental Site Assessment

[Instructions: Describe the dates for conducting the Phase I Environmental Site Assessment activities conducted and the findings of the assessment. Identify any recognized environmental conditions.]

2.1.2 Preliminary Endangerment Assessment (PEA) [or equivalent documents]

From [month, year] to [month, year], sampling was conducted, including the collection and analysis of soil samples [and list any other investigation activities]. These sampling events are described in the following documents: [list documents or reference a table containing these documents].

Soil samples were collected at [#] locations ([#] samples from [depth range] feet below ground surface (bgs) and [#] samples from [depth range] feet bgs) and selectively analyzed for concentrations of [analytical parameters].

[Describe the sampling results.] [If applicable, describe results from other investigation activities and/or environmental media.]

2.1.3 Other Site Characterization Efforts

[Rationale for other site characterization efforts, e.g., because the human health screening of the PEA indicated that current conditions at the site may pose a threat to the health of a hypothetical resident living at the site], additional site characterization was completed in [timeframe].

Additional soil samples were collected in accordance with the procedures outlined in the [document title and reference]. [Describe results of supplemental sampling.]

2.1.4 Site Geology and Hydrogeology

Instructions: Provide a description of the regional and site-specific geology and hydrogeology. Describe the lithology and geologic formations present. Discuss structural features that might act as preferential pathways and features that may impede the movement of contaminants. Identify the location and thickness of fill areas, the depth to groundwater and groundwater flow direction and rate. If appropriate, geologic cross-sections and maps can be used to illustrate the site geology and hydrogeology. The location of nearby water bodies, wetlands, floodplains, and other hydrologic features should be described. If appropriate describe surface water flow, flood frequency, drainage direction, and topography.

2.1.5 Background Concentrations

Metals occur naturally in soils. EPA (1989) and DTSC (1997) guidance indicates that risk evaluations for metals are only necessary when the levels exceed naturally

occurring background concentrations. To distinguish between site-related contamination and naturally-occurring or ambient contaminant levels, a study was conducted to identify background levels of metals.

Metals in soils at the site that are elevated above naturally occurring background concentrations were identified using [method, e.g., statistical analyses]. The [method] compared metal concentrations in soil at the site to [reference concentrations, e.g., background soil data set]. Background data for [#] metals including [metals], were obtained from soils sampled at [location]. Based on the results of the [method], [#] metals exceeded their background levels. These metals include [metals].

2.2 NATURE AND EXTENT OF CONTAMINATION

Instructions: Describe the conceptual site model (CSM), including the fate and transport of contaminants and the lateral and vertical extent of impacted environmental media. As appropriate, geologic cross-sections and plot plan maps should be used to demonstrate that the extent of contamination has been defined.

The CSM is a summary and evaluation of the site information that will help make decisions regarding the path moving forward. Using all available information, the CSM distills what is already known about the nature and extent of contamination, the media of concern, and the potential receptors/exposure routes. The CSM is used to identify the information needed to achieve project goals. A project's CSM will evolve and mature as project work progresses. The maturity of the CSM reflects both the level of site understanding and the amount of information and complexity of analysis required to support the decisions that need to be made.

For each project, the project team should agree upon the components of a project-specific CSM during the scoping meeting. At a minimum, a project-specific CSM should consist of:

- *Plot Plans and Cross Sections: Figures should present isoconcentration contours lines showing the type, concentration and vertical and lateral extent of contamination in soil (vapor, adsorbed, liquid phases) and groundwater, lines/shading showing locations (plan views) and depths (cross-sections) where contaminants exceed site-specific screening levels for human health and water quality protection.*
- *Proposed Redevelopment Drawings and/or Engineering Plans: Conceptual and technical drawings showing the exact location and dimensions of the proposed buildings and a detailed explanation of the proposed uses.*
- *Data Summary Tables: Tables presenting the analytical methods, detection limits, maximum and minimum concentrations, and frequency of detection for each contaminant, and which contaminants exceed the site-specific screening levels for human health and water quality protection.*
- *Pathway Identification/Evaluation and Cleanup Levels: An exposure pathway flow chart should be developed and agreed upon by the project team. The project team should also agree upon the site-specific cleanup levels, including the use of PRGs, CHHSLs and ESLs.*

Ideally, the CSM should be developed and updated independently of the RAW, and used as a tool throughout the work plan development process. The CSM included in the RAW is a point-in-time reflection of the CSM.

