

# Bechtel

**Southern California**  
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CLEAN II Program  
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**IN REPLY REFERENCE:** CTO-0027/0076

February 18, 1994

Naval Facilities Engineering Command  
Southwest Division  
Department of the Navy  
1220 Pacific Highway  
San Diego, California 92132-5187

Attention: Mr. Alan Lee (Code 1832.AL)  
Regional Project Manager

Subject: Comments and Responses to Draft Removal Site Evaluation Report  
Agency Comments (CTO-027)

Dear Mr. Lee:

Enclosed is a draft copy of our responses to the USEPA and DTSC comments on the Draft RSE report for your review. We will discuss the responses in the work shop scheduled on February 24.

Should you have any questions or need additional information, please call me at (310) 807-2571.

Very truly yours,



Krish Kapur  
Project Manager

Enclosures

cc: D. Rollefson (1 copy)  
J. Christopher (1 copy)  
A. Winans (1 copy)  
S. Lauth (1 copy)

A. Gutierrez (1 copy)  
H. Marley (1 copy)  
B. Mitchell-Foley (1 copy)



**Bechtel National, Inc.**

**RESPONSE TO COMMENTS  
SITE 6A  
NAVAL STATION LONG BEACH, CALIFORNIA  
DRAFT REMOVAL SITE EVALUATION REPORT**

February 1994

Sheet 1

**Comments by:** Alvaro Gutierrez, California Department of Toxic Substances Control (DTSC)  
**Response by:** Krish Kapur, Aklile Gessesse and Irene Findikaki, Bechtel

Number	Comment	Response
<b>General Comments and Recommendations</b>		
1	<p><i>The RSE Report does not utilize site-wide soils data to establish background metals concentrations. Metals analyses on about 55 samples from around the LBNC, and from previous sampling of 18 locations near Site 6A and the RSE analyses clearly indicate a normal distribution of concentrations from which background values could be confidently calculated. The Department of the Navy (DON) has ignored the bulk of the data in the production of maps showing soil sample analytical results that are above the Upper Confidence Limit (UCL) when the limit is calculated using a very small subset of the data; the results are maps that show too many potential "hits" for metals. Currently there are about 165 data points for each metal and, with the exception of gross shifts in a few of the non-target metals, the data plots clearly indicate consistent, normal distribution. The data shifts are probably caused by differing analytical methods (see the data plots for aluminum, calcium, and iron).</i></p> <p><b><u>Recommendation:</u></b></p> <p><i>The DON should revise the calculations for the UCL, Upper Tolerance Limits, background and any other statistic that will be used, to include the available data.</i></p>	<p><i>Based on DTSC's recommendations, the calculations for UCL, Upper Tolerance Limits, and background levels for metals will be revised to include the available data.</i></p> <p><i>All text, figures, and tables which discuss any of the aforementioned criteria will be revised accordingly.</i></p>
2	<p><i>Appendix E contains laboratory results for constituents that are above the detection limits. There are no listings for the non-detects, thus the Department assume that unlisted data are non-detects. There remains no need for the DON to provide the Department with all the laboratory quality assurance/quality control paperwork, however the data summaries should include all results and all data qualifiers.</i></p> <p><b><u>Recommendation:</u></b></p> <p><i>The DON should provide data summaries for all the laboratory results and all the data qualifiers.</i></p>	<p><i>Upon issuance of the Final RSE Report, DTSC will receive an electronic copy of the laboratory data, Client Quality Specific Batch volumes 27001 through 27006. The data provided will contain summaries and data qualifiers for all laboratory results, including non-detects, and tentatively identified compounds.</i></p>

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Sheet 2

**Comments by: Alvaro Gutierrez, DTSC  
Response by: Krish Kapur and Aklile Gessesse, Bechtel**

Number	Comment	Response
<b>General Comments and Recommendations</b>		
3	<p><i>All documents, including drafts, are public documents and those involving geology or ground water plans for investigations, investigation results, or interpretations must be signed by qualified persons appropriately registered by the State of California.</i></p> <p><b><u>Recommendation:</u></b></p> <p><i>All future documents (including all drafts) containing descriptions of geology, ground water chemistry or flow, or engineered features, plans for investigating such, or interpretations of physical conditions must be signed by a geologist or civil engineer registered by the State of California.</i></p>	<p><i>All future documents, including drafts, which contain descriptions of geology, groundwater chemistry or flow, engineered features, plans for investigating such, or interpretations of physical conditions, will be signed by a geologist or civil engineer registered by the State of California as requested.</i></p>
4	<p><i>Because of the apparent difficulty of performing basic data review and evaluation, DTSC may want to consider extending the schedules to permit adequate time for working map development, data graphing, data comparisons, data interpretations and considerations of remaining work to be performed to define just what is the contamination, where is it, and why it is there. Review by DTSC is necessarily more difficult when adequate data evaluation and presentation must be done by the reviewer.</i></p> <p><b><u>Recommendation:</u></b></p> <p><i>The DON should extend the schedules for data evaluation and presentation to ensure adequate time for considered judgement.</i></p>	<p><i>The schedule for data evaluation has been extended due to additional soil sampling requirements.</i></p>
5	<p><i>We assume that sampling of environmental media, analytical chemistry data, and quality assurance procedures described in these documents and summarized in the document reviewed by OSA were adequately reviewed by Regional staff. If deficiencies or data gaps were encountered with respect to adequacy for risk assessment, these are noted in our comments.</i></p>	<p><i>The comment is acknowledged.</i></p>

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Sheet 3

**Comments by:** Alvaro Gutierrez, DTSC  
**Response by:** Krish Kapur, Aklile Gessesse and David Liu, Bechtel; Kate DeMane, Southwest Division Naval Facilities Engineering Command (SWDIV)

