

**APPENDIX M**

**RESPONSES TO REGULATORY COMMENTS ON THE DRAFT REMEDIAL  
INVESTIGATION REPORT DATED DECEMBER 8, 2005**

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for Installation Restoration (IR) Site 2, West Beach Landfill and Wetlands, Alameda Point, California [dated December 8, 2005]**

Comment Number	Comment	Response
<i>General Comments from Mr. Mark Ripperda (Region IX United States Environmental Protection Agency [U.S. EPA]) – dated 2/17/2006</i>		
1	<p>The site conceptual model should include an understanding of the behavior of contaminants over time. Trend analyses should include both a graphical presentation of contaminant concentrations and figures that depict the extent of contamination over time. Please revise the RI Report to include relevant historic data and trend analyses for contaminants that exceed screening criteria.</p>	<p>Section 5.1 of the RI Report for IR Site 2 describes the data that were relied on to develop an understanding of the nature and extent of contamination at the site and also to develop the human health and ecological risk assessments. In general, the data generated in 2004 and 2005 (i.e., during the RI field sampling program that was based on the March 2005 RI field sampling work plan) were of higher quality than historical data, and represented efforts to specifically target portions of the site most likely to exhibit contamination (i.e., the middle of the landfill and wetlands rather than perimeter locations), meaning the newer data are more representative of worst-case conditions. Historical data were specifically evaluated in comparison to the newer 2004/2005 data, and while no detailed trend analysis was completed, the newer data are generally consistent with the historical data for redundant regions of the site in terms of evidence of contaminant impact. In other words, the more current data relied on in developing RI conclusions do not represent a significant departure from historical data in the context of contamination magnitude, and therefore do not bias the RI conclusions. In addition, the risk assessments, which define the potentially unacceptable risks at the site and will form the basis for any necessary risk management/remediation, are appropriately based on current data rather than trends in data over time. The Navy's use primarily of the most current available data is both reasonable and appropriate, providing an accurate and scientifically sound characterization of the site and for the development of appropriate risk assessments to guide risk management decisions for the site. While trend analysis would potentially be interesting, such an assessment is not necessary to properly characterize environmental conditions that exist at the site, identify site risk, and begin the processes of risk management decision making and remediation. It should also be noted that contaminant distribution over time is suitably assessed in the RI Report for certain media where this assessment is beneficial (i.e., the</p>

Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)

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<i>General Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
1 (cont)	The site conceptual model should include an understanding of the behavior of contaminants over time. Trend analyses should include both a graphical presentation of contaminant concentrations and figures that depict the extent of contamination over time. Please revise the RI Report to include relevant historic data and trend analyses for contaminants that exceed screening criteria.	wetland ponds, which were monitored over time and sampled during both seasonal sampling events).
2	A reader should be able to read just the Executive Summary and have a basic understanding of the conditions and potential risks at the site. However, this Executive Summary frequently reads like an expanded Table of Contents. There is no need to describe the purpose of each Section. Instead, please rewrite the Executive Summary to make it both shorter and more informative. For example, rather than stating that Section 2 will provide information regarding site history and physical characteristics, provide that information here by simply stating that <i>Site 2 is located in the SW corner of Alameda and was used as a base landfill from the mid 50s through early 70s. In addition, dredge spoils were place in the wetlands areas in the SW corner of the site.</i> The rest of the Executive Summary should be rewritten to provide a brief summary of the important information contained in the report.	The executive summary has been rewritten in the revised RI Report to be more informative in response to this comment.
3	The text in numerous subsections of Section 5 states that Alameda Point background values have not been established for TBT [tributyl tin], PCBs, SVOCs, VOCs, and explosives, but these are all are man-made compounds. Please delete all text that refers to establishing a background value for TBT, PCBs, SVOCs, VOCs, and explosives from the text.	The Navy has revised the RI Report to describe ubiquitous levels of manmade compounds as indicative of <i>ambient</i> conditions rather than <i>background</i> to alleviate any confusion over this largely syntactic discrepancy.

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
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Comment Number	Comment	Response
<i>General Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
4	<p>This document is frequently too general and vague. For example, the third full paragraph of the Executive Summary states that <i>the groundwater does not appear to be substantially impacted</i>. What does this mean? Avoid vague descriptions and state what is known and relate it to the goal of the RI, i.e., defining potential pathways and risks so that the FS can evaluate remedies. Is the groundwater impacted above risk screening criteria? If so, do the levels increase or decrease towards the ponds and bay? Are the samples nearest the ponds and bay above screening criteria? How do current groundwater levels compare to historical data?</p>	<p>With respect to the Executive Summary, please see the response to U.S. EPA general comment #2 on page 2. With respect to the body of the Draft RI Report, additional detail has been added where necessary and possible to further describe contaminant distributions and patterns, but overall, the RI Report describes the nature and extent of contamination at IR Site 2 in a highly detailed and thorough manner. Specifically, Section 5 of the document provides a detailed analysis of the occurrence and distribution of contamination at the site, including figures that demonstrate the spatial occurrence of contamination and relationships to screening criteria, while Sections 6 and 7 summarize risk assessment methodologies and put site contamination in the context of risk. As such, this document clearly accomplishes the referenced goal of the RI.</p>

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Comment Number	Comment	Response
<i>General Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
5	<p>This RI spends too much effort on reporting where COPCs were found, but not enough on what effect they might have on pathways and risk. For example, Section 5.3.1.5, Landfill FWBZ Groundwater, Metals, Page 5-35 states that there are no distinct hot spots or obvious source areas for metals in the FWBZ, but it appears that most of the locations with elevated metals concentrations are in the northern portion of the landfill or in the vicinity of the wetland ponds. In addition, there is no comparison of the extent of metals detected above background in subsurface soil with the locations of metals above background in groundwater. Since groundwater samples were usually collected from the perimeter of the landfill and the perimeter of the site, potential source areas in soil upgradient of the groundwater sampling locations should be evaluated. Please discuss whether metals that exceeded background were detected in groundwater from areas in the vicinity of or downgradient from locations with concentrations of same metals above background in subsurface soil and then consider whether the soil results may be indicative of sources of metals in groundwater. Are there cleaner samples taken between the contaminated spots and the surface water bodies? Are there increasing or decreasing trends compared to historical data? Will the FS have to consider hot-spot removals in the fill area for the groundwater to meet CTRs or other ecological risk goals to protect the ponds and bay?</p>	<p>Section 5 of the RI Report describes the nature and extent of contamination in various media at the site based primarily on the data generated in 2004 and 2005. The purpose of this section is not to develop estimates of risk for the site based on contaminants in site media. Rather, Sections 6 and 7 of the RI Report summarize the detailed human health and ecological risk assessments, respectively, that were completed based on the data generated at the site and summarized in Section 5. As indicated in the response to U.S. EPA general comment #4 above, additional detail has been added where necessary and possible to further describe contaminant distributions and patterns, but overall, the RI Report describes the nature and extent of contamination at IR Site 2 in a highly detailed and thorough manner. With respect to temporal trends in the IR Site 2 dataset, please see the response to U.S. EPA general comment #1 on page 1. Lastly, with respect to considering some form of removal action to meet an applicable or relevant and appropriate requirement (ARAR) or remediation goal, such risk management decisions will be considered during the feasibility study and/or remedial design/implementation phase, and discussion of this type of potential remediation component is premature. It should be noted that a presumptive remedy approach (i.e., landfill capping) would be anticipated to effectively mitigate site risk regardless of the variability in the extent of COC concentrations or fine scale relationships between various site media.</p>

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Comment Number	Comment	Response
<i>General Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
6	<p>The Draft RI Report does not contain a Data Validation Report or Chain of Custody Forms for any of the sampling events that were conducted during this investigation, although Appendix B indicates that data validation was completed. In addition, data usability is not discussed. Please include Data Validation Reports, Chain of Custody Forms, and a discussion of data usability in the next version of this RI Report.</p>	<p>Overall data usability is discussed in Section 5.1 and Appendix G of the RI Report. However, information related to overall data usability has been bolstered in Appendix G, and Data Validation Reports and Chain of Custody documentation have been added to the RI Report.</p>
7	<p>The aerial photographs provided for 1949 through 1957 do not show the eastern edge of the area of open water where the southern half of IR Site 2 (Site 2) was constructed. Since later photographs show the southern portion of Site 2 completely filled, the construction history of the southern portion of Site 2 is not documented between 1947 and 1963. The 1947 photograph shows an area at the center of the western border of the airstrip where fill was dumped over the seawall onto Site 2. Staining may also be apparent at this location, which suggests that waste disposal had been initiated when this photograph was taken. Although some activity was apparent at the eastern boarder of Site 2 in 1947 it is not apparent whether further activity was occurring in photographs from 1949 through 1957. Please include aerial photographs that show the entire footprint of Site 2 between 1949 and 1957, so any construction and waste disposal activities that may have been occurring in the southern portion of Site 2 during this time can be evaluated.</p>	<p>The Navy diligently searched for aerial photography of the site in preparing the RI field sampling work plan and the RI Report. Appendix A of the RI Report describes all aerial photographs that were identified, and all photographs are listed on the first page of the appendix. With specific respect to the 1947 photograph, it is apparent from this image that the West Beach Landfill and Wetlands do not exist at that time. Further, historical facility records indicate waste disposal did not begin at IR Site 2 until the early 1950s at the earliest, and the area noted as being fill dumped over the seawall could just as easily be related to construction of the seawall and/or dredging of the offshore area in support of development activities at other portions of Alameda Point (i.e., it is not conclusively indicative of any type of disposal at IR Site 2). The aerial photograph record is suitably comprehensive and corroborates historical facility documentation. Minor differences in the interpretation of the aerial photographs do not invalidate the highly detailed and thorough RI process that has been conducted at IR Site 2. However, all photographs referenced in Appendix A have been reevaluated, and language provided in the photograph descriptions has been revised as necessary.</p>

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<i>General Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
8	<p>It is unclear why the cross-sections in this Draft RI Report were identical to the old 1990s cross-sections. The Draft Final Ordinance and Explosives Waste/Geotechnical Characterization Report, issued in 2003 included cross sections that were based on new cone penetrometer test (CPT) logs, the older boring data, and new soil boring logs completed along the western and southern shorelines. For example, Figure 2-6 shows truncation of the Merritt Sand and the Upper San Antonio Formations in the center of the western shoreline (between WB-2 and M020-B) although there is no significant change in lithology across the section to indicate that these formations are not laterally continuous. Similarly, Figure 2-4 depicts a truncation of the Merritt Sand and Upper San Antonio Formation in the central portion of Site 2, although poorly graded sand, silty sand and clayey sand (consistent with the lithology of the Merritt Sand) appears to be continuous across the section and is present in M023-B. The OEW Geotechnical Report further characterized stratigraphy in these areas and depicted gently sloping, laterally continuous stratigraphic units based on the CPT and new boring logs. Further, the information in the OEW Geotechnical Report was not discussed in the text. Please revise the cross sections and text to incorporate the stratigraphic information presented in the OEW Geotechnical Report.</p>	<p>Cross-sections of the subsurface stratigraphy beneath IR Site 2 have been revised to reflect more recently generated data and subsurface geology information. Please also note that the 2002 OEW/geotechnical investigation conducted at IR Site 2 is discussed in Section 3.1.6 of the RI Report.</p>

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Comment Number	Comment	Response
<i>General Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
9	It appears that there is some overlap between the drum disposal areas and the seasonal wetlands (SWs) in the northern portion of Site 2, but this is not discussed in the text. It is unclear if samples were collected in the overlap areas. Please include a discussion of whether portions of the drum disposal areas and PCB area are within SWs and specify whether sampling was done to determine the impact of these disposal areas on the SWs. If sampling was not done in the overlap areas, please discuss how this data gap will be addressed.	As noted throughout the RI Report, the discrete disposal areas at IR Site 2 that were identified from historical facility records were plotted graphically (i.e., see Figure 3-1 of the RI Report) to show their general location and not to suggest that these areas truly exist as discrete waste disposal locations or that specific dimensions of these areas are known. An appropriate amount of sampling was completed at the site to fully characterize the nature and extent of contamination, including in and around all of the potential discrete waste disposal areas, in accordance with the RI field sampling work plan. In addition, the seasonal wetlands, which were identified by others during a more recent wetland delineation effort, were assessed in the field prior to and during the RI field sampling program. Certain samples were collected at and in the vicinity of the seasonal wetland areas and there are no data gaps associated with the potential overlap between the potential discrete disposal areas and the seasonal wetlands.
<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) – dated 2/17/2006</i>		
1	Executive Summary, Page iv, second full paragraph: This paragraph (starting with “In combination with ...”) is too general to be of any use. Please delete this paragraph. Many of our comments address such overly general language, but we did not note all such instances. Please use this as an example of language that should be rewritten or removed throughout the document.	Please see the response to U.S. EPA general comment #4 on page 3.
2	Section 2.1, General Location and Site Description, Page 2-1: Please include the date Alameda Point was placed on the NPL.	The requested information has been added to Section 2.2 of the RI Report, where it is a better fit with the document’s structure.
3	Section 2.2, Site History, Page 2-1; and Appendix A, Areal Photograph Review, Photograph A-13, March 1947: There appears to be some construction activity and possibly the initiation of waste disposal activity on the shoreline directly northwest of the center of the aircraft runways in 1949. This photo appears to show a small jetty with stained soil. Please discuss whether this photograph may show the initiation of waste disposal at the West Beach Landfill. If this photo does show waste disposal or filling of the San Francisco Bay at the eastern border of Site 2, please revise the discussion of Site 2 history to include the activity shown in the photograph.	Please see the response to U.S. EPA general comment #7 on page 5.

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<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
4	Section 2.2, Site History, Page 2-2: The first sentence of the last paragraph states, "an earthen berm was constructed around the perimeter of Site 2, completely containing it," but it is not likely that the earthen berm was able to contain groundwater, leachate or landfill gas. Please revise the first sentence in the last paragraph of this page to indicate that only physical debris and storm water runoff was contained by the earthen berm.	The referenced language has been modified to reflect that the berm was constructed as a surface feature to physically contain the site but does not likely contain groundwater, leachate, or gas.
5	Section 2.2, Site History, Page 2-3: The slurry wall is not shown on any of the figures. Please include the slurry wall on a figure.	Throughout the RI field sampling work plan and RI Report process, the Navy has diligently attempted to locate a figure or as-built drawing showing the slurry wall, but has not been successful. In the event such a figure is identified, it will be provided.
6	Section 2.4, Surface Features, Page 2-4: The landfill is only covered with soil that mostly consists of sand and ranges in thickness from 2 inches to 2 feet, so it is incorrect to refer to this material as "landfill capping material," since the term "landfill cap" has specific connotations. This material should be called "soil" or perhaps "temporary soil cover."	The referenced language has been modified throughout the RI Report to refer to "landfill soil cover".
7	Section 2.8.2, Hydrogeology and Hydrology, Page 2-7: Please provide groundwater contour maps. Also, please discuss the distribution of the groundwater VOC plume and why it stretches out parallel to the ponds if the flow direction is towards the ponds.	Groundwater contour maps have been added to Section 2 of the RI Report, and reference in Section 2.8.2. However, the distribution of contaminants in IR Site 2 groundwater is discussed in Section 5, and Section 2 is a premature location for any such discussion. Additional language has been added as necessary to Section 5 to convey how the orientation of groundwater contaminant plumes relates to groundwater flow patterns.

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<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
8	<p>Section 2.8.2, Hydrogeology and Hydrology, Page 2-7; Figure 2-4, IR Site 2 Geologic Cross-Section A-A'; and Figure 2-6, IR Site 2 Geologic Cross-Section C-C': There is a discrepancy between the description of the Second Water Bearing Zone (SWBZ) in the text and its depiction on Cross Sections A-A' and C-C'. For example, the text states that the lower Bay Sediment Unit (BSU) forms the SWBZ where the Merritt Sand and San Antonio Formation is absent. Therefore, it is not clear why Cross Sections A-A' and C-C' show the SWBZ pinching out with the Merritt Sand and the San Antonio Formation, rather than continuing in the lower BSU. Please discuss whether wells screened in the lower BSU are representative of the SWBZ, or if they are associated with another water bearing zone assigned to the paleochannel.</p>	<p>In general, the groundwater zones at IR Site 2 are defined on the basis of being reasonably able to transmit/yield groundwater. Because the BSU is an effective aquitard/aquiclude and does not readily transmit/yield groundwater, this unit is not identified as part of a water bearing zone on the cross-sections provided in Section 2 of the RI Report. However, the text in Section 2.8.2 accurately describes that the lower portion of the BSU is considered the SWBZ where it occurs immediately above the Yerba Buena Mud and tends to be more coarse-grained. The cross-sections have been revised in an effort to more clearly reflect this description (please also see the response to U.S. EPA general comment #8 on page 6). Permanent groundwater monitoring wells installed at IR Site 2 are defined on the basis of the aquifer zone they monitor. In general, permanent monitoring wells with an "A" or "E" designator are FWBZ wells, while "B" and "C" wells are SWBZ wells.</p>
9	<p>Section 2.8.2, Hydrogeology and Hydrology, Page 2-7 and Figure 2-9, IR Site 2 Geologic Cross-Section F-F': There is a discrepancy between the saturated thickness of the first water bearing zone (FWBZ) described in the text and the saturated thickness depicted in the Figure. The text states that the saturated thickness of the FWBZ is approximately 30 feet in the western section of Site 2, but Figure 2-9 appears to indicate that the saturated thickness of the FWBZ is more than 40 ft thick.</p>	<p>In certain instances in the RI Report, physical characteristics of the site are described in general terms or on the basis of averages and/or reasonable approximations. Clearly, there may be localized and discrete portions of any site where true physical conditions are outside the bounds of generalities and approximations that are made to more easily describe physical conditions. However, such information has been evaluated in the RI Report to ensure its consistency and accuracy.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
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Comment Number	Comment	Response
<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
10	Section 2.9, Landfill, Page 2-8: The discussion of Site 2 stratigraphy below the fill material is not consistent with geologic cross sections for Site 2. For example, the text states that a clay layer, identified as the Bay Mud aquitard/aquiclude (the Bay Mud), exists below landfill material (fill material) and above the BSU and that the Bay Mud is present at depths up to 70 feet below ground surface (ft bgs). There is no indication in the cross sections of a clay unit above the BSU that extends to 70 ft bgs. Additionally, cross sections A-A', D-D', and E-E' show that clay sediments are not continuous below the fill material, and that in some areas, fill material is underlain by sand, silty sand, and clayey sand, which is generally considered permeable material. Please provide boring logs that support the existence of the Bay Mud as described in the text and aquifer test results to support the existence of an aquitard/aquiclude below the fill material.	Please see the responses to U.S. EPA general comment #8 on page 6 and specific comment #9 above. Please also note that regional geologic resources and other documents pertaining to IR Site 2 reference the existence of the Bay Mud and the impermeable nature of this unit.
11	Section 2.11 Potential Sources of Contamination, Page 2_15: The Initial Assessment Study (IAS) referenced in this section states that the amount of dredged material from Seaplane Lagoon deposited in the wetland area was 24,000 cubic yards, while Section 2.11 (subsection "Dredge Spoil Spreading Area") states that the amount was 21,000 cubic yards.	Both volumes are actually cited in different locations in the IAS. However, to be conservative, the RI Report has been consistently revised to indicate that 24,000 cubic yards of sediment from Seaplane Lagoon were reportedly deposited at IR Site 2.
12	Figure 2-2, Site Map of IR Site 2: It is difficult to distinguish between the various lines along Site 2 margins because some of the lines overlap. In addition, the topographic elevations cannot be read. Further, the text defines three habitats: upland, wetland, and wetland pond so the locations of the three different habitats should be immediately clear from the figure. Please consider presenting the information in two figures (i.e., habitats in one figure and surface elevations and fences in another) or use a better method to indicate different areas of the site.	Figure 2-2 was intended to be in color and may not reproduce well. In color, the features described in the legend are generally clearly distinguishable. However, this figure has been revised in an effort to better present the referenced information.

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13	Figure 2-9, IR Site 2 Geologic Cross-Section F-F': It is not clear why the top of the BSU does not coincide with an apparent change in lithology at borings M016-B and WB-3. This lithologic contact appears to be inaccurate, but the boring logs were not provided. Please explain why the top of the BSU does not coincide with a change in lithology. Please also provide boring logs for all soil borings and monitoring wells at Site 2.	Please see the response to U.S. EPA general comment #8 on page 6. The Navy has provided boring logs in the RI Report for all borings completed during the 2004 and 2005 field investigation, and other boring logs are available in historical documentation (please see the response to Samantha Murray's general comment #2). However, a CD has been provided with the revised RI Report that contains boring logs from several historical investigations that were used to develop the general conclusions regarding site geology.
14	Figure 2-10, Approximate Locations of Waste Disposal Areas Identified During the IAS: Although only the area southwest of the South Pond is designated the "Dredge Spoils Disposal Area," the entire wetland and wetland pond area (i.e., the area southwest of the landfill) was used to receive dredge material. Some of this material was removed for use as landfill cover, resulting in the wetland ponds. Please explain why only the area southwest of the South Pond is designated as the "Dredge Spoils Disposal Area."	As noted throughout the RI Report, the discrete disposal areas at IR Site 2 that were identified from historical facility records were mapped to show their general location and not to suggest that these areas truly exist as discrete waste disposal locations or that specific dimensions of these areas are known. In addition, the IAS describes two "types" of dredge spoil disposal at the West Beach Landfill: one historically related to dredge material removed from the turning basin, pier areas, and entrance channel; and a second related to the 24,000 cubic yards of material removed from Seaplane Lagoon. The "Dredge Spoils Disposal Area" noted on Figure 2-10 correlates to the Seaplane Lagoon dredge material, and given the known conditions in Seaplane Lagoon, reasonably reflects the dredge spoil disposal area at IR Site 2 that would demonstrate the greatest potential for contamination.
15	Section 3.1.2.4, Radiological Investigations, Page 3-3; and Table 3-2, Summary of Radiological Surveying Activities Previously Conducted at IR Site 2: The Draft RI Report does not contain a map that identifies where various radiological investigations were conducted. For example, Table 3-2 indicates that the radiation survey conducted during 1998 and 1999 was located at the Former Radioactive Waste Storage Shack, but the description of this survey in the text states that almost 16 acres were surveyed. Please delineate the boundaries of the various radiological investigations on a map of Site 2 that includes the locations where soil was sampled for radionuclides.	The level of detail requested in this comment is available in other documents previously submitted in the IR Site 2 document record. Documents related to the previous radiological characterization events that are summarized in Section 3.1.2.4 are cited, and full citations are available in Section 10 of the RI Report. Please also see the response to Samantha Murray's general comment #2 on page 54.