The soil sample collection locations referred to in the following discussion are shown in Figure [#] and the sample results are shown in Table [#]. [Summarize findings of the site investigation.]

Figure [#] shows the lateral extent of [contaminants] in shallow soil. [Use additional figures and/or cross sections to show the lateral and vertical extent of contaminants in deeper soil and in other media such as groundwater, surface water and soil gas.]

2.3 HUMAN HEALTH RISK ASSESSMENT

Instructions: Describe the risk screening/assessment conducted to evaluate potential risks and hazards associated with the chemicals of concern at the site. Identify the chemicals of concern for each environmental media. Identify background concentrations and how they were developed if necessary to help identify chemicals of concern. Discuss the most likely receptors and pathways.

The risk assessment [(Reference)] evaluated the potential for human health impacts from chemicals released due to past activities at the Site. Potential human health risks associated with current and future exposures to contaminated environmental media were considered. The results of this assessment along with an assessment of the potential for the contaminated environmental media to impact environmental receptors, if applicable, were used to provide a basis for requiring further action at the site. [Describe how the risk screening or risk assessment was conducted (e.g., comparison to screening levels or reference document containing the evaluation).]

2.3.1 Identification of Chemicals of Concern

Instructions: Describe the selection process for chemicals of concern and identify the chemicals of concern for each environmental media at the Site. The conceptual site model would need to address whether contamination could present a migration risk to groundwater.

Based upon the site characterization conducted, the following contaminants were identified as COPCs: [list contaminants]. For risk assessment purposes, chemicals in soil were grouped according to depth below ground surface: surface soil ([#] to [#] feet bgs), subsurface soil ([#] to [#] feet bgs), and soils below 10 feet bgs. Under certain exposure scenarios, it was assumed that human receptors might come into direct contact with chemicals in the surface and subsurface soils up to a depth of [#] feet bgs. Chemicals detected below 10 feet were not evaluated for direct human exposure under normal conditions assuming that deep structures (for example, underground parking facilities) are not planned for the property.

2.3.2 Exposure Assessment

Instructions: Describe receptors and pathways associated with each impacted environmental media and COPC. State assumptions of risk assessment.

2.3.3 Risk Evaluation

Instructions: Discuss the overall risk estimate and hazard index for each receptor. If lead is a chemical of concern, describe whether the blood-lead level is above acceptable levels. Reference a table presenting the cancer risks and non-cancer hazard indices.

Based on current site environmental conditions, the total excess cancer risk of [#] was [greater than or less than] the de minimis level of 1 in a million excess cancer risks for [receptor]. The hazard quotient was [greater than or less than] 1 for [receptor] and the blood-lead level was [#] which is [above/below] the acceptable blood lead level of 10 µg/dL for [receptor].

Based upon the projected future use of the site for [land use] uses, the total excess cancer risk of [#] was [greater than or less than] the de minimis level of 1 in a million excess cancer risks for [receptor]. The majority of this risk is attributable to [chemicals of concern] by the [exposure pathway(s)]. The highest [chemical of concern] concentration(s) are found at [location]. The hazard quotient was [greater than or less than] 1 for [receptor] and the blood-lead level was [#] which is [above/below] the acceptable blood lead level of 10 µg/dL for [receptor].

Therefore, the following COCs are found above acceptable levels at the Site and must be addressed: [COCs].

3.0 REMOVAL ACTION GOALS AND OBJECTIVES

Instructions: Identify the site-specific RAOs. Describe the removal goals. Identify the area where a removal action is required. Identify applicable or relevant and appropriate requirements (ARARs).

Site characterization has revealed the presence of chemicals of potential concern in [environmental media] at the site. Removal Action Objectives (RAOs) have been developed based upon the current environmental conditions and reasonably anticipated future uses of the site.

Based on the RAOs, removal goals were developed that establish specific concentrations of chemicals in soil that are protective of both human health and the environment. Specific removal goals have been developed for the site from: (1)

information obtained during removal investigations at the site; and (2) risk management decisions based upon the current and proposed future use of the site. Information used to develop these removal goals included laboratory analytical results, hydrogeologic data, soil leaching analysis, and a site-specific risk evaluation, as applicable.

In addition, 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. A summary of the potentially applicable ARARs and TBCs is presented on Table [#].

Discussions of regulatory requirements, an assessment of human health risks, and the removal goals developed for the site are presented below.

