



Final

**Record of Decision for
Installation Restoration Site 27,
Dock Zone**

**Alameda Point
Alameda, California**

February 2008

Prepared for:
**Base Realignment and Closure
Program Management Office West
San Diego, California**

Prepared under:
**Naval Facilities Engineering Command
Contract Number N68711-95-D-7526
Contract Task Order 084**



BECHTEL ENVIRONMENTAL, INC.

CLEAN 3 TRANSMITTAL/DELIVERABLE RECEIPT

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TO: Contracting Officer
NAVFAC Southwest
Ms. Graciela R. Steinway, AQE.GS
1220 Pacific Highway
San Diego, CA 92132-5190

DATE: February 20, 2008
CTO #: 0084
LOCATION: Alameda, California

FROM: Janet L. Argyres, Project Manager

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Dock Zone, for Alameda Point - Dated February 2008

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Contracting Officer
NAVFAC Southwest
Ms. Graciela R. Steinway, AQE.GS
1220 Pacific Highway
San Diego, CA 92132-5190

Subject: Final Record of Decision for
Installation Restoration Site 27, Dock Zone
Alameda Point, Alameda, California

Dear Ms. Steinway:

To finalize the Record of Decision for Installation Restoration Site 27, Dock Zone, Alameda Point, Alameda, California, dated December 2007, we are pleased to submit replacement pages for the Final Record of Decision for Installation Restoration Site 27, Dock Zone, dated February 2008. As directed by the Navy RPM, we are concurrently transmitting copies to Ms. Anna-Marie Cook of U.S. EPA, Ms. Dot Lofstrom of DTSC, and Mr. John West of the RWQCB. In addition, we are forwarding copies on behalf of the Navy to the parties listed on the attached transmittal sheet.

If you have any questions, please contact Michele Dermer, CTOL, at (415) 768-2832 or me at (415) 768-9917.

Very truly yours,


Janet L. Argyres
Project Manager

Enclosure

**RESPONSE TO COMMENTS ON
DRAFT RECORD OF DECISION, IR SITE 27, DOCK ZONE
ALAMEDA POINT, ALAMEDA, CALIFORNIA
DATED APRIL 2007
CTO-0084/0222**

Comments from A. Cook, U.S. EPA, 7/26/2007

GENERAL COMMENTS	RESPONSE TO GENERAL COMMENTS
<p>General Comment 1.</p> <p>Arsenic does not need to be included as a GW COC because there are very infrequent detections of arsenic above the federal MCL. We recommend that arsenic be removed as a COC and the following changes made in the ROD:</p> <ul style="list-style-type: none"> a. The section on "Identification of Chemicals of Concern," sec. 7.1.4, pages 7-5 and 7-6 should include a statement that very few arsenic samples exceed the MCL of 10 ppb, and most are in the range of 3-5 ppb. There should be a similar edit in Sec. 5.3.2 on page 5-4 and in Table 5-2. b. In Section 8, RAOs, p. 8-1, in the first paragraph following the bullets, the last two sentences should be removed. If a groundwater contaminant is a COC and concentrations exceed MCLs, it cannot automatically be assumed that cleanup levels can exceed MCLs, even if background levels exceed MCLs. The two sentences on page 8-1 are unnecessary if arsenic is not identified as a COC. Also, please remove arsenic from Table 8-1. c. In Section 13, Statutory Determinations, subsection 13.2.1, Chemical-Specific ARARs, the discussion of the arsenic MCL should be deleted if arsenic is not identified as a COC. d. Sec. 12.2.3, page 12-5, ICs, remove arsenic from the RGs in the last bullet. <p>It seems that it would be most logical and informative to discuss the changes in the sections on risk and selection of COCs, and again briefly in the section setting forth the RGs (which is essentially what the Navy chose to do originally when they proposed keeping arsenic as a COC but changing the RG). We would not be adverse to the Navy determining that this is not a significant change, but think the ROD should indicate in an appropriate place what the change is and why it was made.</p>	<p>Response to General Comment 1.</p> <ul style="list-style-type: none"> a. The following sentence has been added to the 1st paragraph on page 7-6 as the last sentence: "Arsenic is not considered a COC in groundwater because there were very few groundwater samples in which arsenic exceeded the MCL of 10 ppb or the background concentration of 20.72 µg/l; most concentrations ranged from 3 to 5 ppb, and these samples were only located in the center of the VOC plume." Please also refer to the Response to Specific Comment 25 below. <p>The following sentence has been added to the third paragraph of Section 5.3.2 on Page 5-4, following the first sentence: "However, there are very few groundwater samples in which arsenic exceeded the MCL of 10 ppb or the background concentration of 20.72 µg/l, and most concentrations ranged from 3 to 5 ppb." The second sentence of this paragraph (now the third sentence) has been revised as follows: "Arsenic concentrations that exceeded background levels <i>or the MCL</i> were limited to..." Since Table 5-2 presents a summary of exceedences, no revisions to the table are proposed.</p> <ul style="list-style-type: none"> b. These modifications have been made as suggested in Section 8 and Table 8-1. c. This modification has been made as suggested. d. This modification has been made as suggested. <p>Revisions to Section 7.1.4 include the addition of the following paragraph following the last paragraph under Identification of Chemicals of Concern: "The majority of the risk in groundwater (greater than 90 percent) is associated with arsenic and vinyl chloride, TCE (U.S. EPA only), PCE, and PAHs. Groundwater samples with arsenic concentrations exceeding the Alameda Point background 95th percentile</p>

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Comments from A. Cook, U.S. EPA, 7/26/2007

GENERAL COMMENTS	RESPONSE TO GENERAL COMMENTS
<p>General Comment 1 (continued).</p>	<p>Response to General Comment 1 (continued).</p> <p>were limited to samples collected from one monitoring well. PAHs are limited in extent and only reported in 1 of 14 groundwater samples. The COCs in groundwater with cancer risks above 10^{-6} are chlorinated VOCs, including vinyl chloride, TCE (U.S. EPA only), and PCE (Cal/EPA only). Arsenic is not considered a COC in groundwater because there were very few groundwater samples in which arsenic concentrations exceed the MCL of 10 ppb or the background concentration of 20.72 µg/l; most concentrations ranged from 3 to 5 ppb and these samples were only in the center of the VOC plume. This conclusion regarding arsenic in groundwater differs from that found in the Proposed Plan for IR Site 27 (DON 2006) based on further evaluation.”</p> <p>The last four sentences of the first paragraph on page 7-6 have been deleted.</p>
<p>General Comment 2.</p> <p>In some places, the ROD describes the soil remedy as “no action” (e.g., Table D-1, page D-5, second paragraph under “Description,” second line; Sec. 12.2, p. 12-2). In several other places, however, the soil remedy is described as no “further” action. This should be changed to “no action,” as the ROD does not indicate any prior remediation was undertaken for soil. See, e.g., page D-1 (two places); Table D-1, third paragraph under “Description”; Table D-1, page D-5, end of second paragraph; page 7-1, Sec. 7, third paragraph; Sec. 12.1, page 12-1, first paragraph; Section 14, second line.</p>	<p>Response to General Comment 2.</p> <p>This modification has been made as suggested; all references to “no further action for soil” have been changed to state, “no action for soil.”</p>

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Comments from A. Cook, U.S. EPA, 7/26/2007

SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
<p>Specific Comment 1. Page D-1, second paragraph, second sentence: Recommend deleting the word “immediate” before the word “threat”. Saying no immediate threat implies that there is a longer term threat, when in fact there is no threat.</p>	<p>Response to Specific Comment 1. This modification has been made as suggested.</p>
<p>Specific Comment 2. Page D-1, first sentence under “Assessment of the Site” header: Please delete the word “further” from this sentence since there has been no action taken for the soil in the past at this site.</p>	<p>Response to Specific Comment 2. This modification has been made as suggested.</p>
<p>Specific Comment 3. Page D-2, first full paragraph, the ROD states that the site poses no unacceptable risk from soil “based on current and reasonably anticipated future land uses.” We recommend either including a parenthetical “(including residential use)” following “future land uses,” or, as an alternative, removing the language “based on current and reasonably anticipated future land uses.” Same recommendation for the first paragraph under the heading “Description of the Selected Remedy” and on page 7-1, Sec. 7, second paragraph.</p>	<p>Response to Specific Comment 3. The phrase “including residential uses” has been added.</p>
<p>Specific Comment 4. Page D-2, second paragraph, third sentence: Please note that while the sampling of the OWS and the wash down areas may also satisfy the RCRA SWMU requirements, these actions are being done under CERCLA and if there are contaminants in the soil above residential PRGs, a CERCLA soil clean up action may be necessary.</p>	<p>Response to Specific Comment 4. Comment noted. The words “under the CERLCA program” have been added to the third sentence following the words “Further action”.</p>
<p>Specific Comment 5. Page D-2, third bullet: Recommend deleting the word “confirmation” before sampling as it is redundant with the later phrase “to confirm treatment has reduced...”, and “proposed” should be changed to “selected.”</p>	<p>Response to Specific Comment 5. This modification has been made as suggested.</p>

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Comments from A. Cook, U.S. EPA, 7/26/2007

SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
<p>Specific Comment 6. Page D-3, end of first full paragraph on this page: Add in a sentence stating “Institutional Controls will be maintained until the concentration of hazardous substances in the groundwater reach remediation goals and are at such levels to allow for unrestricted use and exposure.”</p>	<p>Response to Specific Comment 6. The following sentence has been added after the last sentence under “Statutory Determinations”: “ICs will be maintained until COCs reach remediation goals.”</p>
<p>Specific Comment 7. Page D-4, third checklist item, description, second sentence: Delete the word “further” from “no action” because there has not been any past action taken on soil at this site.</p>	<p>Response to Specific Comment 7. This modification has been made as suggested.</p>
<p>Specific Comment 8. Page D-4, last checklist item, description: Suggest adding to last sentence the phrase “including unrestricted use.”</p>	<p>Response to Specific Comment 8. This modification has been made as suggested.</p>
<p>Specific Comment 9. Page D-5, last checklist item: Recommend an additional spacing between the two items in the checklist on this page for easier reading. Also the description of the last item should delete the word “further” from the third to last sentence since no past soil action has been taken at this site.</p>	<p>Response to Specific Comment 9. These modifications have been made as suggested.</p>
<p>Specific Comment 10. Page D-6, first sentence: Please delete the word “further” from this sentence.</p>	<p>Response to Specific Comment 10. This modification has been made as suggested.</p>
<p>Specific Comment 11. Table 1-1, page 1, second paragraph, second to last sentence: Please verify location of fuel farm. It seems that stating that it is located in the “northern” or “northwestern” portion of IR 27 would be more accurate.</p>	<p>Response to Specific Comment 11. The location has been revised to “northwestern”.</p>

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Comments from A. Cook, U.S. EPA, 7/26/2007

SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
<p>Specific Comment 12. Page 2-4, second to last paragraph, last sentence: Please delete the word "further".</p>	<p>Response to Specific Comment 12. This modification has been made as suggested.</p>
<p>Specific Comment 13. Page 2-5, Section 2.2.2, second paragraph, fourth sentence: Please clarify this sentence. As written it sounds as if the tanks have contributed to groundwater contamination. Is this correct?</p>	<p>Response to Specific Comment 13. The specific source(s) of groundwater contamination at IR Site 27 has not been determined. Potential historical sources of groundwater contamination are described in Table 1-1. The sentence "Closure of these tanks will be completed after the remediation of the impacted groundwater at IR Site 27 has been completed" has been revised as follows: "Closure of these tanks will be completed as part of the remediation of impacted groundwater at IR Site 27".</p>
<p>Specific Comment 14. Page 2-5, Section 2.2.2, second paragraph, seventh sentence: Please rephrase this sentence. Data gap sampling is not an action, as it relates to actions explained in a ROD. Additionally, the ROD has stated in many places that it is selecting "no action" for soil, so it is confusing to suddenly see "further action" taken for soil in this paragraph. Recommend simply deleting the words "further action" here and removing brackets from "data gap sampling".</p>	<p>Response to Specific Comment 14. This modification has been made as suggested.</p>
<p>Specific Comment 15. Table 2-1, under date 2002-2004: Both Objective and Summary of Findings descriptions should remove the word "further" from the text. The word "immediate" should also be deleted from the Summary of Findings.</p>	<p>Response to Specific Comment 15. These modifications have been made as suggested.</p>
<p>Specific Comment 16. Table 2-3, SWMUs OWS-166A and B, WD 166: Please note that if soil contamination is found at levels above residential PRGs, it may be necessary to perform a CERCLA clean up action for soil.</p>	<p>Response to Specific Comment 16. The Navy agrees that if hazardous substances are on site above levels that allow unrestricted use, that a CERCLA response action may be necessary.</p>

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<p>Specific Comment 17.</p> <p>Page 4-1: Please add the phrase “AND RESPONSE ACTION” to the title on this page. In addition, please include a paragraph describing the response action similar to that found in the RODs for IR 26 and IR 28.</p>	<p>Response to Specific Comment 17.</p> <p>The first modification has been made as suggested.</p> <p>The following paragraph is added as the first paragraph of Section 4 on Page 4-1:</p> <p>“Responses associated with this ROD include no action for soil under CERCLA; remedial action and institutional controls (ICs) to address VOCs in groundwater under CERCLA; and addressing AOC 015 (USTs 15-1 through 15-3), OWS-166A, OWS-166B, and WD-166 as part of the remediation of impacted groundwater at IR Site 27. These responses should provide for unrestricted site use.”</p>
<p>Specific Comment 18.</p> <p>Page 5-4, last sentence of second paragraph: Since the detection limits were set above PRGs, the samples cannot be considered confirmation samples. Is there any other information available that would yield better support for not considering tetraethyl lead to be a problem?</p>	<p>Response to Specific Comment 18.</p> <p>To clarify that the samples may not be considered confirmation samples, the last sentence of the 1st paragraph on page 5-4 has been revised as follows: “Results of subsequent sampling at adjacent locations reported this compound at lower concentrations.”</p> <p>More information to support the conclusion that tetraethyl lead is not a problem at the site is provided below in Response to Specific Comment 22.</p>
<p>Specific Comment 19.</p> <p>Page 5-4, third paragraph, third sentence: There appear to be only three samples where iron exceeds the residential PRG and one where thallium exceeds the residential PRG. It would support the decision to not consider these metals releases to state this information. Suggest removing the third sentence and replacing with “Three soil samples had concentrations of iron, which is an essential nutrient, above the residential PRG and one soil sample had a concentration of thallium slightly above the residential PRG. All other samples yielded iron and thallium concentrations below PRGs, leading to the conclusion that neither iron nor thallium are a concern in soil.”</p>	<p>Response to Specific Comment 19.</p> <p>This modification has been made as suggested.</p>

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SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
<p>Specific Comment 20.</p> <p>Page 5-4, Section 5.3.2, last paragraph, second sentence: Please elaborate on the mechanism that could have locally mobilized arsenic in soil. Also, it should be mentioned here that arsenic exceeded the MCL only infrequently. The majority of the samples yielded arsenic concentrations below the level of the MCL.</p>	<p>Response to Specific Comment 20.</p> <p>The following text has been inserted after the second sentence (now third sentence) 2in the third paragraph of Section 5.3.2: “The microbial activity associated with biodegradation of chlorinated VOCs creates reducing conditions that can mobilize arsenic (U.S. EPA 1999). This may explain why detections of arsenic in groundwater at IR Site 27 infrequently exceeded the MCL, and only in the center of the VOC plume. The majority of the samples yielded arsenic concentrations below the level of the MCL.” Please also refer to the response to DTSC Specific Comment 8.</p> <p>New reference to be added:</p> <p>U.S. EPA, 1999. Monitored Natural Attenuation of Chlorinated Solvents. U.S. EPA Remedial Technology Fact Sheet. Office of Research and Development, EPA/600/F-98/022. May.</p>
<p>Specific Comment 21.</p> <p>Page 5-5, Section 5.3.3: Both chlorinated VOCs and fuel-related VOCs are stated as being located in the western portion of IR Site 27. Are they co-located? Please explain.</p>	<p>Response to Specific Comment 21.</p> <p>A depiction of the chlorinated VOCs and fuel-related VOCs in soil gas is provided on Figures 4-14 and 4-15 of the RI Report (Bechtel 2005). As shown in the figures, the higher detections of the chlorinated VOCs and fuel-related VOCs in soil gas are not coincident. A detailed discussion of the nature and extent of VOCs in soil gas can be found in the RI Report.</p>
<p>Specific Comment 22.</p> <p>Table 5-1: The concentration listed in the table for tetraethyl lead is over a 100 times greater than the residential PRG. Please provide more information on this very high hit. What was the detection limit? It is stated in the text on Page 5-4 that confirmation samples had detection limits set above the PRGs so the percent reported above the detection limit is not very useful for this contaminant. Also, please explain the relation to dioxin/furan results and the tetraethyl lead stated in footnote “g”.</p>	<p>Response to Specific Comment 22.</p> <p>As presented in the RI on Page 4-10 (Bechtel 2005), this soil sample was taken at the storm drain corridor east of Building 168 in EBS Parcel 140 (location 140-SS-001, as shown in Figure 1-9 of the RI Report). The detection limit was not reported in the EBS. Four additional borings were subsequently sampled in the vicinity of this location, and tetraethyl lead was not reported above detection limits in the soil samples from these additional</p>

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SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
<p>Specific Comment 22 (continued).</p>	<p>Response to Specific Comment 22 (continued).</p> <p>borings. The detection limits for the additional samples ranged from 520 to 540 µg/kg. The term “confirmation sample” has been deleted.</p> <p>The remarks related to the dioxin/furan results have been deleted from Note g.</p>
<p>Specific Comment 23.</p> <p>Page 7-1, third paragraph, last sentence: Please delete the word “further”.</p>	<p>Response to Specific Comment 23.</p> <p>This modification has been made as suggested.</p>
<p>Specific Comment 24.</p> <p>Page 7-5, Residential Scenario Cancer Risks: Consider including a brief description of the major risk drivers, i.e. VOCs for this scenario in this paragraph. Otherwise the reader has to keep reading until the following page to find out that information.</p>	<p>Response to Specific Comment 24.</p> <p>This modification has been made as suggested. Please refer to Response to General Comment 1 for text revisions to Section 7.1.4.</p>
<p>Specific Comment 25.</p> <p>Page 7-6, first paragraph: Suggest not including arsenic as a risk driver and COC here. There are very few hits of arsenic above the federal MCL and all of the concentrations are below the state MCL. The majority of the risk in groundwater is due to the VOCs (as stated in the last paragraph). It seems that giving an explanation in this section, as well as in the section discussing remediation goals, as to why arsenic is not a COC would be useful and would support the selected remedy which does not address arsenic. The argument for not considering arsenic in groundwater should also be presented with an additional sentence at the end of the section discussing incremental risk on this page.</p>	<p>Response to Specific Comment 25.</p> <p>This modification has been made as suggested. Please refer to Response to General Comment 1 for text revisions to Section 7.1.4. The word “primarily” has been deleted from the last sentence of the 1st paragraph on page 7-6.</p> <p>The following three sentences have replaced the first sentence of the last paragraph of Residential Scenario Cancer Risks as follows: “The RME risk for direct contact with soil (ingestion, inhalation, and dermal contact) is 10⁻⁵, and is considered protective of a resident in the future. The majority of the risk is associated with background concentrations of arsenic. Without arsenic, the incremental risk is 10⁻⁶.”</p>

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Comments from A. Cook, U.S. EPA, 7/26/2007

SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
<p>Specific Comment 26. Page 8-1, third paragraph: Recommend removing the RG for arsenic (see general comment), and the last two sentences of this paragraph.</p>	<p>Response to Specific Comment 26. These modifications have been made as suggested.</p>
<p>Specific Comment 27. Page 8-1, last paragraph: Delete the word “further” from the first sentence. Also, please remove the word “immediate” as it implies that there remains a long-term threat.</p>	<p>Response to Specific Comment 27. These modifications have been made as suggested.</p>
<p>Specific Comment 28. Sec. 9.2, p. 9-2, fourth line from the top, we recommend adding “current and” before “future landowner(s)”, consistent with the language on page 12-3, Sec. 12.2.3.</p>	<p>Response to Specific Comment 28. This modification has been made as suggested.</p>
<p>Specific Comment 29. Page 10-3, Section 10.6, last paragraph: Is the implementability actually “low” for this technology? It appears to have successfully been implemented at Site 9 and the two plumes at Site 16 with little difficulty. Having low implementability for the selected remedy is unusual.</p>	<p>Response to Specific Comment 29. As summarized in the first row of Table 10-1, implementability considers the following factors: technical feasibility, operational reliability, future alternative remedial options, ability to monitor effectiveness, ability to obtain governmental approvals, and availability of services and materials. Alternative 6B was rated low in implementability because of low technical feasibility based on the high number of injection points (570). In the other elements of implementability listed above, the selected alternative would rank favorably. No change to the ranking of this alternative is proposed. The following sentence has replaced the last sentence of Section 10.6: “This alternative assumes full-scale ISCO injections in approximately 570 locations throughout the IR Site 27 plume. This high number of injection locations reduces the technical feasibility of the alternative.”</p>

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SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
<p>Specific Comment 30.</p> <p>Sec. 10.7, p. 10-3, Cost. We recommend adding a statement that although Alternative 6B rates low in cost due to higher net present value, it also has the lowest total cost.</p>	<p>Response to Specific Comment 30.</p> <p>Total cost does not consider the present value of future cash flows. Cost analyses in the FS were calculated consistent with the guidelines and procedures set forth in the RI/FS guidance (EPA 1988), which dictates the use of present value costs in comparing alternatives. No change in text is proposed in response to this comment.</p>
<p>Specific Comment 31.</p> <p>The ROD is ambiguous about whether MNA is considered part of the remedy. Figure 12-2 includes a box "implement MNA," suggesting that MNA could be part of the remedy, although the text never clearly explains this. The remedy bullets in the Declaration do not mention MNA, while the bullets on page 12-1 include "groundwater confirmation sampling, including the measurement of MNA parameters" in the remedy. We recommend that this be clarified</p>	<p>Response to Specific Comment 31.</p> <p>MNA is considered to be part of the remedy as described in Section 12. For clarification, the following change has been made to the Declaration. The third bullet under Description of the Selected Remedy on page D-2 has been revised as follows: "Groundwater sampling and sampling and analysis for MNA parameters will be performed to confirm that treatment has reduced VOC concentrations and that the RGs selected in this ROD have been met. MNA parameters would be measured across the plume, including the shoreline portion, and may be employed where the groundwater concentrations approach the RGs."</p>
<p>Specific Comment 32.</p> <p>Page 12-1, Section 12.1, first paragraph: Delete the word "further" from the second sentence.</p>	<p>Response to Specific Comment 32.</p> <p>This modification has been made as suggested.</p>
<p>Specific Comment 33.</p> <p>Sec. 12.2.3, page 12-3, second paragraph. At the beginning of the second sentence, we recommend adding "If the property is transferred," (unless the Navy intends on entering into covenants with DTSC while the property still is held by the Navy).</p>	<p>Response to Specific Comment 33.</p> <p>At the beginning of the second sentence the wording "If the property is transferred to a non-federal entity", has been added.</p>

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Comments from A. Cook, U.S. EPA, 7/26/2007

SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
<p>Specific Comment 34.</p> <p>Section 12.2.3, page 12-4 and 5, IC objectives.</p> <ul style="list-style-type: none"> a. The bullet prohibiting the installation of new groundwater wells suggests that there may be existing groundwater wells. We recommend an additional bullet clearly prohibiting the consumption of groundwater until the remedial goals have been achieved. b. It would be preferable to say “until remedial goals have been achieved” rather than “until cleanup objectives are achieved” to avoid any lack of clarity as to whether the cleanup objectives are something different from the RGs. c. The first bullet preventing residential use appears to be a permanent prohibition. Our understanding is that this prohibition is only needed until RGs are met. We recommend this be added so that it will not be necessary to obtain approval by the Navy and FFA signatories for residential use once RGs are met. The statement on page 12-5 that ICs will remain in place until the RGs have been achieved does indicate that residential use will be permissible once the RGs have been achieved. d. It would be clearer to just say the ICs will remain in place until the following RGs have been achieved, rather than saying “until RAOs and the following RGs are achieved.” 	<p>Response to Specific Comment 34.</p> <ul style="list-style-type: none"> a. The sentence preceding the bullets in Section 12.2.2 has been revised to clarify that existing wells are monitoring wells as follows: “It was assumed that groundwater from existing monitoring wells would be sampled...” <p>The following bullet has been added to page 12-5 following the bullet regarding the installation of new groundwater wells:</p> <p>“Prohibit the domestic use of groundwater until RGs have been achieved.”</p> <ul style="list-style-type: none"> b. This modification has been made as suggested c. As the reviewer noted, the statement on page 12-5 is already included and applies to all the ICs listed above. For clarification, the following is added to the first bullet on page 12-4 after the word “signatories”: “or until RGs have been achieved.” d. This modification has been made as suggested.
<p>Specific Comment 35.</p> <p>Figure 12-1: The recently submitted figure showing the IC boundaries superimposed on the site boundaries should be included in the draft final ROD with a figure title stating that the figure shows site and IC boundaries</p>	<p>Response to Specific Comment 35.</p> <p>This modification has been made as suggested.</p>
<p>Specific Comment 36.</p> <p>Page 12-5: Recommend deleting the arsenic RG from the bulleted list.</p>	<p>Response to Specific Comment 36.</p> <p>This modification has been made as suggested.</p>

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Comments from A. Cook, U.S. EPA, 7/26/2007

SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
<p>Specific Comment 37.</p> <p>Section 12.2.3, page 12-6, last paragraph. Line two should read “enforcing the ICs” and lines 5-6 should read “Should any of the ICs fail” (rather than “IC objectives”). As an alternative “IC objectives” could be changed to “IC controls.” It is difficult to measure whether an objective is being met for purposes of enforcement. See, e.g., DF ROD for OU5.</p>	<p>Response to Specific Comment 37.</p> <p>These modifications have been made as suggested. The word “objectives” has been deleted.</p>
<p>Specific Comment 38.</p> <p>Page 14-1, first sentence: Please delete the words “further” and “immediate” from this sentence.</p>	<p>Response to Specific Comment 38.</p> <p>This modification has been made as suggested.</p>

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Comments from D. Lofstrom, DTSC, 7/27/07

SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
<p>Specific Comment 1. <u>Declaration, Page D-2, first true paragraph.</u> This paragraph concludes with the statement, “The Navy recommends that aboveground storage tank (AST) 15 be deferred to the Alameda Point Total Petroleum Hydrocarbons (TPH) program. Later, on page 2-5, second paragraph, the Site 27 Draft ROD states, “The aboveground storage tank included in AST015 was removed prior to 1994; this unit is deferred to the Alameda Point TPH Program.” It’s not clear from these two sentences if the Navy is requesting concurrence from the regulatory agencies to defer the AST to the TPH program or if that has already occurred. Please reconcile the contradiction between the two statements, and notify DTSC if concurrence is sought.</p>	<p>Response to Specific Comment 1. DTSC concurrence with the recommendation to defer this AST to the Petroleum Program is requested. As stated in Note b on Table 2-3, the DTSC determination is “pending” and concurrence was requested. Upon receipt of DTSC concurrence, the Declaration and the statement in Table 2-3 will be updated with the final determination. The Declaration will be revised to state that the “AST has been deferred to the Petroleum Program” and Table 2-3 will be revised to state that DTSC concurrence for the deferral was received. The statement on Page 2-5 will not have to be revised since it was written assuming that concurrence would be given.</p>
<p>Specific Comment 2. <u>Declaration, page D-2, first true paragraph.</u> The paragraph describing the solid waste management Units (SWMU) at Site 27 states that further action is recommended for Area of Concern (AOC) 15, oil water separator (OWS)-166A and 166-B, and washdown area (WD-166). OWS-166A, OWS-166B and WD-166 are referred to several more times throughout the Site 27 Draft ROD, and, with the exception of some confusion related to the TPH program (described in our comment below), it is apparent that additional sampling will be completed during the remedial design. However, the description of AOC-15 is less clear in the text. AOC-15 consists of three underground storage tanks (USTs) that were removed in 1994, but that is evident only from Table 2-3, not from the text. Until the reader arrives at Table 2-3 it is not understood that AOC-15 is comprised of the three removed USTs. Moreover, low concentrations of total petroleum hydrocarbons have been detected in groundwater associated with the three USTs, but that is not clearly presented in the text either, as reflected in U.S. Environmental Protection Agency (USEPA) Comment 13 on the Site 27</p>	<p>Response to Specific Comment 2. A description of AOC 15 has been added to Table 1-1, Site Description. The following sentences have been added to Paragraph 2: “Historically, three USTs were used to store diesel and fuel in the western portion of the site (UST 15-1, 15-2 and 15-3, collectively known as AOC 15). These tanks were removed in December 1994. During removal of the USTs in 1994, samples were collected and total petroleum hydrocarbons (TPH) were reported in soil and groundwater. During the post-UST removal follow-on activities in 1995, additional soil and groundwater samples were collected, and chlorinated VOCs were reported in groundwater samples.” This information is presented on Page 2-2 and 2-5 but by adding it to Table 1-1, a more accurate description of the site is provided earlier in the document. In addition, the following has been added to the Declaration Page D-2, second paragraph, third sentence, following “(AOC) 15”: “which consists of former USTs 15-1, 15 -2 and 15-3.” Also, on Page 2-2, the words “collectively known as AOC-15” have been</p>

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Comments from D. Lofstrom, DTSC, 7/27/07

SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
Draft ROD. Thus,	added to the parenthetical statement "(USTs 15-1 through 15-3)".
<p>Specific Comment 2 (continued).</p> <p>AOC-15 should be discussed separately from OWS-166A, OWS-166B, and WD-166, and a more complete initial description provided in both the declaration and on page 2-5. Additionally, groundwater contamination associated with the three USTs should be clearly stated.</p>	<p>Response to Specific Comment 2 (continued).</p>
<p>Specific Comment 3.</p> <p><u>Table 1-1, Site Description, third paragraph.</u> This paragraph concludes with a description of three SWMUs, specifically, WD-166, OWS 166A and OWS-166B. On page 2-7 the Site 27 Draft ROD states that these SWMUs were recommended for no further action under the Total Petroleum Hydrocarbon (TPH) program. On page 2-5, the Site 27 Draft ROD states that these SWMUs are recommended for further action (data gap sampling). DTSC is interpreting these two statements to mean that although the SWMUs were recommended for no further action under the TPH program, additional data gap sampling under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) will be conducted during remedial design. Is this interpretation correct? If so, this explanation should also be provided on pages 2-5 and 2-7.</p>	<p>Response to Specific Comment 3.</p> <p>DTSC's interpretation is correct. The following changes have been made: Page 2-5, Section 2.2.2, second paragraph, 7th sentence, "under the CERCLA program" now follows the words "data gap sampling." Page 2-7, Washdown Areas, following the 2nd sentence, the following new sentence has been added "Further action will be performed under the CERCLA program."</p>
<p>Specific Comment 4.</p> <p><u>Table 1-1, Site Description, fourth paragraph.</u> The Site 27 ROD uses language in this paragraph that both USEPA and DTSC objected to during the Proposed Plan. Previous comments from USEPA are as follows:</p> <p style="padding-left: 40px;">Is the Navy stating here that current operations at Site 27 are continuing to provide a source of contamination to groundwater? In addition to this concern, EPA continues to find the statement that there are potential upgradient sources of contamination at IR 27 problematic. Making this statement brings up the concern that groundwater sources have not been adequately characterized and that the treatment of</p>	<p>Response to Specific Comment 4.</p> <p>There is no evidence of a continuing source of groundwater contamination at IR Site 27. The 4th paragraph on Table 1-1 has been revised as follows: "Potential sources of contaminants in soil gas, soil, and groundwater at IR Site 27 include dredged fill material used to create the site, historical activities conducted within the boundaries of the site and VOCs which may have been released historically to groundwater upgradient of the site".</p>

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Comments from D. Lofstrom, DTSC, 7/27/07

SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
groundwater at Site 27	
<p>Specific Comment 4 (continued). will not be successful due to recontamination from the upgradient sources. Which sources upgradient does the Navy believe may be responsible for the contamination at Site 27 and what steps have been taken to characterize this source and control its future impact on groundwater at Site 27? Please revise the fourth paragraph of the Site Description in Table 1-1 to reflect this comment.</p>	<p>Response to Specific Comment 4 (continued).</p>
<p>Specific Comment 5. <u>Section 2.2.3, entire section.</u> This section states that several areas in the vicinity of Site 27 are being addressed by the Alameda TPH program, and that a portion of Corrective Action Area (CAA) 11-B is located within the IR Site 27 boundaries. Please add a paragraph that briefly explains the status of the CAA-11B remediation.</p>	<p>Response to Specific Comment 5. It is assumed that the DTSC is referring to Section 2.2.4 rather than 2.2.3. The following sentence has been added under Section 2.2.4 before the Fuel Line Investigations heading: "A field activity report documenting completed field activities and post-shut down sampling results, and a Site Management Plan proposing one year of post-remediation sampling is under development."</p>
<p>Specific Comment 6. <u>Section 2.2.4, page 2-7.</u> The Site 27 Draft ROD states that underground storage tanks in CAA-11B were used as "storage for lubricating oil; diesel, gasoline or jet fuel; or other miscellaneous liquids." Please define "other miscellaneous liquids." This could be included as a footnote, or could be provided in Table 2-4.</p>	<p>Response to Specific Comment 6. The description of the liquids stored in the USTs in CAA-11B is quoted from the document entitled "Data Gap Investigation at Correction Action Areas and Other Locations at Alameda Point Summary Report (TtEMI 2001b)". The description of the liquids in the USTs contained in this report on Page 3-19 includes "miscellaneous liquids". No further description is available. The reference "TtEMI 2001b" has been added to the end of this sentence to clarify that this information is from that particular source.</p>

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SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
<p>Specific Comment 7. <u>Section 5.3, page 5-4, second paragraph.</u> This paragraph states that arsenic concentrations in soil at the site were above the preliminary remediation goal (PRG) but were comparable to the Alameda Point background concentrations. Please state the Alameda Point background concentration in this paragraph.</p>	<p>Response to Specific Comment 7. The following has been added to the 1st sentence of the 2nd paragraph on Page 5-4: “of 9.14 mg/kg for the pink area 95th percentile and 16.55 mg/kg for the blue area 95th percentile (TtEMI 2003).” The reference to the Final IR Sites 14 and 15 RI report which presents the background statistics for Alameda Point has also been added to the reference list in Section 15.</p>
<p>Specific Comment 8. <u>Section 5.3.2, page 5-4, third paragraph.</u></p> <ul style="list-style-type: none"> • Arsenic has been reported in groundwater at concentrations exceeding the Alameda Point background value, and a remediation goal of 20.4 micrograms per liter (µg/L) is proposed in the Site 27 Draft ROD. Section 5.3.2 states that localized mobilization of arsenic has likely occurred as a result of geochemical conditions in the VOC plume area, and that arsenic concentrations will be reduced following completion of VOC remediation. Please explain this hypothesis in greater detail. Is the Navy suggesting that the presence of chlorinated solvents in groundwater is mobilizing the arsenic? Is this due to a change in soil pH? A similar hypothesis is presented in the Operable Unit 1 Draft Final ROD on page 3-16, where the Navy postulates that the release of TPH at Site 7 may have changed the geochemical conditions (reducing conditions) of the shallow groundwater aquifer, resulting in increased arsenic solubility. Is there a correlation throughout Alameda Point with increased arsenic and groundwater contaminant plumes? • The post-treatment monitoring program described in Section 12.2.2 does not include metals analyses. Metals analyses should be performed to monitor post-treatment arsenic concentrations as well as concentrations of other metals that may be mobilized under oxidizing 	<p>Response to Specific Comment 8.</p> <ul style="list-style-type: none"> • Natural anaerobic biodegradation processes (reductive dechlorination) have been occurring at IR Site 27. The microbial activity involved in degrading the contaminants appears to have caused a temporary mobilization of naturally occurring arsenic into groundwater in the core of the plume. The following text has been inserted after the second sentence in the third paragraph of Section 5.3.2: “The microbial activity associated with biodegradation of chlorinated VOCs creates reducing conditions that can mobilize arsenic (U.S. EPA 1999). This may explain why detections of arsenic in groundwater at IR Site 27 infrequently exceeded the MCL, and only in the center of the VOC plume. The majority of these samples yielded arsenic concentrations below the level of the MCL.” A correlation analysis as described has not been performed for Alameda Point. Please also refer to the response to EPA Specific Comment 20. • Dissolved metals have been added to the list of analyses in the first two bullets in Section 12.2.2. The exact details of the groundwater sampling program will be developed in the remedial design stage.

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SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
concentrations.	
<p>Specific Comment 9. <u>Table 5-1.</u> Please add a footnote with the Alameda Point background concentration for all chemicals with a “Yes” in the Background column. In the case of Site 27, that is arsenic only.</p>	<p>Response to Specific Comment 9. Note “h” has been added after the word “Yes” under arsenic which states: “95th percentile for pink area is 9.14 mg/kg and 95th percentile for blue area is 16.55 mg/kg.”</p>
<p>Specific Comment 10. <u>Table 5-2.</u> Please add a footnote stating that the Alameda Point background concentration for arsenic in groundwater is 20.4 ug/l.</p>	<p>Response to Specific Comment 10. A footnote stating that the 95th percentile for arsenic in Alameda Point background groundwater is 20.72 µg/l has been added.</p>
<p>Specific Comment 11. <u>Section 9.5, page 9-3, second paragraph.</u> The paragraph describes institutional controls that would be put in place that would prohibit groundwater extraction at the site and prohibit actions that would interfere with the remediation and confirmation sampling activities. Please include the IC that will prohibit residential and other sensitive land uses until RGs have been met in this paragraph.</p>	<p>Response to Specific Comment 11. The following statement has been added to the 2nd sentence of the 2nd paragraph after the word “activities”: “and would also prohibit residential and other sensitive land uses.” ICs are described in more detail in Section 12.2.3.</p>
<p>Specific Comment 12. <u>Section 12, page 12-1, first paragraph.</u> The selected remedy includes groundwater confirmation sampling. Confirmation soil gas sampling should also be conducted upon remedy completion to ensure unrestricted use is appropriate at that time.</p>	<p>Response to Specific Comment 12. The risk to a potential resident due to inhalation of indoor air is 3×10^{-5}. Land use is therefore not restricted on the basis of this risk, thus soil gas sampling would not be needed.</p>

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SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
<p>Specific Comment 13. <u>Section 12.2.1, page 12-2, second paragraph.</u> The Site 27 Draft ROD states that injections of Fenton-like reagent will focus on a 10-foot thick treatment zone for in situ chemical oxidation. The Site 27 Draft ROD further states in Section 12.4, page 12-8 that information collected during the remedial design phase may include defining the vertical extent of the chemicals of concern. As stated in comments from DTSC previously submitted for the Site 27 Draft Remedial Investigation report and Draft Feasibility Study, the vertical extent of chlorinated solvents has not been defined at Site 27 and is a data gap that needs to be completed during the remedial design phase.</p>	<p>Response to Specific Comment 13. Overall, the vertical extent of the chlorinated solvent plume at IR Site 27 is adequately characterized for RI/FS purposes. Discrete groundwater samples were collected at two depths (10' and 20' bgs) in at least four borings during the RI, each showing VOC concentrations in deeper samples several orders of magnitude lower (or non-detect) compared with shallower groundwater samples. During the RD stage, the treatment interval for successful remediation using ISCO typically needs to be known to a higher degree of accuracy than the RI/FS stage. A 10-foot thick treatment zone was assumed for cost estimating purposes during the FS based on a review of the groundwater investigation data presented in the RI. During the RD, the installation of additional monitoring wells or collection of groundwater "grab" samples will be conducted if necessary. No changes to the text are proposed.</p>
<p>Specific Comment 14. <u>Section 12.2.2, page 12-3.</u> The groundwater sampling schedule is included for during and post-treatment. Please add a provision to include at least one round of post-treatment soil gas sampling as well.</p>	<p>Response to Specific Comment 14. Please refer to the response to Specific Comment 12 above.</p>

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Comments from E. Simon, RWQCB, 7/31/2007

GENERAL COMMENTS	RESPONSE TO GENERAL COMMENTS
<p>General Comment 1. Please include a figure that explicitly shows concentrations and extent of COC plume boundaries, based on all available data.</p>	<p>Response to General Comment 1. A new figure, Figure 1-4 has been added. The following sentence has been added on page 1-1, Section 1.3 following the last sentence of the last paragraph: "Figure 1-4 depicts the chlorinated VOC plume at the site."</p>

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Comments from E. Simon, RWQCB, 7/31/2007

SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
<p>Specific Comment 1. Figure 1-3 – Please include the boundaries of CAA-11B in this figure titled Site Features.</p>	<p>Response to Specific Comment 1. Figure 1-3 has been revised to include the boundaries of CAA-11B.</p>
<p>Specific Comment 2. Section 2.2.1 - Page 2-4 – fourth paragraph down – This paragraph describes the site investigation for Transfer Parcel EDC-12 that sampled for polyaromatic hydrocarbons (PAHs) in a grid pattern over the entire area but does not summarize the results of this investigation. Please include a brief summary of these results here instead of just referencing the Remedial Investigation data set.</p>	<p>Response to Specific Comment 2. The conclusions of this investigation and the extent of PAHs in soil at the site are summarized in Section 5.3.1 of the draft ROD, page 5-4, Section 5.3.1. Section 2 summarizes the prior investigations, whereas results are included in Section 5 of the ROD.</p>
<p>Specific Comment 3. Section 2.2.4 – Page 2-7 – Last paragraph – This paragraph indicates that washdown area WD-166 and oil water separators OWS-166A and OWS-166B were recommended for no further action under the Total Petroleum Hydrocarbon (TPH) program. As these areas still require further action under the CERCLA program, please clearly indicate in this paragraph that while the TPH program recommended no further action, more investigation under the CERCLA program is planned.</p>	<p>Response to Specific Comment 3. Further investigation under the CERCLA program is planned. On Page 2-7, Washdown Areas, following the 2nd sentence, the following new sentence has been added “ Further action will be performed under the CERCLA program.” Please also refer to Response to DTSC Specific Comment 3.</p>
<p>Specific Comment 4. Table 2-1 – Page 1 of 3 – 3rd item down – The summary of findings for the 2000 and 2001 Storm Drain Investigations indicates that ‘a TPH plume in shallow groundwater was identified at Outfall I’. Please be more specific as to where the TPH plume extends and indicate if this TPH plume is being addressed as a part of Corrective Action Area (CAA)-11B.</p>	<p>Response to Specific Comment 4. The statements made in Table 2-1 present a summary of the conclusions from the Storm Drain investigations which occurred at the site between 2000 and 2001. Additional sampling was performed as part of the Data Gap Investigation (DGI), and is summarized in the first entry on Table 2-1, page 2 of 3, which indicates that no TPH was detected in sample I-5. For clarification, the following sentence was added to the “Summary of Findings” column: “TPH was not reported in groundwater samples.”</p>

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SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
<p>Specific Comment 5. Section 5.3 – Nature and Extent of Contamination in Soil, Groundwater, and Soil Gas - Please include a discussion in this section on any known releases that have occurred at this site, when those releases occurred, and the estimated volume of the release. This information, if available, may help in estimating the age of the plume and associated contaminants.</p>	<p>Response to Specific Comment 5. There are no documented releases of the constituents found in soil or groundwater at the site. Table 1-1, last paragraph, provides a description of potential sources.</p>
<p>Specific Comment 6. Section 5.3.2 – Page 5-4 – second paragraph from bottom – This paragraph describes how elevated arsenic levels are a result of modified geochemical conditions within the central portion of the volatile organic carbon (VOC) plume. Please provide a technical explanation for why arsenic levels are elevated and why it is believed that the localized mobilization of arsenic in soil is expected to return to background levels once remediation is complete.</p>	<p>Response to Specific Comment 6. As described in Response to U.S. EPA Specific Comment 20, the following text has been inserted after the second sentence in the third paragraph of Section 5.3.2 to explain why the arsenic levels are elevated: “The microbial activity associated with biodegradation of chlorinated VOCs creates reducing conditions that can mobilize arsenic (U.S. EPA 1999). Detections of arsenic in groundwater at IR Site 27 infrequently exceeded the MCL, and only in the center of the VOC plume.” The last two sentences of this same paragraph explain that once geochemical conditions return to normal following remediation, arsenic in soil will be less likely to mobilize in groundwater. No revision has been made to this part of the text.</p> <p>Arsenic also has been removed from the list of COCs, as described in Response to EPA General Comment 1, because there are very few groundwater samples in which arsenic exceeds the federal MCL of 10 ppb (and no groundwater samples with arsenic concentrations exceeding the state MCL). Most samples contain arsenic in the range of 3-5 ppb, and the highest arsenic concentrations are only in the center of the VOC plume.</p>

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SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
<p>Specific Comment 7.</p> <p>Section 5.3.3 – Page 5-5 – Last Paragraph – This paragraph indicates that 2,2,4-Trimethylpentane was reported in all soil gas samples distributed across the site but does not indicate the levels that were detected or if these levels are above any risk-based or toxicity-based levels. Please briefly summarize these results and provide applicable references.</p>	<p>Response to Specific Comment 7.</p> <p>Section 4.4.2 of the RI Report (Bechtel 2005), states that the presence of 2,2,4-trimethylpentane (a gasoline additive) could have been introduced into the soil gas samples from ambient air since the soil gas samples were collected at shallow depths due to the shallow depth to groundwater. Thus the draft ROD does not place an emphasis on these results. For a summary of the levels detected, please refer to Figure 4-14 of the RI Report.</p> <p>The screening levels used in Sections 4 and 5 of the RI to describe the nature and extent of contaminants (PRGs and MCLs) do not include risk-based levels in soil gas. However, all chemicals reported in any sample are fully evaluated in the risk assessment (Section 6 and Appendix K). As stated in the RI Report, 2,2-4 Trimethylpentane is assigned a reference dose for noncancer health effects and the associated hazard quotient is 0.07 which is well below the risk management hazard quotient of 1.</p> <p>Additionally, there is no published risk-based level for 2,2-4 Trimethylpentane in soil gas in either the San Francisco Regional Water Quality Control Environmental Screening Levels or the Cal/EPA Human California Human Health Screening Levels. No text changes were made in response to this comment.</p>
<p>Specific Comment 8.</p> <p>Section 7.1.4 – Page 7-5 – Noncancer Hazards and Lead subsection – This section identifies that while the majority of the risk in the residential scenario for soil is associated with arsenic, concentrations are within the Alameda Point background levels. Considering that the recommendation of no further action for soil is based on the incremental risk for metals above background levels, please discuss in detail on how arsenic background levels were calculated and reference regulator concurrence with these metals background calculations. Furthermore, please clarify how future residential users across this site will be protected from elevated background levels of arsenic.</p>	<p>Response to Specific Comment 8.</p> <p>The majority of the risk for direct contact with soil is associated with background concentrations of arsenic. Without arsenic, the incremental risk is 10^{-6}. Including arsenic, the risk is 10^{-5}. No further action is warranted for soil at IR Site 27 because the human health risk assessment meets the criteria established in the NCP for allowing risks within the risk management range. The calculation of background levels of arsenic are presented in the Final IR Sites 14 and 15 RI report (TtEMI, 2003). As noted in Response to DTSC Specific Comment 7, this reference was added to the</p>

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Comments from E. Simon, RWQCB, 7/31/2007

SPECIFIC COMMENTS	RESPONSE TO SPECIFIC COMMENTS
	references in Section 15.
<p>Specific Comment 9. Section 8 – Page 8-1 – Third Paragraph – Please include a reference to the Alameda Point background determination.</p>	<p>Response to Specific Comment 9. As noted above, the reference to the Final IR Sites 14 and 15 RI report which presents the background statistics for Alameda Point has also been added to the reference list in Section 15.</p>
<p>Specific Comment 10. Section 9.4 – Page 9-2 – Alternative 6A includes using in-situ chemical oxidation (ISCO) to oxidize VOCs in groundwater in the two areas of higher VOC concentrations. As noted in General Comment #1, please include more detail on where these two areas would have been by referring to a figure showing extent of contaminant plumes.</p>	<p>Response to Specific Comment 10. As noted in Response to General Comment 1, a new figure, Figure 1-4 has been added to show the extent of the contaminant plume and in particular, the two areas of higher VOCs.</p>
<p>Specific Comment 11. Section 9.5 – Page 9-2 – Alternative 6B includes confirmation sampling for VOCs as well as monitored natural attenuation (MNA) parameters, but does not include MNA as a component of the alternative. Because the intent of collecting the MNA parameter data is to determine if MNA is feasible if ISCO treatment does not reduce concentrations down to remedial goals, why is MNA not specifically called out in Alternative 6B? MNA is also included in the Remedy Implementation decision matrix in Figure 12-2. Please revise or include further justification for not specifically identifying MNA as a preferred alternative after ISCO treatment.</p>	<p>Response to Specific Comment 11. MNA is considered to be part of the remedy as described in Section 12. For clarification, the following change has been made to the Declaration. The third bullet under Description of the Selected Remedy on page D-2 has been revised as follows: “Groundwater sampling and sampling and analysis for MNA parameters will be performed to confirm that treatment has reduced VOC concentrations and that the RGs selected in this ROD have been met. MNA parameters would be measured across the plume, including the shoreline portion, and may be employed where the groundwater concentrations approach the RGs.” Also, please refer to Response to EPA Specific Comment 31.</p>
<p>Specific Comment 12. Section 12 – Page 12-1 – Please include more information on nature and extent of contamination at Area of Concern (AOC) 15 and discuss why this AOC, which is located adjacent to the shore at Seaplane Lagoon, is not specifically addressed in the selected remedy.</p>	<p>Response to Specific Comment 12. AOC 15 was the original area identified by the Navy for further investigation, and this area was later renamed IR Site 27. As described in Table 2-3, first entry, this AOC will be addressed by the ROD.</p>

**RESPONSE TO COMMENTS ON
DRAFT RECORD OF DECISION IR SITE 27, DOCK ZONE
ALAMEDA POINT, ALAMEDA, CALIFORNIA
DATED APRIL 2007
CTO-0084/0222**

Comments from U.S. EPA-HQ, 8/1/2007

GENERAL COMMENTS	RESPONSE TO GENERAL COMMENTS
<p>General Comment 1.</p> <p>Regarding the timeframe between leasing and transfer, on page 12-4, 1st full paragraph, please change the 2nd full sentence, top of the page as follows:</p> <p style="padding-left: 40px;">Through the LIFOC, the Navy will maintain conditions at IR Site 27 that are eonsistent with no less restrictive than the IC Objectives and associated land-use restriction for the remedial alternative chosen.</p>	<p>Response to General Comment 1.</p> <p>This modification has been made as suggested.</p>
<p>General Comment 2.</p> <p>Regarding Checklist Item 7, the responsibility language should reference the land use controls, not just the land use objectives (see language in the Draft Final OU 5 ROD). Please modify the language on page 12-6, paragraph 3 to reflect this as follows, choosing one of the proposed options:</p> <p style="padding-left: 40px;">Option 1) The Navy will be responsible for implementing, maintaining, inspecting, reporting, and enforcing the ICs objectives described in the ROD in accordance with the approved remedial design reports.</p> <p style="padding-left: 40px;">Option 2) The Navy will be responsible for implementing, maintaining, inspecting, reporting, and enforcing the ICs and IC objectives described in the ROD in accordance with the approved remedial design reports.</p>	<p>Response to General Comment 2.</p> <p>This modification has been made as suggested in Option 1.</p>

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- B TRANSCRIPT FROM PUBLIC MEETING, SIGN-IN SHEET, AND PUBLIC NOTICE**
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ACRONYMS/ABBREVIATIONS

AOC	area of concern
ARAR	applicable or relevant and appropriate requirement
BCT	Base Realignment and Closure (BRAC) Cleanup Team
bgs	below ground surface
BGMP	basewide groundwater monitoring program
BIOCHLOR	BIOCHLOR Natural Attenuation Decision Support System
BRAC	Base Realignment and Closure
BSU	Bay Sediment Unit
CAA	corrective action area
Cal. Civ. Code	<i>California Civil Code</i>
Cal. Code Regs.	<i>California Code of Regulations</i>
Cal. Health & Safety Code	<i>California Health and Safety Code</i>
Cal/EPA	California Environmental Protection Agency
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.	<i>Code of Federal Regulations</i>
ch.	chapter
COC	chemical of concern
COPC	chemical of potential concern
COPEC	chemical of potential ecological concern
CSM	conceptual site model
CTR	California Toxics Rule
DCA	dichloroethane
DCE	dichloroethene
DGI	data gap investigation
div.	division
DTSC	(California Environmental Protection Agency) Department of Toxic Substances Control
EBS	environmental baseline survey
EDC	economic development conveyance
EPC	exposure point concentration
ERA	ecological risk assessment
FFA	Federal Facility Agreement
FS	feasibility study
ft/ft	foot per foot
FWBZ	first water-bearing zone
GAP	generator accumulation point

HEAST	Health Effects Assessment Summary Tables
HHRA	human-health risk assessment
HI	hazard index
HQ	hazard quotient
HRC	Hydrogen Release Compound
IAS	initial assessment study
IC	institutional control
IR	Installation Restoration (Program)
IRIS	Integrated Risk Information System
ISB	<i>in situ</i> bioremediation
ISCO	<i>in situ</i> chemical oxidation
LIFOC	Lease in Furtherance of Conveyance
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MNA	monitored natural attenuation
MOA	memorandum of agreement
MTBE	methyl tert-butyl ether
NACIP	Navy Assessment and Control of Installation Pollutants
NAS	Naval Air Station
Navy	Department of the Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
OEHHA	Office of Environmental Health Hazard Assessment
OU	operable unit
OWS	oil-water separator
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PRG	preliminary remediation goal
RAB	Restoration Advisory Board
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
Res.	resolution
RFI	RCRA facility investigation

Acronyms/Abbreviations

RG	remediation goal
RI	remedial investigation
RME	reasonable maximum exposure
ROD	record of decision
§	section
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SI	site inspection
SWMU	solid waste management unit
SWRCB	State Water Resources Control Board
TCE	trichloroethene
TCRA	time-critical removal action
TDS	total dissolved solids
tit.	title
TPH	total petroleum hydrocarbons
UCL	upper confidence limit
U.S.C.	<i>United States Code</i>
U.S. EPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound
Water Board	California Regional Water Quality Control Board
WQO	water quality objective

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DECLARATION

SITE NAME AND LOCATION

This decision document addresses Installation Restoration (IR) Program Site 27, Dock Zone, at the former Naval Air Station (NAS) Alameda, now referred to as Alameda Point, in Alameda, California. The U.S. Environmental Protection Agency (U.S. EPA) Comprehensive Environmental Response, Compensation, and Liability Act Information System identification number for NAS Alameda is CA2170023236.