Number	Comment	Response
<b>General Comments and Recommendations</b>		
6	<i>The document was reviewed for scientific content. In general, minor grammatical or typographical errors that do not affect the interpretation have not been noted. However, these should be corrected in the final version of the document.</i>	<i>Typographical and grammatical errors will be corrected prior to issuance of the Final RSE Report.</i>
7	<i>Future changes in the document should be clearly identified. This may be done in several ways: by submitting revised pages with the reason for the changes noted, by the use of strikeout and underline, by the use of shading and italics, or by cover letter stating how each of the comments here has been addressed.</i>	<i>Agency response to comments will be submitted in table format as an appendix to the Final RSE Report. The table will identify the originator of the comment, the comment itself, and the corresponding response.</i>
8	<i>The draft risk assessment is not acceptable. Because of the way background data for metals have been treated, OSA is not convinced that inorganic chemicals of concern have been identified for Site 6A. Also, Cal/EPA cancer potency factors have been ignored.</i>	<i>Metal concentrations in each sample will be compared with the revised 95 percent upper tolerance limits for background. Only metals with concentrations exceeding background will be included in the risk assessment. The upper 95 percent confidence limits on the mean will be used as exposure point concentrations as was done in the Draft RSE Report. Cal/EPA cancer potency factors were used to calculate risk; however, they were not used to make recommendations.</i>
9	<i>The Navy should be reminded that the National Contingency Plan (NCP) recommends that the Removal Site Evaluation should contain an evaluation by the Agency for Toxic Substance Disease Registry (ATSDR) or a State public health agency of the threat to public health [40 CFR 300.410(c)]. Since ATSDR is not involved with this site, we interpret this requirement to mean that the risk assessment in the Removal Site Evaluation should be acceptable to this Department.</i>	<i>DTSC should be reminded that the National Contingency Plan (NCP), 40 CFR § 300.410(c)(1) states that a Removal Site Evaluation "may" include, but is not limited to:... (ii) [E]valuation by ATSDR or by other sources, for example, state public health agencies, of the threat to human health". (emphasis added). This statement is simply a recommendation that an evaluation of the threat to public health may be evaluated by ATSDR or a state public health agency.</i>

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Sheet 4

**Comments by:** Alvaro Gutierrez, DTSC  
**Response by:** Krish Kapur and Aklile Gessesse, Bechtel

Number	Comment	Response
<b>General Comments and Recommendations</b>		
10	<i>Cross sections for the Contaminants of Concern (COC) concentration maps should be included in the report. These cross sections should include the "hot spots" noted during the recent investigation and will serve as a reference for soil plume interaction with the groundwater.</i>	<i>This comment has been retracted per agreement on 2/1/94, between Hugh Marley, RWQCB, and Aklile Gessesse, Bechtel. Site 6A groundwater issues will be addressed under the NAVSTA RI/FS.</i>

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Sheet 5

**Comments by: Alvaro Gutierrez, DTSC  
Response by: Krish Kapur and Akilile Gessesse, Bechtel; Kate DeMane, SWDIV**

Number	Comment	Response
<b>Specific Comments and Recommendations</b>		
1	<p><b><u>SPECIFIC COMMENTS AND RECOMMENDATIONS:</u></b></p> <p><b>PAGE 1-1, PARAGRAPH 2:</b> <i>The Department of Toxic Substances Control (DTSC) requests that the Navy provide clarification for the lease proposal by the Port of Los Angeles (POLA) at Site 6A.</i></p> <p><i>Specifically, does an official lease proposal exist at this time? If so, at what date does the Navy and the POLA anticipate signing the lease agreement? What is the expected duration of the interim lease? Please note, in accordance with DOD Policy on the Environmental Review Process to reach a Finding Of Suitability To Lease (FOSL), as required by CERCLA Section 120(h)(5), DOD shall notify the State prior to entering into any lease that will encumber the property beyond the date of termination of DOD's operations. These notifications shall include the length of lease, the name of lessee, and a description of the uses that will be allowed under the lease of the property.</i></p> <p><i>Please rewrite the third sentence in the second paragraph of page 1-1 to read as follows: This Removal Site Evaluation, in conjunction with the Long Beach Naval Station (LBNS) Basewide Environmental Baseline Survey (EBS), is intended to provide documentation to support both the FOSL and the potential construction activities to be conducted at Site 6A by POLA.</i></p>	<p><i>The Navy will not provide any additional information on any proposed lease for a portion of Site 6A at this time. There is no lease agreement with the Port of Los Angeles (POLA) or any other entity for any property at Site 6A. Thus, any further discussion of potential agreements would be inappropriate and premature. The information requested in the comments is, thus, not applicable.</i></p> <p><i>The Navy will notify the state prior to entering into any lease agreement that may encumber property beyond the date of termination of DOD operations in accordance with DOD policy. This statement, however, does not need to be included in this document.</i></p> <p><i>The third sentence in the second paragraph of page 1-1 will be rewritten to read as follows:</i></p> <p><i>"This Removal Site Evaluation, in conjunction with the Naval Station Long Beach (NSLB) Basewide Environmental Baseline Survey (EBS), is intended to provide documentation to support any potential "Finding of Suitability to Lease" (FOSL) and any potential construction activities to be conducted at Site 6A by POLA."</i></p>
2	<p><b>PAGE 2-1, FIFTH PARAGRAPH:</b> <i>Please rewrite the first sentence to read as follows: "Site 6A covers an area of approximately 20 acres and consists of three main areas".</i></p>	<p><i>The sentence shall be re-written as requested.</i></p>
3	<p><b>PAGE 2-5, FIRST PARAGRAPH, SECOND SENTENCE:</b> <i>Please rewrite this sentence to read as follows: A specific portion of Site 6A is authorized by the State under a Resource Conservation and Recovery Act (RCRA) Permit to temporarily store hazardous wastes and chemicals.</i></p>	<p><i>This comment will be added to page 2-6, first full paragraph, after the last sentence, as follows:</i></p> <p><i>"As previously stated, a specific portion of Site 6A is authorized to temporarily store hazardous wastes and chemicals under the aforementioned RCRA permit."</i></p>