3.1 REMOVAL ACTION OBJECTIVES

Instructions: Identify the site-specific RAOs. Examples of RAOs include:

- *Minimize or eliminate potential exposure of humans ([receptors]) to [COCs] in [environmental media] through [direct contact, ingestion and inhalation].*
- *Reduce the human health-based risks associated with onsite [COCs] contamination in soil to a level that is acceptable for [land use] land use.*
- *Provide for a Site that can be redeveloped for [unrestricted, residential, commercial or industrial] uses within [X] months.]*
- *Minimize the potential for chemicals of concern in soil to impact groundwater.*

Removal action objectives (RAOs) have been established that are protective of human health and the environment and reduce the potential for exposure to the COCs in media encountered at the Site. These RAOs are presented below.

- [Remove/contain] impacted media that:

  (1) exceed the following human health risk criteria, to prevent exposure to the excessive COCs (Select all that are applicable):

  _____ California Human Health Screening Level (CHHSL) of [#] for [COC] in [residential, commercial] soils, established by the Office of Environmental Health Hazard Assessment (OEHHA).

  _____ cancer risk criteria of [#].
  [If multiple COCs are carcinogens, adjustments to the final cleanup goals may be necessary. Contact DTSC.].

  _____ the non-cancer hazard index of [#].
  [If multiple COCs are non-carcinogens, adjustments to the final cleanup goals may be necessary. Contact DTSC.].

_____ the California hazardous waste classification concentration of [#] for [chemical of concern].

_____ [Type in site-specific situations].

(2) exceed the following environmental risk criteria (Select all that are applicable):

_____ the screening level of [#] for [chemical of concern] in [media] contained in the Water Board Basin Plan.

_____ the Soil Screening Level of [#] established by USEPA Region 9 for [parameter] in [media].

_____ the California hazardous waste classification concentration of [#] for [parameter] (e.g., 5 milligrams per liter (mg/L) for soluble lead) in [media].

_____ [Type in site-specific situations].

- [List other applicable RAOs].

The removal goals developed and adopted for contaminated media at the Site will be responsive to these RAOs.

3.2 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Instructions: Identify and discuss the ARARs applicable to the Site. A table can be used to present this information. Example table includes some, but not all ARARs that may be applicable or relevant and appropriate to your project. This information can also be presented as an Appendix to the RAW.

Applicable or relevant and appropriate requirements or ARARs are federal and state environmental statutes, regulations, and standards. Applicable requirements are federal or state laws or regulations that specifically address a hazardous substance, pollutant, contaminant, removal action, or location. Relevant and appropriate requirements that, while not "applicable," address problems or situations sufficiently similar to those encountered that their use is well suited to the particular site. State requirements are ARARs only if they are more stringent than federal requirements.

In addition to ARARs, this analysis includes an evaluation of To-Be-Considered criteria ("TBCs"). TBCs are advisories, criteria, or guidance that may be considered for a particular action or specific issue, as appropriate. TBCs are not ARARs because they are neither promulgated nor enforceable.

The ARARs or TBCs may be: 1) chemical; 2) location; or 3) activity specific. Chemical-specific ARARs or TBCs are usually health- or risk-based numerical values or methodologies used to determine acceptable concentrations of chemicals that may be found in, or discharged to, the environment. Location-specific ARARs or TBCs restrict actions or contaminant concentrations in certain environmentally sensitive areas.

Examples of areas regulated under various federal laws include locations where endangered species or historically significant resources are present.
Action-specific ARARs or TBCs are usually technology- or activity-based requirements or limitations on actions or conditions involving specific chemicals of concern. See Table [X] for a listing of ARARs and TBCs or see discussion below [or in the Appendix, as applicable].

Table [X]