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents the selected remedy, full-scale *in situ* chemical oxidation (ISCO) and groundwater confirmation sampling with institutional controls (ICs), for groundwater at IR Site 27. As stated in the remedial investigation report (BEI 2005), no threat to human health or the environment from soil was found at the site. Therefore, no action is necessary for soil.

This document was developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 (Title 42 *United States Code* Section 9601, et seq.) and the National Oil and Hazardous Substances Pollution Contingency Plan (Title 40 *Code of Federal Regulations* Part 300).

This ROD is based on information contained in the administrative record file (a site-specific administrative record index is included as Attachment A), as well as on the results of extensive field investigations, laboratory analyses, evaluations of current and future conditions, and thorough assessments of the potential human-health and ecological risks. Based on these findings, further action is required for groundwater at IR Site 27.

The Department of the Navy (Navy), U.S. EPA, California Environmental Protection Agency Department of Toxic Substances Control (DTSC), and California Regional Water Quality Control Board (Water Board) concur on the selected remedy for this site.

ASSESSMENT OF THE SITE

The Navy has concluded that remedial action is required for groundwater and that no action is required for soil to protect public health or welfare or the environment based on the following:

- Site histories
- Field investigations
- Laboratory analytical results
- Evaluation of potential human health and ecological risks
- Current and reasonably anticipated future land use

Results of investigations at IR Site 27 have verified that the site poses a potential risk to human health because of volatile organic compounds (VOCs) in groundwater through two exposure pathways that assume domestic use of on-site groundwater: ingestion of groundwater and dermal contact with groundwater while showering. However, the site poses no unacceptable risk to

human health or the environment from soil based on current and reasonably anticipated future land uses (including residential use). The ecological risk assessment results indicated negligible risk to terrestrial (ground-dwelling) wildlife receptors from chemicals in the soil and low risk to aquatic life from chemicals in groundwater, based on current conditions and planned future use of IR Site 27.

The Navy conducted a Resource Conservation and Recovery Act (RCRA) evaluation for a total of eight solid waste management units (SWMUs) located within IR Site 27. The Navy recommends no further corrective action for three of these units: NAS generator accumulation point (GAP) 8, NAS GAP 18/satellite hazardous waste accumulation point 18 NAS, and oil-water separator (OWS) 601. Further action under the CERCLA Program is recommended for Area of Concern (AOC) 015, which consists of former USTs 15-1, 15-2, and 15-3; OWS-166A and OWS-166B; and washdown area WD-166. The selected remedy in this ROD will address any VOC-impacted groundwater areas found in these SWMUs. The Navy recommends that aboveground storage tank (AST) 015 be deferred to the Alameda Point Petroleum Program.

DESCRIPTION OF THE SELECTED REMEDY

Concentrations of chemicals in soil are low and do not pose an unacceptable risk to human health and the environment for current conditions and planned future site uses (including residential use). Therefore, no action is required for soil.

Ten remedial alternatives for groundwater were developed and analyzed to address the potential risk to human health from VOCs in groundwater at IR Site 27. Alternative 6B with ICs was selected as the preferred remedy for groundwater and includes the following components.

- ISCO treatment technology will be used to reduce VOC concentrations to levels that are not considered an unacceptable risk to public health or welfare or the environment.
- ICs to implement land use and access restrictions to limit the exposure of future landowners(s) and/or user(s) of the property to hazardous substances and to maintain the integrity of the remedial action until remediation is complete and remediation goals (RGs) have been achieved.
- Groundwater sampling, and sampling and analysis for monitored natural attenuation (MNA) parameters, will be performed to confirm that treatment has reduced VOC concentrations and that the RGs selected in this ROD have been met. MNA parameters will be measured across the plume, including the shoreline portion, and may be employed where the groundwater concentrations approach the RGs.

STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. The selected remedy is protective of human health and the environment and will obviate the need for and satisfy the corrective action requirements of the RCRA and otherwise applicable state hazardous-waste and water-quality protection laws. The selected remedy uses permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable and satisfies the statutory preference for

Declaration

remedies employing treatment that reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element.

A 5-year review pursuant to CERCLA Section 121 is required whenever the level of contamination at a site is unacceptable for unrestricted use. Because the selected remedy is expected to reduce all potential risks to acceptable levels in less than 5 years, a 5-year review is not expected to be required. However, the Navy will conduct a 5-year review for this site if the remedy selected in this ROD is not complete when the 5-year review is due. ICs will be maintained until COCs reach RGs.

DATA CERTIFICATION CHECKLIST

The information provided in the table on the following page is included in Sections 1 through 14 of this ROD. Additional information can be found in the administrative record file for this site.

**Table D-1
Data Certification Checklist**

Checklist Item	Description
Chemicals of potential concern and their respective concentrations.	Chemicals of potential concern were characterized throughout IR Site 27 based on data from several investigations. Descriptions of these investigations are provided in Section 2 of this ROD. A description of the nature and extent of contamination at IR Site 27 is presented in Section 5.3 of this ROD.
Risk assessments are representative of the chemicals of potential concern.	A baseline human-health risk assessment and screening-level ecological risk assessment were conducted as part of the remedial investigation using data representative of current conditions at IR Site 27. Results of these risk assessments are presented in Section 7 of this ROD.
Remediation goals established for chemicals of concern and the basis for these goals.	The response action for groundwater selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened further release of hazardous substances into the environment. No action for soil is necessary to protect the public health or welfare or the environment. The risk assessments are presented in Section 7 of this ROD, and the remedial action objectives are presented in Section 8.
How source materials constituting principal threats are addressed.	Buildings and surrounding areas, along with fuel tanks, were investigated and evaluated as potential sources. Results of environmental investigations did not identify significant soil contamination or suggest the presence of a continuing source of contamination. Section 5.3 of this ROD describes the nature and extent of remaining contamination, and the principal threat waste is presented in Section 11.
Current and reasonably anticipated future land use assumptions and current and potential beneficial uses of groundwater used in the baseline human-health risk assessment and this ROD.	IR Site 27 was historically used for ship docking, repair, and painting; equipment and materials staging and storage; vehicle washdown; and chemical storage and handling in Building 168. Current operations by tenants leasing the space at the site are generally similar to the historical activities. The City of Alameda, Alameda Point General Plan Amendment (dated May 7, 2003) has designated IR Site 27 as future marina and inner harbor areas that may include marina, civic, residential, recreational, light industrial, retail, and commercial uses. As part of the baseline human-health risk assessment, risks were evaluated under three different scenarios: residential, occupational, and construction workers. Even though groundwater at the site is not presently used and is not expected to be used in the future for domestic uses, the exposure pathways associated with the domestic use of groundwater were considered. Future land use and beneficial uses of groundwater are discussed in Section 6 of this ROD.
Potential land and groundwater use that will be available at the site as a result of the selected remedy.	The City of Alameda, Alameda Point General Plan Amendment has designated IR Site 27 as future marina and inner harbor areas that may include marina, civic, residential, recreational, light industrial, retail, and commercial uses. Groundwater is not currently used for drinking water, irrigation, or industrial supply. Potential land and groundwater uses at IR Site 27 are discussed in Section 6 of this ROD. After the remediation goals are met, the selected remedy will allow for the various designated future land uses, including unrestricted use.

(table continues)

Declaration

Table D-1 (continued)

Checklist Item	Description
<p>Estimated capital, annual operation and maintenance, and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected.</p>	<p>This ROD recommends active remediation for groundwater at IR Site 27. Section 12 of this ROD describes the selected groundwater remedy. Estimated capital and operation and maintenance costs are presented in Table 12-1.</p>
<p>Key factors that led to selecting the remedy.</p>	<p>Evaluation of IR Site 27 soil shows that there is no threat to human health or the environment, and therefore, no action is required for soil. Levels of volatile organic compounds in IR Site 27 groundwater were found at levels above applicable regulatory criteria and therefore, active treatment using a proven technology is the selected remedy. Section 12 of this ROD describes the selected remedy, and Section 13 describes the statutory determinations that were made on the selected remedy. The selected remedy meets the threshold criteria from the National Oil and Hazardous Substances Pollution Contingency Plan, and was determined to be the best remedial alternative based on the primary balancing criteria. Based on comments received from the public, the state, and the U.S. Environmental Protection Agency, the Department of the Navy determined that no significant changes to the selected groundwater remedial action and no action for soil were required, based on the modifying criteria. Section 3 describes the community participation activities associated with IR Site 27. Attachment C provides the responsiveness summary to the public comments.</p>

Acronyms/Abbreviations:

IR – Installation Restoration (Program)
 ROD – record of decision

This signature sheet documents the Navy's and the U.S. EPA's co-selection of the remedial actions in this ROD for IR Site 27 at Alameda Point of no action for soil and remedial action for groundwater, and the State of California, by the Department of Toxic Substances Control's and the San Francisco Bay Regional Water Quality Control Board's concurrence with this ROD. The respective parties may sign this sheet in counterparts.

AUTHORIZING SIGNATURES

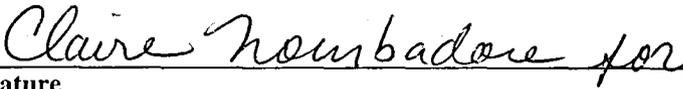


2-11-2008

Signature

Date

Mr. Thomas L. Macchiarella
Base Realignment and Closure Environmental Coordinator
Base Realignment and Closure Program Management Office West
Department of the Navy



2-13-2008

Signature

Date

Mr. Michael M. Montgomery
Chief, Superfund Federal Facilities and Site Cleanup Branch, Region 9
United States Environmental Protection Agency

The State of California, Department of Toxic Substances Control had an opportunity to review and comment on the Record of Decision and the Department of Toxic Substances Control comments were addressed.

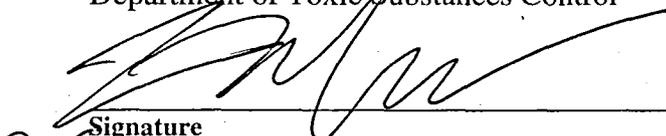


2-14-2008

Signature

Date

Mr. Anthony Landis, P.E.
Chief, Northern California Operations,
Office of Military Facilities
California Environmental Protection Agency
Department of Toxic Substances Control



2/15/2008

Signature

Date

Mr. Bruce H. Wolfe
Executive Officer
San Francisco Bay Regional Water Quality Control Board

Section 1

SITE NAME, LOCATION, AND DESCRIPTION

This Record of Decision (ROD) presents the selected remedy for Installation Restoration (IR) Program Site 27, Dock Zone. IR Site 27 is part of Operable Unit (OU)-6 at the former Naval Air Station (NAS) Alameda, now referred to as Alameda Point, in Alameda, California. This document was developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 (Title 42 *United States Code* [U.S.C.] Section [§] 9601, et seq.) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (Title 40 *Code of Federal Regulations* [C.F.R.] Part 300). The decision for IR Site 27 is based on information contained in the administrative record. The administrative record index for this site is provided in Attachment A.

1.1 SITE NAME

This ROD addresses IR Site 27, Dock Zone, at Alameda Point (hereinafter referred to as IR Site 27).

1.2 SITE LOCATION

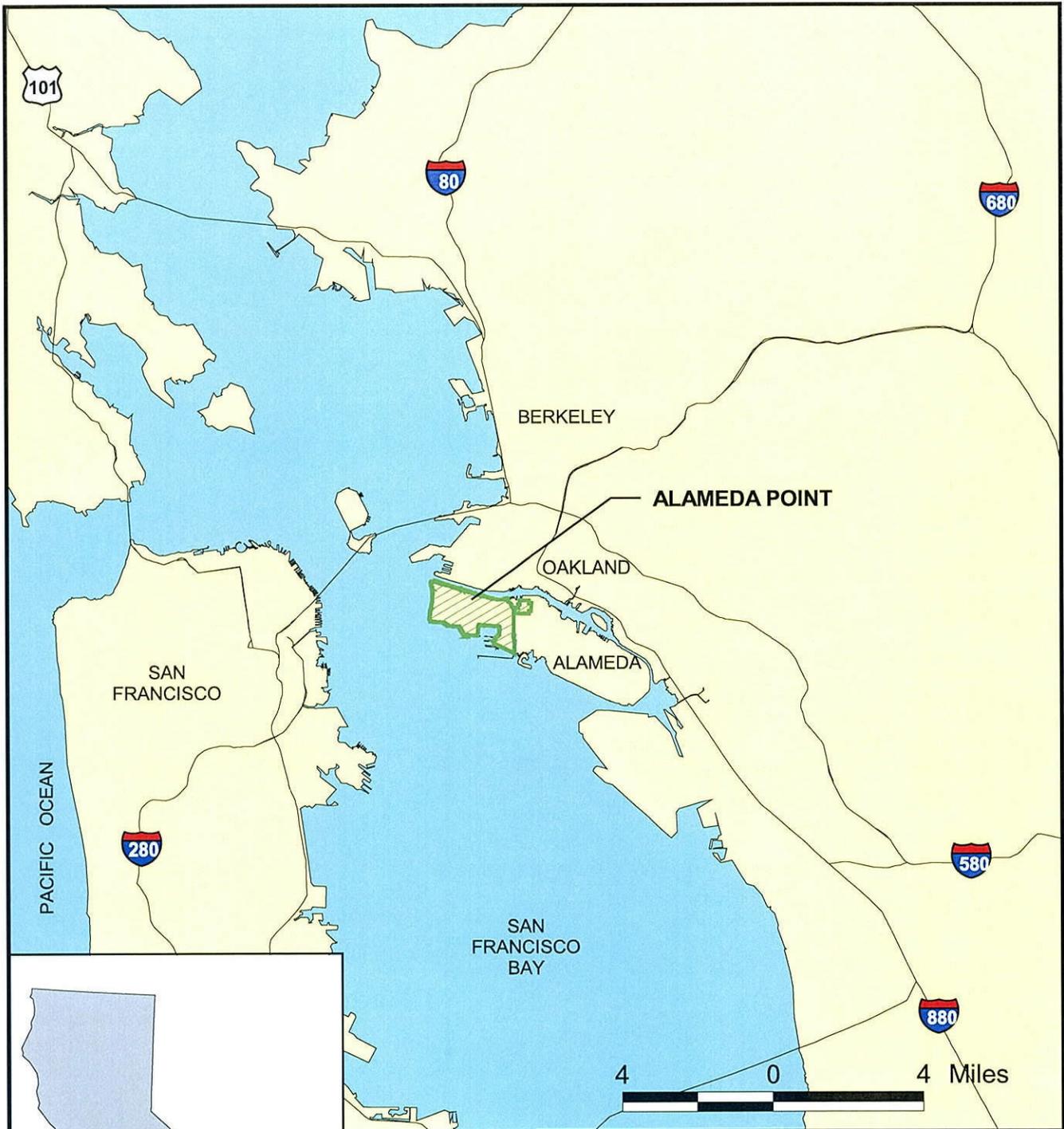
IR Site 27 is part of Alameda Point in the City of Alameda, which is adjacent to the City of Oakland (Figure 1-1). Alameda Point is roughly rectangular, about 2 miles long (east to west) and 1 mile wide (north to south), and occupies approximately 1,734 acres of onshore land. IR Site 27 is located in the southeastern area of Alameda Point, adjacent to Seaplane Lagoon (Figure 1-2).

1.3 SITE DESCRIPTION

IR Site 27 is approximately 15.8 acres in size and mostly paved or covered by buildings (Figure 1-3). The major features of the site are Buildings 68, 168, 555, and 601; Ferry Point Road and West Oriskany Avenue; inactive railroad tracks and sidings; and fenced open space between Building 168 and Ferry Point Road. A sheetpile bulkhead, installed as part of the construction of Seaplane Lagoon and the hydraulic filling of the area that is now IR Site 27, exists beneath the site along Ferry Point Road.

IR Site 27 was historically used for ship docking, repair, and painting; equipment and materials staging and storage; vehicle washdown; and chemical storage and handling in Building 168. Current operations by tenants leasing the space at the site are generally similar to the historical activities. Table 1-1 provides a detailed description of IR Site 27. Figure 1-4 depicts the chlorinated volatile organic compound (VOC) plume at the site.

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Record of Decision for IR Site 27

Figure 1-1

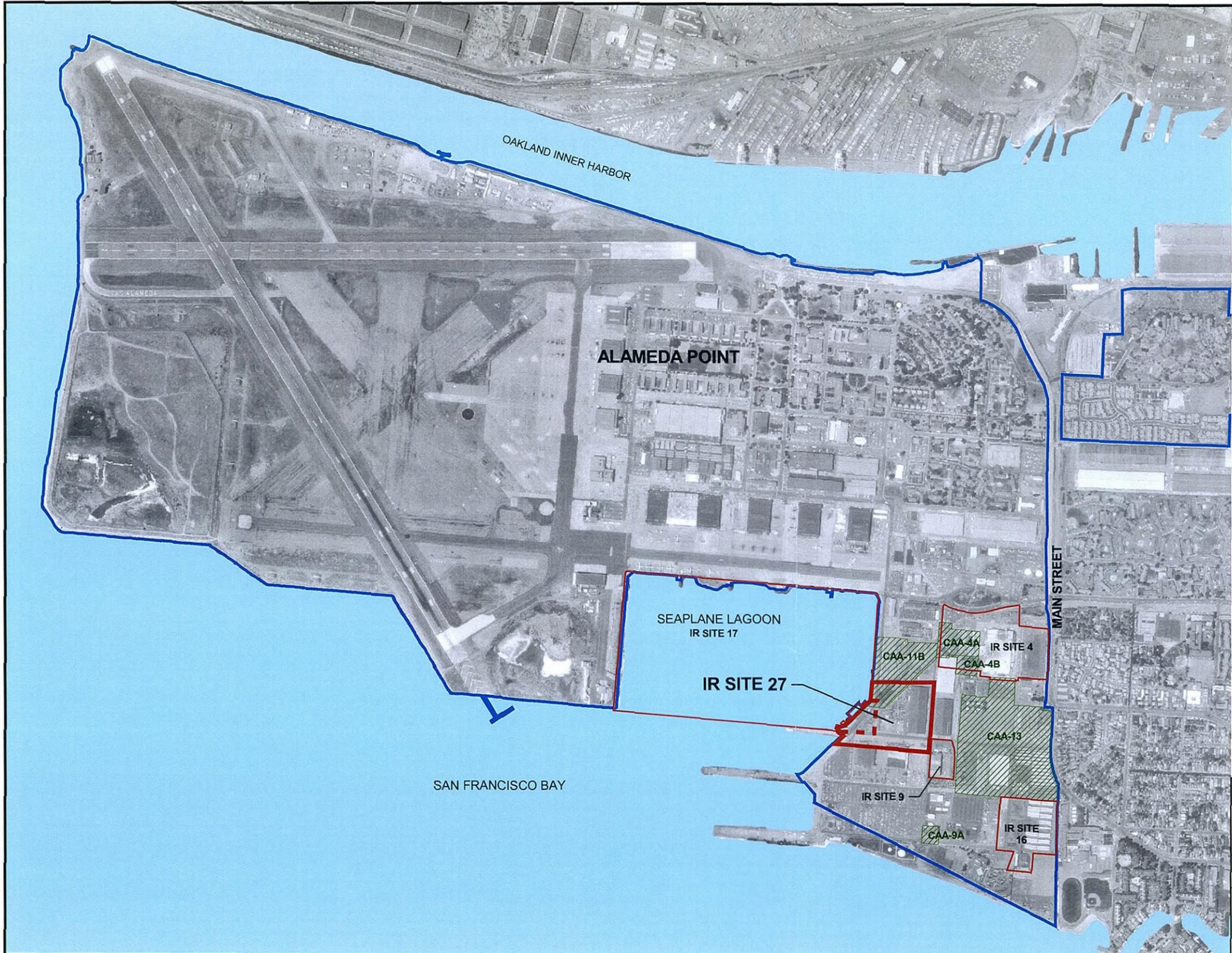
Alameda Point Regional Map

Alameda, California



Bechtel Environmental, Inc.
 CLEAN 3 Program

Date: 8/22/06
 File No.: 084R15039
 Job No.: 23818-084
 Rev No.: A

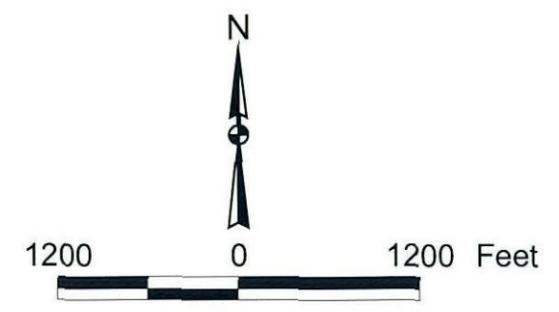


LEGEND

-  IR SITE BOUNDARY (EXPANDED)
-  ORIGINAL IR SITE 27 BOUNDARY
-  NAVY ONSHORE PROPERTY BOUNDARIES
-  CORRECTIVE ACTION AREAS
-  WATER

NOTES:

- CAA – CORRECTIVE ACTION AREA
- IR – INSTALLATION RESTORATION (PROGRAM)
- ROD – RECORD OF DECISION
- ONLY IR SITES IN THE SOUTHERN PORTION OF ALAMEDA POINT AND MENTIONED IN THE ROD ARE SHOWN



Record of Decision for IR Site 27
Figure 1-2
 Site Location Map
 Alameda, California

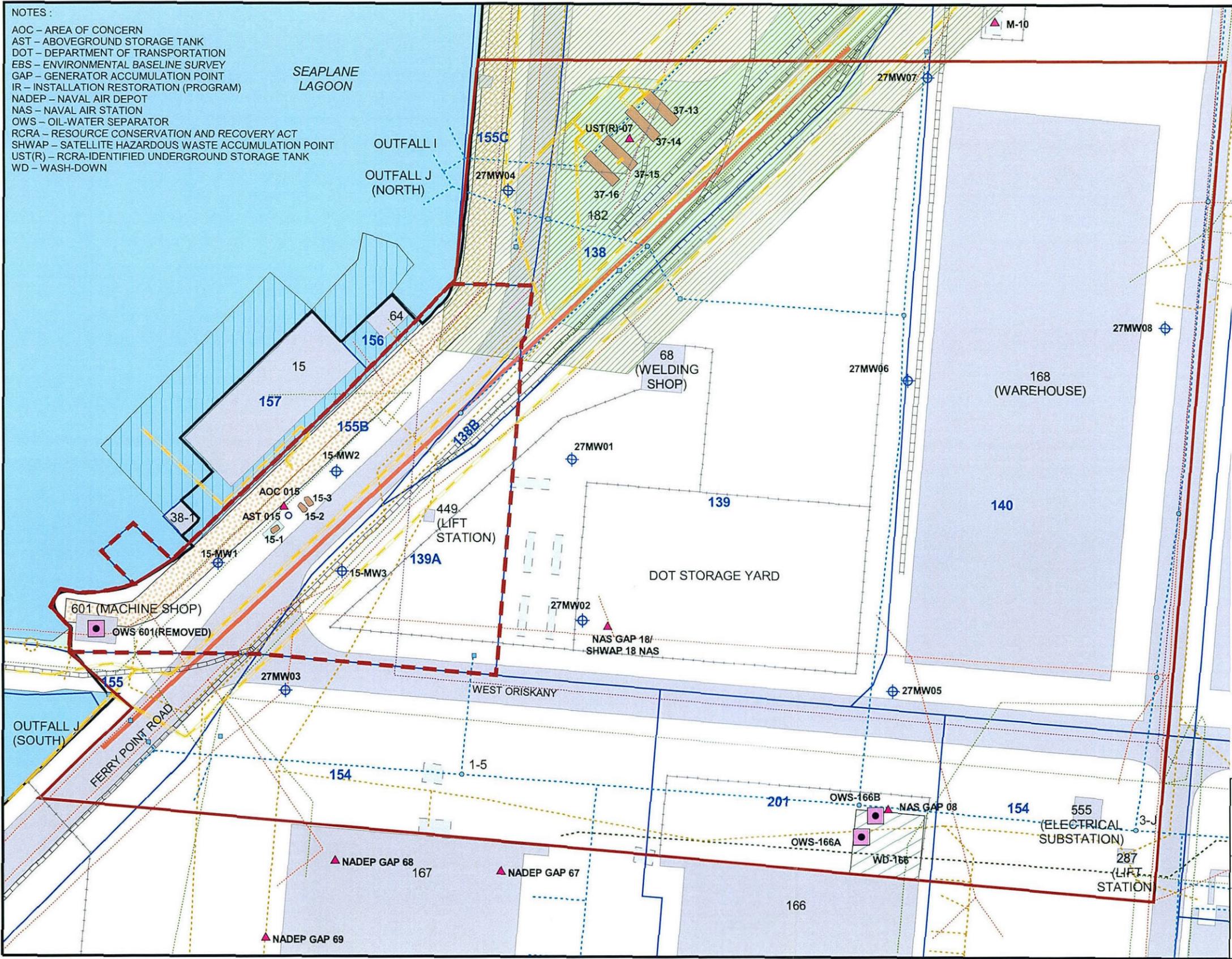
	Bechtel Environmental, Inc. CLEAN 3 Program	Date: 2/21/07 File No.: 084L15041 Job No.: 23818-084 Rev No.: B
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NOTES :

- AOC – AREA OF CONCERN
- AST – ABOVEGROUND STORAGE TANK
- DOT – DEPARTMENT OF TRANSPORTATION
- EBS – ENVIRONMENTAL BASELINE SURVEY
- GAP – GENERATOR ACCUMULATION POINT
- IR – INSTALLATION RESTORATION (PROGRAM)
- NADEP – NAVAL AIR DEPOT
- NAS – NAVAL AIR STATION
- OWS – OIL-WATER SEPARATOR
- RCRA – RESOURCE CONSERVATION AND RECOVERY ACT
- SHWAP – SATELLITE HAZARDOUS WASTE ACCUMULATION POINT
- UST(R) – RCRA-IDENTIFIED UNDERGROUND STORAGE TANK
- WD – WASH-DOWN

LEGEND

- IR SITE 27 BOUNDARY (EXPANDED)
- ORIGINAL IR SITE 27 BOUNDARY
- EBS PARCEL AND EBS PARCEL NUMBER
- PIERS AND BERTHING AREA
- WATER
- ROAD
- PAVED AREA
- UNPAVED AREA
- BUILDING OR STRUCTURE (PRESENT)
- BUILDING OR STRUCTURE (REMOVED)
- EASTERN SEAWALL
- CORRECTIVE ACTION AREA 11B (CAA-11B)
- WASH-DOWN AREA
- UNDERGROUND STORAGE TANK (REMOVED)
- 27MW01 EXISTING MONITORING WELL LOCATION AND WELL ID
- ABOVEGROUND STORAGE TANK (REMOVED)
- LOCATION OF RCRA AREA
- OIL-WATER SEPARATOR LOCATION
- CATCH BASIN
- MANHOLE
- STORM DRAIN
- SANITARY SEWER LINE
- INDUSTRIAL WASTE LINE
- ELECTRIC LINE
- COMMUNICATION LINE
- STEAM LINE
- GAS LINE
- FUEL LINE (REMOVED OR CLOSED IN PLACE)
- SHEETPILE BULKHEAD
- APPROXIMATE LOCATION OF RAILROAD
- APPROXIMATE LOCATION OF FENCE



Record of Decision for IR Site 27

Figure 1-3
Site Features

Alameda, California



Bechtel Environmental, Inc.
CLEAN 3 Program

Date: 11/5/07
File No.: 084L15042
Job No.: 23818-084
Rev No.: D

**Table 1-1
IR Site 27 Description**

Operable Unit Number	Site Name	Approximate Area (acres)	Approximate Depth to Water (feet bgs)	Site Description
OU-6	Dock Zone	15.8	4 to 7	<p>IR Site 27 is located in the southeastern area of Alameda Point, adjacent to the southeastern section of Seaplane Lagoon. Most of the site is paved or covered by buildings. The major features of IR Site 27 include Buildings 68, 168, 555, and 601; inactive railroad tracks and sidings; and fenced open space between Building 168 and Ferry Point Road.</p> <p>During the operational period of NAS Alameda, the area east of Seaplane Lagoon was designated as the Dock Zone, the Dock Support Services Zone, and the Engine Testing Zone. Reportedly, historical activities within the western portion of IR Site 27 included ship docking, ship repair, and marine painting activities. Building 601 was constructed in 1980 to house an OWS, which was later removed. Historical activities in the eastern portion of IR Site 27 included materials storage and equipment and vehicle parking in open space areas; warehouse operations in Building 168; and waterfront services, including welding, in Building 68. Historically, the open space served as an aircraft parking area. The southern portion of a former fuel farm area is located in the northwestern portion of IR Site 27. Building 555 was used as an electrical substation. Historically, three USTs were used to store diesel fuel in the western portion of the site (USTs 15-1, 15-2, and 15-3, collectively known as AOC 015). These tanks were removed in December 1994. During removal of the USTs in 1994, samples were collected and TPH was reported in soil and groundwater. During post-UST-removal follow-on activities in 1995, additional soil and groundwater samples were collected and chlorinated VOCs were reported in groundwater samples.</p> <p>Currently, Buildings 68 and 168 are used by tenants for operations similar to historical activities. Building 601 is used by tenants as a machine shop. The fenced open space west of Building 168 is being used by the U.S. Department of Transportation for maintenance equipment and vehicle parking, chemical storage, and drum storage. A washdown area (WD-166) with two OWSs (OWS-166A and -166B) is located at the southern margin of the site to the north of Building 166 (this building is not within the boundaries of IR Site 27).</p> <p>Potential sources of contaminants in soil gas, soil, and groundwater at IR Site 27 include dredged fill material used to create the site, historical activities conducted within the boundaries of the site, and VOCs which may have been released historically to groundwater upgradient of the site.</p>

Table 1-1 (continued)

Acronyms/Abbreviations:

AOC – area of concern
bgs – below ground surface
IR – Installation Restoration (Program)
NAS – Naval Air Station
OU – operable unit
OWS – oil-water separator
TPH – total petroleum hydrocarbons
UST – underground storage tank
VOC – volatile organic compound

Section 2

SITE HISTORY AND ENFORCEMENT ACTIVITIES

This section summarizes the site history and investigation activities conducted at IR Site 27.

2.1 SITE HISTORY

Alameda Point is located on the western tip of Alameda Island, which is on the eastern side of San Francisco Bay (Figure 1-1). Most of the northern portions of Alameda Island were formerly covered by the water or tidal lands of San Francisco Bay. To create Alameda Point, fill material was dredged from San Francisco Bay. The U.S. Army acquired Alameda Point from the City of Alameda in 1930. The Department of the Navy (Navy) later acquired the land from the U.S. Army in 1936, and built NAS Alameda to support the Navy's operations in Europe before World War II. The base was operated as an active naval facility from 1940 to 1997. During the history of NAS Alameda, it housed approximately 60 tenant military commands and had a combined military and civilian work force of more than 18,000 personnel. No areas of archeological or historical importance were identified at IR Site 27 (BEI 2006).

The environmental baseline survey (EBS) reported that historical activities within the original IR Site 27 boundaries (Figure 1-3) included ship docking, ship repair, and ship painting activities. The expanded site boundaries encompass Building 168 (110,000 square feet, or approximately 2.5 acres) and the open space between the original eastern boundary of the site and Building 168. Historically, activities within the open space area and in Building 168 included equipment and materials staging and storage. The expanded boundaries also include the area north of Buildings 166 and 167 that contains West Oriskany Avenue, washdown area WD-166 and associated oil-water separators (OWSs), and Building 555 (an electrical substation).

The Navy began investigations of contaminated sites in 1982 under the auspices of the Navy Assessment and Control of Installation Pollutants (NACIP) program. The Navy's procedures and priorities for conducting environmental investigations and cleanups have evolved, partly in response to events such as the closure of NAS Alameda in April 1997, under the Defense Base Closure and Realignment Act (BRAC), and designation of Alameda Point as a National Priorities List (NPL) site in July 1999 (U.S. EPA 1999b). When NAS Alameda was listed for closure, responsibility for the environmental cleanup program at Alameda Point was passed to the BRAC Cleanup Team (BCT). The BCT at Alameda Point is made up of representatives from the Navy, U.S. Environmental Protection Agency (U.S. EPA), California Environmental Protection Agency Department of Toxic Substances Control (DTSC), and California Regional Water Quality Control Board (Water Board). The listing of Alameda Point on the NPL invokes the applicable requirements of the NCP and requires the U.S. EPA concurrence before any property can be classified as uncontaminated. The Navy and U.S. EPA negotiated and signed a Federal Facility Agreement (FFA) in 2001, and the DTSC and Water Board signed the FFA in 2005.

The BCT developed a comprehensive strategy to accelerate site investigation, cleanup, and reuse of the CERCLA sites at Alameda Point, and part of that strategy involved grouping the sites into OUs. IR Site 27 is located within OU-6. The Navy plans to transfer the site to the City of Alameda for reuse.

The original IR Site 27 boundaries, as identified by an evaluation of data performed during the EBS, encompassed approximately 2.2 acres of dry land comprising three EBS subparcels (138B,

139A, and 155B) (Figure 1-3). The original site boundaries were created to include an area that surrounded the former location of three underground storage tanks (USTs) (USTs 15-1 through 15-3, collectively known as Area of Concern [AOC] 015). During removal of the USTs in 1994, soil and groundwater samples were collected and total petroleum hydrocarbons (TPH) as diesel, gasoline, jet fuel, and motor oil were reported in soil and groundwater. During post-UST-removal follow-on activities in 1995, additional soil and groundwater samples were collected and analyzed for VOCs. Chlorinated VOCs were reported in groundwater samples.

As a result of remedial investigation (RI) field activities, the Navy expanded the site boundaries for IR Site 27. The expanded site boundaries encompass approximately 15.8 acres of dry land, and include the original three EBS subparcels and portions of seven additional EBS parcels or subparcels (Parcels 138, 139, 140, 154, 155, and 201, and Subparcel 155C). Figure 1-3 shows both the original and expanded site boundaries.

2.2 INVESTIGATION ACTIVITIES

Environmental investigation and remedial activities associated with the site were implemented under the Navy's basewide environmental program called the IR Program. The purpose of this program is to identify, investigate, assess, characterize, and cost-effectively clean up or control releases of hazardous substances to reduce the risk to human health and the environment.

CERCLA applies to sites where a hazardous substance is known or suspected to have been released to the environment. The Resource Conservation and Recovery Act (RCRA) generally applies to active solid and hazardous waste management facilities. RCRA also may apply to past solid waste management units (SWMUs) and/or AOCs that are located on past hazardous waste management facilities. CERCLA and RCRA address the investigation and cleanup of contaminated property through slightly different, but functionally equivalent processes; therefore, regulatory authorities normally require the application of only one of the processes, when both CERCLA and RCRA apply to a single site. In these instances, brief explanations are prepared to indicate the fulfillment of the requirements for the process that was not used.

In addition to investigations under CERCLA, EBS and TPH investigations were also performed at Alameda Point and IR Site 27. The following sections summarize the CERCLA, RCRA, EBS, and TPH activities conducted at the site. The RI Report (BEI 2005) provides detailed discussions of these investigations and their findings.

2.2.1 Investigation Activities under CERCLA

The Navy initiated environmental investigations at Alameda Point under the NACIP program. In 1983, an initial assessment study (IAS) was conducted for all of NAS Alameda to identify sites that posed threats to human health or the environment (Ecology and Environment, Inc. 1983). A review of historical records, aerial photographs, personnel interviews, and field inspections identified areas where hazardous materials were stored, transferred, processed, and disposed. Twelve sites (IAS Sites 1 through 12) were identified by the IAS as needing further investigation. IAS Site 10 included fuel lines that were present in IR Site 27 and were subsequently removed or closed in place as part of Fuel Pipeline Removal Area 4. IAS Site 3 is Seaplane Lagoon (IR Site 17), which borders IR Site 27 to the northwest. Four additional sites identified by the IAS as requiring further action (IAS Sites 4, 6, 7, and 11) are in the general vicinity of IR Site 27 and are being addressed as IR Sites 3, 4, 13, and 16.

Section 2 Site History and Enforcement Activities

After receiving a Remedial Action Order from the California Department of Health Services (now DTSC) in 1988, the Navy converted the NACIP program into the IR Program to be more consistent with CERCLA, and investigations were conducted in a phased approach. Activities conducted at IR Site 27 under CERCLA include storm drain investigations, data gap investigations, RI/feasibility studies (FSs), and basewide groundwater monitoring. This section and Table 2-1 summarize the activities conducted at the site as part of the CERCLA investigations.

Storm Drain Investigations. In 1994 and 1995, storm drain sediments were investigated in support of EBS activities (IT 1997). These investigations collected and analyzed storm drain sediment samples and soil and groundwater samples immediately adjacent to storm drain lines. Four storm drain sediment samples were collected from the Outfall J (north and south) storm drain subsystem within the expanded boundaries of IR Site 27.

Between 1995 and 1997, a two-phase CERCLA time-critical removal action (TCRA) for sediment and debris in the storm drain system throughout Alameda Point was performed. At what is now IR Site 27, Phase I of the TCRA consisted of vacuum cleaning sediment and debris from storm drain catch basins and manholes associated with Outfalls I and J, both located within the site. Phase II of the TCRA consisted of cleaning all manholes and subsystems associated with Outfalls I and J.

In 1996, the Navy performed storm water sampling to support a basewide Storm Water Pollution Prevention Plan as required by the Alameda Point National Pollutant Discharge Elimination System permit. According to the 1996 and 1997 storm water report, water quality problems were not observed to be associated with industrial activities at Alameda Point; however, oil and grease were regularly observed at several outfalls, including Outfall J (TtEMI 2000c).

In 2000, a Storm Sewer Study Report (TtEMI 2000c) was prepared to document and prioritize sections of storm drain lines in Alameda Point based on the potential for infiltration of contaminated groundwater and its subsequent transfer to the bay. There were no high-priority (lines that were likely experiencing infiltration of contaminated groundwater) or low-priority (lines that were likely to have future possible infiltration of contaminated groundwater) storm drain lines within IR Site 27. IR Site 27 contains only nonpriority storm drain lines. However, additional sampling and analysis were recommended for a storm drain section in IR Site 27. The subsequent Storm Sewer Study, Technical Memorandum Addendum and Response to Agency Comments on the Draft Final Storm Sewer Study Report, reprioritized storm drain lines according to their potential for transporting contaminated groundwater from plume areas to uncontaminated areas. Priorities for storm drain lines within IR Site 27 were not changed (TtEMI 2001c).

The Storm Sewer Study Report TPH Addendum (TtEMI 2001a) developed TPH plume maps to identify portions of storm drain lines subject to infiltration of groundwater contaminated with TPH at concentrations above accepted screening levels. A TPH plume (with concentrations between 1.4 and 10 milligrams per liter [mg/L]) in shallow groundwater was identified at Outfall I. The portion of the storm drain line associated with Outfall I (within the current IR Site 27 boundaries) was classified as a section that required additional sampling (TtEMI 2001b).

Data Gap Investigations. Data gap investigation (DGI) sampling was conducted within IR Site 27 in conjunction with various previous investigations and removal activities. During the 2000 DGI sampling (TtEMI 2001b), groundwater samples were collected for analysis from the

portion of Corrective Action Area (CAA)-11B that is within the boundaries of the current IR Site 27. Groundwater samples were collected from monitoring wells 15-MW1, 15-MW2, and 15-MW3. Soil and groundwater samples were collected for analysis in the vicinity of former USTs 37-13 through 37-16 to provide data to support closure of RCRA-permitted USTs.

During the 2001 DGI sampling (TtEMI 2002a), OU-1 and OU-2 DGI sampling activities included the collection of water samples from storm drain lines draining IR sites with TPH and VOC groundwater plumes. Storm drain lines draining from IR Site 9 (located to the southeast of IR Site 27) to Outfall J were sampled at manhole locations 3-J and 1-5. These two sampling locations are within the current IR Site 27 boundaries (TtEMI 2002a).

As a follow-up investigation to the Storm Sewer Study Report TPH Addendum, soil samples were collected during the OU-1 and OU-2 DGI sampling activities in 2002 (TtEMI 2002a). The purpose of the soil investigation was to determine whether storm drain bedding materials were more permeable than surrounding fill soil and, therefore, provided preferential pathways for contaminant migration. Results of DGI geotechnical analyses found the storm drain system bedding material and native fill soils to have similar permeabilities. The data summary report concluded that neither the storm drain bedding materials nor the storm drain lines at IR Site 27 were acting as preferred conduits for the transport of contaminants in nearby soil or groundwater (TtEMI 2002b).

Site Investigation for Transfer Parcel Economic Development Conveyance (EDC)-12. In 2002, Transfer Parcel EDC-12 was investigated for polycyclic aromatic hydrocarbons (PAHs). Transfer Parcel EDC-12 was sampled in a grid pattern over its entire area; eight locations were within the boundaries of IR Site 27. The PAH results for these sampling locations were included in the RI data set (BEI 2005).

Remedial Investigation. Between March 2002 and June 2004, the Navy's RI for IR Site 27 was conducted. The results from analysis of samples collected during the RI and previous investigations were used to characterize the nature and extent of contamination in soil, groundwater, and soil gas at the site. A human-health risk assessment (HHRA) and an ecological risk assessment (ERA) were conducted using data obtained during the RI and previous investigations. Section 5.3 of this ROD discusses the nature and extent of chemicals found at the site. Section 7 of this ROD presents the HHRA and ERA results.

Based on the results of the RI, the Navy recommended that an FS be undertaken to address the groundwater contamination at the site that represents a risk to human health under the residential future-use scenario. No action was recommended for soil at the site. Furthermore, no further investigation or assessment of ecological risk for soil was recommended (BEI 2005).

Feasibility Study. In 2006, an FS was prepared to develop and evaluate remedial action alternatives to address human-health risks from groundwater beneath the site containing chlorinated VOCs at concentrations above applicable regulatory comparison criteria. Remedial action objectives (RAOs) were developed to guide the development and evaluation of remedial alternatives. Section 8 of this ROD presents the RAOs for groundwater.

Ten remedial alternatives for groundwater were developed and screened, and six were retained for detailed analysis (BEI 2006). Descriptions and comparative analysis of these retained remedial alternatives are provided in Sections 9 and 10 of this ROD.

Section 2 Site History and Enforcement Activities

Basewide Groundwater Monitoring. A basewide groundwater monitoring program (BGMP) has been implemented and is ongoing at Alameda Point. The purpose of the BGMP is to inventory, assess, and evaluate the adequacy of the current monitoring well network as well as to evaluate groundwater quality at Alameda Point. According to the BGMP Work Plan (Shaw 2004a), elevated concentrations of 1,2-dichloroethene (DCE), tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride were detected in groundwater in the area of former USTs 15-1, 15-2, and 15-3. The BGMP Work Plan also noted that TPH and methyl tert-butyl ether (MTBE) have been reported in groundwater in the vicinity of the former USTs.

Quarterly groundwater monitoring for IR Site 27 under the BGMP Work Plan began in June 2002 and included four existing wells: 15-MW1, 15-MW2, 15-MW3, and 15MJ-MW1. The results of seven rounds of quarterly monitoring (Shaw 2003, 2004b) were evaluated and included in the RI Report. Except for well 27MW06, the other wells (27MW01 through 27MW05, 27MW07, and 27MW08) installed during the RI are not presently included in the BGMP.

2.2.2 Investigation Activities Under RCRA

In 1992, a RCRA facility assessment was conducted at Alameda Point (Table 2-2). Its primary purpose was to identify SWMUs and AOCs and to collect preliminary information on all actual or potential releases of chemicals from these SWMUs and AOCs to evaluate the need and scope of a RCRA facility investigation (RFI) (DTSC 1992). An RFI for Alameda Point was implemented by coordinating existing environmental programs. Functional equivalents of RFI documents (such as RFI work plans and RFI reports) have been and continue to be issued for various SWMUs and AOCs under each of these programs. These programs have resulted and will continue to result in the full characterization of the nature, extent, and rate of migration of hazardous waste releases at all SWMUs and AOCs at Alameda Point.

Currently, eight SWMUs have been identified within IR Site 27 (Table 2-3) (SulTech 2005). Presently, these SWMUs no longer treat, store, or dispose hazardous waste, and each unit has been undergoing closure or is closed. USTs 15-1 through 15-3, which were removed in 1994, were included in AOC 015. Closure of these tanks will be completed as part of the remediation of impacted groundwater at IR Site 27. Two SWMUs (NAS generator accumulation point [GAP] 8 and NAS GAP 18/satellite hazardous waste accumulation point 18 NAS) were recommended for no further action with concurrence by DTSC on November 4, 1999; these two SWMUs are closed. The aboveground storage tank included in AST015 was removed prior to 1994; this unit is deferred to the Alameda Point Petroleum Program. A washdown area (WD-166) and two OWSs (OWS-166A and OWS-166B northeast of Building 166) are recommended for data gap sampling under the CERCLA Program. No further action is recommended for Building 601, which was originally built to house OWS-601. The OWS was subsequently removed from this building. Based on the RI data (BEI 2005), no contamination exists at the OWS 601 location.