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Sheet 6

**Comments by:** Alvaro Gutierrez, DTSC  
**Response by:** Krish Kapur, Aklile Gessesse and Irene Findikaki, Bechtel

Number	Comment	Response
<b>Specific Comments and Recommendations</b>		
4	<i>PAGE 2-5, SECOND PARAGRAPH, THIRD SENTENCE: Delete the term "reportedly" from this sentence. Confirm the contents of the above ground storage tank located on the southwestern corner of the referenced vacant lot.</i>	<i>The term "reportedly" will be deleted from the sentence.</i>
5	<i>PAGE 2-6, TOP OF PAGE, LINE 1: State that the LBNS is not a National Priority List (NPL) site.</i>	<i>The statement will be added as requested.</i>
6	<i>BACKGROUND LEVELS, SECTION 5.3.1, PAGE 5-8: Background levels as defined in this section and shown on Table 5-6 is calculated using the 18 values from the Port of Los Angeles study nearby. No explanation for using only these values is given. The background values presented in this section are not used in subsequent sections of this report.</i>  <i><u>Recommendation:</u></i>  <i>The DON should provide an explanation for using only the 18 values for the background calculations.</i>	<i>See response to General Comment No. 1.</i>

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Sheet 7

**Comments by:** Alvaro Gutierrez, DTSC  
**Response by:** Irene Findikaki, Bechtel

Number	Comment	Response
<b>Specific Comments and Recommendations</b>		
7	<p><i>BACKGROUND DATA FOR METALS, SECTION 5.3.1, P. 5-8: We are unable to evaluate the adequacy of the 95% upper tolerance limits used to represent background for metals, because individual analytical results are not presented in the report. We are therefore unable to determine if the metals of potential concern have been identified. Table 5-6 presents summary statistics on the background data, but these are not adequate for our purposes. If the sixteen borings used as background contain any uncommonly high values, the 95% upper tolerance limits would be skewed upwards, possibly leading to inappropriate elimination of one or more metals as being of potential concern.</i></p> <p><i>Distributions of data from the fourteen borings from a prior investigation at Site 6B and from the two "background" borings from the Site Inspection can be compared to the remainder of the data collected during the Site Inspection (RI/FS Work Plan, Naval Station Long Beach, Appendix 1, "Site Inspection Metals Data Summaries"). These data can be analyzed with various graphical and statistical methods to identify the range of background concentrations of metals at Site 6A.</i></p>	<p><i>Background populations for metals will be identified by analyzing existing available data. New estimates of background statistics will be provided based on the analytical results from 203 samples in the area of the site.</i></p> <p><i>See response to General Comment No. 1.</i></p>

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Sheet 8

**Comments by:** Alvaro Gutierrez, DTSC  
**Response by:** Irene Findikaki, Bechtel

Number	Comment	Response
<b>Specific Comments and Recommendations</b>		
8	<p><i>STATISTICAL APPROACH, SECTION 5.3.2, PAGE 5-8: The Background UTL is calculated for various shallow depths (0.5 to 7 feet) using up to 88 values. No explanation of the source of the 88 values is given and, as no combination of 0.5, 4.5, and 7 feet deep samples yields 88 samples (39, 32, and 10 samples, respectively), apparently some samples from earlier studies were included. The Background UTL values presented in this section are not used in subsequent sections of this report. There is no hydrogeological reason to suspect different (stratified) background concentrations of metals in the top 7 feet of fill at this facility. A single background calculation is all that is required; there are about 165 data points now, and they describe a very strong log-normal distribution resulting in background being confidently determined and usable for the remainder of the facility.</i></p> <p><b><u>Recommendation:</u></b></p> <p><i>The DON should use all available data to calculate background by plotting the results, judging the distribution type and applying the appropriate statistical calculation to determine background and use the results consistently from section to section and site to site.</i></p>	<p><i>The background UTL was not calculated by using 88 values. Tables 5-2, 5-3, 5-4, and 5-5 present summary statistics for the RSE data which total to 88 for all depths. The last column in these tables presents the background UTL estimated from the 18 POLA data and it is included for comparison with the summary statistics of the RSE data (mean, min, max, UCL etc.). The UCL in each of these tables is estimated from the RSE data not from the 18 POLA data. The number of samples for each set summarized in these tables is given in the column titled count. The background UTL values presented in this section are the only background values estimated.</i></p> <p><i>Background populations for metals will be identified by analyzing existing data. New estimates of background statistics will be provided based on the analytical results from 203 samples in the area of the site.</i></p> <p><i>See response to General Comment No. 1.</i></p>

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Sheet 9

**Comments by:** Alvaro Gutierrez, DTSC  
**Response by:** Krish Kapur and Aklile Gessesse, Bechtel

Number	Comment	Response
<b>Specific Comments and Recommendations</b>		
9	<p><i>ANALYTICAL FINDINGS, SECTION 6.2, PAGE 6-2: States that an industrial scenario is being used to select screening criteria for the contaminants of concern (COC). The Department was of the understanding that the Navy was using a residential scenario for the Long Beach Naval Complex. The document should state why the residential scenario has been dropped.</i></p> <p><i>In addition, this section states that no volatile organic compounds (VOC's) were detected above the screening criteria and so were no discussed further. The Department believes that all VOC's above the laboratory detection limit should be reported. If no VOC's were detected above the laboratory detection limit then a statement to that effect should be included in the report.</i></p> <p><i>Furthermore, Section 6.2 states that the screening criteria for Total Petroleum Hydrocarbons (TPH) is 1,000 mg/kg. Screening criteria of 100 mg/kg was decided on during a conference call between DTSC, the Regional Water Quality Control Board, and Bechtel. It is not clear to RWQCB why the document reflects screening criteria one magnitude higher than previously agreed to by Bechtel and DTSC. Furthermore, why are the guidelines for leaking fuel tanks and associated piping are being used for a landfill. The Department is requiring that all TPH detected be reported and presented in both the appropriate tables and maps. Proposed screening criteria can then be presented for approval.</i></p>	<p><i>Based on the NCP, acceptable exposure levels for carcinogens generally range from <math>10^{-6}</math> to <math>10^{-4}</math>, depending on the site use, with <math>10^{-6}</math> being the point of departure. Since historic site activities at 6A have been industrial, and future landuse will potentially remain industrial as well, the use of industrial criteria was agreed upon. Section 6.0, however, will be revised and will not include a discussion of Preliminary Remediation Goals for the industrial scenario as screening criteria.</i></p> <p><i>Section 6.0 will be revised and background metal concentrations and risk assessment findings will be used for evaluation purposes instead. Text and tables will focus on constituents found at levels exceeding the laboratory detection limit.</i></p> <p><i>Since the CLUFT manual 100 mg/kg level addresses a point source release in order to trigger investigation, 1000 mg/kg was recommended as a clean-up level for Site 6A. Future land use was considered while making this recommendation.</i></p>