Summary of ARARs and TBCs

Requirement	Description	ARAR or TBC
Resource Conservation and Recovery Act, as amended by the Hazardous and Solid Waste Amendments (40 CFR 260 to 299, 42 USC 7401-7642)	Federal act that classifies and regulates hazardous waste and facilities that treat, store and dispose of hazardous waste.	Applicable for determining whether environmental media impacted by COCs is a hazardous waste. May be applicable or relevant and appropriate depending upon the response action being considered.
• 40 CFR 264.110 and 264.117	Requirements for closing and monitoring hazardous waste management units.	
• 40 CFR 264.250 and 42 USC 6924	Requirements that prohibits placement of certain hazardous wastes in a land disposal unit.	
• 40 CFR 263	Standards applicable to transporters of hazardous waste.	
Clean Water Act (CWA) (33 USCA 125-1-1376 and 40 CFR 100-149.	Federal act that establishes a system of national effluent discharge standards and ocean discharge requirements.	
• CWA, Section 304	Establishes water quality criteria based on the designated or potential use of the water and designated use of the receiving waters.	
• CWA, Section 404	Prohibits discharge of dredged or fill material into wetlands without a permit. US Army Corps of Engineers regulates activities that may physically alter the waters of the United State.	
Safe Drinking Water Act	Establishes primary and secondary drinking water standards.	
Clean Air Act (42 USC 7401-7642, 40 CFR 50 – 69)	Identifies categories of industrial sources and treatment standards. Establishes primary and secondary ambient air standards. States develop implementation plans for attainment of the standards.	May be applicable or relevant and appropriate depending upon the response action being considered. Impacts to air quality, if any, under local air district jurisdiction may result from the implementation of some of the removal actions.

Table [X] (Continued)

Requirement	Description	ARAR or TBC
Occupational Safety and Health Act (29 CFR 1910.120 et seq.)	Identifies permissible exposure limits (PELs) for inhalation or dermal exposure of workers to chemicals. When PELs are exceeded, OSHA requires the use of personal protective equipment or other methods to block exposure.	
National Historic Preservation Act of 1966 (NHPA) 16 USC 470 and 36 CFR 800	Established to preserve historic properties	
Endangered Species Act of 1973	Established to conserve endangered or threatened species	
Hazardous Waste Control Act (HSC, Chapter 6.5, section 25100 et seq., 22 CCR 66260.1 et seq.)	Establishes criteria for determining waste classification for the purposes of transportation and land disposal of wastes in California. Regulates treatment, storage, transportation and disposal of substances identified as hazardous.	
• Hazardous Waste Generator Requirements (22 CCR 66262.1 et seq.)	Establishes standards applicable to generators of hazardous waste.	
• Land Disposal Restrictions (22 CCR 66268.7 et seq.)	Establishes standards for treatment and land disposal of hazardous waste.	
• Stockpiling Requirements for Contaminated Soil (HSC section 25123.3(a)(2)	Establishes standards for stockpiling of non-RCRA contaminated soil	
California Hazardous Substances Account Act (HSC section 25340-25392)	Establishes fees regarding disposal of hazardous substances and outlines process for cleanup of hazardous substance release sites.	
Porter Cologne Water Quality Act (23 CCR Chapter 3, Subchapter 15, WC section 13000 et seq.)	Establishes the authority of the State Water Resources Control Board and Regional Water Quality Control Boards to protect water quality by identifying beneficial uses of the waters of the State, establishing water quality objectives, and regulating discharges to waters of the state.	
• Regional Water Quality Control Board Basin Plan	Adopts narrative standards and permissible concentrations of organic and inorganic chemicals for surface water, groundwater, point sources and non-point sources. Establishes beneficial uses of surface waters and groundwater.	

Table [X] (Continued)

Requirement	Description	ARAR or TBC
• NPDES Permit	The State Water Resources Control Board (SWRCB), as part of the National Pollutant Discharge Elimination System (NPDES), has adopted a statewide NPDES General Permit for Stormwater Discharges Associated with Construction Activity (General Permit) to address discharges of storm water runoff from construction projects that encompass one acre or more in total acreage of soil disturbances.	This would be applicable for construction activities, including demolition, clearing, grading, excavation, soil stockpiling, material storing, onsite staging, offsite staging, and other land disturbance activities.
Hazardous Waste Haulers Act (22 CCR Chapter 30)	Governs transportation of hazardous materials in California.	
Safe Drinking Water and Toxic Enforcement Act (Proposition 65) (22 CCR section 12000 et seq.)	Requires public warnings of potential exposure to suspected carcinogens and reproductive toxins.	
California Occupational Health and Safety (8 CCR 5192)	Requires workers involved in hazardous substance operations associated with cleanup of sites perform the cleanup operations in accordance with Cal OSHA health and safety requirements.	Applicable requirement for all workers who can come into contact with contaminated media at the Site
California Fish and Game Code (sections 1601-1607 and 5650)	Regulates activities that involve construction within stream channels to assure protection of fish and wildlife. Prohibits discharges to waters of the State that may cause adverse effects to fish, plant or bird life.	
[Add in additional state requirements]		
Local noise ordinance	Limits the amount of noise generated during certain times of day.	