UST Removals and Investigations. USTs 15-1 through 15-3 were removed in December 1994. The Navy conducted post-UST-removal investigations at the location of former USTs 15-1, 15-2, and 15-3 in 1995, 1997, 1998, 1999, and 2000, and began quarterly groundwater monitoring in the vicinity of the former location of these USTs in 2002. Several USTs located in IR Site 27 (USTs 37-13 through 37-16) were included in RCRA unit UST(R)-07. These tanks were removed in 1998. The Navy conducted post-UST-removal investigations at the location of former USTs 37-13 through 37-16 in 1997, 1998, 1999, 2000, and 2001.

In 1995, three monitoring wells (15-MW1, 15-MW2, and 15-MW3) were installed near former USTs 15-1, 15-2, and 15-3, and were sampled from one to five times during post-UST-removal investigations between 1995 and 1999. Additional monitoring wells were installed in the vicinity of both sets of USTs in 1997. Post-UST-removal investigations identified low concentrations of petroleum hydrocarbons and chlorinated solvents in groundwater. Concentrations of chlorinated solvents generally decreased in wells 15-MW1 through 15-MW3 between 1995 and 2000 (BEI 2005).

2.2.3 EBS Activities

As mandated by BRAC, the Navy initiated a series of basewide investigations at Alameda Point as part of the EBS program in 1993. The objective of the EBS program was to inventory all property at Alameda Point, parcel by parcel, and identify known or suspected chemical releases associated with historical and recent uses. The EBS program at Alameda Point was implemented in two phases. Phase 1 included site visits, employee interviews, and historical research. Phase 2, subdivided into Phases 2A, 2B, and 2C, consisted of intrusive sampling and analysis to determine potential impacts to soil and groundwater. The EBS program investigated the property that would become IR Site 27 as parts of EBS parcels from Zones 17 (EBS Parcel 138), 18 (EBS Parcel 155), and 19 (EBS Parcels 139, 140, 154, and 201). All three rounds of Phase 2 activities involved the collection of environmental samples and were conducted between October 1994 and December 1998.

As a result of the EBS sampling and evaluation of analytical results for the portions of the six parcels within IR Site 27, only the portions of EBS Parcels 138, 139, and 155 were recommended for further investigation under CERCLA.

A basewide supplemental EBS was completed in August 2002 (TtEMI 2002b, 2003a) to update and supplement information provided in the two previous EBS reports and to expedite the identification of real property suitable for transfer to the City of Alameda. As a result, the supplemental EBS was created to support all real estate transfers and lease determinations at Alameda Point. For IR Site 27, the supplemental EBS reported that EBS Subparcels 138B, 139A, and 155B were classified as an area where a release had been confirmed and further action was required. As such, the supplemental EBS concluded that IR Site 27 was not suitable for transfer. Table 2-4 summarizes the EBS investigation activities.

2.2.4 Investigation Activities Under the Petroleum Program

Several areas in the vicinity of IR Site 27 are being addressed by the Alameda Point Petroleum Program. A portion of CAA-11B is located within the IR Site 27 boundaries. Four other areas, CAA-4A, CAA-4B, CAA-9A and CAA-13, are located within 1,000 feet of the site.

Section 2 Site History and Enforcement Activities

CAA-11B includes a portion of IR Site 27. CAA-11B formerly contained USTs 14-1 through 14-6, and 37-1 through 37-24. USTs in CAA-11B were used as storage for lubricating oil; diesel, gasoline, or jet fuel; or other miscellaneous liquids (TtEMI 2001b). USTs 37-13 through 37-16 were located within the current IR Site 27 boundaries.

USTs 14-1 through 14-6 were removed in 1994. At that time groundwater samples collected indicated that floating product may have been present near the locations of these former USTs. USTs 37-9 through 37-12 and 37-21 through 37-24 were removed in 1995. Additional groundwater samples collected at that time also indicated the potential presence of floating product and a TPH plume in the southern portion of CAA 11-B. In 1998, USTs 37-1 through 37-8 and 37-13 through 37-20 were removed. Analytical results for samples collected from monitoring wells at that time did not indicate floating product. Fuel lines were also removed in 1998 and groundwater samples collected near the former southern fuel lines indicated elevated levels of total TPH and TPH-associated compounds (BEI 2005).

Dissolved fuel hydrocarbons (predominantly mid- to high-boiling-point ranges) were remediated by biosparging between December 2003 and July 2004. Post-shutdown groundwater sampling was conducted in October 2004, followed by interim postoperational monitoring in January 2005 through June 2006 to monitor continued compliance. Pure oxygen injections were used from July 2005 through February 2006. Localized shallow soil detections at concentrations above regulatory criteria were remediated by excavation in August 2004 (Shaw 2004c). A field activity report documenting completed field activities and post-shutdown sampling results and a Site Management Plan proposing 1 year of post-remediation sampling are under development.

Fuel Line Investigations. Underground pipelines that historically distributed jet propellant grade 5 and other fuels from locations near Seaplane Lagoon to various points at Alameda Point were removed or abandoned in place between June 1998 and February 1999 (TtEMI 2000a). Fuel pipeline removal and sampling was divided into nine areas. Fuel Pipeline Removal Area 4 included portions of what is now IR Site 27.

Pipelines in Fuel Pipeline Removal Area 4 were removed or closed in place. Before pipeline removal, all pipelines were tapped and residual liquid was drained. Pipelines were then removed and loaded directly into bins for off-site disposal. Small sections of pipelines were closed in place by grouting. In-place closure was generally performed only when proximity to active utilities, building foundations, or adjacent water or sewer lines made removal nearly impossible (TtEMI 2000a).

The former fuel line area was incorporated into the Petroleum Program as part of CAA-11B.

Washdown Areas and Oil-Water Separators. A washdown area (WD-166) and two OWSs (OWS-166A and OWS-166B northeast of Building 166) in EBS Parcel 201 that are within IR Site 27 were recommended for no further action under the Petroleum Program (TtEMI 2002c). Further action will be performed under the CERCLA Program. No further action was also recommended for Building 601, which was originally built to house OWS-601. The OWS was subsequently removed from this building.

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**Table 2-1
Summary of CERCLA Investigation Activities**

Date	Investigation/ Activity	Objective	Summary of Findings
1994 and 1995	Storm drain investigations	Storm drain sediments were investigated in support of EBS activities. These investigations collected and analyzed storm drain sediment samples and soil and groundwater samples immediately adjacent to storm drain lines. Outfalls I and J are located within the expanded IR Site 27 boundaries. Four storm drain sediment samples were collected from the Outfall J (north and south) storm drain subsystem within the expanded boundaries of IR Site 27.	Based on the results, a two-phase CERCLA TCRA for sediment and debris in the storm drain system throughout Alameda Point was performed between 1995 and 1997. At what is now IR Site 27, Phase I of the TCRA consisted of vacuum cleaning sediment and debris from storm drain catch basins and manholes associated with Outfalls I and J, both located within the site. Phase II of the TCRA consisted of cleaning all manholes and subsystems associated with Outfalls I and J.
1996	Storm drain investigations	Storm water sampling was conducted to support a basewide Storm Water Pollution Prevention Plan as required by the Alameda Point National Pollutant Discharge Elimination System permit.	According to the 1996 and 1997 storm water report, water quality problems were not observed to be associated with industrial activities at Alameda Point; however, oil and grease were regularly observed at several outfalls, including Outfall J.
2000 and 2001	Storm drain investigations	A Storm Sewer Study Report was prepared to document and prioritize sections of storm drain lines in Alameda Point based on the potential for infiltration of contaminated groundwater and its subsequent transfer to the bay. The Storm Sewer Study Report TPH Addendum developed TPH plume maps to identify portions of storm drain lines subject to infiltration of groundwater contaminated with TPH at concentrations above accepted screening levels.	There were no high-priority (likely to be experiencing infiltration of contaminated groundwater) or low-priority (likely to have future possible infiltration of contaminated groundwater) storm drain lines within IR Site 27. IR Site 27 contains only nonpriority storm drain lines. However, additional sampling and analysis were recommended for a storm drain section in IR Site 27. A TPH plume in shallow groundwater was identified at Outfall I. The portion of the storm drain line associated with Outfall I (within the current IR Site 27 boundaries) was classified as a section that required additional sampling.
2000	DGI	Groundwater samples were collected for analysis in the portion of CAA-11B that is within the boundaries of the current IR Site 27. Groundwater samples were collected from monitoring wells 15-MW1, 15-MW2, and 15-MW3. Groundwater samples were analyzed for VOCs, including MTBE. Soil and groundwater samples were collected in the vicinity of former USTs 37-13 through 37-16 to provide data to support closure of RCRA-permitted USTs. Samples were analyzed for VOCs.	Analytes reported for groundwater samples collected from monitoring wells 15-MW1, 15-MW2, and 15-MW3 included 1,2-DCB; 1,1-DCA; 1,2-DCE; PCE; TCE; and vinyl chloride. Methylene chloride and m, p-xylene were reported above detection limits in soil samples collected in the vicinity of former USTs 37-13 through 37-16. In groundwater samples, 1,2,4-trimethylbenzene and three VOCs (cis-1, 2-DCE; trans-1, 2-DCE; and vinyl chloride) were reported.

Table 2-1 (continued)

Date	Investigation/ Activity	Objective	Summary of Findings
2001	DGI	OU-1 and OU-2 DGI sampling activities included the collection of water samples from storm drain lines draining IR sites with TPH and VOC groundwater plumes. Water samples were collected in two manhole locations (3-J and 1-5) located within the current IR Site 27 boundaries. These samples were tested for TPH and VOCs.	VOCs reported in water samples from manhole locations 3-J and 1-5 included chlorobenzene; 1,2-DCB; 1,4-DCB; 1,1-DCA; 1,2-DCE; 1,1,1-TCA; TCE; and vinyl chloride. TPH was not reported in groundwater samples.
2002	DGI	An investigation was conducted to determine whether storm drain bedding materials were more permeable than surrounding fill soil and, therefore, provided preferential pathways for contaminant migration.	Results of DGI geotechnical analyses found the storm drain bedding material and native fill soils to have similar permeabilities. The data summary report concluded that neither the storm drain bedding materials nor the storm drain lines at IR Site 27 were acting as preferred conduits for the transport of contaminants in nearby soil or groundwater.
2002	SI	During the SI for Transfer Parcel EDC-12, soil samples were collected from direct-push borings and analyzed for PAHs. Eight borings were located within the IR Site 27 boundaries.	Soil samples collected within IR Site 27 contained low levels of PAH compounds.
2002 to 2004	RI	The RI was performed to characterize the nature and extent of soil and groundwater contamination, to assess any health risks to human and ecological receptors, and to collect information to support a recommendation of either no action or further action.	<p>The RI Report recommended preparation of the FS Report to address only chlorinated VOCs in groundwater. No threat to human health or the environment from soil was found at the site. The RI Report also concluded that no action was warranted for terrestrial or aquatic life ecological receptors.</p> <p>Due to the expansion of the IR Site 27 boundaries to encompass the VOC plume, a washdown area (WD-166 and related oil-water separators OWS-166A and -166B) and Building 555 (an electrical substation) were included within the IR Site 27 boundaries. The RI Report identified data gaps associated with testing groundwater at the washdown area and with testing for PCBs in soil adjacent to Building 555. It was recommended that these data gaps be addressed during the remedial design phase.</p>
2006	FS	The FS was conducted to develop and evaluate remedial action alternatives to address human-health risks from groundwater underlying IR Site 27 that contains chlorinated VOCs at concentrations above applicable regulatory comparison criteria.	Ten remedial alternatives for groundwater were developed and screened, and six were retained for detailed analysis. These six alternatives are discussed in Sections 9 and 10 of this ROD.

Table 2-1 (continued)

Acronyms/Abbreviations:

CAA – corrective action area
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
DCA – dichloroethane
DCB – dichlorobenzene
DCE – dichloroethene
DGI – data gap investigation
EBS – environmental baseline survey
EDC – economic development conveyance
FS – feasibility study
IR – Installation Restoration (Program)
MTBE – methyl tert-butyl ether
OU – operable unit
OWS – oil-water separator
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
PCE – tetrachloroethene
RCRA – Resource Conservation and Recovery Act
RI – remedial investigation
SI – site investigation
ROD – record of decision
TCA – trichloroethane
TCE – trichloroethene
TCRA – time-critical removal action
TPH – total petroleum hydrocarbons
UST – underground storage tank
VOC – volatile organic compound

**Table 2-2
Summary of RCRA Investigation Activities**

Date	Investigation/ Activity	Objective	Summary of Findings
1992	RFA	The RFA was conducted to identify and evaluate SWMUs and AOCs at Alameda Point.	The RFA identified three USTs (USTs 15-1, 15-2, and 15-3) in the western portion of IR Site 27 and four USTs in the northwestern portion of IR Site 27 (USTs 37-13 through 37-16) that were part of the fuel farm area. The former location of the three USTs was identified as RCRA AOC 015. The four USTs were designated as part of RCRA unit UST(R)-07. The USTs and associated fuel lines were removed by 1998.
1995 to 2000	UST removals and investigations	Investigations were conducted to determine whether chemicals had been released from the USTs (15-1 through 15-3 and 37-13 through 37-16) to the surrounding soils and groundwater.	Post-UST-removal investigations identified low concentrations of petroleum hydrocarbons and chlorinated solvents in groundwater. Concentrations of chlorinated solvents generally decreased in wells 15-MW1 through 15-MW3 between 1995 and 2000.

Acronyms/Abbreviations:

- AOC – area of concern
- IR – Installation Restoration (Program)
- RCRA – Resource Conservation and Recovery Act
- RFA – RCRA facility assessment
- SWMU – solid waste management unit
- UST – underground storage tank

Table 2-3
Summary of Navy and DTSC Determinations for SWMUs Located Within IR Site 27

SWMU Identification	Navy Determination ^a	DTSC Determination	Final Determination in the ROD
AOC 015	Further action recommended	Further action required	The USTs 15-1 through 15-3 were removed in 1994. These tanks were used to store diesel fuel. As discussed in the Final RI Report for IR Site 27 (prepared by BEI and dated August 2005), the results of sampling and analysis conducted during the post-UST-removal investigations from 1995 through 1997 in the area of the removed USTs had reported concentrations of TPH, benzene, toluene, ethylbenzene, xylenes, and methyl tert-butyl ether in soil below detection limits. Post-UST-removal investigations also identified low concentrations of TPH and chlorinated VOCs in groundwater. Because VOCs were detected in groundwater at the former location of the tanks, this location was subsequently identified by the Navy as AOC 015; this AOC was initially used to establish the boundary of IR Site 27. The selected remedy in this ROD will address the impacted groundwater. Closure of AOC 015 will be addressed as part of the remediation of VOC-impacted groundwater at IR Site 27.
NAS GAP 8	NFA recommended	NFA concurrence ^b	Closed
NAS GAP 18/ SHWAP 18 NAS	NFA recommended	NFA concurrence ^b	Closed
AST 015	Deferral to the Petroleum Program	Deferral to the Petroleum Program	No CERCLA response action required. The AST will be closed in the Petroleum Program.
OWS-166A	Further action recommended	Further action required ^c	Data gap sampling to be performed during the RD stage; the selected remedy in this ROD will address any impacted groundwater areas containing concentrations of contaminants above the RGs.
OWS-166B	Further action recommended	Further action required ^c	Data gap sampling to be performed during the RD stage; the selected remedy in this ROD will address any impacted groundwater areas containing concentrations of contaminants above the RGs.
WD 166	Further action recommended	Further action required ^c	Data gap sampling to be performed during the RD stage; the selected remedy in this ROD will address any impacted groundwater areas containing concentrations of contaminants above the RGs.
OWS 601	NFA recommended	NFA concurrence	As summarized in the final RI Report for IR Site 27 (prepared by BEI and dated August 2005), soil samples for polynuclear aromatic hydrocarbon and metals analyses and one soil gas sample for VOC analysis were collected near OWS 601 during the RI. No analytes were reported in the samples at concentrations above regulatory comparison criteria. Based on the data collected during the RI, no contamination exists at this location. Closure is recommended.

Table 2-3 (continued)

Notes:

- ^a Information obtained from the Draft, Appendix I, Solid Waste Management Unit Evaluation Report for Operable Unit 6 (Site 27), Hazardous Waste Permit EPA ID Number CA 2170023236, Naval Air Station Alameda (now known as Alameda Point), Alameda, California (prepared by SulTech and dated November 2005).
- ^b Concurrence with the NFA recommendation was issued by the DTSC in a letter to the Navy dated November 4, 1999.
- ^c Further action requested by the regulatory agencies during their review of the Draft Remedial Investigation Report, IR Site 27, Dock Zone, Alameda Point, Alameda, California (prepared by BEI and dated March 2005). The Navy will address the data gap sampling during the RD stage as stated in the Final Remedial Investigation Report, IR Site 27, Dock Zone, Alameda Point, Alameda, California (prepared by BEI and dated August 2005); Final Feasibility Study Report, IR Site 27, Dock Zone, Alameda Point, Alameda, California (prepared by BEI and dated April 2006); and Proposed Plan for IR Site 27, Dock Zone, Former NAS Alameda (prepared by the Navy and dated November 2006).

Acronyms/Abbreviations:

AOC – area of concern
AST – aboveground storage tank
BEI – Bechtel Environmental, Inc.
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
DTSC – (California Environmental Protection Agency) Department of Toxic Substances Control
GAP – generator accumulation point
IR – Installation Restoration (Program)
NAS – Naval Air Station
Navy – Department of the Navy
NFA – no further action
OWS – oil-water separator
RCRA – Resource Conservation and Recovery Act
RD – remedial design
RG – remediation goal
RI – remedial investigation
ROD – record of decision
SHWAP – satellite hazardous waste accumulation point
SulTech – Sullivan Consulting Group and Tetra Tech EM Inc.
SWMU – solid waste management unit
TPH – total petroleum hydrocarbons
UST – underground storage tank
VOC – volatile organic compound
WD – washdown

**Table 2-4
Summary of EBS and TPH Investigation Activities**

Date	Investigation/ Activity	Objective	Summary of Findings
EBS Investigation Activities			
1993	EBS	The EBS was performed to inventory all property at Alameda Point, parcel by parcel, and identify known or suspected chemical releases associated with historical and recent uses.	The EBS program investigated the property that would become IR Site 27 as parts of EBS parcels from Zone 17 (Parcel 138), Zone 18 (Parcel 155), and Zone 19 (Parcels 139, 140, 154, and 201). The original IR Site 27 boundaries, as identified by an evaluation of data performed during the EBS, encompassed approximately 2.2 acres of dry land comprising three EBS subparcels (138B, 139A, and 155B). With the exception of the chlorinated VOCs in groundwater within the original boundaries of IR Site 27, no releases requiring further action were identified in the six EBS parcels that are now within the expanded boundaries (approximately 15.8 acres) of IR Site 27.
2002	Supplemental EBS	The supplemental EBS was conducted to update and supplement information provided in the two previous EBS reports and to expedite the identification of real property suitable for transfer to the City of Alameda.	The basewide supplemental EBS reported that EBS subparcels 138B, 139A, and 155B (comprising the original extent of IR Site 27) were classified as an area where a release had been confirmed and further action was required. EBS Parcels 138, 139, 140, 154, 155C, and 201 were classified as buffer zones adjacent to CERCLA sites.
TPH Investigation Activities			
1998	Removal of USTs 37-13 through 37-16	Activities were performed to decommission USTs, including USTs 37-13 through 37-16 located within IR Site 27.	Several areas in the vicinity of IR Site 27 are being addressed by the Alameda Point Petroleum Program. A portion of CAA-11B is located within the IR Site 27 boundaries. CAA-11B formerly contained USTs 14-1 through 14-6, and 37-1 through 37-24. USTs 37-13 through 37-16 were located within the IR Site 27 boundaries. These USTs were removed in 1998.
1998 to 1999	Fuel Line Investigations	Investigation of areas where fuel pipelines were removed or abandoned in place.	Fuel Pipeline Removal Area 4 included portions of what is now IR Site 27. Pipelines in Fuel Pipeline Removal Area 4 were removed or closed in place. The former fuel line area was incorporated into the Alameda Point Petroleum Program as part of CAA-11B.
--	Washdown Areas and Oil-Water Separators	The washdown areas and OWS units were identified and evaluated.	A washdown area and two OWS units (WD-166 and OWS-166A and -166B) were recommended for NFA under the Alameda Point Petroleum Program. NFA was also recommended for Building 601, which was originally built to house OWS-601. The OWS was subsequently removed from this building.

Table 2-4 (continued)

Acronyms/Abbreviations:

CAA – corrective action area

CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act

EBS – environmental baseline survey

IR – Installation Restoration (Program)

NFA – no further action

OWS – oil-water separator

TPH – total petroleum hydrocarbons

UST – underground storage tank

VOC – volatile organic compound

Section 3

COMMUNITY PARTICIPATION

A community relations plan was developed to document interests, issues, and concerns raised by the community with regard to ongoing investigation and cleanup activities at Alameda Point, and to describe a specific community relations program designed to address community issues and concerns (TtEMI 2003c). The plan was initially prepared in February 1989 and subsequently revised in 1996, 1998, 2002, and 2003. The revisions incorporated the most recent assessment of community issues, concerns, and informational needs related to the ongoing environmental investigation and remediation program at Alameda Point.

3.1 RESTORATION ADVISORY BOARD

In 1993, individuals from local communities began to play an increasingly significant role in the environmental restoration process with the establishment of the Alameda Point Restoration Advisory Board (RAB). The Navy solicited the original membership in the board through newspaper notices and included business and homeowner representatives, residents, local elected officials, and regulatory agency staff.

The RAB currently consists of members of the Navy, the community, and the regulatory agencies. The RAB meetings occur monthly and are open to the public. Meetings are held in the evenings after normal working hours at Building 1, Room 140, at 950 West Mall Square at Alameda Point. RAB members review and comment on technical documents.

The Navy and regulatory agencies presented information on IR Site 27, including the availability of documents, to the RAB members during the monthly RAB meetings. Copies of the RAB meeting minutes and documents that describe environmental investigations and removal actions are available at the following Alameda Point information repository and administrative record file locations:

Alameda Point
950 West Mall Square
Building 1, Room 240
Alameda, California 94501

Administrative Record
Naval Facilities Engineering Command, Southwest
1220 Pacific Highway
San Diego, California 92132-5190

In addition, the new Alameda Public Library will maintain new Navy environmental documents during review periods. This library is located at 1550 Oak Street, Alameda, California 94501. RAB meeting minutes are also available at the Navy BRAC Program Management Office website at:

http://www.bracpmo.navy.mil/bracbases/california/nas_alameda/rab_mm.aspx

3.2 PUBLIC MAILINGS

Public mailings, including information updates, fact sheets, and proposed plans, have been used to ensure a broad dissemination of information throughout the local community. Information updates that announce the IR Program process at Alameda Point have been delivered to residents surrounding Alameda Point and mailed to city, state, and federal officials; regulatory agencies; local groups; and individuals identified in the community relations plan, since March 1990 (TtEMI 2003c). Updates and fact sheets have included information on the status of environmental investigations, the upcoming remedy selection process, the ways the public can participate in the investigation and remediation, the history and geology of the area, and the availability of the administrative record for Alameda Point. Proposed plans provide an overview of environmental investigation results (including HHRA and ERA results) and remedial alternatives for a site or group of sites, and present the preferred alternative. The updates, fact sheets, and proposed plans are mailed to approximately 400 households, businesses, public officials, and regulatory agencies, in an effort to reach as many community members as possible. Table 3-1 lists the Alameda Point updates, fact sheets, and proposed plans related to IR Site 27.

3.3 COMMUNITY PARTICIPATION FOR IR SITE 27

The final RI Report (BEI 2005) for IR Site 27 was issued in July 2005, and the final FS Report (BEI 2006) was issued in April 2006. The Proposed Plan (Navy 2006) was distributed to the public on November 20, 2006, at the beginning of the public comment period, to provide information and solicit public input on the Navy's recommended remedial action for IR Site 27. These documents are available to the public at the information repository maintained at Alameda Point and at the administrative record file. The information repository also contains a complete index of the administrative record file (Attachment A), along with information about how to access the complete file at the Naval Facilities Engineering Command, Southwest, in San Diego, California.

A notice of the public comment period and public meeting was published in the *Alameda Times-Star* and *Oakland Tribune* on November 20, 2006, and in the *Alameda Journal* on November 21, 2006. A public comment period for IR Site 27 extended from November 20, 2006 to December 22, 2006. In addition, a public meeting was held on December 12, 2006. A copy of these public notices is presented in Attachment B.

The BRAC environmental coordinator and Navy remedial project manager gave presentations at the public meeting on the conditions at IR Site 27, and representatives from the Navy and the regulatory agencies were available to answer questions. A court reporter prepared a transcript of the meeting, which is presented in Attachment B. Responses to written comments received during the public comment period are included in the responsiveness summary as part of this ROD (Attachment C).

**Table 3-1
 Summary of Alameda Point Fact Sheets, Newsletters, and Proposed Plans
 Related to IR Site 27**

	Date	Title
Fact Sheets*		
Newsletters		
	July 2003	Alameda Point Focus Newsletter
Proposed Plan		
	November 2006	Proposed Plan for IR Site 27, Dock Zone, Former NAS Alameda

Note:

* there are no fact sheets pertaining to IR Site 27

Acronyms/Abbreviations:

IR – Installation Restoration (Program)

NAS – Naval Air Station

Section 4

**SCOPE AND ROLE OF OPERABLE UNIT AND
RESPONSE ACTIONS**

IR Site 27 is located within OU-6, which also includes IR Sites 26 and 28. These three IR sites were added at the same time to the CERCLA Program and grouped into a new OU in August 2000 (TtEMI 2003b). The final ROD for IR Site 26 was issued on August 23, 2006 (SulTech 2006). The ROD for IR Site 28 was signed in September 2007.

Responses associated with this ROD include no action for soil under CERCLA; remedial action and institutional controls (ICs) to address VOCs in groundwater under CERCLA; and addressing AOC 015 (USTs 15-1 through 15-3), OWS-166A, OWS-166B, and WD-166 as part of the remediation of impacted groundwater at IR Site 27. These responses should provide for unrestricted site use.

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Section 5

SITE CHARACTERISTICS

This section summarizes information on the geology, hydrogeology, and chemicals present in soil and groundwater at IR Site 27. A complete discussion of sampling locations and methods, chemicals detected, the nature and extent of contamination, the fate and transport of chemicals, and the evaluations of human-health and ecological risks is presented in the RI Report (BEI 2005). An evaluation of prior RCRA activities is presented in the SWMU evaluation report (SulTech 2005). A summary of the current status of SWMUs at IR Site 27 is presented in Table 2-3.

5.1 GEOLOGY

Alameda Island is located on the east side of the San Francisco Bay. The bay occupies a depression between the Berkeley Hills to the east and Montara Mountain and other mountains to the west. The depression and the hills were formed by two active faults, the San Andreas Fault, west of the San Francisco Bay, and the Hayward Fault, east of the San Francisco Bay. The San Andreas and Hayward Faults are approximately 12 miles west and 5 miles east of the island, respectively. The lithology beneath Alameda Island and the San Francisco Bay consists of unconsolidated sediments that are approximately 400 to 500 feet thick at the eastern margin of the bay (BEI 2005).

Alameda Island sedimentary deposits consist of the following five stratigraphic units, from top (youngest) to bottom (oldest): the Bay Sediment Unit (BSU), the Merritt Sand Formation, the upper unit of the San Antonio Formation, the lower unit of the San Antonio Formation, and the Alameda Formation (BEI 2005).

Most of the sedimentary deposits at Alameda Point are overlain by artificial fill material. Beginning in the 1930s, the U.S. Army and, subsequently, the Navy, filled tidelands, marshes, sloughs, and areas subject to inundation between the Oakland Inner Harbor and the western tip of Alameda Island. The fill material largely consisted of dredge spoils from the surrounding San Francisco Bay and Oakland Inner Harbor (BEI 2005).

In 1937, IR Site 27 was under water and did not exist. The Navy began construction of Seaplane Lagoon in 1937 and the location of IR Site 27 was formed by filling after construction of the eastern seawall of the lagoon. The seawall forms the western boundary of IR Site 27. A steel sheetpile bulkhead, which underlies Ferry Point Road and the railroad tracks running through IR Site 27, was installed at the same time. The wedge of open water between the diagonal bulkhead (Figure 1-3) at the eastern boundary of Seaplane Lagoon and the western shoreline of Alameda Island was filled after 1940 and before construction of Building 168 in 1946 (BEI 2006).

A Marsh Crust Horizon (2 to 6 inches thick) exists just beneath the hydraulic fill layer and overlies the Young Bay Mud of the BSU across approximately two-thirds of Alameda Point. It has been identified in the vicinity and north of IR Site 27 (DOD 2001), but was not identified beneath the site during the RI field activities (BEI 2005).

The surface of the artificial fill layer at IR Site 27 is mostly covered by buildings or by an asphalt and concrete pavement surface, ranging in thickness from 1 to 2 feet. Based on site-specific soil boring logs, the three lithologic units encountered beneath IR Site 27 are as follows (BEI 2005):

- Artificial fill material – Primarily poorly graded, fine-, medium-, or coarse-grained sand extending from the surface to depths of 4 to 8 feet below ground surface (bgs), with occasional layers of gravelly sand or clay. Distinguished by brown to olive-brown color and variability between borings at the site. Sometimes contains construction debris including angular gravel and brick fragments, and granite cobbles.
- BSU – Predominantly poorly graded, fine- to medium-grained sand (a sandy member of the BSU) with a thickness of 7 to 8 feet and extending to depths of 12 to 16 feet bgs, with lenses or a discontinuous layer of clay (Young Bay Mud member) penetrated by some borings at the site. Distinguished by dark gray to olive-gray or greenish gray color and consistency between borings at the site.
- Merritt Sand Formation – Poorly sorted, fine- to medium-grained sand encountered at 12 to 16 feet bgs. Distinguished by characteristic yellow-brown color and homogeneity.

5.2 HYDROGEOLOGY

Alameda Island is underlain by two primary aquifers, the shallow Merritt Sand aquifer that yields saline water and the deeper Alameda aquifer that yields freshwater. These aquifers are separated by the San Antonio aquitard. This aquitard is approximately 55 to 90 feet thick beneath Alameda Point (BEI 2005).

The Merritt Sand unit is a semiconfined aquifer with potentiometric head elevations from 0 to 6 feet above mean sea level at Alameda Island (TtEMI 1999). Regionally, groundwater recharge occurs in outcrop areas of the Merritt Sand located in the southeastern portion of Alameda Point, as well as east of Alameda Point. This groundwater recharge is from irrigation, precipitation, and possibly leaking water-supply lines, sewer lines, and storm drains (TtEMI 1999). There is no hydraulic connection between the shallow aquifer systems on Alameda Island and the Oakland mainland because shallow units have been truncated by the channel of the Oakland Inner Harbor (BEI 2005).

The Alameda aquifer is the principal regional aquifer. Depth to the top of the Alameda aquifer ranges from 180 feet bgs at Alameda Point to 220 feet beneath the surface of the sediment in Oakland Inner Harbor. The thickness of the formation is between 230 and 800 feet (Hickenbottom and Muir 1988).

The shallow hydrostratigraphic units beneath IR Site 27 have been divided into the following hydrogeologic units (BEI 2005):

- upper first water-bearing zone (FWBZ) – artificial fill material and sandy members of the BSU
- semiconfining unit – clayey members of the BSU

Section 5 Site Characteristics

- lower FWBZ – Merritt Sand Formation and Upper San Antonio Formation
- regional aquitard – Lower San Antonio Formation, including Yerba Buena Mud

Site-specific boring logs indicate that there is no continuous semiconfining unit between the upper and lower FWBZ. The clayey member of the BSU (the Young Bay Mud) is absent in many areas of IR Site 27. It is likely that the three lithologic units (artificial fill layer, sandy member of BSU, and Merritt Sand Formation) encountered to depths of 17 feet bgs in borings at IR Site 27 represent a single unconfined FWBZ (BEI 2005).

Previous studies indicated that the groundwater table across Alameda Point is typically encountered at 3 to 8 feet bgs in the fill material. During the RI field activities for IR Site 27, the groundwater table was generally encountered in soil borings at depths of 4 to 7 feet bgs. Average depth to water measured in monitoring wells in IR Site 27 was 6.9 feet bgs. Hydrographs for water levels measured in IR Site 27 monitoring wells between 2002 and 2004 indicated that wells closest to the shoreline with Seaplane Lagoon (15MJ-MW1, 15-MW1, 15-MW2, and 27MW04) are subject to significant tidal influence. Wells in the central portion of the site (15-MW3, 27MW01, 27MW02, and 27MW03) and in the eastern portion of the site (27MW05 through 27MW08) are subject to little or no tidal influence (BEI 2005).

Groundwater in the southeastern portion of Alameda Point, which contains IR Site 27, generally flows to the west toward Seaplane Lagoon or to the southwest toward San Francisco Bay. Water level measurements collected from newly installed wells during the RI activities for IR Site 27 indicated that groundwater flow direction is from the vicinity of Building 168 toward Seaplane Lagoon (from east to west) (BEI 2005).

The approximate horizontal gradient at the eastern margin of IR Site 27 is 0.0016 foot per foot (ft/ft). Adjacent to Seaplane Lagoon, the estimated horizontal gradient is 0.025 ft/ft. Using these horizontal gradients and the average hydraulic conductivity (3.04 feet per day) calculated from IR Site 27 slug test results, groundwater flow velocity at the site is between 0.005 and 0.075 foot per day (BEI 2005).

Groundwater at IR Site 27 is designated as a potential drinking water source; however, it is not presently used as a drinking water source. Drinking water is supplied to Alameda Point by the East Bay Municipal Utilities District.

5.3 NATURE AND EXTENT OF CONTAMINATION IN SOIL, GROUNDWATER, AND SOIL GAS

The following sections summarize the nature and extent of contamination in soil, groundwater, and soil gas at IR Site 27. Additional information is presented in the RI Report (BEI 2005).

5.3.1 Soil

Chemicals of interest in soil at IR Site 27 include VOCs, PAHs, and metals. VOCs in soil are found at a few locations scattered across the site and are reported generally at low concentrations. As shown in Table 5-1, only one VOC (benzene) was reported at a concentration that was above the residential soil preliminary remediation goal (PRG). This concentration was

reported for one sample collected during the EBS. Benzene was not reported above the detection limits in other soil samples; only one of the 131 soil samples had a benzene detection limit (2,000 micrograms per kilogram [$\mu\text{g}/\text{kg}$]) above the PRG.

PAHs in soil were limited in both distribution and frequency of occurrence. The PAHs benzo(a)pyrene and dibenz(a,h)anthracene were found at concentrations above the residential soil PRGs (Table 5-1). However, concentrations of PAHs in soil are well below the Alameda Point screening level (the benzo[a]pyrene equivalent concentration of 620 $\mu\text{g}/\text{kg}$) for PAHs. Tetraethyl lead was reported in one sample collected during the EBS at a concentration above the residential PRG. Results of subsequent sampling at adjacent locations reported this compound at lower concentrations.

Arsenic concentrations in soil at the site were above the residential PRG but were comparable to the Alameda Point background concentrations of 9.14 mg/kg for the pink area 95th percentile and 16.55 mg/kg for the blue area 95th percentile (TtEMI 2004). Only two metals reported in soil exceeded both Alameda Point background ranges and residential PRGs: iron and thallium. Three soil samples had concentrations of iron, which is an essential nutrient, above the residential PRG and one soil sample had a concentration of thallium slightly above the residential PRG. All other samples yielded iron and thallium concentrations below PRGs, leading to the conclusion that neither iron nor thallium is a concern in soil.

5.3.2 Groundwater

Groundwater samples were collected from monitoring wells and borings at IR Site 27. Chemicals of interest in groundwater included VOCs, PAHs, and metals. As shown in Tables 5-2 and 5-3, several VOCs (mostly chlorinated VOCs) were reported in groundwater at concentrations above the maximum contaminant levels (MCLs) or PRGs. Chlorinated VOCs are present in groundwater in the central portion of the site.

PAHs in groundwater were limited in both distribution and frequency of occurrence. PAHs reported in monitoring well samples were limited to locations along or near the shoreline with Seaplane Lagoon. No PAHs were reported at concentrations exceeding an MCL; three PAHs (benzo[a]pyrene, dibenz[a,h]anthracene, and naphthalene) were reported at concentrations above the tap water PRGs.

Arsenic was the only metal reported in groundwater at concentrations above the Alameda Point background concentrations and MCL. However, there are very few groundwater samples in which arsenic exceeded the MCL of 10 micrograms per liter ($\mu\text{g}/\text{L}$) or the background concentration of 20.72 $\mu\text{g}/\text{L}$, and most concentrations ranged from 3 to 5 $\mu\text{g}/\text{L}$. Arsenic concentrations that exceeded background levels or the MCL were limited to the central portion of the VOC plume near the inactive railroad tracks and likely represent localized mobilization of arsenic present in soil at background levels. The microbial activity associated with biodegradation of chlorinated VOCs creates reducing conditions that can mobilize arsenic (U.S. EPA 1999a). This may explain why detections of arsenic in groundwater at IR Site 27 infrequently exceeded the MCL, and only in the center of the VOC plume. The majority of these samples yielded arsenic concentrations below the level of the MCL. Upon completion of VOC

Section 5 Site Characteristics

remediation, geochemical conditions are expected to return to normal, and naturally occurring arsenic in soil will therefore be less likely to mobilize in groundwater. As a result, arsenic concentrations in groundwater are expected to be reduced.

5.3.3 Soil Gas

Soil gas samples were collected from locations throughout IR Site 27 and analyzed for VOCs. Soil gas at the site has been impacted primarily by chlorinated VOCs, and to a lesser extent by fuel-related VOCs. Chlorinated VOCs (primarily PCE, TCE, cis- and trans-1,2-DCE, vinyl chloride, and 1,1-dichloroethane [DCA]) are concentrated in soil gas in the western portion of IR Site 27. Another area of concentrated chlorinated VOCs (primarily TCE) is located beneath and west of Building 168. The distribution of chlorinated VOCs in soil gas is generally consistent with the distribution of these VOCs in groundwater (BEI 2005).

Fuel-related VOCs (primarily benzene, toluene, ethylbenzene, xylenes, and MTBE) are concentrated in soil gas in the western portion of IR Site 27. 2,2,4-Trimethylpentane (also known as isooctane) was reported in all soil gas samples collected during EBS Phase IV and was distributed across the site. 2,2,4-Trimethylpentane was not reported in any soil or groundwater samples, although other isooctane isomers were reported in a few groundwater samples, and 2,2,4-trimethylpentane does not appear to be related to a release at IR Site 27 (BEI 2005).

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**Table 5-1
Chemicals in Soil Exceeding Residential PRGs**

Analyte	Total Number of Samples	Number Reported Above Detection Limit	Percent Reported Above Detection Limit	Number Exceeding Criteria	Minimum ^a	Maximum	Background ^b	Federal Residential PRG ^c	California Residential PRG ^c
VOCs (µg/kg)									
benzene ^d	131	1	0.76	1	660	660	NA	640	— ^e
SVOCs – PAHs^f (µg/kg)									
benzo(a)pyrene	64	48	75	5	1.8	170	NA	62	—
dibenz(a,h)anthracene	64	19	30	1	0.74	140	NA	62	—
Organotin and Organic Lead Compounds (µg/kg)									
tetraethyl lead ^g	12	1	8.3	1	650	650	NA	6.1	—
Metals (mg/kg)									
arsenic	41	36	88	36	0.93	8.8	Yes ^h	0.39	0.062
iron	32	32	100	3	6,400	56,400	No	23,000	—
thallium	41	22	54	1	0.14	6.9	No	5.2	—

Notes:

- ^a minimum concentration reported above detection limit
- ^b a “yes” indicates the metal in soil at the site is attributed to background
- ^c U.S. EPA 2004
- ^d analyte reported above detection limit in EBS sample only
- ^e dash indicates that a PRG has not been developed for the analyte
- ^f RI and EDC-12 data only; PAH soil samples collected during the EBS were analyzed using methods with elevated detection limits, which produced data of questionable quality; therefore, these data were replaced with the PAH data collected during the RI and the EDC-12 SI
- ^g analyte included in EBS sampling only
- ^h 95th percentile for pink area is 9.14 mg/kg and 95th percentile for blue area is 16.55 mg/kg (TtEMI 2004)

Acronyms/Abbreviations:

- EBS – environmental baseline survey
- EDC – economic development conveyance
- µg/kg – micrograms per kilogram
- mg/kg – milligrams per kilogram
- NA – not applicable
- PAH – polycyclic aromatic hydrocarbon
- PRG – preliminary remediation goal
- RI – remedial investigation
- SI – site investigation
- SVOC – semivolatile organic compound
- TtEMI – Tetra Tech EM Inc.
- U.S. EPA – United States Environmental Protection Agency
- VOC – volatile organic compound

Table 5-2
Chemicals in Monitoring Well Samples Exceeding MCLs or PRGs

Analyte	Total Number of Samples	Number Reported Above Detection Limit	Percent Reported Above Detection Limit	Number Exceeding Criteria	Minimum ^a (µg/L)	Maximum (µg/L)	Federal MCL (µg/L)	California MCL (µg/L)	Federal Tap Water PRG ^b (µg/L)	California Tap Water PRG ^b (µg/L)
Fuel-Related VOCs										
benzene	136	35	26	18	0.1	48	5	1	0.35	— ^c
methyl tert-butyl ether	126	41	33	8	0.29	38	—	13	11	—
Halogenated VOCs										
chloroform	105	1	0.95	1	0.19	0.19	—	—	0.17	0.53
1,4-dichlorobenzene	91	9	9.9	6	0.2	1.6	75	5	0.5	—
1,1-dichloroethane	108	67	62	18	0.2	19	—	5	810	2
cis-1,2-dichloroethene	108	88	81	51	0.32	100	70	6	61	—
trans-1,2-dichloroethene	101	58	57	7	0.2	19	100	10	120	—
tetrachloroethene	107	31	29	31	0.2	40	5	5	0.1	—
trichloroethene	108	65	60	65	0.2	26	5	5	0.028	1.4
vinyl chloride	108	72	67	72	0.1	40	2	0.5	0.02	—
SVOCs – PAHs										
benzo(a)pyrene	16	1	6.3	1	0.05	0.05	0.2	0.2	0.0092	—
dibenz(a,h)anthracene	16	1	6.3	1	0.07	0.07	—	—	0.0092	—
naphthalene	103	1	0.97	1	0.33	0.33	—	—	6.2	0.093
Metals										
arsenic ^d	83	38	46	38	2.9	23.9	10	50	0.045	0.0071
iron	83	57	69	3	53.3	17,700	—	—	11,000	—
thallium	83	1	1.2	1	5.6	5.6	2	2	2.4	—
General Chemistry Parameters										
fluoride	42	29	69	2	210	2,800	4,000	2,000	2,200	—

Table 5-2 (continued)

Notes:

- ^a minimum concentration reported above detection limit
- ^b U.S. EPA 2004
- ^c dash indicates that a criterion has not been developed for the analyte
- ^d the 95th percentile for arsenic in Alameda Point background groundwater is 20.72 µg/L (TtEMI 2004)

Acronyms/Abbreviations:

- µg/L – micrograms per liter
- MCL – maximum contaminant level
- PAH – polycyclic aromatic hydrocarbon
- PRG – preliminary remediation goal
- SVOC – semivolatile organic compound
- TtEMI – Tetra Tech EM Inc.
- U.S. EPA – United States Environmental Protection Agency
- VOC – volatile organic compound

**Table 5-3
Chemicals in Discrete Groundwater Samples Exceeding MCLs or PRGs**

Analyte	Total Number of Samples	Number Reported Above Detection Limit	Percent Reported Above Detection Limit	Number Exceeding Criteria	Minimum ^a (µg/L)	Maximum (µg/L)	Federal MCL (µg/L)	California MCL (µg/L)	Federal Tap Water PRG ^b (µg/L)	California Tap Water PRG ^b (µg/L)
Fuel-Related VOCs										
benzene	72	15	21	13	0.26	2.2	5	1	0.35	— ^c
1,2,4-trimethylbenzene	52	5	9.6	1	0.29	400	—	—	12	—
1,3,5-trimethylbenzene	52	1	1.9	1	120	120	—	—	12	—
xylene, total	72	8	11	1	0.61	770	10,000	1,800	210	—
Halogenated VOCs										
chloroform	57	2	3.5	2	9	12	—	—	0.17	0.53
1,4-dichlorobenzene	48	1	2.1	1	0.81	0.81	75	5	0.5	—
1,1-dichloroethane	61	15	25	4	0.21	2.9	—	5	810	2
cis-1,2-dichloroethene	52	30	58	11	0.21	230	70	6	61	—
trans-1,2-dichloroethene	56	21	38	1	0.25	18	100	10	120	—
tetrachloroethene	57	5	8.8	4	0.34	1.9	5	5	0.1	—
trichloroethene	59	13	22	13	0.43	12	5	5	0.028	1.4
vinyl chloride	57	22	39	22	0.25	200	2	0.5	0.02	—
VOCs – Tentatively Identified Compounds										
2-butenal, (e)-	2	2	100	2	3.9	8.8	—	—	0.0059	—
SVOCs – PAHs										
naphthalene	48	3	6.3	2	0.41	25	—	—	6.2	0.093
Metals										
arsenic	4	1	25	1	3.6	3.6	10	50	0.045	0.0071

Table 5-3 (continued)

Notes:

- ^a minimum concentration reported above detection limit
- ^b U.S. EPA 2004
- ^c dash indicates that a criterion has not been developed for the analyte

Acronyms/Abbreviations:

- µg/L – micrograms per liter
- MCL – maximum contaminant level
- PAH – polycyclic aromatic hydrocarbon
- PRG – preliminary remediation goal
- SVOC – semivolatile organic compound
- U.S. EPA – United States Environmental Protection Agency
- VOC – volatile organic compound

Section 6

CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

This section discusses current and reasonably anticipated future land uses, and current and potential groundwater and surface water uses at IR Site 27. This information was incorporated into the development of exposure scenarios for the HHRA.

6.1 LAND USES

IR Site 27 is an IR Program site at Alameda Point, which is under the jurisdiction of the Navy. The site is approximately 15.8 acres in size. Most of IR Site 27 is paved or covered by buildings: Buildings 68 (a waterfront maintenance shop), 168 (a warehouse), 555 (an electrical substation), and 601 (the former location of OWS 601) (Figure 1-3). Reportedly, historical activities within the western portion of IR Site 27 included ship docking, ship repair, and marine painting activities (IT 2001). Building 601 was constructed in 1980 to house an OWS, which was later removed. Historical activities in the eastern portion of IR Site 27 included materials storage and equipment and vehicle parking in open space areas; warehouse operations in Building 168; and waterfront services, including welding, in Building 68. Historically, the open space served as an aircraft parking area (IT 2001).

Currently, Buildings 68 and 168 are used by tenants for operations similar to historical activities. Building 601 is used by tenants as a machine shop. The fenced open space west of Building 168 is being used by the U.S. Department of Transportation for maintenance equipment and vehicle parking, chemical storage, and drum storage. Washdown area WD-166 with two OWS units is located at the southern margin of the site to the north of Building 166 (this building is not within the boundaries of IR Site 27).

The City of Alameda, Alameda Point General Plan Amendment (City of Alameda 2003) has designated IR Site 27 as future marina and inner harbor areas (Figure 6-1). Future land uses may include marina, civic, residential, recreational, light industrial, retail, and commercial uses.

6.2 GROUNDWATER USES

As described in Section 5.2, groundwater beneath IR Site 27 is designated as a potential drinking water source, but is not presently used as a drinking water source. Drinking water is supplied to Alameda Point by the East Bay Municipal Utilities District. The California State Water Resources Control Board (SWRCB) currently classifies groundwater beneath Alameda Point as potentially suitable for municipal or domestic water supply, irrigation or agricultural supply, and industrial supply. A determination of beneficial uses of groundwater for Alameda Point concluded that groundwater in the southeastern region of Alameda Point (including that which underlies IR Site 27) is a Class II aquifer (TtEMI 2000b). The U.S. EPA's Guidelines for Groundwater Classification under the EPA Groundwater Protection Strategy (U.S. EPA 1988a) defines a Class II aquifer as a current or potential source of drinking water and an aquifer that has other beneficial uses.

