RESPONSE PLAN

•DRAFT FINAL•

Former Southland Steel Facility
5959, 5969, 6011, 6161, & 6169 Alameda Street
Huntington Park, CA 90255

Prepared for:
Successor Agency to the
Community Development Commission
of the City of Huntington Park
Huntington Park, California

Prepared by:
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Environmental Excellence

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ABBREVIATIONS, ACRONYMS, & SYMBOLS

°C	degrees Celsius
°F	degrees Fahrenheit
µg/kg	micrograms per kilogram
AET	Applied Environmental Technologies, Inc.
AETL	American Environmental Testing Laboratory, Inc.
APEI	All Phase Environmental, Inc.
All Phase	All Phase Environmental, Inc.
APN	Assessor Parcel Number
AQMD	Air Quality Management District
Assessco	Assessco, Inc.
BaP	benzo(a)pyrene
bgs	below ground surface
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CLRRA	California Land Reuse and Revitalization Act
COC	contaminant of concern
CSM	Conceptual Site Model
CY	Central Yard
dBA	decibels on an A-rated scale
DDD	dichlorodiphenyl-dichloroethane
DDE	dichlorodiphenyl-dichloroethylene
DDT	dichlorodiphenyl-trichloroethane
DHS	Department of Health Services
DTSC	Department of Toxic Substances Control
EPA	Environmental Protection Agency
HHSE	Human Health Screening Evaluation
HHRA	Human Health Risk Assessment
HI	Hazard Index
HSC	California Health and Safety Code
ILCR	Incremental Lifetime Cancer Risk
kPa	kiloPascal
LAUSD	Los Angeles Unified School District
Lufkin	Lufkin Foundry
LUC	Land Use Covenant
mg/kg	milligrams per kilogram
MiniRAE	RAE Systems, Inc.
msl	mean sea level
NY	Northern Yard
OSHA	Occupational Safety and Health Administration
Pacific Edge	Pacific Edge Engineering, Inc.
PAH	polynuclear aromatic hydrocarbon

PCB	polychlorinated biphenyl
PCE	tetrachloroethylene
PEL	permissible exposure level
PID	photoionization detector
ppm	parts per million
ppmv	parts per million by volume
RAO	removal action objective
RAP	Removal Action Plan
RAW	Removal Action Workplan
Rawlins	Rawlins Bros. Steel Supplies
RBSL	Risk-Based Screening Level
ResPlan	Response Plan
RSL	Regional Screening Level
SCAQMD	South Coast Air Quality Management District
SCR	Site Characterization Report
SSI	Supplemental Site Investigation
SVRBC	Soil Vapor Risk-Based Screening Levels
SVOC	semi-volatile organic compound
SY	Southern Yard
ta adj	adjusted air temperature
TCE	trichloroethylene
TPH	total petroleum hydrocarbons
tsf	tons per square foot
TWA	time-weighted average
USGS	United States Geological Survey
UST	underground storage tank
VOC	volatile organic compound
WB1	warehouse building #1
WB2	warehouse building #2
WB3	warehouse building #3
WRD	Water Replenishment District

EXECUTIVE SUMMARY

This Response Plan (ResPlan) is a draft final document, which addresses all site media at the Former Southland Steel Facility in Huntington Park, CA 90255. The ResPlan describes shallow soil, soil vapor, and groundwater conditions based on site investigation results presented in the Site Characterization Report (SCR) dated July 20, 2011. This ResPlan is prepared and is being submitted to the Department of Toxic Substances Control (DTSC) for review and approval under the Agreement pursuant to the California Land Reuse and Revitalization Act (CLRRA) between the Community Development Commission of the City of Huntington Park (Commission) and DTSC. Initially a removal action workplan (RAW) was prepared on May 4, 2012 addressing the removal of the shallow surface soil. That RAW was approved by DTSC on July 5, 2012 but not implemented because of the Successor Agency's funding constraints.

Site Description

The subject site covering an area of roughly 4.8 acres is located on Alameda Street, south of Randolph Street, in the community of Huntington Park, California. The parcels investigated consist of the former Southland Steel facility and include all of the property between the railroad spur from Randolph Street and Alameda Street to the east. The property consists of four parcels:

- 5959 South Alameda – APN 6009-034-901 (approx. 0.12 acre)
- 5969 South Alameda – APN 6009-034-900 (approx. 0.81 acre)
- 6011 South Alameda – APN 6009-033-901 (approx. 2.51 acres)
- 6169 South Alameda – APN 6009-033-900 (approx. 1.39 acres)

Prior Use and Ownership of Site

The site has been used for industrial purposes since 1923 as follows:

- From 1923 to 1947 by American Agricultural Chemical Company
- From 1947 to 1971 by Rawlings / Luftkin Foundry as a manufacturing/warehouse
- From 1972 to 2002 by Southland Steel
- From 2002 to 2005 by Fallon Family Trust

Site Ownership

The site was bought by the Community Development Commission of the City of Huntington Park in 2005, and is currently owned by the Successor Agency to the City of Huntington Park Community Development Commission (hereafter Successor Agency). The property has been vacant or used for car parking since 2005.

Site Investigations

Site investigations have been performed at the site since 2004 under the oversight of DTSC. The soil, soil vapor, and groundwater have been investigated in phases and the site has been characterized. Assessment and investigation results have been presented as follows:

- Phase I Environmental Site Assessments (ESAs): Three ESAs have been prepared:
  1. ESA, prepared by Applied Environmental Technologies, Inc. (AET), dated July 2, 1999
  2. ESA update, prepared by AET, dated September 10, 2004
  3. ESA, prepared by Assessco, Inc., dated October 1, 2004.
- Soil sampling and analysis performed by All Phase Environmental, Inc. (All Phase) presented in a report dated December 23, 2004
- Soil vapor survey and additional site characterization by All Phase Environmental, Inc. presented in a report dated February 24, 2005
- Removal of a 1,000-gallon underground storage tank used for gasoline/waste oil in 2007. This work was done by All Phase and presented in a report dated September 11, 2007.
- Supplemental site investigations performed and reported by Pacific Edge Engineering, Inc., (Pacific Edge) in 2007, 2008, and 2009.

Eco & Associates, Inc. compiled the results of all of the soil, soil vapor, and groundwater investigations and presented them in a Site Characterization Report, dated July 10, 2011.

Identified Site Conditions

Based on the results of site investigations, the following conditions were identified:

1. VOCs in the soil appear present in the Warehouse Building 2 (WB2) area around its mid-area. Other relatively high concentrations of VOCs are located near the railroad line along the western site boundary. The most prevalent compound was tetrachloroethylene (PCE) that was reported at its highest concentration of 264 μg/kg. The observed VOC conditions were assessed to not present a classic "hot spot" at the site or a condition that might represent a release of product. Release from a machine shop type operation may explain some of the soil findings.
2. Polynuclear aromatic hydrocarbons (PAHs) consisting of BaP and related compounds are present in higher than Regional Screening Level (RSL) concentrations in the shallow soil at several isolated locations on the site including in the Central Yard and in the WB2 area.
3. Metals that exceed their respective RSLs include arsenic, cadmium, and lead. These concentrations were mostly in the 2-foot depth zone but extended to 5 feet in some area. The higher that RSL concentrations were found in soils in the Warehouse Building 2 area, the Southern Yard, and in other isolated site areas.
4. VOCs in the soil vapor were widespread across the site and consisted of tetrachloroethylene (PCE) and trichloroethylene (TCE). The higher concentration VOCs in the vapor at shallow depth were in the WB2 area.
5. Groundwater was found impacted by PCE and TCE at concentrations that exceeded their Maximum Contaminant Levels (MCLs).

A screening level human health risk assessment was performed to assess potential remedial action based on findings of the site conditions.

The following is a summary of the site characterization findings:

Soil Contaminants – Shallow soil contamination was found in four contiguous areas of the Central Yard, Warehouse Building #2, and the Storage Yard. In addition, three isolated areas around investigation locations NY4, WB1-5, and RR2. Soil Contamination consists of soil impacted by arsenic, cadmium, lead and PAHs. Risk-based cleanup levels are determined as follows:

- Benzo(a)pyrene equivalent (BaP): 0.21 milligrams per kilogram (mg/kg)
- Arsenic: 12 mg/kg
- Cadmium: 7.5 mg/kg
- Lead: 320 mg/kg

Soil Vapors (VOCs) – PCE and TCE soil vapor concentrations exceeding their respective Risk-Based Screening Levels (RBSLs) were found at three site locations all at a depth of 5 feet. RBSL at a depth of 5-feet for PCE is 35.6 µg/L and for TCE is 13.6 µg/L. These levels represent an indoor air risk.

Groundwater – Groundwater at the site is impacted by PCE and TCE. Sampling shows these compounds present in concentrations in excess of their respective MCLs of 0.005 mg/L. The VOC concentrations found in the groundwater cannot be explained by soil and soil vapor findings at the site. It is determined that prior site use likely contributed a minor proportion to the groundwater VOC.

Consideration of Alternatives:

For each media at the site a set of remedial alternatives have been identified for consideration and detailed evaluation. The selected alternatives are as follows:

- For soil: Alternative S1 – No Action; Alternative S2: Excavation, On-site Treatment, and Backfill; and, Alternative S3 – Excavation and Off-site Disposal.
- For soil vapor: Alternative SV1 – No Action; Alternative SV2 – Soil Vapor Extraction System; Alternative SV3 – Soil Excavation and Off-site Disposal; and, Alternative SV4 – Active or Passive Soil Venting.
- For groundwater: Alternative GW1 – No Action; Alternative GW2 – In-situ Treatment by Dechlorination; and, Alternative GW3 – Pump and Treat.

The alternatives are described for their implementation at the site and evaluated in detail for the nine steps identified in the National Contingency Plan (NCP): 1) Overall protection of human health and the environment; 2) Compliance with applicable or relevant and appropriate requirements (ARARs); 3) Long-term effectiveness and permanence; 4) Reduction of toxicity, mobility, or volume through treatment; 5) Short-term effectiveness; 6) Implementability; 7) Cost; 8) State/support agency acceptance; and, 9) Community Acceptance. The evaluation of the alternatives is presented in the form of Tables that score the relative importance of each of the considerations for the alternatives. Costs were prepared for the alternatives and are presented in Appendix F.

Based on the alternatives analysis, the following remedies were identified:

- For soil: Excavation and Off-site Disposal;
- For soil vapor: Excavation and Off-site Disposal; and,
- For groundwater: In-situ Treatment by Dechlorination.

Additional investigations are planned for soil vapor and for groundwater to determine the extent of the impacts and to assess if remedial action is necessary. These investigations are identified and detailed in Appendix C – Sampling and Analysis Plan. If soil vapor is determined to be an indoor air risk, the area over which condition exists will be added to the soil excavation area for removal and off-site disposal.

Groundwater conditions will be further defined by the planned installation of four monitoring wells. After these have been installed and developed, two sampling events are planned for all eight wells at the site. The groundwater samples will be analyzed for VOCs, metals, hexavalent chromium, and perchlorates. The results of the finding will be presented in a report discussing the results and an evaluation as to the requirement for remedial action. Based on the alternatives analysis, it appears that in-situ treatment by dechlorination is the remedial action that best suits site conditions. The implementation of this remedy will be discussed in the report of groundwater to be prepared after the planned sampling events.

Plan of Remedy

The plan for site remedial action is based on site findings and the risk assessment results based on soil and soil vapor concentrations found at the site. An overview of the plan for remedy is as follows:

1. *Shallow Soil* – Plan for removal of soil at all shallow site areas where metals or BaP concentrations are in excess of cleanup levels identified in the risk assessment.
2. *Soil Vapor* – Plan for removal of soil at all shallow site areas where soil vapor concentrations represent an indoor-air risk. These areas will be defined by planned site investigation as detailed in Appendix C.
3. *Groundwater* – Install four additional wells and sample for two sampling events. Decide on the implementation of in-situ treatment by dechlorination on the basis of the results from the planned sampling.

Proposed Remedial Work

Removal action is planned for eight (8) areas at the site as described on Figure 8 to mitigate the identified conditions for shallow soil and soil vapor impacts. Four of these areas are small isolated locations – Areas 1, 5, 6, and 7. The remaining areas (Areas 2, 3, 4, and 8) are larger where contiguous locations of contaminated soil were identified. It is estimated that up to an estimated 3,750 cubic yards or 5,250 tons of soil will require excavation and removal. An additional 250 cubic yards or 350 tons of soil may require removal for soil vapor impacts. The actual amount requiring removal as a result of soil vapor impacts will be determined on the basis of planned additional site soil vapor investigation. Soil areas that may be removed for soil vapor impact are not shown on Figure 8 and will be added when the areas are defined.

The planned remedial action presented in the ResPlan is as follows:

1. *Shallow Soil* – Contamination consists of soil impacted by arsenic, cadmium, lead and PAHs. Seven of the eight areas (all areas except Area 3) at the site where removal action is planned are for shallow soil impacts:

a. Shallow soil contamination in four contiguous areas (Areas 2, 3, 4, and 8) of the Central Yard, Warehouse Building #2, and the Southern Yard

b. Four isolated site areas (Areas 1, 5, 6, and 7) at NY4, WB1-5, and RR2

These areas are identified in Figure 8 prepared to show planned excavation areas for remedial action.

2. *Soil Vapor* – To be determined on the basis of planned investigations, see Appendix C. Three areas: in the vicinity of WB2-18, WB2-29, and WB3-26; are identified for investigation. If soil vapor impact is determined such that the soil vapor concentrations are in excess of those that present an indoor air risk, the soil in such areas will be removed by excavation. These excavation areas will be added to those described in Figure 8.

3. *Groundwater* – To be determined on the basis of planned investigations, see Appendix C. Groundwater remedy implementation will be assessed on the basis of sampling results for two events planned following the installation of four additional wells at the site. If a groundwater remedy is required, the selected remedy is in-situ treatment by dechlorination.

Groundwater monitoring of the four new wells and four existing wells is included for a period of ten years – semi-annually for the first two years and annually thereafter. This monitoring is expected to be required at the site and it is independent of the implementation of remedial alternatives.

A Land Use Covenant (LUC) will be required to restrict future land use to commercial and industrial use only. The LUC would prohibit land uses that may not be used: most likely, residential, school, daycare, or hospital uses. The LUC will be recorded as part of the deed for the property.

Cost estimates for the implementation of alternatives are discussed in Appendix F. The estimated costs for the selected remedies are as follows:

- Soil remediation: The soil excavation and removal action cost for the initial cost of removal and disposal of about 3,750 cubic yards of impacted soil from the site is $1,226,000 1

- Soil Vapor: The selected remedy for soil vapor is to remove the impacted soil during the soil excavation. It is estimated that this amount will add about 250 cubic yards or soil and $115,000 to the remedial cost. This remedy is contingent on the results of planned field investigations and estimated to have a 50 percent likelihood of being needed.

- Groundwater remediation: The requirement for groundwater remediation is dependent on the results obtained from new wells planned to be installed at the site. The need for treatment will be decided following the availability of results from two sampling events of site monitoring wells. The need for on-site groundwater treatment will be based on the evaluation: of 1) assessed regional groundwater impacts and observed groundwater conditions at the Site boundaries; 2) an estimate of the Site's potential contribution to the observed groundwater impacts; and, 3) the potential benefit and effectiveness of mitigating the Site's impacts to groundwater. If required, in-situ treatment by dechlorination will be implemented. This is estimated to have an initial cost of $425,000 for the installation of new injection wells, for planning and designing of the system, procuring the necessary approvals, and for start-up of the operations. The total recurring cost for groundwater remedial operations for ten years is $1,452,000, much of which is comprised of the costs of the injection fluid for dechlorination. The likelihood that groundwater treatment is required in the near term is less than 25 percent.