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Sheet 11

Comments by: Alvaro Gutierrez, DTSC  
 Response by: Krish Kapur and Aklile Gessesse, Bechtel

Number	Comment	Response
<b>Specific Comments and Recommendations</b>		
11	<p><i>FIGURES 6-5, 6-10 AND 6-15 Show contours of metals concentrations for the highest value of any metal above the 18 value UCL. Aside from the lack of utility of the 18 value UCL, there is no reason given for displaying the data in this way. There is no meaning to drawing a contour line between a mercury concentration of 4.4 mg/kg and a zinc concentration of 424 mg/kg.</i></p> <p><b><u>Recommendation:</u></b></p> <p><i>The DON should explain the utility of Figure 6-5 and, if any use for the figure can be found, it should be revised to incorporate only those values that exceed a background calculated using all the data.</i></p>	<p><i>Section 6.0 is being revised such that it will no longer present a comparison of the analytical results with selected screening criteria. Based on this revision, figures may or may not be included in this section. Therefore this comment is no longer applicable.</i></p> <p><i>See response to General Comment No. 1.</i></p>

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Sheet 12

Comments by: Alvaro Gutierrez, DTSC  
Response by: David Liu, Bechtel

Number	Comment	Response
<b>Specific Comments and Recommendations</b>		
12	<p><i>HAZARD IDENTIFICATION, SECTION 7.2.1, PAGE 7-3: The method for calculating the Upper Tolerance Limit is not described in Appendix A as referenced. The UTL values listed on Table 7-1 do not agree with others in previous sections of the report and the exact data set used is not identified. For metals, there is no reason to presume that background concentrations in fill at 0.5 feet is different from fill at 4.5 or 7 feet.</i></p> <p><b><u>Recommendation:</u></b></p> <p><i>The DON should identify the exact data set used each time a different background, UCL, background UCL, UTL, or background UTL is calculated, and clear rationale presented as why a different data set or calculation method is used. The DON should revise Section 7.2.1.</i></p>	<p><i>The method for calculating the upper tolerance limit for the background was described in Appendix A of the Pre-Draft RSE Report, which was submitted for internal review. During revision of the Pre-Draft Report the description was transferred to Section 5.3, and the text mistakenly left unchanged. The error will be corrected.</i></p> <p><i>DTSC's comment addressing Section 7.2.1 and Table 7-1 is not completely understood. The intent of Section 7.2.1 is to describe how the chemicals included in the risk assessment were chosen. The text states that metals included in the risk assessment were chosen. Additionally, the text states that metals included in the risk assessment were those whose concentrations exceeded the background UTL and refers the reader (in error) to Appendix A for information on the background UTLs and how they were derived. While it does not identify the data set from which the statistics in Table 7-1 came from, it is assumed that the name of the section and the text make it clear that data from the site, excluding background data, were being addressed. Also, Table 7-1 does not contain 95% UTL values. The table contains 95% upper confidence limits (UCL) on the mean. The column is clearly labeled 95% UCL. Therefore, it is of the opinion that revision be limited to correcting the reference from Appendix A to Section 5.3.</i></p>

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Sheet 13

**Comments by:** Alvaro Gutierrez, DTSC  
**Response by:** Krish Kapur, Aklile Gessesse, Irene Findikaki, and David Liu, Bechtel

Number	Comment	Response
<b>Specific Comments and Recommendations</b>		
13	<i>TABLE 7.1, P. 7-5 ff.: Please include the number of samples included in each calculation of the mean. Please also include the range of limits of quantitation for the samples summarized. Why does Appendix E show no "non-detects"? Are we correct in assuming that the right hand column is the 95% upper confidence Limit (UCL) on the mean? Please include in the text in Section 7.2.1 that chemicals were removed from consideration if they were not detected more than once, as is stated in a footnote to Table 7.1.</i>	<i>Table 7.1 and Section 7.2.1 will be revised based on DTSC's comment.  See response to General Comment No. 2</i>
14	<i>TOXICITY ASSESSMENT, SECTION 7.2.2, P. 7-9: How were the chemicals treated for which non-carcinogenic toxicity criteria could not be located? OSA recommends selecting surrogate chemicals of similar structure for which criteria are available. The Cal/EPA cancer potency factor for hexavalent chromium via the inhalation route is 510, not 51. Therefore, cancer risk estimates in the draft report are greatly under estimated for this compound.</i>	<i>The chemicals without USEPA or Cal/EPA toxicity criteria were addressed in the uncertainty analysis where it was stated that failure to assess the risks presented by those chemicals underestimated risk. As recommended by DTSC, appropriate reference doses will be assigned to the chemicals and quantification provided for their contribution to overall risk.  The Cal/EPA cancer potency factor for chromium listed in Table 7-3b is indeed incorrect and is a typographical error. The CPF used in the risk assessment is 510. The typographical error will be corrected. The risk estimates are not in error.</i>
15	<i>FIGURE 7-1, PAGE 7-17: States that the "Primary Source" is surface spill. Since this is a landfill, calling it a surface spill appears to be inappropriate. In addition, this figure refers to Surface water and Sediment under the heading of Transport Medium. The flowchart then addresses surface water but ignores sediment. The reason for this is not clear and should be identified.</i>	<i>The words "Surface Spill" will be replaced with "Buried Wastes" and the word "Sediments" will be added to the box containing the words "Surface Water" under exposure point.</i>

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Comments by: Alvaro Gutierrez, DTSC  
Response by: Krish Kapur, Aklile Gessesse, Irene Findikaki, and David Liu, Bechtel