3.3 REMOVAL GOALS

Identify and discuss the cleanup goal established for each chemical of concern in each impacted environmental medium at the Site.

Risk-based cleanup levels were selected for the Site based upon the California Human Health Screening Levels (CHHSLs) and background concentrations. The cleanup goal for [COC] is a [maximum concentration, average concentration] of [#] mg/kg.

4.0 ALTERNATIVE EVALUATION

Instructions: Describe the process of identifying and screening the removal action alternatives. Identify the removal action alternatives. Summarize the individual analysis of each alternative. Present comparative analysis of the alternatives. Identify the recommended removal alternative.

This RAW Sample presents three commonly evaluated alternatives. Site-specific contaminants and media of concern will dictate the need for evaluation of additional and/or different alternatives. Any alternative being considered for the site should follow the analysis process outlined in this section.

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 [chemicals of concern] in [environmental media] include [list general technologies, e.g., excavation and offsite disposal, excavation and onsite containment, capping in-place, institutional controls]. These response actions have been assembled into candidate removal alternatives for the site. Screening of several technology types using the above criteria was conducted to select removal actions for further evaluation. Based on this screening, the [insert number of alternatives being considered] removal actions identified and developed are:

- Alternative 1 – no further action
- Alternative 2 – containment/capping-in-place
- Alternative 3 – excavation/off-site disposal

[If applicable, list additional alternatives that were considered and carry through the remainder of Section 4.0.]

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 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 – Soil Containment/Capping-in-Place

This alternative would consist of capping the surface of the impacted areas with [describe cap (e.g., a two-foot engineered soil cover, asphalt or asphalt/concrete pavement]. The cap would be used to minimize the potential to come into contact with the contaminated soil. To achieve the RAOs, it has been determined that soil at [locations] requires capping (see Figure [X]). If capping is selected, a total of [#] acres of affected soil will need to be covered. A land use restriction will be executed between DTSC and the property owner and recorded to ensure that the cap is operated and maintained and that future uses of the property are consistent with the operation and maintenance of the cap. An operation and maintenance plan will 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 – Soil 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. Excavation operations will generate dust emissions. Suppressant, water spray, and other forms of dust control may be required during excavation, and workers may be required to use personal protective equipment to reduce exposure to COPCs. Sloping excavation sidewalls may result in increased volume of soil requiring excavation. Confirmation soil sampling and analysis would be conducted to verify that cleanup criteria were met at the excavation bottom and perimeter. Excavation will require soil stockpiling, prior to disposal. To achieve the RAOs, soil at [location(s)] within the site requires removal to depths ranging up to [#] feet (see Figure [#]. The volume of soil removed would be between [range] cubic yards ([range] tons). [If cleanup to unrestricted land use standards is not achieved by this alternative, a land use covenant must be proposed as part of the alternative and the specific restrictions described. For example, to ensure that the property is not developed for sensitive land uses such as residential, schools, day care centers, hospitals, parks.] [Also need to consider whether an operation and maintenance plan and agreement are required. If they are necessary, this should be discussed in the description of the alternative.]

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 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 alternative to comply with ARARs and TBCs.
- *Short-Term Effectiveness* - This criterion evaluates the effects of the removal alternative during the construction and implementation phase until removal 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 removal 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 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 [COPCs] 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 – Soil Containment/Capping-in-Place

Effectiveness
The containment/capping-in-place alternative would involve little to no disturbance of the impacted soil. Therefore, there would be very little exposure to the COPC and the short-term risks would be low. The installation of a surface cap would require long-term inspection and maintenance to meet ARARs and provide long-term effectiveness.

Periodic inspections would be required for settlement, cracking, ponding of liquids, erosion, and naturally occurring invasion by deep-rooted vegetation. Additionally, precautions would have to be taken to ensure that the integrity of the cap is not compromised by land use activities.

Containment through surface capping would not lessen toxicity or volume of the COPC, but would limit mobility, specifically the prevention of surface water infiltration and thus, the potential downward migration of contaminants.

Implementability
Containment is a relatively simple technology that is easily implemented and can be quickly installed. As [COPC] would remain on site, obtaining permits and regulatory approval can be difficult. In addition, community acceptance for this alternative may be more difficult since the COPC would remain on site.

Cost
Containment technologies typically involve low to moderate costs. Industry costs are approximately $[#] per acre for [cap type], and approximately $[#] per acre for [cap type].