- The recurring periodic costs include groundwater monitoring, nominal annual technical support, and 5-year reviews. Groundwater monitoring is assumed needed on a semi-annual basis for two years and annually thereafter for eight years for a total of ten years of monitoring. The required recurring costs are estimated to be $231,000 and these will be required in addition to the other costs described above.

In summary, the soil remediation costs are estimated to be $1,226,000 and the recurring groundwater monitoring and miscellaneous other costs to be $231,000. Additional costs for soil vapor remediation and groundwater remediation are dependent on the results of the planned investigations and the realization of those costs is less certain. The range of estimated costs for remediation is between $1.5 million and $3.0 million. The higher end of the cost estimate assumes all media will require remediation. It is estimated that the actual remediation costs will likely be less than $2,000,000.

RESPONSE PLAN

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1.0 INTRODUCTION

This Response Plan (ResPlan), a revised draft final document, has been prepared for the removal of the shallow surface soil at the subject property based on the site investigation results and the approval of the Site Characterization Report (SCR). The SCR included a Baseline Human Health Risk Assessment. This ResPlan is prepared and submitted to the DTSC for review and approval under the 2006 CLRRA agreement between the Successor Agency to the Community Development Commission of the City of Huntington Park ("Commission" or "Successor Agency") and DTSC.

A prior revised removal action workplan (RAW) was prepared dated May 4, 2012 to address shallow soil due to metals at the site. That RAW was approved by DTSC but not implemented by the Successor Agency because of funding constraints. Since then further discussion has resulted in the preparation of a revised document, this Response Plan that is prepared and submitted as draft final to address all site media—shallow soil, the soil vapor, and the groundwater conditions.

2.0 REMOVAL ACTION PROCESS

2.1 REGULATORY BASIS FOR THE RESPONSE PLAN

Under California Health and Safety Code (HSC) § 25395.94 and also requirements of the agreement between the Successor Agency and DTSC based on their California's Land Reuse and Revitalization Act (CLRRA) Program, there is the requirement to prepare a "Response Plan." This plan is to submit a report of findings for site conditions and is prepared to described the actions at the site that are deemed necessary as a result of site characterizations. The Response Plan is required to contain the information specified in HSC § 25395.96(a) and (b). Further, it is expected that implementation of the plan will place the site in a condition that allows it to be used for its reasonably anticipated future land use without unreasonable risk to human health and safety and the environment.

2.2 OBJECTIVES OF THE RESPONSE PLAN

The objectives of this ResPlan in are as follows:

1. Summarize the findings regarding site conditions;
2. Provide technical information for a public participation process accessible to all interested parties;
3. Allow the community to provide comments on technical decisions made regarding site conditions;
4. Communicate progress on investigation and cleanup activities at the former Southland Steel property;
5. Coordinate public information and involvement efforts related to DTSC's oversight of the investigation and cleanup process.

The Response Plan is designed to be a living document that, as may be required by DTSC, will be revised and/or updated throughout the remaining site investigations and site remediation/cleanup process. Specifically the following are presented in the ResPlan:

- Findings of the existing site conditions by summarizing the results previously presented in the SCR, and updating that information with results from a recent survey of the four on-site monitoring wells;
- Sampling and analysis plan for the installation of additional wells, soil vapor sampling, and confirmation sampling during soil removal activities;
- Description of the appropriate removal action objectives (RAOs) for protection of human health and the environment.
- Description of the presumptive remedy consisting of the removal action at the site that is protective of human health and the environment. Additionally, possible soil vapor and groundwater remediation is discussed for possible implementation, if required.

Regulators have found guidance (and the Environmental Protection Agency (EPA) provides guidance) for certain categories of sites, which have similar characteristics, such as: types of contaminants present, types of disposal practices, or how environmental media are affected. Based on information acquired from evaluating and cleaning up such sites, this process provides presumptive remedies to accelerate cleanups. Presumptive remedies are preferred technologies for common categories of sites, based on historical patterns of remedy selection and regulatory scientific and engineering evaluation of performance data on technology implementation. Based on this information, it is evaluated that a particular remedy, or set of remedies, is presumptively the most appropriate for addressing specific types of sites. This approach will be further discussed when presenting the description of the removal action and site remedies.

2.3 RESPONSE PLAN ELEMENTS

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

- Description of the nature and extent of the contaminants of concern (COCs) at the site
- Goals to be achieved by the removal action

- Description of the presumptive remedy: shallow soil removal to mitigate for shallow soil contamination by metals and polynuclear aromatic hydrocarbons (PAHs) and to mitigate indoor air risk from soil vapors
- Description of the soil vapor conditions and its remedy
- Description of the removal action and an implementation plan
- Description of the groundwater conditions at the site and its remedy
- Alternatives for each media remedy and discussion of remedy selection
- Listing of reference documents on the project

This plan will serve to remediate the site to a condition that will allow the surface use of the property by making improvements or additional development. All site media are addressed herein; and therefore, this plan represents and addresses all environmental issues outstanding at the site.

The main ResPlan document describes the remedial actions. Supporting documents included are:

- Appendix A – reference material to support information provided in the ResPlan.
- Appendix B – risk calculations for the site including the Conceptual Site Model, the Human Health Risk Assessment, and the Soil Vapor Indoor Air Risk calculations.
- Appendix C – Sampling and Analysis Plan (SAP) describing all planned sampling and analysis and the supporting information for such work.
- Appendix D – Health and Safety Plan (HASP) describes the health and safety provisions during the conduct of remedial activities at the site.
- Appendix E – Transportation Plan describes the removal of the excavated soil to the disposal facility in Adelanto, California.
- Appendix F – Cost Estimates for Remedial Alternatives describes the estimated cost for alternatives considered in the plan.
- Appendix G – Notice of Exemption. This section will be prepared by DTSC.
- Appendix H – Sanborn Maps showing that the transformer house is not located on the property.

3.0 SITE DESCRIPTION AND BACKGROUND

The following sub-sections present the location and description of the site and a historical background.

3.1 SITE LOCATION

The subject site is located on Alameda Street, south of Randolph Street, in the community of Huntington Park, California. The parcels investigated consist of the former Southland Steel facility and include all of the property between the railroad spur from Randolph Street and

Alameda Street to the east. These properties are addressed as 5959, 5969, 6011, 6161, and 6169 Alameda Street (see **Figure 1**).

3.2 SITE DESCRIPTION

The southern-most parcel is currently used as an automobile service facility (Nick Alexander Imports), and the remaining parcels are used for parking cars belonging to the dealership. All of the buildings for the Southland Steel facility have been demolished and removed from the site. Asphalt pavement or concrete flooring from the previous facility remain and serve the parking needs of the dealership. Manufacturing and light industrial facilities surround the site.

The site is located within the South Gate topographic quadrangle 7.5 minutes (United States Geological Survey [USGS)]). This map shows the topographic elevation at the site to be about 170 feet above mean sea level (msl). The slope across the site is generally flat. Drainage is either towards the Alameda Street or towards the railroad track at the rear of the property. The regional topographic slope is generally towards the south.

The property has approximately 960 feet of frontage on Alameda Avenue south from Randolph Street and consists of four parcels between the railroad spur and Alameda Avenue. The four parcels and their Assessor Parcel Numbers (APNs) are as follows:

- 5959 South Alameda – APN 6009-034-901 (approx. 0.12 acre)
- 5969 South Alameda – APN 6009-034-900 (approx. 0.81 acre)
- 6011 South Alameda – APN 6009-033-901 (approx. 2.51 acres)
- 6169 South Alameda – APN 6009-033-900 (approx. 1.39 acres)

These parcels, which cover a total of approximately 4.8 acres, may have had different street addresses in the past such as 5961, 5975, 5985, 6001, and 6161 South Alameda. At roughly mid-property, the site has coordinates of Latitude: 33.984964N, Longitude: 118.237385W.

In addition, the railroad siding adjacent to the property on the west was purchased by the City and is also part of the site and in the ownership of the Successor Agency.

Parcel maps of the site are provided in **Appendix A**.

3.3 SITE BACKGROUND

Assessco, Inc. (Assessco) and All Phase Environmental, Inc. (APEI) have performed a Phase I Assessment of this site. Others have also performed investigations at the site. Prior work is described in the documents referenced in Section 4.1.

As reported in these documents, the site was initially developed for the manufacture of fertilizers sometime prior to 1923. Since 1928, the fertilizer use was removed and a steel manufacturing facility was operational. This operation has continued through different ownership, most recently that of Southland Steel from the early 1970s.

These reports have also identified the presence of 6 underground storage tanks (USTs) at the site. These were placed into operation by 1966 and were used for storage of fuels and waste oils. No data were found concerning their registration or their disposition. The area of the USTs was sufficiently investigated during the described site work. USTs were not found and it is assumed that the tanks were removed by Southland Steel without documentation.

3.4 Ownership

The site was bought by the City of Huntington Park Community Development Commission in 2005. Currently, the property is owned by the Successor Agency to the City of Huntington Park Community Development Commission ("Successor Agency"). In this document the client is sometimes referred to as the City. Please read this reference to be the Successor Agency.

3.5 Land Use

The site occupies approximately 4.8 acres of real property in a commercial / industrial zoned area. The immediate surrounding land is similarly zoned. **Figure 1** depicts the general site Location Map; **Figure 2** provides an overview of the adjacent land use around the site.

3.6 Historical Uses

The property was apparently developed as a fertilizer manufacturing facility (American Agricultural Chemical Company) sometime before 1923. This earliest information is from a 1923 Sanborn map. In this map, a fertilizer factory is reported to be located on the southwestern corner of the property. A Southern Pacific Railroad spur trending north-south was described to run through the middle of the site. A dwelling and garage are located near the intersection of the railroad spur and Alameda Street in the northern portion of the site. A laboratory and office are shown on the eastern side of the railroad spur on the southern portion of the site. The property adjacent to the south of the site includes the remainder of the fertilizer factory, an acid storage facility, two 16-foot diameter above-ground acid storage tanks, one steel 20,000-gallon above ground tank, and an additional 53,000-gallon concrete cistern located approximately 250 feet southeast of the site. An oil house or storage shed is located approximately 100 feet south of the site. A transformer house is located adjacent to the southern boundary of the site, see Appendix H.

Between 1928 and 1934, the fertilizer facility was removed and a new steel manufacturing facility, occupied by Rawlins Bros. Steel Supplies (Rawlins), was reported to operate at the site. By 1947, site improvement included two warehouses (warehouse building #2 [WB2]and warehouse building #3 [WB3]), one warehouse access building, one machine shop, and one office building associated with the steel manufacturing facility (see **Figure 3** for a description of the facilities). Foster and Kleiser shared ownership of the subject property with Rawlins from approximately 1951 until approximately 1958. Rawlins occupied the subject property until sometime between 1958 and 1964, when Lufkin Foundry (Lufkin) occupied the subject site. Lufkin operated the subject site as a steel manufacturing facility. Capitol Metals shared ownership with Lufkin from 1968 until sometime before 1988. By 1971, two new buildings were developed at the subject property, including an office building and a warehouse building (warehouse building #1 [WB1]). Southland Steel occupied the subject property from sometime between 1972 and 1988 until approximately 2002. A new office building was constructed at the subject property in approximately 2000.

The site buildings were removed in 2008 except for an automotive storage area in the south of the site and the new office building built in 2000. The subject property is currently used for automotive storage and for employee parking for an automobile dealership.

A site Plot Plan showing the different site facilities is shown on **Figure 3**.

4.0 SITE CHARACTERIZATION

This section includes descriptions of site physiography, geology, hydrogeology, assessments, and a discussion of the results of site investigations by All Phase and Pacific Edge Engineering, Inc., (Pacific Edge) Phase I Environmental Assessments

Three Phase I Environmental Site Assessments have been performed for the site by Applied Environmental Technologies, Inc. (AET [in July 2, 1999 and an update September 10, 2004]) and by Assessco, dated October 1, 2004. The site history described in Section 3.6 was based on these reports; and AET has provided background for site investigations that have been completed at the site.

4.1 Physiography

The site is located within the northerly portion of the Peninsular Ranges geomorphic province of California. The Peninsular Ranges extend from the Los Angeles Basin south of the Santa Monica Mountains to the tip of Baja California. Holocene alluvial deposits of the regional coastal basin, also known as the Downey Plain, cover the region near the site. These deposits overlie an erosional surface of late Pleistocene age.

The main drainage courses within the quadrangle are the Los Angeles River, the Rio Hondo, and Compton Creek. All of these are distant from the site (greater than 2 miles) and there are no nearby water bodies.

4.2 Site Geology

The site is located in the northwesterly portion of the Peninsular Ranges Geomorphic Providence; and in the Central Basin of the Southern California Coastal Plain. The ground surface of the site is approximately 170 feet msl. The site is immediately underlain with Recent Age alluvial deposits (consisting of interbedded sands, silty sands, and silts) to 125 feet below ground surface (bgs). The Pleistocene aged, Lakewood Formation (containing clay, silt, and sands) underlies the Recent Alluvium; materials of this unit are found between 125 and 260 feet bgs. Sediments (stratified/interbedded gravel, sand, and silty sand) of the lower Pleistocene- to Pliocene-aged San Pedro Formation underlie the Lakewood Formation and extend to 1,050 bgs.

4.3 Site Hydrogeology

Assessco (2004) reports that the “Younger Alluvium in this portion of the Los Angeles Basin contains the Gaspur Aquifer that occurs beneath the site at an estimated depth of 60 to 65 feet below grade” In our opinion, Assessco may have incorrectly reported below grade instead of MSL elevation for the depth reference as an elevation of 60 feet would be about 110 feet below grade. The Water Replenishment District of Southern California (WRD 2013) monitors local groundwater conditions and reports the City of Huntington Park conditions in Figure 2.6 of their most recent report (copy included in Appendix A) as follows:

- Gaspur Aquifer...........from about 114 feet to 134 feet below ground surface (bgs)
- Exposition Aquifer ....from about 275 feet to 295 feet bgs
- Gage Aquifer ....from about 420 feet to 440 feet bgs
- Jefferson Aquifer ......from about 690 feet to 710 feet bgs

- Silverado Aquifer ......from about 890 feet to 910 feet bgs

The Lakewood Formation underlies the Younger Alluvium to a depth of approximately 440 feet bgs and is composed of continental and marine deposits of late Pleistocene age. The Lakewood Formation includes the Exposition and Gardena/Gage Aquifers that occur beneath the site at depth intervals described above. The most recent WRD describes the upper aquifer, the Gaspur Aquifer, as being dry as the wells that they monitored are screened above the water level.

The groundwater at the site is at a depth of approximately 136 feet bgs. This water is at the base of the Gaspur Aquifer. The historic groundwater flow direction is reported to be towards the north to northwest, see California Department of Conservation (1984). Additional discussion of groundwater depths and flow directions based on site-specific data is provided in Section 4.5.3.

4.4 SITE INVESTIGATIONS

The following site investigations have been performed at the site beginning in 2004:

- Preliminary Investigation performed by All Phase in 2004. Soil samples were obtained at borings completed at 22 locations.
- Soil Vapor Survey and additional Site Characterization Report performed by All Phase in 2005. Samples of soil, or soil vapor, were obtained at borings and/or vapor probes at 58 locations.
- Supplemental Site Investigation (SSI) in 2007 reported by Pacific Edge, underground storage tank removal reported by All Phase in 2007, and a second SSI in 2008 reported by Pacific Edge. During this phase, samples of soil or soil vapor were obtained at borings and/or vapor probes at 80 locations. In addition, at four locations the borings were completed as monitoring wells for groundwater sampling and analysis.
- Additional SSI performed by All Phase in 2009. Samples of soil, or soil vapor, were obtained at borings and/or vapor probes at 9 locations.