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16	Section 3.1.12.1, Soil, Page 3-11; and Table 3-13, Background Concentrations of Inorganic Metals in Yellow Area Soils: The discussion of study areas used for determining background concentrations refers to a figure that is not included in the Draft RI Report. Please include a figure showing the background areas discussed in the text.	Section 3.1.12.1 does not specifically refer to a figure, but rather to the colors that have become synonymous with the background areas historically assessed. All figures generated during the historical development of background concentrations at Alameda Point have been provided in previous documents, and these documents are referenced in the RI Report. However, the text in Section 3.1.12.1 of the RI Report has been modified to remove the possible confusion that a specific figure is being referred to.
17	Section 4. The significance of the lack of sufficient fish and benthic organisms for sampling in 2004-2005 is not discussed. It is unclear if the populations of fish and invertebrates, which were surveyed or sampled in 1993, 1994, 1996 and 1998, were negatively impacted by contaminants present in surface water and sediments or if other factors like shallow water (i.e., birds can find and consume them), variable DO, or depletion by sampling were responsible. Please discuss why there were insufficient fish and invertebrates for sampling in 2004-2005 and compare to earlier sampling events.	As indicated in Section 4, Appendix B of the RI Report contains a detailed discussion of the tissue sampling efforts during the 2004 and 2005 field sampling program as well as a detailed description of the tissue sampling efforts that were unsuccessful in generating significant tissue volume. For the most part, it appears that the inability to harvest significant tissue volume was related primarily to naturally low population levels in the tissue categories of interest. While it is also possible that predation played a role, direct observations do not indicate this was the case. Issues related to data usability and the impacts of data volume are covered in Section 5 and Appendix G of the RI Report. Toxicity data are presented in the RI Report for both sediment and surface water that suggest there is no substantial toxicity to organisms from these media. This indicates both that tissue availability in the wetland pond habitat was likely not influenced by contamination and that the RI results are not suspect based on the lack of certain tissue data.
18	Section 4.2.3, Radiological Survey, Page 4-2: Please describe the screening level used to determine which areas required focused soil sampling.	Additional detail describing the screening level for the radiological survey has been included in Section 4.2.3 of the RI Report.

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19	Section 4.3.11, Dry Season Landfill and Wetland Area Soil and Groundwater Sampling, Page 4-5; and Section 4.3.2.1, Wet Season Landfill and Wetland Area Soil, Groundwater and Tissue Sampling, Pages 4-6 and 4-7: Filtering is not considered appropriate for samples that will be analyzed for poly-chlorinated biphenyls (PCBs) and semi-volatile organic compounds (SVOCs) because total contaminant levels including those sorbed to sediment are usually more important than dissolved phase contamination for risk assessments. Please clarify whether filtered or unfiltered data were used for input into the ecological risk assessment. If filtered results were used, please redo the ecological risk assessment using unfiltered data.	Both filtered and unfiltered data were generated to provide information on the sorption-related impacts of various contaminants in aqueous media. Only unfiltered data were used for input for the risk assessments.
20	Section 5.0, RI Results and Evaluation of Nature and Extent of Contamination: A figure showing all of the sampling locations was not included in Section 4 or in Section 5. Please provide a figure that shows all recent RI sampling locations to supplement the discussion in the text. Please also include figures showing the historic sampling locations.	All of the figures described in this comment are provided in the RI Report. Figures depicting historical sampling locations are provided in Section 3, and figures depicting more recent sampling efforts (i.e., the 2004 and 2005 field sampling program) are provided in Appendix B. Appendix B is referenced numerous times throughout the RI Report as containing more detail regarding the implementation of the 2004/2005 RI sampling activities.
21	Section 5.2.1, General Surface Water Quality, Pages 5-7 and 5-8: It is unclear how the 2004 -2005 surface water depths compare with previous data. For example, it is unclear why the North Pond would dry up if it is connected to San Francisco Bay through the culvert. It appears that water in the North Pond may be shallower than in the past. Since shallow water may make it easier for birds to find and consume fish and benthic invertebrates, the shallow depth is one potential explanation for the lack of sufficient fish and benthic invertebrates to sample. Please evaluate historic information and discuss how the water depth in the North and South Ponds has changed over the years since investigations began at Site 2.	This assessment would not provide any meaningful information to interpret contamination at the site or to use as input to the risk assessments. It should be noted that the information provided in Section 5.2.1 does not suggest the North Pond dried up during the water quality assessment implemented in 2004/2005 or would dry up, only that its connection to San Francisco Bay likely acts to mute significant precipitation inputs.

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Comment Number	Comment	Response
<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
22	<p>Section 5.2.1, General Surface Water Quality, Page 5-9: The text states that the pH in the North Pond varied from 7.5 to 9.5, which was true prior to December 1, 2004 for the western meter, but based on the North Pond pH graph in Appendix I, in January the pH recorded by the western meter reached 7.0 and below. The pH recorded by the eastern meter ranged from about 7.2 to 8.4. It is not clear why the pH at the western meter reached 9.5 when the pH in the eastern meter did not. Please revise the text to reflect the additional data collected after December 1, 2004 and to more accurately describe the pH in the North Pond. Also, please explain why there was less variation recorded by the eastern meter in the North Pond.</p>	<p>The text of the RI Report generalizes the surface water data in the interest of most concisely summarizing the results and acknowledges (i.e. by using the word generally) that point-by-point variability may exist. However, overall trends in the dataset are as described. Overall, the interpretation of pH in the wetland ponds is reasonable, and providing any more detail would not alter the conclusions of the RI Report. Section 5.2.1 also clearly indicates that the pH trend variability between meters in the ponds is not readily explained.</p>
23	<p>Section 5.2.2, Geophysical Surveying, Pages 5-9 and 5-10: It appears that infill geophysical surveying focused on areas that were defined in the IAS as disposal areas, but areas between those selected for more detailed infill work also have significant red signatures indicating anomalies. For example, the areas immediately north of the Asbestos Disposal Area have numerous red signatures, implying the presence of numerous anomalies, but this is not discussed in the text. It is possible that there is no significant difference in the type of disposal that occurred, other than on the roads and wetlands, which were relatively free of anomalies. This should be discussed so that the geophysical survey figures are not misinterpreted. Please explain how the infill survey areas were selected in the text of Section 5.2.2 and discuss the implications of significant anomalies in areas where the survey was not as comprehensive.</p>	<p>Section 5.2.2 directs the reader to Appendix B of the RI Report for a more detailed discussion of the geophysical surveying activities. Appendix B provides the level of detail requested in this comment. The overall conclusion of the geophysical surveying is that the landfill portion of the site is characterized by a widespread and diffuse pattern of disposal with no clearly distinguishable anomaly patterns that would suggest specific waste types. The geophysical survey provided appropriate coverage of the site and full coverage of numerous areas with elevated returns. The fact that similar anomalies to those that were covered fully exist at the site and were not covered fully does not alter the overall conclusion.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
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Comment Number	Comment	Response																									
<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>																											
24	<p>Section 5.3, Nature and Extent of Contamination: The litany of percentages makes this section difficult to read and adds little to the understanding of the site. Perhaps the percentage occurrences information could be presented in table format, such as:</p> <table border="1" data-bbox="352 467 1075 685"> <thead> <tr> <th colspan="5">Percentage Occurrence for Metals above Detection/Background/Risk Screen Criteria</th> </tr> <tr> <th>COPC</th> <th>Fill Area Surface</th> <th>Fill Area Subsurface</th> <th>Wetlands Surface</th> <th>Wetlands Subsurface</th> </tr> </thead> <tbody> <tr> <td>Aluminum</td> <td>100/xx/0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Antimony</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>The values for occurrences above background, PRGs or ecological screening criteria (as appropriate for contaminant type) could be combined into a single table. It might be OK to only show the COPCs that are above either background or a risk screening criteria as a way to shorten the lists and focus attention on potential risk drivers. While these suggested tables have some of the same information as Table 5-4, they replace repetitive portions of text, and allow a clearer analysis by filtering out extraneous data. Also, don't spend too much effort on analyzing concentrations within the fill area. As a landfill with an insufficient cover, we expect widespread and somewhat random contamination in the subsurface, and to a lesser extent, the surface soil. Instead, focus analysis more on the wetlands area and on contaminants that have the potential to migrate from the fill area or otherwise affect the possible remedies.</p>	Percentage Occurrence for Metals above Detection/Background/Risk Screen Criteria					COPC	Fill Area Surface	Fill Area Subsurface	Wetlands Surface	Wetlands Subsurface	Aluminum	100/xx/0				Antimony										<p>Section 5 of the RI Report is very detailed and reduces a very thorough RI sampling program implemented at a very large and complex site to a reasonable discussion of contaminant occurrence and distribution. Section 5 in its current format is as clear and concise as possible given the rather massive extent of the datasets being summarized, and reformatting this section to provide percentages of occurrence and other statistics in tabulated format would represent a significant, difficult, and unnecessary document revision. The Navy assessed data in Section 5 by evaluating them in the general context of risk and other benchmarks, but focusing the discussion in Section 5 on contaminants suspected of being risk drivers would be premature. Sections 6 and 7 describe the site risks based on completing thorough human health and ecological risk assessments, respectively. The Navy acknowledges the U.S. EPA's expectation of widespread and somewhat random occurrence of contamination in the landfill.</p>
Percentage Occurrence for Metals above Detection/Background/Risk Screen Criteria																											
COPC	Fill Area Surface	Fill Area Subsurface	Wetlands Surface	Wetlands Subsurface																							
Aluminum	100/xx/0																										
Antimony																											

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
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Comment Number	Comment	Response
<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
25	Section 5.3.1.1, Potential Sources of Contaminants, Pages 5-13 and 5-14: On page 5-13, the text states, "Historical disposal methods at the site generally consisted of trench and fill operations," but the text in the first full paragraph on page 5-14 states that the electromagnetic response indicates "a highly diffuse pattern of historical waste disposal." Further, the geophysical survey results do not reflect trench and fill operations; if trench and fill was used, there would be linear geophysical anomalies. Please resolve this discrepancy and revise the text as necessary.	As documented in the Alameda Point IAS, the primary method of waste disposal at IR Site 2 was trench and fill. However, this does not mean that the types of waste put in an individual trench would return a unique signature in a geophysical survey, and it is very possible that the number of trenches ultimately excavated to allow for waste disposal was great enough to spread waste material across the site and not in a pattern that would return distinguishable disposal trenches in a geophysical investigation. Ultimately, the exact method of historical waste placement would not alter the conclusions of the detailed and extensive RI Report.

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Comment Number	Comment	Response
<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
26	<p>Section 5.3.1.2 Landfill Surface Soils, Metals, Page 5-15: The text states that “there are no obvious patterns in the occurrence of metals in landfill soils”, but some patterns are evident, based on the figures in Appendix F. For example, some metals, like antimony, were only detected above background in landfill soils; since antimony was not detected in wetland area soils, the presence of antimony above background appears to be related to materials disposed of in the landfill. Similarly, beryllium and vanadium were only detected above background adjacent to the ponds in the southwestern portion of the site, suggesting that these metals are associated with dredge materials rather than with landfill disposal. Please revise the text to discuss these and other patterns that are depicted on the figures in Appendix F.</p>	<p>Section 5.3.1.2 specifically states “in general, there is no obvious pattern in the occurrence of metals concentrations in landfill surface soils that would suggest localized hot spots of metals contamination or clear source areas”. While some very fine scale variability in the presence and distribution of compounds might be present, this statement takes into account occurrence and variability within the context of clear contaminant sources, in addition to relevant benchmarks, background values, and contaminant concentrations detected at China Camp State Park. Please note that the description of the nature and extent of contamination in landfill surface soils in Section 5.3.1.2 is independent of other media and other portions of the site. However, in subsequent subsections of Section 5, comparisons are made between locations and media. Specifically, when describing landfill area subsurface soils and wetland area surface and subsurface soils, the Navy has provided points of comparison between contaminants identified in an effort to resolve any similarities, differences, or evidence of trends. Therefore, while Section 5.3.1.2 alone may appear to not evaluate distribution patterns, such patterns are assessed when Section 5 is evaluated comprehensively. Also note that graphics are provided in the RI Report that demonstrate the distribution of contamination across the site and provide some context relative to appropriate screening values. With specific respect to the compounds referenced in this comment, please note that antimony was detected in roughly 95% of the landfill area surface soils, with a maximum concentration of approximately 8 mg/kg. Antimony was detected in roughly 60% of the wetland area surface soil samples (note this comment suggests antimony was not detected in wetland soils), with a maximum concentration of approximately 3 mg/kg. The established Alameda Point background for this metal is approximately 3 mg/kg. These data do not suggest antimony is a significant contaminant at IR Site 2, either in the landfill or the wetland. Beryllium and vanadium were detected in landfill surface soil, wetland surface soil, and wetland pond sediment at similar frequencies and low concentrations, which similarly does not suggest that either of these metals is a significant contaminant at the site.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
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Comment Number	Comment	Response
<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
27	Section 5.3.1.2 Landfill Surface Soils, Petroleum Hydrocarbons, Page 5-20: The term, "Residual Range Organics," should be defined. Please discuss how this analysis is similar to or different from the more common analysis for motor oil - range petroleum hydrocarbons.	Additional information defining Residual Range Organics has been added to the RI Report at the first usage of this term. Petroleum hydrocarbons were evaluated as Gasoline Range Organics, Diesel Range Organics, and Residual Range Organics (i.e., hydrocarbons not captured by the Gasoline Range or Diesel Range). This approach is comprehensive, and in fact more comprehensive than a single analysis for motor oil range hydrocarbons, and is not at all uncommon.

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Comment Number	Comment	Response
<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
28.	<p>Section 5.3.1.3, Landfill Subsurface Soils, Metals, Pages 5-23 and 5-24: Although the text states that there are no obvious patterns and that it is not clear ... that this condition [elevated concentrations of metals] is the result of specific sources of metals," there are apparent patterns and metals associations. For example, locations where antimony concentrations exceed background also have lead in excess of background. Since antimony was used as a hardening alloy for lead, particularly in storage batteries and cable sheaths, the occurrence of antimony and lead together may indicate the types of material disposed in these locations. Similarly, the presence of copper, mercury, zinc, and lead in samples collected from the same locations at concentration above background may be indicative of the presence of spent sandblast grit, since copper, mercury, and zinc were historic anti-fouling additives to marine paint that also contained lead. There appears to be a correlation between locations with chromium and nickel concentrations above background; this correlation may be related to the use of these metals in stainless steel or to their use as protective coatings. Other patterns are areal in nature; for example, beryllium is only present above background concentrations in areas that are in close proximity to the wetland ponds, which may indicate that the dredge materials disposed in these areas had elevated levels of beryllium. Similarly, the presence of TBT in the area of a former landfill roadway is most likely associated with the use of spent sandblast grit on the roadways. Please re-evaluate the patterns and potential associations of metals and revise the text to include this information.</p>	<p>Please see the response to U.S. EPA specific comment #26 on page 17. The Navy assessed the occurrence, distribution, and patterns of contaminants at IR Site 2 in the context of sources, hot spots, background values, China Camp State Park data, and relevant benchmarks. Some fine scale variability in the presence and distribution of compounds is present at the site, but the statements referenced in this comment about the lack of obvious patterns and specific sources are accurate because they take into account occurrence and variability within this contextual framework (i.e., sources, hot spots, background/ambient, etc...). The RI at IR Site 2 used multiple investigative tools, including geophysics, and over the scale of the site and the resolution afforded by these tools, the types of corollaries noted by U.S. EPA in this comment are simply speculative and impossible to verify or refute through a reasonable RI. For instance, it is possible that stainless steel could be associated with chromium and nickel contamination, that a battery could be responsible for lead and antimony being collocated, or that sandblasting grit could be associated with metallic anti-fouling agents such as copper, mercury, and zinc. In fact, the Navy acknowledges throughout the RI Report that the presence of TBT would be expected to be most significant in association with the landfill roadways, which were built in part of spent sandblasting grit. But to resolve more micro-scale patterns such as these at IR Site 2 would require an extraordinary expense of resources and ultimately is not necessary to achieve the objectives of the RI. The risk assessments completed as part of the RI quantify unacceptable risks and identify areas of the site and pathway/receptor combinations impacted by the presence of contamination, regardless of the virtually impossible task of identifying where each amount of contamination originated, and appropriate mitigation strategies will be assessed and selected in the feasibility study and remedial design/implementation stages. The U.S. EPA itself acknowledged in specific comment #24 on page 15 "[a]s a landfill with an insufficient cover, we expect widespread and somewhat random contamination in the subsurface..."</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
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Comment Number	Comment	Response
<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
29	<p>Section 5.3.1.3, Landfill Subsurface Soils, Pesticides, Page 5-27: Although the text states that there is no clear pattern in the occurrence of pesticides, there are patterns. It is significant that the highest concentrations of pesticides occur in the landfill area rather than in the wetlands. This suggests that the presence of pesticides is associated with landfill disposal and possibly with landfill operations. In addition, it is possible that the radioactive waste storage shack area was treated with pesticides or that they were stored in that area. Please revise the text to discuss these patterns.</p>	<p>Please see the responses to U.S. EPA specific comments #26 and #28 on pages 17 and 19, respectively. The overall patterns of contamination at the site are discussed in detail in Section 5 and with a sufficient degree of clarity, precision, and comparison. Note that, as described in the response to U.S. EPA's specific comment #26, subsequent subsections of Section 5 beyond 5.3.1.3 make clear comparisons between media and portions of the site. Specifically, Section 5.3.2.3 clearly indicates "mean and maximum detected concentrations of individual pesticides were, however, generally far lower in wetland area subsurface soil samples compared to landfill area subsurface soil samples." This statement clearly acknowledges that pesticides are more prevalent in the landfill and at higher concentrations. Suggesting that the area of the former radioactive waste storage shack was historically treated with pesticides and therefore a pesticide source is speculative and not corroborated by facility information.</p>
30	<p>Section 5.3.1.3, Landfill Subsurface Soils, VOCs, Page 5-29: Some of the VOCs detected in subsurface soil have also been detected in groundwater, but there is no comparison of the extent of VOCs in subsurface soil with soil gas results or with groundwater contaminant plumes. Please revise the text to include a comparison of the distribution of VOCs with soil gas results and with the locations and concentrations in VOC groundwater plumes.</p>	<p>Additional information has been added to Section 5 of the RI Report to describe, where applicable and possible, correlations between contaminant occurrence and distribution in soil, soil gas, and groundwater.</p>

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Comment Number	Comment	Response
<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
31	Section 5.3.2.2, Wetland Surface Soil, Metals, Page 5_45: Although the text states that "there is no obvious pattern in the occurrence of metals concentrations in wetland surface soils that would suggest ... clear source areas," some patterns can be observed. For example, beryllium and vanadium were only detected above background adjacent to the ponds in the southwestern portion of the site, suggesting that these metals are associated with the dredge materials used as fill in this area. Similarly, there are only a few samples with lead above background southwest of the South Pond, which suggests that the dredge materials disposed in this area may have originated from a different area than the dredge materials disposed of in the vicinity of the Northern Pond. Please revise the text and discuss patterns that can be observed.	Please see the responses to U.S. EPA specific comments #26, #28, and #29 on pages 17, 19, and 20, respectively. With specific respect to beryllium and vanadium, frequencies of detection and concentrations of these metals were consistent in landfill surface soil, wetland surface soil, and wetland pond sediment samples. Detected concentrations of these metals when evaluated in the context of Alameda Point background and China Camp State Park sampling data do not suggest either is a significant contaminant in wetland surface soils. In addition, resolving the possibility that separate sources of dredge material are responsible for variability in the occurrence of lead is virtually impossible, well beyond the scope of a reasonable RI at IR Site 2, and not important in developing conclusions regarding the nature and extent of contamination and site risk. The risk assessments completed as part of the RI quantify unacceptable risks and identify areas of the site and pathway/receptor combinations impacted by the presence of contamination, regardless of the virtually impossible task of identifying where each amount of contamination originated, and appropriate mitigation strategies will be assessed and selected in the feasibility study and remedial design/implementation stages.
32	Section 5.3.2.2, Wetland Surface Soil, SVOCs/PAHs, Page 5_46: The text states that the "maximum detected concentration of benzo(a)pyrene (140 ug/kg) represents a minor exceedance of the relevant PRG (62.1 ug/kg)," but the maximum is more than twice the PRG and should not be considered a "minor exceedance." Please delete the reference to a "minor exceedance."	The recommended change has been made to Section 5.3.2.2.
33	Section 5.3.2.2, Wetland Surface Soil, Radionuclides, Page 5_51: The text states, "Lead 210 was not detected in any of the wetland area surface soil samples," but figure F-108 indicates that the highest detection of Lead 210 was in wetland location SOC 45. Please resolve this discrepancy.	This discrepancy has been resolved in the RI Report. Please also note that Pb-210 is the ultimate degradation product in the decay series of radium, and was quantified through the standard radionuclide gamma scan methodology that quantified radionuclides of concern at IR Site 2 (i.e., Ra-226). Pb-210 has been evaluated at the site during historical investigations and was also evaluated during the RI sampling activities for consistency, but in and of itself is not considered a constituent that is related to past disposal at IR Site 2.