Number	Comment	Response
<b>Specific Comments and Recommendations</b>		
16	<p><b>CANCER RISK ESTIMATES, SECTION 7.2.4.4, P. 7-26 ff. AND 7-33 ff.:</b> For the final report please juxtapose the text on pages 7-33 through 7-35 with the text on page 7-26 and following. This will enable the risk manager to view the range of potential cancer risks posed by Site 6A, as estimated using USEPA and Cal/EPA cancer potency factors. The estimated cancer risk for all pathways for a hypothetical resident is given on page 7-33 as <math>1.5 \times 10^{-4}</math>, but this figure does not appear in Table 7-5. Is this a composite resident with exposure for six years as a child and 24 years as an adult? If so, this receptor should have been included at several other places in text and tables.</p>	<p>The sections will be revised and combined under Section 7.2.4.4, which started on page 7-26 of the Draft RSE Report. The total risk based on the USEPA and Cal/EPA cancer potency factors will be presented and discussed.</p> <p>Risk was re-estimated after the Pre-Draft RSE Report was internally reviewed. The new risk estimates were entered in Table 7-5; however, the text was not corrected. For the Final RSE Report, risk will again be recalculated and the new estimates will be shown in both the tables and text.</p>
17	<p><b>SURFACE SOIL, SECTION 8.1.1, PAGE 8-1:</b> Note, for Sections 8.1.2 and 8.1.3 the comments and recommendations are the same for shallow and subsurface soils metals results.</p> <p>The reporting of metals concentrations above background is based on using only a fraction of the data. The highest detected concentrations of arsenic, barium, beryllium, cadmium, cobalt, nickel and vanadium (arsenic, cobalt, nickel and vanadium at 4.5 feet, and arsenic, cadmium, nickel and vanadium at 7 feet) are well within the bell curves of log-normal distribution when all the data used.</p> <p><b>Recommendation:</b></p> <p>The DON should use all available data to calculate background by plotting the results, judging the distribution type, and applying the appropriate statistical calculation to determine background. The DON should use the results consistently from section to section and site to site and revise Sections 8.1.1, 8.1.2 and 8.1.3.</p>	<p>Background populations for metals will be identified by analyzing existing data. New estimates of background statistics will be provided based on the analytical results from 203 samples in the area of the site.</p> <p>See response to General Comment No. 1.</p>
18	<p><b>CONCLUSIONS, SECTION 8.1.1, PAGE 8-2:</b> Figures 6-1 through 6-15 does not present to the Department a clear picture of which areas or volumes of soil are contaminated at unacceptable levels. We would have a better idea if separate maps were presented for each important contaminant.</p>	<p>Section 6.0 is being revised such that it will no longer present a comparison of the analytical results with selected screening criteria. Based on this revision, figures may or may not be included in this section. Therefore this comment is no longer applicable.</p>

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Sheet 15

**Comments by:** Alvaro Gutierrez, DTSC  
**Response by:** Krish Kapur and Aklile Gessesse, Bechtel

Number	Comment	Response
<b>Specific Comments and Recommendations</b>		
19	<p><i>GENERAL FINDINGS AND CONCLUSIONS, SECTION 8.1.4, PAGE 8-4: The conclusions regarding metals, as well as the tabulated results on Table 8-3 are based on yet another calculation of "background levels" derived from an unidentified data set that is apparently unlike any other data set. The conclusion that "Based on the findings of the RSE, it is apparent that metals represent the primary concern at Site 6A". May be overstated, considering the gross underestimation of background concentrations that has been carried throughout the report by using only a fraction of the available data. Table 8-3 contains listings for arsenic, cadmium, cobalt, manganese, selenium, and vanadium. These metals have been eliminated from each depth (0.5, 4.5, and 7 feet) by using all the data to calculate background.</i></p> <p><u><b>Recommendation:</b></u></p> <p><i>The DON should use all available data to calculate background by plotting the results, judging the distribution type, and applying the appropriate statistical calculation to determine background. The DON should use the results consistently from section to section and site to site. The DON should revise Table 8-3. The DON should reconsider the conclusions of Section 8.1.4 after using all the available data.</i></p>	<p><i>See response to General Comment No. 1.</i></p>
20	<p><i>SCREENING ASSESSMENT, SECTION 8.1.4, PAGE 8-4 AND TABLES 8-1 - 8-3: We do not understand why a screening risk assessment is appended to the end of a baseline risk assessment. No screening level assessment was included in the work plan for Site 6A.</i></p>	<p><i>Screening criteria were used to eliminate chemicals from the constituents of concern list. At the time of the Draft RSE Report it seemed to be appropriate to use the screening assessment. The Final RSE Report evaluation will be based on the risk assessment findings.</i></p>
21	<p><i>TABLE 8-3, PAGE 8-7: The column labeled "Background Level" does not match any of the columns of summary statistics for metals from Table 5-6. What are these numbers?</i></p>	<p><i>These tables will be revised to include the re-evaluated background levels.</i></p>

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Sheet 16

**Comments by:** Alvaro Gutierrez, DTSC  
**Response by:** Krish Kapur and Aklile Gessesse, Bechtel; Kate DeMane, SWDIV

Number	Comment	Response
<b>Specific Comments and Recommendations</b>		
22	<p><i>RECOMMENDATIONS, SECTION 8.3, PAGE 8-11: Estimates of total cancer risk at Site 6A for the receptor of greatest interest, future workers at the site, is estimated in this report to fall below <math>1 \times 10^{-4}</math> when USEPA cancer potency factors are used and to exceed <math>1 \times 10^{-4}</math> when calculated using Cal/EPA cancer potency factors. The NCP [40 CFR 300.430(e)] states that cancer risks of <math>1 \times 10^{-6}</math> are the point of departure for concern for possible remediation, while those that fall between <math>1 \times 10^{-6}</math> and <math>1 \times 10^{-4}</math> might be of concern for remediation (the "decision range"), and those above <math>1 \times 10^{-4}</math> usually indicate a need for remediation.</i></p> <p><i>In the absence of any finding on the "appropriateness" Cal/EPA cancer Potency factors, the Navy has decided to base its risk management recommendation for Site 6A (i.e. "no action") on the fact that cancer risk estimates calculated from USEPA cancer potency factors fall below <math>1 \times 10^{-4}</math>. We note that the section of the NCP which deals with Removal Site Evaluations [40 CFR 300.410(c)] makes it clear that the basis for any removal action must be protection of the public health, as interpreted by ATSDR or a State public health agency.</i></p> <p><i>OSA recommends that the Department, as the responsible State public health agency for Site 6A, not accept the rationale for the remedial alternative selected by the Navy. The reason for this recommendation is that the Navy estimates the cancer risk for the most likely future receptor at Site 6A to be greater than <math>1 \times 10^{-4}</math>, according to guidance on risk assessment practice provided by OSA and cancer potency factors published by Cal/EPA. OSA strongly recommends that the final version of this memorandum be included in the Record of Decision for Site 6A.</i></p>	<p><i>Please refer to the response provided to DTSC's General Comment/Recommendation #9 regarding NCP § 300.410(c), 40 CFR § 300.410(c). NCP § 300.410(c) does <u>not</u> mandate or require that the basis for any removal action must be the protection of the public, <u>as interpreted by ATSDR</u> or a state public health agency. NCP § 300.410(c) simply states that the lead agency (DON) <u>may</u> request an evaluation of the threat to public health by either ATSDR or a state public health agency.</i></p>