References for these investigations are provided in Section 8.0. These reports have been discussed and analyzed in the SCR. The results are summarized herein preparatory to description of the removal action.

4.5 SITE CHARACTERIZATION RESULTS

Soil, soil vapor, and groundwater samples were collected during site investigations and were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs)/ PAHs, polychlorinated biphenyls (PCBs), pesticides, metals, and total petroleum hydrocarbons (TPH). Presence of VOCs, PAHs, and metals in the soil and VOCs in the soil vapor were determined to represent the main concerns at the site. The groundwater was also found to be impacted by VOCs.

The following sub-sections summarize the SCR results and also additional site information that has been collected since that time.

4.5.1 SOIL INVESTIGATION RESULTS

Figure 4 shows all of the investigated locations at the site. The following conditions summarize the site conditions as assessment from the investigations and provide the ranges for contaminants identified at the Site:

- VOCs in the soil appear present in the WB2 area around its mid-area near boring WB2-40. Other relatively high concentrations are located near the railroad line along the western site boundary. The most prevalent compound, tetrachloroethylene (PCE), at its highest concentration of 264 micrograms per kilogram (µg/kg), is a small fraction of its industrial Regional Screening Level (RSL) of 2,600 µg/kg. The observed conditions do not present a classic "hot spot" at the site or a condition that might represent a release of product. Release from a machine shop type operation may explain some of the soil findings.

  Except for the 5-foot sample at RR5, where gasoline component compounds (ethylbenzene, toluene, and xylenes—no benzene) were reported in low concentrations, the only other compounds reported above detection limits were PCE and TCE. PCE was reported in 134 soil samples (maximum: 264 µg/kg, average: 26.3 µg/kg) above laboratory reporting limits (RLs) and TCE in 9 samples (maximum: 40 µg/kg, average: 11.3 µg/kg) analyzed. None of the reported compounds were in concentrations that exceed their respective Regional Screening Levels (RSLs [EPA 2014]).

- PAHs consisting of benzo(a)pyrene (BaP) and related compounds are present in higher than RSL concentrations in the shallow soil at several isolated locations on the site including at borings B3, CY4, CY6, WB2-9, and WB2-14. Where the BaP-equivalent exceeds the industrial screening concentration of 0.16 milligrams per kilogram (mg/kg), a "hot spot" was identified for remediation. The isoconcentration map for BaP concentrations across the site is presented as **Figure 5**; the summary results for BaP analysis are presented on **Table 1**.

  No SVOCs or PAHs were reported above laboratory detection limits for samples taken at a depth deeper than 5 feet. Predominantly the reported compounds were benzo(a)pyrene (BaP) equivalents. BaP compounds were reported at a maximum of 24 samples of the 116 analyzed and other compounds such as acenaphthene and naphthalene were reported above laboratory detection limits in 4 to 6 samples. Whereas the total PAHs averaged 1.36 milligrams per kilogram (mg/kg), the maximum was reported for a sample at 5 feet at 126 mg/kg (Boring B-3). Correspondingly, the average BaP equivalent for the 24 samples was 0.25 mg/kg and the maximum at the 5-foot samples was 23 mg/kg (Boring B-3). The BaP equivalent RSL of 0.16 mg/kg was exceeded for 8 of the 24 samples of which these compounds were reported in excess of laboratory RLs (at the 2-foot samples at WB2-14, WB2- 9, RR-2, CY-4, and CY-6 and at the 5-foot sample at B3).

- Metals that exceed their respective RSLs include arsenic, cadmium, and lead. Except for arsenic, which has been found in higher than the RSL concentration at 5 feet, all RSL exceedances were at a 2-foot depth or less. The isoconcentration map for arsenic and lead concentrations across the site are presented as **Figures 6 and 7**. Cadmium is exceeded in only one location: SY19. The summary results for metal analysis are presented on **Table 2**.

Arsenic was reported above laboratory detection limits for 56 of 157 samples analyzed. The maximum arsenic concentration was reported at 154 mg/kg (WB2-21-2). The average concentration reported was 3.84 mg/kg. The arsenic screening level is identified as 0.24 mg/kg (Office of Environmental Health Hazard Assessment [OEHHA] 2010). The guidance suggests that a project-specific screening level be identified in consultation with the oversight agency because the current level set is often lower than arsenic background concentrations in California. Eco has identified 12 mg/kg as a useful screening level on the basis of DTSC's evaluation of arsenic concentrations in background soil in the Los Angeles area (DTSC 2008). Arsenic exceeded 12 mg/kg for 7 samples: B3B-2, B3E-2, NY4-5, SY5-2, WB2-1-2, WB2-5-2, and WB2-21-2. All of these were at the 2-foot sample except for the NY4 location in which the 5-foot sample exceeded the RSL.

Lead was reported above laboratory detection limits for 124 of 157 samples analyzed. The maximum lead concentration was reported at 3,245 mg/kg (WB2-2-2). The average concentration was 90.64 mg/kg. The California screening level for lead concentrations (320 mg/kg [OEHHA 2010]) were exceeded for 11 samples: SY5, SY11, SY20, WB1-5, WB2-2, WB2-6, WB2-14, WB-18, WB2-23, and WB2-24. All samples for which the lead levels were exceeded were at a depth of 2 feet, except for WB2-18 for which both the 2 and 5 feet samples were higher.

A screening level human health risk assessment was performed to evaluate the possible impacts on a hypothetical resident and a hypothetical on-site commercial/industrial worker. The risk assessment used conservative assumptions dictated by the guidance for such calculations. This assessment was reported in the SCR. A summary of the findings reported in the SCR are presented in **Appendix B**.

The risk assessment results for commercial/industrial site use are presented in **Table 3**. The Incremental Lifetime Cancer Risk (ILCR) is calculated to be 1.0×10^{-3}. The Hazard Index (HI) is 4.0. The main contributors to the cancer risk are arsenic and BaP. For non-cancer risk, the main contributors are metals (arsenic, copper, and nickel).

The risk estimated for the investigated site conditions is in the manageable range. Removal and proper off-site disposal of the metal and PAH-impacted soil to a depth of between 2 to 5feet below existing grade in areas where these are reported in higher than RSL concentrations will mitigate the estimated risk.

4.5.2 SOIL VAPOR INVESTIGATION RESULTS

The multiple-depth (nested) subsurface gas (vapor) probes were installed at the site at locations shown on **Figure 4**. Soil vapor samples were obtained and analyzed in site investigations as follows:

- In January and February 2005 probes were installed at 53 locations across the site and 90 soil vapor samples were collected ranging from 5 to 20 feet.
- In July and August 2007, a total of 158 soil vapor samples were collected and analyzed at an additional 36 site locations at depths ranging from 5 to 45 feet.

- In 2008 and 2009, an additional 47 soil vapor samples were collected and analyzed during deep drilling and well installation at 5 locations. Soil vapor samples were collected and analyzed at depths ranging from 55 to 125 feet below ground surface.

Chemicals of concern in the soil vapor are PCE and trichloroethylene (TCE). The results of the soil vapor sampling results for these compounds at the 5-foot depth and 10-foot depth samples are summarized in **Table 4**.

PCE is present in almost all samples collected and analyzed (246 of 249 samples). TCE is also detected frequently—but less so than PCE—at 104 of 249 samples. Other VOCs such as 1,1,1-trichloroethane, 1,1-dichloroethene, chloroform, and trichlorofluoromethane are also detected, but less frequently, between 28 and 48 of the 249 samples analyzed. The data for these compounds are tabulated below:

ANALYTICAL RESULTS FOR VOCS IN SOIL

Compound	Percentage of Samples in which Present	Maximum Concentration	Average Concentration
		µg/L	
Tetrachloroethene (PCE)	98.8	101.00	10.42
Trichloroethene (TCE)	41.8	24.00	1.07
1,1,1-Trichloroethane	18.5	1.32	0.05
1,1-Dichloroethene	19.3	1.73	0.07
Chloroform	15.3	1.13	0.03
Trichlorofloromethane	11.2	0.62	0.02

µg/L = micrograms per liter

In order to assess the management of the soil vapors at the site and to assess indoor-air risk presented by the conditions that were determined, a Johnson & Ettinger Vapor Model was used to calculate the screening levels for possible site remediation to commercial industrial site use and a managed risk level of 1 x 10^{-5} or a hazard index of 1. The results of this assessment are provided in **Appendix B** and were used for recommending appropriate soil vapor remediation at the site.

4.5.3 GROUNDWATER INVESTIGATION RESULTS

At four (4) locations (CY23, CY25, WB2-37 & SY23) the drilled borings were converted to groundwater monitoring wells to collect groundwater samples (see **Figure 4**). The wells (2-inch diameter) were completed with 20-foot screened intervals at about 130 to 150 feet depth bgs. Well completion details were reported in the SCR.

Groundwater elevations have been measured five times since the installation of the wells in 2008. In addition, the wells have been sampled twice and analyzed for VOCs. Water level measurements are summarized in **Table 5**. Prior sampling results have shown that the main chemicals of concern in the groundwater are PCE and TCE. The results for these two compounds for the two sampling events are presented in **Table 6**. The range of concentrations in the wells for PCE was 67 μg/L (CY25 in 2011) to 2188 μg/L (WB2-37 in 2008) and for TCE at 42 μg/L (CY25 in 2011) to 333 μg/L (WB2-37 in 2008).

GROUNDWATER HYDROGEOLOGY AND GROUNDWATER FLOW

The Gaspur Aquifer generally found in the area is the first encountered water present as a perched or semi-perched condition. The four wells installed at the site appear to be screened in the lower part of the Gaspur Aquifer. The deeper aquifer of the Lakewood Formation – Exposition Aquifer is at a depth of about 275 feet.

The California Department of Conservation in their Seismic Hazard Zone Report 034 (1998) addresses the shallow groundwater conditions in the South Gate Quadrangle. The highest water level measurements reported back to 1900 are plotted for purposes of evaluating the potential for soil liquefaction during seismic events. The evaluation is based on first-encountered water levels encountered in the boreholes and selected water wells that were available to the reviewers. The historical highest water levels in the area of the site (top left corner of Plate 1.2 of the report) are reported to be between 30 and 40 feet bgs with a flow direction of north northwest. The high water levels reported in this compilation likely represent the water of the Gaspur Aquifer at a much higher condition than is found in on-site wells.

As shown in **Table 5**, consultants have taken water level measurements in the four on-site wells in 2008, in 2011, and then three times in 2013 and 2014. In 2008, the groundwater was measured at the four on-site wells (MW-CY23, MW-CY25, MW-SY23, and MW-WB2-26) at a depth of approximately 136 feet bgs. This water is at the base of the Gaspur Aquifer. The groundwater flow direction beneath the site was plotted to be toward the south: a flow direction coincident with the topographic expression of the site vicinity (USGS 1981).

Water levels measured by URS (on behalf of DTSC) in 2011 measured water levels and elevations similar to those measured by Pacific Edge in 2008. These measurements also show a flow for the groundwater in a southerly direction, see **Table 5**, showing elevation ranking as an indication of groundwater flow from CY23 towards SY23. Measurements made by URS in 2013 show the groundwater flow changed to a generally north-northeast direction – flow from SY23 towards CY23.

Because of the change in flow direction, the casing elevations for on-site wells were re-surveyed in 2014 to make sure there was no error in the prior survey and to use the same benchmark for referencing the wells in the area of the site. The casing elevations were found to be different ranging from 0.09 to 0.12 feet. Eco obtained water level measurements in 2014 and found that the re-surveyed casing elevations have no significant impact on interpretation of the groundwater flow. The groundwater flow in 2014 is the same as that in 2013 and is towards the north-northeast – from SY23 towards CY23.

The water levels in 2013/2014 are between 0.7 and 4.8 feet lower than in 2011. The lowering is particularly pronounced for wells CY23 and CY25, the northernmost two wells at the site. Given that the on-site wells show water in the lowermost part of the Gaspur aquifer where other monitoring wells in this aquifer are reported dry (WRD 2013), and also that there is lowering of the water level because of California's prolonged drought, the flow within the Gaspur is assessed to be complex and possibly subject to considerable change even with small elevation changes. An additional complexity is the alluvial nature of the deposition likely including multiple interfingered sand, clay, and gravel layers and lenses. Continued monitoring of the water elevations and correlations with regional monitoring undertaken by others may help clarify the groundwater flow characteristics in the area.

GROUNDWATER SAMPLE RESULTS

The four groundwater wells have been sampled twice for VOC analysis: once in 2008 by Pacific Edge Engineering, Inc., and in 2011 by URS on behalf of DTSC with permission from the City. The COCs for groundwater contamination are PCE and TCE and concentrations for these compounds are summarized in **Table 6**.

The MCLs for both PCE and TCE are 0.005 mg/L or 5 micrograms per liter. This concentration is exceeded for all four wells for all samples analyzed.

With the exception of TCE in Wells SY23 and CY23, the remaining sample results for both PCE and TCE are markedly lower in 2011 than for the reported results for 2008 – ranging from 17 percent to 74 percent for PCE and 30 to 70 percent for TCE. In Well CY23 the TCE concentrations for both 2008 and 2011 are similar. In Well SY23 the TCE concentration for 2011 is reported at approximately 150 percent of the 2008 concentration.

The PCE to TCE ratio varied from approximately 2.5 to 6.6 for the reported results of 2008 and from 1.2 to 1.6 for reported results in 2011.

Additional sampling will be necessary to determine the fluctuations in the reported results for PCE and TCE in the groundwater.

ADDITIONAL GROUNDWATER MONITORING WELLS

Additional groundwater data is required at locations surrounding the site to obtain groundwater flow and contamination characteristics. Towards this end four additional groundwater monitoring wells are planned as follows:

- EMW-1 and EMW-2 are planned along Alameda Street on the eastern side of the property for added information on groundwater flow and spreading of the previously identified contamination;
- EMW-3 is located on the southern part of the western boundary near the railroad tracks. This well is also to obtain additional information on groundwater flow and to assess possible off-site source for heavy metals previously detected in the southern part of the site.
- EMW-4 is located near the southern boundary in an area where off-site contamination in the area may be assessed. This southern well would also provide additional information on groundwater flow and gradient at the site.

After drilling, the new wells will be developed. The installation details and the locations of the new wells are detailed in Appendix C – Sampling and Analysis Plan.

The new and existing wells will be sampled and the groundwater analyzed for two sampling events approximately three months apart for further assessment of on-site groundwater conditions. The sampled water will be analyzed as follows:

- Volatile Organic Compounds (VOCs) – EPA Method 8260B
- Metals including hexavalent chromium – EPA Method 6010B
- Perchlorate – EPA Method 314.0

Additional information on sampling and analysis is provided in Appendix C.

4.5.4 PCB Sampling

DTSC has requested that sampling and analysis for PCBs be conducted along the southern boundary of the site at a location where a transformer house is indicated on the 1923 Sanborn Map. This investigation is considered not necessary as the transformer house is located south of the property boundary; see Appendix H for Sanborn Maps and transformer house location.

PCB sampling is not currently planned.

4.6 Human Health Risk Assessment

A screening-level human health risk assessment (HHRA) was performed for the site using the methods established by DTSC - *Preliminary Endangerment Assessment Guidance Manual* (California Environmental Protection Agency [Cal/EPA] 1994, 1999). The purpose of the Human Health Screening Evaluation (HHSE) is to determine whether residual constituents in soils and soil-gas at the site could adversely affect the health of future site users under regulatory default residential and/or future commercial industrial land use conditions.