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Comment Number	Comment	Response
<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
34	Section 5.3.2.3, Wetland Subsurface Soil, Metals, Page 5-53: The text states that there are no obvious patterns in the occurrence of metals in wetland subsurface soil, but some patterns can be observed. For example, 4 out of 5 detections of arsenic above background occurred in the wetlands area for both the 1 to 4 ft bgs and greater than 4 ft bgs depth intervals. There is a similar pattern for beryllium. Cadmium, barium, lead and some other metals were not detected above background in soils deeper than 4 ft bgs, except along the landfill margin; this suggests that the source of these metals is landfill disposal or that the dredge material used as fill at the sampled depth(s) in the wetland pond area was not as impacted by metals. Alternatively, it is possible that this latter apparent pattern is actually a reflection of the lack of metals analyses in deeper soil other than at SOC50; this should be clarified in the text. Please revise the text to discuss these and other observable patterns and clarify whether samples were collected from soils deeper than 4 ft bgs in the wetland area and analyzed for metals.	Section 5.3.2.3 provides the number of soil samples that were collected in the subsurface from the wetland area, and which analyses were completed on the samples. In addition, Appendix B, which is referenced throughout the RI Report, contains a detailed description of the specific depth intervals sampled at each sampling location (i.e., Table B-1). Section 5.3.2.3 clearly indicates the widespread presence of arsenic exceeding background, but the other trends noted in this comment are speculative, virtually impossible to assess, and not important in understanding site risks. Please also see the response to U.S. EPA specific comment #28 on page 19.
35	Section 5.3.2.4, Wetland FWBZ Groundwater: There is no discussion of whether groundwater contamination is being discharged into the wetland ponds. Groundwater is believed to discharge into at least the South Pond, so it is possible that contamination is being discharged into the ponds.	The Navy has clearly acknowledged the potential communication between groundwater at the site and the surface water in the wetland ponds (see, for instance, Sections 2.7, 2.8, and 8.2.2.1 of the RI Report). Surface water in the wetland ponds was sampled during the RI, and found not to be significantly impacted by contamination.
36	Section 5.3.2.4, Wetland FWBZ Groundwater, Pesticides, Page 5-65: Although the text states that there are no apparent hot spots or clear source areas of pesticides in the wetlands areas, elevated concentrations of pesticides were detected in groundwater collected from locations along the wetlands/landfill boundary. In addition, the occurrence of elevated concentrations of pesticides in M038-A may be related to the pesticide disposal area. Please discuss the occurrence and potential significance of the elevated pesticide concentrations in groundwater samples collected from along the wetlands/landfill boundary.	The Navy evaluated the data referenced in this comment, and has added additional information to Section 5 to discuss the occurrence of pesticide concentrations in groundwater along the wetlands/landfill boundary.

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Comment Number	Comment	Response
<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
37	Section 5.3.2.5, Wetland SWBZ Groundwater, Metals, Page 5-67: Copper exceeds ambient water quality criteria (AWQC) in M038-B, but this is not discussed in the text. It is unclear why data is compared to the PRGs in the text, when it is compared to the ambient AWQC on the figures in Appendix F. Please revise the text to include a comparison of SWBZ metals concentrations in groundwater to the AWQC. Please state that the concentration of copper in groundwater from M038-B exceeds the AWQC.	M038-B is at the downgradient edge of the landfill, and is considered a landfill area SWBZ monitoring well in the RI Report. Section 5.3.1.6 describes exceedances of the AWQC for landfill area SWBZ groundwater, and copper is included in the discussion. Groundwater data were compared to both PRGs and AWQC for the FWBZ and SWBZ in both the landfill and wetland portions of the site.
38	Section 5.3.2.6, Wetland Surface Water: Although the text states that there are no obvious patterns or contaminant sources, detections of metals and other chemicals in surface water were not compared to groundwater results from upgradient and other adjacent groundwater sampling points so it is unclear if there are upgradient sources. Since some chemicals (e.g., 1,4-dichlorobenzene, chlorobenzene, 1,4-dioxane, diesel, gasoline, radionuclides) were detected in both groundwater and surface water, it appears that groundwater is discharging to the ponds. Please revise the text to discuss whether analytes detected in groundwater samples collected upgradient of and adjacent to the ponds were also detected in surface water. This comparison should include several quarters of groundwater data and, in the case of the North Pond, consider dilution from water flowing into the pond from San Francisco Bay (i.e., consider the volume of water that can flow through the culvert during incoming and high tides), so that the potential for groundwater migration and discharge into the ponds can be assessed.	As noted in the response to U.S. EPA specific comment #35 on page 22, the Navy has acknowledged the potential communication between groundwater and surface water in the wetland ponds. Surface water in the wetland ponds was sampled during the RI, and found to be generally uncontaminated. However, Section 5.3.2.6 has been updated to include a discussion of the correlation between compounds detected in groundwater upgradient of the ponds and surface water in the ponds. Modeling the impact of dilution from San Francisco Bay in wetland pond surface water using data from several quarters is not necessary to characterize contaminant nature and extent or to complete the risk assessments for IR Site 2, as contributions to surface water from groundwater have already been assumed in developing the RI Report and its conclusions.
39	Section 5.3.2.6, Wetland Surface Water, Pesticides, Page 5-73: Although the text states that one pesticide (gamma chlordane) was detected in surface water samples collected from the wetland ponds, Figure F-789 indicates that gamma-BHC (Lindane) was detected in a surface water sample collected from the North Pond. Please resolve this discrepancy.	According to the data in Appendix D and on Figure E-20, gamma chlordane was detected at one sampling location in the South Pond during the dry season, while Lindane was detected in one sample from the North Pond during the wet season. The text in Section 5.3.2.6 and related figures provided in Appendix F were in error. The text and appropriate figures have been updated in the revised RI Report to accurately describe the surface water pesticide data.

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Comment Number	Comment	Response
<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
40	Section 5.3.2.7, Wetlands Sediments: It is unclear why sediment data was not screened against the Effects Range - Low (ERL) and Effects Range Median (ERM), since the salinity of the ponds and the North Pond connection with San Francisco Bay indicate that marine sediment criteria are relevant. A comparison of maximum concentrations with the ERLs and ERMs indicates that mercury and nickel in North Pond sediments and nickel in the shallowest South Pond Sediments exceeds their respective ERMs. North Pond sediment exceeds the ERLs for arsenic, cadmium, chromium, copper, lead, mercury (deeper sediment), silver, and zinc. South Pond shallow sediment exceeds the ERLs for copper, mercury, and nickel (deeper sediment). ERLs were met or exceeded for some organic compounds, including acenaphthylene, Arochlor 1254, and Total PCBs, DDx compounds, alpha-chlordane, and endosulfan II. Please revise the text, Table 5-12, and Appendix F figures to include comparisons to ERLs and ERMs.	The benchmarks against which data presented in Section 5 are evaluated represent reasonable points of comparison to put the occurrence and distribution of contaminants into some perspective and context. Sections 6 and 7 of the RI Report assess site risks (i.e., human health and ecological, respectively) on the basis of pathway and receptor combinations and using appropriate screening values. The NOAA Effects Range values are applied appropriately in the ecological risk assessment summarized in Section 7 of the RI Report.
41	Section 5.3.2.7, Wetlands Sediments, Petroleum Hydrocarbons, Page 5-82: It is unclear why the text states that gasoline range hydrocarbons (GRO) were detected in 28 percent of samples; Table 5-12 indicates that GRO were detected in 5 of 15 samples, which is 33 percent. Please resolve this discrepancy.	This discrepancy has been reviewed and is currently being resolved in the RI Report.
42	Section 5.4, Summary and Conclusions, Page 5-83: The conclusion section is overly general and vague. Please limit this section to specific conclusions. The first paragraph is good. Please delete the first two sentences of the second paragraph. The third paragraph essentially states that the site contains some chemicals but not others. Please delete the first, second and fourth sentences. The fifth and sixth sentences should be rewritten in a more specific manner. The fourth paragraph also needs to be more specific. While the first sentence is OK, please avoid vague terms like 'do not appear to be substantially impacted', especially following a statement that the contamination is variable. It would be better to briefly describe the VOC plumes. Either remove the sentences on background, or be more specific. The fifth paragraph could be removed.	The volume of data provided in the RI Report is very large, and the nature and extent of contamination in various media and various areas of the site is described in significant detail in Section 5.3. Section 5.4 is intended to be a synopsis of Section 5.3, and intentionally contains less detail in favor of more general and important conclusions. However, Section 5.4 has been revised in an effort to provide more specific information.

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
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Comment Number	Comment	Response
<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
43	<p>Table 5_7, Summary Statistics for Landfill Groundwater, Table 5_10, Summary Statistics for Wetland Groundwater; and Table 5_11, Summary Statistics for Wetland Pond Surface Water: The California Toxics Rule (CTR) was not used to screen results for groundwater and surface water from the North Pond that discharge the San Francisco Bay. For example, the Nation Recommended Water Quality Criteria (AWQC) for Mercury (0.94ug/L) should not be used as a screening criteria for surface water or groundwater that discharges to surface water, because the CTR allows no Mercury to be discharged to surface water. Please include the CTR as screening criteria for surface water and groundwater that discharges to surface water.</p>	<p>Please see the response to U.S. EPA specific comment #40 on page 24. The benchmarks against which data presented in Section 5 are evaluated represent reasonable points of comparison to put the occurrence and distribution of contaminants into some perspective and context. Other benchmarks could have been selected for comparison in Section 5, and other potentially pertinent screening values could have been applied on an analyte by analyte basis, but this would provide no additional substantive benefit in evaluating the nature and extent of contamination at IR Site 2. Furthermore, Sections 6 and 7 of the RI Report assess site risks (i.e., human health and ecological, respectively) on the basis of pathway and receptor combinations and using appropriate and suitable screening values.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
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Comment Number	Comment	Response
<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
44	<p>Section 6.2, Constituents of Potential Concern for Risk Assessment, Page 6-1: It is stated that wetland pond sediment was not considered an exposure medium for human health risk assessment (HHRA), but no rationale is provided for this decision. Further, this area may be used by school children for environmental studies, which would result in exposure of children to wetland pond sediment. Please revise the HHRA to include child exposure to wetland pond sediment or revise this section of the RI Report to provide additional discussion which justifies the exclusion of wetland pond sediment data from the HHRA.</p>	<p>The HHRA carefully evaluated all potential exposure pathway and receptor combinations to determine those that are most realistic and important in understanding potential human health risks within the context of future site use, and was also developed to closely mirror the HHRA developed for Naval Weapons Station (NWS) Seal Beach at the direct recommendation of DTSC. Exposure to pond surface water and sediment was not included in the Seal Beach HHRA. In addition, based on the most likely future use of the site as a wildlife refuge, it is highly unlikely that school children or any other groups would be allowed access to the wetland ponds to prevent damaging these sensitive areas. Also, for safety reasons, it is highly unlikely that school children or any other group would be allowed access to the ponds, which could be considered a dangerous location from the perspective of physical entrapment in mud or drowning. The HHRA for IR Site 2 does assess potential dermal contact with surface water as a potentially important risk pathway for the Restoration Supervisor (see Figure 6-5), and this is reasonably considered the only potentially significant human health risk pathway/receptor combination for the wetland ponds. It should be noted that a Restoration Supervisor accessing the ponds for any reason would very likely don protective clothing (e.g., waders). Therefore, assessing risk using the dermal contact with surface water route for this receptor is actually highly conservative. It should also be noted that the U.S. EPA toxicologist and DTSC did not comment that any receptor/pathway combinations were inadequately addressed in the HHRA.</p>

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<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
45	Section 6.2.2, Constituents of Potential Concern for Risk Assessment, Page 6-2: This section discusses the relationship between analytical detection limits and human health risk-based screening levels, and indicates that the method detection limit (MDL) was compared to the preliminary remediation goal (PRG) for each constituent of potential concern (COPC). Although the MDL is the lowest concentration at which a chemical may be accurately quantified, the sample quantitation limit (SQL) is preferred for comparison to PRGs, because it represents the lowest concentration at which a chemical was accurately quantified during each analytical run. Therefore, although the MDL may have been sufficiently sensitive in comparison to PRGs, the SQL may be significantly greater than the MDL due to matrix interference, the need to dilute a sample before running the analysis, or other conditions specific to a single analytical run. In that case, a constituent may have been reported as non-detect, but not necessarily at a level as sensitive as the reported MDL. Please revise Table 6-2 to reflect information about SQLs in place of MDLs for comparison to health-based screening levels.	Comparison of MDLs to PRGs in the HHRA methodology is perfectly reasonable, and estimated "J" values that were between the MDL and SQL were in fact included in the screening assessment. By evaluating SQLs rather than MDLs in the screening assessment, the conclusions of the risk assessment would remain the same.
46	Section 6.3, Tier 1 Screening Risk Assessment, Page 6-6: The text states that the Regional Board has determined that the groundwater is not suitable for municipal use and that thus, institutional controls will not be necessary. Please recheck that this portion of the aquifer has been officially dededesignated by the Board. If not, then institutional controls will be necessary.	In a letter to the Navy dated July 21, 2003, the RWQCB concurred that FWBZ groundwater and SWBZ groundwater in certain areas within Alameda Point (i.e., west of Saratoga Avenue) are unfit to supply drinking water on the basis of elevated TDS levels. While the board has not officially dededesignated groundwater beneath IR Site 2 for municipal use, there is clearly the likelihood that potable use of the groundwater would be precluded by this exemption determination and that controls specifically intended to prevent unrestricted use of groundwater would not be required. Regardless, the Navy will evaluate all potentially necessary controls during the feasibility study stage to ensure that site risks are properly mitigated.
47	Section 6.3.2, Results: Short summary tables like Table 6-7 should be also be included in the body of the text.	In general, tables and figures have been placed at the end of their respective sections in the RI Report because they are too numerous to include in the body of the text and this preserves the flow of the document. Incorporating them directly into the body of the text would reduce readability of the document, particularly for the risk assessment sections.

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<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
48	Section 6.4.1.1, Future Site Worker - Park Ranger/Tour Guide, Page 6-13: The exposure time (ET) for a future park ranger/tour guide receptor is provided as two hours per day, described as one hour outdoors conducting a walking tour and one hour inside a visitor center. However, it is likely that a full-time park ranger would spend a full work day (eight hours) at the site, even if time spent outdoors is limited. Please revise the RI Report to provide additional rationale supporting the use of a two-hour ET for a future site worker at Site 2, or evaluate this receptor population under a standard 8-hour workday as a supplement to the evaluation currently provided in the RI Report. Also, without specific controls, a worker may be exposed to the pond surface water. Please include an exposure pathway and time period for surface water.	The exposure scenario for the Alameda Ranger/Tour Guide is based on exposure assumptions developed for the USFWS Tour Guide in the NWS Seal Beach HHRA, as directly recommended by DTSC. There is no additional information available that indicates that the Alameda Ranger/Tour Guide would be assigned to the site on a full-time rather than part-time basis. Also, please note that DTSC concurs with the use of the 2-hr exposure frequency for the Ranger/Tour Guide (see DTSC-HERD specific comment #21 on page 45). With respect to the assessment of risk from exposure to wetland pond media, please see the response to U.S. EPA specific comment #44. While it is reasonable to assume a Restoration Supervisor might be exposed to pond surface water, it is highly unlikely that a Park Ranger/Tour Guide would ever enter the wetland ponds and be exposed to associated media.
49	Section 6.4.3.1, Exposure Point Concentrations: Please provide the Table numbers that have the EPCs.	Section 6.4.3.1 of the RI Report has been modified to include specific references to the tables containing EPCs.
50	Section 6.4.6.1, LeadSpread 7 Model, Page 6-31: If the LeadSpread calculations used the MCL value instead of the local 95 UCL because the water at the site will not be used for drinking, then please add a sentence stating this reason.	A water lead concentration of 15 µg/L was used because it is assumed that the receptors obtain their drinking water from a public source that meets the MCL for lead (15 µg/L) rather than from the site. A sentence has been added to the RI to clarify this point
51	Section 6.4.7.3, Background Risks: Please compare PAHs to the cleanup levels established at other sites at Alameda Point, rather than to CCSP.	Screening levels derived for other sites would have incorporated specific site data and been responsive to site-specific risks. It is inappropriate to use them as a basis of comparison to IR Site 2 without understanding their specific derivation, which itself is beyond the scope of the RI. Please also see the responses to U.S. EPA specific comments #56 and #63 on pages 30 and 32, respectively, DTSC-HERD general comment #2 on page 39, and Samantha Murray's specific comment #23 on page 69.
52	Section 7.3.1.1 Calculation of Exposure Point Concentrations (EPCs) for Screening-Level Direct Contact Evaluation, Page 7-17: This section states that maximum detected concentrations (MDCs) were used as EPCs for upland media and radionuclides, but does not specifically state that MDCs were used for wetland soil and wetland pond sediment and surface water. Please include in Section 7.3.1.1 a direct statement that MDCs will be used for these media as well.	Clarifying text has been added to Section 7.3.1.1 of the RI Report to indicate that MDCs were used for wetland soil, wetland pond sediment, and surface water.

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<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
53	Section 7.3.3.1.1, Upland Plants, Page 7-36: This section states that several chemicals (including lead) could not be evaluated due to the lack of plant benchmarks, but it is unclear why plant benchmarks could not be found for at least some of the chemicals listed. For example, a cursory literature search using the Oakridge National Laboratory (ORNL) Risk Assessment Information System (RAIS) listed benchmarks for lead. Please conduct a thorough literature search for applicable benchmarks for both upland plants and upland invertebrates (Section 7.3.3.1.2), revise the screening-level risk estimates to include available benchmarks, and explain the process used to eliminate any rejected benchmarks.	The Navy has reviewed sources for established plant benchmarks and incorporated relevant and appropriate benchmarks found in Section 7.3.3.1.1. A toxicological threshold value reported in a single literature source should not, however, be considered as an established benchmark. Effects data reported in the literature vary widely, and benchmarks are generally developed considering a body of literature. Only benchmarks derived considering multiple studies of acceptable quality have been used in the RI Report.
54	Section 7.4.6.2.3, Mammals, Page 7-62: This section begins by stating that cadmium, manganese, and molybdenum are potential upland risk drivers for the California vole, but neither manganese nor molybdenum are discussed in the following paragraphs and neither is recommended to be considered as potential risk drivers at the end of the section. Please add discussions of manganese and molybdenum to Section 7.4.6.2.3 and either include them in the recommendation as potential risk drivers, or provide reasoning as to why they do not drive risk for upland mammals.	Clarifying discussion has been added to Section 7.4.6.2.3 of the RI Report to address risk associated with manganese and molybdenum.
55	Figure 7.2, Conceptual Site Model for Ecological Risk Assessment (Upland Habitat) at IR Site 2: It is unclear why ambient air is not a "Pathway Not Likely To Be Significant" for inhalation by birds and mammals, rather than a "Pathway Not Likely To Be Complete." Birds or mammals on the ground surface in the upland area may be exposed to ambient air that may be contaminated with VOCs. Although it is a valid assumption that the pathway is not likely to be significant, the pathway from ambient air to birds and mammals through inhalation is likely to be complete.	Text has been added and changes have been made to the CSM to identify exposure to chemicals via inhalation of ambient air as a non-significant pathway for birds and mammals rather than an incomplete exposure pathway. This pathway, however, has appropriately remained unevaluated in the ERA.