6.3 SURFACE WATER USES

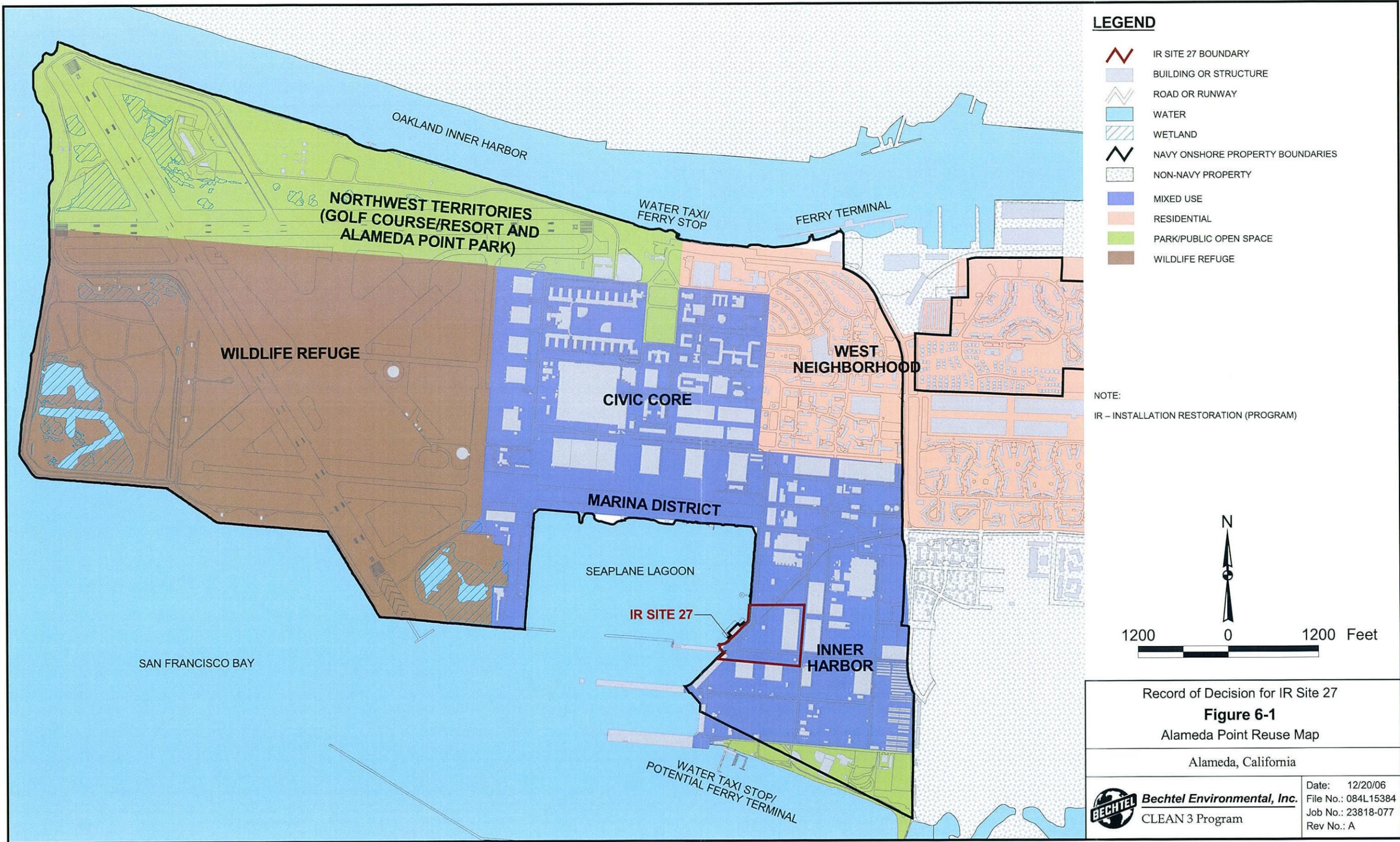
There are no naturally occurring streams, rivers, ponds, lakes, or other surface water bodies within the boundaries of IR Site 27.

IR Site 27 borders Seaplane Lagoon, which is being investigated as part of IR Site 17 (Figure 1-2). Seaplane Lagoon is a partially enclosed lagoon that was constructed in the 1930s by dredging a former tidal flat. From the 1940s to 1975, industrial wastewater and storm water generated at the former NAS Alameda was discharged directly into a network of storm drains and carried, in part, into IR Site 17 (Seaplane Lagoon) through storm sewer outfalls. During this period, approximately 300 million gallons of untreated industrial wastewater and storm water that reportedly contained heavy metals, solvents, paints, detergents, acids, caustics, mercury, oil and grease, and radium were discharged into Seaplane Lagoon. The outfalls located in the northeastern and northwestern areas of IR Site 17 were the primary migration pathways of contamination. In 1975, the direct discharge of industrial wastewater through the storm sewer network was terminated, and since that time, a storm water pollution prevention program has been in place at Alameda Point to ensure that only surface runoff is carried into the lagoon (Battelle 2006).

IR Site 17 is currently not used for human-related activities, except for limited boat use. The California Office of Environmental Health Hazard Assessment has issued an interim fishing advisory for all of San Francisco Bay and Delta Region (www.oehha.ca.gov/fish/general/sfbaydelta.html). This advisory was issued because of elevated concentrations of mercury, polychlorinated biphenyls (PCBs), and other chemicals found in fish tissue throughout the bay. Signs are also posted around Seaplane Lagoon advising people not to eat fish collected there. Although the proposed remedial action at IR Site 17 is expected to reduce bioaccumulation of contaminants from sediments within the lagoon, there are numerous other sources throughout the bay. Therefore, the fish consumption advisory will likely remain in place until more of the sources have been addressed (Battelle 2006).

Under the City of Alameda, Alameda Point General Plan Amendment (City of Alameda 2003), the proposed use of IR Site 17 includes development of a commercial marina. The area surrounding the site has been proposed to be developed as a mixed-use, marina-related district consisting of marina housing, industrial park, recreational/commercial area, and marina waterfront (Battelle 2006).

Based on the results of the RI and FS, the northeastern and northwestern areas of IR Site 17 were found to pose an unacceptable risk to human health and the environment. The Navy, together with the BCT, determined that these areas require remedial action. The selected remedy is dredging, dewatering, and upland disposal at a permitted off-site waste disposal facility of the contaminated sediments. The selected remedy, including its compliance with federal and state requirements that are legally applicable or relevant and appropriate, is described in the Final ROD for IR Site 17 (Battelle 2006).



Section 7

SUMMARY OF IR SITE 27 RISKS

As part of the RI, an HHRA and an ERA were conducted for IR Site 27 using data collected during environmental investigations at the site. The objective of the risk assessments was to estimate the risks to human and ecological receptors from exposure to chemicals in soil, groundwater, and soil gas at IR Site 27. The risk assessments provide the basis for taking action and identifying the chemicals of concern (COCs) and exposure pathways that need to be addressed by the remedial action. The HHRA was performed as a baseline risk assessment, and the ERA was performed as a screening-level risk assessment.

A conceptual site model (CSM) (Figure 7-1) was used to support the risk assessments by identifying ways in which human or ecological receptors might come into contact with chemicals of interest in soil, groundwater, or soil gas at IR Site 27. The residential, occupational, and construction exposure pathways were identified in the CSM and evaluated in the HHRA. Based on the HHRA results, impacted groundwater at the site poses a potential risk to human health through residential exposure pathways that assume domestic use of on-site groundwater. However, soil at the site poses no unacceptable risk to human health or the environment based on current and reasonably anticipated future land uses (including residential use). The CSM and the detailed approach and results of the risk assessments are presented in Section 6 and Appendix K of the RI Report (BEI 2005).

The response action for groundwater selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened further release of hazardous substances into the environment. No action for soil is necessary to protect the public health or welfare or the environment.

7.1 SUMMARY OF BASELINE HUMAN-HEALTH RISK ASSESSMENT

The baseline HHRA conducted for IR Site 27 identified chemicals of potential concern (COPCs), evaluated exposure pathways, assessed toxicity, and characterized cancer and noncancer health risks based on conservative assumptions. Calculated risks were then compared with federally established risk ranges, and COCs were identified. Details of the methods used to prepare the HHRA are provided in the RI Report (BEI 2005). The baseline HHRA approach and results are discussed below.

7.1.1 Identification of Chemicals of Potential Concern

The methods used to identify COPCs and evaluate risk are consistent with guidelines published by the U.S. EPA in the Risk Assessment Guidance for Superfund Part A (U.S. EPA 1989) and Part B (U.S. EPA 1991) and supporting documents and guidelines published by the California Environmental Protection Agency (Cal/EPA 1996).

All chemicals that were reported in at least one soil, groundwater, or soil gas sample collected during the RI and previous investigations were included as COPCs, except

calcium, magnesium, potassium, and sodium, which are known essential human nutrients.

The HHRA included all RI soil gas, soil, and groundwater data; PAH soil data from the Transfer Parcel EDC-12 site inspection (SI); BGMP groundwater data from seven quarters of sampling; data for metals, PCBs, pesticides, and VOCs from the EBS; and data for VOCs and metals from the post-UST-removal follow-on investigations and the DGI.

All validated and verified data from the RI, SI, BGMP, and previous investigations were used, except for the PAH data from the EBS and the field screening data from the EBS. The PAH soil data from the EBS were excluded from the baseline HHRA due to elevated detection limits, and the RI and SI PAH data were sufficient to characterize PAHs in soil at IR Site 27. Unvalidated and unverified field screening data were also excluded from the HHRA because unvalidated and unverified data are not appropriate for quantitative calculations of risk. In summary, there were groundwater data from 14 wells and discrete groundwater samples from 24 locations. There were soil gas data from samples from 60 locations. There were soil data from 32 samples for metals and 60 to 110 samples for the majority of the VOCs and SVOCs.

Soil data were grouped by depth intervals. The first depth interval was from the ground surface to the water table (or from 0 to 7 feet bgs), for future residential and construction scenarios. The second depth interval was from the ground surface to 2 feet bgs, for the occupational scenario.

Soil gas data were evaluated in two groups: 11 soil gas sampling locations were used to evaluate the current indoor air conditions in Building 168, and the complete set of soil gas sampling locations were combined to evaluate future conditions across the site.

7.1.2 Exposure Assessment

An exposure assessment identifies the populations at potential risk and the mechanisms by which members of those populations could be exposed to COPCs in each medium. It is also a process by which the chemical concentrations at the point of exposure and the chemical doses are calculated.

As recommended by the U.S. EPA, the 95th percent upper confidence limit (UCL) of the arithmetic mean of the average chemical concentration was used to represent the potential exposure point concentration (EPC) over a human lifetime. The EPC was calculated for each COPC using the U.S. EPA software ProUCL, Version 2.3. The 95th percent UCL of the arithmetic mean is defined as a value that, when calculated repeatedly for randomly drawn subsets of site data, equals or exceeds the true mean 95 percent of the time (U.S. EPA 1992). The 95th percent UCL is a better predictor of actual chronic exposure conditions because it is based on the probability of long-term random contact with contaminated areas. However, in areas where the 95th percent UCL exceeded the maximum chemical concentration, the maximum concentration was used as the EPC.

The current use of IR Site 27 is characterized as light industrial. The only occupied buildings are Buildings 68 (used for various waterfront services including welding

Section 7 Summary of IR Site 27 Risks

activities), 168 (used as a warehouse), and 601 (used as a machine shop); the open space is used for equipment storage. The planned future use is a marina and an inner harbor, which are mixed-use areas that could include residential use as well as light industrial use. The potential receptors considered in the HHRA are residents, occupational workers, and construction workers. Future use of the site as a marina could also include some recreational use. The residential exposure scenario is considered protective of recreational users because exposure by potential recreational users is expected to be less than that for potential residents. Table 7-1 summarizes the exposure scenarios for IR Site 27.

Residential Exposure Scenario. Potential future residents are assumed to be exposed to COPCs in soil from the ground surface to the water table (or from 0 to 7 feet bgs). The residential receptor was assumed to live on the site for 30 years. It was also assumed that the individual would be generally exposed for 350 days per year for the entire 30-year duration. Routes of potential exposure associated with the residential exposure scenario included incidental soil ingestion, dermal contact with soil, inhalation of particulates from soil, inhalation of vapors from soil gas in indoor air, ingestion of groundwater, inhalation and dermal contact with groundwater while showering, and ingestion of produce grown in local soil.

Occupational Exposure Scenario. Under the occupational exposure scenario, COPCs in the upper 2 feet of soil are considered to be accessible. The occupational receptor was assumed to be generally exposed for 250 days per year for 25 years. Routes of potential exposure associated with this scenario include incidental soil ingestion, dermal contact with soil, inhalation of particulates from soil, and inhalation of vapors from soil gas in indoor air.

Construction Exposure Scenario. Under the construction exposure scenario, COPCs in soil from the ground surface to the water table (or from 0 to 7 feet bgs) are assumed to be available. The construction receptor was assumed to be generally exposed for 20 days per year for 7 years. Routes of potential exposure associated with this scenario include incidental soil ingestion, dermal contact with soil, inhalation of particulates from soil and vapors in outdoor air.

7.1.3 Toxicity Assessment

The toxicity assessment focuses on the toxicity of the COPCs. The objective of the toxicity assessment is to assess the relationship between daily intake and the likelihood of adverse health effects. Toxicological effects fall into two categories: those that could potentially cause cancer (carcinogens) and those that cause other types of harmful health effects (noncarcinogens).

The toxicity values used in the HHRA were obtained from the table of PRGs published by U.S. EPA Region 9 (U.S. EPA 2004) and confirmed by a review of the U.S. EPA Integrated Risk Information System (IRIS) database (U.S. EPA 2003) and the U.S. EPA Health Effects Assessment Summary Tables (HEAST) (U.S. EPA 1997). The IRIS database and HEAST were also searched for toxicity criteria for chemicals not listed in

the PRG table. Toxicity values developed by California Environmental Protection Agency's (Cal/EPA's) Office of Environmental Health Hazard Assessment (OEHHA) were also used in the HHRA (Cal/EPA 2002).

IRIS is a U.S. EPA database containing verified toxicity values and up-to-date human-health toxicological and U.S. EPA regulatory information for most commonly used chemicals. HEAST is a source of unverified provisional toxicity information that was used when toxicity information was not available from IRIS. The IRIS database and HEAST were also searched for toxicity criteria not listed in the U.S. EPA Region 9 PRG table. Cancer and noncancer toxicity values for some chemicals are available from OEHHA. These values are sometimes identical to U.S. EPA values. OEHHA toxicity values were used only in risk calculations based on DTSC assumptions.

Exposures to lead in soil were evaluated using Cal/EPA's Lead Risk Assessment Spreadsheet Version 7 (LeadSpread 7) to calculate a site-specific PRG for lead (Cal/EPA 1999). Site-specific PRGs of 184 milligrams per kilogram (mg/kg) for lead in soil for the scenario including the ingestion of homegrown produce, and 322 mg/kg for lead in soil for the scenario without ingestion of homegrown produce, were calculated using local concentrations for lead in ambient air and in the municipal water supply. Modeling output and supporting input documentation were presented in the RI Report (BEI 2005).

7.1.4 Risk Characterization

The final step in the HHRA is the characterization of potential risks associated with exposure to detected chemicals. Risk characterization combines the exposure and toxicity assessments to produce quantitative estimates of risk from COPCs. Chemicals might present noncancer health effects in addition to cancer risks; therefore, the potential for both types of effects are evaluated. Noncancer health hazards and cancer risks are characterized separately, as described below.

The noncancer risk associated with exposure to a chemical is called the hazard quotient (HQ), which is the ratio of daily exposure to toxicity value. An HQ value of 1 indicates that lifetime exposure has limited potential for causing an adverse effect in sensitive populations, and values of less than 1 can generally be considered acceptable. The sum of chemical-specific HQs is called a hazard index (HI). It is appropriate to add HQ values for different chemicals only if they affect the same target organ. Adding HQ values into a single cumulative HI value across chemicals is a preliminary estimate of the highest possible noncancer risk.

Excess lifetime cancer risks are probabilities generally expressed in scientific notation (for example, 1×10^{-6}). An excess lifetime cancer risk of 1×10^{-6} indicates that an individual's probability of cancer incidence could increase by a factor of one in a million as a result of site-related exposure to a carcinogen over a 70-year lifetime under the specific exposure conditions at a site. The exposure conditions that are reasonably expected to occur at the site are termed the "reasonable maximum exposure (RME)." To assist with characterization of cancer risks, a federally established risk management range

Section 7 Summary of IR Site 27 Risks

was developed to protect human health and help risk managers determine if site risks were significant enough to warrant cleanup. Guidelines for managing cancer risks are promulgated in the NCP (40 C.F.R. 300.430[e][2][i][A][2]). According to these regulations, action is generally warranted if an excess cancer risk is above 10^{-4} , and site-specific factors are considered when making decisions about whether or not action is required to reduce risk if excess cancer risks are within the risk management range from 10^{-6} to 10^{-4} .

Residential Scenario Cancer Risks. For the future residential scenario, the total U.S. EPA RME cancer risk (including metals at background concentrations) is 1×10^{-3} (Table 7-2). This risk is above the risk management range (10^{-6} to 10^{-4}).

The total RME cancer risks by exposure pathway are summarized in Table 7-3. The U.S. EPA RME cancer risks for the following two exposure pathways are within the upper end of the risk management range:

- ingestion of groundwater (5×10^{-4})
- dermal contact with groundwater while showering (8×10^{-4})

The RME risk for direct contact with soil (ingestion, inhalation, and dermal contact) is 10^{-5} , and is considered protective of a future resident. A recreational user could be exposed through these pathways but at a lower rate than assumed for a resident. The majority of the risk is associated with background concentrations of arsenic (Appendix J of the RI Report [BEI 2005]). Without arsenic, the incremental risk is 10^{-6} .

Occupational and Construction Scenario Cancer Risks. For the occupational scenario (sitewide), the total U.S. EPA RME cancer risk (including metals at concentrations below background) is 6×10^{-6} for all pathways (Table 7-2). This risk is within the risk management range.

For the current occupational scenario at Building 168, the total U.S. EPA RME cancer risk is 5×10^{-6} (Table 7-2). This risk is within the risk management range. The RME cancer risks for inhalation of vapors in indoor air from COPCs in soil gas for both samples collected from the area immediately adjacent to Building 168 as well as those collected throughout the site are below 1×10^{-6} (Table 7-3).

For the construction scenario, the total U.S. EPA RME cancer risk (including background) is 1×10^{-6} for all pathways (Table 7-2). This risk is within the risk management range.

Noncancer Hazards and Lead. The RME HI value for the residential scenario is 11. The majority of the risk in soil is associated with arsenic. However, arsenic concentrations in soil are within the Alameda Point background levels, based on statistical evaluations presented in Appendix J of the RI Report (BEI 2005).

The RME HI value for occupational and construction scenarios is below the risk management level of 1.

The EPCs of 11.4 mg/kg for the 0-to-7-foot depth interval are below the site-specific residential PRGs for lead in soil for children (184 mg/kg for a scenario including the

ingestion of homegrown produce and 322 mg/kg for a scenario without ingestion of homegrown produce).

Identification of Chemicals of Concern. Cancer and noncancer COCs were identified for IR Site 27. As discussed above, the cancer risks and noncancer hazard values for occupational and construction exposure scenarios are within the risk management range. The EPC for lead is well below the site-specific residential PRG.

For hypothetical future residents at IR Site 27, the U.S. EPA RME cancer risks are within the upper end of the risk management range for two exposure pathways: ingestion of groundwater and dermal contact with groundwater while showering. The majority of the risk in groundwater (greater than 90 percent) is associated with ingestion of arsenic and vinyl chloride and dermal contact with two PAHs. Groundwater samples having arsenic concentrations exceeding the Alameda Point background 95th percentile were limited to samples collected from one monitoring well. PAHs are limited in extent and only reported in 1 of 14 groundwater samples. The COCs in groundwater are vinyl chloride and other chlorinated VOCs.

In soil, most of the risk for direct contact with soil (ingestion, inhalation, and dermal contact) was found to be associated with arsenic. However, arsenic concentrations in soil are within the range of background levels. The incremental cancer risks (described below) associated with direct contact with soil at IR Site 27 are at or below the minimal risk management level of 1×10^{-6} when arsenic, which is found at concentrations within background in soil, is subtracted from the total risk. No COCs in soil were identified.

The majority of the risk in groundwater (greater than 90 percent) is associated with arsenic, vinyl chloride, TCE (U.S. EPA only), PCE (Cal/EPA only), and two PAHs. Groundwater samples with arsenic concentrations exceeding the Alameda Point background 95th percentile were limited to samples collected from one monitoring well. PAHs are limited in extent and were only reported in 1 of 14 groundwater samples. Therefore, the COCs in groundwater with cancer risks above 10^{-6} are chlorinated VOCs, including vinyl chloride, TCE (U.S. EPA only), and PCE (Cal/EPA only). Arsenic is not considered a COC in groundwater. Most sample concentrations ranged from 3 to 5 $\mu\text{g/L}$ with only a few exceeding the arsenic MCL of 10 $\mu\text{g/L}$. Additionally, almost all samples were well below the background concentration of 20.72 $\mu\text{g/L}$ and all were below the California MCL of 50 $\mu\text{g/L}$. This conclusion regarding arsenic in groundwater differs from that found in the Proposed Plan for IR Site 27 (DON 2006), based on further evaluation.

Incremental Risk. Metals are natural components of the earth's crust. Some of the metals are carcinogenic, and some are systemic toxicants that have noncancer health effects; others, such as arsenic, pose both cancer and noncancer risks. Metals can present risks at naturally occurring (background) concentrations. Metals present at background concentrations are subtracted from total risk to estimate incremental risk for risk management decisions.

For IR Site 27, a background comparison was conducted by statistically comparing the background data set for soil and groundwater with analytical results for metals in samples

Section 7 Summary of IR Site 27 Risks

representative of IR Site 27. This comparison was used to identify metals in soil and groundwater detected at concentrations greater than background.

Soil risks at IR Site 27 include risk from background arsenic concentrations. Most of the risk was found to be associated with arsenic. However, arsenic concentrations in soil are within the Alameda Point background concentrations.

7.2 SUMMARY OF SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENT

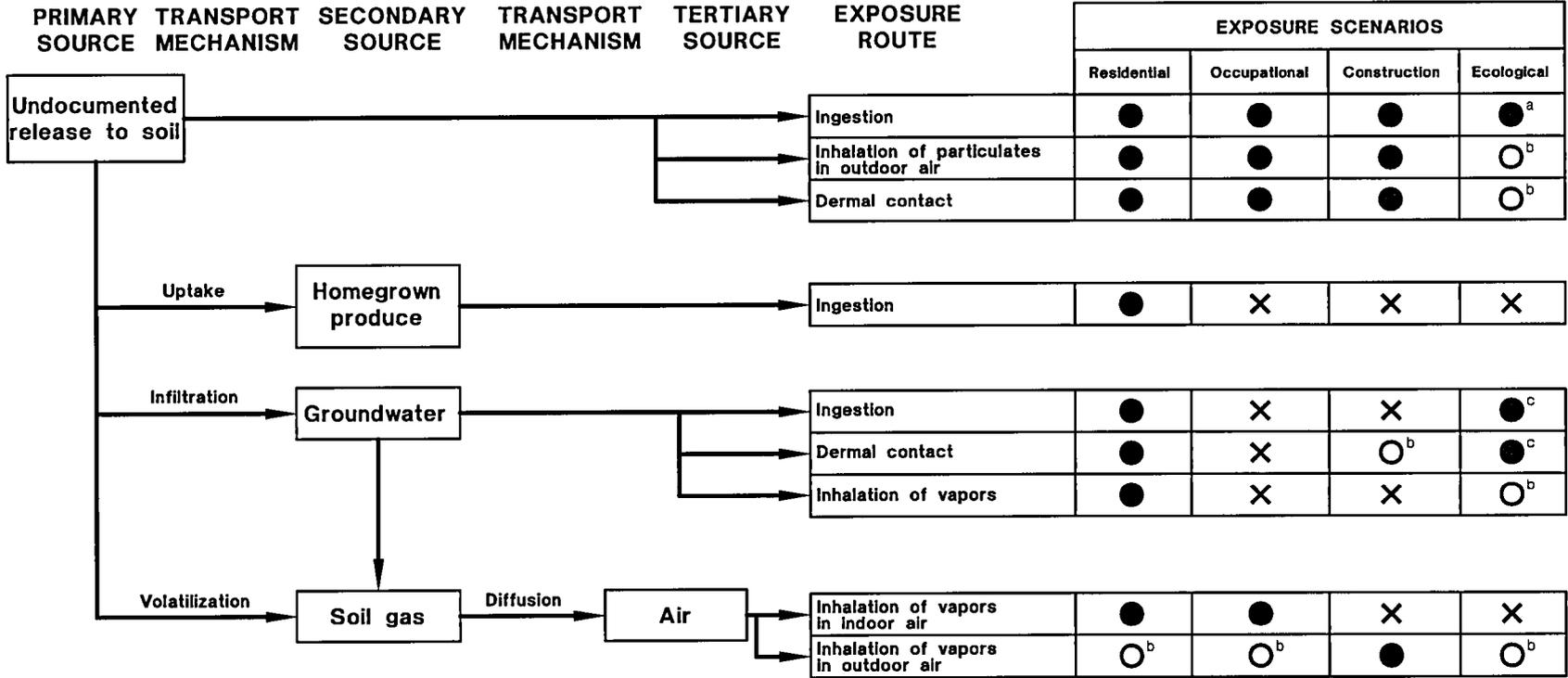
A screening-level ERA was conducted to assess the potential impacts on ecological receptors from exposure to chemicals at IR Site 27. Based on results of site investigations, exposure of ecological receptors through direct soil contact and the food chain as well as through groundwater releases to surface water were identified as completed exposure pathways.

Chemicals of potential ecological concern (COPECs) for ecological receptors included all chemicals that were reported at concentrations above detection limits at least once. As a conservative measure, concentrations of COPECs for aquatic receptors were estimated using maximum concentrations of COPECs in groundwater; these maximum concentrations were compared to California Toxics Rule (CTR) surface water criteria continuing concentrations. Therefore, the ERA provided a protective overestimate of the actual risk of adverse ecological effects at IR Site 27.

Based on sitewide groundwater chemical concentrations, there is low-to-negligible potential ecological risk from reported COPECs for aquatic receptors, even if groundwater were to enter Seaplane Lagoon at the maximum reported concentrations. The ERA identified a potential for VOCs to exceed the CTR screening values for human-health consumption of organisms if aquatic life organisms were to consume chemicals present in groundwater that reaches Seaplane Lagoon. The VOCs at IR Site 27 likely represent a low potential ecological risk due to low hazard quotient, infrequent occurrence, concentrations below CTR surface water criteria for human-health consumption of organisms in shoreline wells, and nonpersistence in aquatic environments. Therefore, the ERA concluded that, due to the low or negligible risk for aquatic life from reported COPECs, no further investigation or assessment of ecological risk for groundwater reaching surface water at IR Site 27 was recommended.

Due to the absence of substantial terrestrial habitat at the site, the CSM overestimated the use of the site by potential ecological receptors. Future use plans do not include substantial terrestrial habitat; therefore, the potential ecological risk from future site conditions was also likely overestimated. Due to this overestimation of the potential ecological risk at the site and the unlikelihood of future development of terrestrial habitat at the site, no further investigation or assessment of ecological risk for soil at IR Site 27 was recommended.

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LEGEND

- COMPLETE EXPOSURE PATHWAY
- × INCOMPLETE EXPOSURE PATHWAY
- COMPLETE EXPOSURE PATHWAY BUT NOT CONSIDERED A SIGNIFICANT SOURCE OF RISK

NOTES:

- ^a ingestion of soil and food items by terrestrial receptors
- ^b justification for these determinations is provided in the text
- ^c assumes groundwater discharges to bay, direct contact with aquatic organisms, ingestion of food items by birds and mammals

<p>Record of Decision for IR Site 27</p> <p>Figure 7-1</p> <p>Conceptual Site Model</p>	
<p>Alameda, California</p>	
 <p>Bechtel Environmental, Inc. CLEAN 3 Program</p>	<p>Date: 12/20/06 File No: 084C15040 Job No: 23818-084 Rev No: B</p>

**Table 7-1
Exposure Scenarios for the Human-Health Risk Assessment**

Site	EXPOSURE SCENARIO			Proposed Future Land Use
	Residential*	Occupational	Construction	
IR Site 27	X	X	X	Marina and inner harbor areas – marina, civic, residential, recreational, light industrial, retail, and commercial uses

Note:

- * the residential exposure scenario is considered protective of recreational users because exposure by potential recreational users is expected to be less than that for residents

Acronym/Abbreviation:

IR – Installation Restoration (Program)

Table 7-2
Reasonable Maximum Exposure
Human-Health Risk Assessment Summary by Receptor

Receptor	U.S. EPA Cancer Risk	Noncancer Hazard Index
Resident	1×10^{-3}	11
Occupational Worker – Building 168 (current)	5×10^{-6}	0.3
Occupational Worker – Sitewide (future)	6×10^{-6}	0.3
Construction Worker	1×10^{-6}	0.2

Acronym/Abbreviation:

U.S. EPA – United States Environmental Protection Agency

Table 7-3
Reasonable Maximum Exposure
Human-Health Risk Assessment Summary by Pathway

Exposure Scenario Pathway	U.S. EPA Cancer Risk	Noncancer Hazard Index
RESIDENTIAL		
Ingestion of soil	9×10^{-6}	3
Dermal contact with soil	1×10^{-6}	0.09
Inhalation of particulates	9×10^{-8}	0.03
Inhalation of indoor air from soil gas (sitewide)	3×10^{-5}	0.3
Sitewide Soil and Air Contact Subtotal	4×10^{-5}	3
Ingestion of groundwater	5×10^{-4}	7
Dermal contact with groundwater while showering	8×10^{-4}	0.4
Inhalation of groundwater while showering	3×10^{-6}	0.4
Groundwater Subtotal	1×10^{-3}	8
Ingestion of homegrown produce	1×10^{-5}	0.2
SITEWIDE TOTAL	1×10^{-3}	11
OCCUPATIONAL		
Ingestion of soil	4×10^{-6}	0.3
Dermal contact with soil	1×10^{-6}	0.03
Inhalation of particulates	2×10^{-8}	0.004
Inhalation of indoor air from soil gas (sitewide)	6×10^{-7}	0.004
Inhalation of indoor air from soil gas (Building 168)	1×10^{-7}	0.0009
SITEWIDE TOTAL	6×10^{-6}	0.3
BUILDING 168 TOTAL	5×10^{-6}	0.3
CONSTRUCTION		
Ingestion of soil	1×10^{-7}	0.05
Dermal contact with soil	6×10^{-8}	0.005
Inhalation of particulates	3×10^{-7}	0.1
Inhalation of outdoor air from soil gas (sitewide)	1×10^{-6}	0.04
SITEWIDE TOTAL	1×10^{-6}	0.2

Acronym/Abbreviation:

U.S. EPA – United States Environmental Protection Agency

Section 8

REMEDIAL ACTION OBJECTIVES

The HHRA results did not identify unacceptable risks associated with the current land use of IR Site 27. However, the HHRA concluded that there is a potential risk to human health from future residential use of groundwater at the site. The remedial action objectives (RAOs) were developed to guide the development and evaluation of remedial alternatives for the impacted groundwater at the site. RAOs are media-specific (soil, groundwater, or air) goals for protecting human health or the environment and include remediation goals (RGs) that are chemical concentration limits that provide a quantitative means of identifying areas for potential remedial action, screening the types of appropriate technologies, and assessing the potential of each remedial alternative to achieve the RAOs.

The RAOs for groundwater were developed to protect human health. The groundwater RAOs are as follows:

- protect beneficial uses of groundwater underlying the site
- protect beneficial uses of surface water adjacent to the site
- protect human health by prohibiting domestic use of groundwater that has been impacted by COCs until the Navy and regulatory agencies concur that there is no longer an unacceptable risk from such exposure

As described in Section 6.2, groundwater at IR Site 27 is designated as a potential drinking water source (TtEMI 2000b, U.S. EPA 1988a); however, it is not presently used as a drinking water source. RGs for groundwater were developed based on drinking water criteria and take into consideration potential domestic use of groundwater. As summarized in Table 8-1, the MCLs for VOCs were selected as the RGs.

Based on the results of the HHRA, soil at IR Site 27 does not pose a threat to human health or the environment. No remedial action is required for soil; therefore, no RAOs were developed for soil at the site.

Based on the results of the screening-level ERA, no action was warranted for the protection of terrestrial ecological receptors and shoreline groundwater at the site does not pose a threat to aquatic ecological receptors. No RAOs were developed for terrestrial and aquatic ecological receptors.

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Table 8-1
Remediation Goals for Groundwater at IR Site 27

Chemical of Concern	Remediation Goal (µg/L)
1,1-dichloroethane	5 ^a
cis-1,2-dichloroethene	6 ^a
trans-1,2-dichloroethene	10 ^a
tetrachloroethene	5 ^b
trichloroethene	5 ^b
vinyl chloride	0.5 ^a

Notes:

- ^a based on California primary MCL
- ^b based on federal and California primary MCL

Acronyms/Abbreviations:

- µg/L – micrograms per liter
- MCL – maximum contaminant level

Section 9

DESCRIPTION OF REMEDIAL ALTERNATIVES

Remedial alternatives for IR Site 27 groundwater were developed in accordance with the requirements identified in CERCLA, as amended by SARA, and the NCP. The following ten remedial alternatives were developed and presented in the FS Report for IR Site 27 (BEI 2006):

- Alternative 1 – No Action
- Alternative 2 – ICs
- Alternative 3 – MNA and ICs
- Alternative 4A – *In Situ* Bioremediation (ISB) Source Area Treatment, MNA, and ICs
- Alternative 4B – Sitewide ISB Treatment, MNA, and ICs
- Alternative 5 – Air Sparging Source Area Treatment, MNA, and ICs
- Alternative 6A – ISCO Source Area Treatment, MNA, and ICs
- Alternative 6B – Sitewide ISCO Treatment and Groundwater Confirmation Sampling
- Alternative 7 – Dynamic Circulation Source Area Treatment, MNA, and ICs
- Alternative 8 – Zero-Valent Iron Source Area Treatment, MNA, and ICs

Of the ten remedial alternatives considered, Alternatives 1, 3, 4A, 6A, 6B, and 7 were retained for detailed analysis. Based on comments received from the regulatory agencies on the IR Site 27 Proposed Plan (Navy 2006), the title of Alternative 6B was changed to “Full-Scale ISCO Treatment and Groundwater Confirmation Sampling.” Alternative 6B (with ICs) was selected as the preferred remedial alternative for groundwater at IR Site 27.

The evaluation and screening processes that led to the development of the six retained remedial alternatives are documented in the FS Report (BEI 2006). These remedial alternatives are described in the following sections.

9.1 ALTERNATIVE 1 – NO ACTION

For this alternative, no further action of any type would be implemented for groundwater. This alternative is included in accordance with the NCP, and serves as a baseline against which the other groundwater alternatives can be evaluated.

9.2 ALTERNATIVE 3 – MNA AND ICs

Alternative 3 would utilize MNA and ICs to address the entire 11-acre VOC-impacted groundwater plume. This alternative relies on naturally occurring processes to continue to reduce contaminant levels in the plume at IR Site 27. A long-term groundwater monitoring program, including periodic reviews, would be implemented to track the reduction in contaminant concentrations. BIOCHLOR Natural Attenuation Decision

Support System (BIOCHLOR) model simulations predicted that RGs would be achieved in 70 years for this alternative.

ICs are legal and administrative mechanisms used to implement land use and access restrictions to limit the exposure of current and future landowner(s) and/or user(s) of the property to hazardous substances and to maintain the integrity of the remedial action until remediation is complete and RGs have been achieved. Monitoring and inspections are conducted to ensure that the ICs are being followed. ICs are further described in Section 12.2.3 of this ROD.

9.3 ALTERNATIVE 4A – ISB SOURCE AREA TREATMENT, MNA, AND ICs

Alternative 4A is similar to Alternative 3, but would additionally employ anaerobic ISB technology to accelerate VOC contaminant degradation in the two areas of higher VOC concentrations in the groundwater plume. It is assumed that Hydrogen Release Compound (HRC) technology would be injected in these two areas to accelerate biodegradation of VOCs.

MNA for Alternative 4A would be similar to Alternative 3 except that the duration is assumed to be 60 years, based on BIOCHLOR model simulations. ICs would be similar in scope to Alternative 3.

9.4 ALTERNATIVE 6A – ISCO SOURCE AREA TREATMENT, MNA, AND ICs

Alternative 6A would accelerate contaminant concentration reduction using ISCO to oxidize VOCs in groundwater in the two areas of higher VOC concentrations in the IR Site 27 plume. The ISCO process would be employed to destroy contaminants in groundwater. Previous ISCO work at Alameda Point used Fenton-like chemistry. This or similar chemical oxidizing reagents would be injected into groundwater to convert organic contaminants to water and carbon dioxide. Several sequential injection events might be performed. Specific reagents would be evaluated and identified in the remedial design stage.

MNA for Alternative 6A would be similar to Alternative 3 except that the duration is assumed to be 45 years, based on BIOCHLOR model simulations. ICs would be similar in scope to Alternative 3.

9.5 ALTERNATIVE 6B – FULL-SCALE ISCO TREATMENT AND GROUNDWATER CONFIRMATION SAMPLING

Alternative 6B would use ISCO to aggressively treat the entire 11-acre VOC-impacted groundwater plume to reduce VOC concentrations to achieve RGs. It is assumed that Alternative 6B would employ the same chemical oxidation process as in Alternative 6A. The process assumed for Alternative 6B would be employed across the entire plume. Several sequential injection events might be performed. If needed, subsequent hot spot injection events would also be performed.

Section 9 Description of Remedial Alternatives

The assumed duration for Alternative 6B is 3 years. This duration includes groundwater confirmation sampling to track the reduction in contaminant concentrations. Confirmation samples would also be analyzed for MNA parameters across the plume, including locations along or near the shoreline with Seaplane Lagoon.

ICs would be put in place to prohibit groundwater extraction at the site. These ICs would prohibit actions that would interfere with the remediation and confirmation sampling activities and would also prohibit residential and other sensitive land uses. The ICs would remain in place to maintain the integrity of the remedial action until remediation is complete and RGs have been achieved. Section 12.2.3 of this ROD provides additional information on ICs.

9.6 ALTERNATIVE 7 – DYNAMIC CIRCULATION SOURCE AREA TREATMENT, MNA, AND ICs

Alternative 7 uses an innovative source area treatment technology. Dynamic Subsurface Circulation well technology utilizes in-well air sparging, in-well air stripping, and soil vapor extraction. This combination of technologies creates circulation of treated groundwater outward from the treatment well through capillary fringe soil and returning into the well for treatment. It is assumed that ten 6-inch-diameter remediation wells and two remediation systems would be installed in the two areas of higher VOC concentrations in the IR Site 27 plume.

MNA for Alternative 7 would be similar to Alternative 3 except that the duration is assumed to be 55 years, based on BIOCHLOR model simulations. ICs would be similar in scope to Alternative 3.

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Section 10

COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES

This section summarizes results from the comparative analysis that was conducted to evaluate the relative performance of each remedial alternative in relation to the nine evaluation criteria outlined in CERCLA Section 121(b), as amended. The purpose of the comparative analysis was to identify the relative advantages and disadvantages of each remedial alternative. The evaluation criteria were based on requirements promulgated in the NCP. As stated in the NCP (40 C.F.R. § 300.430[f]), the evaluation criteria are arranged in a hierarchical manner that is then used to select a remedy for the site based on the following categories:

- Threshold criteria
 - Overall protection of human health and the environment
 - Compliance with applicable or relevant and appropriate requirements (ARARs)
- Primary balancing criteria
 - Long-term effectiveness and permanence
 - Reduction of toxicity, mobility, or volume through treatment
 - Short-term effectiveness
 - Implementability
 - Cost
- Modifying criteria
 - State acceptance
 - Community acceptance

Detailed discussions of the comparative analysis of the remedial alternatives for the nine evaluation criteria are presented in the FS Report (BEI 2006).

10.1 OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

Alternatives 3, 4A, 6A, 6B, and 7 meet the threshold criterion of overall protection of human health and the environment and provide a broad range of alternatives for consideration. Alternative 1 would not be fully protective of human health and the environment because plume stability would not be verified; therefore, Alternative 1 was not evaluated under the additional criteria.

10.2 COMPLIANCE WITH ARARs

Alternatives 3, 4A, 6A, 6B, and 7 meet the threshold criterion of compliance with ARARs.

10.3 LONG-TERM EFFECTIVENESS AND PERMANENCE

Alternatives 4A, 6A, and 6B all rated high in long-term effectiveness and permanence. These alternatives all could potentially shorten the IC time frame significantly and would result in permanent and long-term reductions in VOC concentrations. The ISB treatment of Alternative 4A is expected to take longer to reduce concentrations than the ISCO treatment of

Alternatives 6A and 6B. Most of the contamination in the ISCO treatment areas would be removed within months of *in situ* chemical treatment.

Alternative 7 received a rating of medium. Although this source area treatment would be expected to reduce VOC concentrations within 1 year of implementation, it is a relatively less proven technology than Alternatives 4A, 6A, and 6B. In addition, the treatment system associated with Alternative 7 would require a significant amount of operation and maintenance, which would not be required for Alternatives 4A, 6A, and 6B. Alternative 3 also received a rating of medium because the assumed 70-year duration would require implementation of ICs for a longer time period than durations assumed for Alternatives 4A, 6A, and 7. The assumed duration for Alternative 3 is also considerably longer than that assumed for Alternative 6B. In addition, the effectiveness of ICs in Alternative 3 would depend on continued adherence during the assumed 70-year duration.

Table 10-1 summarizes the results of the comparative analysis of the remedial alternatives for the long-term effectiveness and permanence criteria and other balancing criteria that was conducted during the FS.

10.4 REDUCTION OF TOXICITY, MOBILITY, OR VOLUME THROUGH TREATMENT

Alternative 6B rated highest in the reduction of toxicity, mobility, or volume through full-scale active treatment. Chemical reactions within the aquifer would permanently remove VOCs from groundwater within months, and VOCs such as DCE and vinyl chloride would be chemically destroyed. This alternative is also the only active treatment alternative that would treat the entire plume.

Alternatives 4A, 6A, and 7 received medium rankings in reduction of toxicity, mobility, or volume. These alternatives provide active treatment; however, they target a smaller mass of contaminants and smaller treatment areas. The processes by which VOC concentrations are reduced differ among the three alternatives. The ISCO process of Alternative 6A is expected to permanently destroy a significant mass of VOCs within months in the treatment areas. Alternative 4A should permanently degrade a significant mass of VOCs within the first 2 years under favorable conditions. Alternative 7 is expected to accomplish VOC reductions similar to Alternative 4A; however, Alternative 7 treatment would result in residual spent granular activated carbon that would need to be replaced and treated at an off-site carbon regeneration facility.

Alternative 3 rated lowest in reduction of toxicity, mobility, or volume through treatment. Although MNA provides a monitoring program for the natural attenuation under Alternative 3, no active treatment is provided.

10.5 SHORT-TERM EFFECTIVENESS

Alternative 3 received a rating of high in short-term effectiveness because it would have no short-term risks to the community and low impacts to workers, and because protection provided by ICs can be implemented readily. Alternatives 4A, 6A, and 6B received a rating of medium in short-term effectiveness. Alternative 4A has a slight risk to the community and workers due to the invasive work and injection of ISB product, and has a moderate time frame of approximately

Section 10 Comparative Analysis of Remedial Alternatives

2 years until concentrations are reduced significantly. Alternatives 6A and 6B (ISCO alternatives) have a very short reaction time and therefore concentrations would be reduced within a very short time frame. However, the risks to the community and workers from the process chemicals, while manageable, are higher than short-term risks associated with Alternative 4A. Transporting the process chemicals used for ISCO to the site would pose some short-term risks to the community, and the use of the chemicals in the ISCO process would pose some hazards to workers during implementation.

Alternative 7 received a rating of low in short-term effectiveness. Installation of the 10 remediation wells and two associated treatment system compounds would require the most invasive work of any alternative. Approximately 600 linear feet of trenching across paved areas of the site would be required. Air emissions associated with operation of the two remediation systems could pose some short-term risks to the community and hazards to site workers.

10.6 IMPLEMENTABILITY

The best alternatives from an implementability perspective are Alternatives 3, 4A, and 6A, which all scored high in implementability. Alternative 3 is easy to implement and has a means by which to monitor the effectiveness of natural attenuation processes. Alternatives 4A and 6A are both readily implemented with no anticipated difficulties regarding technical feasibility, reliability, or scheduling. Both the ISB and ISCO injection processes would be completed using conventional direct-push drilling equipment. ISCO has been implemented successfully at IR Sites 9 and 16 in Alameda Point. In addition, Alternatives 4A and 6A focus on the two treatment areas of the IR Site 27 VOC plume; therefore, they would be implemented on a smaller scale than Alternative 6B.

Alternative 7 rated medium in implementability. It would require extensive invasive work during installation of the 10 remediation wells and two treatment system compounds. However, the technologies required to construct the remediation systems for Alternative 7 (trenching, excavation, concrete forming, etc.) are readily available and technically feasible. The remediation wells may need to extend above grade, potentially causing traffic and well security concerns.

Alternative 6B rated low in implementability. This alternative assumes full-scale ISCO injections in approximately 570 locations throughout the IR Site 27 plume. This high number of injection locations reduces the technical feasibility of the alternative.

10.7 COST

For the cost criterion, a high ranking signifies lower comparative costs, and a low ranking signifies higher comparative costs. Alternatives 3 and 6A rated medium in cost. Alternatives 4A, 6B, and 7 rated low in cost. The estimated costs for the five retained active remedial alternatives are summarized in Table 10-2.

10.8 STATE ACCEPTANCE

The State of California concurred with the Navy's selected remedial alternative (Alternative 6B).

10.9 COMMUNITY ACCEPTANCE

The RAB selected Alternative 6B as the preferred remedial alternative for IR Site 27 during the December 1, 2005 RAB meeting. The IR Site 27 Proposed Plan (Navy 2006) was presented to the community on November 20, 2006, and discussed in a public meeting on December 12, 2006. The responsiveness summary portion of this ROD (Attachment C) addresses the public's comments and concerns about the selected remedy for IR Site 27. No verbal comments were received during the public meeting. Written comments are included in Attachment C. The comments received expressed general community acceptance with the Navy's selected remedial alternative (Alternative 6B).

**Table 10-1
Comparative Analysis of Remedial Alternatives Using Balancing Criteria**

Alternative	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, or Volume Through Treatment	Short-Term Effectiveness	Implementability	Cost*
	Parameters considered: <ul style="list-style-type: none"> residual risk at completion long-term management of remaining contaminants reliability of ECs/ICs need to replace components continuing repair/maintenance needs 	Parameters considered: <ul style="list-style-type: none"> treatment processes amount of hazardous material degree of reduction in toxicity, mobility, or volume degree of irreversibility treatment residuals 	Parameters considered: <ul style="list-style-type: none"> short-term risks to community impacts on workers environmental impacts time until protection is achieved 	Parameters considered: <ul style="list-style-type: none"> technical feasibility operational reliability future alternative remedial options ability to monitor effectiveness ability to obtain governmental approvals availability of services and materials 	Parameters considered: <ul style="list-style-type: none"> net present value relative capital costs O&M costs
Alternative 3 – MNA and ICs	Medium The assumed duration for ICs and the MNA program for this alternative (70 years) is longer than that assumed for Alternatives 4A, 6A, and 7, and would require a longer period of well maintenance/repair and management of ICs. The long-term effectiveness of ICs would depend on continued adherence.	Low Contaminant levels are reduced via natural attenuation processes. No active treatment is conducted under this alternative.	High There are no short-term risks associated with this alternative. The time to achieve protection is short because ICs can be implemented readily. Risks to the community should be minimal. Risks to workers during groundwater sampling would be mitigated with adherence to a health and safety plan.	High ICs are easy to implement. Groundwater sampling technology is proven. Monitoring results would track progress of MNA.	Medium Comparative present value costs associated with this alternative are lower than Alternatives 4A, 6A, 6B, and 7.
Alternative 4A – ISB source area treatment, MNA, and ICs	High ISB treatment is expected to reduce source area concentrations faster than passive alternatives. The assumed duration for ICs for this alternative (approximately 60 years) is longer than that assumed for Alternative 6A, and would require a longer period of well maintenance/repair and management of ICs.	Medium The ISB process should permanently destroy a significant mass of VOCs within the first 2 years under favorable conditions, resulting in innocuous end products. However, the plume is treated less aggressively than for Alternatives 6A and 6B.	Medium The ISB product would need to be transported to the site. However, implementation of this alternative is not likely to have adverse impacts on site workers, the surrounding community, or the environment. Source area treatment under this alternative would reduce VOC concentrations within approximately 2 years.	High ISB product injection is easy to implement at Alameda Point. Equipment for HRC injection is readily available. This alternative is more complex to implement than Alternative 3 due to design of an <i>in situ</i> treatment process, but soil types are generally uniform (primarily sands) in the treatment areas, so no difficulties are anticipated with implementation of this alternative.	Low Comparative present value costs associated with this alternative are comparable to Alternative 6B and 7. High present value cost compared to Alternatives 3 and 6A.
Alternative 6A – ISCO source area treatment, MNA, and ICs	High ISCO treatment is expected to reduce source area concentrations faster than Alternatives 3 and 4A. The assumed duration for ICs for this alternative (approximately 45 years) is shorter than that assumed for Alternatives 3 and 4A.	Medium The chemical oxidation process should permanently destroy a significant mass of VOCs within months in the treatment area, resulting in innocuous end products. However, less of the plume is aggressively treated than for Alternative 6B.	Medium ISCO would destroy the VOCs in the treatment areas more quickly with this alternative than Alternatives 3, 4A, or 7. However, the ISCO process poses some risks to site workers and the community. Approximately one truck per day of ISCO reagent would need to be delivered to the site during treatment.	High ISCO was recently implemented successfully at IR Sites 9 (adjacent to IR Site 27) and 16. No difficulties are anticipated with implementation of this alternative. This alternative is judged to be similar in implementability to Alternative 4A.	Medium Cost is comparable to Alternative 3; however, comparative cost is lower than Alternatives 4A, 6B, and 7.
Alternative 6B – full-scale ISCO treatment and groundwater confirmation sampling	High Most or all of the contamination would be eliminated within months; therefore, only a limited time frame (assumed total duration of 3 years) would be necessary for groundwater confirmation sampling to confirm that RGs have been reached.	High This full-scale chemical oxidation alternative should permanently destroy virtually all of the VOCs in groundwater within months, resulting in innocuous end products.	Medium ISCO would destroy most or all of the VOCs across the entire plume within months. However, the ISCO process poses some risks to site workers and the community. Approximately one truck per day of ISCO reagent would need to be delivered to the site during treatment.	Low This alternative is considered the least implementable due to the assumed number of injection points (570) required for full-scale ISCO treatment.	Low High present value cost compared to Alternatives 3 and 6A. Cost is comparable to Alternatives 4A and 7.
Alternative 7 – dynamic circulation source area treatment, MNA, and ICs	Medium This source area treatment alternative would be expected to reduce VOC concentrations in the source area within a year after implementation, but is relatively less proven than ISB and ISCO treatments. The assumed duration for ICs for this alternative (approximately 55 years) is shorter than that assumed for Alternatives 3 and 4A and would require a shorter period of well maintenance/repair and management of ICs.	Medium This alternative would accomplish VOC reductions similar to Alternative 4A. VOCs would be removed by SVE and carbon adsorption and destroyed at a carbon regeneration facility.	Low This alternative requires installation of 10 new remediation wells, two treatment compounds, and approximately 600 linear feet of trenching across paved areas of the site. Air emissions associated with operation of remediation systems could pose some risk to the community.	Medium Technologies required to implement this alternative (well installation, trenching, and remediation system construction) are readily available. Remediation wells may need to extend above grade, potentially causing traffic and well security concerns. The proprietary well design is available only from one vendor.	Low Highest comparative present value cost compared to other source area treatment alternatives.