The conceptual site model, human health risk assessment, and indoor air risk calculations are submitted as Appendix B to this document providing details of the evaluations and assessments.

4.6.1 Identification of Chemicals of Potential Concern

The selection of COPCs to be included in the HHSA was based on a review of all of the data that have been collected at the site. The data review process involved two steps: data evaluation and grouping of chemicals. Chemicals were divided into groups according to similar properties and according to guidelines presented in the Preliminary Endangerment Assessment Guidance Manual (Cal/EPA 1994, 1999).

All of the results for soil and soil vapor sample analyses were included in the review including: TPH, VOC, SVOC/PAH, PCB, pesticide, and heavy metal analyses for soil and the VOC analyses for soil vapor.

site COPCs are described and discussed in the HHSA provided in Appendix B. The following were retained as COPCs were retained for soil:

- Metals: arsenic, cadmium, copper, lead, nickel, and thallium
- Pesticides:
  dichlorodiphenyl-dichloroethane (DDD)
  dichlorodiphenyl-dichloroethylene (DDE)
  dichlorodiphenyl-trichloroethane (DDT)
- VOCs: PCE, TCE, ethylbenzene, and xylenes
- SVOCs/PAHs: the BaP group and others

For soil vapor, the VOCs retained included PCE, TCE, and nine other compounds that were reported present in the analyses. Similarly, although not included in the previous reporting, the COPC in the groundwater are PCE and TCE, the primary constituents reported in the groundwater sample analyses. It should be noted that additional groundwater sampling and analysis is planned, see **Appendix C**, and that the groundwater conditions are subject to further analysis based on the results of those investigations.

4.6.2 CONCEPTUAL SITE MODEL

The Conceptual Site Model (CSM) consists of a schematic diagram that does the following:

- Identifies the primary source of contamination in the environment (e.g., releases from a leaking storage tank, waste material poured on the ground). The soil and soil vapor investigation results for this site are presented. Sources for the identified contamination are not specifically known as there are no reports of releases at the site and there are no clearly identifiable "hot spots" inferred from the sampling results.
- Shows how chemicals at the original point of release might move in the environment (e.g., a chemical in soil might penetrate down into groundwater or might volatilize into air).
- Identifies the different types of human populations (e.g., resident, workers, and/or commercial/industrial user) who might come into contact with contaminated media.
- Lists the potential exposure pathways (e.g., ingestion of contaminated water, inhalation of chemicals in air, dermal contact with contaminated soil) that may occur for each population.

This conceptual model is used to plan the risk assessment and associated data collection activities. It may be revised if additional data become available. The SCM for the site is presented in Appendix B. This shows the COPC sources, the release mechanisms, the transport mechanism, the pathway, and the receptors for the risk assessment.

4.6.3 RISK EVALUATION

The results and conclusions are prepared for the health risk evaluation under the assumed default residential and continued commercial/industrial land use exposure scenarios. The risk characterization represents the final step in the risk assessment process. In this step, the results of the exposure and toxicity assessments are integrated into quantitative estimates of potential health risks. Consistent with Cal/EPA and EPA risk assessment policy, the potentials for exposure to produce carcinogenic and non-carcinogenic health effects are characterized separately. In health risk assessments two different values are calculated to evaluate potential health impacts: the incremental lifetime cancer risk (ILCR) and the hazard index (HI).

These calculations for these results are presented in Appendix B. In addition, calculations are made for threshold values for indoor-air risk resulting from the presence of PCE and TCE in the soil vapor. A detailed summary of risks by COPC and pathway are presented in Appendix B. The results are provided and summarized for the on-site resident and for on-site commercial/industrial worker.

4.6.4 GROUNDWATER CONSIDERATIONS

Groundwater investigation results have been summarized in Section 4.6.3 above. Based on review of these results and further discussion with DTSC it is planned that additional groundwater data are needed for the site. The approach to groundwater at the site is as follows:

- As detailed in Appendix C, four additional groundwater monitoring wells will be installed at the site at select locations that will provide additional information on the groundwater flow and chemical characteristics. The four additional wells may be installed at one time, or optionally, in phases with two additional wells being installed in each phase. The decision on whether to phase the installation or not will be decided by the Successor Agency and DTSC based on the technical considerations and the urgency of the needed results. Such a decision will be made prior to the start of the work
- Two sampling events are planned for the existing four wells at the site and the planned four additional wells. One sampling event will be shortly after the wells are installed and the second about 3 months later. Groundwater samples will be analyzed for VOC using EPA Test Method 8260B.
- Based on the results of the two sampling events, a decision will be made whether any site-specific remedial action is indicated or not.

Discussion later in this document relating to groundwater remediation is predicated on the outcome of the decision described in the third bulleted item above.

5.0 REMOVAL ACTION GOALS AND OBJECTIVES

5.1 Removal Action Objectives

The Remedial Action Objective (RAO) established for the site is to protect human health and the environment. The goals to achieve the objective are as follows:

1. Protect human health and the environment by limiting exposures to COPCs by dermal contact, ingestion, and/or inhalation of shallow contaminated soil and particulates/vapors present in indoor/ambient air;
2. Limit the remote potential for migration of COPCs to the underlying, deep groundwater, and protect the current and potential beneficial uses of groundwater and surface water to the extent feasible and practicable; and
3. Meet all Applicable or Relevant and Appropriate Requirements (ARARs) for site cleanup.

Although present site conditions are protective for their current uses, long-term remedial action alternatives are evaluated to meet the remedial goals. Long-term alternatives evaluated include permanent capping, soil removal, and/or Land Use Covenant (LUC)/deed restrictions to address potential future changes in land use.

The site investigations identified soil impacts related to former Southland Steel operations at various locations on-site. Sections 6 and 7 discuss the alternatives for remedial action at the site and Section 8 discussion identifies the implementation of the planned removal action.

5.2 Applicable or Relevant and Appropriate Requirements

ARARs are used to define the minimum level of protection for human health and the environment that must be provided by a remedy selected and implemented under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Additionally, California H&SC Section 25356.1.5 (a)(1) specifies that any response action taken or approved pursuant to Chapter 6.8 shall be based upon, and no less stringent than, the requirements established under federal regulation pursuant to the National Contingency Plan. Thus, the response actions discussed herein do fall under CERCLA requirements. The USEPA policy is that both federal and state ARARs be identified and attained to the extent practicable. The three types of ARARs are described below:

Chemical-specific ARARs: Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies that are applied to site-specific conditions. These values establish the acceptable amount or concentration of a chemical that may be found in, or discharged to, the environment. Action levels for soil that are based on risk-calculations have been identified as follows:

BaP:	**0.21 mg/kg**
Arsenic:	12 mg/kg
Cadmium:	7.5 mg/kg
Lead:	320 mg/kg

For soil vapor, risk-based screening values or action levels for continued site use as commercial-industrial land use and risk management conditions (hazard index = 1 and lifetime cancer risk =$1x10^{-5}$) were calculated. These are as follows:

PCE	35.6 µg/L @ 5 feet and 60.0 µg/L @ 10 feet
TCE	13.6 µg/L @ 5 feet and 23.6 µg/L @ 10 feet

For groundwater, realistic cleanup goals will be identified on the basis of risk/s presented by the contaminants in the groundwater, the potential for exposure to the groundwater, its deemed beneficial use, and the assessed relative contribution to the contamination from the Southland Steel site. Cleanup goals will be defined for PCE and for TCE on the basis of the planned sampling for the monitoring wells at the site and those planned to be installed.**Location-specific ARARs**: Location-specific ARARs set restrictions on the concentrations of hazardous substances or the conduct of activities solely because they are in specific locations. Some examples of specific locations are floodplains, wetlands, historic places, and sensitive ecosystems. There are no location-specific ARARs for the site.

Action-specific ARARs: Action-specific ARARs are technology- or activity-based requirements or limitations on actions taken with respect to hazardous wastes. The requirements are prompted by the particular remedial activities that are selected to accomplish a remedy. Action-specific requirements do not in themselves determine the remedial alternative but indicate how a selected alternative must be achieved. There may be some action-specific ARARs for the site.

The Federal, State of California, and the County of Los Angeles requirements for this project fall under the following regulatory agencies and/or statutes:

- California Environmental Protection Agency, Department of Toxic Substances Control (DTSC)
- South Coast Air Quality Management District (SCAQMD), California Air Resources Board, County of Los Angeles Public Health
- California Occupational Safety and Health Administration (California OSHA)

- California Regional Water Quality Control Board, Los Angeles Region (Storm water pollution, groundwater protection, and remedial permitting)
- California Environmental Quality (CEQA)
- City of Huntington Park (soil grading and site improvement requirements)

The requirements described above will be considered in the evaluation of alternatives and in implementing the remedy at the site.

6.0 REMEDIAL ACTIONS AND ALTERNATIVES DESCRIPTION

Site remedial actions will include considerations for soil, soil vapor, and groundwater. Each media is considered in order; alternatives for remedial action identified, described and analyzed; and, remedial action for each media selected. These descriptions are contained in the following sections.

6.1 SOIL IMPACTS

Soil at the site has been identified to be impacted by metals and PAHs to shallow depths at isolated areas. Soil removal by excavation and off-site disposal is considered a presumptive remedy based on experience at similar sites. For purposes of completeness, the following alternatives were identified for soil remediation and are considered for analysis:

- Alternative S1 – No Action
- Alternative S2 – Excavation, on-site stabilization, and use as backfill
- Alternative S3 – Excavation and off-site disposal of excavated soil for re-cycling.

Each of the alternatives is described below:

6.1.1 ALTERNATIVE S1 – NO ACTION

The No Action alternative is included as required by the NCP [40 CFR 300.430 (e) (6)] to serve as a baseline for comparison to other alternatives. Under this alternative, no engineering measures are implemented to reduce potential exposures or control potential migration from the site. No monitoring would be conducted to identify or evaluate any potential changes that may occur in contaminated surface soil. The site would remain in its current condition with no remedial action taken. Because contaminated media would remain in place, the potential for continued migration of contaminants would not diminish. Additionally, no institutional controls would be implemented to prevent intrusive activities into the waste materials. This alternative does not improve on the minimal protection already provided by the existing cover on the soils, nor is it considered a permanent remedy because it does not reduce the toxicity, volume, or mobility of soil contamination at the site.

Protection that currently exists because of the paved areas of the site and the clean surface soil that limits exposure to the contaminated soil may be understood to be part of this alternative. However, actions that may be taken to reduce the potential for exposure are not included as a component of this alternative (e.g., fencing and deed restrictions). Minimal actions that would reduce exposure to the on-site COPCs would constitute a separate "limited" action alternative. The no-action alternative is identified as technically feasible and readily implementable at the site.

6.1.2 ALTERNATIVE S2 – EXCAVATION AND ON-SITE STABILIZATION

In this alternative, the impacted soil will be first excavated to a depth of 2 to 10 feet to remove and temporarily stockpile the soil at site. The work may need to be performed in stages on an area by area basis to allow for staging and treatment of the soil. Also, consideration needs to be made for the volume gain during the stabilization process.

The process of stabilization involves the use of a large mixers or mills into which the soil can be placed to mix with cement mixture for stabilization. The cement will be used to immobilize the constituents of concern in the soil – the PAHs and the metals. The mixed material will be back-filled in the excavation.

The soil treatment will change the physical properties of the treated soil, creating an impervious mass to infiltrating precipitation. It will also inhibit leaching and transport of source material.

As part of this alternative, the volumes of the soil removed to that backfilled will need careful attention. If additional volume is generated by treatment the site grade may require adjusting. Alternatively, clean soil will be imported to make up the difference and bring the excavated areas to grade. The backfill will be properly compacted in compliance with local earthwork and grading requirements.

6.1.3 ALTERNATIVE S3 – EXCAVATION AND OFF-SITE DISPOSAL

The removal action is to excavate and remove for off-site disposal all contaminated soil at the site that is in excess of removal goal concentrations as described in Section 5.1 above. This is the presumptive remedy for this site for the shallow impacted soil and to mitigate human health risk as previously described. This removal action through excavation has been identified as the most assured removal action that will reduce the human health risks and protect groundwater, and allow full development on the remediated areas.

The excavated areas will be backfill with imported clean soil. The backfill will be properly compacted in compliance with local earthwork and grading requirements.

6.2 SOIL VAPOR

Soil vapor has been investigated at the site and the findings discussed in Section 4.6.2. Three site areas have been identified where soil vapor in the shallow soil exceeds the RBSLs as presented in Appendix B. These areas are in the vicinity of WB2-18, WB2-29, and WB3-26. As discussed in Appendix C, soil vapor investigation is planned in the vicinity of these three locations to describe the current soil vapor conditions.

An additional 250 cubic yards or 350 tons of soil is estimated as a likely quantity of soil that may require removal for soil vapor impacts. The actual amount requiring removal as a result of soil vapor impacts will be determined on the basis of planned additional site soil vapor investigation.

The planned investigation will provided the following scenarios:

1. No soil vapor condition will be identified to exceed the RBSLs for soil vapor. If this condition is verified by the planned investigation, no soil vapor remedial action is necessary and none will be considered or implemented.

2. Areas will be described at one or more of the areas where investigations are conducted where vapor impacts require remedial action. Only these areas will be subject to soil vapor remediation.

The following alternatives are identified for possible remedial action for soil vapor should such conditions be identified:

- Alternative SV1 – No action
- Alternative SV2 – Soil Vapor Extraction System
- Alternative SV3 – Soil Excavation and Removal
- Alternative SV4 – Active or Passive Soil Venting in Building Areas

Each of these alternatives is discussed below:

6.2.1 ALTERNATIVE SV1 – NO ACTION

The No Action alternative is included as required by the NCP [40 CFR 300.430 (e) (6)] to serve as a baseline for comparison to other alternatives. Under this alternative, no engineering measures are implemented to reduce potential exposures or control potential migration from the site. No monitoring would be conducted to identify or evaluate any potential changes that may occur in soil vapor conditions. The site would remain in its current condition with no remedial action taken. Because contaminated media would remain in place, the potential for continued migration of contaminants would not diminish. Additionally, no institutional controls would be implemented to prevent intrusive activities into the waste materials. This alternative does not improve on the minimal protection already provided by the existing cover on the soils, nor is it considered a permanent remedy because it does not reduce the toxicity, volume, or mobility of soil vapor contamination at the site to the extent that it may represent an indoor air risk.

Protection that currently exists because of the paved areas of the site and the clean surface soil that limits exposure to the contaminated soil may be understood to be part of this alternative. However, actions that may be taken to reduce the potential for exposure are not included as a component of this alternative (e.g., vapor barriers for buildings, use restrictions). Minimal actions that would reduce exposure to the on-site COPCs would constitute a separate "limited" action alternative. The no-action alternative is identified as technically feasible and readily implementable at the site.

6.2.2 ALTERNATIVE SV2 – SOIL VAPOR EXTRACTION SYSTEM

Soil vapor extraction (SVE) is an accepted, recognized, and cost-effective technology for remediating soils contaminated with volatile and some semi-volatile organic compounds. This technology is known in the industry by various other names, such as soil venting and vacuum extraction. The process involves inducing airflow in the subsurface with an applied vacuum, and thus enhancing the in situ volatilization of contaminants. Mostly, extraction of air laden with contaminant vapors can be achieved with vertical extraction wells.

The SVE process takes advantage of the volatility of the contaminants to allow mass transfer from adsorbed, dissolved, and free phases in the soil to the vapor phase, where it is removed under vacuum and treated above ground. In order for this process to be effective, the contaminants of concern must be volatile enough and have a low enough water solubility to be drawn into the soil gas for removal. These properties are usually expressed by the vapor pressure and the Henry's law constant of the compounds. PCE and TCE, the primary site contaminants, are amenable to treatment by SVE.