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**Comments by:** Sheryl L. Lauth, United States Environmental Protection Agency (USEPA) Region IX, San Francisco  
**Response by:** Krish Kapur and Aklile Gessesse, Bechtel; Kate DeMane, SWDIV

Number	Comment	Response
<b>General Comments</b>		
1	<b>SECTION 1.0, PAGE 1-1 INTRODUCTION.</b> We suggest that the Navy may want to add language clarifying that this RSE is being conducted to support a lease agreement and that final transfer of the parcel will be conducted in accordance with CERCLA Section 120 (h).	Please refer to the response provided for DTSC's specific comment #1. Future property transfer issues are not material to this document and will be addressed and considered when appropriate (i.e., at the time of potential property transfer). The Navy is aware of its CERCLA obligations regarding the potentially impacted parcels.
2	<b>SECTION 1.0, PAGE 1-1, PARAGRAPH 3.</b> Please clarify that the RI/FS Work Plan was approved by the lead regulatory agency, Cal-EPA rather than "regulatory agencies".  As modification to the soil sampling proposed for Site 6A has been recommended in the Draft Technical Memorandum Proposed Modification to the Final RI/FS Plan dated December 18, 1993, clarification to the last sentence of this paragraph is recommended.	The clarification will be made.  In Section 1.0, page 1-1, third paragraph, the last sentence should read, "only groundwater sampling activities for site 6A are included in the RI/FS Work Plan".
3	<b>SECTION 2.1 SITE DESCRIPTION, PAGE 2-5, PARAGRAPH 1.</b> As there was no mention of the temporary storage of hazardous wastes and hazardous chemicals within Site 6A in the RI/FS Work Plan and this area has not been distinguished on Figure 2-3, please provide clarification as to whether or not samples have been collected within this area.	The hazardous waste/chemical storage area is asphalt-paved and is not included in the potential POLA construction area. Samples were collected from the Seabees Building 39 yard, but not specifically from this area.
4	<b>SECTION 2.3 PREVIOUS INVESTIGATIONS, PAGE 2-7, PARAGRAPH 4.</b> According to the referenced document (RI/FS Work Plan), in addition to trace levels of benzene and vinyl chloride, chlorobenzene, PAHs, dibenzofuran, dichlorobenzenes and aldrin were detected in the groundwater sample collected from Site 6A.	USEPA's comment has been noted. Further discussion of the groundwater at site 6A will be included in the RI/FS.
5	<b>SECTION 6.2 ANALYTICAL FINDINGS, PAGE 6-2.</b> The screening criteria used should be presented in tabular form along with a full reference.	Section 6.0 is being revised such that it will no longer present a comparison of the analytical results with selected screening criteria. Based on this revision, figures may or may not be included in this section. Therefore this comment is no longer applicable.

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**Comments by:** Sheryl L. Lauth, USEPA Region IX, San Francisco  
**Response by:** Krish Kapur and Aklile Gessesse, Bechtel

Number	Comment	Response
<b>General Comments</b>		
6	<i>SECTION 6.2 ANALYTICAL FINDINGS, FIGURE 6-2; FIGURE 6-7 AND FIGURE 6-12. The areas where Semi-Volatile Organic Compounds (SVOC) were detected and screening criteria are not available should be distinguished from the areas where SVOCs were not detected or were detected at concentrations below the screening criteria.</i>	<p><i>Section 6.0 is being revised such that it will no longer present a comparison of the analytical results with selected screening criteria. Based on this revision, figures may or may not be included in this section.</i></p> <p><i>This response applies to comment 6 through 12.</i></p>
7	<i>SECTION 6.2 ANALYTICAL FINDINGS, PAGE 6-2. It is unclear why the 1000 mg/kg TPH value selected was selected for screening. We suggest using the 100 mg/kg value as a conservative approach to screening.</i>	
8	<i>PAGE 6-7, FIGURE 6-4. If a screening value is being used to evaluate TPH, the footnote "BS" should be revised to omit the second sentence. In addition, the contour line concentration needs to be included. If the contour line represents 1000 mg/kg, then SB-24 should be included within the shaded area.</i>	
9	<i>PAGE 6-8, FIGURE 6-5. It is unclear as to how the shaded areas have been selected for representation on this figure. For example, the area between SB-16 (56.3 mg/kg) and SB-4 (78.6 mg/kg) is shown without the shaded lines and yet there are no data points between these two points to allow for this distinction.</i>	
10	<i>PAGE 6-14, FIGURE 6-9. See comment 6 regarding footnote.</i>	
11	<i>PAGE 6-19, FIGURE 6-12. It is unclear from the data presented on this figure how the 0.01 contour line was drawn around SB-14. Samples were not collected from the borings surrounding SB-14.</i>	
12	<i>PAGE 6-21, FIGURE 6-14. It is unclear how the contour line (southern edge of impacted area) was drawn around SB-35 (2700 mg/kg) as TPH data was not collected from SB-34, SB-22 and SB-36.</i>	

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**Comments by:** Sheryl L. Lauth, USEPA Region IX, San Francisco  
**Response by:** Krish Kapur and Aklile Gessesse, Bechtel