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 mitigated using personal protective equipment for on-site workers and engineering controls, such as dust suppression and additional traffic and equipment operating safety procedures, for protection of the surrounding community and to meet all ARARs. Excavation and disposal would remove the COPCs from the site, and therefore, eliminates the long-term risks and accomplishes the RAOs.

Although the COPC will be removed from the site, excavation and off-site land disposal does not result in the reduction of toxicity or volume of the COPC. By placing the impacted soil in an engineered landfill suitable for receiving the concentrations of [COPCs], the mobility of the COPC will be reduced.

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.

Cost
The estimated cost for excavation, transportation, and disposal of the impacted soils is approximately [#] per ton. This estimate includes permitting, excavation/removal, transportation, and disposal at an approved off-site disposal facility.

4.4 COMPARATIVE ANALYSIS OF REMOVAL ACTION ALTERNATIVES

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

4.4.1 Effectiveness

Under the no further action alternative, the impacts associated with the site-specific COPC would not be addressed. Consequently, there would be no reduction in the potential risks and the RAOs would not be achieved. The no further action and containment/capping-in-place alternatives do 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. The excavation/off-site disposal alternative will 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.

The containment/capping-in-place and excavation/off-site disposal alternatives reduce or eliminate, respectively, potential exposure to COPCs, and therefore, accomplish the RAOs. Once implemented, the containment/capping-in-place alternative 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 would remove the COPC from the site, and would not require any further management or site controls.

Based upon this evaluation, Alternative [X] is favored is favored under this criterion.

4.4.2 Implementability

No measures would be implemented for the no further action alternative. The containment/capping-in-place and excavation/off-site disposal alternatives are both well-proven, readily implementable technologies. However, only Alternative [X] would be accepted by both the State and the community. Accordingly, Alternative [X] is favored by this criterion.

4.4.3 Cost Effectiveness

A summary of estimated costs to implement the proposed alternatives is presented in Table [#]. Costs are based on containment/capping-in-place of [#] acres of soil or excavation/off-site disposal of [#] cubic yards ([#] tons) of soil.

Table [#] Estimated Costs for Removal Alternatives

SUMMARY OF ESTIMATED COSTS			
Costs	**Removal Action Alternative**		
	Alternative 1 No Further Action	**Alternative 2 Containment**	**Alternative 3 Excavation and Disposal**
Direct Capital Costs			
Equipment Costs			
Material Costs			
Disposal &Transport Costs			
Backfill & Compaction Costs			
Indirect Capital Costs			
Engineering and Design Expenses			
License and Permit Costs			
Annual Post Removal Action Site Control Costs			
Operational Costs			
Maintenance Costs			
Auxiliary Materials			
Total			

4.5 RECOMMENDED REMOVAL ACTION ALTERNATIVE

Based on the comparative analysis described in Section 4.4, Alternative [#] ([description]) is the preferred and recommended removal action alternative for addressing the site. This alternative was selected because [rationale].

5.0 REMOVAL ACTION IMPLEMENTATION

Instructions: Identify the steps in the removal action and describe the key elements for each step. The following example language is biased toward the excavation/off-site disposal alternative. Analogous sections and content should be included for other alternatives.

Implementation of the removal action consists of a series of separate tasks. The following sections discuss each task and the activities of which they consist: selecting excavation locations (Section 5.1); permits, notifications and site preparation (Section 5.2); excavation methodology (Section 5.3); control measures (Section 5.4); air monitoring during excavation (Section 5.5); and field variances (Section 5.6).

5.1 SELECTING EXCAVATION LOCATIONS

Instructions: Discuss the excavation locations and depth intervals. Provide tables and figures summarizing the excavation locations and depths and the chemical of concern driving the excavation.

5.2 PERMITTING AND SITE PREPARATION

Instructions: Discuss site preparation activities, such as clearing and grubbing, pavement removal, demolition activities, etc. Indicate how utilities will be cleared. If available, provide a figure showing locations. Discuss the applicable agencies and notification and/or permits that will need to be made or obtained, respectively, prior to the initiation of any field activities.

5.3 EXCAVATION METHODOLOGY

Instructions: Describe how the excavation will proceed, including pit dimensions, shoring, timing of excavation floor and sidewall sampling, and decision criteria for stopping or continuing the excavation. Describe how soil will be managed on-site and profiled. Reference the Sampling and Analysis Plan. Describe how and where the soil will be transported for disposal. Describe backfill source, backfill activities, grading, and site restoration. Describe timeframe for work activities (e.g., weekdays, hours of operation).