Attractiveness of this technology is that:

- SVE is an in situ technology that can be implemented with a minimum disturbance to site operations.
- SVE is very effective in removing the volatile contaminant mass present in the vadose zone.
- SVE has the potential for treating large volumes of soil at acceptable costs.
- The system can be mobilized and installed very quickly.
- SVE as a technology can be easily integrated with other technologies required for site cleanup.

Implementation of the technology at the site would be to design and install a system of extraction wells in the area to be remedied. Surface piping would connect the well head to a site location where a mobile SVE unit will be positioned as a remediation unit. Such units are pre-permitted or may require a site-specific permit for operations. A suitable blower would serve to vacuum the system and downstream either a carbon unit or a thermal desorption system would remove the contaminants.

Measurements made at the blower and at the well head allow periodic monitoring of the system during operations. The wide-spread use of this technology makes its implementation relatively easy.

6.2.3 ALTERNATIVE SV3 – SOIL EXCAVATION AND REMOVAL

The surface area at which the subsurface soil presents an indoor air risk is limited and small. A reasonable approach to such limited impacted soil is to remove the soil by excavation.

In this alternative the area identified to present an indoor air risk based on the planned sampling will be added to the areas requiring excavation. This soil will be excavated and removed as described for Alternative S3.

6.2.4 ALTERNATIVE SV4 – ACTIVE OR PASSIVE SOIL VENTING IN BUILDING AREAS

The most commonly accepted mitigation techniques for controlling indoor air migration of contaminants includes the provisions for barriers or venting in buildings where such risks exist. These mitigation systems would:

1. Provide for a barrier in the form of a durable liner acceptable to local building authorities that would suitably prevent the penetration of the contaminants and effective exclude them from approach to the building areas.
2. Sub-slab pressure management systems that allow the maintenance of such pressure that the depressurization of the building is compensated and the system serves as suitable mitigation. Such systems may either be provided in the form of sub-slab ventilation (SSV) or sub-slab depressurization (SSD). Both systems use similar hardware. The design would be based on building design and the physical properties of the soil. Accordingly, each such design is done at the time of building design to be consistent with other aspects of the soil/building/foundation system.

Because of frequent need to mitigate methane, radon or other threats to indoor air, local ordinances and requirements provide readily available methods that are allowable to implement and manage barriers to intrusion or venting systems.

6.3 GROUNDWATER

Groundwater at the site is contaminated by VOCs including concentrations of PCE and TCE above the MCLs. The groundwater concentrations measured at the four wells located on the site have varied considerably for the two sampling events reported. It is clear from the results that the groundwater contamination extends to upgradient, downgradient, and cross-gradient locations presenting likely contamination from multiple sources that contribute to the observed condition. Eco's review of nearby sites as reported on Geotracker and Envirostor sites indicate investigations are being undertaken at multiple sites around the Southland Steel property.

It is assessed that the groundwater conditions will continue to be monitored and additional data will be collected as part of the planning investigations including the installation of four new monitoring wells. The potential for requiring Site-specific remedial action for groundwater is considered low. This assessment is based on the following factors:

- The groundwater contamination is extensive at and surrounding the site. There is no currently identified on-site source for the groundwater contamination that requires action. Existing data show that site contribution to the groundwater contamination is minor.
- The groundwater flow regime in the shallow Gaspur Aquifer is complex resulting from the alluvial profile that includes multiple layers of interfingered silts, sands, and gravels. In addition, the groundwater elevations have lowered considerably leaving water likely in small amounts at the base of the aquifer.

Groundwater conditions at the monitoring well locations at the site will be continued by periodic monitoring for VOCs.

Four additional wells are planned and two sampling events are planned for the eight wells that will be available at the site – the first sampling event when the four new wells are completed and the second sampling event three months after the first event. The purposes for the installation of the additional wells are to: 1) obtain groundwater chemistry data to the south of the site and along the eastern and western property boundaries to better define possible off-site influences; and 2) to better understand the flow of groundwater. The goal is to allow an estimate of the site contribution to groundwater contamination and the requirement for site-specific groundwater remediation.

The need for on-site groundwater treatment will be based on the evaluation: of 1) assessed regional groundwater impacts and observed groundwater conditions at the Site boundaries; 2) an estimate of the Site's potential contribution to the observed groundwater impacts; and, 3) the potential benefit and effectiveness of mitigating the Site's impacts to groundwater. The results of the sampling events will be presented in a report and the site groundwater conditions re-evaluated. One of the following conditions will be identified based on the results presented in this report:

1. Groundwater conditions and flow will be better defined and it will be demonstrated that no remedial action is necessary resulting from site contribution.

2. Groundwater conditions and flow will be better defined and periodic groundwater monitoring will be assessed as a reasonable approach to continue to monitor the site conditions. No remedial action of the groundwater will be required for immediate implementation.
3. Groundwater conditions and flow will be better defined and in addition to periodic groundwater monitoring, groundwater remedial action will be required to be implemented to mitigate the assessed groundwater conditions.

Groundwater monitoring is likely to be required and is considered separate from groundwater remedial action. In the sections below, alternative for groundwater remedial action are also discussed.

Sampling results may lead to the conclusion identified in Item 3 above that remedial action is required. In this case, the following remedial actions for groundwater are available:

- Alternative GW1 – No Action
- Alternative GW2 – In-situ treatment by Dechlorination
- Alternative GW3 – Pump and Treat

All of the discussion that follows for groundwater remedial action is predicated on the results of the investigations and the decision-making resulting from the reported results of the planned investigations.

6.3.1 GROUNDWATER MONITORING

The main objectives for the groundwater monitoring program are:

- Periodically sample the groundwater to assess current conditions and to evaluate the changes to the groundwater elevations and flow and the chemical constituents
- Evaluate trends of the chemical concentrations.
- Assess site conditions and contributions, if possible.

The monitoring will consist of sampling and analysis of the water from the eight wells available at the site. The following sampling schedule is considered for the site:

- Monitoring semi-annually for a period of two years after the initially planned two sampling events;
- Monitor annually for a period of seven years thereafter. For cost estimating purposes, it is assumed that annual monitoring will not be required after a total of ten years of monitoring.

Sampling and analysis will be for VOCs

6.3.2 ALTERNATIVE GW1 – NO ACTION

The No Action alternative is included as required by the NCP [40 CFR 300.430 (e) (6)] to serve as a baseline for comparison to other alternatives. Under this alternative, no engineering measures are implemented to reduce potential exposures or control potential migration from the site. No monitoring would be conducted to identify or evaluate any potential changes that may occur in the groundwater conditions at the site. The site would remain in its current condition with no remedial action taken. Because contaminated media would remain in place, the potential for continued migration of contaminants would not diminish.

The no-action alternative is identified as technically feasible and readily implementable at the site.

6.3.3 ALTERNATIVE GW2 – IN-SITU TREATMENT BY DECHLORINATION

In this alternative for groundwater remediation, the existing groundwater wells will be used to introduce compounds that serve to degrade the chlorinate compounds (PCE and TCE), that are the primary groundwater contaminants. The approaches to this remedy include the following:

- Use of proprietary materials such as zero valent iron (ZVI) nanoparticles. An Auburn University developed approach uses carboxymethyl cellulose (CMC) as a stabilizer and is reported to have increased effectiveness with the use of the stabilizer in both soil and water;
- Bioremediation reduction by using chemotrophs – bacteria that derive their energy from chemical redox reactions. This can be coupled with the use of organic compounds as electron donors. Additional groundwater information would be needed for the effectiveness of naturally occurring process termed "reductive dechlorination." Such processes can occur when naturally occurring microbes dehalococcoides ethanogenes or dehalobacter are present in the groundwater under the correct geochemical conditions.
- Use of other test materials that may provide reductive dechlorination of the groundwater.

PCE and TCE are widely found contaminants in the groundwater and have been studied for environmental remediation for over twenty years. As part of the implementation of this alternative, the most attractive technology that is found suitable in the local area will be sought. Based on initial contacts with DTSC staff knowledgeable on the subject, it appears such remedial action for the site groundwater would be feasible.

To allow for monitoring the existing wells may not be useable for remediation. It is planned that four additional injection wells will be properly designed and installed to implement the in-situ dechlorination treatment described in this section. The injection wells will be used to introduce liquid compound that serves to complete the reductive dechlorination reaction: electron donors and electron acceptors. Should this alternative become necessary, addition site-specific data would likely be needed for dissolved oxygen, nitrates, ferrous iron, sulfate, and carbon dioxide in the groundwater. It is planned that this data be collected as part of the additional work prior to implementing this alternative.

6.3.4 ALTERNATIVE GW3 – PUMP AND TREAT

Pump and treat is a common method for remediating groundwater contaminated with dissolved chemicals, including industrial solvents. The groundwater is removed to the surface where it is treated and then either returned to the ground or disposed on the surface (discharged to surface, sewer, or storm drain). Because the groundwater is removed, it is important to understand the physical characteristics of the aquifer to properly manage the amount of water that may be pumped and the impact that pumping will have on the flow regime of the aquifer.

At the site because of the expected wide-spread nature of the underlying contamination, it is expected that any pump and treat system will be nominal so that the flow of the water is minimally impacted and no contaminants are drawn into the site area. The costing for this alternative assumes that the existing wells may be converted to extraction wells for the surface collection of water for treatment by air-stripping. It is assumed that a permitted treatment unit may be procured for use at the site to implement this remedy.

7.0 ALTERNATIVES EVALUATION

As part of the detailed analysis, each alternative is assessed against evaluation criteria. The alternatives are compared on the basis of the assessment to identify the important tradeoffs among them. Each alternative is assessed against nine evaluation criteria under EPA's guidance for CERCLA FS document preparation and as required in the NCP. This approach is followed for the preparation of this document. During the detailed analysis of alternatives, these criteria are considered individually and equally weighted for importance. The evaluation criteria are divided into three groups based on the function of the criteria during remedy selection. The three groups include the threshold criteria, the balancing criteria, and the modifying criteria.

Threshold criteria relate to statutory requirements that each alternative must satisfy in order to be eligible for selection. These are:

Overall protection of human health and the environment: The assessment against this criterion describes how the alternative, as a whole, achieves and maintains protection of human health and the environment. When evaluating alternatives in terms of overall protection of human health and the environment, consideration should be given to the manner in which site risks identified in the conceptual site model are eliminated, reduced, or controlled through treatment, engineering controls (for example, containment), or institutional controls.

Compliance with applicable or relevant and appropriate requirements (ARARs): Compliance with ARARs needs to be assessed unless a waiver is obtained. Under this criterion, an alternative is assessed in terms of its compliance with ARARs. Applicable requirements are federal or state requirements that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at the site. Relevant and appropriate requirements are federal or state laws that, while not applicable to a hazardous substance, pollutant, contaminant, remedial action, or other site circumstances.

Balancing criteria are the technical criteria that are considered during the detailed analysis. The technologies identified as being most practicable for remediation have, therefore, been evaluated in light of the following feasibility study balancing criteria:

Long-term effectiveness and permanence: Each alternative is assessed in terms of its long-term effectiveness in maintaining protection of human health and the environment after response objectives have been met. The magnitude of residual risk and adequacy and reliability of controls are taken into consideration. Some aspects of long-term effectiveness include the ability of a cap to maintain its integrity. Long-term effectiveness also includes an evaluation of the magnitude of residual risk. In evaluating this criterion, long-term management of waste at the site is an important consideration.

Reduction of toxicity, mobility, or volume through treatment: Each alternative is assessed in terms of the anticipated performance of the specific treatment technologies it employs. Factors such as the volume of materials destroyed or treated, the degree of expected reductions, the degree to which treatment is irreversible, and the type and quantity of remaining residuals are taken into consideration.

Generally, benefits under this criterion would occur at a landfill when limited areas are remediated separate from the main effort, such as through treatment of hot spots. Technologies such as capping and access control provide no treatment and do not require evaluation under this criterion.

Short-term effectiveness: Each alternative is assessed in terms of its effectiveness in protecting human health and the environment during the construction and implementation of a remedy before response objectives have been met. The time until the response objectives have been met is also factored into this criterion. An important issue of short-term effectiveness is the effect on the community of truck traffic. Noise, traffic, nuisance, and potential increases in vehicular accidents resulting from this action need to be considered.

Implementability: Each alternative is assessed in terms of its technical and administrative feasibility and the availability of required goods and services. Also considered is the reliability of the technology, the ability to monitor the effectiveness of the remedy, and the ease of undertaking additional response actions, if necessary.

Administrative implementability is the relative difficulty of coordinating and obtaining approvals from other agencies to perform certain remedial activities. As an example, the implementability of bringing in truckloads of fill material for construction of the cap will depend on the source of the material and accessibility to the site.

Cost: Each alternative is assessed in terms of its present worth in capital and O&M costs. For purposes of this FS, estimated costs are presented within estimate accuracy of roughly 50 percent. Capital and O&M costs were prepared using 2013 dollars for construction in Southern California. In preparing the capital and O&M cost estimates, a contingency allowance of 30 percent was included. For present worth calculation, a discount rate of 7 percent was assumed, along with a 30-year period of performance. This described approach is typical for the preparation of cost estimates for FS documents.

Modifying criteria are formally assessed after the public comment period. However, state or community views are considered during the FS to the extent they are known or can be evaluated. No such factors have currently been identified and none are known. General descriptions of these criteria are provided. However, consideration of these is deferred to when the Record of Decision (ROD) is prepared and the state and community inputs are received. The modifying criteria are as follows:

State/support agency acceptance: Each alternative is evaluated in terms of the technical and administrative issues and concerns the state (or support agency) may have. This is a criterion that is addressed in the ROD once formal comments are received on the FS report.

Community acceptance: Each alternative is evaluated in terms of the issues and concerns the public may have. As with state acceptance, this is a criterion that is addressed in the ROD once the comments have been formally received on the FS report.

The threshold, balancing and modifying factors discussed above are considered in the following factors and presented in Tables 7, 8, 9, and 10.

- Tables 7.1, 7.2, and 7.3 – Factors associated with implementability that include technical feasibility, resource availability, and administrative feasibility;
- Table 8.1, 8.2, and 8.3 – Factors associated with effectiveness that include protectiveness and ability to achieve project objectives; and,
- Table 9.1, 9.2, and 9.3 – Cost factors that include the initial capital costs, the operating and maintenance costs (O&M), and the uncertainty related to costing for the alternatives. Estimates for costs are provided in Appendix F.
- Table 10.1, 10.2, and 10.3 – Summary of the alternative assessment measures and a ranking for the four alternatives by total values based of assessment as well as by cost-effectiveness measures.

State agency and community acceptance factors are not specifically addressed herein as these modifying factors will be formally addressed in later phases of the project. These are not expected to materially alter the choice of alternative chosen but may influence the details of implementation.

7.1 ALTERNATIVE COMPARISONS

The alternatives identified for soil, soil vapor and groundwater were evaluated against site-specific criteria in order to select the most appropriate remedial alternative for each media at the Site. The evaluation is based on identification of advantages and disadvantages of each remedial alternative in view of the short- and long-term aspects of three criteria: implementability, effectiveness, and cost considerations. Thus, in the following sections, remedial alternatives are evaluated against each of these primary criteria. Details regarding the three criteria are discussed in this section that describes preparation of Tables 7 through 10 (Note: there is one table for each of the media considered, as an example for soil it is Tables 7.1 through 10.1).

Each alternative is assessed and given a relative numerical score in comparison with the other alternatives for each factor. The alternative evaluation matrices are presented in Tables 7 through 10. The matrices provide information on each alternative. Several of the factors listed below are performance related, and the remaining factors involve a comparative rating.