Number	Comment	Response
<b>General Comments</b>		
13	<i>PAGE 6-22, FIGURE 6-15. It would be helpful to the reader if all concentrations were included on the figure for comparison to the concentration contour lines (i.e. present the concentration detected and footnote whether or not below background or present background concentration contour line for comparison). In addition, it is unclear as to how the contour line (western edge of impacted area) was drawn around SB-19 as metal data was not collected from SB-31, SB-5 or SB-18.</i>	<i>Section 6.0 is being revised such that it will no longer present a comparison of the analytical results with selected screening criteria. Based on this revision, figures may or may not be included in this section. Therefore this comment is no longer applicable.</i>
14	<i>SECTION 8.1, PAGES 8-2. The paragraph under the bullet states that there are impacted areas of shallow soil which require removal action prior to construction activities. However, there is no mention of removal actions in the recommendations section (Section 8.3). Clarification of proposed removal actions in the recommendation section relative to the investigation objectives should be provided.</i>	<i>Evaluation of Remedial Alternatives and recommended remedial actions will be presented in the report and are attached for review.</i>
15	<i>SECTION 8.3 RECOMMENDATION. EPA is not in agreement with the recommendation that no remediation of soil within Site 6A is required. As shown on the figures, concentrations detected above screening criteria for select metals, PAHs and PCBs are limited in extent to localized "hot spots". As the areal extent of contamination is limited, it is not appropriate to evaluate area-wide risk using an average of all the site data for a select compound. A more appropriate evaluation would include area specific risk assessments to support limited remediation of the "hot spots", as appropriate.</i>	<i>Chemicals of concern will be identified and corresponding risk calculated. Areas where concentrations of the constituents of concern exceed <math>10^{-6}</math> will be identified, and the risk calculated by proportion.</i>

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Comments by: Sophia Serda, Ph.D., USEPA Region IX, San Francisco  
Response by: Krish Kapur, Aklile Gessesse, Irene Findikaki and David Liu, Bechtel

Number	Comment	Response
<b>General Comments</b>		
1	<p><b><u>SPECIFIC COMMENTS:</u></b></p> <p><b><u>Hot Spot Contamination</u></b></p> <p><i>The results of the PRG screening process presented in Figures 6-1 to 6-15 identifies discrete areas of contamination. The risk associated with these hot spot areas of contaminations must be evaluated.</i></p>	<p><i>The risk associated with hotspots will be assessed and the results presented in the Final RSE Report. Because risk (R) is directly proportional to chemical concentration (C), hotspot risk can be calculated by proportion. For any given chemical, <math>C_1/R_1 = C_2/R_2</math>, where <math>C_1</math> is the chemical concentration corresponding to total calculated risk, <math>R_1</math>; <math>C_2</math> is the measured hotspot concentration, and <math>R_2</math> is the calculated risk associated with <math>C_2</math>. In that risk estimates obtained in the routine risk assessment are based on the 95% UCL on the mean measured concentration of each chemical, hotspot concentrations would be those that are higher than the 95% UCL. Hotspot risk would be calculated only for the highest measured concentration above the 95% UCL.</i></p>
2	<p><b><u>Chemicals of Concern</u></b></p> <p><i>Figures 6-1 to 6-15 identifies less than 20 Chemicals of Concern (COCs). However, information in Section 7 identifies 47 COCs for the baseline risk assessment (see Table 7-1) and 37 COCs for the Railroad construction assessment (see Table 7-2). Please correct these discrepancies.</i></p>	<p><i>A discrepancy does not exist. As stated several times in the text in Section 6.0, the chemicals identified in Figures 6-1 to 6-15 are limited to those with concentrations exceeding the USEPA Region IX preliminary remediation goals and are thus a subset of the chemicals subjected to the risk assessment. The risk assessment was performed on all of the chemicals that satisfied the criteria described in the Superfund Risk Assessment Guidance Manual for identification of chemicals of potential concern, which are defined as "Chemicals that are potentially site-related and whose data are of sufficient quality to use in a risk assessment." (EPA, 1989).</i></p>
3	<p><b><u>Background</u></b></p> <p><i>The spatial locations and statistical distributions for background concentrations should be included in the report.</i></p>	<p><i>Statistical distributions from the analysis if the background data will be included in the report. The preparation of maps with the distribution of background data is time consuming and is not possible to be prepared within the given time framework.</i></p>
4	<p><b><u>TPH Measurements</u></b></p> <p><i>The screening criteria for TPH should be the California Leaking Underground Fuel Tank manual (CLUFT) value, 100 mg/kg.</i></p>	<p><i>100 mg/kg will be used for the purpose of screening TPH.</i></p>

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## Section 8

# Evaluation of Remedial Alternatives

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During the evaluation of remedial alternatives for Site 6A, two approaches were considered:

- No proposed POLA construction
- Proposed POLA construction

### 8.1 PRELIMINARY SCREENING AND EVALUATION OF TECHNOLOGIES

Based on the current knowledge of site conditions, the following in-situ treatment (treatment of soil in place) technologies and ex-situ treatment technologies (treatment of excavated soil) will be evaluated. Technologies within these categories are as follows:

- **In-situ Bioremediation** - Biological treatment which uses indigenous or introduced aerobic or anaerobic bacteria to biodegrade organic compounds in situ. The technology involves enhancing the natural biodegradation process by adding nutrients (i.e., phosphorus, nitrogen, etc.), oxygen and, in some cases, cultured bacterial strains to the zone(s) of contamination. It is also possible to adjust some environmental parameters such as soil pH and temperature. The technology often uses a groundwater pumping and reinjection system to circulate nutrients and oxygen through the contaminated vadose zone as well as the aquifer. The system, however, must be designed to prevent the movement of contaminants into uncontaminated aquifers.
- **Ex-Situ Biodegradation** - Microbiological degradation of organic chemicals in soils is accomplished in an engineered surface treatment facility.
- **Isolation/Containment (Capping)** - Clay, concrete or asphalt surface covers are used to isolate or contain contaminated soils.
- **Chemical Fixation/Stabilization** - Chemicals (usually silicates and cement) which solidify to form an impervious mass are added to the soil. As a result, contaminants are immobilized within the soil matrix.