Note:

* a low ranking under the cost criterion means present value costs are comparatively higher, and a high ranking means present value costs are comparatively lower

Acronyms/Abbreviations:

EC – engineering control
HRC – Hydrogen Release Compound
IC – institutional control
IR – Installation Restoration (Program)

ISB – *in situ* bioremediation
ISCO – *in situ* chemical oxidation
MNA – monitored natural attenuation
O&M – operation and maintenance

RG – remediation goal
SVE – soil vapor extraction
VOC – volatile organic compound

**Table 10-2
Summary of Cost Estimates for IR Site 27 Remedial Alternatives**

Alternative	Duration of Alternative	Remedial Design Cost	Capital Cost	O&M Cost	Total Cost	Net Present Value*
Alternative 3 – MNA and ICs	70 years	\$152,000	\$0	\$2,144,000	\$2,755,000	\$1,407,000
Alternative 4A – ISB source area treatment, MNA, and ICs	60 years	\$172,000	\$210,000	\$2,140,000	\$3,026,000	\$1,962,000
Alternative 6A – ISCO source area treatment, MNA, and ICs	45 years	\$172,000	\$289,000	\$1,390,000	\$2,221,000	\$1,532,000
Alternative 6B – full-scale ISCO treatment and groundwater confirmation sampling	3 years	\$200,000	\$1,247,000	\$294,000	\$2,089,000	\$2,050,000
Alternative 7 – dynamic circulation source area treatment, MNA, and ICs	55 years	\$272,000	\$356,000	\$1,902,000	\$3,036,000	\$2,082,000

Note:

* discount rate of 3.1 percent per year was used to calculate net present value; does not include 3-year post-remediation groundwater monitoring

Acronyms/Abbreviations:

IC – institutional control
 IR – Installation Restoration (Program)
 ISB – *in situ* bioremediation
 ISCO – *in situ* chemical oxidation
 MNA – monitored natural attenuation
 O&M – operation and maintenance

Section 11
PRINCIPAL THREAT WASTES

Principal threat wastes are source materials considered to be highly toxic, highly mobile, or those that would present a significant risk to human health or the environment should exposure occur. VOCs in groundwater at IR Site 27 are not considered principal threat wastes.

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Section 12

SELECTED REMEDY

Based on the RI Report (BEI 2005), FS Report (BEI 2006), information provided in the administrative record (Attachment A), and evaluation of all comments on the Proposed Plan (Navy 2006) submitted by interested parties during the public comment period, the Navy has selected no action for soil and Alternative 6B with ICs as the remedy for groundwater at the site. The selected remedy includes the following components:

- ISCO
- Groundwater confirmation sampling and sampling and analysis for MNA parameters
- ICs

The rationale, description, estimated costs, expected outcome, and performance objectives for the selected remedy are presented below.

12.1 SUMMARY OF THE RATIONALE FOR THE SELECTED REMEDY

The Navy, together with the BCT, has determined that soil at IR Site 27 does not pose an unacceptable risk to human health or the environment. Accordingly, no action is necessary for soil at the site.

Groundwater near the shoreline at IR Site 27 was found not to pose a risk to ecological receptors. Concentrations of VOCs in shoreline groundwater have attenuated to concentrations that approach or meet drinking water standards and meet all surface water criteria. However, the Navy has determined that groundwater at the site does pose a potential risk to human health from future residential use of groundwater at the site. Accordingly, remedial action is appropriate for groundwater at the site.

Alternative 6B with ICs was selected as the preferred remedy for groundwater at IR Site 27, in spite of its lower implementability, because it protects human health and the environment; complies with the ARARs; is effective over the long term and is a permanent solution; effectively reduces the toxicity, mobility, or volume of VOCs in groundwater through treatment; has the shortest duration for accomplishing the RGs (assumed duration of 3 years); and has the lowest total cost. The selected remedy addresses the groundwater plume at the site by applying ISCO treatment to reduce contaminant concentrations in groundwater to achieve the RGs.

During the RI, the following data gaps were identified at IR Site 27: no groundwater sampling has been conducted in and adjacent to a washdown area (WD-166 and related OWS) and no soil sampling for PCBs has been conducted at Building 555 (an electric substation). The data gap sampling will be addressed during the remedial design phase.

12.2 DESCRIPTION OF THE SELECTED REMEDY

The Navy has selected no action for soil and Alternative 6B with ICs as the remedy for groundwater. The following components of Alternative 6B with ICs are further

discussed below: ISCO, groundwater confirmation sampling, and ICs. Note that assumptions concerning the conceptual design of the remedy were made in order to develop cost estimates for comparison purposes. Actual detailed design considerations such as the total number of injection points, spacing, types of chemical reagents, and dosage rates would be determined during the detailed remedial design stage.

12.2.1 *In Situ* Chemical Oxidation

ISCO would be used to aggressively treat the groundwater plume (Figure 12-1) to reduce VOC concentrations. This alternative would employ a chemical oxidation process to convert organic contaminants to water and carbon dioxide. Previous ISCO work at Alameda Point has utilized Fenton-like chemistry, which is based on a dilute 12-percent stabilized hydrogen peroxide and a chelated iron catalyst (a mixture of a surfactant [similar to soap] and dissolved ferrous sulfate). This or similar oxidizing reagents would be used to convert organic contaminants to water and carbon dioxide.

For Alternative 6B with ICs, a 15-foot radius of influence at each ISCO injection location was assumed for costing purposes; therefore, Alternative 6B with ICs would employ an estimated 570 injection points. The assumed dose rate for ISCO was about 300 gallons per injection point to cover the area exhibiting chemical concentrations above applicable RGs. Measures to minimize possible plume migration during injection would be developed in the remedial design stage. The injections would be performed using direct-push drilling technology, and applied via gravity through temporary injection screens. It was assumed that the injections would focus on a 10-foot-thick treatment zone for ISCO. Performance of the process would be evaluated through groundwater confirmation sampling and analysis, and data evaluation. Several sequential injections and additional hot spot injection events were assumed to be conducted as necessary. During the remedial design stage, ISCO design parameters such as reagent dose rate and specific injection points would be finalized. Pilot-scale testing might also be conducted during the remedial design stage to assess effectiveness of different reagents, injection point spacing, and other design parameters for ISCO remediation.

12.2.2 Groundwater Confirmation Sampling Program

Groundwater confirmation sampling under Alternative 6B was assumed to be conducted for a total of 3 years (including the duration of the ISCO treatment). The 3-year monitoring period was assumed to be sufficient to document post-treatment VOC concentrations in groundwater and that RGs are met. The monitoring program was also assumed to utilize existing groundwater monitoring wells.

Groundwater sampling and analysis for MNA parameters are included in Alternative 6B over its expected duration. MNA parameters would be measured across the plume, including the shoreline portion, and may be employed where the groundwater concentrations approach the RGs, as illustrated on Figure 12-2. The remedial design will define the performance goals for MNA.

It was assumed that groundwater from existing monitoring wells would be sampled on the following schedule.

Section 12 Selected Remedy

- After ISCO treatment, groundwater confirmation sampling would be conducted every 2 months for 6 months. Both laboratory and field analyses would be conducted. Ferrous iron, conductivity, temperature, pH, oxidation-reduction potential, and dissolved oxygen would be measured using hand-held equipment. It was assumed that an off-site laboratory would analyze groundwater samples for VOCs, dissolved metals, and MNA parameters (dissolved gases, alkalinity, major anions, major cations, total organic carbon, and total dissolved solids).
- Monitoring from month 7 through year 2 would include quarterly monitoring events for VOCs, dissolved metals, and MNA parameters.
- Monitoring in year 3 would consist of one annual monitoring event at the end of year 3.

Annual monitoring reports would be prepared and submitted to the regulatory agencies for review.

Provided that the first year of postinjection groundwater confirmation sampling analytical results shows effective treatment, the Navy assumes that the U.S. EPA will provide an operating properly and successfully determination at that time.

12.2.3 Institutional Controls

ICs are legal and administrative mechanisms used to implement land-use and access restrictions to limit the exposure of current and future landowners or users of the property to hazardous substances and to maintain the integrity of the remedial action until remediation is complete and RGs have been achieved. Monitoring and inspections of the ICs are conducted to assure that the ICs are being implemented and are protective of human health and the environment as provided in the “Memorandum of Agreement (MOA) between the United States Department of the Navy and the California Department of Toxic Substances Control” (Navy and DTSC 2000) (this document is described as the “Navy/DTSC MOA”).

The Navy has determined that it will rely on proprietary controls in the form of lease restrictions contained in the “Lease in Furtherance of Conveyance (LIFO) between the United States of America and the Alameda Reuse and Redevelopment Authority for the Former Naval Air Station Alameda” (Navy and ARRA 2001). If the property is transferred to a nonfederal entity, restrictive covenants will be included in a “Covenant to Restrict Use of Property” entered into by the Navy and DTSC and in quitclaim deed(s) as provided in the Navy/DTSC MOA (Navy and DTSC 2000) and consistent with the substantive provisions of Title (tit.) 22 *California Code of Regulations* (Cal. Code Regs.) Section 67391.1.

More specifically, the land-use restrictions contained in the LIFO will serve as ICs between the time the ROD is signed and the date when the Navy transfers the property. Through the LIFO, the Navy will maintain conditions at IR Site 27 that are no less restrictive than the IC objectives and associated land-use restrictions for the remedial alternative chosen. The LIFO contains provisions that the Navy can use to prevent:

- changes in land use by requiring the lessee and sublessees to obtain written consent from the Navy before excavation, construction, alteration, or repairs of leased property can begin (Section 8.1 of the LIFO);
- the lessee from conducting operations that interfere with environmental restoration by the Navy, the U.S. EPA, state regulators, or their contractors, by requiring written approval for any work by lessee or sublessee in proximity to the site (Section 11 of the LIFO); and
- the lessee or sublessee from any excavation, digging, drilling, or other disturbance of the subsurface without written approval of the Navy (Section 13.11 of the LIFO).

When the property is transferred, IC objectives to be achieved through land-use restrictions for this site will be incorporated into the following legal mechanisms.

1. If the property is transferred, restrictive covenants would be included in one or more quitclaim deeds from the Navy to the property recipient.
2. Restrictive covenants included in a Covenant to Restrict Use of Property¹ entered into by the Navy and DTSC, as provided in the MOA (Navy and DTSC 2000) and consistent with the substantive provisions of Cal. Code Regs. tit. 22, § 67391.

The Covenant to Restrict Use of Property would incorporate the ICs into environmental restrictive covenants that run with the land and that are enforceable by DTSC and the Navy against future transferees. The quitclaim deeds would include the identical ICs in environmental restrictive covenants that run with the land and that would be enforceable by the Navy against future transferees.

ICs would be applied to the property and included in findings of suitability to transfer, findings of suitability for early transfer, the Covenant to Restrict Use of Property between the Navy and DTSC, and any quitclaim deeds conveying real property containing IR Site 27, as necessary.

The IC objectives listed below would be achieved through land-use restrictions for IR Site 27.

- The IR Site 27 area subject to ICs shall not be used for any of the following purposes unless otherwise approved by the Navy and FFA signatories or until RGs have been achieved:
 - a. a residence, including any mobile home or factory built housing, constructed or installed for use as residential human habitation
 - b. a hospital for humans
 - c. a school for persons under 21 years of age

¹ See "Memorandum of Agreement between the United States Department of the Navy and the California Department of Toxic Substances Control, Use of Model 'Covenant to Restrict Use of Property' at Installations Being Closed and Transferred by the United States Department of the Navy," dated March 10, 2000.

Section 12 Selected Remedy

- d. a day care facility for children
- e. any permanently occupied human habitation other than those used for commercial or industrial purposes
- Prohibit the installation of new groundwater wells of any type without prior review and written approval from the Navy, U.S. EPA, DTSC, and Water Board until RGs have been achieved.
- Prohibit the domestic use of groundwater until RGs have been achieved.
- Prohibit the alteration, disturbance, or removal of groundwater monitoring wells, groundwater extraction wells, treatment facilities, and associated equipment without prior review and written approval from the Navy, U.S. EPA, DTSC, and Water Board.
- Prohibit the removal of or damage to security features (such as locks on monitoring wells, survey monuments, signs or monitoring equipment, and associated pipelines and appurtenances) without prior written approval by the Navy.

If the property is transferred to a federal department or agency, the IC objectives set forth above will be incorporated into a MOA or similar agreement.

ICs will remain in place until the following RGs have been achieved (anticipated to be approximately 3 years from the date of commencement of the selected remedial action):

- 1,1-DCA: 5 µg/L
- cis-1,2-DCE: 6 µg/L
- trans-1,2-DCE: 10 µg/L
- PCE: 5 µg/L
- TCE: 5 µg/L
- vinyl chloride: 0.5 µg/L

The Navy and FFA signatories and their authorized agents, employees, contractors, and subcontractors will have the right to enter upon IR Site 27 and Alameda Point to conduct investigations, tests, or surveys; inspect field activities; or construct, operate, and maintain any remedial action as required or necessary under the cleanup program, including but not limited to monitoring wells, pumping wells, treatment facilities, and landfill cap/containment systems. These access restrictions will be included in the deed and covenant.

The Navy shall address IC implementation and maintenance actions, including periodic inspections, in the preliminary and final remedial design reports to be developed and submitted to the FFA signatories for review pursuant to the FFA (see "Navy Principles and Procedures for Specifying, Monitoring and Enforcement of Land Use Controls and Other Post-ROD Actions," attached to the DOD Memorandum entitled "Comprehensive Environmental Response, Compensation and Liability Act [CERCLA] Record of Decision [ROD] and Post-ROD Policy" [DOD 2004]). The preliminary and final remedial design reports are primary documents as provided in Section 10.3 of the FFA.

The preliminary and final remedial design reports will include a section describing IC implementation actions including:

- requirements for CERCLA 5-year remedy review;
- frequency and requirements for periodic monitoring or visual inspections;
- reporting for monitoring and inspections;
- notification procedures to the regulatory agencies for planned property conveyance, changes, and/or corrective action required for the remedy;
- development of wording for land-use restrictions and parties to be provided copies of the deed language once executed;
- identification of responsibilities for the Navy, U.S. EPA, DTSC, Water Board, other government agencies, and the new property owner for implementing , monitoring, reporting, and enforcing ICs;
- a list of ICs with the expected duration; and
- maps identifying where ICs are to be implemented.

The Navy will be responsible for implementing, maintaining, inspecting, reporting, and enforcing the ICs described in the ROD in accordance with the approved remedial design reports. Although the Navy may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or other means, the Navy shall retain ultimate responsibility for remedy integrity. Should any of the ICs fail, the Navy shall ensure that appropriate actions are taken to reestablish protectiveness of the remedy and may initiate legal action to either compel action by a third party(ies) and/or recover the Navy's costs for mitigating any discovered IC violation(s).

12.3 ESTIMATED COSTS

No costs are associated with no action for soil and Alternative 6B is estimated to cost approximately \$2,089,000, with a present value cost of \$2,050,000 (Table 12-1) based on 2005 dollars. This cost estimate includes capital costs and operation and maintenance costs. The information in Table 12-1 is based on the anticipated scope of the remedial alternative, as documented in the FS Report (BEI 2006). Changes in the cost elements are likely as a result of new information and data collected during the remedial design phase. Major changes to this cost estimate may be documented in the form of a memorandum in the administrative record file, an Explanation of Significant Differences, or a ROD amendment (U.S. EPA 1999c). The order-of-magnitude engineering cost estimate is expected to be within +50 to -30 percent of the actual project costs for the remedial design and remedial action phases of site cleanup (U.S. EPA 1988c).

12.4 EXPECTED OUTCOMES OF THE SELECTED REMEDY

It is expected that the selected remedy would permanently treat VOC-affected groundwater at IR Site 27 within 3 years. Groundwater confirmation sampling during and after ISCO treatment would be used to assess treatment effectiveness. The expected outcome of the selected remedy is the restoration of the shallow groundwater quality at

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the site to levels that no longer pose a threat to human health, thereby allowing for the transfer of the site to the City of Alameda for redevelopment.

The remedy selected for IR Site 27 involves a treatment train composed of two components (ISCO and groundwater confirmation sampling) that will be implemented sequentially and supplemented by ICs. Figure 12-2 illustrates the decision logic for implementing the selected remedy. The treatment system will be operated and optimized as necessary to meet performance objectives that will be based on the RAOs and RGs presented in this ROD. In addition, the performance objectives will include detailed criteria (to be developed during the remedial design) to allow for periodic evaluations of each treatment system and to determine whether the system is operating effectively or whether to discontinue operation of the system. The Navy will periodically report the results of the system evaluation to the regulatory agencies during implementation of the selected remedial alternative.

The performance objectives for the selected remedy include the following:

- **Mass reduction of each COC** – Reductions in the mass of the COCs in the aquifer will be estimated based on the concentrations of the COCs in the performance monitoring data. The data will be compared with the predicted mass of the COCs in the aquifer when the RGs have been achieved. In addition, fate and transport modeling may be used to evaluate the threat to human health.
- **Asymptotic mass removal** – The continued efficiency of operating any active remedial component of the selected remedy will be evaluated to determine if removal rates are approaching an asymptote. Asymptotic conditions occur when the slope of the cumulative mass removed curve approaches zero over time. In addition, rebound of COC concentrations will be evaluated during shutdowns.
- **Cost-effectiveness** – The operation of any phase of active remediation will continue as long as it is cost-effective. Cost-effectiveness for a treatment alternative (measured as cost per unit mass removed) will be calculated based on the operating costs for the treatment and the mass of removed contaminants.

Detailed performance criteria will be established during the remedial design phase in collaboration with the regulatory agencies to allow the Navy to determine whether each of the performance objectives is being met during the implementation of the selected remedy. If necessary, the Navy will collect additional information during the remedial design phase to finalize the development of the groundwater monitoring network and design the treatment system. The information collected during the remedial design phase may include the following:

- hydrogeological conditions of the impacted aquifer, including stratigraphy, hydraulic and physical properties of the aquifer, groundwater recharge, hydraulic gradients, and depth to groundwater
- lateral and vertical extent of the COCs

- estimates of COC mass in the aquifer
- temporal trends in concentrations of the COCs
- potential for aquifer to support natural attenuation, including microbial populations, nutrient status, and decay potential of the COCs
- delivery of agents used in ISCO treatment
- locations of monitoring wells
- data gap investigation

The Navy will coordinate the planning and collection of information during the remedial design phase with the regulatory agencies.

During the remedial design phase, the existing groundwater monitoring network will be evaluated to ensure it is adequate to monitor plume migration and effectiveness of the selected remedy. Necessary changes will be recommended at that time. The selected remedy proposes to use ISCO treatment as an active component that will be followed sequentially by groundwater confirmation sampling, including the measurement of MNA parameters, to evaluate the effectiveness of the ISCO treatment. The transition from ISCO to groundwater confirmation sampling will be based on decisions that will follow after each injection of chemical reagent during ISCO treatment. After the initial injection of chemical reagent and an appropriate amount of time to allow the groundwater to reach a steady state, concentrations of the COCs in performance monitoring data will be used to evaluate the operation of the ISCO treatment system. The evaluation will assess whether performance objectives have been achieved, such as whether there is significant rebound in concentrations of the COCs, if asymptotic rates of removal are occurring, and if it is cost-effective to continue using the ISCO treatment.

As the cumulative removal of COC mass over time approaches an asymptotic state, the cost-effectiveness of using ISCO will diminish. The Navy intends to use ISCO only as long as it is cost-effective. During the remedial design phase, the Navy, in collaboration with the regulatory agencies, will develop the specific details to define allowable rebound, asymptotic rates of removal, and cost-effectiveness.

Following implementation of the selected remedy, the Navy, in collaboration with the regulatory agencies, will determine if the performance objectives (including the RAOs and RGs) have been achieved. If it is determined that the RAOs and RGs have not been achieved and that the selected remedy is no longer operating cost-effectively, the Navy will analyze the performance of the remedy and the restoration time-frame to evaluate the practicability of continued groundwater restoration. This performance analysis may include the following:

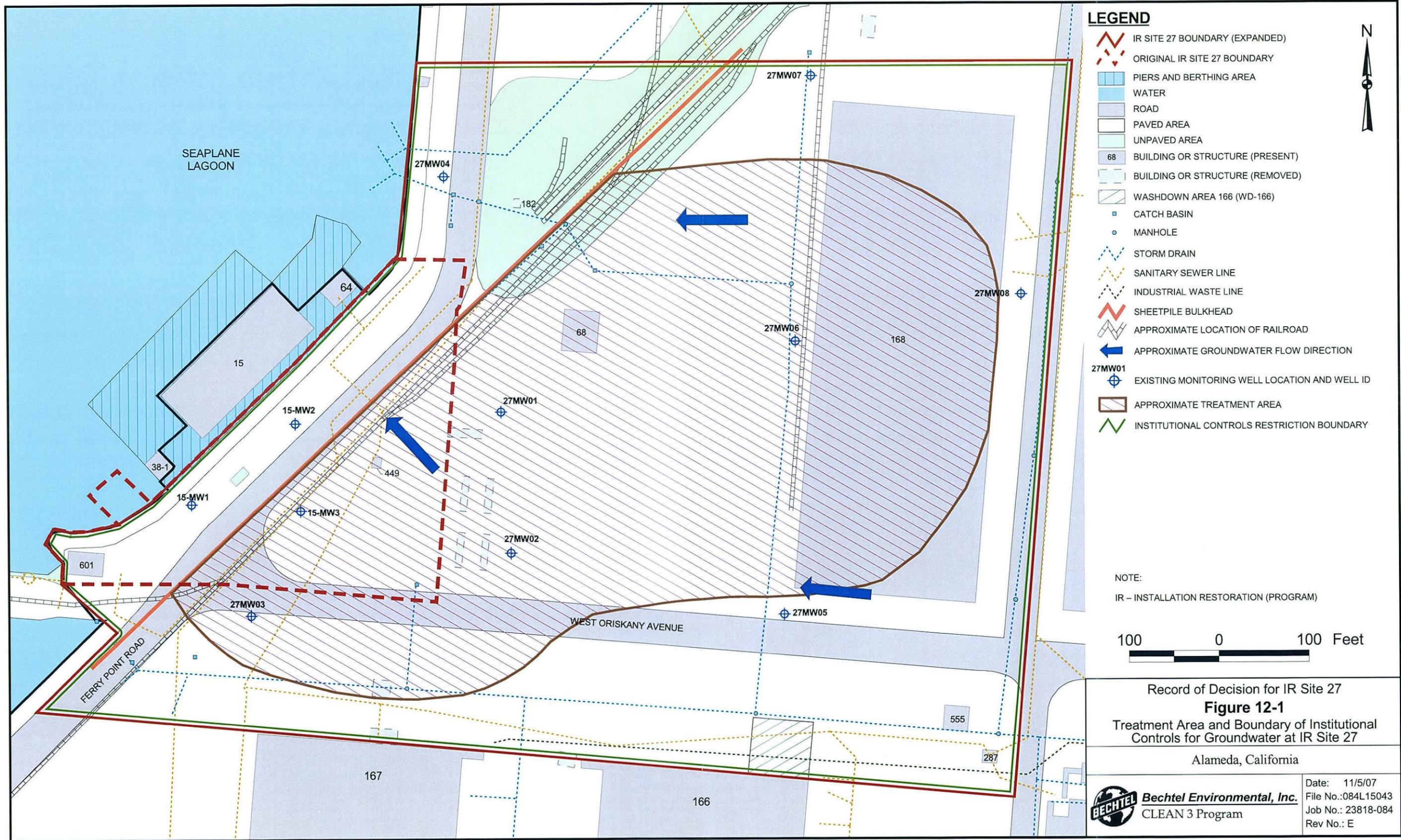
- collection and review of data and information on source removal or containment
- review of groundwater data collected from locations inside and outside the plume to evaluate mass reduction, plume migration or containment, and effectiveness of MNA

Section 12 Selected Remedy

- review of operations history of the ISCO treatment system
- estimation of a projected time frame for achieving the RGs by continuing the selected remedy
- estimation of cost to continue the selected remedy
- analysis of another remedial alternative that may be more cost-effective than the selected remedy
- analysis of whether further remedial actions are necessary to protect human health and the environment

The Navy, in collaboration with the regulatory agencies, will develop an explanation of significant differences or a ROD amendment if the groundwater confirmation sampling and analysis show that it is still practicable to continue groundwater restoration and further remedial actions represent a significant change in the ability of the remedy to achieve mass reduction for IR Site 27. If it is determined that it is not practicable to continue groundwater restoration, the Navy, in collaboration with the regulatory agencies, will develop alternative remedial strategies that meet the RAOs. This decision will be made in accordance with U.S. EPA's "Guidance for Evaluating the Technical Impracticability of Groundwater Restoration" (U.S. EPA 1993).

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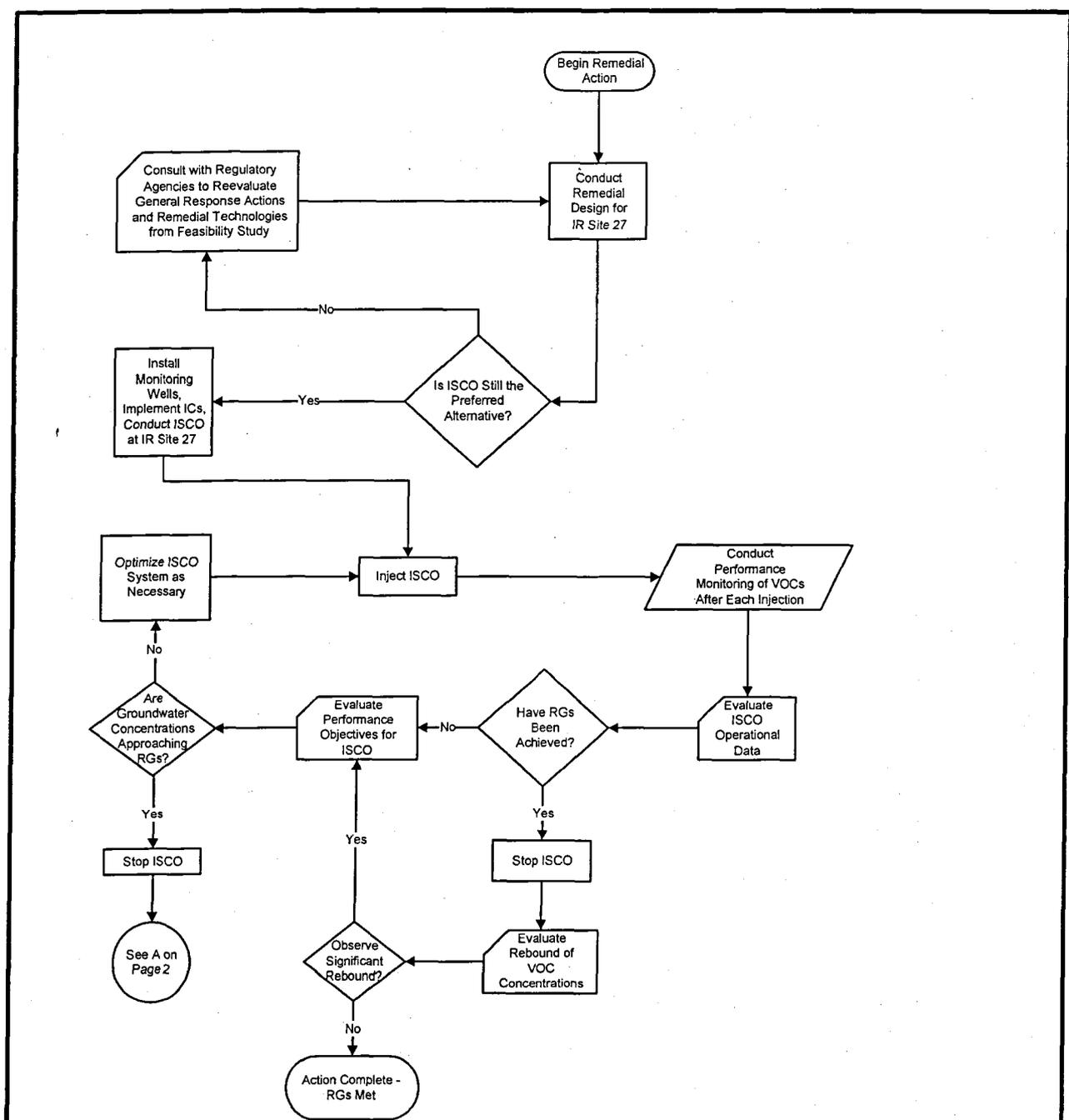
- LEGEND**
- IR SITE 27 BOUNDARY (EXPANDED)
 - ORIGINAL IR SITE 27 BOUNDARY
 - PIERS AND BERTHING AREA
 - WATER
 - ROAD
 - PAVED AREA
 - UNPAVED AREA
 - BUILDING OR STRUCTURE (PRESENT)
 - BUILDING OR STRUCTURE (REMOVED)
 - WASHDOWN AREA 166 (WD-166)
 - CATCH BASIN
 - MANHOLE
 - STORM DRAIN
 - SANITARY SEWER LINE
 - INDUSTRIAL WASTE LINE
 - SHEETPILE BULKHEAD
 - APPROXIMATE LOCATION OF RAILROAD
 - APPROXIMATE GROUNDWATER FLOW DIRECTION
 - 27MW01 EXISTING MONITORING WELL LOCATION AND WELL ID
 - APPROXIMATE TREATMENT AREA
 - INSTITUTIONAL CONTROLS RESTRICTION BOUNDARY

NOTE:
 IR – INSTALLATION RESTORATION (PROGRAM)

100 0 100 Feet

Record of Decision for IR Site 27
Figure 12-1
 Treatment Area and Boundary of Institutional Controls for Groundwater at IR Site 27
 Alameda, California

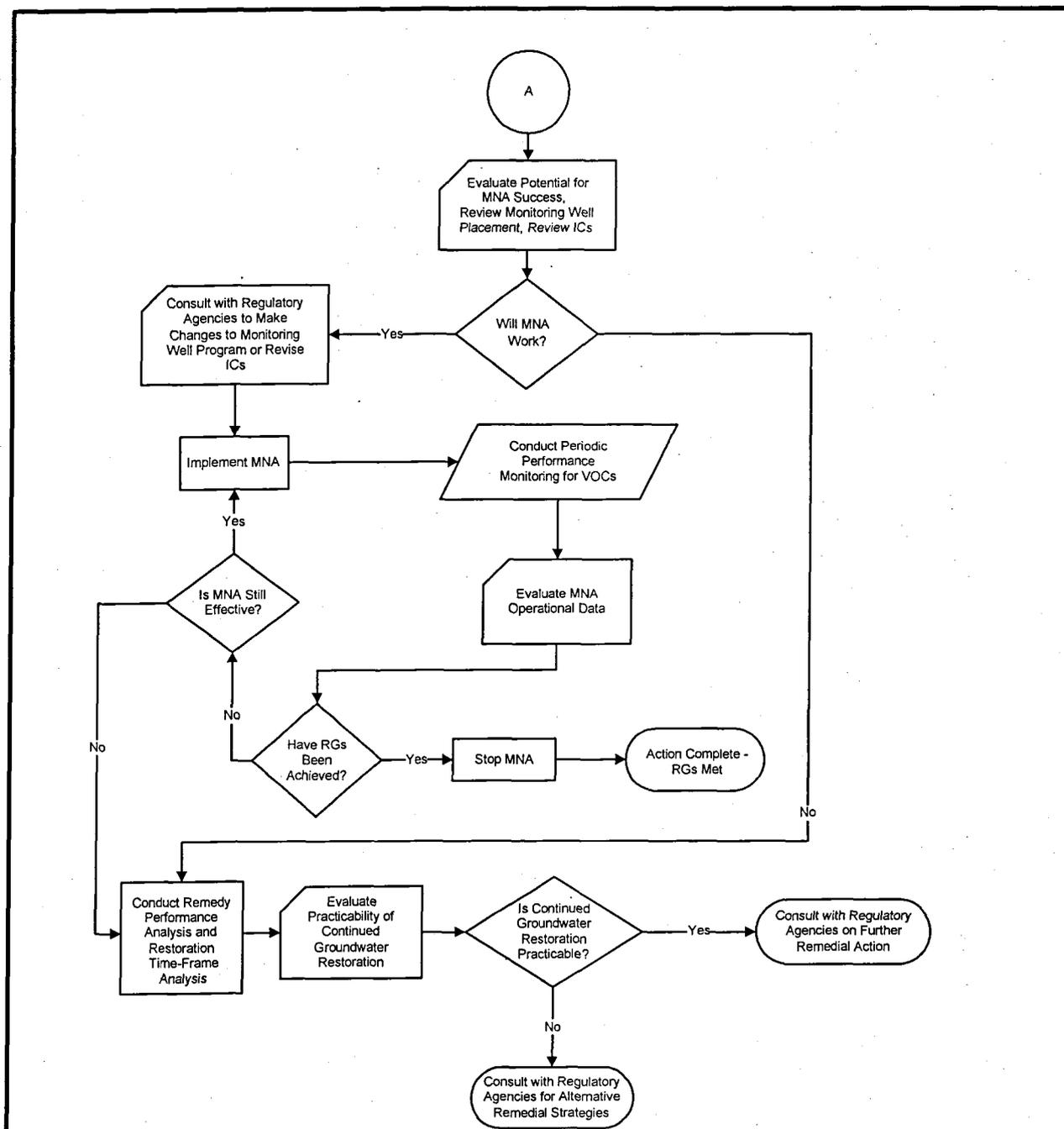
	Bechtel Environmental, Inc.	Date: 11/5/07
	CLEAN 3 Program	File No.: 084L15043
		Job No.: 23818-084
		Rev No.: E



NOTES:

IC - INSTITUTIONAL CONTROL
 ISCO - IN SITU CHEMICAL OXIDATION
 MNA - MONITORED NATURAL ATTENUATION
 RG - REMEDIATION GOAL
 VOC - VOLATILE ORGANIC COMPOUND

Record of Decision for IR Site 27 Figure 12-2 Remedy Implementation Page 1 of 2	
Alameda, California	
 Bechtel Environmental, Inc. CLEAN 3 Program	Date: 03/27/07 File No.: fig12-2.doc Job No.: 23818-084 Rev No.: C



NOTES:

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 Bechtel Environmental, Inc. CLEAN 3 Program	Date: 03/27/07 File No.: fg12-2.doc Job No.: 23818-084 Rev No.: C

Table 12-1
Cost Estimate Summary for
Alternative 6B – Full-Scale ISCO Treatment and Groundwater Confirmation Sampling

Description	Cost (dollars)
Remedial design costs^a	
Remedial design	200,000
Total remedial design costs (based on 2005 dollars)	200,000
Capital costs^a	
ISCO treatment	1,247,000
Total capital costs (based on 2005 dollars)	1,247,000
O&M costs^a	
Groundwater confirmation sampling (3 years)	234,000
Annual report	10,000
Closeout report	50,000
Total O&M costs (based on 2005 dollars)	294,000
Contingency (20 percent)	348,000
TOTAL COST	2,089,000
COMPARATIVE PRESENT VALUE COST (based on 2005 dollars)^b	2,050,000

Notes:

^a includes indirect costs (overhead, profit)

^b discount rate of 3.1 percent per year was used to calculate present value

Acronyms/Abbreviations:

ISCO – *in situ* chemical oxidation

O&M – operation and maintenance

Section 13

STATUTORY DETERMINATIONS

The Navy's primary responsibility with regard to CERCLA is to undertake remedial actions that achieve the statutory requirements for adequate protection of human health and the environment. The selected remedy is protective of human health and the environment and will obviate the need for and satisfy the corrective action requirements of the RCRA and otherwise applicable state hazardous-waste and water-quality-protection laws. In addition, CERCLA Section 121 establishes several statutory requirements and preferences, including the requirement that remedial actions comply with ARARs established under federal and state laws, unless a waiver is justified. The selected remedy also must be cost-effective and use permanent solutions and alternative treatment technologies to the maximum extent practicable. Finally, the statute includes a preference for remedies that, as their principal element, permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances. The following sections discuss how the selected remedy meets these statutory requirements and preferences. Complete discussions are found in the FS Report for IR Site 27 (BEI 2006).

13.1 PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

The selected remedy, Alternative 6B with ICs, protects human health and the environment by chemically destroying VOCs across the entire area of the groundwater plume by ISCO treatment. Groundwater at IR Site 27 is not presently used as a drinking water source. Groundwater confirmation sampling would verify treatment effectiveness. The assumed duration for Alternative 6B with ICs is 3 years.

13.2 COMPLIANCE WITH ARARs

The selected remedial action will comply with the substantive provisions of the federal and state requirements identified as ARARs. The chemical-, location-, and action-specific ARARs for the remedy selected in this ROD are summarized in Tables 13-1 through 13-6 and discussed below.

13.2.1 Chemical-Specific ARARs

Chemical-specific ARARs are generally health- or risk-based numerical values or methodologies that, when applied to site-specific conditions, establish the acceptable amount or concentration of a chemical that may be found in, or discharged to, the ambient environment. As summarized in Tables 13-1 and 13-2, the federal and state chemical-specific ARARs for remediation of IR Site 27 groundwater include the substantive provisions of the following:

- federal MCLs for PCE and TCE in drinking water, as promulgated by U.S. EPA under the Safe Drinking Water Act (SDWA) at 40 C.F.R. § 141.61(a)

- state primary MCLs for cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, and 1,1-DCA at Cal. Code Regs. tit. 22, § 64444
- RCRA waste definition standards in Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), 66261.100 for identifying hazardous waste
- RCRA groundwater protection standards in Cal. Code Regs. tit. 22 § 66264.94(a)(1), (a)(3), (c), (d), and (e) for identifying concentration limits
- Non-RCRA, state-regulated waste definition requirements in Cal. Code Regs. tit. 22, § 66261.22(a)(3) and (4), § 66261.24(a)(2)–(a)(8), § 66261.101, § 66261.3(a)(2)(C), or § 66261.3(a)(2)(F)
- California Water Code §§ 13241, 13243, 13263(a), 13269, and 13360 of the Porter-Cologne Water Quality Control Act as enabling legislation as implemented through the beneficial uses, water quality objectives (WQOs), promulgated policies of the Basin Plan for the San Francisco Basin, State Water Resources Control Board (SWRCB) Resolution (Res.) 88-63, and state primary MCLs
- Comprehensive Water Quality Control Plan for the San Francisco Bay Basin (California Water Code § 13240), Chapter 2, Beneficial Uses, and Chapter 3, WQOs
- SWRCB Res. 88-63

One of the significant issues in identifying ARARs for groundwater under the SDWA and RCRA is whether the groundwater at the site can be classified as a source of drinking water. As discussed in Section 5.2, groundwater beneath IR Site 27 is designated as a potential drinking water source, but is not presently used as a drinking water source. Drinking water is supplied to Alameda Point by the East Bay Municipal Utilities District.

Federal MCLs and MCLGs developed by the U.S. EPA under the SDWA are generally considered relevant and appropriate requirements for aquifers that are current or potential sources of drinking water, and therefore are federal ARARs. The point of contact for MCLs and MCLGs under the SDWA is at the tap. Therefore, the MCLs and MCLGs are not applicable ARARs for Navy sites. However, MCLs and MCLGs are considered relevant and appropriate for IR Site 27 because groundwater at the site is designated as a current or potential drinking water source.

It is the Navy's position that SWRCB Res. 68-16 (Statement of Policy With Respect to Maintaining High Quality of Waters in California) and Res. 92-49 (Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under California Water Code § 13304) do not constitute chemical-specific ARARs for this response action because they are state requirements and are not more stringent than federal ARAR provisions of Cal. Code Regs. tit. 22, § 66264.94.

Section 13 Statutory Determinations

The Navy's Position Regarding SWRCB Resolutions 92-49 and 68-16

The Navy and the State of California have not agreed whether the SWRCB Res. 92-49 and Res. 68-16 are ARARs for the remedial action at IR Site 27. Therefore, this ROD documents each party's position but does not attempt to resolve the issue.

The Navy recognizes that the key substantive requirements of Cal. Code Regs. tit. 22, § 66264.94 (and the identical requirements of Cal. Code Regs. tit. 23, § 2550.4 and Section III.G of SWRCB Res. 92-49) require cleanup of constituents to background levels unless that is technologically or economically infeasible and an alternative cleanup level will not pose a substantial present or potential hazard to human health or the environment. In addition, the Navy recognizes that these provisions are more stringent than the corresponding provisions of 40 C.F.R. § 264.94 and, although they are federally enforceable under RCRA, they are also independently based on state law to the extent that they are more stringent than the federal regulations.

The Navy has also determined that SWRCB Res. 68-16 is not a chemical-specific ARAR for determining remedial action goals, but it is an action-specific ARAR for regulating discharged treated groundwater to surface water. The Navy has determined that further migration of VOCs through groundwater is not a discharge governed by the language in Res. 68-16. More specifically, the language of SWRCB Res. 68-16 indicates that it is prospective in intent, applying to new discharges in order to maintain existing high-quality waters. It is not intended to apply to restoration of waters that are already degraded.

The Navy's position is that SWRCB Res. 68-16 and Res. 92-49 and Cal. Code Regs. tit. 23, § 2550.4 do not constitute chemical-specific ARARs for this remedial action because they are state requirements and are not more stringent than the federal ARARs provisions of Cal. Code Regs. tit. 22, § 66264.94. The NCP set forth in 40 C.F.R. § 300.400(g) provides that only state standards more stringent than federal standards may be ARARs (see also CERCLA § 121[d][2][A][ii]).

The substantive technical standard in the equivalent state requirements (i.e., Cal. Code Regs. tit. 23, Division (div.) 3, Chapter (ch.) 15 and SWRCB Res. 92-49 and Res. 68-16) is identical to the substantive technical standard in Cal. Code Regs. tit. 22, § 66264.94. This section of Cal. Code Regs. tit. 22 will likely be applied in a manner consistent with equivalent provisions of other regulations, including SWRCB Res. 92-49 and Res. 68-16.

State of California's Position Regarding SWRCB Resolutions 92-49 and 68-16

The state does not agree with the Navy determination that SWRCB Res. 92-49 and Res. 68-16 and certain provisions Cal. Code Regs. tit. 23, div. 3, ch. 15 are not ARARs for this response action. SWRCB has interpreted the term "discharges" in the California Water Code to include the movement of waste from soils to groundwater and from contaminated to uncontaminated water (SWRCB 1994). However, the state agrees that the proposed action would comply with SWRCB Res. 92-49 and Res. 68-16, and compliance with Cal. Code Regs. tit. 22 provisions should result in compliance with Cal. Code Regs. tit. 23 provisions. The state does not intend to dispute the ROD, but reserves its rights if implementation of the Cal. Code Regs. tit. 22 provisions is not as stringent as

state implementation of Cal. Code Regs. tit. 23 provisions. Because the Cal. Code Regs. tit. 22 regulation is part of the state's authorized hazardous waste control program, it is also the state's position that Cal. Code Regs. tit. 22, § 66264.94 is a state ARAR and not a federal ARAR (*United States v. State of Colorado*, 990 F.2d 1565 [1993]).

Whereas the Navy and the State of California have not agreed on whether SWRCB Res. 92-49 and Res. 68-16 and Cal. Code Regs. tit. 23, § 2550.4 are ARARs for this response action, this ROD documents each of the parties' positions on the resolutions but does not attempt to resolve the issue.

There are no naturally occurring streams, rivers, ponds, lakes, or other surface water bodies within the boundaries of IR Site 27. The site borders Seaplane Lagoon, which is being investigated as part of IR Site 17. Groundwater near the shoreline at IR Site 27 is in contact with surface water, and groundwater beneath the site generally flows toward Seaplane Lagoon. Therefore, surface-water requirements were identified to assist in developing cleanup goals for IR Site 27.

The substantive provisions of the following federal and state chemical-specific requirements were identified as ARARs for surface water:

- water quality standards in the National Toxics Rule and CTR at 40 C.F.R. § 131.36(b) and 131.38
- effluent limitations that meet technology-based requirements at 33 U.S.C., ch. 26, § 1311(b)(2)
- Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, § 1.3 and 1.4

13.2.2 Location-Specific ARARs

Location-specific ARARs are restrictions on the concentrations of hazardous substances or on conducting activities solely because they are in specific locations. For IR Site 27, the following categories of location-specific resources were evaluated: cultural resources; wetlands protection, floodplain management, and hydrologic resources; biological resources; coastal resources; and geologic characteristics. Tables 13-3 and 13-4 summarize the federal and state location-specific ARARs for remediation of IR Site 27 groundwater, based on the ARARs evaluation performed as part of the FS. The conclusions for location-specific ARARs pertaining to these resources are as follows.

- No archaeological or historical data have been identified at IR Site 27. Therefore, no cultural resources ARARs were identified.
- IR Site 27 is not located in a wetland or floodplain. Although a runway wetland area exists to the west of IR Site 27, it is located approximately 3,000 feet from the site, across Seaplane Lagoon. Remedial actions at IR Site 27 would not affect the wetland area. With regard to floodplains, there are no naturally occurring streams or ponds at Alameda Point. Therefore, no wetlands protection or floodplain management ARARs were identified.

Section 13 Statutory Determinations

- IR Site 27 contains no designated hydrologic resources, nor would the IR Site 27 remedial actions affect any such resource. Therefore, no hydrologic resources ARARs were identified.
- The Migratory Bird Treaty Act of 1972 (16 U.S.C. §§ 703–712) is a biological resource “relevant and appropriate” ARAR for the remedial actions at IR Site 27 because there is the potential for listed birds to land on the site.
- IR Site 27 is adjacent to the Seaplane Lagoon, which is contiguous with San Francisco Bay. The Coastal Zone Management Act (16 U.S.C. §§ 1451–1464, 15 C.F.R. § 930) is a “relevant and appropriate” ARAR.
- There are no known faults directly at or in the vicinity of IR Site 27. The nearest active fault is the Hayward Fault, which is approximately 5 miles east of Alameda Point. Therefore, no geologic characteristics ARARs were identified.
- The McAteer-Petris Act at California Government Code §§ 66600–66661 and the San Francisco Bay Plan at Cal. Code Regs. tit. 14, §§ 10110–11990 are “relevant and appropriate” requirements that regulate activities that affect the San Francisco Bay.

13.2.3 Action-Specific ARARs

Action-specific ARARs are technology- or activity-based requirements or limitations for remedial activities. These requirements are triggered by the particular remedial actions conducted at the site. Federal and state action-specific ARARs for the selected remedy (Alternative 6B with ICs) are discussed below and summarized in Tables 13-5 and 13-6.

***In Situ* Chemical Oxidation.** The Safe Drinking Water Act Underground Injection Control Program regulations are at 40 C.F.R. Part 144. The injection wells for this alternative would be considered Class V wells under these regulations. The substantive provisions of 40 C.F.R. §§ 144.12 (a) and § 144.82 (a)(1) are potentially applicable for the injection of treatment chemicals for this alternative. Section 144.12 (a) prohibits injections that allow movement of fluids containing contaminants into underground sources of drinking water in violation of primary drinking water standards or that could adversely affect human health. Section 144.82 (a)(1) states that the injection cannot allow the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of the primary drinking water standards under 40 C.F.R. Part 141, other health-based standards, or may adversely affect the health of persons. The injection of treatment chemicals under this alternative is not expected to result in a violation of primary drinking water standards or to adversely affect human health. The treatment chemicals will treat VOCs and reduce the threat to water quality and human health.

The direct-push injection of the ISCO treatment chemicals is expected to generate some decontamination water and debris. These wastes will be handled in accordance with substantive provisions of Cal. Code Regs. tit. 22, §§ 66262.34 and 66264.171–178 regulations as ARARs until test results indicate that the waste is not hazardous.

Groundwater Monitoring. For CERCLA sites where it has already been determined that a remediation decision on contaminated groundwater must be made, the guidance is clear that only the substantive requirements of the corrective action program under RCRA are ARARs and not the detection or evaluation monitoring requirements (U.S. EPA 1988b). Cal. Code Regs. tit. 22, § 66264.100(d) requires that a water quality monitoring program be established to demonstrate the effectiveness of a corrective action program. The groundwater at IR Site 27 is not a potentially hazardous waste. However, the groundwater contaminants have been determined to be similar enough to hazardous waste constituents that the substantive RCRA corrective action groundwater monitoring provisions have been evaluated as relevant and appropriate ARARs. Therefore, the substantive provisions of Cal. Code Regs. tit. 22, § 66264.100(d) have been determined to be relevant and appropriate ARARs for IR Site 27. The substantive provisions of the general monitoring system requirements at Cal. Code Regs. tit. 22, § 66264.97(b)(1)(A), (b)(1)(D)(1) and (2), (b)(4-7), (e)(6), (12)(A) and (12)(B), (13), and (15) have also been identified as relevant and appropriate requirements for the monitoring at IR Site 27. Constituents of concern will be identified in accordance with relevant and appropriate provisions of Cal. Code Regs. tit. 22, § 66264.93. Monitoring will continue for an assumed duration of 3 years until the groundwater is demonstrated to be in compliance in accordance with relevant and appropriate provisions of Cal. Code Regs. tit. 22, § 66264.90(c)(1) and (c)(2), Cal. Code Regs. tit. 22, § 66264.100(g)(1), and Cal. Code Regs. tit. 27, § 20430(g)(1) and (2).