7.1.1 IMPLEMENTABILITY CONSIDERATIONS

Implementability considerations refer to the technical and administrative feasibility of implementing a remedial alternative and the availability of various services and materials required during its implementation. The implementation considerations evaluation matrix is presented in Table 7.

<u>Technical Feasibility</u>

Technical feasibility considerations cover the treatment technologies' applicability to the specific chemicals of concern and address performance under Site conditions. Specific factors include:

- Construction and operational considerations: This factor evaluates the construction and operational issues to implement a remedial alternative. The ease of operating the remedial alternatives is also evaluated.

- Demonstrated performance/useful life: This factor evaluates the past performance and obtainable results based on historical sites of similar nature. Useful lifespan is based on performance, constructability, and ability to continue performing well.
- Adaptability to environmental conditions: This factor compares the extent of treatment technology process utilization with similar projects and similar types and concentrations of chemicals. It determines if the specific remedial alternative is viable to the Site's specific constraints.
- Ability to contribute to remedial performance of future remedial actions: This factor determines how well the alternative fits with continuing, upgraded, or future expansions and/or remedial goals. It evaluates whether the alternative contributes to the efficient performance of future remedial actions.

Availability

Availability considerations evaluate whether the off-site treatment, storage, and disposal capacity; equipment, personnel, services and materials; and other resources necessary to implement an alternative will be available in time to maintain the removal schedule. Specific factors include:

- Equipment, personnel, services, and off-site treatment and disposal capacity: This factor evaluates whether equipment, personnel, services, and treatment and disposal capacity for a specific alternative will be available.
- Operation and maintenance requirements (O&M): This evaluates the alternative's availability to meet O&M requirements for surface cap integrity, leachate control and collection, and surface water infiltration.

Administrative Feasibility

Administrative feasibility considerations evaluate the need for permits, property issues, and concerns of regulatory agencies. Specific factors include:

- Permit requirements: Evaluates whether, and to what extent, each alternative will need building permits, NPDES (National Pollutant Discharge Elimination System) permits, WDR permits, etc.
- Property issues: Evaluates whether an alternative will interfere with existing or future lease holders and need easements, right-of-way agreements, etc.

Technical feasibility, availability, and administrative feasibility are considered in Table 7 for the different alternatives considered. The weighting factors are assigned as follows:

- Technical feasibility – 60 percent (15 of 25)
- Availability – 16 percent (4 of 25)
- Administrative feasibility – 24 percent (6 of 25)

Assessments of alternatives for each media are presented in the following sections.

7.1.2 *Effectiveness Considerations*

The effectiveness of an alternative refers to its ability to meet the objective within the scope of the remediation. Effectiveness includes the overall protection of human health and the environment; the ability to achieve interim remedial objectives; long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; and short-term effectiveness and implementation risk. The effectiveness considerations evaluation matrix is presented in Tables 8. Specific factors include:

Protectiveness

Protectiveness refers to how well each alternative protects the public health and community. Considerations include evaluation of short-term effectiveness, long-term effectiveness and permanence, and whether the alternative is compliant with the following regulatory criteria:

- Protective of public health and community: This factor addresses any risk to the affected community that results from implementation of the proposed action, whether from air quality, fugitive dust, transportation of hazardous materials, or other sources.
- Protective of workers during implementation: This factor assesses any threats to Site workers and the effectiveness and reliability of protective measures that would be taken.
- Protective of environment: This factor evaluates the potential adverse environmental impacts from the implementation of each alternative. The factor also assesses the reliability of mitigation measures in preventing or reducing potential impacts.
- Compliance with Applicable or Relevant and Appropriate Requirements (ARARs): This factor evaluates the alternatives' compliance with ARARs to the extent possible, including, but not limited to: the Water Quality Control Plan Los Angeles River Basin; State Water Resources Control Board Resolution, Nos. 68-16, 88-63, 89-42, and 92-49; Porter-Cologne Water Quality Control Act 2004; and California Code of Regulations, Title 22.

Ability to Achieve Objectives

The ability of each alternative to achieve removal action objectives includes evaluation of the following:

- Will maintain long-term control: This criterion looks at the effectiveness of the alternative and assesses the reliability long-term control.
- No residual effect concerns: This criterion looks at the effectiveness of the alternative and assesses the risk from waste remaining at the conclusion of activities.
- Magnitude of risk: This criterion looks at the effectiveness of the alternative and assesses the adequacy and reliability of controls for activities and what the potential risks are if the system fails.
- Reduction of toxicity, mobility, and/or volume: This criterion evaluates whether the alternative will permanently and significantly reduce toxicity, mobility, or volume of the chemicals of concern as their principal element.

Effectiveness considerations are evaluated as protectiveness and ability to achieve the objectives. On a proportional basis, these are given weighting factors of 55 and 45 percent, respectively (see Table 8 – 16 of 29 for protectiveness and 13 of 29 for ability to meet objectives).

Assessments of alternatives for each media are presented in the following sections.

7.1.3 COST CONSIDERATIONS AND ESTIMATED COSTS SUMMARY

Cost considerations include the cost of implementing the proposed alternative. The cost considerations evaluation matrix for the evaluated alternatives is presented in Table 5, and detailed cost evaluation is provided in Appendix F. Please note that these costs are rough-order-of-magnitude (ROM) costs with an accuracy estimated to be plus or minus 30-percent. Specific factors include:

- Capital Costs:
  - Equipment costs
  - Construction costs
  - Engineering Design costs
  - Permitting costs
  - Construction and Project Management costs
- Operation and Maintenance Costs:
  - Operational costs
  - Maintenance costs
  - Performance monitoring costs
  - Project management and other labor costs

Cost factors are weighted for capital costs (37½ percent), O&M costs (37½ percent), and cost uncertainty (25 percent). Accordingly, the four alternatives are evaluated for these three factors. In the evaluation, the higher the cost for implementation of the alternative the less favorable it is and accordingly it is associated with lower numbers. In this assessment, the highest score is the most favorable alternative.

The remediation costs are further discussed in Appendix F. For each alternative, the capital cost (initial cost) and the annual recurring costs are separately calculated. Groundwater monitoring is included for each alternative. Accordingly, if soil and soil-vapor remedy is to be implemented, the groundwater monitoring costs from one need to be removed.

The estimated costs for the selected remedies are as follows:

- Soil remediation: The soil excavation and removal action cost for selected alternative S3 is $1,226,000 for the initial cost of removal and disposal of about 3,750 cubic yards of impacted soil from the site.
- Soil Vapor: The selected remedy for soil vapor is to remove the impacted soil during the soil excavation. It is estimated that this amount will add about 250 cubic yards of soil and $115,000 to the remedial cost. There is no additional recurring cost as the groundwater monitoring is already included in S3. This remedy is contingent on the results of planned field investigations and estimated to have a 50 percent likelihood of being needed.
- Groundwater remediation: The requirement for groundwater remediation is dependent on the results obtained from new wells planned to be installed at the site. The need for treatment will be decided following the availability of results from two sampling events of site monitoring wells.

If required, it is expected that alternative 2 (GW2) will be selected for implementation. This alternative is estimated to have an initial cost of $425,000 for the installation of new injection wells, for planning and designing of the system, procuring the necessary approvals, and for start-up of the operations. The total recurring cost for operations for ten years is $1,452,000, much of which is comprised of the costs of the injection fluid for dechlorination. The costs for this alternative have some uncertainty related to them as it is estimated that this remedy has less than a 25 percent likelihood of being implemented in the near term. This low likelihood of the requirement for this option is because the groundwater plume appears to be a part of a regional condition and it will be more economical for the Successor Agency to participate in a joint effort as opposed to an independent treatment system.

- The recurring costs are for groundwater monitoring for 10 years, nominal annual technical support costs of $5,000 per year, and a $15,000 cost for 5 year reviews. The total recurring costs are estimated to be $231,000 and will be likely required regardless of the implementation of the above described remedial actions. In the cost estimates presented in Appendix F, these costs are identified in each remedial alternative.

In summary, the soil remediation costs are estimated to be $1,226,000 and the recurring groundwater monitoring and miscellaneous other costs to be $231,000. Additional costs for soil vapor remediation and groundwater remediation are dependent on the results of planned investigations and the realization of those costs is less certain. The range of estimated costs for remediation is between $1.5 million and $3.0 million. The higher end of the cost estimate assumes all media will require remediation. It is estimated that the actual remediation costs will likely be less than $2,000,000.

Assessments of alternatives for each media are presented in the following sections.

7.2 COMPARATIVE CATEGORIES AND DESCRIPTIONS

The detailed technical evaluation of implementability and effectiveness is divided into five categories and provided weighting factors as follows:

- Technical Feasibility – Weight: 12 – Technical feasibility components are the highest weighted criteria because if the alternative is not technically feasible, it cannot be implemented
- Protectiveness – Weight: 16 – If the alternative is technically feasible, then it must be protective of the public and the environment
- Ability to Achieve Objectives – Weight: 13 – If the alternative is technically feasible and protective of the public and the environment, then the alternative must be able to achieve the project objectives.
- Availability – Weight: 4 – Pertinent, but not driving issues in the selection of the alternative.
- Administrative Feasibility – Weight: 6 – Pertinent, but not driving issues in the selection of the alternative.

The cost factors are important and assigned relative weights as well. In summary, the percentage of weighting used for the alternatives assessment is as follows:

- Implementability – 25 of 74 or 34 percent
- Protectiveness – 29 of 74 or 39 percent
- Cost – 20 of 74 or 27 percent

7.2.1 ASSESSMENT DESCRIPTORS

The assessment factors were rated on qualitative basis by numbers from zero to 5 where 0 represented a very unfavorable outcome or not significant rating and 5 a very favorable outcome or very significant rating. The descriptions provided below are general to illustrate the application of the evaluation and they may not necessarily be applicable to the media remediation being considered. Descriptors for the different considerations are provided below:

<u>Technical Feasibility Considerations</u>

- Construction and operational considerations:
  - Very Significant rating. Alternative can be readily implemented with no construction or operational issues.
  - Significant rating. Alternative can be implemented with construction or operational issues that are manageable.
  - Intermediate rating. Alternative can be implemented with considerable construction or operational issues.
  - Not Significant rating. Alternative cannot be implemented based on construction or operational issues.
- Demonstrated performance/useful life:
  - Very Significant rating. Alternative has well-proven performance and results on numerous similar sites.
  - Significant rating. Alternative has proven performance and results on similar sites.
  - Intermediate rating. Alternative has limited, demonstrated performance not proven in field applications, but proven at the bench-scale or pilot-scale.
  - Not Significant rating. Alternative has performance not proven in field applications.
- Adaptability to environmental conditions:
  - Very Significant rating. Alternative is readily adaptable to changes in conditions such as concentrations or chemicals of potential concern.
  - Significant rating. Alternative is adaptable to changes in conditions with reasonable effort.
  - Intermediate rating. Alternative necessitates significant level of effort to adapt to changes in conditions.
  - Not Significant rating. Alternative is not adaptable to changes in environmental conditions such as concentrations or chemicals of potential concern.

- Contribution to remedial performance of future remedial actions:
  - Very Significant rating. Alternative components are readily flexible and expandable.
  - Significant rating. Alternative components are potentially flexible and expandable.
  - Intermediate rating. Alternative treatment system has limited flexibility (fixed walls cannot be moved, though they can be supplemented with hydraulic control wells).
  - Not Significant rating. Alternative treatment system has components that are inflexible and not expandable.

<u>Availability Considerations</u>

- Equipment, personnel, services, and off-site treatment and disposal capacity:
  - Very Significant rating. Alternative has no availability issues.
  - Significant rating. Alternative has minor availability issues that can be addressed through appropriate level of project management.
  - Intermediate rating. Alternative has availability issues that can be addressed through a significant level of project management.
  - Not Significant rating. Alternative has restrictive availability issues.
- O&M requirements:
  - Very Significant rating. Alternative has no or minimal O&M requirements.
  - Significant rating. Alternative has reasonable O&M requirements.
  - Intermediate rating. Alternative has extensive and costly O&M requirements.
  - Not Significant rating. Alternative has restrictive and/or extremely costly O&M requirements

<u>Administrative feasibility</u>

- Permit requirements:
  - Very Significant. Alternative has no permit compliance considerations.
  - Significant. Alternative has minimal permit compliance issues (e.g. NPDES permit monitoring and reporting).
  - Intermediate. Alternative has routine permit acquisition; but implementable issues, such as WDR acquisition, may be issues.
  - Not Significant. Obtaining required permits is unlikely.
- Property issues:
  - Very Significant. Alternative has no impact or land use restrictions.
  - Significant. Alternative has minimal impact on future operations.
  - Intermediate. Alternative has manageable land use restrictions.

  - Not Significant. Alternative has significant land use restrictions and/or easements.

<u>Protectiveness</u>

- Protective of public health and community:
  - Very Significant. Alternative has no air quality impacts, no fugitive dust issues, no hazardous waste transport, and/or no impacts on water quality.
  - Significant. Alternative has minimal air quality impacts, fugitive dust issues, hazardous waste transport, and/or impacts on water quality.
  - Intermediate. Alternative has manageable air quality impacts, fugitive dust issues, hazardous waste transport, and/or impacts on water quality.
  - Not Significant. Alternative does not have manageable air quality impacts, fugitive dust issues, hazardous waste transport, and/or impacts on water quality.
- Protective of workers during implementation:
  - Very Significant. Alternative implementation would have minimal risk that would not require engineering controls.
  - Significant. Alternative implementation would have some risk that could be minimized using engineering controls.
  - Intermediate. Alternative implementation would have some risk.
  - Not Significant. Alternative implementation would include high risk operations.
- Protective of environment:
  - Very Significant. Alternative implementation would significantly increase protection of the environment.
  - Significant. Alternative implementation would be protective of the environment without increasing risk.
  - Intermediate. Alternative implementation would be protective of the environment; but because of conditions, may generate potential for mobilization of DNAPL (Dense, Non-Aqueous Phase Liquid).
  - Not Significant. Alternative implementation would be possible detriment to the environment.
- Compliance with Applicable or Relevant and Appropriate Requirements (ARARs):
  - Very Significant. Alternative implementation would significantly exceed requirements of ARARs.
  - Significant. Alternative implementation would exceed requirements with ARARs.
  - Intermediate. Alternative implementation would be compliant with ARARs.
  - Not Significant. Alternative implementation would not be compliant with ARARs.

Ability to Achieve Objectives

- Will maintain long-term control:
  - Very Significant. Alternative will easily maintain long-term control.
  - Significant. Alternative will maintain long-term control.
  - Intermediate. Alternative will potentially maintain long-term control.
  - Not Significant. Alternative will not maintain long-term control.
- No residual effect concerns:
  - Very Significant. Alternative removes all residual that is feasible to be removed.
  - Significant. Alternative removes majority of residual that is feasible to be removed.
  - Intermediate. Alternative removes some of residual that is feasible to be removed.
  - Not Significant. Alternative removes none of existing residual
- Magnitude of risk:
  - Very Significant. Alternative has minimal or no risk of failure.
  - Significant. Alternative has minimal risk of failure that can be managed.
  - Intermediate. Alternative has some risk of failure that can be managed.
  - Not Significant. Alternative has potential risk of failure.
- Reduction of toxicity, mobility, and/or volume:
  - Very Significant. Alternative generates reduction of volume, mobility, and toxicity.
  - Significant. Alternative generates reduction of volume through extraction, and heat mobilizes contaminants for removal.
  - Intermediate. Alternative generates reduction of volume through extraction.
  - Not Significant. Alternative generates no reduction of toxicity, mobility, and/or volume.