- **Soil Washing** - This process extracts contaminants from sludge or soil matrices using an aqueous based washing fluid. The washing fluid may be composed of water, water/chelating agents, water/surfactants, or acids and bases, depending on the contaminants to be removed.
- **Thermal Treatment** - Uses a low or high temperature process to directly heat the impacted soil, whereby contaminants are either destroyed or separated from the soil.
- **Excavation and Off-site Recycling** - TPH-contaminated soil is removed by excavation and mixed with asphaltic material.
- **Excavation and Off-site Disposal** - Contaminated soil is removed by excavation and transported to a licensed landfill for disposal.

To assess applicability and formulate appropriate remedial alternatives for Site 6A, a preliminary evaluation of the aforementioned technologies provided the following conclusions:

- In-situ biodegradation requires the introduction of nutrients and microorganisms into the soil formation. The biodegradation process is slow, often requiring months of treatment. Additionally, metals and PCB/pesticides can be highly toxic to microorganisms. Due to the presence of these compounds at Site 6A, in-situ biodegradation is eliminated from further consideration.
- Ex-situ biodegradation is a feasible remedial alternative for SVOCs and VOCs, however the alternative is ineffective for soils with high concentrations of metals or inorganic salts. In addition, certain pesticides/herbicides can be highly toxic to microorganisms. Due to the presence of these compounds Site 6A, ex-situ biodegradation will not be considered for Site 6A.
- Isolation/containment (capping) such as the placement of an asphalt, concrete or clay cap over the affected area, prevents direct contact and migration of contaminants; however, it does not provide for their destruction or removal. The isolation/containment alternative will be further evaluated since future land use of the site may remain industrial and clay capping prevents potential migration of constituents into the groundwater.

- Soil washing is infeasible for soil consisting of complex waste mixtures (e.g. metals with organics) due to difficulty formulating appropriate soil washing fluids. An additional treatment step may be required to remove fine-grained soil particles (e.g., silts, clays) from the process wastewater since this material is difficult to remove from the washing fluid. Based on these reasons, soil washing is eliminated from further consideration at this site.
- Thermal treatment such as high-temperature incineration in a rotary kiln is suitable for treatment of soil containing TPH diesel, however, high temperature thermal technologies are ineffective for soil impacted by metals. Because of this constraint, the process is limited to soil containing TPH diesel.
- Excavation and off-site recycling (asphaltic treatment/thermal treatment) is possible for TPH diesel, which is one of the constituents of concern at this site. Once excavated and segregated, the TPH-impacted soil can be stabilized by mixing with asphaltic material for use as a road base, or by thermal treatment for later use as construction material. Excavation and off-site recycling will be considered for non-hazardous, TPH-impacted soil.
- Excavation of contaminated soil coupled with off-site disposal at a controlled landfill is an alternative appropriate for a localized area. This alternative is limited to shallow depths such as found at Site 6A. Removal of impacted soil can be accomplished with conventional excavation equipment. Once excavated, the impacted soil can be screened and segregated as either hazardous or non-hazardous. Recognizing that soil is not homogenous with regard to contaminant distribution throughout an area of excavation, the most cost-effective means of soil disposal involves segregation of material as hazardous or non-hazardous. The hazardous material can be then transported to a Class I landfill without treatment. The remaining non-hazardous soil can be recycled as asphaltic base using the recycling alternative previously discussed.

Based on a preliminary screening of remedial technologies, the following alternatives are identified for remediation of impacted soil:

- |    |                               |  |
|----|-------------------------------|--|
| I  | No Proposed POLA Construction |  |
|    | • Alternative 1               | No action  |
|    | • Alternative 2               | Isolation/containment (capping)  |
| II | Proposed POLA Construction    |  |
|    | • Alternative 1               | Excavation and off-site recycling<br>(asphaltic treatment (thermal<br>treatment) |
|    | • Alternative 2               | Excavation and off-site disposal<br>(loadfill)                                   |

## 8.2 EVALUATION OF ALTERNATIVES

This section presents an evaluation of soil remediation alternatives identified in Section 8.1. Criteria for evaluating these alternatives are described below.

### 8.2.1 Screening Criteria

The soil remediation alternatives considered for Site 6A were evaluated based on the following:

- Technical Feasibility - Evaluation of constructability and reliability to assess the technical feasibility of alternatives considered for this site.
- Performance History - Each alternative is evaluated in terms of its ability to perform intended functions and if an acceptable performance has been achieved in practice at any other facility or site that has similar contamination characteristics.
- Protection of Human Health and Environment - Environmental risks or adverse human health effects associated with implementation of any given alternative.

- Ease of Implementation - The ability to build or construct and implement each alternative method under the specific site conditions.
- Cleanup Period - The period of time used to accomplish the desired soil cleanup levels for each alternative.

8.2.2 EVALUATION SUMMARY *Small Detail*

An evaluation summary of remedial alternatives based on the criteria discussed earlier is provided in Table 8-1.

TABLE 8-1

EVALUATION SUMMARY OF REMEDIAL ALTERNATIVES

Alternative/ Technology	Principle/ Description	Estimated Duration	Advantages	Disadvantage/ Limitations	Remarks
(1) Isolation/ containment (capping)	Process by which surface covers are used to isolate or contain contaminated soils.	4 to 6 weeks	Inhibits migration of contaminants and prevents contact with impacted surface soil.	Does not provide for the destruction or removal of impacted soil.	Requires no removal action.
(2) Excavation and disposal	Removal of impacted soil by excavation and disposal to a licensed landfill	4 to 6 weeks	Contaminated soil completely removed from site.  Shortest cleanup period when compared to other alternatives.	Presents some environmental and health risks during excavation, and transport to landfill.  Liability continues at landfill.	Permits required from DHS, LADPW, and SCAQMD.  Requires vapor monitoring and dust control during excavation.  Technically feasible at site.  Potential disposal site is Kettleman Hills disposal facility.
(3) Excavation and Off-site Recycling	Process by which soil is stabilized using either a mixture of the impacted soil and a asphaltic material or by a thermal treatment process using high-temperature incineration.	3 months	Contaminated soil is removed from site.  Immobilizes waste compounds.	Not suitable for semi volatile, metals and PCBs/pesticides  Addresses TPH contaminated soil only.	Will require excavation of contaminated soils and segregation of TPH contaminated soil.  Potential recycling facility is TPS Technologies Inc., in Adelanto, California.