Identification and Management of Solid and Hazardous Wastes. Substantive RCRA requirements for identification and management of solid and hazardous wastes are federal action-specific ARARs. Water generated in the course of monitoring groundwater would be subject to RCRA requirements at Cal. Code Regs. tit. 22, § 66262.10(a) and 66262.11 to determine whether such wastes should be classified as hazardous.

The Navy has determined that groundwater at IR Site 27 would not be classified as RCRA-listed hazardous wastes. However, testing would still be required to classify these materials with respect to the RCRA hazardous waste characteristics (Cal. Code Regs. tit. 22, § 66264.13[a] and [b]). This determination would be made at the time the waste is generated. The appropriate requirements for storing and handling the waste until it is characterized would be followed. The waste would be disposed off-site and would comply with all applicable requirements. Since the disposal would be off-site, it is not addressed by ARARs.

The substantive provisions of Cal. Code Regs. tit. 22, § 66262.34 regulations for waste accumulation are action-specific ARARs if waste is found to be hazardous. Substantive provisions of Cal. Code Regs. tit. 22, § 66264.171–178 regulations for temporary storage of wastes in containers are applicable if the wastes are classified as hazardous.

Section 13 Statutory Determinations

The wastewater generated will be contained and handled in accordance with substantive provisions of Cal. Code Regs. tit. 22, §§ 66262.34 and 66264.171–178 regulations as ARARs until test results indicate that the waste is not hazardous.

If the Navy determines that wastes generated during the implementation of the selected remedy meet any of the following definitions of regulated waste—(1) RCRA hazardous waste; (2) non-RCRA, state-regulated hazardous waste; (3) designated waste; or (4) nonhazardous solid—the Navy will comply with all legally applicable requirements for proper disposal, such as packaging, labeling, and placarding.

Institutional Controls. The substantive portions of the following state statutes have been accepted by the Navy as ARARs for implementing ICs and entering into a Covenant to Restrict Use of Property with DTSC:

- *California Civil Code* (Cal. Civil Code) Land Use Controls § 1471
- *California Health and Safety Code* (Cal. Health & Safety Code) Land Use Controls §§ 25202.5, 25222.1, 25233(c), 25234, and 25355.5.

DTSC promulgated a regulation on April 19, 2003, regarding “Requirements for Land-Use Covenants” at Cal. Code Regs. tit. 22, § 67391.1. The substantive provisions of this regulation have been determined to be relevant and appropriate state ARARs by the Navy.

The substantive provisions of Cal. Civ. Code § 1471 are the following general narrative standard: “... to do or refrain from doing some act on his or her own land ... where ... (c) each such act relates to the use of land and each such act is reasonably necessary to protect present or future human health or safety of the environment as a result of the presence of hazardous materials, as defined in § 25260 of the Cal. Health & Safety Code.” This narrative standard would be implemented through incorporation of restrictive environmental covenants in the deed at the time of transfer. These covenants would be recorded with the Covenant to Restrict Use of Property and run with the land.

The substantive provision of Cal. Health & Safety Code § 25202.5 is the general narrative standard to restrict “present and future uses of all or part of the land on which the ... facility ... is located” This substantive provision will be implemented by incorporation of restrictive environmental covenants in the Covenant to Restrict Use of Property at the time of transfer for purposes of protecting present and future public health and safety.

Cal. Health & Safety Code §§ 25222.1 and 25355.5(a)(1)(C) provide the authority for the state to enter into voluntary agreements to establish land use covenants with the owner of the property. The substantive requirements of the following Cal. Health & Safety Code § 25222.1 provisions are relevant and appropriate: (1) the general narrative standard: “restricting specified uses of the property, ...” and (2) “... the agreement is irrevocable,

and shall be recorded by the owner, ... as a hazardous waste easement, covenant, restriction or servitude, or any combination thereof, as appropriate, upon the present and future uses of the land.” The substantive requirements of the following Cal. Health & Safety Code § 25355.5(a)(1)(C) provisions are relevant and appropriate: “... execution and recording of a written instrument that imposes an easement, covenant, restriction, or servitude, or combination thereof, as appropriate, upon the present and future uses of the land.”

The Navy will comply with the substantive requirements of Cal. Health & Safety Code §§ 25222.1 and 25355.5(a)(1)(C) by incorporating CERCLA use restrictions into the Navy’s deed of conveyance in the form of restrictive covenants under the authority of Cal. Civ. Code § 1471. The substantive provisions of Cal. Health & Safety Code §§ 25222.1 and 25355.5 (a)(1)(C) may be interpreted in a manner that is consistent with the substantive provisions of Cal. Civ. Code § 1471: The covenants shall be recorded with the deed and run with the land.

Cal. Health & Safety Code § 25233(c) sets forth relevant and appropriate substantive criteria for granting variances from prohibited uses based upon specified environmental and health criteria. Cal. Health & Safety Code § 25234 sets forth the following “relevant and appropriate” substantive criteria for the removal of a land-use restriction on the grounds that “... the waste no longer creates a significant existing or potential hazard to present or future public health or safety.”

In addition to being implemented through the Covenant to Restrict Use of Property between the Navy and DTSC, the relevant and appropriate portions of Cal. Health & Safety Code §§ 25202.5, 25222.1, 25233(c), 25234, and 25355.5(a)(1)(C) and Cal. Civ. Code § 1471 shall also be implemented through the deed between the Navy and the transferee.

The U.S. EPA agrees that the substantive portions of the state statutes and regulations referenced in this section are ARARs. With regard to Cal. Code Regs. tit. 22, § 67391.1, the U.S. EPA considers the following portions to be relevant and appropriate for this ROD: (a)(1), (a)(2), (d), (e)(1) and (e)(2). DTSC’s position is that all of the state statutes and regulations referenced in this section are ARARs.

13.3 COST-EFFECTIVENESS

The Navy has concluded that Alternative 6B, the selected remedy, would provide overall effectiveness proportional to its cost; it is therefore considered cost-effective. The present value cost for this alternative is approximately \$2,050,000 (Table 12-1). Alternative 6B effectively provides a level of protection to human health and the environment that is higher than or similar to the other alternatives. All of the components included in Alternative 6B are readily implementable. ISCO has been implemented successfully at IR Sites 9 and 16 in Alameda Point. Furthermore, groundwater monitoring and sampling have been performed successfully at Alameda Point.

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13.4 USE OF PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT TECHNOLOGIES (OR RESOURCE RECOVERY TECHNOLOGIES) TO THE MAXIMUM EXTENT PRACTICABLE

The Navy has determined that the selected remedy represents the maximum extent practicable to which permanent solutions and alternative treatment technologies can be used in a cost-effective manner for IR Site 27. Of all the remedial alternatives that are protective of human health and the environment and comply with ARARs, the Navy has concluded that the selected remedy would provide the best balance of trade-offs among long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; and cost. The selected remedy is expected to be permanent and effective over the long-term land use.

13.5 PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT

The selected remedy satisfies the statutory preference for treatment as a principal element of the remedy (i.e., it reduces the volume, toxicity, or mobility of hazardous substances, pollutants, or contaminants as a principal element through treatment).

13.6 FIVE-YEAR REVIEW REQUIREMENTS

A 5-year review pursuant to CERCLA Section 121 and the NCP is required if the selected remedy allows hazardous waste or contaminants to remain at the site above levels that would allow for unrestricted use of the site. Because the selected remedy is expected to reduce all potential risks to acceptable levels in less than 5 years, a 5-year review is not expected to be required. However, the Navy will conduct a 5-year review for IR Site 27 if the remedy selected in this ROD is not complete when the 5-year review is due.

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**Table 13-1
Federal Chemical-Specific ARARs^a for Groundwater and Surface Water**

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
GROUNDWATER				
Safe Drinking Water Act (42 U.S.C., ch. 6A, § 300[<i>f</i>]-300[<i>j</i>]-26)^c				
National primary drinking water standards are health-based standards for public water systems (MCLs).	Public water system.	40 C.F.R. § 141.61(a)	Relevant and appropriate	Substantive provisions are relevant and appropriate for groundwater.
MCLGs pertain to known or anticipated adverse health effects (also known as recommended MCLs).	Public water system.	40 C.F.R. § 141.50(a)	Relevant and appropriate	Substantive provisions are relevant and appropriate for groundwater.
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901-6991[<i>i</i>])^c				
Defines RCRA hazardous waste. A solid waste is characterized as toxic, based on the TCLP, if the waste exceeds the TCLP maximum concentrations.	Waste.	Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Applicable	Substantive provisions are applicable for determining whether waste is hazardous.
Groundwater protection standards: Owners/operators of RCRA treatment, storage, or disposal facilities must comply with conditions in this section that are designed to ensure that hazardous constituents entering the groundwater from a regulated unit do not exceed the concentration limits for contaminants of concern set forth under Cal. Code Regs. tit. 22, § 66264.94 in the uppermost aquifer underlying the waste management area of concern at the POC.	A regulated unit that receives or has received hazardous waste before July 26, 1982, or regulated units that ceased receiving hazardous waste prior to July 26, 1982, where constituents in or derived from the waste may pose a threat to human health or the environment.	Cal. Code Regs. tit. 22, § 66264.94(a)(1) and (3), (c), (d), and (e)	Relevant and appropriate	These standards are not "applicable" because IR Site 27 does not contain a RCRA waste management unit. However, substantive provisions of Cal. Code Regs. tit. 22, § 66264.94(a)(1), (a)(3), (c), (d), and (e) are relevant and appropriate federal ARARs for groundwater at IR Site 27. The lowest achievable technologically and economically feasible concentration criteria are MCLs for groundwater.

Table 13-1 (continued)

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
SURFACE WATER				
Clean Water Act of 1977, as Amended (33 U.S.C., ch. 26, §§ 1251–1387)^c				
Water quality standards. National Toxics Rule and California Toxics Rule.	Discharges to waters of the United States.	40 C.F.R. § 131.36(b) and 131.38	Applicable	Substantive provisions are applicable for potential discharges to Seaplane Lagoon or the San Francisco Bay.
Effluent limitations that meet technology-based requirements, including BCPCT and BAT to the extent economically achievable.	Discharges to groundwater and to waters of the United States.	33 U.S.C., ch. 26, § 1311(b)(2) (CWA Section 301[b])	Applicable	Substantive provisions are applicable for potential discharges to Seaplane Lagoon or the San Francisco Bay.

Notes:

- ^a many action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific ARAR table
- ^b only the substantive provisions of the requirements cited in this table are ARARs
- ^c statutes and policies, and their citations, are provided as headings to identify general categories of ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as ARARs; specific ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered ARARs

Acronyms/Abbreviations:

- ARAR – applicable or relevant and appropriate requirement
- BAT – best available technology
- BCPCT – best conventional pollution control technology
- Cal. Code Regs. – *California Code of Regulations*
- C.F.R. – *Code of Federal Regulations*
- ch. - chapter
- CWA – Clean Water Act
- IR – Installation Restoration (Program)
- MCL – maximum contaminant level
- MCLG – maximum contaminant level goal
- Navy – Department of the Navy
- POC – point of compliance
- RCRA – Resource Conservation and Recovery Act
- § – section
- TCLP – toxicity characteristic leaching procedure
- tit. – title
- U.S.C. – *United States Code*

**Table 13-2
State Chemical-Specific ARARs^a for Groundwater and Surface Water**

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
GROUNDWATER AND SURFACE WATER				
Cal/EPA Department of Toxic Substances Control^c				
Definition of non-RCRA hazardous waste.	Waste.	Cal. Code Regs. tit. 22, § 66261.22(a)(3) and (4), § 66261.24(a)(2)-(a)(8), § 66261.101, § 66261.3(a)(2)(C), or § 66261.3(a)(2)(F)	Applicable	Substantive provisions are applicable for determining whether a waste is a non-RCRA hazardous waste.
Primary drinking water standards for public water systems (state MCLs).	Public water system.	Cal. Code Regs. tit. 22, § 64444.	Relevant and appropriate	Groundwater is a potential source of drinking water; the state MCLs for cis-1,2-DCE; trans-1,2-DCE; vinyl chloride; and 1,1-DCA are relevant and appropriate because they are more stringent than federal MCLs.
State Water Resources Control Board and San Francisco Bay Regional Water Quality Control Board^c				
Authorizes the SWRCB and RWQCB to establish water quality control plans for beneficial uses and numerical and narrative standards to protect both surface water and groundwater quality. Authorizes regional water boards to issue permits for discharges to land or surface or groundwater that could affect water quality, including NPDES permits, and to take enforcement action to protect water quality.		Cal. Water Code, div. 7, §§ 13241, 13243, 13263(a), 13269, and 13360 (Porter-Cologne Water Quality Control Act)	Applicable	The Navy accepts the substantive provisions of Cal. Water Code §§ 13241, 13243, 13263(a), 13269, and 13360 of the Porter-Cologne Act as enabling legislation as implemented through the beneficial uses, WQOs, promulgated policies of the Basin Plan for the San Francisco Basin, SWRCB Res. 88-63, and state primary MCLs as potential state ARARs.

Table 13-2 (continued)

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
Describes the San Francisco Bay Basin, establishes beneficial uses of groundwater and surface water, establishes WQOs, including narrative and numeric standards, establishes implementation plans to meet WQOs and protect beneficial uses, and incorporates statewide water quality control plans and policies.		Comprehensive Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan), Chapter 2, Beneficial Uses and Chapter 3, WQOs (Cal. Water Code § 13240)	Applicable	Substantive requirements pertaining to beneficial uses and WQOs are state ARARs for the surface water and groundwater components of this response action.
Incorporated into all regional board basin plans. Designates all groundwater and surface waters of the state as drinking water except where the TDS is greater than 3,000 ppm, the well yield is less than 200 gpd from a single well, the water is a geothermal resource or in a water conveyance facility, or the water cannot reasonably be treated for domestic use using either best management practices or best economically achievable treatment practices.		SWRCB Res. 88-63 (Sources of Drinking Water Policy)	Applicable	Substantive provisions are applicable for determining drinking water sources.
Requires analysis for each priority pollutant to determine if water-quality-based effluent limitation is required. Provides effluent limitation development methodology.	Discharges of toxic priority pollutants into inland surface waters, bays, or estuaries.	Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Toxics Standards SIP) (SWRCB 2000), § 1.3 and 1.4	Applicable	Substantive provisions are applicable for discharges into Seaplane Lagoon or the San Francisco Bay.

Table 13-2 (continued)

Notes:

- ^a many action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific ARAR tables
- ^b only the substantive provisions of the requirements cited in this table are ARARs
- ^c statutes and policies, and their citations, are provided as headings to identify general categories of ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as ARARs; specific ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered ARARs

Acronyms/Abbreviations:

ARAR – applicable or relevant and appropriate requirement
Cal. Code Regs. – *California Code of Regulations*
Cal/EPA – California Environmental Protection Agency
Cal. Water Code – *California Water Code*
DCA – dichloroethane
DCE – dichloroethene
div. – division
gpd – gallons per day
MCL – maximum contaminant level
Navy – Department of the Navy
NPDES – National Pollutant Discharge Elimination System
ppm – parts per million
RCRA – Resource Conservation and Recovery Act
Res. – Resolution
RWQCB – (California) Regional Water Quality Control Board
§ – section
SIP – State Implementation Plan
SWRCB – (California) State Water Resources Control Board
TDS – total dissolved solids
tit. – title
WQO – water quality objective

**Table 13-3
Federal Location-Specific ARARs**

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Migratory Bird Treaty Act of 1972 (16 U.S.C. §§ 703–712)^b					
Migratory bird area	Protects almost all species of native migratory birds in the U.S. from unregulated “take,” which can include poisoning at hazardous waste sites.	Presence of migratory birds.	16 U.S.C. § 703	Relevant and appropriate	Substantive provisions are relevant and appropriate. There are no known habitats for migratory birds present within IR Site 27. The barren habitat (bare soil and paved parking area) at the site generally offers little value to wildlife. However, it may serve as a corridor between other habitats or as a place of brief resting for migratory birds.
Coastal Zone Management Act (16 U.S.C. §§ 1451–1464)^b					
Within coastal zone	Conduct activities in a manner consistent with approved state management programs.	Activities affecting the coastal zone including lands thereunder and adjacent shore land.	16 U.S.C. § 1456(c), 15 C.F.R. § 930	Relevant and appropriate	The CZMA specifically excludes federal lands from the coastal zone (16 U.S.C. § 1453[1]). Therefore, the CZMA is not applicable to IR Site 27. Substantive provisions of the CZMA will be evaluated as relevant and appropriate requirements because a state coastal zone management program is developed under state law guided by the CZMA and its accompanying implementing regulations in 15 C.F.R. § 930.

Table 13-3 (continued)

Notes:

- ^a only the substantive provisions of the requirements cited in this table are ARARs
- ^b statutes and policies, and their citations, are provided as headings to identify general categories of ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as ARARs; specific ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered ARARs

Acronyms/Abbreviations:

- ARAR – applicable or relevant and appropriate requirement
- C.F.R. – *Code of Federal Regulations*
- CZMA – Coastal Zone Management Act
- IR – Installation Restoration (Program)
- Navy – Department of the Navy
- § – section
- U.S. – United States
- U.S.C. – *United States Code*

**Table 13-4
State Location-Specific ARARs**

Location	Requirement	Prerequisite	Citation^a	ARAR Determination	Comments
McAteer-Petris Act (California Government Code §§ 66600 through 66661)^b					
Within coastal zone	Reduce fill and disposal of dredged material in San Francisco Bay, maintain marshes and mudflats to the fullest extent possible to conserve wildlife, abate pollution, and protect the beneficial uses of the bay.	Activities affecting San Francisco Bay and shoreline.	San Francisco Bay Plan at Cal. Code Regs. tit. 14, §§ 10110 through 11990	Relevant and appropriate	The remedial alternative selected in this ROD is in compliance with the substantive provisions of the San Francisco Bay Plan.

Notes:

- ^a only the substantive provisions of the requirements cited in this table are ARARs
- ^b statutes and policies, and their citations, are provided as headings to identify general categories of ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as ARARs; specific ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered ARARs

Acronyms/Abbreviations:

- ARAR – applicable or relevant and appropriate requirement
- Cal. Code Regs. – *California Code of Regulations*
- Navy – U.S. Department of the Navy
- ROD – record of decision
- § – section
- tit. – title
- U.S. – United States

**Table 13-5
Federal Action-Specific ARARs**

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Safe Drinking Water Act (42 U.S.C. § 300[f]-300[j])^b					
Underground injection	The UIC program prohibits injection activities that allow movement of contaminants into underground sources of drinking water that may result in violations of primary drinking water standards, other health-based standards, or adversely affect health.	Any underground injections are prohibited unless permitted.	40 C.F.R. § 144.12 (a) and 144.82 (a)(1)	Applicable	Applicable for injection of chemicals for <i>in situ</i> chemical oxidation treatment. Injection wells would be Class V wells under the UIC program. There are currently no specific technical requirements for injection into Class V wells. Substantive provisions are applicable to the extent necessary to ensure that injection of treatment products to drinking water sources at IR Site 27 do not violate primary drinking water regulations. The injections proposed for the remedial alternative selected in this ROD are not expected to result in violations of drinking water standards, other health-based standards or to adversely affect health.
Resource Conservation and Recovery Act (42 U.S.C. §§ 6901-6991[i])^b					
On-site waste generation	Person who generates waste shall determine if that waste is a hazardous waste.	Generator of waste.	Cal. Code Regs. tit. 22, § 66262.10(a), 66262.11	Applicable	Substantive provisions are applicable for any excavated soils, soil cuttings, or wastewater that is generated.

Table 13-5 (continued)

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
On-site waste generation (continued)	Requirements for analyzing waste for determining whether waste is hazardous.	Generator of waste.	Cal. Code Regs. tit. 22, § 66264.13(a) and (b)	Applicable	Substantive provisions are applicable for any excavated soils, soil cuttings, or wastewater that is generated.
Hazardous waste accumulation	On-site hazardous waste accumulation is allowed for up to 90 days as long as the waste is stored in containers in accordance with § 66262.171–178 or in tanks, on drip pads, inside buildings, and is labeled and dated.	Accumulation of hazardous waste.	Cal. Code Regs. tit. 22, § 66262.34	Relevant and appropriate	Substantive provisions are relevant and appropriate for temporary storage of excavated soils, soil cuttings, or wastewater.
Container storage	Containers of RCRA hazardous waste must be: <ul style="list-style-type: none"> • maintained in good condition, • compatible with hazardous waste to be stored, and • closed during storage except to add or remove waste. Inspect container storage areas weekly for deterioration.	Storage of RCRA hazardous waste not meeting small-quantity generator criteria before treatment, disposal, or storage elsewhere, in a container.	Cal. Code Regs. tit. 22, § 66264.171–173	Relevant and appropriate	Substantive provisions are relevant and appropriate for any excavated soils, soil cuttings, or wastewater that is generated.
			Cal. Code Regs. tit. 22, § 66264.174	Relevant and appropriate	Substantive provisions are relevant and appropriate for any excavated soils, soil cuttings, or wastewater that is generated.

Table 13-5 (continued)

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Container storage (continued)	Place containers on a sloped, crack-free base, and protect from contact with accumulated liquid. Provide containment system with a capacity of 10 percent of the volume of containers of free liquids. Remove spilled or leaked waste in a timely manner to prevent overflow of the containment system.	Storage of RCRA hazardous waste not meeting small-quantity generator criteria before treatment, disposal, or storage elsewhere, in a container.	Cal. Code Regs. tit. 22, § 66264.175(a) and (b)	Relevant and appropriate	Substantive provisions are relevant and appropriate for any excavated soils, soil cuttings, or wastewater that is generated.
	Keep incompatible materials separate. Separate incompatible materials stored near each other by a dike or other barrier.		Cal. Code Regs. tit. 22, § 66264.177	Relevant and appropriate	Substantive provisions are relevant and appropriate for any excavated soils, soil cuttings, or wastewater that is generated.
	At closure, remove all hazardous waste and residues from the containment system, and decontaminate or remove all containers and liners.		Cal. Code Regs. tit. 22, § 66264.178	Relevant and appropriate	Substantive provisions are relevant and appropriate for any excavated soils, soil cuttings, or wastewater that is generated.
Monitoring	Requires monitoring groundwater to determine effectiveness of corrective action. After terminating the corrective action measures, the owner or operator shall remain in the corrective action monitoring program until the regulated unit is in compliance based on the results of sampling and analysis for all constituents of concern for a period of 1 year.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.100(d) and (g)(1)	Relevant and appropriate	Not applicable because the site is not a hazardous waste management unit and the waste is not expected to be hazardous. Substantive provisions are relevant and appropriate for monitoring the corrective action and natural attenuation because groundwater constituents are similar to hazardous waste constituents.

Table 13-5 (continued)

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Monitoring (continued)	Requirements for monitoring groundwater, surface water, and the vadose zone.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.97(b)(1)(A), (b)(1)(D)(1) and (2), (b)(4-7), (e)(6), (12)(A) and (12)(B), (13), and (15)	Relevant and appropriate	Not applicable because the site is not a hazardous waste management unit and the waste is not expected to be hazardous. Substantive provisions are relevant and appropriate for monitoring the corrective action and natural attenuation because groundwater constituents are similar to hazardous waste constituents.
	Identify constituents of concern. Constituents of concern are the waste constituents, reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the regulated unit.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.93	Relevant and appropriate	Relevant and appropriate for groundwater monitoring.
	Requires continued monitoring until the regulated unit has been in compliance with the water quality protection standard for a period of 3 consecutive years and all waste, waste residues, contaminated subsoils, and other contaminated geologic materials are removed or decontaminated at closure.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.90(c)(1) and (c)(2)	Relevant and appropriate	Relevant and appropriate for groundwater monitoring.

Table 13-5 (continued)

Notes:

- ^a only the substantive provisions of the requirements cited in this table are ARARs
- ^b statutes and policies, and their citations, are provided as headings to identify general categories of ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entirety of statutes or policies as ARARs; specific ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered ARARs

Acronyms/Abbreviations:

ARAR – applicable or relevant and appropriate requirement
Cal. Code Regs. – *California Code of Regulations*
C.F.R. – *Code of Federal Regulations*
IR – Installation Restoration (Program)
Navy – Department of the Navy
RCRA – Resource Conservation and Recovery Act
ROD – record of decision
§ – section
tit. – title
UIC – underground injection control
U.S.C. – *United States Code*

**Table 13-6
State Action-Specific ARARs**

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
California Civil Code § 1471^b					
Institutional Controls	Provides conditions under which land use restrictions will apply to successive owners of land.	Transfer property from the Navy to a nonfederal agency.	Cal. Civil Code § 1471	Relevant and appropriate	The substantive ARAR provisions of Cal. Civil Code § 1471 are the following general narrative standards: "to do or refrain from doing some act on his or her own land ... where (c) each such act relates to the use of land and each such act is reasonably necessary to protect present or future human health or safety of the environment as a result of the presence of hazardous materials, as defined in § 25260 of the California Health & Safety Code." This narrative standard would be implemented through incorporation of environmental restrictive covenants in the deed at the time of transfer, if necessary.
California Health and Safety Code §§ 25202.5, 25222.1, 25233(c), 25234, and 25355.5(a)(1)(C)^b					
Institutional Controls	Allows DTSC to enter into an agreement with the owner of a hazardous waste facility to restrict present and future land uses.	Transfer property from the Navy to a nonfederal agency.	Cal. Health & Safety Code § 25202.5	Relevant and appropriate	The substantive ARAR provisions of Cal. Health & Safety Code § 25202.5 are the general narrative standards to restrict "present and future uses of all or part of the land on which the facility ... is located."

Table 13-6 (continued)

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Institutional Controls (continued)	Provides a streamlined process to be used to enter into an agreement to restrict specific use of property in order to implement the substantive use restrictions.	Transfer property from the Navy to a nonfederal agency.	Cal. Health & Safety Code §§ 25222.1 and 25355.5(a)(1)(C)	Relevant and appropriate	Cal. Health & Safety Code §§ 25222.1 and 25355(a)(1)(C) provide the authority for the state to enter into voluntary agreements with landowners to restrict the use of the property. The agreements run with the land, restricting both present and future uses of the land. The substantive ARAR provisions of Cal. Health & Safety Code § 25222.1 are the general narrative standards: "restricting specified uses of the property" and "...the agreement is irrevocable, and shall be recorded by the owner, ...as a hazardous waste easement, covenant, restriction or servitude, or any combination thereof, as appropriate, upon the present and future uses of the land." The substantive ARAR provisions of Cal. Health & Safety Code § 25355.5(a)(1)(C) are: "...execution and recording of a written instrument that imposes an easement, covenant, restriction, or servitude, or combination thereof, as appropriate, upon the present and future uses of the land."

Table 13-6 (continued)

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Institutional Controls (continued)	Provides a process for obtaining a written variance from a land use restriction.	Transfer property from the Navy to a nonfederal agency.	Cal. Health & Safety Code § 25233(c) and 25234	Relevant and appropriate	Cal. Health & Safety Code § 25233(c) sets forth substantive criteria for obtaining variances from the uses prohibited in § 25232(b)(1)(A)-(E) based on specific environmental and health criteria. Cal. Health & Safety Code § 25234 sets forth the following substantive criteria for the removal of a land use restriction on the grounds that "...the waste no longer creates a significant existing or potential hazard to present or future public health or safety."

Table 13-6 (continued)

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
California Environmental Protection Agency, Department of Toxic Substances Control^b					
Institutional Controls	A land use covenant imposing appropriate limitations on land use shall be executed and recorded when facility closure, corrective action, remedial or removal action, or other response actions are undertaken and hazardous materials, hazardous wastes or constituents, or hazardous substances will remain at the property at levels which are not suitable for unrestricted use of the land.	Transfer property from the Navy to a nonfederal agency.	Cal. Code Regs., tit. 22, § 67391.1	Relevant and appropriate	<p>The Navy anticipates performing the remedial actions while IR Site 27 is under federal government ownership and Navy management. The remedial actions will include placing institutional controls restricting residential uses of the site until the RGs have been met. If the remedial actions are not complete by the time the Navy transfers the site to a nonfederal entity, then the Navy will restructure the institutional controls into environmental restrictive covenants that will run with the land and will bind all subsequent transferees.</p> <p>DTSC's position is that Cal. Code Regs. tit. 22, § 67391.1 is an ARAR in its entirety. The U.S. EPA considers the following portions of Cal. Code Regs. tit. 22, § 67391.1 to be relevant and appropriate for this ROD: (a)(1), (a)(2), (d), (e)(1) and (e)(2).</p>

Table 13-6 (continued)

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
State Water Resources Control Board and San Francisco Bay Regional Water Quality Control Board^b					
Monitoring	For compliance demonstration, each constituent of concern must have remained at or below its respective concentration limit during a proof period of at least 1 year and each monitoring point must have been evenly distributed throughout the proof period and have consisted of no less than eight sampling events per year per monitoring point.	Discharge of waste to land after 18 July 1997.	Cal. Code Regs. tit. 27, § 20430(g)(1) and (2)	Relevant and appropriate	Relevant and appropriate for demonstrating compliance at end of groundwater remediation.

Notes:

- ^a only the substantive provisions of the requirements cited in this table are ARARs
- ^b statutes and policies, and their citations, are provided as headings to identify general categories of ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as ARARs; specific ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered ARARs

Acronyms/Abbreviations:

- ARAR – applicable or relevant and appropriate requirement
- Cal. Civ. Code – California Civil Code
- Cal. Code Regs. – *California Code of Regulations*
- Cal. Health & Safety Code – California Health & Safety Code
- DTSC – (California Environmental Protection Agency) Department of Toxic Substances Control
- IR – Installation Restoration (Program)
- Navy – Department of the Navy
- RG – remediation goal
- ROD – record of decision
- § – section
- tit. – title
- U.S. EPA – United States Environmental Protection Agency

Section 14**DOCUMENTATION OF SIGNIFICANT CHANGES**

The RI Report concluded that soil at the site does not pose a threat to human health or the environment; therefore, no action is required for soil. The IR Site 27 Proposed Plan (Navy 2006) recommended Alternative 6B (full-scale ISCO treatment and groundwater confirmation sampling) with ICs as the selected remedy for groundwater at IR Site 27. The Proposed Plan was released for public comment on November 20, 2006. The Navy has reviewed all comments submitted during the public comment period. Upon review of these comments, it was determined that no significant changes to the selected remedy, as originally identified in the Proposed Plan, were necessary or appropriate.

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Section 15

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ATTACHMENT A

ADMINISTRATIVE RECORD INDEX

ALAMEDA POINT NAS

DRAFT ADMINISTRATIVE RECORD FILE INDEX - UPDATE (SORTED BY RECORD DATE/RECORD NUMBER)

ADMINISTRATIVE RECORDS INDEX FOR SITE 27

UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Record Type	Record Date	Author	Location	FRC Accession No.
Contr./Guid. No.	CTO No.	Recipient Affil.	Subject/Comments	Classification	Sites	SWDIV Box No(s)	FRC Warehouse	
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N00236 / 000589	06-11-2003	TETRA TECH EM	05 SEPTEMBER 2000 RESTORATION	ADMIN RECORD	001	SOUTHWEST	181-03-0188	BOX 0013
TC.A021.10074	09-05-2000	INC.	ADVISORY BOARD (RAB) MEETING		002	DIVISION - BLDG. 1	41031858	
MM	DO 0021		SUMMARY (ATTENDANCE LIST IS MISSING)		003	SW060629-01		
N68711-00-D-0005		NAVFAC -			005	IMAGED		
00008		SOUTHWEST			010	APNT_007		
		DIVISION			011			
					012			
					014			
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					024			
					027			
					OU 3			
N00236 / 000591	06-11-2003	TETRA TECH EM	07 NOVEMBER 2000 RESTORATION	ADMIN RECORD	007	SOUTHWEST	181-03-0188	BOX 0013
TC.A021.10074	11-07-2000	INC.	ADVISORY BOARD (RAB) MEETING		027	DIVISION - BLDG. 1	41031858	
MM	DO 021		MINUTES (MISSING ATTENDANCE LIST)		OU 1	SW060629-01		
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00013		SOUTHWEST				APNT_007		
		DIVISION						
N00236 / 000737	06-17-2003	TETRA TECH EM	17 JULY 2001 FINAL BASE REALIGNMENT	ADMIN RECORD	015	SOUTHWEST	181-03-0188	BOX 0015
TC.A021.10075	07-17-2001	INC.	AND CLOSURE (BRAC) CLEANUP TEAM	INFO REPOSITORY	023	DIVISION - BLDG. 1	41031858	
MM	DO 0021		(BCT) MONTHLY TRACKING MEETING		025	SW060907-01		
N68711-00-D-0005		NAVFAC -	AFTER ACTION REPORT (INCLUDES		026	IMAGED		
00015		SOUTHWEST	AGENDA AND SIGN-IN SHEET)		027	APNT_003		
		DIVISION			028			

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CTO-0021/0013 & SWDIV SER 06CA.GL/0935	09-10-2001	ENVIRONMENTAL, INC.	PLAN, DOCK ZONE [INCLUDES SWDIV TRANSMITTAL LETTER BY G. LORTON] (PORTION OF THE MAILING LIST IS CONFIDENTIAL)	INFO REPOSITORY		DIVISION - BLDG. 1	41074200	
CORRESPONDENCE	00021	P. STANG		SENSITIVE		SW060309-01		
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00286						APNT_011		
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NONE	11-13-2001	A. COOK				DIVISION - BLDG. 1		
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NONE		G. LORTON				IMAGED		
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N00236 / 000313	01-04-2002	IT CORPORATION	DRAFT WORK PLAN FOR BASEWIDE GROUNDWATER MONITORING PROGRAM, REVISION 0. ***COMMENTS: THIS WORK PLAN PERTAINS TO BOTH ALAMEDA ANNEX AND ALAMEDA POINT***	ADMIN RECORD	001	SOUTHWEST		
2700.0	12-18-2001	J. MCGUIRE		INFO REPOSITORY	003	DIVISION - BLDG. 1		
CORRESPONDENCE	00078	NAVFAC - SOUTHWEST DIVISION			004	SW060629-01		
N62474-98-D-2076		R. WEISSENBORN			005	IMAGED		
00501					006	APNT_007		
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N00236 / 000320 CTO-0021/0045 & SWDIV SER 06CA.GL/0025 CORRESPONDENC E N68711-95-D-7526 00294	01-26-2002 01-04-2002 00021/0045	01-26-2002 01-04-2002 00021/0045	BECHTEL NATIONAL, INC. P. STANG NAVFAC - SOUTHWEST DIVISION	DRAFT FINAL REMEDIAL INVESTIGATION WORK PLAN FOR THE DOCK ZONE (SEE AR #492 - ADDENDUM 1 OF FSP AND QAPP AND #1790 - ADDENDUM 2 OF FSP AND QAPP){PORTION OF MAILING LIST IS CONFIDENTIAL}	ADMIN RECORD INFO REPOSITORY SENSITIVE	027	SOUTHWEST DIVISION - BLDG. 1 SW070917-01 IMAGED APNT_025		
N00236 / 000354 2119.9285 (LMM) CORRESPONDENC E NONE 00009	04-10-2002 01-28-2002 NONE	04-10-2002 01-28-2002 NONE	CRWQCB - OAKLAND L. MEILLIER NAVFAC - SOUTHWEST DIVISION R. WEISSENBORN	COMMENTS ON THE DRAFT WORK PLAN FOR BASEWIDE GROUNDWATER MONITORING PROGRAM (PORTION OF THE DISTRIBUTION LIST IS SENSITIVE)	ADMIN RECORD INFO REPOSITORY SENSITIVE	004 005 008 009 016 025 GROUP 026 027 BLDG. 410 OU 1 UST 608-1	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 BOX 0001 41031858	
N00236 / 001808 3834 REPORT N62474-98-D-2076 00436	04-22-2004 05-03-2002 00078	04-22-2004 05-03-2002 00078	IT CORPORATION J. MCGUIRE NAVFAC - SOUTHWEST DIVISION	DRAFT WORK PLAN FOR BASEWIDE GROUNDWATER MONITORING PROGRAM, REVISION 0 (FIGURES 35 AND 66 AND TABLES 15 AND 16 ARE MISSING)	ADMIN RECORD INFO REPOSITORY	001 003 GROUP 005 GROUP 006 007 008 009 014 016 025 GROUP 026 027	SOUTHWEST DIVISION - BLDG. 1 SW060629-04 IMAGED APNT_008		

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N62474-98-D-2076		SOUTHWEST	WELL INVENTORY]. ***COMMENTS: (AS		006			
00600		DIVISION	PER RPM - CLAUDIA RICHARDSON ON		007			
			6/19/06, AR #760 IS THE CORRECT DRAFT		008			
			FINAL AND SHOULD BE KEPT IN THE		009			
			ADMINISTRATIVE RECORD FILE. AR #1809		014			
			WILL BE DELETED FROM THE DATABASE)***		016			
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E		US EPA - SAN			008	APNT_022		
NONE		FRANCISCO			009			
00035		A. COOK			013			
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Contr./Guid. No.	CTO No.	Recipient Affil.	Subject/Comments	Classification	Sites	SWDIV Box No(s)	FRC Warehouse	FRC Box No(s)
Approx. # Pages	EPA Cat. #	Recipient				CD No.		
N00236 / 000436	10-31-2002	TETRA TECH EM	DRAFT TECHNICAL MEMORANDUM:	ADMIN RECORD	001	SOUTHWEST	181-03-0188	BOX 0006
DS.A033.10075 AND	10-08-2002	INC.	EVALUATION OF ISSUES RELATED TO THE	INFO REPOSITORY	002	DIVISION - BLDG. 1	41031858	
SWDIV SER	DO A033	B. KELLY	RESOURCE CONSERVATION AND	SENSITIVE	003	SW060601-02		
06CA.LO/0019		NAVFAC -	RECOVERY ACT (RCRA); FACILITY PERMIT		004	IMAGED		
REPORT		SOUTHWEST	EPA ID CA 2170023236, TIERED PERMITS,		006	APNT_013		
N68711-00-D-0005		DIVISION	AND THE NONPERMITTED AREAS		007			
00237		L. OCAMPO	(INCLUDES SWDIV TRANSMITTAL LETTER		008			
			BY L. OCAMPO). ***COMMENTS: [PORTION		009			
			OF THE MAILING LIST IS CONFIDENTIAL]***		013			
					014			
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					026			
					027			
					028			
					BLDG. 13			
					OU 1			
					OU 2A			
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					OU 2C			
					OU 3			
					OU 4A			
					OU 4B			
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					OU 6			

UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Record Type	Record Date	Author	Location	FRC Accession No.
Contr./Guid. No.	CTO No.	Recipient Affil.	Subject/Comments	Classification	Sites	SWDIV Box No(s)	FRC Warehouse	FRC Box No(s)
Approx. # Pages	EPA Cat. #	Recipient				CD No.		
N00236 / 000456	01-29-2003	DTSC - BERKELEY	COMMENTS ON THE DRAFT TECHNICAL	ADMIN RECORD	001	SOUTHWEST	181-03-0188	BOX 0010
NONE	12-16-2002	M. LIAO	MEMORANDUM: EVALUATION OF ISSUES	INFO REPOSITORY	002	DIVISION - BLDG. 1	41031858	
CORRESPONDENC	NONE	NAVFAC -	RELATED TO THE RESOURCE		003	SW060615-02		
E		SOUTHWEST	CONSERVATION AND RECOVERY ACT		004	IMAGED		
NONE		DIVISION	(RCRA) FACILITY PERMIT EPA ID CA		006	APNT_004		
00007		L. OCAMPO	217002323G TIERED PERMITS AND THE		007			
			NONPERMITTED AREAS		008			
					009			
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					OU 6			

UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Record Type	Record Date	Author	Location	FRC Accession No.
Contr./Guid. No.	CTO No.	Recipient Affil.	Subject/Comments	Classification	Sites	SWDIV Box No(s)	FRC Warehouse	FRC Box No(s)
Approx. # Pages	EPA Cat. #	Recipient				CD No.		
N00236 / 000995 TC.A021.10125 MM N68711-00-D-0005 00047	08-20-2003 01-21-2003 DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	21 JANUARY 2003 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA, SIGN-IN SHEET, AND HANDOUT MATERIALS) [PORTION OF THE SIGN-IN SHEET IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	001 005 007 009 011 013 014 015 016 017 020 021 027 028 029 OU 5	SOUTHWEST DIVISION - BLDG. 1 SW061120-02 IMAGED APNT_023		
N00236 / 000999 TC.A021.10125 MM N68711-00-D-0005 00023	08-20-2003 02-18-2003 DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING MINUTES AFTER ACTION REPORT FOR THE 18 FEBRUARY 2003 - INCLUDES AGENDA, SIGN-IN SHEET, AND HANDOUT MATERIALS	ADMIN RECORD INFO REPOSITORY	009 011 014 015 016 021 027 028 OU 1 OU 2A OU 2B	SOUTHWEST DIVISION - BLDG. 1 SW05072801 IMAGED APNT_001		
N00236 / 000492 CTO-0021/0152 & SWDIV SER 06CA.JS/0714 CORRESPONDENC E N68711-95-D-7526 00043	05-09-2003 04-24-2003 00021	NAVFAC - SOUTHWEST J. STEWART US EPA - SAN FRANCISCO M. RIPPERDA	FIELD SAMPLING PLAN ADDENDUM 1 (ATTACHMENT A) AND QUALITY ASSURANCE PROJECT PLAN ADDENDUM 1 (ATTACHMENT B) TO THE DRAFT FINAL REMEDIAL INVESTIGATION WORK PLAN, DOCK ZONE (W/ ENCLOSURES) [SEE AR # 320 - FINAL RI WP]. ***COMMENTS: {PORTION OF THE MAILING LIST IS SENSITIVE}***	ADMIN RECORD INFO REPOSITORY SENSITIVE	027	SOUTHWEST DIVISION - BLDG. 1 SW070817-01 IMAGED APNT_025	181-03-0188 BOX 0012 41031858	

UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Record Type	Record Date	Author	Location	FRC Accession No.		
Contr./Guid. No.	CTO No.	Record Date	Recipient Affil.	Approx. # Pages	EPA Cat. #	Recipient	SWDIV Box No(s)	FRC Warehouse		
			Subject/Comments	Classification	Sites	CD No.	FRC Box No(s)			
N00236 / 001050	08-20-2003	08-20-2003	TETRA TECH EM			FINAL RESTORATION ADVISORY BOARD	ADMIN RECORD	026	SOUTHWEST	
TC.A021.10126	05-06-2003	05-06-2003	INC.			(RAB) MEETING MINUTES SUMMARY FOR	INFO REPOSITORY	027	DIVISION - BLDG. 1	
MTG MINS	DO 0021	DO 0021				THE 06 MAY 2003 MEETING - INCLUDES			SW05072801	
N68711-00-D-0005			NAVFAC -			AGENDA, SIGN-IN SHEETS AND HANDOUT			IMAGED	
00050			SOUTHWEST			MATERIALS			APNT_001	
			DIVISION							
N00236 / 000507	06-05-2003	06-05-2003	NAVFAC -			RESPONSES TO COMMENTS ON THE FIELD	ADMIN RECORD	027	SOUTHWEST	181-03-0188
CTO-0021/0168 &	05-20-2003	05-20-2003	SOUTHWEST			SAMPLING PLAN AND QUALITY	INFO REPOSITORY		DIVISION - BLDG. 1	BOX 0012
SWDIV SER	00021	00021	DIVISION			ASSURANCE PROJECT PLAN ADDENDA	SENSITIVE		SW070413-01	41031858
06CA.JS/0795						FOR THE DOCK ZONE [INCLUDES SWDIV			IMAGED	
RESPONSE			VARIOUS			TRANSMITTAL LETTER BY J. STEWART]			APNT_022	
N68711-95-D-7526			AGENCIES			(PORTION OF MAILING LIST IS SENSITIVE)				
00016										

UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Record Type	Record Date	Author	Location	FRC Accession No.
Contr./Guid. No.	CTO No.	Recipient Affil.	Subject/Comments	Classification	Sites	SWDIV Box No(s)	FRC Warehouse	FRC Box No(s)
Approx. # Pages	EPA Cat. #	Recipient				CD No.		
N00236 / 000772	08-04-2003	NAVFAC -	JULY 2003 ALAMEDA POINT FOCUS	ADMIN RECORD	001	SOUTHWEST	181-03-0188	BOX 0016
NONE	07-01-2003	SOUTHWEST	ENVIRONMENTAL NEWSLETTER		002	DIVISION - BLDG. 1	41031858	
PUB NOTICE	NONE	DIVISION			003	SW070112-01		
NONE		M. MCCLELLAND			004	IMAGED		
00016		PUBLIC INTEREST			005	APNT_008		
					006			
					007			
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Contr./Guid. No.	CTO No.	Recipient Affil.	Recipient	Subject/Comments	Classification	Sites	SWDIV Box No(s)	FRC Warehouse
Approx. # Pages	EPA Cat. #						CD No.	FRC Box No(s)
N00236 / 001803	04-22-2004	SULTECH		05 AUGUST 2003 FINAL RESTORATION	ADMIN RECORD	001	SOUTHWEST	
TC.B010.10187	08-05-2003			ADVISORY BOARD (RAB) MEETING	INFO REPOSITORY	002	DIVISION - BLDG. 1	
MM	00010	NAVFAC -		SUMMARY (INCLUDES MEETING AGENDA,		003	SW060814-01	
N68711-03-D-5104		SOUTHWEST		SIGN-IN SHEETS AND VARIOUS		005	IMAGED	
00034		DIVISION		HANDOUTS) [ATTENDANCE LIST IS		006	APNT_014	
				MISSING]		007		
						008		
						009		
						011		
						014		
						016		
						021		
						025		
						026		
						027		
						BLDG. 195		

UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Record Type	Record Date	Author	Location	FRC Accession No.
Contr./Guid. No.	CTO No.	Recipient Affil.	Subject/Comments	Classification	Sites	SWDIV Box No(s)	FRC Warehouse	FRC Box No(s)
Approx. # Pages	EPA Cat. #	Recipient				CD No.		
N00236 / 001757	01-15-2004	NAVFAC -	SITE MANAGEMENT PLAN UPDATE -	ADMIN RECORD	001	SOUTHWEST		
SWDIV SER	11-05-2003	SOUTHWEST	[INCLUDES SWDIV TRANSMITTAL LETTER	INFO REPOSITORY	002	DIVISION - BLDG. 1		
06CA.AD/1416	NONE	DIVISION	BY M. MCCLELLAND]		003	SW060814-01		
REPORT		M. MCCLELLAND			004	IMAGED		
NONE		US EPA - SAN			005	APNT_014		
00033		FRANCISCO			006			
		A. COOK			007			
					008			
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UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Author	Location	FRC Accession No.
Record Type	Record Date	Author	Author	SWDIV Box No(s)	FRC Warehouse	FRC Warehouse
Contr./Guid. No.	CTO No.	Recipient Affil.	Recipient Affil.	CD No.	FRC Warehouse	FRC Warehouse
Approx. # Pages	EPA Cat. #	Recipient	Subject/Comments	Classification	Sites	FRC Box No(s)
N00236 / 001782 6706 & SWDIV SER 06CA.CG/0222 REPORT N62474-98-D-2076 00040	03-02-2004 02-27-2004 00103	SHAW ENVIRONMENTAL, INC. NAVFAC - SOUTHWEST DIVISION	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 27, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH ORIGINAL SECTIONS 7 AND 8 ONLY AND REPLACEMENT PAGES) [SEE AR #880 - ORIGINAL DOCUMENT AND AR #1974 - REVISED SECTIONS 7 & 8]. ***COMMENTS: {INCLUDES SWDIV TRANSMITTAL LETTER BY G. LORTON} (CD COPY OF APPENDICES A AND B ENCLOSED) {THIS DOCUMENT WAS INSERTED IN AR #880. AR #1782 WILL BE DELETED FROM THE DATABASE}***	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 110
N00236 / 001831 SER. 06CA.JS/0514 CORRESPONDENC E NONE 00030	05-13-2004 05-10-2004 021/069	NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA U.S. EPA - SAN FRANCISCO A. COOK	DRAFT FINAL REMEDIAL INVESTIGATION (RI) WORK PLAN ADDENDA, FIELD SAMPLING PLAN (FSP) ADDENDUM 2, QUALITY ASSURANCE PROJECT PLAN (QAPP) ADDENDUM 2, SITE-SPECIFIC SAFETY AND HEALTH PLAN SUPPLEMENT (SSH), NAVY'S RESPONSE TO COMMENTS, DOCK ZONE. ***COMMENTS: INCLUDES SWDIV TRANSMITTAL LETTER BY T. MACCHIARELLA AND CONFIDENTIAL DISTRIBUTION LIST***	ADMIN RECORD INFO REPOSITORY SENSITIVE	027 PHASE 4	SOUTHWEST DIVISION - BLDG. 110 07/14/06
N00236 / 002030 DS.B010.14009 CORRESPONDENC E N68711-03-D-5104 00006	05-03-2005 10-11-2004 00010	SULTECH D. DAVENPORT NAVFAC - SOUTHWEST DIVISION G. LORTON	ALAMEDA ARCVIEW QUERY STATION UPDATE FOR BASEWIDE PROJECT MANAGEMENT; CONTAINS THE ANALYTICAL DATA COLLECTED AND TRANSMITTED TO TETRA TECH (CD COPY ONLY ENCLOSED). ***COMMENTS: (HARDCOPY DOCUMENT IS UNAVAILABLE, PER RPM T. MACCHIARELLA ON 03 MAY 2005)***	ADMIN RECORD INFO REPOSITORY	027 028	SOUTHWEST DIVISION - BLDG. 1 SW061023-03 IMAGED APNT_020

UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Record Type	Record Date	Author	Location	FRC Accession No.
Contr./Guid. No.	CTO No.	Recipient Affil.	Recipient	Subject/Comments	Classification	Sites	SWDIV Box No(s)	FRC Warehouse
Approx. # Pages	EPA Cat. #						CD No.	FRC Box No(s)
N00236 / 001902	12-06-2004	NAVFAC -	TRANSMITTAL OF GROUNDWATER	ADMIN RECORD	001	SOUTHWEST		
8554 & SWDIV	11-10-2004	SOUTHWEST	MONITORING REPORTS FOR SUMMER 2003	INFO REPOSITORY	002	DIVISION - BLDG. 110		
BPMOW.CXD/0076	NONE	DIVISION	TO SPRING 2004 [INCLUDES SUMMARY OF		003	06/21/06		
CORRESPONDENC		R. PLASEIED	SIGNIFICANT CHANGES TO THE ANNUAL		005			
E		U.S. EPA - SAN	2003 TO 2004 ALAMEDA BASEWIDE		006			
N62474-98-D-2076		FRANCISCO	GROUNDWATER MONITORING PROGRAM		007			
00012		A. COOK	AND SWDIV TRANSMITTAL LETTER BY R.		008			
			PLASEIED]. ***COMMENTS: {PORTION OF		009			
			MAILING LIST IS CONFIDENTIAL, CD COPY		027			
			ENCLOSED OF SECTIONS 5-9 AND		032			
			APPENDICES}***		OU 2C			
N00236 / 001822	04-29-2004	SHAW	GROUNDWATER MONITORING REPORT	ADMIN RECORD	027	SOUTHWEST		
8834 AND 6984	12-17-2004	ENVIRONMENTAL,	FOR SUMMER 2003 TO SPRING 2004	INFO REPOSITORY		DIVISION - BLDG. 1		
REPORT	00103	INC.	(INCLUDES REPLACEMENT COVER, TITLE	SENSITIVE		SW060814-01		
N62474-98-D-2076		J. MCGUIRE	AND SIGNATURE PAGES THAT REFLECT			IMAGED		
00153		BRAC - SAN	SUMMER 2003 TO SPRING 2004) [PORTION			APNT_014		
		DIEGO	OF MAILING LIST IS SENSITIVE; CD COPY					
			OF APPENDICES A THROUGH D					
			ENCLOSED]. ***COMMENTS: {INCLUDES					
			SWDIV TRANSMITTAL LETTER BY T.					
			MACCHIARELLA (SWDIV SER					
			BPMOW.CD10222 AND SER 06CA.CD/0438)}***					

UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Record Type	Record Date	Author	Location	FRC Accession No.
Contr./Guid. No.	CTO No.	Recipient Affil.	Subject/Comments	Classification	Sites	SWDIV Box No(s)	FRC Warehouse	FRC Box No(s)
Approx. # Pages	EPA Cat. #	Recipient				CD No.		
N00236 / 000880 8847 & BRAC SER BPMOW.CD/0238 REPORT N62474-98-D-2076 00178	08-04-2003 12-22-2004 0078 & 0103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC PMO WEST	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 27, SUMMER 2002 TO SPRING 2003 (CD COPY OF APPENDICES A AND B ENCLOSED) [INCLUDES REPLACEMENT PAGES ISSUED ON DIFFERENT DATES WITH DIFFERENT DOCUMENT CONTROL NUMBERS] (**SEE COMMENTS). ***COMMENTS: (NOTE: REPLACEMENT PAGES INCLUDES THE FOLLOWING: 1) ORIGINAL DOCUMENT ISSUED ON 31 JULY 2003 WITH SWDIV TRANSMITTAL LETTER BY R. WEISENBORN (SWDIV SER 06CA.RW/1118) - DCN #5679; 2) DOCUMENT ISSUED ON 11 NOVEMBER 2003 WITH SECTION 6 ONLY, REVISED TOC AND SECTION 9, NEW VERSION OF APPENDICES A & B - DCN #6568; 3) DOCUMENT ISSUED ON 27 FEBRUARY 2004 WITH SWDIV TRANSMITTAL LETTER BY G. LORTON (SWDIV SER 06CA.CG/0222), SECTIONS 7 AND 8 ONLY, REVISED TOC AND SECTION 9, NEW VERSION OF APPENDICES A AND B - DCN #6706; 4) DOCUMENT ISSUED ON 22 DECEMBER 2004 WITH REVISED TOC, SECTIONS 7, 8 AND 9 AND NEW VERSION OF APPENDICES A AND B)***	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 1 SW070829-02 IMAGED APNT_026	181-03-0188 41031858	BOX 0017
N00236 / 001974 8847 & BRAC SER BPMOW.CD\0238 REPORT N62474-98-D-2076 00020	03-04-2005 12-22-2004 0078 & 0103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC PMO WEST	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 27, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH REVISED SECTIONS 7 & 8 ONLY AND REPLACEMENT PAGES) [SEE AR #880 - ORIGINAL DOCUMENT AND AR #1782 - ORIGINAL SECTIONS 7 & 8]. ***COMMENTS: {INCLUDES BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHAIRELLA} (THIS DOCUMENT WAS INSERTED IN AR #880. AR #1974 WILL BE DELETED FROM THE DATABASE)***	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 110		

UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Author	Location	FRC Accession No.
Record Type	Record Date	Author	Author	SWDIV Box No(s)	FRC Warehouse	FRC Warehouse
Contr./Guid. No.	CTO No.	Recipient Affil.	Recipient Affil.	CD No.	FRC Box No(s)	FRC Box No(s)
Approx. # Pages	EPA Cat. #	Recipient	Subject/Comments	Classification	Sites	
N00236 / 002004 CTO-0069/0297 & SER BPMOW.JS/0545 REPORT N-68711-95-D-7526 02320	04-07-2005 03-24-2005 00069	BECHTEL ENVIRONMENTAL, INC. C. STUMPENHAUS BRAC - SAN DIEGO	DRAFT REMEDIAL INVESTIGATION REPORT AT THE DOCK ZONE - VOLUME I-III OF III, FOLDERS 1-3 OF 3 [INCLUDES SWDIV TRANSMITTAL LETTER BY T. MACCHIARELLA] (PORTION OF MAILING IS SENSITIVE, CD COPY OF PHASE IV SOIL GAS INVESTIGATION REPORT ENCLOSED)	ADMIN RECORD INFO REPOSITORY SENSITIVE	027	SOUTHWEST DIVISION - BLDG. 1 SW070112-02 IMAGED APNT_008
N00236 / 002420 NONE CORRESPONDENC E NONE 00021	08-22-2006 05-24-2005 NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT REMEDIAL INVESTIGATION (RI) REPORT, DOCK ZONE (INCLUDES GSU COMMENTS BY S. BLACK DATED 24 MAY 2005 AND HERD COMMENTS BY J. POLISINI DATED 6 MAY 2005)	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 1 SW070112-03 IMAGED APNT_008
N00236 / 002421 NONE CORRESPONDENC E NONE 00011	08-22-2006 05-24-2005 NONE	USEPA - SAN FRANCISCO A. COOK BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT REMEDIAL INVESTIGATION (RI) REPORT, DOCK ZONE	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 1 SW070330-03 IMAGED APNT_024
N00236 / 002061 BRAC SER BPMOW.JAS/093 CORRESPONDENC E NONE 00003	07-07-2005 07-07-2005 00087	BRAC PMO WEST T. MACCHIARELLA EPA - BERKELEY M. LIAO	REQUEST FOR IDENTIFICATION OF STATE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) FOR INSTALLATION RESTORATION SITE	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 1 SW061005-03 IMAGED APNT_019
N00236 / 002071 BRAC SER BPMOW.AB/112& SWDIV SER BPMOW.AB/0980 REPORT N68711-95-D-7526 02562	08-01-2005 08-22-2005 CTO-0069/0405	BECHTEL ENVIRONMENTAL, INC. C. STUMPENHAUS BRAC PMO WEST	FINAL REMEDIAL INVESTIGATION (RI) REPORT FOR THE DOCK ZONE, VOLUMES I-III OF III, FOLDERS 1-2 OF 2 REPLACEMENT PAGES ISSUED 08/24/2005 CONVERTING THE DRAFT FINAL DATED 07/25/2005 TO A FINAL (PORTION OF MAILING LIST IS SENSITIVE). ***COMMENTS: [CD COPY ENCLOSED] (INCLUDES BRAC PMOW TRANSMITTAL BY T. MACCHIARELLA) (PER RPM, M. HURST, ON 12/5/06, ATTACHMENT I-2 WAS NOT INCLUDED IN THE DOCUMENT. THE TOC FOR APPENDIX I IS ERRONEOUS)***	ADMIN RECORD INFO REPOSITORY SENSITIVE	027	SOUTHWEST DIVISION - BLDG. 1 SW061227-01 IMAGED APNT_026

UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Author	Location	FRC Accession No.		
Record Type	Record Date	Author	Author	Location	FRC Accession No.	FRC Warehouse		
Contr./Guid. No.	CTO No.	Recipient Affil.	Recipient	Subject/Comments	Classification	Sites	SWDIV Box No(s)	FRC Warehouse
Approx. # Pages	EPA Cat. #	Recipient	Recipient	Subject/Comments	Classification	Sites	CD No.	FRC Box No(s)
N00236 / 002538 NONE CORRESPONDENC E NONE 00002	09-19-2006 08-26-2005 NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA	REVIEW AND COMMENTS ON RESPONSE TO COMMENTS ON DRAFT REMEDIAL INVESTIGATION (RI) REPORT	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 1 SW070330-03 IMAGED APNT_024	
N00236 / 002140 BRAC SER BPMOW.GL1298 AND CTO-0069/0446 REPORT N68711-95-D-7526 00459	10-26-2005 10-21-2005 00069	BECHTEL ENVIRONMENTAL, INC. M. DERMER BRAC PMO WEST	BECHTEL ENVIRONMENTAL, INC. M. DERMER BRAC PMO WEST	DRAFT FEASIBILITY STUDY REPORT DOCK ZONE (INCLUDES BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA) [PORTION OF THE MAILING LIST IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	027	SOUTHWEST DIVISION - BLDG. 1 SW060921-03 IMAGED APNT_006	
N00236 / 002172 DS.B012.13729 & BRAC SER BPMOW.LA011417 REPORT N68711-03-D-5104 00294	12-07-2005 11-29-2005 00012	SULTECH BRAC PMO WEST	SULTECH BRAC PMO WEST	DRAFT COMPILATION OF OUTSTANDING SOLID WASTE MANAGEMENT UNIT (SWMU) EVALUATION REPORTS, HAZARDOUS WASTE PERMIT EPA ID NUMBER CA 2170023236 (INCLUDES BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA)	ADMIN RECORD INFO REPOSITORY	001 002 014 026 027 032 034 OU 1 OU 3 OU 4A OU 6 PARCEL 12 PARCEL 17 PARCEL 1A PARCEL 9	SOUTHWEST DIVISION - BLDG. 1 SW061005-03 IMAGED APNT_019	
N00236 / 002207 FILE NO. 2199.9285 (JCH) AND 2199.9284 (JCH) CORRESPONDENC E NONE 00002	02-08-2006 12-21-2005 NONE	CRWQCB - OAKLAND J. HUANG BRAC PMO WEST T. MACCHIARELLA	CRWQCB - OAKLAND J. HUANG BRAC PMO WEST T. MACCHIARELLA	REQUEST FOR COMMENT DEADLINE EXTENSIONS ON DRAFT PROPOSED PLAN AND DRAFT FEASIBILITY STUDY	ADMIN RECORD	002 027 OU 5	SOUTHWEST DIVISION - BLDG. 1 SW060921-04 IMAGED APNT_006	

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Contr./Guid. No.	CTO No.	Recipient Affil.	Recipient	CD No.	FRC Warehouse	FRC Accession No.
Approx. # Pages	EPA Cat. #	Recipient	Subject/Comments	Classification	Sites	FRC Box No(s)
N00236 / 002217 NONE CORRESPONDENC E NONE 00011	02-15-2006 01-23-2006 NONE	USEPA - SAN FRANCISCO A. COOK BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON THE DRAFT FEASIBILITY STUDY REPORT, DOCK ZONE	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 1 SW060921-04 IMAGED APNT_006
N00236 / 002218 NONE CORRESPONDENC E NONE 00016	02-15-2006 01-23-2006 NONE	DTSC - BERKELEY M. LIAO BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON THE DRAFT FEASIBILITY STUDY REPORT, DOCK ZONE [INCLUDES OMF AND HERD COMMENTS] {INCLUDES GSU COMMENTS DATED 1/20/2006 AND ESU COMMENTS DATED 1/17/2006} (PORTION OF THE MAILING LIST IS CONFIDENTIAL)	ADMIN RECORD INFO REPOSITORY SENSITIVE	027	SOUTHWEST DIVISION - BLDG. 1 SW060921-04 IMAGED APNT_006
N00236 / 002208 NONE CORRESPONDENC E NONE 00004	02-08-2006 01-24-2006 NONE	CRWQCB - OAKLAND J. HUANG BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON THE DRAFT FEASIBILITY STUDY REPORT, DOCK ZONE (PORTION OF THE MAILING LIST IS SENSITIVE). ***COMMENTS: AR # 2208 IS A DUPLICATE OF AR # 2491. AR # 2208 WILL BE DELETED FROM THE DATABASE.***	ADMIN RECORD INFO REPOSITORY SENSITIVE	027	SOUTHWEST DIVISION - BLDG. 1 SW060921-04
N00236 / 002491 FILE NO. 2199.9285(JCH) CORRESPONDENC E NONE 00009	08-28-2006 01-24-2006 NONE	CRWQCB - OAKLAND J. HUANG BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT FEASIBILITY STUDY (FS) REPORT, DOCK ZONE (INCLUDES ARARS FOR GROUNDWATER REMEDIATION TABLE) {PORTION OF THE MAILING LIST IS SENSITIVE}	ADMIN RECORD INFO REPOSITORY SENSITIVE	027	SOUTHWEST DIVISION - BLDG. 1 SW060921-05 IMAGED APNT_006
N00236 / 002256 BRAC PMOW SER BPMOW.ALB/0275 CORRESPONDENC E NONE 00004	03-28-2006 03-24-2006 NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF DRAFT FINAL FEASIBILITY STUDY REPORT, DOCK ZONE (W/OUT ENCLOSURE) [PORTION OF THE MAILING LIST IS CONFIDENTIAL] {SEE AR #2255 - DRAFT FINAL FEASIBILITY STUDY REPORT, DOCK ZONE}	ADMIN RECORD INFO REPOSITORY SENSITIVE	027	SOUTHWEST DIVISION - BLDG. 1 SW061005-04 IMAGED APNT_018

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Contr./Guid. No.	CTO No.	CTO No.	Recipient Affil.	CD No.	SWDIV Box No(s)	FRC Warehouse	FRC Accession No.	FRC Warehouse
Approx. # Pages	EPA Cat. #	EPA Cat. #	Recipient	Subject/Comments	Classification	Sites	CD No.	FRC Box No(s)
N00236 / 002312 NONE CORRESPONDENC E NONE 00003	05-19-2006 04-20-2006 NONE	05-19-2006 04-20-2006 NONE	USEPA - SAN FRANCISCO A. COOK BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON THE DRAFT FINAL FEASIBILITY STUDY (FS) REPORT, DOCK ZONE	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 1 SW060921-05 IMAGED APNT_006	
N00236 / 002255 CTO-0069/0488 REPORT N68711-95-D-7526 00526	03-28-2006 04-24-2006 00069	03-28-2006 04-24-2006 00069	BECHTEL ENVIRONMENTAL, INC. BRAC PMO WEST	FINAL FEASIBILITY STUDY REPORT, DOCK ZONE (CD COPY ENCLOSED) [INCLUDES REPLACEMENT PAGES CONVERTING DRAFT FINAL DATED 3/23/04 TO FINAL] {SEE AR #2256 - BRAC TRANSMITTAL LETTER BY T. MACCHIARELLA}. ***COMMENTS: (SPINE, COVER PAGE AND SIGNATURE PAGE WERE INSERTED INTO THE DOCUMENT) [SEE AR # 2289 - BRAC PMO WEST TRANSMITTAL LETTER BY A. LEE]***	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 1 SW060921-05 IMAGED APNT_006	
N00236 / 002289 BRAC SER BPMOW.AB\0367 CORRESPONDENC E NONE 00004	05-03-2006 04-24-2006 NONE	05-03-2006 04-24-2006 NONE	BRAC PMO WEST A. LEE BCT MEMBERS	TRANSMITTAL OF FINAL FEASIBILITY STUDY (FS) REPORT, DOCK ZONE (W/OUT ENCLSURE) [PORTION OF THE MAILING LIST IS CONFIDENTIAL] {SEE AR #2255 - FINAL FEASIBILITY STUDY REPORT, DOCK ZONE}	ADMIN RECORD INFO REPOSITORY SENSITIVE	027	SOUTHWEST DIVISION - BLDG. 1 SW060921-05 IMAGED APNT_006	
N00236 / 002319 NONE CORRESPONDENC E NONE 00003	05-30-2006 04-26-2006 NONE	05-30-2006 04-26-2006 NONE	DTSC - SACRAMENTO D. LOFSTROM BRAC PMO WEST T. MACCHIARELLA	DTSC HAS NO FURTHER COMMENTS ON THE DRAFT FINAL FEASIBILITY STUDY (FS) REPORT, DOCK ZONE (PORTION OF THE MAILING LIST IS CONFIDENTIAL)	ADMIN RECORD INFO REPOSITORY SENSITIVE	027	SOUTHWEST DIVISION - BLDG. 1 SW060921-05 IMAGED APNT_006	
N00236 / 002378 CTO-0084/0022 REPORT N68711-95-D-7526 00018	07-31-2006 07-01-2006 00084	07-31-2006 07-01-2006 00084	BECHTEL ENVIRONMENTAL, INC. BRAC PMO WEST	DRAFT PROPOSED PLAN, DOCK ZONE (SEE AR #2377 - BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA)	ADMIN RECORD	027	SOUTHWEST DIVISION - BLDG. 1 SW061023-04 IMAGED APNT_019	

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						CD No.	FRC Box No(s)		
N00236 / 002377 BRAC SER BPMOW.AB/0619 CORRESPONDENC E NONE 00003	07-31-2006 07-24-2006 NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF DRAFT PROPOSED PLAN, DOCK ZONE (W/OUT ENCLOSURE) [SEE AR #2378 - DRAFT PORPOSED PLAN]	ADMIN RECORD	027	SOUTHWEST DIVISION - BLDG. 1 SW061023-04 IMAGED APNT_019			
N00236 / 002519 FILE NO. 2199.9285(JCH) CORRESPONDENC E NONE 00003	09-12-2006 08-21-2006 NONE	CRWQCB - OAKLAND J. HUANG BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT PROPOSED PLAN (PP), DOCK ZONE	ADMIN RECORD	027	SOUTHWEST DIVISION - BLDG. 1 SW061023-04 IMAGED APNT_019			
N00236 / 002518 NONE CORRESPONDENC E NONE 00004	09-12-2006 08-23-2006 NONE	DTSC - SACRAMENTO D. LOFSTROM BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT PROPOSED PLAN (PP), DOCK ZONE	ADMIN RECORD	027	SOUTHWEST DIVISION - BLDG. 1 SW061023-04 IMAGED APNT_019			
N00236 / 002543 NONE CORRESPONDENC E NONE 00004	09-19-2006 09-05-2006 NONE	USEPA - SAN FRANCISCO A. COOK BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT PROPOSED PLAN, DOCK ZONE	ADMIN RECORD	027	SOUTHWEST DIVISION - BLDG. 1 SW061023-04 IMAGED APNT_019			
N00236 / 002580 CTO-0084/0051 REPORT N68711-95-D-7526 00025	10-31-2006 10-01-2006 00084	BECHTEL ENVIRONMENTAL, INC. J. ARGYRES NAVFAC - SOUTHWEST G. STEINWAY	DRAFT FINAL PROPOSED PLAN (PP), DOCK ZONE (INCLUDES DTSC RESPONSES TO COMMENTS ON DRAFT PP) [SEE AR #2579 - BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA]	ADMIN RECORD	027	SOUTHWEST DIVISION - BLDG. 110			

UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Record Type	Record Date	Author	Location	FRC Accession No.
Contr./Guid. No.	CTO No.	CTO No.	Recipient Affil.	Contr./Guid. No.	CTO No.	Recipient	SWDIV Box No(s)	FRC Warehouse
Approx. # Pages	EPA Cat. #	EPA Cat. #	Recipient	Subject/Comments	Classification	Sites	CD No.	FRC Box No(s)
N00236 / 002579 BRAC SER BPMOW.MH\0008 CORRESPONDENC E NONE 00003	10-31-2006 10-05-2006 NONE	10-31-2006 10-05-2006 NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF DRAFT FINAL PROPOSED PLAN (PP), DOCK ZONE (W/OUT ENCLOSURE) [SEE AR #2580 - DRAFT FINAL PP]	ADMIN RECORD	027	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 002616 CTO-0084/0109 REPORT N68711-95-D-7526 00015	11-22-2006 11-01-2006 00084	11-22-2006 11-01-2006 00084	BECHTEL ENVIRONMENTAL, INC. J. ARGYRES NAVFAC - SOUTHWEST G. STEINWAY	FINAL PROPOSED PLAN, DOCK ZONE	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 002700 NONE CORRESPONDENC E NONE 00002	03-07-2007 12-15-2006 NONE	03-07-2007 12-15-2006 NONE	PUBLIC COMMENT J. BARSE BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON PROPOSED PLAN (PP), DOCK ZONE (PORTION OF THE DOCUMENT IS SENSITIVE)	ADMIN RECORD INFO REPOSITORY SENSITIVE	027	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 002693 NONE CORRESPONDENC E NONE 00001	02-13-2007 12-21-2006 NONE	02-13-2007 12-21-2006 NONE	CLEAR WATER TOXIC SPOT P. LYNCH BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON FINAL PROPOSED PLAN (PP), DOCK ZONE [PORTION OF THE DOCUMENT IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	027	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 002739 CTO-0084/0222 REPORT N68711-95-D-7526 00150	04-23-2007 04-01-2007 00084	04-23-2007 04-01-2007 00084	BECHTEL ENVIRONMENTAL, INC. BRAC PMO WEST	DRAFT RECORD OF DECISION (ROD), DOCK ZONE [CD COPY IS ENCLOSED] {SEE AR #2738 - BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA}	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 1	

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N00236 / 002738 BRAC SER BPMOW.MLH/0480 CORRESPONDENC E NONE 00002	04-23-2007 04-19-2007 NONE		T. MACCHIARELLA BRAC PMO WEST VARIOUS AGENCIES						TRANSMITTAL OF DRAFT RECORD OF DECISION (ROD), DOCK ZONE [W/OUT ENCLOSURE] (SEE AR #2739 - DRAFT RECORD OF DECISION)	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 1	
N00236 / 002884 2199.9285(EWS) CORRESPONDENC E NONE 00002	10-04-2007 07-26-2007 NONE		CRWQCB - OAKLAND E. SIMON BRAC PMO WEST T. MACCHIARELLA						REVIEW AND COMMENTS ON THE DRAFT RECORD OF DECISION	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 1	
N00236 / 002885 NONE CORRESPONDENC E NONE 00008	10-04-2007 07-26-2007 NONE		EPA - SAN FRANCISCO A. COOK BRAC PMO WEST T. MACCHIARELLA						REVIEW AND COMMENTS ON THE DRAFT RECORD OF DECISION, DOCK ZONE	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 1	
N00236 / 002880 NONE CORRESPONDENC E NONE 00002	10-04-2007 08-01-2007 NONE		EPA - SAN FRANCISCO A. COOK BRAC PMO WEST T. MACCHIARELLA						REVIEW AND COMMENTS ON THE DRAFT RECORD OF DECISION, DOCK ZONE	ADMIN RECORD INFO REPOSITORY	027	SOUTHWEST DIVISION - BLDG. 1	

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Record Type	Record Date	Author	Recipient Affil.	Recipient	SWDIV Box No(s)	FRC Warehouse	
Contr./Guid. No.	CTO No.	Recipient Affil.	Recipient	Subject/Comments	Classification	FRC Box No(s)	
Approx. # Pages	EPA Cat. #	Recipient	Recipient	Subject/Comments	Sites	CD No.	
N00236 / 002840	09-17-2007	SULTECH	SULTECH	APPLICABLE OR RELEVANT AND	ADMIN RECORD	001	SOUTHWEST
SULT.5104.0130.004	08-08-2007	BRAC PMO WEST	BRAC PMO WEST	APPROPRIATE REQUIREMENTS (ARARS)	INFO REPOSITORY	005	DIVISION - BLDG. 1
2	00130			TEMPLATE (CD COPY IS ENCLOSED)		006	
REPORT						008	
N68711-03-D-5104						010	
00025						011	
						012	
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						029	
						032	
						034	
						035	
						OU 001	
N00236 / 002935	11-05-2007	DTSC -	DTSC -	REVIEW AND COMMENTS ON THE DRAFT	ADMIN RECORD	027	SOUTHWEST
NONE	08-09-2007	SACRAMENTO	SACRAMENTO	RECORD OF DECISION, DOCK ZONE	INFO REPOSITORY		DIVISION - BLDG. 1
CORRESPONDENC	NONE	D. LOFSTROM	D. LOFSTROM				
E		BRAC PMO WEST	BRAC PMO WEST				
NONE		T. MACCHIARELLA	T. MACCHIARELLA				
00005							

ATTACHMENT B

**TRANSCRIPT FROM PUBLIC MEETING,
SIGN-IN SHEET, AND PUBLIC NOTICE**

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PROPOSED PLAN FOR
SITE 27, DOCK ZONE

ALAMEDA POINT, CALIFORNIA
PUBLIC MEETING

Tuesday, December 12, 2006

Alameda City Hall West
950 W. Mall Square
Building 1
Community Conference Room 201
Alameda Point, California

Reported by: Valerie E. Jensen, CSR No. 4401

JAN BROWN & ASSOCIATES
CERTIFIED SHORTHAND REPORTERS
701 Battery Street, 3rd Floor
San Francisco, California 94111
(415) 981-3498

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P A R T I C I P A N T S

PRESENTERS:

THOMAS L. MACCHIARELLA, Navy BRAC Environmental
Coordinator, BRAC Program Management Office West
MICHELLE HURST, Navy Project Manager
DAN CARROLL, Kleinfelder

OTHER AGENCY, NAVY STAFF AND CONSULTANT REPRESENTATIVES:

CATHIE STUMPENHAUS, Bechtel
MICHELE DERMER, Bechtel
LINDA HENRY, Brown and Caldwell
BETTY SCHMUCKER, Brown and Caldwell
WYNN YIN, Brown and Caldwell
DOT LOFSTROM, Department of Toxic Substances Control
ANNA-MARIE COOK, U.S. Environmental Protection
Agency
PETER RUSSELL, Russell Resources, Consultant
for Alameda Reuse and Redevelopment Authority

COMMUNITY MEMBERS AND INTERESTED PARTIES:

JIM BARSE

1 DECEMBER 12, 2006

6:48 P.M.

2
3 MR. MACCHIARELLA: Good evening.

4 We just concluded the poster board viewing
5 and informal discussion period. And since there
6 are no community members present, we will postpone
7 subsequent presentations until community members
8 arrive. If none arrive by 7:30, we will conclude
9 at that time.

10 Community members may provide written
11 comments on the Proposed Plan for Site 27, Dock Zone,
12 to the Navy through December 22. In the event that no
13 community members arrive, the view slides, rather than a
14 verbatim transcript of the presentation, will be in the
15 stenographer's report of this meeting and together will
16 be placed in the administrative record and other places
17 as appropriate.

18 The stenographer will now stop recording
19 while the Navy and regulatory agency representatives
20 await the arrival of community members. Recording
21 will resume when we return to the presentations or
22 for meeting adjournment, whichever comes first.

23 (Off the record at 6:49 p.m.)

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(Back on the record at 7:05 p.m.)

MR. MACCHIARELLA: Good evening.

We now have at least one community member.

Thank you for coming.

This meeting is hosted by the Department of the Navy; more specifically, the BRAC Program Management Office West. My name is Thomas Macchiarella. The purpose of this meeting is for the Navy to present its Proposed Plan for Installation Restoration Site 27, also known as "the Dock Zone."

I'd like to introduce Ms. Michelle Hurst, the Navy's Project Manager for this site, and, also, Mr. Dan Carroll, the Navy's consultant for this site, who will both be presenting tonight. We can all answer your questions.

Tonight we're focused on Site 27, but I think it's important to go over the Navy's Installation Restoration Program in general so you can better understand where we are for Site 27 in the overall process.

The Navy's Installation Restoration Program mirrors the CERCLA process. The program is managed by the Navy's BRAC Program Management Office West with significant support from the Southwest Naval

1 Facilities Engineering Command. The BRAC PMO West
2 reports directly to the Deputy Assistant Secretary
3 of the Navy for Installations & Environment. And
4 then I'm the BRAC Environmental Coordinator for
5 Alameda Point.

6 The purpose of the program is to
7 identify and find sites and clean them up or get
8 them to Site Closure and to be consistent with CERCLA,
9 as I mentioned, which is also known as "Superfund" in
10 the private sector.

11 Here is a flow diagram of the CERCLA and
12 Installation Restoration Program. We're about in
13 the middle of the stepwise process, the Proposed Plan.
14 Before the Proposed Plan comes quite a bit of study.
15 After the Proposed Plan comes a Record of Decision,
16 which documents the decision for cleanup. And, of
17 course, cleanup occurs.

18 At a glance, the IR program at Alameda
19 Point consists of 35 sites. It's on the National
20 Priorities List, which means that the U.S. EPA is
21 the lead regulatory agency.

22 We have a BRAC cleanup team which meets
23 monthly. The BRAC cleanup team is composed of
24 the Department of Toxic Substances Control -- Dot
25 Lofstrom is here tonight as their representative --

1 the U.S. EPA -- Anna Marie Cook is with us tonight --
2 and there is also Erich Simon, who is not present,
3 of the Regional Water Quality Control Board.

4 We have a Federal Facilities Agreement
5 between the Navy and the BRAC Cleanup Team members,
6 which is, essentially, a concept that streamlines
7 the process, ensures timely and thorough coordination
8 among these parties. We update a Site Management Plan
9 each year. And the Site Management Plan essentially
10 schedules milestones for each of these sites. It's
11 based on our available resources and input from the
12 regulatory agencies and community.

13 The Restoration Advisory Board. The
14 RAB is a community-based board that meets monthly
15 and represents the public and serves in an advisory
16 capacity to the Navy. It's been operating here at
17 Alameda Point since '93. And there are both a
18 Navy co-chair and a community co-chair for the RAB.
19 I am the Navy's co-chair.

20 The RAB meets on the first Thursday of
21 every month in this building. The mission of the
22 RAB is to enhance communication, review and comment
23 on the Navy's environmental program documents and
24 to help identify and resolve environmental issues.

25 Back to Site 27.

1 We're at the Proposed Plan stage. The
2 Proposed Plan provides for community involvement in the
3 decision process. It summarizes all the environmental
4 efforts to date, such as investigations and interim
5 cleanup actions. It proposes a decision called the
6 "Preferred Alternative." It leads to the ROD.

7 I should point out that all public comments
8 that we receive during the comment period will be
9 considered before the Navy makes a final decision,
10 in consultation with the regulatory agencies.
11 Right after the ROD, the Navy will prepare a
12 Remedial Design and move on to conduct the
13 Remedial Action or the cleanup work.

14 The comment period for this particular
15 Preferred Alternative and the Proposed Plan is
16 November 20 through December 22. And you can address
17 those comments to me in writing -- my address is shown
18 in the Proposed Plan -- either by e-mail or regular
19 mail or fax, or you can also give verbal comments
20 tonight towards the end of the meeting.

21 Any comments on the IR program in general
22 before we move on to a summary of the Proposed Plan?

23 Ms. Hurst?

24 MS. HURST: Yes.

25 (Discussion off the record.)

1 MS. HURST: I'm Michelle Hurst. And
2 the slides I'm going to go over are the purpose for
3 today's meeting on Site 27 and background information
4 on the site, including photos and site history. And
5 then we'll discuss that we've been working with the
6 regulatory agencies throughout this process. And
7 at that point, I'm going to pass the control off
8 to Dan, and he'll discuss the summaries for the
9 Remedial Investigation and the Feasibility Study
10 and the preferred alternative for Site 27 and
11 community involvement.

12 The purpose is to present to the public
13 the preferred alternative to clean up groundwater
14 under Site 27 and to summarize prior investigations
15 and work to date and, also, to provide an opportunity
16 for the public to provide input on the planned cleanup
17 before the final remedy is selected in the ROD, the
18 Record of Decision, and inform the public that the
19 federal and state regulatory agencies are working
20 with the Navy and agree with this alternative.

21 Site 27, also called "the Dock Zone," is
22 located in the southeastern area of Alameda Point
23 near Seaplane Lagoon and covers approximately 15.8
24 acres.

25 The photo on the left is an aerial photo

1 from 1937. And that's part of San Francisco Bay.
2 There's no land there yet. And the photo on the
3 right is from 1947. So there's some features there
4 that are not currently there today.

5 This is Ferry Point Road and West Oriskany
6 here, Building 168. The site was filled and paved by
7 1945. And Building 168, which was the large building,
8 was a warehouse that was constructed in 1946. And the
9 site was used by the Navy for ship repair and painting,
10 vehicle washdown, equipment and materials staging and
11 storage, which you could see in front of Building 168,
12 and chemical handling and storage in Building 168.
13 And the site is currently leased for similar uses.

14 Currently, there are volatile organic
15 compounds -- VOCs -- and arsenic present in the
16 groundwater at concentrations above regulatory
17 criteria. However, the groundwater is not
18 currently used by the public.

19 This is a graphic of what the VOC plume
20 looks like. The outer contour is the non-detects
21 line. The next one is 5 micrograms per liter and --
22 I can't read the rest of it. This is 100 micrograms
23 per liter contour. You can see it in the Proposed
24 Plan.

25 The groundwater beneath Site 27, as I said

1 before, is not currently used for drinking water or
2 other uses, as East Bay Municipal Utilities District
3 provides the water service. And we've been working
4 throughout this whole CERCLA process with the regulatory
5 agencies from the state and federal level, including
6 the Regional Water Quality Control Board, the Department
7 of Toxic Substances Control and the U.S. Environmental
8 Protection Agency.

9 And I'd like to have Dan come up to do
10 the rest.

11 MR. CARROLL: Thank you, Michelle.

12 I'm Dan Carroll. I'm part of the Bechtel
13 team that prepared the Remedial Investigation and the
14 Feasibility Study and this Proposed Plan.

15 Briefly, I'm going to summarize the
16 Remedial Investigation.

17 It included analytical results from a
18 number of previous environmental studies at the site.
19 A number of samples were collected and analyzed for
20 soil, soil gas and groundwater. This report was done
21 back in 2005. It was finalized. All of that analytical
22 data was evaluated. And human health and ecological
23 risk assessments were performed.

24 The primary contaminants at the site were
25 chlorinated solvents, chlorinated volatile organic

1 compounds, in groundwater. There was also one area
2 with arsenic in groundwater that was above the drinking
3 water standards. The sources of the solvents were
4 undocumented historical chemical releases at the site.
5 The arsenic is limited to the center of the solvent
6 plume. It's not widespread, so it's in one small
7 area in the middle of that plume.

8 Based on the results of the Risk Assessment,
9 the Remedial Investigation focused the Feasibility
10 Study on only the groundwater. No further action was
11 recommended for soil in the Remedial Investigation.

12 The RI also summarized risk.

13 There's a definition of "risk" on the
14 slide here I'll read. It's "The likelihood or
15 probability that a hazardous substance released to
16 the environment will cause adverse effects on exposed
17 human or ecological receptors."

18 And for human health risk, all of the
19 pathways were evaluated in the Human Health Risk
20 Assessment, and the only risk was for a site
21 resident who used groundwater for drinking water
22 and for showering. So, those were the only pathways
23 that needed to be further addressed.

24 There was no ecological risk posed by
25 the site, so there was no action recommended for

1 mitigating ecological risk.

2 So, with that, those results from the
3 Remedial Investigation fed into the Feasibility Study,
4 which I'm going to summarize briefly. The components
5 of this part of the talk include the summary of the
6 Remedial Action Objectives, the alternatives that
7 were evaluated and the comparison of those alternatives
8 that were evaluated for cleaning up the groundwater.

9 Remedial action objectives first were to
10 protect beneficial uses of groundwater and surface
11 water, to prevent domestic use of groundwater until
12 cleanup goals are met and to propose cleanup goals
13 for groundwater that were drinking water standards,
14 or MCLs, at Site 27.

15 On this slide, the proposed remediation
16 goals for groundwater are shown. I'm not going
17 to read them all. They are also printed in the
18 Proposed Plan. Primarily, it's the solvents that
19 were detected. And you can look in the printed
20 material for more information on that.

21 Alternatives were developed for addressing
22 the solvents in groundwater. There were a total of
23 10 alternatives. They were developed and screened,
24 and four of those 10 alternatives were screened out.
25 So, six of the initial 10 were analyzed in detail.

1 And each of those six alternatives were compared
2 against what we call "the NCP criteria," the
3 contingency plan criteria, that are presented in
4 one of the slides in the very back of the room
5 in one of the posters there.

6 This is a summary of the comparison of
7 alternatives.

8 I'll use this pointer here.

9 The alternatives are across the top.

10 This is also in color in the Proposed Plan.

11 And the nine criteria are listed on the
12 left side of that table. The preferred alternative,
13 which is Alternative 6B, full scale in-situ chemical
14 oxidation, followed by groundwater sampling, is shown
15 in green on this slide. It shows that it was the most
16 effective of the alternatives. And it was also ranked
17 the highest of the alternatives in terms of reduction
18 of toxicity, mobility or volume through treatment. It
19 also is the quickest alternative to reach the cleanup
20 goals.

21 So, here is a list of all of the 10
22 alternatives that were evaluated. The ones that
23 are shown in grey in italics were the ones that were
24 screened out because they were less effective or more
25 costly than some of the other alternatives.

1 And, again, the preferred alternative, which
2 was identified as Alternative 6B in the Feasibility
3 Study, includes full scale in-situ chemical oxidation,
4 or ISCO, for treatment and destruction of the solvents
5 in the groundwater. Then the groundwater would then
6 be sampled for a couple of years after that to prove
7 that the cleanup goals are met.

8 So, the way that ISCO works is chemical
9 oxidant is put into the groundwater; and it reacts
10 with the solvents and destroys them in place by
11 oxidation; and it produces innocuous end products
12 like carbon dioxide.

13 And here's a graphic that shows the
14 conceptual design of in-situ chemical oxidation.
15 It's also a poster board in the back of the room.
16 It shows some injection points. With injection
17 of the chemical oxidants at the bottom, that then
18 disperses and reacts with the solvents that are in
19 the groundwater.

20 And we can talk about this further if
21 you have any questions about how that would work.

22 As I mentioned, Alternative 6B has the
23 shortest duration, which means that it'll be the
24 fastest one to achieve cleanup goals. The total
25 duration of the remedy is about three years. That

1 includes a few months to do the sampling or to do
2 the in-situ chemical oxidation -- excuse me -- and
3 a couple of years after that of groundwater sampling
4 to make sure that the concentrations meet the cleanup
5 goals.

6 This same technology has been used in a
7 number of nearby sites, including IR Site 9, so it's
8 a proven and known process that's worked for similar
9 contaminants. So it's not going to be a surprise to
10 the Navy or to the community. It's something that's
11 already been shown to work.

12 Community involvement. Obviously, this
13 public meeting.

14 The end of the comment period is 10
15 days from now. For other sites, there are other
16 opportunities for public comment in the stages of the
17 CERCLA process. So you can find out more information
18 from Thomas and his staff on when those other sites
19 are moving along in the process.

20 There are also monthly Restoration Advisory
21 Board meetings the first Thursday of each month, as
22 Thomas mentioned. There is an information repository
23 in this building right down the hall, Rooms 240 and
24 241, where previous historical documents on the various
25 sites here at Alameda are kept for the public to look

1 at.

2 That's the end of our presentation.

3 MR. MACCHIARELLA: Thank you, Mr. Carroll.

4 We're now at the point in the agenda for
5 clarifying questions before we move on to accepting
6 public comments.

7 Are there any clarifying questions on
8 Site 27 or the overall process?

9 MR. BARSE: I have one question.

10 MR. MACCHIARELLA: Please.

11 MR. BARSE: The 6B alternative. Are you
12 actually going to be installing new wells for the
13 ISCO process or -- can you describe a little more
14 how it actually works with the application of the
15 oxidizing compounds?

16 MR. CARROLL: Yes.

17 There will be new monitoring wells
18 installed at the site to track the progress of the
19 ISCO, but the actual ISCO points will be temporary
20 points that are driven in the ground. When you're
21 done injecting, it'll be grouted back up. So, the
22 injection points will not be permanent points; they'll
23 just be temporarily driven in.

24 And then you put the oxidant in, and then
25 you take it out and close it.

1 MR. MACCHIARELLA: Anything else?

2 MR. BARSE: Approximately how many of those
3 temporary injection points will there be through the
4 first phase of the ISCO process?

5 MR. CARROLL: We estimated -- because it's
6 a full-scale, across-the-entire-groundwater plume,
7 there are quite a few points -- I think the estimate
8 was about 570 of those points -- that would be advanced
9 and then closed. So it's going to take several months.

10 MR. BARSE: Thank you.

11 MR. MACCHIARELLA: Great. Thanks.

12 Okay. We'll stick around for a little
13 while longer, too, after we see if there are any
14 public comments, if there are any other questions.
15 And we also have the poster boards to take a look
16 at after, too.

17 So, are there any public comments for the
18 preferred alternative and Proposed Plan, keeping in
19 mind the comment period is open until December 22?

20 Okay. No comments.

21 Then we will adjourn and stick around a
22 little while to discuss things further, if you like.

23 Thank you, everybody, for coming.

24 (Off the record at 7:26 p.m.)

25

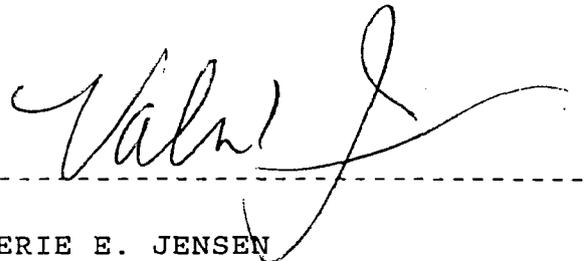
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STATE OF CALIFORNIA) SS.

I do hereby certify that the hearing was held at the time and place therein stated; that the statements made were reported by me, a certified shorthand reporter and disinterested person, and were, under my supervision, thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the participants in said hearing nor in any way personally interested or involved in the matters therein discussed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal of office this 8th day of January, 2007.



VALERIE E. JENSEN

Certified Shorthand Reporter

0084/0151

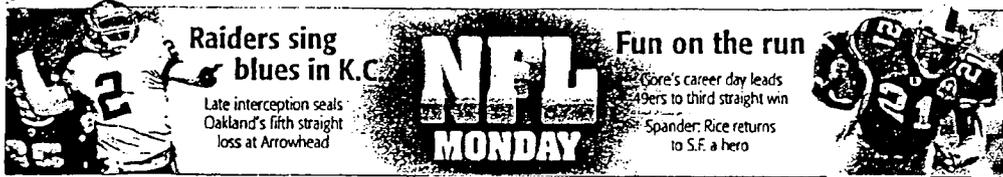
**Alameda Installation Restoration Program
Site 27 Groundwater
December 12, 2006
Navy/Agencies**

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Raiders sing blues in K.C. Late interception seals Oakland's fifth straight loss at Arrowhead

NFL MONDAY

Fun on the run Gore's career day leads 49ers to third straight win Spander: Rice returns to S.F. a hero



MONDAY
November 20, 2006

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Syria ready to help stabilize Iraq

Minister gives timetable for U.S. troop withdrawal, saying it will help quell violence

By Kirk Sample
NEW YORK TIMES

BAGHDAD, Iraq — Syria's foreign minister said Sunday during a visit here that his government is ready to help stabilize Iraq, and he called for a timetable for withdrawal of U.S. troops, saying it would help reduce the

violence. His trip, the first to Baghdad by a senior Syrian official since the ouster of Saddam Hussein, came on another day of widespread violence in Iraq. A suicide car bombing killed 17 people and wounded 49 in the southern Shiite city of Hillah, and the deputy health minister was kidnapped from his home in the capital.

In recent weeks, Iraq and some Western officials have promoted the idea of actively involving Iraq's neigh-

bors, especially Syria and Iran, in solution to the soaring sectarian violence in Iraq.

President Bashar has refused to open high-level talks with Syria and Iran, sources he has accused of providing financing and weapons to militias in Iraq. But as his administration reassesses its policy in Iraq, the president has come under increasing pressure to drop his opposition.

Former Secretary of State James Baker, co-chairman of a bipartisan

group studying policy in Iraq, had met several times with Syrian officials to discuss how they might cooperate with the U.S., according to the Syrian ambassador to Washington.

In an interview with the BBC broadcast Sunday, former Secretary of State Henry Kissinger endorsed the idea of involving Syria and Iran in discussions of Iraq's future, suggesting they be included in a conference.

"At some early point, an international conference should be called that

involves neighbors, perhaps the permanent members of the Security Council and countries that have a major interest in the outcome, like India and Pakistan," said Kissinger, who sometimes advises the Bush administration.

Please see IRAQ, News 7

INSIDE: Iraq debate growing increasingly pessimistic News 6

Former Secretary of State Kissinger: Iraq democracy out of reach News 5

POISE'S PLACE?



ALTHOUGH MANY RESIDENTS still use the BART plaza in Oakland to practice tai chi, some have started using Madison Square Park, just a block away in residential Chinatown, for early morning exercises. The BART administration building already has been fenced off for dismantling, but exercisers are still using a part of the plaza.

Tai chi enthusiasts aim to make Madison Square new home

By Memo Chang
STAFF WRITER

A LITTLE-USED city park may soon provide a new home for groups of exercisers who practice the arts of tai chi, qigong and fan dancing. At least, that is the hope.

That's because since the 1980s, hundreds of mostly Chinese-American exercisers have been using BART's Lake Merritt station and administration building plaza as their outdoor gym. But a part of the plaza

already has been fenced off for dismantling and other parts will be off limits, said Linton Johnson, BART spokesman.

On a recent sunny morning, hundreds could still be seen using the BART plaza for qigong, but tai chi practitioner Ed Loo and wife Evelyns already have started using nearby Madison Square Park, a block away in Chinatown.

The couple and several dozen other exercisers have moved there in past months hoping to establish a new — and permanent — home at the underused park.

Although the nearby Lincoln Square Recreation Center and Park, also in Chinatown, sees 2,000 users every day, said center director Gilbert Gong, Madison Square has a lot of potential for Chinatown families and elders as well.

The short-term plan is to spruce up Madison Square and make it more welcome to families. The city plans to flatten and pave about 8,000 square feet of the grassy knolls for tai chi users next spring.

Please see PARK, News 7

Eight-story fall leaves child dead

By Lally Rayburn
STAFF WRITER

OAKLAND — A 3-year-old girl is dead after she fell from an eighth-floor apartment window in West Oakland on Sunday.

The girl — whose family members identified as Thea Moore Electra Simmons — was on top of mattresses that were stacked by the window from which she fell, police said.

The death devastated family members and friends, more than a dozen of whom remained at Children's Hospital Oakland after surgery.

Please see FALL, News 7

State Capitol braces to face health care

Schwarzenegger may have difficult time delivering on promises

By Jordan Rao
LOS ANGELES TIMES

SACRAMENTO — Gov. Arnold Schwarzenegger's most ambitious aspiration yet — to extend medical coverage to millions of uninsured Californians while making health care for everyone more affordable — has set the Capitol on edge as advocates hope for sweeping reforms and health care interests brace for a potentially punishing fight.

With details of the administration's plan still being formulated by a special team of advisers, health care experts and some of the most powerful interest groups in Sacramento, including the \$22 million annual lobbying presence of the health-care industry, doubt that it is possible for Schwarzenegger to fulfill

Please see HEALTH, News 7

Online:

GET IT OUT OF YOUR SYSTEM: Talk about the Raiders' game in blogs. Get photos, stats, rumors and more. Get it all at: insideBayArea.com



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MediaNews, Yahoo sign deal to combine news resources

Alliance to join local coverage, advertising with Internet company's available technology

By George Arata
MEDIANEWS STAFF

Seven national newspaper companies, including the owner of the Oakland Tribune and other Bay Area newspapers, have allied with Internet giant Yahoo Inc. in a deal that marries the nation's oldest and newest media industries, the firms said Sunday.

The agreement represents a way for the

newspapers to fuse their expertise in reporting local news stories and capturing local advertising with the cutting-edge online technologies offered by Yahoo.

Moreover, the alliance marks a bid to reshape the competitive landscape for the Internet and newspapers — and a gambit by the newspapers to reverse their misfortune of recent years.