Evaluation factors for cost are intuitively apparent and not specifically described as the higher the cost the lower the number assigned.

7.3 DISCUSSION OF ALTERNATIVES – SOIL

The three alternatives that were considered for soil were evaluated in Tables 7.1, 8.1, and 9.1. A summary of the analysis is provided in Table 10.1.

For implementability (Table 7.1), the excavation of the soil for off-site disposal, Alternative 3 scored the highest by far. The other two alternatives were rated to be similar. For effectiveness (Table 8.1), again Alternative 3 scored highest, with the main advantage being that there is high confidence that the objectives will be met to their entirety. The no action alternative is lowest by far. For cost (Table 9.1), Alternative 3 also rated high because of the ability to manage O&M costs and there is low level of uncertainty.

Based on this analysis, Alternative 3 is selected to remove the impacted soil and dispose it in off-site facility for thermal desorption.

7.4 DISCUSSION OF ALTERNATIVES – SOIL VAPOR

The four alternatives that were considered for soil were evaluated in Tables 7.2, 8.2, and 9.2. A summary of the analysis is provided in Table 10.2.

For implementability (Table 7.2), the excavation of the soil for off-site disposal, Alternative 3 scored the high but the other alternatives were comparable. For effectiveness (Table 8.2), Alternative 4 scored highest, with the main advantage being that a barrier is provided and there is no requirement for reduction of toxicity. For cost (Table 9.2), Alternative 3 is rated high because being able to complete the process with the soil removal and at an effective cost.

Based on this analysis, Alternative 3 is selected to remove the impacted soil and dispose it in off-site facility for thermal desorption. This option is to be implemented by identifying the impacted areas in the soil vapor investigation, see Appendix C, and adding that area to the excavations identified herein.

7.5 DISCUSSION OF ALTERNATIVES – GROUNDWATER

The three alternatives that were considered for groundwater were evaluated in Tables 7.1, 8.1, and 9.1. A summary of the analysis is provided in Table 10.1. It should be noted that there is no requirement to implement groundwater remedial action based on the current groundwater data. This decision is to be made following the completion of the four new wells and sampling and analysis results from two events to be conducted later this year. The specifics of the required action will become known at that time. For purposes of this analysis, reasonable assumptions have been made regarding the groundwater conditions and remedial alternatives identified based on judgment and knowledge of having worked at similar sites in the past.

For implementability (Table 7.3), all of the alternatives were scored to be equally acceptable and were assessed with identical scores. For effectiveness (Table 8.3), Alternative 3 scored highest, with the main advantage being the relatively more aggressive nature of the action. The no action alternative is lowest by far. For cost (Table 9.3), Alternative 2 rated high because of its attractive capital cost for implementation relative to Alternative 3. The uncertainty level for all alternatives was assessed high because of the current knowledge of the site conditions relative to the regional impacts.

Based on this analysis, Alternative 2 is selected to provide in-situ remediation by installing four injection wells at locations to be decided later. The details of the implementation of this remedy will be determined when more data are available and a site-specific approach can be designed for implementation. In the interim, assumptions for site conditions have been made for preparation of the costs of the implementation of this option. It is expected that the existing network of monitoring wells will be sufficient to monitor the progress of the remedial action when it is implemented.

As this alternative is an option for implementation, it is not discussed further in this ResPlan.

Groundwater monitoring is a requirement that will be implemented independent of other alternatives. Provisions are provided in the plan for the implementation of groundwater monitoring for the four new wells and the four existing wells for a period of ten years – semiannually for two years and annual thereafter.

7.6 INSTITUTIONAL CONTROLS

Institutional controls (ICs) are generally defined as non-engineered instruments, such as administrative and legal controls, that help to minimize the potential for human exposure to contamination and/or protect the integrity of a remedy. ICs are typically designed to work by limiting land or resource use and/or by providing information that helps modify or guide human behavior at the site. Some common examples of ICs include zoning restrictions, building or excavation permits, well drilling prohibitions and easements and covenants.

DTSC identifies the use or anticipated use of the property as part of the ResPlan approval process. This results in a land use control (LUC) description that will represent an agreement as to the allowable and permitted land uses. A LUC may be recorded as part of the property deed. This will commit the owner to not make any change in use of the property inconsistent with the recorded land use control and without the express approval of DTSC (as required by HSC § 25395.99(f)). DTSC may require the property owner to prepare and implement a new response plan that takes into account the changed land use or anticipated changed use of the property, if it is assessed by DTSC that the changed use requires additional site investigations or remedies.

All site assessment and remediation discussion in this ResPlan assumes prospective site use to be commercial or industrial. The planned remedial action is consistent with such use.

8.0 REMOVAL ACTION IMPLEMENTATION

The following sub-sections discuss locations, mobilization, control measures, air-monitoring, and field variances during the periods of removal excavation and treatment. Implementation actions discussed herein are for soil removal. If soil vapor impacts are confirmed the area of excavation may need to be enlarged from that described herein and this enlargement will be an addendum to this ResPlan.

Groundwater remediation is not discussed in this section. If such remediation is found necessary, the alternative for in-situ remediation by dechlorination will be implemented on the basis of a design that will be described on the completion of the investigations described in Appendix C.

8.1 PROJECT MOBILIZATION

Project mobilization consists of those tasks which will precede soil excavation and treatment activities. The general sequence of preliminary work is outlined below:

1. A permit from the South Coast Air Quality Management District (Various Locations, Rule 1166, Contaminated Soil Mitigation Plan) will be secured prior to any on-site excavation activities. The California Department of Transportation (Caltrans) and the City of Huntington Park may require permits, or specified routes, to transport the contaminated soils to a transfer facility; these needs would be researched, and permits and/or approved

routes, obtained. The Occupational Safety and Health Administration (OSHA)-certified contractors with approved excavation and transport equipment will be engaged.

2. A grading permit will be obtained prior to the start of excavation activities.
3. Underground Service Alert will be contacted to identify all known underground utilities within and beneath the site. Each utility, if any, will be conspicuously marked.
4. The contractor will mobilize equipment and supplies to the site and prepare for excavation activities.
5. A temporary chain link fence will be placed around the excavation area in the southwest part of the Central Yard. A vehicle gate will be located within the eastern portion of the fence. Limited access (i.e. temporary chain link fence) to each isolated occurrence of elevated level of contamination needs to be provided as these areas are being excavated and/or backfilled.
6. Temporary facilities, including a portable toilet and hand-washing station, will be installed onsite.
7. The limits of the impacted soil will be clearly demarcated onsite, as depicted on **Figure 8**. This area will be marked with wooden stakes and paint immediately prior to excavation activities.
8. A decontamination area will be identified and equipped as needed to decontaminate personnel, equipment, and vehicles as they exit the excavation area. The personnel decontamination area will be maintained immediately adjacent to the planned excavation areas.
9. Equipment staging will be identified adjacent to and/or within the site.
10. All health and safety equipment and supplies will be obtained and positioned for use adjacent to the work area.

8.2 LOCATION OF PROPOSED EXCAVATION AND TREATMENT AREAS

The shallow soil at the site is contaminated by the above-RSL concentrations of PAHs and metals (arsenic, cadmium, and lead). In addition, risk calculations show that copper and nickel concentrations also contribute to calculated non-cancer risk. Based on these findings, the removal action objectives are identified as follows:

- Select site soil excavation locations based on investigation results for PAHs and metals (arsenic, cadmium, and lead) , and soil VOCs to mitigate indoor air risk from soil vapors containing PCE and TCE.
- In selected areas, excavate soil to 5 feet for removal and off-site disposal.
- Conduct confirmation sampling to meet removal goals for PAHs and selected metals. The removal goal is to meet industrial soil screening concentrations. This concentration is also called the action level. All soil concentrations for confirmation samples will meet the following goals:

BaP: 0.21 mg/kg

Arsenic:	12 mg/kg
Cadmium:	7.5 mg/kg
Lead:	320 mg/kg

- Should confirmation sampling show that the soil concentration is greater than the remediation goal, further excavation and removal will be made and confirmation samples taken again. This process will be repeated to meet the goals for BaP and metals concentrations as identified above. The additional excavation will be conducted only in the segment where the failed sample result was obtained and that segment will be re-sampled for confirmation after the added excavation. The extent of the additional excavation will be based on the sample results and observations in the field.
- Excavated areas will be backfilled and compacted to adjacent grade after DTSC concurrence that shallow soil remediation is completed. Clean imported soil will be used for backfill. The clean soil will be analyzed free of contaminants prior to import to the site. All soil will be compacted to at least 90 percent relative compaction.

It should be noted that this work does not include areas that may be found to contain soil vapor impacts for indoor air. Such areas are to be identified by soil vapor investigations described in Appendix C and, if found, will be added to the excavations described herein. The descriptions provided include the provisions for adding such areas without the changes to this plan. No verification sampling will be necessary for those areas where excavations are planned for soil vapor indoor air risk.

The proposed excavation areas are shown on **Figure 8**. As noted on this figure, the excavations will be located at least 3 feet from any of the property lines. Excavations will be to a depth of between 2 and 5 feet. Confirmation sampling of excavation base and sidewalls will be used to assess concentration levels for arsenic, cadmium, lead, and BaP in the soil exposed in the excavation. Should confirmation sampling reveal remaining impacted soil, then the excavations will be deepened or extended for additional soil removal. This process will be repeated till all impacted soil above cleanup levels has been demonstrated to be removed.

Eco estimates the depth of contaminated soil excavation to be 2 feet or more based on the sampling results from past investigations. However, extent of soil contamination, both vertically and laterally, will dictate the amount of excavation. **Figure 8** depicts the planned areas for excavation and the respective depths. These have been based on sampling results and areas where greater than removal action level concentrations have been identified.

In addition to the areas identified above for soil contamination by lead, arsenic, and PAHs, the following areas are added where the soil vapor concentrations are identified to be higher than the RBSLs:

- In the area of WB2-18: this area around Warehouse Building #2 has resulted in the initial excavation for soil to be expanded in this area.
- In the area of WB3-26: an area of 10’ x 10’ to a depth of 5 feet will be excavated in this area to remove the high soil vapor soil.

- In the area of WB2-29: the adjacent WB2-6 area for soil removal will be expanded towards WB2-29 for removal of soil vapor impacted material.

Figure 8 includes the eight (8) areas that require remediation for metals and PAHs and for soil vapor.

The following is the estimate of quantity of contaminated soil to be excavated.

ESTIMATE OF EXCAVATION VOLUME

AREA	LOCATION/ BORING LOCALE	EXCAVATION DIMENSIONS	VOLUME OF SOIL REMOVAL (CUBIC YARDS)
1	**Near NY-4**	10' x 10' x 2'	7.5
2	**Central Yard Area**	50' x 65' x 2'	241
3	**Around WB2-25**	Irregular x 2' to 5' in the south	302
4	**Around WB2-6**	Irregular x 2'	546
5	**Around WB2-9**	10' x 10' x 2'	7.5
6	**Around WB1-5**	10' x 10' x 2'	7.5
7	**Around RR-2**	10' x 10' x 2'	7.5
8	**Southern Yard Area**	60' x 115' x 2'	511
		TOTAL:	**1,630 cubic yards**

The above calculation does not include provisions for sidewall sloping for safety and contingency for additional investigation. It is estimated that the actual volume of soil to be removed for off-site disposal will be 2 to 2½ times the quantity estimated above. This provides a median estimate of removal of about 3,750 cubic yards or about 5,250 tons.

Excavated soil will be placed to a temporary stockpile located in the north-central part of WB2. Plastic sheeting (10 mil or thicker) shall be set at the base of the stockpile prior to any placement of soil. Possible wastewater runoff from this stockpile will be collected, drummed, classified, and transported off-site for disposal. Additional temporary stockpiles can be placed on top of the engineered backfill of the excavated area in the Central Yard, if needed.

8.3 SOIL EXCAVATION

Prior to the start of excavation activities, all of the elements discussed within Section 6.1 will be completed. The excavation procedures onsite will be conducted in the following general sequence:

- Develop staging and access pathways for equipment to be used during removal activities.

- Identify locations of perimeter air, dust, and noise monitoring and begin monitoring, as necessary, to obtain baseline conditions. Dust and noise monitoring at the Site boundary will be performed by making periodic measurements during the day. Appropriate mitigation measures will be implemented if indicated by these measurements.
- Subsurface features (although not anticipated) will be removed and relocated.
- Excavate areas for soil removal to at least 2 feet bgs, and as shown on **Figure 8**. Excavation will generally be conducted in stages of 2 feet or more to allow for the visual observation of the excavation area.
- The cessation of removal/excavation activities will occur when laboratory analysis of wall and bottom confirmation samples indicate the contamination remaining with the in-place soils is no greater than the industrial RSL of the compound(s) or the removal action goals described herein.
- Placement of excavated soil onto temporary stockpiles (see **Figure 8**).
- Place plastic sheeting over the soil stockpiles when completed.
- Flag excavation area between shifts and at night.

The excavation equipment will be maintained and stored within the site during the time of soil excavation. The types of excavation equipment to be used will likely include the following:

- Two Front-end loaders for loading, hauling
- Two Excavators and/or backhoes for excavation and loading
- One water truck for dust suppression and soil moisturizing
- Other equipment will be added onsite as required by the contractor. Such equipment may include, but not be limited to, mixing equipment, generators, sump pumps, forklifts, and maintenance trucks. It is expected that there may be an addition 10 vehicles at the site during removal activities that include the vehicles brought to the Site by Contractor and project support personnel.

The field work for remedial action is estimated to take between 4 to 6 weeks (20 to 30 working days). Additional days may be required if confirmation sampling requires set-out excavations and several iterations for field work to be completed.

8.4 CONTROL MEASURES

Control measures at the site will include the following:

- During the period of the removal action, the site will be secured and access limited. All access to the site will be controlled by managed ingress and egress. The excavation contractor will be responsible for the site and the equipment that he will leave at the site.
- The contractor will be required to present a Storm Pollution Prevention Plan that he will maintain for implementation at the site should it rain during the removal action. Best management practices will be utilized to manage storm water flow and to assure that sediments are not transported from the site.

- Engineering controls will be implemented to reduce the noise level during the excavation activities onsite. It will be the contractor's responsibility to bring properly maintained equipment to the site. Such equipment will be required to meet standards for commonly used and permissible construction equipment. Noise monitoring will not, however, be conducted during construction activities.
- The contractor will manage fugitive dust during site excavation activities. A water truck will be present at all times and he will be required to have sufficient personnel to spray water to manage the dust, should that be necessary.
- Truck traffic used to remove soil from the site will be scheduled to limit truck traffic to ingress/egress the site at least 15 minutes apart. This will mitigate the truck traffic in the area of the site. A staging area for truck parking offsite may be necessary to manage truck flow when soil is being exported or clean soil is being brought to the site. Flagmen will be used to assist equipment ingress or egress to city streets.

Temporary, chain link fencing will be used to control the access to the on-site areas of excavation, stockpile(s), and equipment storage/parking, if necessary. Alexander Imports occupies a portion of the site. When working in the Alexander Import area of the site, the contractor will need to coordinate his work schedule with that company.

Other control measures will be implemented as may be necessary or required by the excavation permit.

8.5 AIR MONITORING DURING EXCAVATION

Air monitoring during excavation will be in accordance with Air Quality Management District (AQMD) permit requirements for the excavation.

Soil excavation monitoring will be conducted during all on-site excavation activities. Trained personnel in the excavation area will continuously monitor for the possible presence of VOCs. A photoionization detector (PID; RAE Systems, Inc. [MiniRAE]) will be used for health and safety monitoring and soil screening during excavation activities.