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<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
56	<p>Section 8.1.1, Landfill, Page 8-2 and Section 8.1.2, Wetland, Page 8-4: The statement that CCSP is nearly pristine is not quite correct. Please point out that while comparison of Alameda data to CCSP data is useful, it is not a screening because soils at CCSP originated from mafic basalts that would be expected to have high concentrations of some metals. Similarly, the reason PAH concentrations are elevated at CCSP is not clear, but is likely related to historic site uses as a shrimping village or to the presence of asphalt or other materials that contain PAHs.</p>	<p>In selecting China Camp State Park as an appropriate location for generating background/ambient data, the Navy consulted closely with the regulators involved at IR Site 2 and acknowledged the inherently imperfect proposition of identifying an exactly identical environment to the site. China Camp State Park was selected as an appropriate reference sampling station during the development of the RI sampling work plan, in part, because the types of habitats present at IR Site 2 (i.e., uplands, wetlands, and open water) are found there and China Camp has been used as a sampling area for a number of other environmental characterization efforts attempting to understand background/ambient conditions. The potential existence of natural and/or anthropogenic contaminants at China Camp mirrors precisely one of the objectives of sampling this area. At virtually any site, there are contaminants in the environment that are from non-anthropogenic sources, and, similarly, there are ubiquitous contaminants in the environment that are the result of local or regional scale anthropogenic activity and contribute to contaminant profiles. Elevated concentrations of some compounds at China Camp could easily be attributed to both regionally present natural sources and widespread occurrence of persistent and ubiquitous contaminants. Both are critical in understanding the background/ambient condition around IR Site 2, and rather than being discounted, should be factored in to the characterization of IR Site 2 and the ultimate definition of risk.</p>
57	<p>Section 8.1.2, Wetland, Page 8-3: As discussed in a General Comment, the conclusion that mercury and nickel should not be considered as risk management drivers is based on a weight of evidence approach that emphasizes uncertain 2005 bioassay results and de-emphasizes predictive risks and historical bioassay results. Since benthic invertebrates were not collected during the 2004-2005 sampling program, the recommendation to not consider aquatic invertebrates as drivers for risk management decisions is not supported by the data. Please delete this recommendation or, as suggested in the General Comment, collect a confirmation sample from the SED16 location for toxicity testing to support this recommendation.</p>	<p>The Navy disagrees that the 2005 bioassay results should be considered as "uncertain" and considers these results entirely valid. The predictive risks mentioned by the commenter are driven by screening-level and generic non-site-specific sediment thresholds. These values do not provide a more certain basis to draw risk conclusions than the 2005 bioassays. The Navy does not propose confirmation sampling at SED16 and does not believe that bioassay results from one replicate at one of 12 sampling locations provides a sufficient weight of evidence to indicate either mercury or nickel are potential risk drivers in the wetland ponds. Overall, the use of multiple lines of evidence is important in generating RI conclusions at any site, including IR Site 2.</p>

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<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
58	Section 8.2.1.1, Physical Processes, Pages 8-5 and 8-6: The information in the first paragraph is incomplete. While it is true that hydrophobic nonpolar organic contaminants such as PCBs and pesticides tend to adsorb to solid matrix particles, the presence of petroleum hydrocarbons and/or solvents like those present in Site 2 media can cause PCBs and pesticides to desorb into groundwater or surface water, where they are more mobile. As a result, it should not be concluded that PCBs, PAHs, and pesticides are immobile at Site 2 as stated on page 8-6. Please include a discussion of the impact of petroleum hydrocarbons and solvents on hydrophobic contaminants and revise the conclusion that these contaminants are fairly immobile.	Regardless of these potential contaminant interactions, the types of contaminants in question (i.e., hydrophobic compounds such as PCBs and pesticides) can accurately be described as being generally immobile and not highly likely to dissolve and migrate in the aqueous phase. Furthermore, the data generated at IR Site 2 strongly suggest that these types of compounds are not highly mobile and not found extensively in groundwater. Nevertheless, information describing the potential for interactive effects of certain compounds on the mobility of other compounds has been added to Section 8.2.1.
59	Section 8.2.2.1, Landfill, Page 8-8 Second Complete Paragraph: The statement that groundwater flows towards the ponds is not supported by the shape of the groundwater plume in that area. Also, the statement "based on the data collected and evaluated in this RI, no significant impacts appear to exist in IR Site 2 groundwater," is vague. There is a large VOC plume near the ponds and vinyl chloride is present in the northwestern part of Site 2. Please be more specific when discussing contaminant levels and acknowledge these plumes both here and at the top of the page. The levels can be compared to CTR values, if appropriate, to show the level of potential risk.	Section 8.2.2.1 describes groundwater flow in general terms, and acknowledges that the primary direction of groundwater flow varies depending on the specific portion of IR Site 2. In addition, the statement that there do not appear to be significant impacts in IR Site 2 groundwater is supported by the data, which, while they do show plume behavior, do not show significantly elevated concentrations indicative of a major groundwater contamination issue. However, Section 8.2.2.1 has been modified to more clearly define the levels of contaminants and the nature of the groundwater plumes. A comparison to CTR values is not necessary or appropriate in Section 8. The risk assessments completed and summarized in the RI Report incorporate appropriate inputs, and provide the necessary risk calculations and conclusions.
60	Section 8.2.2.1, Landfill, Pages 8-8 and 8-9: The basis for the statement that "surface water data do not appear to suggest a significant contribution of contamination from shallow landfill groundwater," is unclear because the text in Section 5 did not include a comparison of surface water results with groundwater results. After this comparison is done, please re-evaluate the quoted statement or delete it if the comparison is not done.	Please see the responses to U.S. EPA specific comments #35 and #38 on pages 22 and 23, respectively.

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<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
61	Section 8.2.2.2, Wetland, Page 8-9: The basis for the statements that wetland pond sediment is relatively uncontaminated is unclear since the concentration of several contaminants exceeds their respective ERLs and since the concentrations of mercury and/or nickel in some samples exceeds their respective ERMs. Please define “relatively uncontaminated,” or delete the quoted statement.	Section 5 provides a summary of the nature and extent of contamination in sediment at IR Site 2 using appropriate benchmarks as a point of comparison and to frame the data in a reasonable context. The risk assessments provided in Sections 6 and 7 of the RI Report provide the methods and conclusions regarding the presence of human health and/or ecological risks associated with contaminants at the site. The referenced statement has been revised to include substantiating information.
62	Page 8-12: The cover thickness is not enough to protect against future exposure. Please remove the words ‘not likely to be’. Also, with the lack of any information concerning the integrity of the slurry wall, please remove its mention from this section.	There is insufficient information to conclude definitively that existing landfill soil cover is inadequate to protect against future exposure, and the language used (i.e., “not likely to be”) conveys the necessary uncertainty. In addition, the slurry wall was constructed at the site for the purpose of preventing offsite migration of groundwater contamination, and specifying the presence of this feature and its potential mitigating impact on contaminant fate and transport is reasonable and appropriate.
63	Tables 8-1 and 8-2: While the concentrations of potential contaminants at CCSP provide a useful comparison, they should not be used as a filter in these tables. Please replace the shadings for CCSP with appropriate Alameda Point background values.	China Camp State Park data are not used to “filter” information on Tables 8-1 and 8-2, but simply to identify compounds for which the China Camp dataset suggests that ambient concentrations may exceed IR Site 2 concentrations. Sections 6 and 7 (i.e., the human health and ecological risk assessments, respectively) of the RI Report provide the compounds responsible for potential risk at IR Site 2, and none of the compounds identified as contributing to risk at the site have been discounted in the RI Report. Ultimate risk management will be conducted during the feasibility study phase of the project, and should take into consideration background/ambient contaminant occurrence, distribution, and risk (see Section 9 of the RI Report). Also, please see the responses to U.S. EPA specific comment #56 on page 30 and Ms. Dale Smith’s specific comment #8 on page 74.

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<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
64	Section 9.0, Summary and Conclusions, Page 9-2 and Executive Summary, Page iv: It is unclear why the text states, "Groundwater does not appear to have been substantially impacted by contamination," when later it is stated that "certain VOCs in groundwater appear to demonstrate at least some type of plume behavior." Please replace general statements like these with specifics, such as: <i>A plume of VOC contaminants were found along the western edge of the fill at levels ranging from xxx to yyy. For comparison, the CTR values are zzz. The maximum metals concentrations are ... compared to CTR values of ....</i>	These two statements are not contradictory with one another. Certain compounds do exhibit plume behavior in groundwater at IR Site 2, but the concentrations within the plumes are not indicative of substantial groundwater impact. However, the language in Section 9 of the RI Report has been modified to more clearly describe this condition. Please note that comparison to CTR values is not necessary. The risk assessments completed and summarized in the RI Report incorporate appropriate inputs, and provide the necessary risk calculations and conclusions.
65	Section 9.0, Summary and Conclusions, Page 9-5: It is unclear why the text states that "waste in the landfill appears to generally already be covered" and that "direct exposure to landfill waste at the surface is currently and not likely to be a significant threat," when text in earlier sections stated that waste is exposed on the surface and that in some areas the soil cover is less than 2 inches thick. Please delete or revise the quoted statements.	These statements are not contradictory. The use of "generally" and "not likely" convey the necessary uncertainty in these statements, which are themselves synopses of the data evaluated. However, the referenced language has been revised to ensure consistency throughout the RI Report. Please also see the responses to U.S. EPA specific comment #62 on page 32.
66	Appendix A, Areal Photograph Review, Photograph A-29, August 1953: This photograph appears to show the Former Radioactive Waste Storage Shack at the shoreline just east of the Ammunition Bunkers, but this feature is not discussed in the photograph observations. Please revise the discussion of construction activities that are apparent in this photo to include the Former Radioactive Waste Storage Shack.	All photographs referenced in Appendix A have been evaluated, and language provided in the photograph descriptions has been revised as necessary (please also see the response to U.S. EPA general comment #7 on page 3). With specific respect to the 1953 photograph, additional review of this image does not appear to show the Former Radioactive Waste Storage Shack. In fact, the first photograph that might show a structure in the area where the Former Radioactive Waste Storage Shack existed is the 1963 photograph. Furthermore, facility information does not suggest the use of the shack until the early 1970s. Please note that the Former Radioactive Waste Storage Shack was located west of the bunkers, not east as indicated in this comment.
67	Appendix B, Field Summary Report, Section 2.1, Water Quality Survey, Page B-6: The discussion does not indicate which type of mooring system was used for water quality meter WQM02. Please specify which mooring system was used for WQM02 in the RI Report.	The requested information has been added to Appendix B of the RI Report.

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<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
68	Appendix B, Field Summary Report, Section 2.1, Water Quality Survey, Page B-6; and Figure B-3 IR Site 2 Water Quality Meter Locations: There is a discrepancy between the location of water quality meter WQM03 on Figure B-3 and its described location in the text. The text states that WQM03 was located in the western portion of the south pond, but Figure B-3 depicts this location in the eastern portion of the south pond. Please resolve this discrepancy.	This discrepancy has been resolved in Appendix B of the RI Report.
69	Appendix B, Field Summary Report, Section 5.3, Exploratory Trenching and Trench Sampling, Page B-37; and Table B-1, IR Site 2 Sample Locations and Analytical Information: There are discrepancies between the text and in Table B-1 regarding the summary of analysis that was performed on soil samples. Please resolve these discrepancies: a. The table indicates that all soil samples obtained during trench sampling were analyzed for SVOCs (w/ polynuclear aromatic hydrocarbons [PAHs]), but the text indicates that soil samples were analyzed for PAHs only. b. According to the text, SVOCs were not included in the analytical suite for Trench 1 and Trench 4, but the Table B-1 indicates that all soil samples at both trenches were analyzed for SVOCs. c. According to the text, soil samples for Trench 5 were not analyzed for pesticides, but Table B-1 indicates that all soil samples for Trench 5 were analyzed for pesticides.	These discrepancies have been resolved in Appendix B of the RI Report.
70	Appendix B, Field Summary Report, Figure B-5, Schematic Diagram of Bucket-Well Mooring System; and Appendix B, Field Summary Report, Attachment 3-2, Wet Season Sampling Photographs: The construction and placement of the Bucket-Well Mooring System in the figure does not match the photographs of the actual system. For example, from the photos it appears that algae has grown on the exposed area of the bucket and that the sonde was positioned 7-8 inches above the sediment-water interface. The diagram, however, shows the sonde positioned below the sediment-water interface. Also, the diagram shows the sonde's sensors inside the bucket, but the photo shows the sensors outside the bucket. Please revise the diagram to be consistent with the actual construction and placement of the system that was implemented in the field.	Several mooring configurations were deployed in the field depending on location-specific conditions. The schematic in Figure B-5 is a generalized representation of the bucket mooring system, while the photograph shows the mooring system as actually deployed. Appendix B has been modified to clearly reflect that there were several specific sonde deployment configurations for the water quality monitoring program.

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<i>Specific Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
71	Appendix B, Attachment 1: Please revise this plate to include a legend that specifies the significance of the colors used to depict geophysical anomalies and change the color of the buildings so that it is not the same as the colors used to depict anomalies.	The significance of the colors on the geophysical output map (i.e., the plate provided as Attachment 1 to Appendix B of the RI Report) is described in detail in Section 2.2.1 of Appendix B. However, a legend has been incorporated into the plate. It is sufficiently clear on this plate that the buildings are fixed linear-angle features and not anomalies despite the similar coloration.
72	Appendix B, Field Summary Report, Attachment 3-2, Wet Season Sampling Photographs: It is not possible to identify which trenches were photographed because notes are not provided for trench photographs to identify the trench locations. Please identify the location of each trench photograph. In addition, all photographs should include a title or description.	Appropriate captions/titles have been added to each photograph provided in Attachment 3-2 to Appendix B of the RI Report.
73	Appendix E, Plan View Chemical Concentration Maps: This appendix was not provided; there is a single page of laboratory data qualifier definitions, rather than a set of chemical concentration maps. Please provide the missing appendix.	A copy of Appendix E was provided to U.S. EPA subsequent to the initial submittal of the Draft RI Report.
74	Appendix F, Figures: The symbols used for non-detect (ND) and the lowest concentration interval are indistinguishable. Please use a different size or color symbol to distinguish ND sample results from the lowest concentration interval.	The symbols used for ND values and the lowest concentration intervals on the plots in Appendix F of the RI Report are different colors. ND symbols are monochromatic, while the lowest concentration interval is yellow.
75	Appendix I, Figures: Many of these figures do not have the correct dates in the header. The header indicates that data collection ended December 1, 2004, but there is graphed data into late March or April of 2005. Also, some figures have data that goes off-scale (e.g., North Pond Dissolved Oxygen, West Meter.) Please include the data collection ended in the figure header/title and adjust the scale of graphs where the data goes off-scale to depict the full range of data.	The figures provided in Appendix I to the RI Report have been revised to accurately reflect dates of data collection. The figures have also been reviewed to ensure that all data are within the limits of the scale provided.
<i>Minor Comments from Mr. Mark Ripperda (U.S. EPA) – dated 2/17/2006</i>		
1	Section 5.3.2.5, Wetland Surface Water, Metals, Page 5-71: Please correct the following sentence: “However, antimony was detected in 100% of the wet season samples from the South Pond and not in any samples from the South Pond.”	This discrepancy has been resolved in Section 5.3.2.5 of the RI Report.
2	Section 7.3.3.1.4 Upland Mammals, Page 7-38: The last sentence of the Radionuclide Evaluation sub-section contains a typographic error; it should read “radionuclides were <i>not</i> carried forward to the BERA.” Please add the word “not” to the sentence.	This typographical error has been corrected in Section 7.3.3.1.4 of the RI Report.

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Comment Number	Comment	Response
<i>Minor Comments from Mr. Mark Ripperda (U.S. EPA) (continued)</i>		
3	Section 7.3.3.2.1 Wetland Plants, Page 7-39: The last sentence of the middle paragraph contains a typographic error; it should read “these constituents were evaluated further in the BERA.” Please remove the word “not” from the sentence.	This typographical error has been corrected in Section 7.3.3.2.1 of the RI Report.
4	Section 7.4.4.1.1 Upland Plants, Page 7-47: The contaminant fluorene is misspelled as “fluorine” in this paragraph.	This typographical error has been corrected in Section 7.4.4.1.1 of the RI Report.
<i>Specific Comments from U.S. EPA Toxicologist – dated 2/23/2006</i>		
1	Section 6 Human Health Risk Assessment  To streamline the review process, please provide a CD version of the document with direct links to the Tables and Figures discussed. For example, Section 6.3.3 Vapor Intrusion Screening Assessment discusses Tables J-7; link Table J-7 with the text.	An electronic version of the entire RI Report that is fully bookmarked with links to figures and tables throughout has been provided with the revised version of the document.
2	Section 6.4.3.1, Exposure Point Concentrations  The summary statistics tables of Section 5 do not list the 95%UCL. Change the text on page 6-26 and provide the location of the data set and the associated 95%UCL. Note: The 95%UCL were not checked for accuracy. Also, the discussion of the CTE is confusing. Since no CTE risk estimates are being quantified, delete this discussion.	A specific reference to tables containing the 95%UCLs has been added to Section 6.4.3.1 of the RI Report and the reference to the tables in Section 5 has been deleted since UCLs are not provided on these tables. The CTE discussion was removed as requested since CTE risks were not calculated.
3	Appendix G, Section 4, Statistical Calculations  Where are the statistical calculations? Where are the 95%UCL? Provide this information and identify the location in the text.	The various statistical calculations referenced in Section 4 and in Appendix G of the RI Report are provided in several locations, specifically in Sections 5, 6, and 7, and Appendices J and K of the RI Report. Language indicating the existence of statistical output in these locations has been added to Appendix G of the RI Report.

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<b><i>Specific Comments from U.S. EPA Toxicologist (continued)</i></b>		
4	<p>Section 6, Human Health Risk Assessment Tables and Appendix J, Human Health Risk Assessment Tables</p> <p>The Site 2 risk assessment does not use <i>Risk Assessment Guidance for Superfund (RAGS) Volume 1 Part D Standardized Planning and Reporting, 1997</i>. For approximately 6 years now all risk assessments conducted for Alameda Point have used RAGs Part D format. A good example is the risk assessment for IR Site 30, October 2005. While we won't require this particular risk assessment to be redone in RAGs Part D format, note that all future risk assessments must follow the RAGs Part D guidelines.</p>	This comment is acknowledged.
5	<p>Section 6.4.5, Toxicity Assessment</p> <p>The Cal EPA cancer toxicity value for Naphthalene is not listed in Table 6-24. Also, identify the location in the document of the toxicity profiles for each chemical.</p>	The toxicity value for naphthalene in Table 6-24 is the value listed in IRIS. Toxicity criteria were selected according to the updated hierarchy recommended by U.S. EPA (OSWER Directive 9285.7-53, dated December 5, 2003). According to the hierarchy, for those constituents that have both IRIS toxicity data and Cal-EPA (OEHHA) toxicity data, IRIS data should be considered superior. Toxicity profiles were not included in the RI Report since the source of the toxicity criteria used in the risk assessment is provided in Table 6-24.
<b><i>General Comments from Ms. Judy Huang P.E. (San Francisco Regional Water Quality Control Board) – dated 2/22/2006</i></b>		
1	<p>Groundwater Screening Value: Groundwater at Site 2 has the potential to be discharged into the onsite wetlands and Central San Francisco Bay. Therefore, groundwater should be screened against California Toxics Rule criteria.</p> <p>Recommendation: Please re-screen the groundwater using CTR criteria and revise the Draft RI accordingly.</p>	The benchmarks against which data presented in Section 5 are evaluated represent reasonable points of comparison to put the occurrence and distribution of contaminants into some perspective and context. Sections 6 and 7 of the RI Report assess site risks (i.e., human health and ecological, respectively) on the basis of pathway and receptor combinations and using appropriate screening values. Please also see the responses to U.S. EPA specific comments #40, #43, #59, #61, and #64 on pages 24, 25, 31, 32, and 33, respectively.
2	<p>Calculation of Total PCBs: In the Draft RI, PCBs were evaluated both as congeners and as Aroclors. In addition, the Draft RI calculated total PCB concentrations using the NOAA National Status and Trends Method (NOAA Method) as twice the sum of the individual congener concentrations. Usually, this results in a total PCB concentration similar to the total PCB concentration derived by the sum of all Aroclors. This is not the case in this Draft RI. The concentration of Aroclor 1254 along in some cases are hundreds times greater than the</p>	The Navy closely evaluated the PCB data generated at the site, including the calculation of total PCBs and the validity of the NOAA NS&T method. At the vast majority of environmentally impaired sites that have been impacted by PCBs, the PCB mixture is dominated by more highly chlorinated Aroclors, generally in the Aroclor 1248 to 1260 range. The NOAA NS&T method for calculating total PCBs is considered accurate in such a scenario, as it incorporates congeners that characterize the most common chlorination range and a multiplier