5.4 CONTROL MEASURES

Instructions: Describe site control measures, e.g., dust control, fencing, erosion, stormwater, traffic.

5.5 AIR MONITORING DURING EXCAVATION

Instructions: Describe the site air monitoring strategy, e.g., volatile constituents, fugitive dust, perimeter monitoring.

Air and meteorological monitoring strategies and methodologies will be implemented during the removal action to achieve several goals:

- Identify and measure the air contaminants generated during the soil removal and decontamination activities to assign the appropriate personal protective equipment and safety measures specified for those activities.
- Provide feedback to site personnel regarding potential hazards from exposure to hazardous air contaminants generated through excavation activities.
- Identify and measure air contaminants at points outside of the soil removal and decontamination exclusion zones. Air monitoring will be conducted during work activities to measure potential exposure of sensitive receptors to site COPCs, as a result of removal activities and to monitor the dust control measures implemented.

5.6 FIELD VARIANCES

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

6.0 SAMPLING AND ANALYSIS PLAN

Instructions: Identify the sampling and analysis plan that will be used during the removal action, as well as the support QA/QC protocols and QAPP. The following sample language is biased toward the excavation/off-site disposal removal alternative. Analogous content should be provided for other alternatives, if collection and analysis of samples is a part of the recommended removal action.

The proposed removal action will require the collection and analysis of samples to confirm the removal of impacted media to determine the proper waste classification of excavated soils for disposal purposes. All sampling will be conducted in general accordance with the applicable field procedures (Appendix [#]), QA/QC protocols, and QAPP presented in this RAW prepared for the site. In the following sections, confirmation sampling and waste disposal classification sampling are discussed.

6.1 CONFIRMATION SAMPLING OF EXCAVATED AREAS

Instructions: Describe how the excavation will proceed, including pit dimensions and target depths, number and location of excavation floor and sidewall sampling, analyses to be conducted on confirmation samples, how data will be evaluated, criteria for further excavation or step-out sampling. Reference the Confirmation Sampling and Analysis Plan.

6.2 WASTE DISPOSAL CLASSIFICATION SAMPLING

Instructions: Describe how soils will be managed on-site and profiled. Discuss the specific analytical methods to be used for profiling and the number of profile samples to be collected. Discuss anticipated waste classification for the excavated soil.

7.0 TRANSPORTATION PLAN

Instructions: Include this section if excavated soil is to be transported. Describe the transportation plan for the removal action. For the excavation/off-site disposal option, describe the anticipated waste classification for the soil, the potential disposal facilities, the transportation type, transportation routes, site traffic control, and associated record keeping.

7.1 CHARACTERISTIC AND DESTINATION OF SOIL TO BE TRANSPORTED

Elevated levels of [metal], up to [#] mg/kg of total [metal] and [#] mg/L of soluble [metal], were detected in the site soil. The Total Threshold Limit Concentration (TTLC) for hazardous waste classification is [#] mg/kg for [metal]. The Soluble Threshold Limit Concentration (STLC) for hazardous waste classification is [#] mg/L for soluble [metal]. The Toxicity Characteristic Leaching Procedure (TCLP) limit for classifying [metal]-impacted soil as a hazardous waste under the Resource Conservation and Recovery Act of 1976 (and as amended) is [#] mg/L. As a result, any mixture of [metal]-impacted soils removed from the site is expected to be handled as a [RCRA/non-RCRA] hazardous waste.

As a hazardous waste generator, [name] will secure an EPA Identification Number from DTSC for proper management of the hazardous waste. Compliance with the DTSC requirements of hazardous waste generation, temporary onsite storage, transportation and disposal is required. Any container used for onsite storage will be properly labeled with a hazardous waste label. Within 90 days after its generation, the hazardous waste will be transported offsite for disposal. 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.

Soils classified as [type] waste will probably be transported to [location] or to [location] for disposal. These disposal facilities are licensed [type] landfills and are located at the following addresses:

[Facility Name and EPA ID Number]
[Address]
[City, State, Zip code]
[Phone]
[Contact Person]

[Facility Name and EPA ID Number]
[Address]
[City, State, Zip code]
[Phone]
[Contact Person]

Soils classified as [type] will probably be transported to the following facility:

[Facility Name and EPA ID Number]
[Address]
[City, State, Zip code]
[Phone]
[Contact Person]

[Continue, as needed for each waste anticipated.]