PID measurements will be recorded periodically while excavating is being conducted. PID measurements will be recorded upwind, downwind, and at 3 inches from freshly excavated soil. The PID measurements will be recorded on a PID summary sheet.

Emissions when observed will be controlled through use of misting system or the application of foam, as necessary. All excavated soil stockpiles will be covered a quickly as practical with plastic and it will be the goal to backfill excavation as soon as the laboratory confirmation results show that the excavation is complete.

Excavation will be stopped, and the excavated area covered by plastic, if the permit limits on volatiles are exceeded. The condition will be evaluated and reviewed with DTSC. Excavation will be re-started only when either the condition has abated to allow excavation to proceed or alternative and approved method is available to proceed.

8.6 FIELD VARIANCES

It will be the responsibility of the Successor Agency representative at the site to discuss field variances from the work plan with DTSC prior to any action being taken except in the case of a site emergency (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

9.0 SAMPLING AND ANALYSIS PLAN

The Sampling and Analysis Plan is provided in Appendix C.

9.1 CONFIRMATION SAMPLING

Confirmation sampling is necessary to assure compliance with action levels described Section 5.1. Where such sampling shows that the metal or PAH concentrations remain high (greater than their removal action levels), additional excavation may be necessary. Confirmation sampling will need to be performed prior to backfilling of excavations. The number of samples to be collected and the laboratory analyses to be performed is described below.

All sampling equipment will be decontaminated prior to the collection of each sample. Prior to confirmation sampling, any loose material or soil will be gently brushed off the surface of the excavation and care will be taken to collect the sample from an area unaffected by the excavation.

Soil samples from the base of the excavations will be collected by the direct insertion of a stainless steel tube or a laboratory-supplied, 4-ounce glass sample jar into the soil.

Sidewall confirmation soil samples will be collected from the excavation's outside walls at lateral intervals of approximately 20 feet or one on each side, if the excavation is less than 20 feet. Sidewall soil samples will be collected approximately halfway down the wall. For example, if the excavation is 3.0 feet deep at the sidewall sample location, then the sample will be collected at a depth of approximately 1½ feet. Sidewall soil samples will be collected by scraping the excavation face into sampling jars or by driving a sleeve into the face at each prescribed depth.

The number of soil samples from the base of the excavation will be based on the size of the excavations. One sample will be collected for each 400 square feet of excavated area or a minimum of one.

All sampling will conform to DTSC requirements. If additional sampling locations are necessary because required by DTSC staff, such additional sampling will be performed.

Field duplicates of all confirmation samples will be collected at a rate of 10 percent of the primary samples collected. Duplicate samples will be collected randomly. The location of the duplicate samples will be determined at the time of removal activities.

All jars or tubes will be filled fully with soil and sealed with Teflon®-lined lids for both primary and duplicate confirmation samples. The samples will be appropriately labeled, placed in re-sealable plastic bags, and stored on ice in a cooler until delivered under a chain of custody to the analytical laboratory (Section 7.4).

All confirmation samples need to be analyzed for the following:

- Arsenic using EPA Method 6020
- Cadmium and Lead using EPA Method 6010
- PAHs using EPA Method 8270

9.2 Soil Stockpiles or Waste Disposal Classification Sampling

As noted above, the excavated soil may be temporarily stockpiled onsite. Such stockpiling is for the convenience of the Contractor for loading of trucks for off-site disposal. Stockpiled soils will require sampling and analysis at the laboratory for the same compounds as the confirmation samples to provide a profile for their transfer to an off-site disposal.

Stockpiled soil will be sampled at the rate of one sample every 200 cubic yards. Soil samples will be analyzed for the following for disposal purposes:

- VOCs using EPA Method 8260
- PAHs using EPA Method 8270
- Metals using EPA Method 6010, and
- TPH (gas and diesel) using EPA Method 8015M.

Sampling results will be used to properly designate the stockpiled soil for disposal.

9.3 Soil Import for Backfill

All soil that is imported by the contractor will be evaluated prior to start of import by reviewing the analytical results of the soil. It will be deemed clean if it meets the criteria for clean as specified in Los Angeles Unified School District (LAUSD) Specification 01 4524, provided as Attachment III in Appendix C. This specification identified the frequency of sampling as well as the analytical methods necessary for evaluation of soil characteristics. The LAUSD specification is to be used only inasmuch it relates to the sufficiency of sampling and the analyses necessary for import soil, specifically Section 3.02 of the section, except that there is no requirement to determine the site-specific background concentrations for metals.

9.4 Other Investigations

Other investigations include the following:

- Soil vapor investigation to define the area impacted by high soil vapor that represents an indoor air risk;
- Four new groundwater monitoring wells and the sampling and analysis of all four wells for two events thereafter.

Investigations for PCBs are not planned at this time.

These investigations are detailed in Appendix C.

9.5 CHAIN OF CUSTODY RECORDS

Chain-of-custody records are used to document sample collection and shipment to the laboratory for analysis. A chain-of-custody record will accompany all samples shipped for analysis. These records will be completed and sent with the samples to the laboratory upon completion of sampling. After completing the chain-of-custody form, it will be placed into a sealed waterproof bag and taped to the underside of the cooler's lid. If multiple coolers are sent to a single laboratory on a single day, forms will be completed and sent with each cooler.

The chain-of-custody record will identify the contents of each shipment and maintain the custodial integrity of the samples. Generally, a sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. Until the samples are shipped or delivered, the custody of the samples will be the responsibility of Eco & Associates. The project manager or designee will sign the chain-of-custody record. The signer will sign the "relinquished by" box and note date and time.

The shipping containers in which samples are stored (usually sturdy picnic cooler or ice chest) will be sealed before shipping.

9.6 SOIL CHEMICAL ANALYSES

American Environmental Testing Laboratory, Inc. (AETL), located in Burbank, California, will perform chemical analyses of the soil samples collected during excavation activities. AETL is certified by the California Department of Health Services (DHS) Environmental Accreditation Laboratory Program. Each soil sample collected from the stockpiles will be analyzed for arsenic, cadmium, lead, and PAH.

The analytical results will be used to classify and assess the stockpiled soils for their transfer to appropriate treatment/disposal facilities.

9.7 REMEDIATION RECORD-KEEPING AND DOCUMENTATION

Field logbooks will be used to document where, when, how, and from whom any vital information was obtained during all remediation-related activities. Logbook entries will be complete and accurate enough to permit reconstruction of all field removal and associated sampling activities. A new logbook will be dedicated to this project. Logbooks will be bound with consecutively numbered pages. Each page will be dated and the time of entry noted in military time. All entries will be legible, written in black ink, and signed by the individual making the entries as well as a California registered geologist, engineer, or project scientist. Language will be factual, objective, and free of personal opinions or other terminology that might prove inappropriate.

The following information will be recorded during the collection of each sample:

- Site name and address
- Recorder's name
- Team members and their responsibilities
- Time of site arrival/entry onsite and time of site departure

- Other personnel onsite
- A summary of any on-site meetings
- Deviations for the sampling plans and site safety plans
- Changes in personnel and responsibilities as well as reasons for the changes
- Levels of safety protection
- Calibration readings for any equipment used and equipment model and serial number
- Sample location and description
- Site sketch showing sample location and measured distances
- Sampler's name(s)
- Date and time of sample collection
- Weather conditions
- Type of sampling equipment used
- Field observations and details important to analysis or integrity of samples (e.g., heavy rains, odors, colors, etc.)
- Preliminary sample descriptions
- Field instrument readings
- Type(s) of preservation used (if any)
- Sample numbers and chain-of-custody records,
- Sample transport arrangements
- Recipient laboratory

In addition to the sampling information, the following information will also be recorded as appropriate in the field logbook for each day of sampling.

- Daily log of site activities
- Deviations from sampling plan or site safety plan
- Changes in personnel and responsibilities as well as reasons for the changes
- Levels of safety protection
- Calibration readings for any equipment used
- Equipment model and serial number

10.0 HEALTH AND SAFETY PLAN

The excavation sub-contractor will be required to present a Health and Safety Plan prior to start of excavation activities. This plan will be reviewed by the Successor Agency and DTSC, and will be approved prior to start of excavation activities. It will be based on the requirements and the plan prepared with this document, see Appendix D. This plan shall guide the sub-contractor plan and also shall apply for field work planned in this document to be performed by Consultant to the Successor Agency.

The Successor Agency representative at the site will be responsible to make sure that the contents of the Health and Safety Plan are being implemented by the contractor.

11.0 DECONTAMINATION PROCEDURES

In order to prevent transfer of contaminated materials offsite, the following decontamination procedures will be implemented:

1. Trucks used for the off-site transportation of heavy equipment will remain on clean areas at all times in order to minimize the need to decontaminate the truck tires. If truck wheels are exposed to impacted soil, they will be fully cleaned prior to leaving the impacted area. Soil will be scraped and brushed (with a stiff bristled broom) from the tires on a cleaned metal grate. Afterwards, any removed soil will be placed into the treatment stockpiles. The exterior surfaces of trucks leaving the site will be visibly free of soil.
2. Track-hoe buckets and/or loader buckets used to excavate and/or move potentially impacted soil will be cleaned after use in areas containing potentially hazardous materials. The soil on the buckets will initially be scraped, collected, and placed onto the stockpiles for treatment. After scraping, the buckets will be steam cleaned or cleaned with a detergent solution and a stiff-bristled brush over plastic sheeting, followed by rinsing with clean water. The wash and rinse water will be collected and temporarily placed into 55-gallon drums.
3. In order to decontaminate reusable items such as work boots, a two-stage decontamination process will be used. It will include washing in a detergent solution with a stiff-bristled brush and rinsing with clean water. The wash and rinse water will be collected and temporarily placed into 55-gallon drums.
4. The drummed wash and rinse water will be sampled, the sample analyzed at the laboratory, classified, and transported to an appropriate facility for treatment/disposal.

All sampling equipment that is exposed to potentially contaminated soil or water will be decontaminated consistently to assure the quality of soil and groundwater samples collected and reduce or prevent the spread of potential on-site contaminants. Decontamination will occur prior to and after each use of a piece of equipment. All sampling devices used will be decontaminated using the following procedures:

1. Non-phosphate detergent and tap water wash, using a brush if necessary
2. Tap water rinse
3. Initial deionized/distilled water rinse
4. Final de-ionized/distilled water rinse

The soil sampling tubes used to collect the soil samples will be provided by the laboratory or an environmental supply store, and will be new and unused. Disposable equipment intended for one-time use will not be decontaminated, but will be packaged for appropriate disposal.

12.0 COMMUNITY AND WORKER PROTECTION PROCEDURES

A brief description of on-site activities designed to reduce the chemical threat to the community and on-site workers is provided in the sections below.

12.1 PROTECTION OF COMMUNITY

Based on the relatively low contaminant concentrations expected during on-site construction activities, the threat to the community because of on-site excavation activities is considered very low. The hazardous materials expected to be encountered onsite are lead, arsenic, and PAH's; PCE's will also be encountered, but at levels of contamination below their industrial RSLs. Dust suppression measures would include wetting of impacted soil (as needed), the covering of excavated soil with plastic sheeting, and halting the excavation operations during periods of high wind activity. For the purposes of this project, high wind activity will be defined as that which is sufficiently high enough to thwart all dust suppression measures.

12.2 PROTECTION OF ON-SITE WORKERS

On-site workers could be exposed to soil contamination during excavation and loading operations. The routes of potential exposure would include inhalation, dermal absorption, and ingestion. Appropriate protective equipment, such as Tyvek® coveralls, gloves, and respirators must be used by all remediation workers that may be exposed to contaminated materials. Proper use of this equipment should substantially reduce exposure risk. Air monitoring will be conducted during construction activities to assess the potential for impacted soil. Protection of the on-site workers will be addressed in the Health and Safety Plan that will be submitted by the contractor.

13.0 FINAL SOIL DISPOSITION

Once soil remediation has been successful, as evidenced by laboratory results from analysis of the confirmation samples, the areas of excavation can be backfilled with clean, imported soils. Soil for backfilling, and prior to its placement onsite, must be approved by the project engineer or engineering geologist. Backfill soils will be placed in 6-inch lifts through the excavated area, and then compacted with mechanical equipment to a level of 90 percent relative to ASTM Standard D1557. The densification of soil will be assured with testing results that are signed by a Geotechnical Engineer. This report will be required of the contractor and he will be responsible for the testing of the soil during compaction.

Backfilled excavations in paved areas of the site will be capped with asphalt or similar material.

Equipment used for transporting, placing, and compacting backfill soils should be different than, or thoroughly decontaminated, equipment used at the excavation of the contaminated soils.

After the successful completion of the specified removal activities, the Successor Agency will request that DTSC issue the following:

- A written determination that No Further Action is required at this site.
- A written determination pursuant to CLRRA that the immunities provided by that act applied to the Successor Agency and any person who enters into an agreement with the Successor Agency for the future redevelopment of the real property.

14.0 POST REMEDIATION SITE CONDITION

After completion of removal action, and approval of the completion report by DTSC, the site will be deemed suitably remediated and it may be released for commercial/industrial usage. DTSC may require review of improvement plans and oversight of such a project.

As discussed in Section 13.0 above, periodic groundwater monitoring for VOC will be required to assess VOCs in the groundwater and to monitor their continued attenuation.

15.0 PUBLIC PARTICIPATION

Public participation is an integral part of the removal process. The public is encouraged to review the ResPlan and the SCR. The ResPlan will be available for public review in the following three information locations:

Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, CA 91311-6505
Phone: (818) 717-6500)
Contact: Mr. Manjul Bose

Huntington Park Library
6518 Miles Avenue
City of Huntington Park, CA 90255-4388
Phone: (323) 583-1461
Contact: Reference Librarian

City of Huntington Park, City Hall
6550 Miles Avenue
City of Huntington Park, CA 90255
Phone (323) 584-6266
Contact: Ms. Fernanda Palacios

A public comment period will be set for a one-month period to provide an opportunity for public participation. A public meeting will be scheduled during the comment period, if necessary.

Comments received on the ResPlan will be integrated into a final document.

The following actions will take place to initiate the public comment period on the ResPlan.

- A notice will be published in a local newspaper(s) of general circulation in the area affected by the ResPlan. The notice will indicate that DTSC is seeking public input on the ResPlan and on the California Environmental Quality Act (CEQA) documents. It will provide notification of the public meeting, the dates defining the 30-day public comment period, a brief description of the removal/remedial action, and that the ResPlan can be reviewed at one of the three repository locations.
- A draft fact sheet will be prepared for DTSC's review and approval. The fact sheet will provide the major details on the contents of the ResPlan, will include the notice of public meeting, and indicates the dates defining the 30-day public comment period. Once the fact sheet is approved by DTSC, copies will be mailed to local and state agencies, owners of property contiguous to the site, other known interested parties, and the site mailing list.

A responsiveness summary will be developed based on oral and written public comments received during the public comment period. The summary will be incorporated as an appendix to the final ResPlan. The ResPlan will be finalized to reflect changes that DTSC determines appropriate in response to the public comments. Copies of the responsiveness summary will be provided to parties commenting during the public comment period, and a copy of the final ResPlan with responsiveness summary included will be placed on file at the two repositories. The ResPlan will be finalized following completion of a final ResPlan Approval Record.

16.0 CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) DOCUMENTATION

It is understood that DTSC will submit a Draft Notice of Exemption for this project. A draft of this document has been prepared on the basis of DTSC guidance. This document is included in **Appendix C** for DTSC's use. It presents DTSC's determination that the planned removal action mitigates site conditions and that the action can be completed without impact to worker's and public's health and the environment.

17.0 REFERENCES

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