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>General Comments from Ms. Judy Huang P.E. (RWQCB)(Continued)</i>		
<p>2 (Cont)</p>	<p>calculated total PCB concentration using the NOAA Method. Based on staff review of the PCB data provided in the Draft RI, it is unclear how the inconsistency occurred.</p> <p>Recommendation: Please explain the inconsistency. If it is not possible, please recalculate the total PCB concentrations by summing the individual Aroclors and revise the risk assessment in the Draft RI accordingly.</p>	<p>found to be, on average, realistic to achieve comparability between congener and Aroclor datasets. The apparent discrepancies in PCB concentrations in IR Site 2 sampling data are generally explained by the significant variability in the individual PCB makeup and/or by the existence of relatively elevated concentrations of a single PCB in the lower chlorination range in various samples collected at IR Site 2. The PCB mixtures detected at certain IR Site 2 sampling locations are characterized by concentrations of highly variable PCBs, including those in the low chlorination range (e.g., Aroclor 1016 or 1221) and those in the more highly chlorinated range (e.g., Aroclor 1254 and 1260). In these cases, the congeners that are evaluated in the NOAA NS&amp;T method may not capture the PCB mixture as accurately as would be the case if all PCBs were in the higher chlorinated range. In those cases where a single PCB in the lower chlorinated range dominates the mixture, the NOAA NS&amp;T method may be even more of an underestimate of total PCBs. The PCB Aroclor data for the site have been requantified from the raw analytical chromatograms to ensure accuracy and consistency given the complex mixtures of PCBs detected at the site. Section 5 of the RI Report has been revised to discuss the nature and extent of PCB contamination using the requantified PCB Aroclor data. The risk assessments for the site have been modified to incorporate a risk range analysis for PCBs, using both the total PCB data derived according to the NOAA NS&amp;T method (i.e., as already presented in the document) and total PCBs derived as the sum of Aroclors. In certain cases, these separate assessments are highly consistent or more conservative for congener based total PCBs, while in other cases, the sum of Aroclor data provide a more conservative analysis (i.e., where the NOAA NS&amp;T method underestimates total PCBs). Overall, this approach ensures that appropriate risk management decisions can be made on the basis of reasonably conservative risk conclusions. Please also note that while certain pieces of sampling data provided in the draft RI Report suggested the sum of Aroclors were appreciably higher than congener derived total PCBs, in no case was the difference as great as one hundred times.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands, Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Ms. Judy Huang P.E. (RWQCB)</i>		
1	<p>Page 2-4, Section 2.4 Surface Features Second Paragraph: This paragraph referenced an “isolated beach area of approximately 200 feet long 20 to 30 feet wide.” The paragraph further stated that the sample had been collected at the beach area as part of the Offshore Sediment Study. The beach area is not marked on any site map in the Draft RI. In addition, it is unclear to staff if the sampling results from the Offshore Sediment Study have been incorporated into the Draft RI.</p> <p>Recommendation: Please revise the Draft RI to indicate the location of the beach and clarify if and how the data from the Offshore Sediment Study have been incorporated in the Draft RI.</p>	<p>No formal surveying was performed at the beach area observed at IR Site 2 during the RI sampling activities, and the text adequately describes its approximate location. Note that the beach area has only been observed to be present during low tide. Samples have been collected in the area of the beach through the offshore sampling program. These data will be reported as part of off-shore program, which is separate from the IR Site 2 RI program. The RI Report does indicate the separation between these two investigative programs.</p>
<i>General Comments from Dr. James M. Polisini (California Department of Toxic Substances Control [DTSC] Human and Ecological Risk Division [HERD]) – dated 2/21/2006</i>		
1	<p>Recalculation of PRGs where there are existing U.S. EPA Region 9 PRGs is not acceptable. In general HERD does not accept PRGs other than those developed by U.S. EPA Region 9. HERD should be consulted prior to development of any site-specific PRGs. Calculation of PRGs for which there are no U.S. EPA Region 9 PRGs should be noted as NASA-specific PRGs.</p>	<p>The PRGs have no bearing on the outcome of the baseline HHRA because chemicals were not “screened out” in the Tier 1 screening risk assessment. In addition, making this change in the RI report would require substantial effort but would provide minimal value because the results of the Tier 1 screening risk assessment and COPC classification would not be significantly different than what has been reported.</p>
2	<p>As a point of record, HERD never agreed with the values developed for 'ambient' soil and groundwater concentrations of inorganic elements at NAS Alameda (Tetra Tech, 2001), whether represented as the pink, blue or yellow background data set. HERD met with the Navy and Navy contractors on October 18, 2005 to discuss apparent discrepancies in the pink, blue and yellow soil background data sets. HERD currently has an analysis of the proposed soil background data sets in the process of internal review prior to transmittal to the Navy. Lacking a resolution for specific elements and selection of final background data sets, it can only be stated that risk and/or hazard estimates which include some use of NASA soil background screening in the Human Health Risk Assessment (HHRA) or Ecological Risk Assessment (ERA) could actually be higher, by some unknown amount.</p>	<p>This comment is acknowledged. However, the risk assessments completed for IR Site 2 are sound and defensible, and based on standard industry practice using all appropriate inputs and assumptions. In addition, as indicated in Section 9 of the RI Report, no compounds have been discounted from the risk assessments based on comparison to any background/ambient or reference dataset. However, the Navy intends to evaluate site risks in part in the context of background/ambient risk during the development of a risk management strategy for IR Site 2.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<b><i>General Comments from Dr. James M. Polisini (DTSC HERD)(Continued)</i></b>		
3	The Plan View Chemical Concentration Maps (Appendix E), in the CD furnished for HERD review, contains only the title page and a table of data qualifiers. Please forward a complete version of Appendix E containing the maps to HERD for review.	A full electronic version of Appendix E was not available when the Draft RI Report was issued and so these figures were only provided with the hardcopy documents. The Appendix E figures will be included with the draft final version of the RI Report.
<b><i>Specific Comments from Dr. James M. Polisini (DTSC HERD) – dated 2/21/2006</i></b>		
1	HERD has never agreed to the proposed soil ambient data set for inorganic elements at NASA or to any point estimates of ambient concentrations (e.g., 95 <sup>th</sup> or 99 <sup>th</sup> percentile concentrations). HERD review of the proposed soil ambient data set is currently in the process of HERD internal review. Pending resolution of any issues involving NASA soil ambient data set HERD can only recommend that estimates of site-related risk and/or hazard which rely on ambient concentrations (Section 3.1.12.1, page 3-11) may actually be higher, by some unknown amount.	Please see the response to DTSC HERD general comment #2 on page 39.
2	HERD received an electronic copy of the NASA proposed groundwater ambient data set in September, 2005 as part of the review of a Final Closure Plan for Industrial Wastewater Treatment Plant (IWTP) 32 (Shaw, 2005). HERD is currently in the process of reviewing the NASA proposed groundwater data set. Pending resolution of any issues involving NASA groundwater ambient data set HERD can only recommend that estimates of site-related risk and/or hazard which rely on ambient groundwater concentrations (Section 3.1.12.2, page 3-12) may actually be higher, by some unknown amount.	Please see the responses to DTSC HERD general comment #2 on page 39.
3	Please more specifically identify the 'historical dataset' for sediment (Section 5.1, page 5-2) as sediment collected prior to the investigations performed to develop this Draft RI Report (Section 3.1.4, page 3-4). Mentions of the 'historical dataset' should indicate the calendar description in the text. For example, comparisons of sediment data to "historical data" would presumably refer to sample prior to the dry season RI sampling (i.e., October, 2004) (Section 4.3, page 4-3).	Additional clarification has been added to the referenced language in Section 5.1 and elsewhere in the RI Report.

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Dr. James M. Polisini (DTSC HERD) (Continued)</i>		
4	HERD does not recognize 'background' concentrations of SVOCs or Polycyclic Aromatic Hydrocarbons (PAHs) (Section 5.1, page 5-6 and Section 5.3.1.2, page 5-17). Background concentrations are descriptors of concentrations unimpacted by anthropogenic activities. The term 'ambient' more correctly applies to PAH concentrations in the fill used to construct NASA. HERD recognizes that 'ambient' concentrations were not used to eliminate Contaminants of Potential Concern (COPCs) in the HHRA. However, HERD recommends that conclusions based on comparison to inorganic element 'ambient' concentrations be considered very carefully until the NASA soil 'ambient' data set is finalized as described above.	Please see the responses to DTSC HERD general comment #2 on page 39. Please also see the responses to U.S. EPA general comment #3 and specific comment #56 on pages 2 and 30, respectively.
5	The text states that "In general, there is no obvious pattern in the occurrence of metals concentration in landfill surface soils..." (Section 5.3.1.2, page 5-15). Visual review of the bubble plot figures indicates that the highest surface soil (surface to 1 foot depth) concentrations of arsenic (Figure F-3), beryllium (Figure F-5) and vanadium (F-22) all appear to present similar patterns with the highest concentrations in the areas of the ponds. Some discussion of the relative magnitude and pattern of distribution of these three elements should be provided in the text.	Section 5.3.1.2 specifically discusses trends in landfill area surface soils, while wetland area surface soils and a comparison between landfill area and wetland area surface soils are discussed later in Section 5.3.2.2. Please also see the response to U.S. EPA specific comment #26 on page 17.
6	The area where elevated concentrations of "certain SVOCs/PAHs", appear to correlate with historical waste disposal areas (Section 5.3.1.2, page 5-16) should be identified in the text. Visual inspection of the bubble plots indicates that surface soil samples in the area of sample location SOC35 and TRN05 appear to have the highest concentrations of multiple Semivolatile Organic Compounds (SVOCs) (e.g., Figure F-40 and F-42) and diesel (Figure F-103).	Section 5.3.1.2 does describe the discrete waste disposal areas that appear to correlate with elevated surface soil SVOC/PAH concentrations in the landfill area.
7	Total PCBs in surface soils are "generally less" than 1.5 mg/kg (Section 5.1.3.2, page 5-18). Subsurface soil (i.e., soils deeper than 1 foot) concentrations of PCBs range to 52 mg/kg (Section 5.3.1.3, page 5-26). This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractor.	This comment is noted.

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Dr. James M. Polisini (DTSC HERD) (Continued)</i>		
8	The text should indicate if the area of subsurface soils with elevated concentrations of some pesticides (Section 5.3.1.3, page 5-27) is the same location of "historical waste disposal" alluded to for elevated SVOCs/PAHs in surface soils (HERD Specific Comment number 6).	Section 5.3.1.3 does describe the discrete waste disposal areas that appear to correlate with elevated subsurface soil pesticide concentrations in the landfill area. The overlap between these areas and areas noted in Section 5.3.1.2 (see the response to DTSC HERD's specific comment #6 on page 41) is clear from the text and the figures in Appendix F.
9	The text states that "There is no clear evidence of significant source areas of VOCs in soil or localized regions of significantly elevated concentrations" (Section 5.3.1.3, page 5-29) regarding subsurface soils. However, soil gas maps for benzene, chlorobenzene and naphthalene (Section 5.3.1.4, page 5-33 and Figure E-13) indicate isopleths from high to low concentration. This area of elevated soil gas appears to be near the area of elevated SVOCs and PAHs (MG-2-02-D and MG-2-02-M) which appear collocated with sample location HYP11 (Section 5.3.1.5, page 5-36) with highest groundwater SVOCs and/or HYP13 with highest groundwater VOCs. Please explain how a soil gas gradient could be created without a source area.	The statement that there do not appear to be significant VOC impacts in IR Site 2 soil is supported by the data, which do not show significantly elevated concentrations indicative of a major contamination source(s). The nature and extent of observed contaminants in soil gas are explained in Section 5.3.1.4. As with groundwater at the site, the occurrence of plume behavior in soil gas is not necessarily related to significant source areas, and concentrations in soil gas are dependent on a number of variables (e.g., partitioning coefficients and gas constants) in addition to parent (i.e., soil and/or groundwater) concentrations. Regardless, the risk assessments completed as part of the RI are sound and defensible, and incorporate the soil gas data available from the site in developing risk conclusions, in addition to modeling groundwater data for potential soil gas impacts. Please also see the responses to U.S. EPA general comment #1 on page 1 and specific comments #30 and #59 on pages 20 and 31, respectively.
10	Methyl ethyl ketone (MEK), acetone and methylene chloride were detected in surface soil samples from both the wetland and landfill portions of the site (Section 5.3.2.2, page 5-49). Methylene chloride and acetone are described as common laboratory contaminants. Please provide a comparison of the methylene chloride and acetone soil concentrations to the method analytical blank concentrations for these compounds in support of the proposition that the results in IR Site 2 soil samples are due to laboratory contamination.	Section 5.3.2.2 of the RI Report indicates that methylene chloride and acetone are common laboratory contaminants. This is a valid statement, as these compounds are indeed common laboratory reagents and can result in residual laboratory contamination unrelated to sample contamination. Section 5.3.2.2 does not, however, suggest that the Navy is dismissing results at IR Site 2 because they are related to laboratory contamination. The analytical data are appropriately qualified and validated, including necessary indications of potential laboratory blank contamination.

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
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Comment Number	Comment	Response
<i>Specific Comments from Dr. James M. Polisini (DTSC HERD) (Continued)</i>		
11	Isopleths of soil gas concentration of benzene (Figure E-13), where the highest concentrations are in the southeast corner of IR Site 02, do not agree with the isoconcentration map of benzene in the First Water Bearing Zone (FWBZ) (Figure 5-4, page 5-89), where the highest concentration is in the middle of IR Site 02. Individual isoconcentration plots of chlorobenzene in the FWBZ (Figure 5-5, page 5-90) also do not agree with the pattern of chlorobenzene soil gas concentrations (Figure E-13). This would indicate incomplete characterization of soil gas concentrations, given that many more FWBZ samples were taken than soil gas samples. Estimates of risk via the inhalation pathway are, therefore, suspect.	The data generated at IR Site 2 during the RI were based on a thorough and comprehensive RI field sampling work plan. The soil gas monitoring network and data are part of an ongoing quarterly monitoring program that assesses interior portions of the landfill with presumed worst-case contamination potential. The data generated at the site have been assessed, are summarized by media and location at the site in Section 5 of the RI Report, and appropriate comparisons between media and portions of the site have been made. The risk assessments completed for IR Site 2 are sound and defensible, and based on standard industry practice using all appropriate inputs and assumptions, including maximum soil gas concentrations and an unrealistic residential exposure scenario that provide maximum conservatism to the assessments. In addition, the screening risk assessment for the inhalation pathway was performed using both soil-gas data <i>and</i> groundwater data. Therefore, even though collocated soil gas and groundwater data are not available, using both types of data in the screening risk assessment provides a means for evaluating potential vapor intrusion risks across the entire site, even where soil gas data are not available.
12	A typographic error in the pond designator occurs in the description of antimony concentration in wetland surface waters (Section 5.3.2.6, page 5-71, lines 8 and 9). The wetland season differences in antimony cannot both occur in the South Pond. One set of measurements must be in the North Pond. Please correct this typographic error.	This typographical error has been corrected in Section 5.3.2.6 of the RI Report (please also note the response to U.S. EPA minor comment #1).
13	A typographic error in the section describing the results of general sediment characteristics (Section 5.3.2.7, page 5-83) refers to sulfur rather than sulfide. Please correct this typographic error.	This typographical error has been corrected in Section 5.3.2.7 of the RI Report.
14	The document indicates that Preliminary Remediation Goals (PRGs) were calculated which may differ slightly from U.S. EPA Region 9 PRGs (Section 6.2.2, page 6-2 and Section 6.3.1, page 6-6) HERD has agreed to use the U.S. EPA Region 9 PRGs, as published, which contain California-modified PRGs, for screening sites for potential human health risk and/or hazards. This agreement does not apply to separate calculation of site-specific PRGs except for elements or compounds not included in the U.S. EPA Region 9 list. The most recent U.S. EPA Region 9 PRGs should be used in the HHRA.	Please see the response to DTSC-HERD general comment #1 on page 39.

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Comment Number	Comment	Response
<i>Specific Comments from Dr. James M. Polisini (DTSC HERD) (Continued)</i>		
15	A residential (unrestricted) land use scenario was included in the screening-level HHRA. The incremental cancer risk and/or non-cancer hazard estimates exceed the risk management range (Section 6.3.2, page 6-7). A residential (unrestricted) land use scenario is not included in the Baseline Risk Assessment (BRA) (Section 6.4.1, page 6-12 and 6-13). However, the incremental risk exceeds the <i>de minimis</i> level for a construction worker scenario in the BRA. Therefore, HERD recommends Office of Military Facilities consider a deed restriction, or legal process of similar legal status, should be enforced at IR Site 2 to prohibit use of IR Site 2 for future residential, school or day-care uses.	This comment is noted. Appropriate institutional controls (e.g., land use controls, deed restriction) will be considered during the feasibility study and remedial design/implementation phases.
16	The evaluation of potential non-cancer effects is correctly referred to as hazard to differentiate non-cancer estimates from the probabilistic risk estimate for cancer effects. Please amend the discussion of the results (Section 6.3.2, page 6-7) to address non-cancer hazard rather than non-cancer risk.	This change has been made as requested in Section 6.3.2 of the RI Report.
17	HERD validated the methodology and formulae for assessing the inhalation of indoor vapors route of exposure (Section 6.3.3, page 6-8) as those contained in DTSC (2004) guidance. This comment is intended for the DTSC Project Manager and no response is required from the Navy or Navy contractor.	This comment is acknowledged.
18	Detailed evaluation is provided (Table 6-14) for only VOCs which exceed their respective Risk Based Screening Levels (RBSL) in soil gas (Section 6.3.3, page 6-10). Some VOCs may act additively via the inhalation exposure pathway. Detailed evaluation of all VOCs detected at some reasonable fraction of their respective RBSLs (e.g., one tenth or one quarter) should be presented.	The Navy has conducted an additional screening evaluation of the vapor intrusion pathway using exposure assumptions that better fit the future land use scenario rather than a residential scenario. All detected chemicals have been considered in the evaluation. This revised vapor intrusion assessment is presented in Section 6.3.3 of the revised RI document.
19	Please provide a more complete explanation for the reason that soil gas data from the summer 2004 sampling event were not available (Table 6-13, footnote c).	The soil gas data used in the risk assessment included all data that was provided in an electronic database export from the quarterly groundwater monitoring database. It was an oversight that the Summer 2004 soil gas data was not included in the original data file and the Navy has incorporated it into the updated risk assessment.
20	Please provide a screening-level HHRA summary table of the total risk and/or hazard from all routes of exposure prior to presentation of the BRA (Section 6.4, page 6-11).	Tables and figures have generally been placed at the end of their respective sections throughout the RI Report because they are too numerous to include in the body of the text. Incorporating them directly into the body of the text would reduce the readability of the document.

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
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Comment Number	Comment	Response
<i>Specific Comments from Dr. James M. Polisini (DTSC HERD) (Continued)</i>		
21	The exposure parameters used for the Park Ranger/Tour Guide (Table 6-16) and the Ranger/Restoration Supervisor (Table 6-17) were reviewed and found to be those HERD proposed from a Naval Weapons Station Seal Beach risk assessment or reasonable adaptations of the Seal Beach exposure parameters to future use of the wetland area at NASA. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractor.	This comment is acknowledged.
22	HERD reviewed a subset of the exposure parameters for the adult visitor (Table 6-18), the child visitor (Table 6-19) and the construction/excavation worker (Table 6-20) and found the parameters reviewed acceptable, with the exception of the skin surface area for the construction worker. HERD currently requires the 5700 cm <sup>2</sup> skin surface area be used for construction workers. This calculation can be performed with the EPA skin surface parameter of 3300 cm <sup>2</sup> and both results presented or the most protective value used.	The skin surface area for the construction worker receptor has been changed to 5,700 cm <sup>2</sup> , and the results have been incorporated into the revised RI Report.
23	Evaluation of dermal exposure should not be limited to only those Contaminants of Concern (COCs) with EPA-published (U.S. EPA, 2004) dermal absorption fraction (ABS <sub>d</sub> ) values (Section 6.4.2.2, page 6-17). Dermal exposure for all elements, compounds or compound groups which have dermal absorption values published in the DTSC Preliminary Endangerment Assessment (PEA) Manual (DTSC, 1994) should be included.	In the draft IR Site 2 HHRA, dermal absorption factors (ABS <sub>d</sub> ) recommended by the U.S. EPA in their 2004 dermal guidance document were used because many of the values are more current than those recommended by DTSC in their 1994 PEA Manual. However, the risk assessment has been revised by incorporating DTSC-recommended ABS <sub>d</sub> values for those compounds for which an U.S. EPA-recommended value does not exist. The modified results are presented in Section 6.4.2.2 of the revised RI Report. Attachment A to this RTC table provides a table listing the ABS <sub>d</sub> factors used in the HHRA.
24	HERD recommends that consideration of 'ambient' concentrations (Section 6.4.7.3, page 6-37) not be considered until the soil background data set is finalized. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractor.	This comment is acknowledged.
25	Anticipated future use (Section 9.0, page 9-5), which does specifically list residential (unrestricted use) is insufficient protection. A deed restriction, or some process of equivalent legal standing, should be implemented to prohibit residential, school or daycare uses at IR Site 02.	Please see the response to DTSC-HERD specific comment #15 on page 44.

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Comment Number	Comment	Response
<i>Specific Comments from Dr. James M. Polisini (DTSC HERD) (Continued)</i>		
26	The U.S. Fish and Wildlife Service (USFWS) currently actively manages potential predators of the Caspian tern and least tern colonies on NASA (Section 2.12.1, page 2-11). Current property transfer plans indicate that IR Site 2 will likely be used for recreational purposes such as a wildlife refuge in the future (Section 6.4.1, page 6-12), presumably managed by the USFWS. HERD defers to the USFWS, as the potential future natural resource trustee, regarding the overall adequacy and conclusions of the BERA.	This comment is acknowledged.
27	The specific epithet for the Norway rat is <i>Rattus norvegicus</i> not <i>Rattus musculus</i> (Table 2-2, page 2-28). Please correct this typographic error.	The error has been corrected in Section 2 of the revised RI Report.
28	HERD understands that the California Department of Fish and Game (DFG) may identify areas as wetlands which display any of the three wetland criteria (i.e., hydric soils, hydric plants and/or wetland hydrology) rather than the strict hierarchical methodology outlined (Section 3.1.11.1, page 3-8). The California DFG should be consulted regarding the areas of IR Site 2 which DFG would consider wetlands. HERD defers to the expertise of the California DFG for wetland delineation at IR Site 2.	This comment is acknowledged.
29	The IR Site 02 Conceptual Site Model (CSM) (Section 7.2.2.1 through Section 7.1.1.2, pages 7-4 through 7-7), Assessment Endpoints (AEs) and Measurement Endpoints (MEs) (Section 7.2.3 pages 7-7 through 7-11) and Representative Species (RS) (Section 7.2.4, page 7-11 through 7-15) were evaluated and are acceptable. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractor.	This comment is acknowledged.
30	The Exposure Parameters (EP) for all the vertebrate RS (Table 7-1 through 7-17) were reviewed and the values selected are appropriate choices in cases where a range of values are available. Correct estimation methods (Nagy, 2001) and mathematical formulae are utilized to estimate the Ingestion Rate (IR) where necessary. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractors.	This comment is acknowledged.

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Dr. James M. Polisini (DTSC HERD) (Continued)</i>		
31	There appears to be a typographic error in the discussion of upland mammals (Section 7.3.3.1.4, page 3-38) where the sum of the ratios of the maximum soil concentration to the radioisotope Bioconcentration Guidelines (BCG) for five radioisotopes is less than 1.0 but radioisotopes “were carried forward to the BERA”. Using the Contaminant of Potential Ecological Concern (COPEC) screening process applied for other COPECs radioisotopes would <u>not</u> be carried forward to the BERA for upland mammals as presented for wetland birds (Section 7.3.3.2.3, page 7-39). Please correct this typographic error.	This typographical error has been corrected in Section 7.3.3.1.4 of the RI Report.
32	Changes in the Site Use Factor (SUF) from 1.0 (all intake from IR Site 2) to a value less than one (fractional intake from IR Site 2) for avian receptors is the sole change in exposure parameters in the Baseline Ecological Risk Assessment (BERA) as compared to the SLERA (Section 7.4.2, page 7-44). The fractional SUF values utilized (Table 7-2 and Table 7-14) are reasonable estimates within the range of potential available values. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractor.	This comment is acknowledged.
33	A subset of the intake calculations and associated Hazard Quotients (HQs) for vertebrate receptors (Appendix K-2) were checked and found to be arithmetically correct. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractor. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractor.	This comment is acknowledged.
34	The groundwater contaminants (Figure E-13) which “appear to demonstrate some type of plume behavior” (Section 9.0, page 9-2) appear to extend beyond the eastern boundary of IR Site 02. This is a data gap which should be addressed.	The contaminants identified as demonstrating some type of plume behavior (e.g., benzene and chlorobenzene) in IR Site 2 groundwater do not appear to extend beyond the eastern boundary of the site (see Figures 5-2 through 5-6 in the RI Report).