Please see TAMO, News 7

INSIDE: Media deal's seeds were sown 18 months ago News 7

INSIDE

- Calendar
- Classics
- Columns
- Obituaries
- Opinion
- Special

Forecast

Mostly cloudy
High: lower 50s
Low: lower 50s

Details on Living 10



S. Africa tries to come out of closet

Despite the recent legalization of same-sex marriage, many live in fear

By Terry Leonard
ASSOCIATED PRESS

SOWETO, South Africa — At an uninvited bar in an inconspicuous house, men and women sip lukewarm beer, mingle, flirt and dance to driving music called kwela.

They share a secret. The bar, or shebeen, in the black township of Soweto in Johannesburg, is a place where white, black gays don't have to hide who they are, where they can talk openly, and find safety and companionship in an often hostile neighborhood.

Last week's South Africa's Parliament legitimized same-sex marriages to comply with its 1996 constitution that was the first to ban discrimination based on sexual orientation.

But reality often collides with these liberal intentions.

Democratic post-apartheid South Africa has the most openly gay community on a continent where homosexuality is usually driven underground and portrayed as an African — an unwanted legacy of colonialism and white culture.

But white and black gays who escape the poverty of the township enjoy a high level of tolerance, those left in places such as Soweto often live lives of loneliness, fear, rape, violence and even murder.

"I've been raped six times, five times just because I am gay. I was raped by men I know, who wanted to show me what it means to be a woman. But they thought it would change me, that it would keep me from being gay," said a young black lesbian from Soweto who said she had been identified for fear of returning.

White gay men are more likely to be ridiculed than physically abused. 19-year-old Zolwani Nkomo said he was the target of a mob, beaten with golf clubs and bricks and stabbed in a township outside Cape Town in February.

His one was arrested, said Dusan South, the director of the Forum for the Empowerment of Women and a member of the Coalition of African Lesbians. During a gay pride march last year, he said, bottles were thrown at the forum's flag because it portrayed homosexuality as a natural part of African culture.

Anthropologists have found evidence that homosexuality was widely tolerated in many parts of pre-colonial Africa. In 1997, Evans-Pritchard, an eminent pre-World War II researcher, reported that laws that prohibited sodomy were introduced by colonial rulers, he said. In the 1950s, he said, British colonialists in the Congo introduced laws that prohibited sodomy.

"What is so African in homosexuality?" said Smith. "Some people believe homosexuality is an idea brought here by the white man, but it has always been here. What the white man brought was homophobic."

At the gate to the Soweto shebeen, owner Gundi "Scotty" Dube, a short, jovial man wearing a large gold chain on his neck, greeted new arrivals at the gate and looked out for outsiders.

He welcomed a newcomer with a warm embrace and announced: "She is a politician ... but it is OK because she is one of us."

"This is the new South Africa," said a middle-aged man. "We were all in the anti-apartheid struggle together and now nobody cares if you are gay or straight." But in almost the same breath, he asked if he identified only as a Cape local, outsiders learn he is gay.

Human shields suspend Gaza airstrikes



PALESTINIANS CARRY a boy, injured by an Israeli missile that was fired at a car Sunday, into Sha's hospital in Gaza City. Two Hamas militants in the car were also wounded.

ASSOCIATED PRESS

HEIT LAHIYA, Gaza Strip — Hundreds of Palestinians serving as human shields guarded the homes of two top militants Sunday, a new tactic that forced Israel to call off missile strikes on the buildings and re-evaluate a mainstay of its aerial campaign in Gaza.

In the recent weeks, the Israeli air force has repeatedly struck the homes of militants after warning residents by phone to clear out. Israeli security officials said they did not know how to respond to the human shield tactic, but pressed ahead with other airstrikes Sunday.

The standoff over the homes of the militants began late Saturday when Mohammed Baroud, local leader of the Popular Resistance Committees, was informed by the army that his house would be hit. The three-story building is home to 17 people from Baroud's family.

Another militant from Hamas also received a warning. Instead of fleeing, though, the two decided to stay in their

homes and called in reinforcements. They were quickly joined by crowds of supporters, including dozens of armed men, who gathered on balconies, rooftops and in the streets outside.

"Death to Israel. Death to America," the crowds chanted. Local mosques and Palestinian TV and radio stations also mobilized supporters.

The army said it called off the nighttime airstrikes because of the crowds. It condemned what it said was a "crystal explosion" by the terrorists of uninvolved people as human shields.

By Sunday afternoon, about two dozen women were sitting around on Baroud's roof, shielded from the sun by green tarp. One story below them, about a dozen men were resting on mattresses.

Kissinger: Iraqi democracy out of reach for now

By Boyle McManus
LOS ANGELES TIMES

NEW YORK — Former Secretary of State Henry Kissinger, a frequent adviser to President Bush and Vice President Dick Cheney, has concluded that the United States must choose between stability and democracy in Iraq and that democracy, for now, is out of reach.

"I think that's the reality. I think that was true from the beginning," Kissinger said in an interview last week.

"Iraq is not a nation in the historic sense," he said, pointing to the ferocity of the conflicts among Sunnis, Shites and Kurds. "The evolution of democracy ... simply has to go through a phase in which a nation is held together by a common enemy. In Iraq, that common enemy is the United States."

Instead of holding elections and trying to build democratic institutions from the ground up, Kissinger said, the United States should focus on more limited goals: Preventing the emergence of a "fundamentalist Islamic regime" in Baghdad and containing other countries that might establish Iraq.

The former secretary of state, speaking in an unusually blunt tone at a time when the Bush administration is reviewing policy options for Iraq, emphasized that he did not intend to be critical of the president or other officials who have managed the U.S. effort in Iraq.

"I supported going in," he said. "I'm basically supportive. And there are the circumstances that make this the best of all worlds."

Kissinger has made some of these points before, especially his arguments that the United States should try to "democratize" Iraq by containing other countries that might establish Iraq, in a joint effort.

But as debate escalated over possible changes in U.S. strategy in the wake of the Democrats' victory in congressional elections, his latest comments added up to a sharp critique of the Bush administration's course.

He said he would have preferred a post-invasion policy that installed a strong Iraqi leader from the military or some other institution and deferred the development of democracy until later. "If we had done that right away, that might have been the best way to proceed," he said.

"In Iraq, he said, elections — the centerpiece of the administration's political strategy — merely sharpened sectarian differences.

"It would be a mistake to think that you can gain legitimacy primarily through the electoral process," he said.

And he suggested that Bush may have been slow to change course in Iraq because advisors have told him the United States was winning the war.

"As long as he was told he was winning, he had every reason to pursue the recommended strategy that his subordinates proposed," Kissinger said.

Strong housing market helps increase job level in Mexico

By Maria Dickerson
LOS ANGELES TIMES

MEXICO CITY — Political strife and drug violence have overshadowed news of the most stunning surge out of Mexico this year: The nation is creating jobs at a rate of 200,000 per month.

Thanks to a healthy service sector, a strong housing market, rebounding manufacturing — and some election-year politicking — Mexico has added nearly 550,000 jobs this year, the first 10 months of the year, recent government figures show. It is the first time in at least a decade that the country has come even close to adding the 1 million positions needed annually just to keep pace with the growth of its working-age population.

The performance is a small victory for the administration of outgoing President Vicente Fox, who failed miserably in his quest to get 6 million jobs created during his tenure. The country has added 1.4 million jobs since he took office in December 2000, less than one-quarter of his target.

Mexico is such a chronic underachiever when it comes to generating employment that one would probably do little to stem the flow of illegal immigration to the United States. Some analysts doubt that the hot sector can continue. More than half the jobs created this year in Mexico were in so-called temporary jobs in sectors such as construction. Other industries such as manufacturing are expected to slow along with the U.S. economy.

Still, the surge has been a godsend to laborers including Sergio Martinez Betancourt, a former field hand from the southern state of Chiapas who has found steady work in the capital's booming construction sector. The slender, 3-foot, 3-inch laborer makes \$110 for hosting concrete bags six days a week.

"It's backbreaking, but he is grateful to get a reliable paycheck to support his wife and

three children back home to the countryside.

"The job code ... and there's another," said Martinez, 32, taking a break from his duties on an apartment building rising in the Polanco neighborhood. "Our hope is in God that it can continue this way."

The strong data lend momentum to Fox's replacement, Felipe Calderon, who rose to Mexico's "jobs president" after he is sworn in next month. He has proposed reducing regulations and making it easier to hire and fire as well as stepping up security to attract more foreign investment.

He also wants to boost tax collection so Mexico can speed more infrastructure, which could also expand employment and boost the economy's productivity.

Calderon has his work cut out for him. A divided Congress and a weak economy have changed many analysts' job outlook. Generating more jobs and keeping more Mexicans at home are his targets.

With oil prices down from their lofty levels of the summer, Mexico's treasury might have to tighten its belt. The weaker economy of off-the-books day laborers and street vendors remains Mexico's primary job engine.

"I'm not going to last long," said Alfredo Costales, sector

economist at Moody's Economy.com in West Chester, Pa. But "the job market in Mexico is always good news."

Mexico is enjoying good economic tidings in 2006 unlike any other nation in the world. Over 10 million and increasing rates are stable. High oil prices have led oil colliers to bank on oil cash. The recovery is projected to expand about 4.8 percent this year, the best showing since 2000.

A welcome byproduct of that economic strength has been expanded employment in the so-called formal sector, defined as on-the-books, salaried jobs with benefits. The government estimates that figure by tracking the number of workers whose names register their work with the nation's social security system.

Services said retail have performed well this year, but one of the most successful industries in manufacturing. Although Mexico's "maquiladoras" export factories have been battered by stiff competition from Asia, the sector has rallied this year, adding nearly 77,000 jobs through August, government figures show.

The nation's automotive industry has been a standout. Mexico produced more than 1.6 million vehicles in the first 10 months of the year, a nearly 28 percent annual increase.

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NOTICE OF PROPOSED PLAN AND PUBLIC COMMENT PERIOD AND BRAC
 Proposed Action of Installation Remediation Site 27, Former Naval Air Station Alameda

The U.S. Navy, in coordination with state and environmental regulatory agencies, encourages the public to comment on its Proposed Plan to clean up contaminated shallow groundwater at Installation Remediation Site 27, located on the former Naval Air Station Alameda (Alameda Point) in Alameda, California.

Site 27 is located in the southwestern portion of Alameda Point, bounded by Sausalito Lagoon, West Oakland Street, Young Street, and Ferry Point Road. The Navy proposes to clean up groundwater contaminated with levels of volatile organic compounds above applicable regulatory criteria. There are no drinking water wells in this area. Water service is supplied by the East Bay Municipal Utility District, from a separate source. There is no immediate risk to children, residents, or others in these areas. Volatile organic compounds are the ground-water constituents of concern. The Proposed Plan provides a summary of investigations and evaluations performed at the site, including a remedial investigation, human health and ecological risk assessments, and a feasibility study based on data collected and analyzed at the site. The Navy proposes to clean up contaminated groundwater to address potential long-term risks.

PUBLIC COMMENT PERIOD

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PUBLIC MEETING

The Navy will hold a public meeting to discuss the Proposed Plan, answer questions, and accept public comments. Date: Thursday, December 12, 2006. Time: 6:30 p.m. to 9:00 p.m. Location: Alameda Point, 958 West Hill Square, Building 1, Room 201, Alameda, CA

FOR MORE INFORMATION

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Still, the surge has been a godsend to laborers including Sergio Martinez Beltran, a former field hand from the southern state of Chiapas who has found steady work in the capital's booming construction sector. The slender, 5-foot, 3-inch laborer makes \$110 for hoisting cement bags six days a week.

It's backbreaking, but he is grateful to get a reliable paycheck to support his wife and

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With oil prices down from their lofty levels of the summer, Mexico's treasury might have to tighten its belt. The underground economy of off-the-books day laborers and street vendors remains Mexico's primary job engine.

"This isn't going to last long," said Alfredo Coutino, senior

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The nation's automotive industry has been a standout. Mexico produced more than 1.6 million vehicles in the first 10 months of the year, a nearly 28 percent annual increase.

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NOTICE OF PROPOSED PLAN AND PUBLIC COMMENT PERIOD

BRAC
PMO WEST

Proposed Action at Installation Restoration Site 27, Former Naval Air Station Alameda

The U.S. Navy, in coordination with state and environmental regulatory agencies, encourages the public to comment on its Proposed Plan to clean up contaminated shallow groundwater at Installation Restoration (IR) Site 27, located on the former Naval Air Station Alameda (Alameda Point) in Alameda, California. IR Site 27 is located in the southeastern portion of Alameda point, bounded by Seaplane Lagoon, West Oriskany Street, Viking Street, and Ferry Point Road. The Navy proposes to clean up groundwater contaminated with levels of volatile organic compounds above applicable regulatory criteria. There are no drinking water wells in these areas. Water service is supplied by the East Bay Municipal Utility District, from a separate source. There is no immediate risk to children, residents, or others in these areas. Volatile organic compounds are the groundwater contaminants of concern. The Proposed Plan provides a summary of investigations and evaluations performed at the site, including a remedial investigation, human health and ecological risk assessments, and a feasibility study. Based on data collected and analyzed for the site, the Navy proposes to clean up contaminated groundwater to address potential long-term risks.

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Raiders sing blues in K.C.
Late interception seals Oakland's fifth straight loss at Arrowhead

NFL MONDAY

Fun on the run
Core's career day leads Raiders to third straight win
Spander: Rice returns to S.F. a hero



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Syria ready to help stabilize Iraq

■ Minister gives timetable for U.S. troop withdrawal, saying it will help quell violence

By **Erk Sample**
STAFF WRITER

BAAGHDAD, Iraq — Syria's foreign minister said Sunday during a visit here that his government is ready to help stabilize Iraq, and he called for a timetable for withdrawal of U.S. troops, saying it would help reduce the

violence.

His trip, the first to Baghdad by a senior Syrian official since the ouster of Saddam Hussein, came on another day of widespread violence in Iraq. A suicide car bombing killed 17 people and wounded 49 in the southern Shiite city of Hillah, and the deputy health minister was kidnapped from his home in the capital.

In recent weeks, Iraq and some Western officials have promoted the idea of actively involving Iraq's neighbors, especially Syria and Iran, in solutions to the soaring sectarian violence in Iraq.

President Bush has refused to open high-level talks with Syria and Iran, countries he has accused of providing financing and weapons to militias in Iraq. But as his administration reassesses its policy in Iraq, the president has come under increasing pressure to drop his opposition.

Former Secretary of State James Baker, co-chairman of a bipartisan group studying policy in Iraq, has met several times with Syrian officials to discuss how they might cooperate with the U.S., according to the Syrian ambassador in Washington.

In an interview with the BBC broadcast Sunday, former Secretary of State Henry Kissinger endorsed the idea of involving Syria and Iran in discussions of Iraq's future, suggesting they be included in a conference.

"At some early point, an international conference should be called that

involve neighbors, perhaps the permanent members of the Security Council and countries that have a major interest in the outcome, like India and Pakistan," said Kissinger, who sometimes advises the Bush administration.

Please see IRAQ, News 7
INSIDE: Iraq debate growing increasingly passionate. **News 4**
Former Secretary of State Kissinger: Iraq democracy out of reach. **News 5**

POISE'S PLACE?



ALTHOUGH MANY RESIDENTS still use the BART plaza in Oakland to practice tai chi, some have started using Madison Square Park, just a block away in residential Chinatown, for early morning exercises. The BART administration building already has been fenced off for dismantling, but exercisers are still using a part of the plaza.

Tai chi enthusiasts aim to make Madison Square new home

By **Monica Chaney**
STAFF WRITER

OAKLAND
A LITTLE-USED city park may soon provide a new home for groups of exercisers who practice the arts of tai chi, qigong and fan dancing.

At least, that's the hope. That's because since the 1980s, hundreds of mostly Chinese-American seniors have been using BART's Lake Merritt station and administration building plaza as their outdoor gym. But a part of the plaza

already has been fenced off for dismantling and other parts will be off limits, said Linton Johnson, BART spokesman.

On a recent sunny morning, hundreds could still be seen using the BART plaza for qigong, but tai chi practitioner Ed Leo and wife Evelyn already have started using nearby Madison Square Park, a block away in Chinatown.

The couple and several dozen other exercisers have moved there in past months hoping to establish a new — and permanent — home at the underused park.

Although the nearby Lincoln Square Recreation Center and Park, also in Chinatown, sees 2,000 users every day, center director Gilbert Gong, Madison Square has a lot of potential for Chinatown families and elders as well.

The short-term plan is to spruce up Madison Square and make it more welcome to families. The city plans to flatten and pave about 8,000 square feet of the grassy knoll for tai chi users next spring.

Please see PARK, News 7

Eight-story fall leaves child dead

By **Emily Rayburn**
STAFF WRITER

OAKLAND — A 3-year-old girl is dead after she fell from an eighth-floor apartment window in West Oakland on Sunday.

The girl — whose family members identified as Thea Monroe Emerson — was on top of mattresses that were stacked by the window from which she fell, police said.

The death devastated family members and friends, more than a dozen of whom remained at Children's Hospital Oakland after surgery.

Please see FALL, News 7

State Capitol braces to face health care

■ Schwarzenegger may have difficult time delivering on promises

By **Jerissa Ray**
LOS ANGELES TIMES

SACRAMENTO — Gov. Arnold Schwarzenegger's most ambitious aspiration yet — to extend medical coverage to millions of uninsured Californians while making health care for everyone more affordable — has set the Capitol on edge as advocates hope for sweeping reforms and health care interests brace for a potentially punishing fight.

While details of the administration's plan still being formulated by a special team of advisors, health care experts and some of the most powerful interest groups in Sacramento, including the 322 million annual lobbying presence of the health-care industry, doubt that it is possible for Schwarzenegger to fulfill

Please see HEALTH, News 7

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insideBayArea.com



By **Chris** — Associated Press

MediaNews, Yahoo sign deal to combine news resources

■ Alliance to join local coverage, advertising with Internet company's available technology

By **George Avalos**
MEDIANEWS STAFF

Seven national newspaper companies, including the owners of the Oakland Tribune and other Bay Area newspapers, have allied with Internet giant Yahoo Inc. in a deal that makes the nation's oldest and newest media industries, the firms said Sunday.

The agreement represents a way for the

newspapers to fuse their expertise in reporting local news stories and capturing local advertising with the cutting-edge online technologies offered by Yahoo.

Moreover, the alliance marks a bid to reshape the competitive landscape for the Internet and newspapers — add a gambit by the newspapers to reverse their misfortunes of recent years.

Please see YAHOO, News 7

INSIDE: Media deal's seeds were sown 18 months ago. **News 7**

INSIDE

Calendar
Lobbying: News 2
Chinatown: News 5
Quinn: News 4
Business: Inside News

Forecast

Mostly cloudy
Highs: lower 60s
Lows: lower 50s

Driving on
Levels 10



S. Africa tries to come out of closet

Despite the recent legalization of same-sex marriage, many live in fear

By Terry Laseard
ASSOCIATED PRESS

SOWETO, South Africa — At an uninvited bar in an inconspicuous house, men and women sip lukewarm beer, mingle, flirt and dance to driving music called kwazo. They share a secret. The bar, or shebeen, in the black township of Soweto in Johannesburg, is a place where young, black gays don't have to hide who they are, where they can talk openly, and find safety and companionship in an often hostile neighborhood.

Last week South Africa's Parliament legislated same-sex marriages to comply with its 1996 constitution that was the first to ban discrimination based on sexual orientation.

But reality often conflicts with these liberal intentions.

Democratic post-apartheid South Africa has the most open gay community on a continent where homosexuality is usually driven underground and portrayed as un-African — an unwanted legacy of colonialism and white culture. But white and black gays who escape the poverty of the townships enjoy a high level of tolerance, these left-behind places such as Soweto often lack lives of tolerance, fear, rape, violence and even murder.

"I've been raped six times. Five times just because I am gay. I was raped by men I know, who wanted to show me what it means to be a woman. They thought it would change me, that it would keep me from being gay," said a young black lesbian from Soweto who asked not to be identified for fear of reprisals.

White gay men are more likely to be the most physically abused, 19-year-old Zolene Maseyana paid with her life, chased by a mob, beaten with golf clubs and bricks and stabbed in a township outside Cape Town in February.

No one was arrested, said Donna Smith, the head of the Forum for the Empowerment of Women and a member of the Coalition of African Lesbians.

"During a gay pride march last year, she said, bottles were thrown at the forum's head because it portrayed homosexuality as a natural part of African culture."

Anthropologists have found evidence that homosexuality was widely practiced in many parts of pre-colonial Africa. Evelyn Pritchard, an eminent pre-World War II researcher, reported that until the practice died out in the early 20th century, male Azande warriors in the northern Congo routinely married male youths who functioned as temporary wives.

"What is un-African is homophobia," said Smith. "Some people believe homosexuality is an idea brought here by the white man. But it has always been here. What the white man brought was homophobia clothed in religious doctrines that we did not have before."

At the gate to the Soweto shebeen, owner Gundi "Scotty" Dube, a short, jovial man wearing a large gold chain on his neck, greeted new arrivals at the gate and looked out for undesirable.

He welcomed a newcomer with a warm embrace and announced: "She is a policeman's ... but it is OK because she is one of us."

"This is the new South Africa," said a middle-aged man. "We were all in the anti-apartheid struggle together and now nobody cares if you are gay or straight." But in almost in the same breath, he asked to be identified only as Cassie last outside town he is gay.

Human shields suspend Gaza airstrikes



PALESTINIANS CARRY a boy, injured by an Israeli missile that was fired at a car Sunday, into a hospital in Gaza City. Two Hamas militants in the car were also wounded.

ASSOCIATED PRESS

WEST LAKEVA, Gaza Strip — Hundreds of Palestinians serving as human shields guarded the homes of two top militants Sunday, a new tactic that forced Israel to call off missile strikes on the buildings and re-evaluate a mainstay of its aerial campaign in Gaza.

In a recent month, the Israeli air force has repeatedly struck the homes of militants after warning residents by phone to clear out, Israeli security officials said they did not know how to respond to the human shield tactic, but pressed ahead with other airstrikes Sunday.

The standoff over the homes of the militants began late Saturday when Mohammed Baroud, local leader of the Popular Resistance Committees, was informed by the army that his house would be hit. The three-story building is home to 17 people from Baroud's family. Another militant from Hamas also received a warning.

Instead of fleeing, though, the two decided to stay in their

homes and called in reinforcements. They were quickly joined by crowds of supporters, including dozens of armed men, who gathered on balconies, rooftops and in the streets outside.

"Death to Israel. Death to America," the crowds chanted. Local mosques and Palestinian TV and radio stations also mobilized supporters.

The army said it called off the nighttime airstrikes because of the crowd. It condemned what it said was a cynical exploitation "by the terrorists of uninvolved people as human shields."

By Sunday afternoon, about two dozen women were milling around on Baroud's roof, shielded from the sun by green tarp. One story below them, about a dozen men were resting on mattresses.

Baroud's mother, Umm Wael, said she had been organized in preparation for a long standoff, "where should we go?" she said. "We will stay here or die in the house. Let them bring it down on our heads."

Kissinger: Iraqi democracy out of reach for now

By Boyle McManus

NEW YORK — Former Secretary of State Henry Kissinger, a frequent adviser to President Bush and Vice President Dick Cheney, has concluded that the United States must choose between stability and democracy in Iraq and that democracy, for now, is out of reach.

"I think that's reality. I think that was true from the beginning," Kissinger said in an interview last week. "Iraq is not a nation in the historic sense," he said, pointing to the ferocity of the conflicts among Sunnis, Shias and Kurds. "The evolution of democracy ... usually has to go through a phase in which a nation is torn apart. And by attempting to skip that process, our real goals were distorted into what we are now seeing."

Instead of holding elections and trying to build democratic institutions from the ground up, Kissinger said, the United States should focus on more limited goals: Preventing the emergence of a "fundamentalist jihadist regime" in Baghdad and collecting other countries to help stabilize Iraq.

The former secretary of state, speaking in unusually blunt terms at a time when the Bush administration is reviewing policy options for Iraq, emphasized that he did not intend to be critical of the president or other officials who have managed the U.S. effort in Iraq.

"I supported going in," he said. "I'm basically supporting the administration. And these are the criticisms of a friend of the administration who thinks well of the president."

Kissinger has made some of these points before, especially his argument that the United States should try to "contain terrorism" by curbing the flow of weapons to other countries, including Iran, Syria, Pakistan and Russia, in a joint effort.

But as debate escalated over possible changes in U.S. strategy in the wake of the Democratic victory in congressional elections, his latest comments added up to a sharp critique of the Bush administration's course.

"I think he would have preferred a post-invasion policy that installed a strong Iraqi leader from the military or some other institution and deferred the development of democracy until later. 'If we had done that right away, that might have been the best way to proceed,'" he said.

"I think, he said, elections — the centerpiece of the administration's political strategy — merely sharpened sectarian differences.

"It [was] a mistake to think that you can gain legitimacy primarily through the electoral process," he said.

And he suggested that Bush may have been slow to change course in Iraq because ambassador George F. Tenet told him the United States was winning the war.

"As long as he was told he was winning, he had every reason to pursue the recommended strategy" that his subordinates proposed, Kissinger said.

Strong housing market helps increase job level in Mexico

By Maria Dickerson

MEXICO CITY — Political strife and drug violence have overshadowed perhaps the most stunning news out of Mexico this year: The nation is creating jobs — lots of them.

Thanks to a healthy service sector, a strong housing market, rebounding manufacturing — and some election-year pork — Mexico has added nearly 950,000 jobs through the first 10 months of the year, recent government figures show. It's the first time in at least a decade that the country has come even closer to adding the 1 million positions needed annually just to keep pace with the growth of its working-age population.

The performance is a small victory for the administration of outgoing President Vicente Fox, who failed miserably in his quest to see 6 million jobs created during his term. The country has added 1.4 million jobs since he took office in December 2000, less than one-quarter of his target.

Mexico is such a chronic underachiever when it comes to generating employment that one solid year probably will do little to stem the flow of illegal immigration to the United States. Some analysts doubt that the hot streak can continue. More than half the jobs created this year in Mexico were in so-called temporary jobs in sectors such as construction. Cyclical industries such as manufacturing are expected to slow along with the U.S. economy.

Still, the surge has been a godsend to laborers including Sergio Martinez Beltran, a former field hand from the southern state of Chiapas who has found steady work in the capital's booming construction sector. The slender, 3-foot, 3-inch laborer makes \$110 for housing construction jobs six days a week.

"It's backbreaking, but he is grateful to get a reliable paycheck to support his wife and

three children back home in the countryside.

"One needs ... and there's another," said Martinez, 32, taking a break from his duties on an apartment building rising in the upscale Polanco neighborhood. "Our hope is in God that it can continue this way."

The strong data lead expectations to Fox's replacement, Felipe Calderon, who vows to be Mexico's "jobs president" after he is sworn in next month. He has proposed reducing regulations and making it easier to hire and fire as well as stepping up security to attract more foreign investment.

He also wants to boost tax collection as Mexico can spend more on infrastructure, which could also expand employment and boost the economy's productivity.

Calderon has his work cut out for him. A divided Congress stands in the way of implementing changes many analysts say are crucial to generating more jobs and keeping more Mexicans at home.

With oil prices down from their July levels of the summer, Mexico's treasury might have to tighten its belt. The country's deep recession of off-the-books day laborers and street vendors remains Mexico's primary job engine.

"The talk is going in last long," said Alfredo Costas, sector

economist of Moody's Economy.com in West Chester, Pa.

"One thing is certain in Mexico is always good news." Mexico is enjoying good economic gains in 2006 unlike any other nation in the world. Core inflation and interest rates remain relatively low. The peso is stable. High oil prices have left net exports flush with extra cash. The economy is projected to expand about 4.5 percent this year, the best showing since 2004.

A welcome byproduct of that economic strength has been expanded employment in the so-called formal sector, defined as on-the-books, salaried jobs with benefits. The government estimates that figure by tracking the number of workers whose bosses register them with the nation's social security system.

Services and retail have performed well this year, but one of the most-watched industries in manufacturing. Although Mexico's "maquiladora" export factories have been battered by stiff competition from Asia, the sector has rallied this year, adding nearly 77,000 jobs through August, government figures show.

The nation's automobile industry has been a standout. Mexico produced more than 1.8 million vehicles in the first 10 months of the year, a nearly 28 percent annual increase.

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NOTICE OF PROPOSED PLAN AND PUBLIC COMMENT PERIOD
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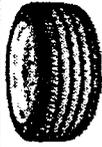
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NOTICE OF PROPOSED PLAN AND PUBLIC COMMENT PERIOD

BRAC
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Proposed Action at Installation Restoration Site 27,
 Former Naval Air Station Alameda

The U.S. Navy, in coordination with state and environmental regulatory agencies, encourages the public to comment on its Proposed Plan to clean up contaminated shallow groundwater at Installation Restoration (IR) Site 27, located on the former Naval Air Station Alameda (Alameda Point) in Alameda, California. IR Site 27 is located in the southeastern portion of Alameda point, bounded by Seaplane Lagoon, West Oriskany Street, Viking Street, and Ferry Point Road. The Navy proposes to clean up groundwater contaminated with levels of volatile organic compounds above applicable regulatory criteria. There are no drinking water wells in these areas. Water service is supplied by the East Bay Municipal Utility District, from a separate source. There is no immediate risk to children, residents, or others in these areas. Volatile organic compounds are the groundwater contaminants of concern. The Proposed Plan provides a summary of investigations and evaluations performed at the site, including a remedial investigation, human health and ecological risk assessments, and a feasibility study. Based on data collected and analyzed for the site, the Navy proposes to clean up contaminated groundwater to address potential long-term risks.

PUBLIC COMMENT PERIOD

The Navy invites interested members of the public to review and comment on the Proposed Plan during the public comment period, which is from November 20 through December 22, 2006. Public comments must be submitted in writing and postmarked or e-mailed no later than December 22, 2006, or provided during the public meeting on December 12, 2006. Please send all comments to: Mr. Thomas Macchiarella, BRAC Environmental Coordinator, BRAC Program Management Office West, 1455 Frazee Road, Suite 900, San Diego, California 92108, thomas.macchiarella@navy.mil, (619) 532-0907, or fax (619) 532-0940.

PUBLIC MEETING

The Navy will host a public meeting to discuss the Proposed Plan, answer questions, and accept public comments.
Date: Tuesday, December 12, 2006
Time: 6:30 p.m. to 8:00 p.m.
Location: Alameda Point, 950 West Mall Square, Building 1, Room 201, Alameda, CA

FOR MORE INFORMATION

Copies of the Proposed Plan, Remedial Investigation/Feasibility Study, and other site documents are available for review at: Alameda Point, 950 West Mall Square, Building 1, Rooms 240-241, Alameda, California 94502. If you have any questions or wish to discuss this project, please contact Mr. Thomas Macchiarella, BRAC Environmental Coordinator, at (619) 532-0907, fax (619) 532-0940, or e-mail thomas.macchiarella@navy.mil.

Alameda Journal

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TheAlamedaJournal.com • Tuesday, November 21, 2006

Sports Alameda High bounced by Alhambra in NCS 3A football playoffs [B1]

Sports City's youths aim for success in Elks Club Hoop Shoot [B2]

Subsidy sought for waterfront plan

■ Owner of Buena Vista Avenue parcel envisions development resembling modern-day version of Venice

By Alan Lopez

— on the grounds of the former Del Monte facility — includes plans for a mixture of uses that includes housing, commercial space and a hotel.

The City Council, acting as the Community Improvement Commission, will meet today to consider entering into an exclusive negotiating agreement with Wang for up to two years in part to see what dollar amount the city would be willing to spend to help Wang's

firm, Factual Real Estate Inc., complete the development.

"Our mission would be ... to find out whether or not there is a financial gap and understand what his project includes and determine whether or not there is a role for the public in this project," said development services director Leslie Little.

The proposal is the just the latest for Wang, who said he has owned property on the northern waterfront, including the Del Monte building, the Erncal Terminal Container Care facility and the Chapman Warehouse, for

IF YOU GO

The Alameda City Council, sitting as the Community Improvement Commission, will meet today at 7:30 p.m. in the City Council Chamber, at the corner of Santa Clara Avenue and Oak Street, for more information, call 510-747-4828.

decades.

The subsidy he said was sought for "public use," including the roadways and utility lines that will run through the project. The development is intended

to fit in with a 10-year plan the city has created for the northern waterfront and is expected to go before the council for approval early next year.

The northern waterfront general plan amendment calls for maintaining the outdoors, primarily industrial uses in the area and transforming them into residential, commercial, office, parks and open space.

In addition, the waterfront plan calls for filling in gaps along Chestnut Avenue so that it reaches between the Fruitvale Bridge and Atlantic Avenue.

Little said residents have sought the Chestnut Avenue extension to reduce the amount of traffic winding through residential streets. Parts of it may be integrated into Wang's plan.

"It's like the major waterfront improvement besides trails and a waterfront park," she said. A number of questions related to the project would be answered over time if the redevelopment agency chooses to move forward with negotiations.

They include the amount and

See SUBSIDY, Page 2



Tony Daysog
The candidate for the AC Board's Ward 3 seat requested a recount.

Margin of Daysog's loss grows slightly

■ Other Nov. 7 election race numbers likewise fluctuate, but not enough to change the outcome

By Alan Lopez

The number of votes separating the contenders in the local elections continues to fluctuate somewhat, but not enough to change the overall outcomes of the Nov. 7 election.

At a Friday afternoon, Alameda City Councilman Tony Daysog's margin of loss to Elia Ortiz for the AC Transit board's Ward 3 seat grew to 78 votes.

Daysog had asked for a recount after initial election results showed him just 32 votes behind Ortiz in a race that counted more than 50,000 votes total. He could not be reached for comment Friday.

Officials with the Alameda County Registrar of Voters said the results for some of the races have changed as many last-minute absentee ballots are counted.

However, those ballots have had an effect on any of the other Alameda races.

A spokesman said the registrar's office has until Dec. 3 to officially certify the results of the election.

Only after the election is certified will requests for recounts be considered.

At of Friday, Mayor Beverly Johnson still best challenger City Councilman Dong delBianca by a nearly 2-to-1 margin; incumbent Frank Matarrese and Lora Tam were chosen among the candidates for City Council; and Nancy Holman, Steven Watson and Kevin Farrell beat out six other candidates for the Alameda Health Care District board of directors.

In the mayoral race, as of Friday afternoon, Mayor Beverly Johnson had earned 13,272 votes to delBianca's 7,156 votes, while long-shot candidate Kathleen Kahn earned 1,528 votes, according to the registrar's Web site.

In the council race, newcomer Tam earned 10,756 votes and incumbent Matarrese received 9,113. The two overhauled

See RESULTS, Page 2

'A SEA OF YELLOW FLOWERS'



LEAD BY LARS HANSSON, president of the Park Street Business Association's board of directors, volunteers planted 8,000 daffodil bulbs along the 1400 block of Park Street.

Daffodils add to street's beautification

By Alan Lopez

The idea presented itself to Lars Hansson when he visited Chicago last May to see his son, who is living there and studying to be an optometrist.

Walking around the streets of downtown, he saw rows upon rows of brightly colored tulips. He kept the image in his head and took it to the Park Street Business Association, which he heads as its board president.

Come next spring, Alamedans will see something similar — thousands of yellow daffodils brightening downtown.

"The goal," said Hansson, "is to have a whole sea of yellow flowers in the spring to brighten the spring and the shopping district in Alameda."

After signing off on the idea, the business association, with a contribution from the city, purchased some 8,000 tulip bulbs and installed between 28 and 30 volunteers Sunday morning to plant them on about two blocks of Park Street near Santa Clara Avenue.

The volunteers included City Councilman Frank Matarrese, who said the idea fit in well with Park Street's recent beautification which included new lamp posts, benches and planter boxes.

"I just think it's one of those extra-fine touches that really will highlight downtown and Park Street," Matarrese said.

"When you get those details in, those are the things that will really set us apart from other places," he added.

The city liked the idea so much, it contributed \$1,000, or one-third of the total cost of the bulbs, Hansson said. The Park Street association paid for the rest.

See DAFFODILS, Page 2



VOLUNTEER MARY AMEN digs in one planter box, making sure to set the bulbs six inches down with their tips pointing up.

"I am opposed to recruiting on campuses. But I don't have a problem with the JROTC program. I look at as a personal choice that we are providing students, just like any other club on campus." — Tracy Lynn Jensen, Alameda school board president

JROTC program to hold the line

By Peter Hegarty

San Francisco school officials may have recently banned Junior ROTC — or Reserve Officer Training Corps — from the city's high school campuses, but Alameda school leaders said they have no plans to scrap the military program.

"We have had a lot of support for our JROTC," said Donna Fletcher, a district spokeswoman. "There has been absolutely no rumblings about changing it."

In fact, the only times when Alameda school officials have actually considered axing JROTC have been when they faced a budget shortfall, including 13 years ago when the City Council stepped in and urged that it be saved.

That was not the case in San Francisco last week, where the school board voted to phase out JROTC from its high schools over the next two years, despite protests from many of the approximately 1,000 students in the city who participate in the program.

See JROTC, Page 2



JUDGES from all military branches line up in front of bleachers before the JROTC competition at Erncal High School on Saturday.

INSIDE

On Nutrition

■ Today, Helaine Waldman unveils the nutritional measures of holiday turkey. Dig in! Page 3



Friends & Neighbors

■ The Alameda Family Service League is gearing up for its annual holiday home tour. Page 3

Police month: A2
Calendar: A2
Sports: B1
Kids Stuff: B4
Obituaries: B4



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picnic grounds and a gift shop as well as the animals in site specific exhibits, which allow them to roam freely. Included are "The African Savanna," with its two huge mixed-animal aviaries and 11 African Savanna exhibits; the Mahali Pa Tembo (Place of the Elephant), with giraffes, chimpanzees and more than 330 other animals from around the world; "Simba Pori," Swahili for "Lion Country," a spacious 1.5-acre habitat offering both a savanna and woodland setting for African lions; "Footprints from the Past," an anthropology exhibit showcasing three million years of human evolution and an actual "footpath" of the first hominids to emerge from the African savanna; "Sun Bear Exhibit," a state-of-the-art space the zoo has developed for its two sun bears; and Siamang Island, a state-of-the-art, barrier-free area that emulates the gibbons' native tropical rain forest habitat. Also see the Malayan Fruit Bats from the Lubea Bat Conservancy in Florida that are now roosting in trees at the zoo. In addition there are special exhibits and events monthly. Ongoing Exhibits — "Valley Children's Zoo," ongoing. The three-acre attraction offers a completely interactive experience for both children and adults. The exhibits include lemurs, giant fruit bats, otters, reptiles, insects and more. Daily, 10 a.m.

Free ages 2 and younger. 1 p.m.-2 p.m. The Berkeley JCC Theater, 1414 Walnut St., Berkeley. 510-236-SHOW, www.thebuddyclub.com.

■ **Tilden Regional Park** — This park is large and contains hiking trails, a golf course, a miniature scaled train to ride, The Brazilian Building and picnic areas. Regional Parks Botanic Garden — Ongoing. Guided docent tours of the gardens, Saturday and Sunday through 2006, 2 p.m. Free. 510-845-4116, www.nativeplants.org. Special Events — "Junior Rangers," through Nov. 25, 2-3:30 p.m. Explore the park looking for orb weavers, jumping spiders, wolf spiders and more. Saturdays. "Tuesdays for the Birds," through Nov. 28, Tuesdays, 7-9:30 a.m. Share your enthusiasm for bird life on a tranquil walk through various Bay Area parklands. Call for specific meeting locations or to borrow binoculars. Bring water, sunscreen and a snack. "Open Garden," through Nov. 26, 2-4 p.m. Join the park's gardener for composting, plantings, watering and more. Sundays. "Autumn Amble," Nov. 25, 2-4:30 p.m. Take in the seasonal colors of nature and learn native plant lore on this three-mile hike. "Too Much Turkey?" Nov. 26, 12:30-4:30 p.m. Embark on a seven-mile hike traversing diverse habitats of Tilden and Wildcat Canyon. "Kids Garden Club,"

the CULTURE?



Join Dr. James Emery White, award-winning author of *Serious Times* and President

of Gordon-Conwell Theological Seminary, at a public address on *The State of the Culture*. Learn how to understand the times and know what to do. (I Chron. 12:32)

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NOTICE OF PROPOSED PLAN AND PUBLIC COMMENT PERIOD Proposed Action at Installation Restoration Site 27, Former Naval Air Station Alameda

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ATTACHMENT C

RESPONSIVENESS SUMMARY

TABLE C-1: STAKEHOLDER COMMENTS AND LEAD AGENCY RESPONSES ON THE PROPOSED PLAN FOR IR SITE 27

**Letters Received During Public Comment Period
Comments by: Jim Barse**

- 1. Comment:** I am a resident of Alameda particularly concerned about surface water quality issues. The VOC plume in the groundwater at IR Site 27 is in close proximity to the surface waters of the Seaplane Lagoon. This situation raises lay concern about the potential impact of the plume contaminants to nearby aquatic systems of the lagoon and SF Bay. I acknowledge the site's ERA and RI Report attention to and discussion of the associated risk to aquatic life. Despite the conclusion that no further action at IR Site 27 is warranted for aquatic remediation goals, I view it as favorable that the Proposed Plan remedial alternative (Alternative 6B) is forecast to reach the terrestrial/groundwater remediation goals in the least amount of time, in comparison to the other remedial alternatives considered. I cannot be certain of my assumptions on this matter, but the shorter time frame to reaching the remediation goals would also seem to be most protective of surface water quality as well.

Response: Concentrations of volatile organic compounds (VOCs) in groundwater near the shoreline at IR Site 27 have attenuated to concentrations that approach or meet drinking water standards and meet all criteria for the protection of surface water and aquatic life. Therefore, groundwater near the shoreline was found not to pose a risk to ecological receptors or fishermen using Seaplane Lagoon.

For groundwater located farther inland at IR Site 27, Alternative 6B was selected as the preferred remedy because it protects human health and the environment; complies with the applicable or relevant and appropriate requirements; is effective over the long term and is a permanent solution; effectively reduces the toxicity, mobility, or volume of VOCs in groundwater through treatment; has the lowest total cost; and has the shortest duration (assumed duration for Alternative 6B is 3 years) for accomplishing the remediation goals (RGs). Institutional controls (ICs) would protect public health and the environment until RGs are met. The assumed durations for the other active remedial alternatives are significantly higher, ranging from 45 to 70 years.

2. **Comment:** In addition, I would emphasize the obligation that the IR Site 27 remedial action implementation process has to prevent any additional pollutant discharge to the ground surface, local impervious surfaces and surface waters. Vehicular activity, soil probing, the handling and pumping of grout to backfill ISCO injection points and even on-going monitoring well sampling events, for example, all have the potential to contribute residual pollutant loads to surface water runoff. This may seem a minor matter, but even small actions as these can create current non-point source pollution impacts to surface waters through runoff and/or contaminant loading to local storm water conveyances. Ongoing remediation activities at the former NAS Alameda, including those pending at IR Site 27, have every obligation to implement effective best management practices to ensure no additional, present-day impacts to the quality of surface water runoff, storm water and local surface waters.

Response: The Department of the Navy (Navy) and its subcontractors will employ best management practices to prevent impacting surface water runoff and its release to Seaplane Lagoon during remediation activities at IR Site 27. These best management practices will be described during the remedial design phase. Remediation activities at the site will be supervised by Navy representatives; inspected by regulatory agencies; and performed in compliance with required federal, state, and local permit requirements.

Comments by: Patrick G. Lynch

1. Comment: Institutional Controls

Table 4 of the Proposed Plan describes Institutional Controls that would be implemented if the property within Site 27 is transferred to a non-federal entity. Specifically, land-use restriction would be incorporated and implemented through a quitclaim deed from the Navy to the property recipient. The Proposed Plan describes this Institutional Control's "long-term effectiveness and permanence" as "high".

The parcel located adjacent to my residence has a recorded deed restriction that is secured by a \$33,000 bond to the City of Alameda.

The parcel owner has failed to comply, and the city has not enforced the requirements of the deed restriction. Considering the most likely recipient of Site 27 is the City of Alameda, the long-term effectiveness of Institutional Control's should be rated "low" as evidenced by the ineffectiveness of deed restrictions on the parcel adjacent to my residence.

Response: The "long-term effectiveness and permanence" criterion considers the impact of a remedial alternative in the long term, defined in U.S. Environmental Protection Agency (U.S. EPA) guidance as the effectiveness of an alternative in protecting human health after response objectives are met. As summarized in Table 10-1 of the Record of Decision (ROD), the evaluation of the "long-term effectiveness and permanence" criterion considers the following parameters: the residual risk remaining on-site following remediation, the long-term management of remaining contaminants, the adequacy and reliability of controls, the need to replace components of the remedial alternative, and the continuing need for repair and maintenance of the components. In evaluating this criterion, all of the components of the remedial alternative are evaluated.

As shown in Table 4 of the Proposed Plan and in Table 10-1 of the ROD, ICs were included as a component of Alternatives 3, 4A, 6A, and 7. ICs at IR Site 27 would have prohibited residential use of groundwater at this shoreline site. (Drinking water is already supplied to the site by the East Bay Municipal Utilities District.) As summarized in Table 6 of the Proposed Plan and in Table 10-1 of the ROD, not all of the remedial alternatives with an IC component were rated high for long-term effectiveness and

permanence; only Alternatives 4A and 6A were rated high, while Alternatives 3 and 7 were rated moderate. Alternative 2 in the feasibility study, consisting of ICs only, was screened out. Revisions to the rankings are not necessary.

Alternative 6B would also include ICs as part of the preferred remedy for IR Site 27. As shown in Table 6 of the Proposed Plan and in Table 10-1 of the ROD, Alternative 6B was also rated high in long-term effectiveness and permanence because it would result in permanent and long-term reductions of VOC concentrations in groundwater. The ICs will only remain in place during the implementation of Alternative 6B and until the RGs have been successfully attained. The assumed duration for Alternative 6B is 3 years. Therefore, it is anticipated that ICs included in this alternative will only be in place for 3 years or less.

It is also important to note that the Navy has the obligation to enforce the deed restrictions, and the California Environmental Protection Agency Department of Toxic Substances Control (DTSC) has the obligation to enforce the covenant (described in Section 12 of the ROD). This "layering" of ICs is an effective approach to ensuring compliance with the restrictions.

2. Comment: Non-Degradation Policy

The Navy's interpretation of the State's non-degradation policy strikes me as racist. The Navy's long history of flouting the regulatory authority of the Regional Water Quality Control Board perpetuates a legacy of substantial and adverse impact on subsistence fisherfolk caused by poor Navy stewardship. The residents of Alameda and fisherfolk in local waters are entitled to the same level of environmental protection as citizens who live in areas where major polluters don't reinterpret policies to provide a lower level of public health protection. This was just as unacceptable in 1968 as it is today.

Response: Concentrations of VOCs in groundwater near the shoreline at IR Site 27 have attenuated to concentrations that approach or meet drinking water standards and meet all criteria for the protection of surface water and aquatic life. Therefore, groundwater near the shoreline was found not to pose a risk to ecological receptors or fishermen using Seaplane Lagoon.

As discussed in Section 7 of the ROD, an environmental risk assessment (ERA) was conducted as part of the remedial

investigation to assess the potential impacts on ecological receptors from exposure to chemicals at IR Site 27. The ERA provided a protective overestimate of the actual risk of adverse ecological effects at the site. The ERA results indicated negligible risk to terrestrial (ground-dwelling) wildlife receptors from chemicals in the soil and low risk to aquatic life from chemicals in groundwater, based on current conditions and planned future use of IR Site 27. Therefore, no action is considered necessary to protect ecological receptors or fishermen from VOCs in groundwater at IR Site 27. As described in Section 10 of the ROD, the State of California concurred with the Navy's selected remedial alternative (Alternative 6B). Furthermore, the Alameda Point Restoration Advisory Board (RAB) selected Alternative 6B as the preferred remedial alternative for IR Site 27 during the December 1, 2005 meeting.

As described in Section 6 of the ROD, it should be noted that Seaplane Lagoon is being investigated as part of IR Site 17. Based on the results of the remedial investigation (RI) and feasibility study (FS), the northeastern and northwestern areas of IR Site 17 were found to pose an unacceptable risk to human health and the environment. The Navy, together with the BRAC Cleanup Team (BCT), determined that these areas require remedial action. The BCT at Alameda Point is made up of representatives from the Navy, U.S. EPA, DTSC, and California Regional Water Quality Control Board.

With respect to fishing in Seaplane Lagoon and other local waters, the California Office of Environmental Health Hazard Assessment has issued an interim fishing advisory for all of San Francisco Bay and Delta Region (www.oehha.ca.gov/fish/general/sfbaydelta.html). This advisory was issued because of elevated concentrations of mercury, polychlorinated biphenyls, and other chemicals in fish tissue throughout the bay. Signs are also posted around Seaplane Lagoon advising people not to eat fish collected there. Although the proposed remedial action at IR Site 17 is expected to reduce bioaccumulation of contaminants from sediments within the lagoon, there are numerous other sources throughout the bay. Therefore, the fish consumption advisory will likely remain in place until more of the sources have been addressed.

3. Comment: Chemical Injection

The proposed injection of chemical solutions along the shoreline of San Francisco Bay without any means of controlling the migration of groundwater is entirely shortsighted. A hydraulic containment system is required to implement the proposed alternative without impact to nearby surface waters.

Response: The ISCO treatment at IR Site 27 is not expected to have an impact on Seaplane Lagoon for the following reasons:

- groundwater near the shoreline already meets the RGs and will not be treated
- injections of reagents by gravity flow (i.e., without pressurized injections) are expected to be performed east of Ferry Point Road, which is located more than 100 feet from the shoreline
- ISCO reagents are not persistent in the environment
- during the remedial design phase, an injection sequence will be developed to minimize migration of the plume, as stated in the FS Report; a hydraulic containment system is therefore not required