7.2 TRUCK TRANSPORTATION

Approximately [#] tons of soil will be removed from the site. Assuming each truck carries [#] tons, up to [#] 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. Below is a summary of the truck route from the site to the disposal facilities listed above:

[Facility Name 1]
This truck route is illustrated in Figure [#]. [Describe truck route.]

[Facility Name 2]
This truck route is illustrated in Figure [#]. [Describe truck route.]

[Indicate whether alternate routes are an option and how an alternate route would be chosen. Discuss truck transportation days and hours.]

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 and the cellular phone number for the site manager. It will be the responsibility of the site manager to notify DTSC and [entity] 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.

7.3 SITE TRAFFIC CONTROL

During soil transport activities, trucks will enter the site through [location] located on [street name]. A flag person will be located at the site to assist the truck drivers to safely drive onto 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.

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 so as 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 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 on [street name].

7.4 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.

Because some portion of the excavated soil likely will be profiled 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 disposition. 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 [entity] 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.

8.0 HEALTH AND SAFETY PLAN

Instructions: Identify the standards that will be used to develop the plan and key elements to be included in the plan.

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

In addition, California OSHA's Construction Safety Orders (especially Cal. Code Regs., tit. 8, sections 1539 and 1541) will be followed as appropriate. Specific requirements are identified below:

- [list all appropriate or applicable requirements.]

A site-specific HASP will be prepared for the Site in accordance with current health and safety standards as specified by the federal and California OSHAs and submitted to DTSC prior to initiation of field work.

The provisions of the HASP are mandatory for all personnel of the PP and its contractors who are at the Site. The PP's contractor and its subcontractors doing fieldwork in association with this RAW will either adopt and abide by the HASP or shall develop their own safety plans which, at a minimum, meet the requirements of the HASP. All onsite personnel shall read the HASP and sign the "Plan Acceptance Form" (Attachment A of the HASP) before starting Site activities.

9.0 PUBLIC PARTICIPATION

Instructions: Identify the public participation requirements for the RAW process. Discuss the status of the process and the remaining steps of the process. Generally, the RAW process includes conducting a baseline community survey, development of a community profile, public notice of the public comment period, and a fact sheet describing the proposed remedy selection and the availability of the draft RAW for public comment. During the draft RAW public comment period, which is generally 30-days (but can be modified based on project specific needs), the public is directed to the DTSC office, EnviroStor, and other repositories to conduct their review. The project team may make the decision to hold a Public Meeting during the 30 day public comment period. All comments received during the public comment period will be responded to in writing and distributed to everyone who submits a comment.

All of the applicable activities described in the preceding paragraph should be summarized in this section, and the associated documents such as the survey, profile and fact sheet can be included as an appendix.

In addition, to the activities that have been completed, this section should also provide information on how public comments will be addressed, for example in a Responsiveness Summary issued upon approval of the draft RAW.

The public participation requirements for the RAW process include: (1) the development of a community profile, (2) publishing a notice of the availability of the Removal Action Workplan for public review and comment, (3) making the RAW and other supporting documents available at DTSC's office and in the local information repository, and (4) responding to public comments received on the Removal Action Workplan 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 also 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.

Once the public comment period is completed, DTSC will review and respond to the comments received. The RAW will be revised, as necessary, to address the comments received. If significant changes to the RAW are required, the RAW will be revised and be resubmitted for public review and comment. If significant changes are not required to the RAW, the RAW will be modified and DTSC will approved the modified RAW for implementation.

10.0 CEQA DOCUMENTATION

Instructions: Describe the DTSC's CEQA role, i.e., Lead Agency or Responsible Agency. Describe the documents that were prepared or reviewed to ensure CEQA compliance, and the status of the documents, i.e., approved and final, under review concurrent with the RAW, etc.. Attach copies of CEQA documents and/or approval notices, if applicable, as an Appendix to the RAW.

The California Environmental Quality Act (CEQA), 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 ensure comprehensive environmental review of cumulative impacts prior to project approval. It has no agency enforcement tool, but allows challenge in courts.

A CEQA project is a project that 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 projects proposed to be carried out or approved by California public agencies, unless an exemption applies

In accordance with CEQA, the DTSC has prepared [or reviewed, if DTSC has Responsible Agency status an [Insert CEQA Document title and Lead Agency name, if prepared by another Agency] to ensure that CEQA requirements have been satisfied.

11.0 REFERENCES

Instructions: Provide complete citations for all site-related documents and references cited in the RAW.