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Conclusions from Dr. James M. Polisini (DTSC HERD) – dated 2/21/2006</i>		
1	The soil background data set for Naval Air Station Alameda (NASA) has yet to be finalized. Risk management decisions should be based on the estimates of total risk and/or hazard until a final soil background data set is available.	Please see the responses to DTSC HERD general comment #2 and specific comments #1, #2, and #4 on pages 39, 40, 40, and 41, respectively.
2	A residential (unrestricted) use scenario is not included in the Baseline Human Health Risk Assessment (HHRA). Given that some of the more restricted exposure scenarios generate incremental cancer risk in the risk management range, HERD recommends a deed restriction, or some document or process of equivalent legal standing, should be implemented to prohibit residential, school, day care or extended adult care uses of IR Site 02.	Please see the response to DTSC-HERD specific comment #15 on page 44.
3	Based on the lack of concordance of the soil gas and First Water Bearing Zone (FWBZ) groundwater concentrations, soil gas at IR Site 02 is incompletely characterized. Estimates of cancer risk and/or non-cancer hazard associated with exposure to vapors are, therefore, suspect.	Please see the response to DTSC HERD specific comment #11 on page 43. The risk conclusions associated with vapor exposure are not suspect, but are rather highly conservative by evaluating an unrealistic residential exposure scenario, using maximum soil gas contaminant concentrations, and assessing both soil gas data <i>and</i> groundwater data.
4	HERD accepts the conclusions of the Ecological Risk Assessment regarding the ecological risk drivers but defers to the U.S. Fish and Wildlife Service as one potential future manager for the IR Site 02 wetland areas.	This comment is acknowledged.
5	While the area-wide Exposure Point Concentration (EPC) indicates manageable risk and/or hazard for the human receptor scenarios and the ecological species evaluated, it is important to recognize that disposal did occur at IR Site 2 and the range of COC concentrations. Maximum surfaces and subsurface soil concentrations (Appendix H) of antimony (>600 mg/kg, Figure H-2), cadmium (>120 mg/kg, Figure H-6), chromium (>2000 mg/kg, Figure H-7), copper (>4000 mg/kg, Figure H-9), lead (>60,000 mg/kg, Figure H-12), mercury (>10 mg/kg, Figure H-15), all Aroclors relative to the reference site (Figures H-67 to H-73) and maximum total PCBs to more than 50 mg/kg (Figure F-74) are all indicators for consideration of remedial alternatives to limit land use and limit access to contaminated media. The magnitude of these concentrations and the volume of potentially contaminated material must enter into the evaluation of remedial alternatives.	This comment is noted. The Navy will evaluate all pertinent factors related to site history, contaminant nature and extent, risk, and site reuse in developing risk management decisions and strategies. It should be noted that a presumptive remedy approach (i.e., landfill capping) would be anticipated to effectively mitigate site risk regardless of the extent of historic waste disposal and COC concentrations.

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Mr. James Rohrer, P.G. (DTSC Geologic Services Unit (GSU)) – dated 2/3/2006</i>		
1	<p>Page 3-3, Section 3.1.2.3 states that a surface screen was conducted for assessing the presence of ordnance and explosive waste (OEW) on a 200 foot (ft) by 200 ft grid. Subsequently a 20 ft by 20 ft grid was used to assess the presence of subsurface OEW and a time critical removal action was conducted. During the time critical removal action, 8,675 target practice projectiles were removed. It may be possible that subsurface OEW exists beyond the 20-ft by 20-ft grid.</p> <p>RECOMMENDATION: Please provide clarification to the GSU as to the status of possible subsurface OEW beyond the 20-ft by 20-ft grid that was initially investigated for the presence of subsurface OEW. If it is possible that subsurface OEW is present beyond this grid then additional assessment work should be done to determine the magnitude of the potential presence of OEW.</p>	<p>No evidence of OEW was encountered throughout the implementation of the RI sampling activities, which included geophysical surveying, exploratory trenching, and numerous subsurface soil borings. There is no reason to believe that OEW is present in the subsurface at IR Site 2 or that any further activities specifically related to addressing OEW are warranted. In the unlikely event that any OEW is identified during the course of remediation planning, design, or implementation, safeguards will be in place and all appropriate action will be taken to mitigate the concern.</p>
2	<p>Figure E-3 shows that high levels of polychlorinated biphenyls (PCBs) are present throughout much of the Site 2 area. Other chemicals may also be widespread at elevated concentrations throughout much of the Site 2 area boundary.</p> <p>RECOMMENDATION: Consider collecting environmental samples beyond the boundaries of the site at selected locations to complete the delineation of contamination to ensure that any future remedy is fully protective [An example of a selected location would be east of SOC08 where total PCBs in surface soil are at 518.72 micrograms per kilogram (<math>\mu\text{g}/\text{kg}</math>)]. These samples should be tested for all potential risk driver constituents that are present relatively near the site boundary at elevated concentrations (such as mercury).</p>	<p>A thorough and detailed sampling plan was implemented at IR Site 2 to provide reasonable and appropriate delineation of the nature and extent of contaminants at the site, to complete human health and ecological risk assessments, and to ultimately devise an appropriate feasibility study of remediation alternatives and select an appropriate remedy to address risks at the site. The RI sampling was based on an extensive RI field sampling work plan. The nature and extent of contamination at IR Site 2 has been adequately characterized, and sound risk assessments have been completed. The Navy does not propose to collect any additional data to finalize the RI Report. It should be noted that a presumptive remedy approach (i.e., landfill capping) would be anticipated to effectively mitigate site risk regardless of the variability in the extent of COC concentrations. Please also see the response to Samantha Murray's general comment #10 on page 58.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Mr. James Rohrer, P.G. (DTSC GSU) (continued)</i>		
3	<p>Figure 6-1 shows that the highest detected benzene concentration in soil gas was for samples collected from MG2-02-M. Benzene ranged over time from 378 parts per billion by volume (ppbV) to 490 ppbV in sample MG-2-02-M. The nearest soil gas sampling point from MG2-02-M is greater than 550 feet away. The concentration of benzene is less than 27 ppbV in other samples located at the site. Currently there are no soil gas sampling points to the west, east and south of MG2-02. It is possible that benzene concentrations are higher at other locations if MG2-02-M is not located directly at the source of the high levels of benzene.</p> <p>RECOMMENDATION: The high concentrations of benzene in the area of MG2-02M should be further investigated. The distribution of benzene concentrations in soil gas should be better defined and illustrated on a figure.</p>	<p>Please see the responses to DTSC HERD specific comments #9 and #11 and conclusion #3 on pages 42, 43, and 48, respectively.</p>
4	<p>Figure E-13 indicates elevated naphthalene concentrations are present in soil gas at sample locations MG2-04-S, MG2-04-D and MG2-03-D. Naphthalene concentrations at these locations exceed the computed soil gas screening number for existing buildings under the industrial/commercial land use [0.106 micrograms per liter (µg/L) or 20.22 ppbV] (Cal EPA, 2005). Higher concentrations for naphthalene concentrations may be present if soil gas sampling points are not directly at source areas. The sampling locations shown on Figure E-13 are several hundred feet apart.</p> <p>RECOMMENDATION: The high concentrations of naphthalene in the area of MG2-04 should be further investigated. The distribution of naphthalene concentrations in soil gas should be better defined and illustrated on a figure.</p>	<p>Please see the responses to DTSC HERD specific comments #9 and #11 and conclusion #3 on pages 42, 43, and 48, respectively.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Mr. James Rohrer, P.G. (DTSC GSU) (continued)</i>		
5	<p>Page 5-38, last paragraph states groundwater from two temporary wells in the landfill area were tested for polychlorinated dibenzodioxin/polychlorinated dibenzofuran (PCDD/PCDF). On Page 5-39, first paragraph it is stated that detections of PCDD/PCDF congeners were summed to generate toxicity equivalent (TEQ) for each sampling point. The TEQs for the two sampling locations are stated to be 0.5 and 11.7 picograms per liter. It is possible that PCDD/PCDF congeners are present in groundwater at other locations for Site 2 as these constituents are present in soil at many locations across the site.</p> <p>RECOMMENDATION: Indicate in this section of the text where the two wells are located that were sampled for PCDD/PCDF to help the reader assess if the presence of PCDD/PCDF in groundwater is the result of leaching from contaminated vadose zone soil. The extent of PCDD/PCDF in groundwater should be assessed. Groundwater samples should be collected from other Site 2 wells for PCDD/PCDF analysis where wells are located at or immediately downgradient of areas where surface and/or subsurface soil is contaminated with PCDD/PCDF. An evaluation should be done to determine if the locations of monitoring wells are adequate to assess the potential for PCDD/PCDF to leach to groundwater from contaminated soil.</p>	<p>Please see the response to DTSC GSU specific comment #2 on page 49. With specific respect to PCDDs/PCDFs, these compounds are considered highly hydrophobic and not likely to exhibit significant aqueous mobility. For instance, the aqueous solubility of the most toxic PCDD, 2,3,7,8-TCDD, is generally considered to be on the order of <math>10^{-5}</math> to <math>10^{-6}</math> mg/L. The concentrations detected in the two temporary monitoring wells were based on unfiltered samples, suggesting that the concentrations were likely to have been influenced by suspended solids and not actual aqueous phase contamination. PCDDs/PCDFs can reasonably be considered a non-aqueous phase contaminant at the site. Nevertheless, the PCDD/PCDF data from the two temporary wells referenced have not been discounted, and, given the unfiltered and turbid nature of the temporary monitoring well samples, the concentrations detected in the two temporary wells are likely worst case. Additional information has been added to the referenced section of the RI Report to indicate the general location of the temporary monitoring wells where PCDDs/PCDFs were detected and the potential correlation between these groundwater detections and soil data (see the response to U.S. EPA specific comment #30 on page 20).</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Mr. James Rohrer, P.G. (DTSC GSU) (continued)</i>		
6	<p>Page 5-41, first bullet states that groundwater samples from the second water bearing zone (SWBZ) were not tested for 1,4-dioxane. On Page 5-35, last paragraph it is reported that 1,4-dioxane was detected in all of the groundwater samples collected from the first water bearing zone (FWBZ).</p> <p>RECOMMENDATION: Groundwater samples from the SWBZ should be analyzed for 1,4-dioxane to assess the potential for downward vertical movement of this chemical in groundwater.</p>	<p>Please see the response to DTSC GSU specific comment #2 on page 49. SWBZ groundwater data were generated through the ongoing quarterly monitoring program at the site, which does not include 1,4-dioxane as a target analyte. Most FWBZ groundwater data were generated through the RI sampling program, which did include 1,4-dioxane as an analyte of interest. 1,4-dioxane was actually detected in 93% of the groundwater samples (i.e., 13 of 14) collected from the landfill area FWBZ that were unfiltered, and in all samples that were filtered (i.e., 13 of 13). Concentrations of 1,4-dioxane that were measured in the landfill area FWBZ samples were generally quite low, indicating a low likelihood of impacts to the SWBZ. In addition, 1,4-dioxane was not identified as contributing to site risks in the risk assessments, which evaluated all appropriate groundwater data. Please also see the response to U.S. EPA specific comment #46 on page 27.</p>
7	<p>Page 5-13, states that Asbestos Disposal Areas are present at Site 2. It may be possible for asbestos to become airborne and become an inhalation hazard.</p> <p>RECOMMENDATION: Consideration should be given to testing selected soil samples for the presence of asbestos to assess the potential for inhalation risks.</p>	<p>Please see the response to DTSC GSU specific comment #2 on page 49. The presence of asbestos, friable or otherwise, was not identified throughout the course of the RI sampling program, which included numerous soil borings and exploratory trenching. In the event that any asbestos is identified during the course of remediation planning, design, or implementation, safeguards will be in place and all appropriate action will be taken to mitigate the concern.</p>
8	<p>Page 2-2, fifth bullet: It is reported that several hundred pounds of tear gas agents were disposed of at Site 2.</p> <p>RECOMMENDATION: Please specify the chemicals that constitute tear gas. If chemicals that were present in tear gas were not evaluated with laboratory testing of environmental samples, then additional sampling and testing for tear gas chemicals may be warranted.</p>	<p>Please see the response to DTSC GSU specific comment #2 on page 49. The list of target analytes evaluated during the RI sampling program was extensive and suitably comprehensive, and was specified in the RI field sampling work plan. It should be noted that tear gas agents are generally comprised of SVOCs, and the list of SVOCs evaluated at IR Site 2 was lengthy and comprehensive. As a specific example, one of the most common tear gas agents, CN gas, is comprised of chloroacetophenone, which commonly degrades rapidly to acetophenone in the environment. Acetophenone, in turn, was evaluated as part of the SVOC target analyte list at IR Site 2.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Mr. James Rohrer, P.G. (DTSC GSU) (continued)</i>		
9	<p>Page 5-40, Section 5.3.1.6, a) states that the SWBZ for the landfill portion of the site was evaluated using data exclusively from the recent quarterly monitoring dataset for winter 2004. A total of 10 groundwater samples were collected for this evaluation. It is important to note that a one time sampling event is not the best way to evaluate the potential for significant impacts as initial contaminant detections should be verified with subsequent sampling events. b) A review of the cross sections (Figures 2-4 through 2-9) indicated that SWBZ groundwater at Site 2 occurs predominantly at the southern portion of the site.</p> <p>RECOMMENDATION</p> <p>(a) Evaluate seasonal trends in contaminant concentrations to more thoroughly assess the magnitude of contamination in the SWBZ.</p> <p>(b) Please consider the locations of the SWBZ sampling points to make sure the sampling approach is adequate to evaluate the predominant occurrence of the SWBZ (in the southwest portion of the site).</p>	<p>Please see the response to DTSC GSU specific comment #2 on page 49. No significant impacts were identified in SWBZ groundwater using the data generated through the ongoing quarterly monitoring program, indicating that additional characterization is not warranted. Also, overall groundwater quality in the FWBZ at IR Site 2 was not found to be significantly impacted by contamination, further supporting that SWBZ groundwater has been adequately characterized through the data evaluated. Furthermore, SWBZ groundwater has been found unsuitable for potable use given its general quality (e.g., high TDS load) and generally low yield (see the response to U.S EPA specific comment #46 on page 27). With respect to evaluating temporal trends in groundwater data at the site, please see the response to U.S. EPA general comment #1 on page 1.</p>
10	<p>Figure E-5: There are two identical concentration rectangles for SOC37.</p> <p>RECOMMENDATION: Subsequent versions of the RI report should correct this figure as appropriate.</p>	<p>Figure E-5 inadvertently provided the same data concentration boxes for both SOC37 and SOC55. This discrepancy has been corrected in the revised RI Report. The Navy has also confirmed that all other figures are displayed appropriately in Appendix E of the RI Report.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>General Comments from Ms. Samantha Murray (Golden Gate Audubon Society) – dated 2/10/2006</i>		
1	<p><b>IMPROVED INVESTIGATION</b></p> <p>A number of significant improvements have been made in the investigation at the site, compared to the investigative work reported on in the previous RI. There were lower Method Detection Limits (MDLs) for many of the analyses (with some exceptions noted in later comments). Risk calculations were performed using the results from unfiltered water samples. Background concentrations appear to have been reevaluated, including for sediment. The chemical analytical data were presented in Excel data files so that data could be easily searched and manipulated, making the concentration data easier to review. An additional monitoring well (442-MW1) was installed to north of landfill in a location where there had been a data gap previously. Maps showing contaminant distribution were provided. The current RI provides an improved evaluation of the site over that provided in the previous RI.</p>	<p>This comment is noted and appreciated.</p>
2	<p><b>DOCUMENT CONTENT - INCOMPLETENESS OF REPORT</b></p> <p>A Remedial Investigation Report (RI) should be a relatively complete and self-standing document, with all the supporting information for the conclusions of the report. During the public review period, an undue burden should not be placed on the public to track down previous documents. This comment was made five years ago about the preceding RI (December 2000); for example, that comment noted that the geologic and well completion logs were not provided and they are not provided in the current RI either. This document is missing much of the supporting information (logs, derivation of background values for soil and groundwater, seismic evaluation, tidal study, radiological study, etc.). With the ability to put well logs and earlier reports onto CDs these days, it would have been easy to include this information in the RI so that a thorough review could be made. Documents are available at the Alameda Point library during business hours, however, that arrangement is frequently not convenient for members of the public who work or who live at significant distances from Alameda Point. Field data (logs, water levels, etc.) as well as supporting reports should be provided on a CD.</p>	<p>A substantial amount of supporting information has been provided in the RI Report based on the RI field sampling program. For instance, appended to Appendix B of the RI Report are sampling logs for all media sampled, soil boring logs, groundwater purging logs, sampling photographs, and other supporting documentation. The Navy has evaluated the document and has included other information specifically related to the RI field sampling effort that might be helpful (e.g., see the responses to U.S. EPA general comment #6 and specific comment #13 on pages 5 and 11, respectively). Copies of final documents related to each investigation that has previously occurred at the site have been provided previously, and it is not necessary for the Navy to present these again in the RI Report to accomplish the objectives of this document. Those documents have contained supporting field documentation related to each specific investigation. Previous reports are cited throughout the RI Report, and full citations can be found in Section 10 of the document.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>General Comments from Ms. Samantha Murray (Golden Gate Audubon Society) (continued)</i>		
3	<p>LACK OF DISCUSSION OF APPLICABLE OR RELEVANT AND APPROPRIATE REGULATIONS (ARARS)</p> <p>There is no discussion of the ARARs that apply to this site, other than a brief mention of CERCLA. This discussion is needed in order to put the site in regulatory context. For instance, does the site need to meet requirements of Title 27 under the supervision of the Regional Water Quality Control Board? Are there specific requirements for wetlands under Fish and Wildlife regulations? If the correct regulations are not identified, the solution proposed in the FS may not satisfy those regulations. A discussion of ARARs should be added to the RI.</p>	<p>Remedial alternatives for the site will be contemplated in a feasibility study. ARARs are not truly relevant until that stage, and will be discussed thoroughly in the feasibility study document and adhered to throughout remedial planning, design, and implementation. Including a discussion of ARARs in the RI Report is unnecessary and premature, consistent with U.S. EPA CERCLA guidance on developing RIs and feasibility studies. Please also see the response to U.S. EPA general comment #5 on page 4.</p>
4	<p>LACK OF HISTORICAL DATA</p> <p>A decision was made to start a new RI at Site 2 and ignore environmental data collected prior to 2003. At a minimum, historical data should be compared to data collected for the new RI Document, to ensure any historically identified chemical of potential concern at Site 2 has not been screened out.</p>	<p>Newer data generated through the RI sampling program were specifically compared to historical data in the RI Report, and historical data were in no way ignored. Statistical box plots were prepared and reviewed to ensure the newer data were representative, and in nearly all cases the newer data were found to be entirely representative and more conservative compared to the historical data. As stated in the RI Report, MDLs associated with the newly generated data were frequently more sensitive than the MDLs in the historical data. Newer data were generated in areas of the site where data had not previously been collected, specifically targeting interior portions of the landfill and wetlands where contaminant impacts would be expected to be most severe. In addition, there was no indication that either dataset depicted a significantly greater or lesser degree of environmental impact, and given the greater sensitivity of the newer data, these data were justifiably relied on to develop the RI Report. Additional clarification regarding the assessment of historical data has been added to Section 5.1 of the revised RI Report.</p>
5	<p>POOR PRESENTATION</p> <p>Figures E-1 through E-16 depict the sample analysis results for each sampling location at Site 2. These figures present this information poorly. On some of these figures a 5-point text size (example: Benzo(a)pyrene 0.05J ) is used. The information shown on these figures in the Final RI should be made legible.</p>	<p>There are limited options for presenting the magnitude of data generated at IR Site 2 in a graphically pleasing format. However, the Navy has attempted to resolve the display on certain data plots to improve their legibility and appeal.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>General Comments from Ms. Samantha Murray (Golden Gate Audubon Society) (continued)</i>		
6	<p><b>GROUNDWATER/SOIL CONTAMINATION LACK OF IN-DEPTH ASSESSMENT OF GROUNDWATER MIGRATION PATHWAY</b></p> <p>The discussion of the groundwater flow at the site is very superficial in Section 2.8.2, particularly considering that groundwater is a potentially significant contaminant transport pathway. No supporting data in terms of geologic logs, well completion information, contoured water levels for each water-bearing zone, or an analysis of vertical hydraulic gradients is provided. There appears to have been no hydraulic testing of the aquifer materials. This information is essential to be able to evaluate the potential for groundwater transport of contaminants. The geologic materials at the site are quite sandy which makes them permeable so there is a significant potential for groundwater transport.</p>	<p>The subsurface geology at IR Site 2 is well understood, both from site-specific investigations and regional geologic information. The data generated at IR Site 2 have been evaluated in detail, and do not suggest significant impacts to groundwater quality beneath the site. The groundwater migration pathway, as well as other pathways involving groundwater (e.g., groundwater to surface water) have been acknowledged and assessed appropriately. The risk assessments conducted for the site include all necessary and relevant inputs, and evaluate groundwater as a potentially important contaminant transport mechanism. However, additional detail related to groundwater and groundwater transport has been added to the RI Report. Please also see the responses to several U.S. EPA specific comments (e.g., #7, #30, #35, #38, #59, and #64 on pages 8, 20, 22, 23, 31, and 33, respectively).</p>
7	<p><b>LACK OF EVALUATION OF TRANSPORT TO THE SECOND WATER-BEARING ZONE (SWBZ)</b></p> <p>Many of the contaminants identified in the First Water-bearing Zone (FWBZ) have also been detected in the SWBZ. No discussion of the potential for downward migration of dissolved constituents is provided. The report refers to the Bay Sediment Unit (BSU) as providing vertical isolation for the SWBZ, however the cross-sections shown in Figures 2-4 through 2-9 show large amounts of permeable sand within the Bay Sediment Unit. This unit does not appear to provide significant vertical isolation between the two water-bearing zones.</p>	<p>Please see the responses to U.S. EPA specific comment #10 on page 10 and DTSC GSU specific comments #6 and #9 on pages 52 and 53, respectively. Overall, the RI Report describes the occurrence and distribution of contaminants and evaluates potential mechanisms of contaminant migration and degradation, and puts the contaminants identified at the site in the context of risk so that appropriate risk management decisions can be made during the next stages of site management. Groundwater data generated from the SWBZ do not indicate the presence of contamination at any appreciable level, and risk assessment results do not suggest that SWBZ groundwater contributes to site risk. In fact, groundwater has not been identified as a media contributing significantly to site risk with the exception of a very limited number of compounds identified in shallow FWBZ groundwater. The discussion of contamination in groundwater at IR Site 2 and migration of contamination through groundwater has been given due attention. However, the Navy has evaluated portions of the RI Report where additional detail could be added related to the potential for migration of contamination in groundwater, and has added detail where appropriate. Please also see the response to U.S. EPA specific comment #46 on page 27.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>General Comments from Ms. Samantha Murray (Golden Gate Audubon Society) (continued)</i>		
8	<p><b>DEFINITION OF BACKGROUND FOR SOIL/SEDIMENT</b></p> <p>Background concentrations of metals in soil have been determined for Alameda Point (TtEMI, 2001). Comparisons (Sec. 9.0) of concentrations of metals within IR Site 2 to concentrations of metals at China Camp State Park (CCSP) are completely inappropriate since local background values exist and since there is no supporting evidence that the geology at CCSP is very similar to the geology at Alameda Point. There are no sediment background concentrations for Alameda Point, however, comparisons (Sec. 9.0) to metals concentrations in sediment at CCSP are inappropriate without supporting evidence that the sediment deposition processes and source areas at CCSP are very similar to the those at Alameda.</p>	<p>Please see the response to U.S. EPA specific comment #56 on page 30.</p>
9	<p><b>LIMITED TEMPORAL DATA SET FOR WATER QUALITY</b></p> <p>While the spatial distribution of water quality sampling seems adequate, the temporal distribution is too small (one to two sampling events) to understand anything about temporal variations or contaminant concentration trends. While some of the earlier water quality data were plagued by high detection limits, there should be enough usable data to evaluate how concentrations have changed with time in the surface water of the ponds and in the groundwater (particularly at the downgradient edge of the landfill). The two surface water sampling events (one in the dry season and the other in the wet season) allow examination of one instance of seasonal variability, but do not permit looking at variations between successive dry seasons or successive wet seasons. The one groundwater sampling event reported does not allow for an analysis of any of the variability frequently observed in groundwater data. There is usable data from earlier studies that should be incorporated into a temporal analysis. It would be important to know for both groundwater and surface water if concentrations have been increasing, decreasing, or remaining constant with time.</p>	<p>Please see the responses to U.S. EPA general comment #1 on page 1.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>General Comments from Ms. Samantha Murray (Golden Gate Audubon Society) (continued)</i>		
10	<p>UNKNOWN BOUNDARY OF LANDFILL</p> <p>Two test pits (2-7 and 2-12) were excavated outside the current IR Site 2 boundary (Figure 3-1). According to Table 3-1, refuse was encountered in both pits. The depth of the bottom of the refuse is not known. The extent of landfill beyond the current IR Site 2 boundary needs to be established so that any proposed remedy for the landfill (ex., an impermeable cap) will extend to cover the entire landfill region. In addition, Test Pit 2-11 was excavated within the IR Site 2 boundary at the northwest corner but outside of the boundary of the landfill. This test pit also contained refuse; this would indicate that the boundary of the landfill has not been drawn correctly within the site. A berm was constructed around the site in 1978; it is unclear if the berm was constructed atop landfill waste. The presence of waste beneath the berm should be investigated.</p>	<p>The preponderance of evidence available for IR Site 2 (e.g., aerial photography and historical facility documentation) support that the landfill is situated as depicted on various figures in the RI Report. The presence of a minor amount of debris in test pits 2-7 and 2-12, which were installed as close as possible to the site boundary, does not alter the conclusions of the RI Report and does not call into question the physical landfill boundaries when evaluated in the context of all available historical information. The waste materials identified in test pit 2-7 (see Table 3-1 in the RI Report) consisted of construction debris, which could be related to construction of the historical seawall along the runway/tarmac area or the runway/tarmac itself. The excavated material identified in test pit 2-12 was described as glass, plastic, and paper refuse in a sandy silt matrix, with the refuse making up only 10% of the excavated material. The limited amount of debris in this test pit could easily be taken as evidence that it was very near the landfill boundary rather than being indicative of the landfill extending significantly farther. The fact that the seawall boundary of Alameda Point at the eastern side of IR Site 2 predated the construction of IR Site 2 further suggests that waste material is highly unlikely to extend beyond the known site perimeter. Geophysical surveying and sampling were conducted in the vicinity of test pit 2-11, and capture the anomaly signature and contamination profile in this region that will help in developing remedial strategies, regardless of being outside the drawn boundary of the West Beach Landfill proper. The potential presence of waste beneath the berm, which is within the site boundary and adequately characterized by the data presented and evaluated in the RI Report, does not require further investigation prior to finalizing the RI and moving to the remedial planning phase. Ultimately, the feasibility study will screen and evaluate appropriate remedial alternatives for IR Site 2 (presumably including the presumptive capping alternative), develop a remedial footprint, and address potential uncertainties in the implementation of the various alternatives considered.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>General Comments from Ms. Samantha Murray (Golden Gate Audubon Society) (continued)</i>		
11	<p><b>OTHER LANDFILL COMMENTS</b></p> <p>The RI Report describes a cut-off wall 820-foot long and 20 to 30 feet deep. The location of the cutoff wall is not shown on site figures. No groundwater elevation data appears to have been collected to demonstrate that the cut-off wall is acting as an effective waste containment barrier. Details on the cut-off wall should be provided in the final RI.</p> <p>The RI Report describes a “partial-clay” cover on the landfill. With the exception of measuring low clay contents in surface soils, no other engineering data (e.g., permeability) on the cap has been provided in the RI Report.</p> <p>Landfill vents were reportedly installed at Site 2. There is no information on whether these vents have or continue to emit toxins or other landfill gases. Appendix D-2 includes results of soil gas sampling at Site 2 that shows methane concentrations in excess of the lower explosive limit.</p> <p>The RI Report does not indicate the current condition of the seawall along the southern and western boundaries of Site 2. This information should be included in the final RI Report.</p> <p>There is a lack of information in the RI Report that can be used to demonstrate that the unlined and uncapped landfill is containing waste material. The extent of contamination has not been determined laterally or vertically.</p>	<p>The data necessary to develop appropriate conclusions regarding the nature and extent of contamination and potential risk from contaminants at IR Site 2 have been provided in the RI Report. The requested details associated with the slurry wall, the landfill soil cover, and landfill vents are available in other supporting documents that have been generated and submitted for IR Site 2 but are not necessary to include as part of the RI Report. With specific respect to the slurry wall, please see the response to U.S. EPA specific comment #5 on page 8. Ongoing monitoring of landfill soil gas occurs in conjunction with a quarterly monitoring program that is documented separately. All pertinent soil gas data available from that program that are necessary to characterize contamination and develop risk assessments have been incorporated into the RI Report. With respect to the seawall around IR Site 2, visual inspection of this feature during the RI field sampling program did not suggest there is any failure or compromise in its integrity, and this has been noted in the revised RI Report. A thorough and detailed RI sampling plan was implemented at IR Site 2 to provide reasonable and appropriate delineation of the nature and extent of contaminants at the site, to complete human health and ecological risk assessments, and to ultimately devise an appropriate feasibility study of remediation alternatives and select an appropriate remedy to address risks at the site. The sampling was based on a thorough RI field sampling work plan. The nature and extent of contamination at IR Site 2 has been adequately characterized, and sound risk assessments have been completed. The Navy does not propose to collect any additional data to finalize the RI Report. Ultimately, a remedy will be evaluated, selected, and designed that provides appropriate risk mitigation across the site. It should be noted that a presumptive remedy approach (i.e., landfill capping) would be anticipated to effectively mitigate site risk regardless of the variability in the extent of COC concentrations or fine scale relationships between various site media.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>General Comments from Ms. Samantha Murray (Golden Gate Audubon Society) (continued)</i>		
12	<p><b>NEED TO LINK OFFSHORE STUDIES</b></p> <p>The Navy has an ongoing study into potential contamination offshore of IR Site 2. This offshore area is highly linked to the site with potential contaminant transport pathways being groundwater discharge to the offshore or transport of impacted sediment or surface water during water exchange through the culvert to the Bay. These two areas should not become separated in developing solutions to impacts at IR Site 2, because of the probable interconnection between the two areas. The report refers to a slurry wall that was built along the Bay side of the landfill in the early 1980s and says that this slurry wall will prevent impacted groundwater from flowing into the Bay. There is at least one other example of a slurry wall built elsewhere during this time period at a Bay Area landfill that had to be replaced later because it was inadequate to provide isolation. No data are provided in the report to substantiate that the slurry wall is acting as an adequate barrier to groundwater migration. Results of the offshore study should be carefully reviewed in determining probable impact from the landfill activities and the optimal approach to minimizing impacts from IR Site 2 to offshore areas.</p>	<p>Please see the responses to U.S. EPA specific comment #62 on page 32, RWQCB specific comment #1 on page 39, and DTSC HERD specific comment #34 on page 47. While the offshore study and the IR Site 2 RI are intentionally separate, all due consideration will be given to the results of the offshore evaluation in developing a risk management framework for IR Site 2.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>General Comments from Ms. Samantha Murray (Golden Gate Audubon Society) (continued)</i>		
13	<p><b>HOTSPOT NORTHEAST OF LANDFILL</b></p> <p>An area located outside of the landfill area to the north and immediately adjacent to San Francisco Bay near Well MO24A contains significant concentrations of chlorinated volatile organic compounds (VOCs), benzene, gasoline and diesel in groundwater. High concentrations of mercury, PCBs, and pesticides are also present in soils in this area. This area appears to have a separate source which may be within IR Site 2 or have its origin in the unit to the north. The source needs to be defined. In the planning of remedial action, this region should not be neglected just because it lies outside of the defined boundary of the landfill.</p>	<p>The RI sampling program implemented at IR Site 2 was thorough and extensive, and generated sufficient data to appropriately evaluate the nature and extent of contamination at the site and develop sound risk assessments. Overall, significant contaminant source areas and hotspots have not been identified, but this does not mean that during remedial planning and implementation certain areas may not be most suitably treated as such to mitigate risks, as is already indicated in the RI Report. The specific area around well M024-A does not appear to be a separate and distinct area of contamination or to be associated with a clear and distinct separate source, but rather falls in the overall pattern of widespread contamination at IR Site 2. The levels of TPH and VOCs, including benzene, detected in groundwater from M024-A and the levels of metals and organics detected in soils in the vicinity of M024-A are consistent with concentrations detected elsewhere in the landfill, and are not indicative of significant concentration anomalies that would suggest a clear source or in any way indicate that contamination is the result of an off-site source. This area has been included in all descriptions of contamination at the site, in all graphical plots showing contaminant occurrence and distribution, and in all risk assessment calculations. The Navy has no intention of ignoring this region during the remedial planning, design, or implementation phase, and will address all site risks appropriately. Please also see the responses to U.S. EPA general comment #4 on page 3 and specific comment #30 on page 20.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Ms. Samantha Murray (Golden Gate Audubon Society) – dated 2/10/2006</i>		
1	<p>Downward Hydraulic Gradient at North Pond (p. 2-6, top; Sec. 2.7.1): The text states that there is a consistent, downward, vertical hydraulic gradient in the vicinity of the North Pond. What is the basis for this statement (i.e., which wells and water levels were used for what periods of time)? Were corrections made for density differences between different water-bearing zones when the vertical gradient calculations were made? How did the vertical gradient vary with tidal stage since presumably there would be significant tidal variations in the lower, confined water-bearing zone? Since there is a flow of water from the pond into the surrounding groundwater and the pond water is contaminated (metals, VOCs, SVOCs, pesticides), does this mean that the pond is contaminating the groundwater? What is the spatial extent of the area where groundwater is being recharged by the pond? Elsewhere in the report, arrows on maps representing flow directions from the landfill to the North Pond and descriptions in the text indicate that groundwater within the landfill is discharging to the pond; what is the extent of the area where groundwater is discharging to the pond instead of the other way around?</p>	<p>The referenced language specifically cites the 2000 SOMA Corporation hydrologic study, and that study can be referenced to obtain the level of detail requested in this comment (see the response to Samantha Murray’s general comment #2 on page 54). The RI Report describes how surface water from the pond likely recharges groundwater, and how the opposite is also likely (i.e., groundwater recharges surface water). Describing these phenomena on any finer scale (i.e., the surface area over which discharge or recharge occurs) has no bearing on the conclusions provided in the RI Report. The RI Report describes the data generated in the ponds, which show that the surface water in the ponds is generally unimpacted by significant levels of any contaminants, is not responsible for toxic response in toxicity assays, and is not a significant contributor to site risk. The RI Report also describes the potential communication between groundwater and surface water (i.e., discharge into the ponds) and clearly discusses the occurrence and distribution of contamination in groundwater. Please also see the responses to U.S. EPA general comment #4 on page 3 and specific comment #30 on page 20.</p>
2	<p>Tidal Influence on Groundwater (p. 2-6, Sec. 2.7.3): The tidal study was not available for review in this document, however, the description provided here makes the study sound inadequate. Water levels in the ponds should have been included in the analysis as should have well water level response to tidal loading in the SWBZ.</p>	<p>The information presented in Section 2.7.3 of the RI Report was derived, in part, from the cited Shaw Environmental study, which can be referenced for additional detail (see the response to Samantha Murray’s general comment #2 on page 54).</p>
3	<p>Bay Sediment Unit Composition (p. 2-7, Sec. 2.8.1): The Bay Sediment Unit (BSU) is described as consisting of clay with silty and clayey sand layers. No geologic logs are available in the report to confirm the accuracy of that description. Since this unit is described later as being an aquitard (p. 2-7, Sec. 2.8.2) providing vertical isolation between water-bearing zones, it is important that it be described accurately. Reviewing the geologic cross-sections (Fig. 2-4 through 2-9), it can be observed that much of the BSU consists of thick sections of clean (poorly-graded) sands that would provide little vertical isolation between contaminated shallow groundwater and the SWBZ.</p>	<p>Please see the responses to U.S. EPA general comment #8 on page 6 and specific comment #10 on page 10. Please also see the response to Samantha Murray’s general comment #2 on page 54. The cross-sections provided in Section 2 of the RI Report contain the boring logs that were used to compile the stratigraphic interpretation.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Ms. Samantha Murray (Golden Gate Audubon Society) (continued)</i>		
4	<p>Shallow Gradients and Low Hydraulic Conductivities (p. 2-7, Sec. 2.8.2): There is no supporting data (such as a groundwater elevation contour map) to support the statement that hydraulic gradients are relatively low at this site. This lack of data is also true for determining the direction of groundwater flow at the site, which is only indicated by arrows on maps with no supporting data. Maps of groundwater elevations (for several time periods) should be included and gradients should be quantified. There are no aquifer test results to substantiate that the hydraulic conductivities at the site are low as stated in the text. It is important to determine the hydraulic conductivities of the geologic materials so that the potential for groundwater transport of contaminants can be quantified. The materials in the shallow aquifer are generally described as sandy and often depicted as clean sands on the cross-sections. This type of geologic material could be expected to be moderately to highly permeable, not to have a low hydraulic conductivity.</p>	<p>Several metrics are important in determining the actual hydrologic flow through an aquifer, including transmissivity, storativity, hydraulic conductivity, and others. Other studies developed for IR Site 2 contain additional detail pertaining to the hydrogeology at the site, and the information conveyed in Section 2.8.2 is accurate in its general description of the site. Describing hydrologic site characteristics in any greater detail is not necessary and has no bearing on the conclusions provided in the RI Report. Specifically, additional detail regarding site hydrogeology would not alter the description of the nature and extent of contamination, which is based on real data generated at the site, or the risk assessments, which are also based on real data and appropriate pathway/receptor modeling scenarios. In addition, Section 8 of the RI Report describes groundwater flow as an important contaminant fate and transport mechanism at the site, regardless of specific quantitative hydrologic properties. Please also see the responses to Samantha Murray's general comment #2 on page 54 and U.S. EPA specific comment #7 on page 8.</p>
5	<p>Bay Mud beneath Landfill (p. 2-8, Sec. 2.9): The description of the geology in this section contradicts the earlier Geology section (Sec. 2.8.1) in its use of nomenclature for the units. This makes it confusing to the reader and should be corrected. What is referred to as the BSU in the earlier section is referred to here as the Bay Mud. In the earlier section, Bay Mud was given as another name for the Yerba Buena Mud, which occurs at much greater depth. Please correct the discussion.</p>	<p>The description of geologic units in the RI Report has been reviewed and corrected as necessary for clarity and consistency.</p>
6	<p>Saturated Waste (p. 2-8, Sec. 2-9): The text is misleading. It states that the waste material is present to approximately the depth to groundwater. This would indicate that the waste is not saturated. On the other hand, on the geologic cross-sections that show landfill material, the waste appears to be about 50% submerged. Please state correctly.</p>	<p>As with many physical characteristics of the site described in Section 2 of the RI Report, the method of waste placement and the depth of waste fill are given in general terms. Waste was placed at the landfill predominantly using trench and fill methods, likely to a depth at or near the water table (i.e., it is unlikely trenches would have remained open to accept waste if excavated significantly deeper than the water table). Given that the water table is a non-static feature, waste material would be periodically or partially saturated. The cross-sections in Section 2 of the document reflect this.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
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Comment Number	Comment	Response
<i>Specific Comments from Ms. Samantha Murray (Golden Gate Audubon Society) (continued)</i>		
7	Seismic Hazards (p. 2-9, Sec. 2.9): The seismic hazards due to liquefaction-induced lateral spreading or slope failure during an earthquake are high at the site. Predictions involved significant failure of the landfill structure, most likely exposing waste and releasing waste and impacted water to the wetlands and adjacent San Francisco Bay. This risk must be taken into account during the FS for the site. The text states that more sophisticated analysis will be performed during the FS; that analysis should be included within the FS as an appendix and be carefully reviewed.	Geotechnical characteristics and the potential for seismic impacts have previously been assessed at the site, and are described in detail in the Foster Wheeler geotechnical/OEW study referenced and cited in the RI Report. The feasibility study will screen and evaluate appropriate remedial alternatives for IR Site 2, and will address as necessary potential uncertainties in the implementation of the various alternatives considered.
8	Data Not Used (Sec. 3, specifically p. 3-4): This section spends a lot of time describing previous investigations, including surface water, sediment and pore water investigations. These are data that could be used to extend our understanding of how water quality and sediment quality has changed over time. These data are completely ignored in the RI which almost exclusively bases its analyses on data from October 2004 through March 2005. In the case of groundwater, a single round of sampling was all that was analyzed. The historic data should be incorporated into the report to provide more than a snapshot view of contamination.	Historical data were reviewed in detail relative to the newly acquired data, and it was determined that the newer data were more sensitive and of higher quality. The nature and extent of contamination in various media were defined based on the most recent data sets available because these datasets provided an extensive and simultaneous opportunity to characterize all media at the site in a worst-case sense, and because future remedial options will be analyzed and the ultimate remedy will be designed to address current conditions rather than conditions in the past. In addition, as described in the RI Report, the more current data relied on in developing RI conclusions do not represent a significant departure from historical data in the context of contamination magnitude, and therefore do not bias the RI conclusions. Please also see the responses to U.S. EPA general comment #1 on page 1 and Samantha Murray's general comment #4 on page 55.

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Comment Number	Comment	Response
<i>Specific Comments from Ms. Samantha Murray (Golden Gate Audubon Society) (continued)</i>		
9	Ordinance and Explosives Waste (OEW) and Radiological Investigations (p. 3-3, Secs. 3.1.2.3 and 3.1.2.4): The lateral extent of these investigations is not specified. If they stopped at the IR Site 2 boundary, they did not extend far enough since waste has been found in test pits outside of the landfill boundary and outside of the IR Site 2 boundary. If these investigations did not have sufficient step-outs beyond the defined boundaries, additional data should be collected in those areas beyond the boundaries until they have extended to regions clearly beyond the extent of waste.	Additional details regarding the design and implementation of previous investigations, including the OEW and radiological surveying programs, can be referenced in specific documents pertaining to the studies of interest that are cited in the RI Report. The RI sampling activities were designed and implemented in close consultation with the regulatory agencies, and additional data collection specific to OEW and radiological issues were part of the RI field sampling work plan. An adequate amount of characterization has been completed at the site to develop an understanding of the occurrence and distribution of contamination, complete human health and ecological risk assessments, and proceed to the risk management stage. Please also see the responses to DTSC GSU specific comment #2 on page 49 and Samantha Murray's general comments #2 and #10 on pages 54 and 58, respectively.
10	Background Concentration Determination (p. 3-11, Sec. 3.1.12): The background concentration study was not available for review in the RI; it should be available because the establishment of background concentrations for metals in soils and groundwater is a crucial part of evaluating risk. Based on the 2001 date on the background study, it would appear that the study is a reworking of previously (pre-2001) collected soil and groundwater data. That earlier data was plagued by high detection limits and some issues related to the location of samples collected. The background document should be carefully reviewed to determine that appropriate methods have been used for establishing background.	Background data for Alameda Point are currently being reviewed by regulators. Please also see the responses to U.S. EPA specific comment #56 on page 30 and DTSC HERD general comment #2 on page 39.
11	Groundwater Background (p. 3-12, Sec. 3.1.12.2): It should have been feasible to determine background concentrations for the SWBZ. The reason given for not developing them is that the high salinity prevents detecting trace levels of metals. This statement is certainly not true for the SWBZ groundwater metals data reported in the RI, many of which are well above detection limits. SWBZ background values should be developed.	The data generated for the SWBZ during the implementation of the RI suggest this aquifer zone is largely unimpacted, meaning background/ambient contaminant concentrations specifically related to this zone would be largely unnecessary. Furthermore, developing background contaminant concentrations for SWBZ groundwater at Alameda Point is not necessary to achieve the objectives of the RI. Please also see the responses to U.S. EPA specific comment #46 on page 27 and DTSC GSU specific comment #9 on page 53.

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Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Ms. Samantha Murray (Golden Gate Audubon Society) (continued)</i>		
12	Extent of Radiological Survey (p. 4-2, Sec. 4.2.3): Why was the radiological survey (performed separate from the RI investigation) not carried out in the wetlands? Waste and contamination is present in that area, so it is possible that there is radiological contamination as well. Three surface/subsurface soils sampling locations within the wetlands were sampled as part of the RI investigation and some of those had elevated radioactivities relative to background. The extent of those elevated activities needs to be defined in the wetlands so that they can be addressed in the FS.	The radiological surveying activities were conducted pursuant to a separate work plan. Details related to this study can be found in the IR Site 2 document record (please see the response to Samantha Murray's general comment #2 on page 54). Specifically, the radiological survey did not extend into the wetland portion of the site to be protective of the wetland habitat. The radiological survey approach can be highly intrusive and disruptive, and would have likely required some degree of dewatering of the wetland to be effective. Overall, sufficient data were collected to characterize contaminant impacts and risks in the wetlands. All site risks will be addressed appropriately in the remediation planning, design, and implementation phase.
13	Wet Season Bioassays (p. 4-3, Sec. 4.3): It is unexplained and unclear why the wet season was the appropriate time to conduct the toxicity tests. Rainfall accumulation in the ponds decreased salinity in both ponds (p. 2-6) which would dilute concentrations of contaminants in surface water and, most likely, in sediment. The higher salinity, dry season water and sediment would have been a more conservative evaluation of toxicity and bioaccumulation.	The rationale for conducting bioassays during the wet season was provided in the RI field sampling work plan. In general, bioassays were conducted in the wet season as this is when one would reasonably expect the greatest use of the ecosystem by water column and benthic organisms and the greatest potential for trophic transfer. In fact, existing data indicate that the most significant use of habitat at IR Site 2 is by birds in the wetland and wetland pond habitats, and wetland habitat use is highest during the wet season when wetland/wetland pond area is greatest. During the RI, the South Pond was significantly drier and the North Pond only had a depth of approximately 2 inches in the dry season. Water samples and sediment samples collected during the dry season would not likely lend themselves to laboratory toxicity testing. If testing would have been possible in the dry season, it would have been difficult or impossible to separate the impacts of contaminants from confounding factors (e.g., high salinity), which was a necessary element in the bioassay design. In addition, the wet season was most appropriate to capture potential impacts from storm water runoff from the landfill area.
14	Figure 5-1 Missing Colors (p.5-85): The radiological survey results were not given on this figure as the colors were missing. It was not possible to determine which areas had greater levels of radioactivity. Correct the figure.	The colors provided on the legend are indeed on Figure 5-1. The areas with gamma scan activities exceeding 4,000 counts per minute are very few and small relative to the overall scale of the site.

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Comment Number	Comment	Response
<i>Specific Comments from Ms. Samantha Murray (Golden Gate Audubon Society) (continued)</i>		
15	Figure 5-6 Has Wrong Data (p.5-91): This figure is labeled as displaying groundwater concentrations for 1,4-dichlorobenzene, but it actually displays the chlorobenzene results. The proper data need to be shown and contoured on this figure.	Figures 5-5 and 5-6 in the RI Report inadvertently provided the same data. These figures have been corrected to provide the correct data as referenced in the figure titles.
16	Number of Arsenic Detects in FWBZ (p. 5-35 and Table 5-7, p. 5-111): Both the text and the table state that there was only one detection of arsenic in FWBZ groundwater. According to the data in Appendix D-3, there were <i>no</i> non-detects for arsenic in FWBZ, rather many detects. This statement and table need to be corrected.	Data that are specifically discussed in Section 5.3.1.5 for landfill area FWBZ groundwater are the total fraction. As accurately described in the RI Report, for the total (i.e., unfiltered) fraction, only one landfill area FWBZ groundwater sample yielded a detection of arsenic. Section 5.3.1.5 also provides some discussion about the comparison between unfiltered (total) and filtered (dissolved) metals data. Unlike the total fraction, arsenic was detected in all dissolved fraction samples. The discussion regarding arsenic detects in FWBZ groundwater has been reviewed and corrected to ensure consistency and accuracy in the draft final RI Report.
17	Detections in the SWBZ (Sec. 5.3.1.6, p. 5-40 to 5-43): The detection of contaminants in the SWBZ raises concerns about their continued downward migration from source areas in the FWBZ. There is no analysis of vertical hydraulic gradients or permeabilities in the BSU that would allow for evaluation of vertical migration of contaminants; such an analysis should be provided.	Please see the responses to Samantha Murray's general comment #7 on page 56 and specific comment #3 on page 59. Please also see the response to U.S. EPA specific comment #46 on page 27.
18	Tritium Non-detect in SWBZ (p.5-43): The lack of detections of tritium are due to the high detection limit, which should be acknowledged in the text.	Tritium data from the SWBZ were available from the quarterly monitoring program at IR Site 2 (i.e., not specifically from the RI sampling program). The lack of tritium detections cannot be attributed solely to elevated detection limits with any certainty. The tabulated data provided in Section 5 of the RI Report clearly define the detection limits for tritium, and all compounds were evaluated appropriately in the risk assessments developed for IR Site 2. Please also see the response to Samantha Murray's specific comment #21 on page 68.
19	Lack of Subsurface Samples at CCSP (p. 5-54): Only surface soil samples were collected at China Camp State Park for evaluation of "ambient" concentrations. No subsurface samples were collected. Since the likely source of SVOCs/PAHs in surface soils is aerial deposition, it is not valid to compare subsurface concentrations of SVOCs/PAHs at IR Site 2 to surface concentrations at CCSP. Subsurface samples should have been collected and analyzed.	Please see the response to U.S. EPA specific comment #56 on page 30. Surface soils were the most appropriate horizon to evaluate at China Camp State Park for the purposes of understanding ambient contaminant concentrations, and it is reasonable to compare both surface and subsurface data from IR Site 2 to China Camp surface soil data to understand relationships between site and ambient data.

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
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Comment Number	Comment	Response
<i>Specific Comments from Ms. Samantha Murray (Golden Gate Audubon Society) (continued)</i>		
20	Source of Metals in Wetlands Ponds (p. 5-71): The elevated metals concentrations in the ponds are not attributed to any source. The logical source is the waste disposed of at IR Site 2, with transport to the pond occurring by overland flow and groundwater flow.	The disposal of waste in the landfill is not necessarily the source of metals in the wetland ponds. Background/ambient levels of metals are known to exist in the San Francisco Bay area, and reference sampling conducted specifically as part of the RI indicates this. Regardless, risk assessments were developed that incorporate all data from the site, and risk management will factor in background/ambient risk as appropriate (see the response to Ms. Dale Smith's specific comment #8 on page 74).
21	Radium Non-detects in Surface Water (p. 5-76): The statement in the text that radium was not detected in the wet season pond water samples is misleading. The reason that it wasn't detected was because the detection limit was about 4 times greater in the wet season than in the dry season. This explanation needs to be included. The high detection limits of both Radium-226 (some sampling events) and tritium (all sampling events) raise questions about the quality of the analytical work on radiological contaminants and the accuracy of the values used in the risk assessment.	It is speculative to say that Ra-226 was not observed in wetland pond surface water during the wet season solely because of detection limits. For Ra-226 in surface water, detection limits during the dry season were below 0.1 pCi/L, and for the wet season were below 0.4 pCi/L, both of which are extremely sensitive. Overall, the data quality in the RI Report is very high. The risk assessments addressed all site data appropriately, and appropriate risk assessment methods were employed to mitigate the potentially confounding influence of elevated detection limits. Please also see the response to Samantha Murray's specific comment #18 on page 67.
22	Vapor Intrusion Screening (Sec. 6.3.3): The evaluation was performed to determine if institutional controls would be needed to preclude building in areas with the potential for VOC flux into buildings. Three VOCs were retained by the screening but they are dismissed as being unlikely to pose risk at the site. This dismissal seems inconsistent with the purpose of the screening. Either an in-depth evaluation of this pathway and risk are needed or else institutional controls to prevent building in impacted areas should be instituted. Structures may be built on the site as part of the planned recreational use. It is important to assure that those structures can be safely occupied.	With respect to the vapor intrusion screening, please see the responses to DTSC HERD specific comments #9 and #11 and conclusion #3 on pages 42, 43, and 48, respectively. With respect to institutional controls, please see the response to DTSC HERD specific comment #15 on page 44.

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Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Ms. Samantha Murray (Golden Gate Audubon Society) (continued)</i>		
23	<p>Background Risk (p. 6-37, Sec. 6.4.7.3): The discussion of background indicates that arsenic, benzo(a)pyrene (tentatively), and radium-226 should not be considered as potential risk drivers since they are found at concentrations below background values. It is important to examine the statistics by which background concentrations and Exposure Point Concentrations (EPCs) were calculated to see if the two methods are compatible. There are a number of statistical approaches to calculating background. Some statistical methods (particularly log-normal) can create unreasonably high estimates of background concentrations. If these constituents are going to be removed as risk drivers, this should be done in this RI instead of waiting for the FS. There should be agreement between the interested parties on what risks need to be addressed by the FS before designing a remedial alternative. What are the remaining risks if the "uncertain" risks are removed?</p>	<p>Section 6.4.7.3 indicates that arsenic, benzo(a)pyrene, and radium-226 are present at IR Site 2 at concentrations highly consistent with concentrations found in the ambient/background dataset and/or that risks associated with the ambient/background levels of these constituents is highly consistent with risk specific to IR Site 2. EPCs for the HHRA were calculated according to appropriate and standard methods, as described in Section 6.4.3. Background/ambient concentrations were derived from existing datasets or from simple statistical evaluation of the China Camp dataset (i.e., arithmetic minimum, mean, and maximum). While it is recommended that the referenced compounds not be considered risk drivers for reasons associated with ambient/background concentration and/or risk, no compounds have been removed from consideration in the RI Report (see Section 9 of the document), and the uncertainty in the risk assessments is acknowledged rather than ignored. There is also some inherent uncertainty associated with background/ambient conditions at IR Site 2, but it is important to understand that background/ambient conditions have an impact on the ultimate risk management framework for the site. The Navy has included data in the RI Report collected from CCSP and existing Alameda Point background data that are currently being reviewed by DTSC. As indicated in the RI Report, uncertainty associated with background/ambient risk and the inherent impact on risk management will be resolved as part of the feasibility study, and all necessary regulatory involvement will be ensured at that time. Also note that a presumptive remedy approach (i.e., landfill capping) would be anticipated to effectively mitigate site risk regardless of inherent uncertainties.</p>
24	<p>Radioactive Decay Discussion (p. 8-6): The statement that radioactive decay depletes sources of radioactive material is misleading. The example given is for radium which decays to form radon gas. Radon gas is itself radioactive and highly mobile. Thus radioactive decay transforms the substance into a new form with which radioactive risks are still associated.</p>	<p>Radioactive decay is a real and potentially significant mechanism of radionuclide degradation and alteration. However, the referenced discussion (and other sections of the RI Report where similar language exists) has been modified to better describe the phenomenon and to acknowledge that transformations can lead to still radioactive decay products.</p>

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Comment Number	Comment	Response
<b><i>Specific Comments from Ms. Samantha Murray (Golden Gate Audubon Society) (continued)</i></b>		
25	Sediment Transport (p. 8-7): The text discounts the importance of overland flow as a transport mechanism of contaminants to the wetland, based on the fact that precipitation is episodic and of short duration. These latter two factors do not limit the amount of sediment that may be transported to being insignificant; streams and bays are full of sediment that has been transported by overland flow to channels. The intensity of the rainfall and the related velocity of the overland flow exert strong control over how much sediment will be transported. Contaminants appear in wetland sediments and overland flow is almost certain to be a contributor to those elevated concentrations, particularly when there are elevated concentrations in surface soils.	Section 8.2.2.1 of the RI Report clearly acknowledges the importance of both soil/sediment movement and overland flow of dissolved contamination as migration pathways. This section also indicates that at IR Site 2, site and local characteristics suggest these pathways are not responsible for the significant movement of contamination over short time periods but may be more important over longer timeframes. Overall, the existing discussion in the RI related to this subject is reasonable.
<b><i>General Comments from Ms. Dale Smith (Restoration Advisory Board [RAB] Member, Sierra Club, and Golden Gate Audubon Society) – dated 2/21/2006</i></b>		
1	The discussion of the landfill and the figure showing the two test pits indicate that the landfill may extend beyond the boundaries described in the report. This true boundary of the landfill needs to be determined, especially if it extends under the berm and into other areas, prior to capping.	Please see the responses to Samantha Murray's general comment #10 on page 58.
2	There is a VOC hotspot north of and outside the landfill. This needs to be fully characterized as to the source of the contaminant, whether or not it is entering the Bay, either in the FWBZ or SWBZ, and method of remediation.	Potential methods of remediation will be evaluated during the feasibility study. Please also see the response to Samantha Murray's general comment #13 on page 61.

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Comment Number	Comment	Response
<i>General Comments from Ms. Dale Smith (RAB Member, Sierra Club, and Golden Gate Audubon Society) (continued)</i>		
3	The human health risk assessment is weak and may result in assuming a lower exposure than would occur either to an interpretive worker, ecological restoration team member or a sports enthusiast engaging in vigorous exercise.	The exposure assumptions that were used for the Ranger/Tour Guide (i.e., interpretive worker) are based on exposure assumptions developed for the USFWS Tour Guide exposure scenario in the NWS Seal Beach HHRA as directly recommended by DTSC. Also, it is important to note that this scenario was developed with direct input from the USFWS. Overall, the modeled scenario is appropriate for evaluating potential risks to this type of worker at IR Site 2. An individual engaged in vigorous sporting activities was not evaluated because this type of activity is not consistent with the future use of the site as a wildlife refuge. It is highly unlikely that any sporting activities will take place at the site in the future, site use will most likely include habitat and wildlife conservation, potentially environmental studies, and overall significantly lower impact visitor use. In addition, a worker (Ranger/Restoration Supervisor) engaged in site restoration activities was evaluated in the risk assessment. The receptor, although referred to as "Supervisor", was actually modeled as someone who is actively engaged in site restoration activities. Please also see the responses to U.S. EPA specific comments #44 and #48 on pages 26 and 28, respectively.
4	The seasonal wetlands have not been adequately surveyed for plant species. Plants in ephemeral pools develop at different times throughout the year. One visit does not properly identify all of them and, given that no plants were identified, it is quite possible that a qualified botanist was not present. The plant list does not include <i>Distichlis spicata</i> or lupine; both of which were observed by the author. Additionally, the California Ground Squirrel and Canada Goose was not observed by the consultancy, although the author has seen many of them many times.	Please see the <i>Wetland Delineation Report for Site 2, West Beach Landfill</i> dated December 1, 2004 for more specific details associated with the delineation activities and the response to U.S. EPA general comment #9 on page 7. Identification of species inhabiting IR Site 2 has been conducted appropriately by qualified professionals and is suitably exhaustive. Regardless of minor differences in species observed at the site by different observers, appropriate representative species were selected to develop the ecological risk assessment.

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
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Comment Number	Comment	Response
<i>Specific Comments from Ms. Dale Smith (RAB Member, Sierra Club, and Golden Gate Audubon Society) – dated 2/21/2006</i>		
1	3.1.11.2 In the section concerning biological surveys, the investigation is weak and incomplete. TetraTech did not have experience with biological surveys and had not hired trained personnel to conduct the surveys. As a result several animal species were not observed and the plant identification was inadequate. There is no mention of nesting Canada Geese or California Ground Squirrels, both of which can be seen using the landfill and ponds. Native plants were completely overlooked, especially three or four large lupines that have recently died.	The surveys referenced in the comment are part of the IR Site 2 document record of previous investigations and are summarized as such. As indicated in the response above, regardless of minor differences in species observed at the site by different observers, appropriate representative species were selected to develop the ecological risk assessment.
2	4.3.1 Given that the seasonal wetlands were not identified prior to this report, it is unreasonable not to collect additional data.	The potential seasonal wetlands were identified prior to the completion of RI sampling activities and it was determined that the sampling network was sufficient to assess conditions and potential risks at the site, including these potential seasonal wetland areas. Please also see the response to U.S. EPA general comment #9 on page 7.
3	5.3.1.3 Sampling for explosives seems skimpy, considering that constituents were found at the only site sampled.	Overall, a thorough and detailed sampling plan was implemented at IR Site 2 to provide reasonable and appropriate delineation of the nature and extent of contaminants at the site, to complete human health and ecological risk assessments, and to ultimately devise an appropriate feasibility study of remediation alternatives and select an appropriate remedy to address risks at the site. Sampling for explosives was only conducted in and around the area that was historically subject to a time critical removal action for OEW-related items because this is the only area one would expect to see impacts from explosives-related compounds and it would represent worst-case conditions. No information obtained through the course of the RI suggests that additional characterization for explosives is warranted (i.e., no OEW-related issues were identified during the geophysical surveying or intrusive sampling during the RI). The nature and extent of contamination at IR Site 2 has been adequately characterized, and sound risk assessments have been completed. The Navy does not propose to collect any additional data to finalize the RI Report.
4	5.3.2.2 It is commented that methylene chloride and acetone are common laboratory contaminants. Does this mean that the contamination found is the result of poor laboratory practices?	Detections of methylene chloride and acetone are not representative of poor laboratory practices. It is simply a fact that they are common laboratory contaminants. Please also see the response to DTSC HERD specific comment #10 on page 42.

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<i>Specific Comments from Ms. Dale Smith (RAB Member, Sierra Club, and Golden Gate Audubon Society) (continued)</i>		
5	6.3.3 The vapor intrusion pathway was not investigated because the future use is unknown. Yet elsewhere it is stated that the future use will be a wildlife refuge with a visitor center and an interpretive guide. The vapor intrusion pathway should be investigated.	Please see the responses to DTSC HERD specific comments #9 and #11 and conclusion #3 on pages 42, 43, and 48, respectively.
6	Overall, the human health risk is very poorly analyzed. Habitat restoration is likely to be a very significant undertaking at the site, with a long period of intense activity. Habitat personnel and their activities is poorly delineated and it is quite possible that what that activity would entail is not fully understood by the consultant. Additionally, an on site interpretive employee is unlikely to be present for only one or two hours. It would not be financially reasonable to have an individual present for such a short period of time; Also, an interpretive program at the visitor center prior to a site tour coupled with a site tour would likely take more than an hour or two. Consideration of opening the facility in the morning and closing it up at night needs to be included in calculating how long a guide/interpreter will be present at the visitor center.	This comment suggests that the habitat restoration activities may be more "involved" (i.e., lengthy) than what was modeled by the scenarios in the HHRA. However, the exposure assumptions for the site restoration worker that were used in the Site 2 HHRA are based on exposure assumptions for the NWS Seal Beach HHRA as recommended by DTSC, and there is no additional information available that indicates that these assumptions are not appropriate for IR Site 2. Also, please note that the DTSC Toxicologist James Polisini (DTSC-HERD, specific comment #21 on page 45) concurs with exposure scenarios and input parameters used in the Site 2 HHRA. Also, see the responses to U.S. EPA specific comments #44 and #48 on pages 26 and 28, respectively.
7	The VOC monitoring well sites seem sparse.	A thorough and detailed sampling plan was implemented at IR Site 2 to provide reasonable and appropriate delineation of the nature and extent of contaminants at the site, to complete human health and ecological risk assessments, and to ultimately devise an appropriate feasibility study of remediation alternatives and select an appropriate remedy to address risks at the site. The RI sampling was based on an extensive and detailed RI field sampling work plan. The nature and extent of contamination at IR Site 2 has been adequately characterized, and sound risk assessments have been completed. The Navy does not propose to collect any additional data to finalize the RI Report.

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Comment Number	Comment	Response
<b><i>Specific Comments from Ms. Dale Smith (RAB Member, Sierra Club, and Golden Gate Audubon Society) (continued)</i></b>		
8	6.4.7.2 Regional agreements by protective agencies that are not protective of human health should not be permitted. Additionally if a chemical causes problems, background exclusions should not be permitted.	The purpose of the human health risk assessment for IR Site 2 is to determine if the site poses an unacceptable risk to future receptors (i.e., site workers, visitors) that will occupy and/or use the site in the context of likely future site activities and reasonable exposure scenarios. The Navy will consider appropriate action in the feasibility study (e.g., remediation, institutional controls) necessary to ensure that risks to future site occupants and visitors is reduced to levels that are acceptable. Establishing cleanup goals more stringent than a background/ambient level is inconsistent with CERCLA guidance, which clearly indicates that background COC concentrations and risk should be considered in the risk management framework for a site (see, for instance, OSWER 9285.6-07P). Also note that a presumptive remedy approach (i.e., landfill capping) would be anticipated to effectively mitigate site risk regardless of the extent of site risk or inherent risk uncertainty.
9	7.2.2.1 Foliar uptake from soil is a pathway and is not discussed. There is a significant contingent of small rodents at the site that would be impacted by consuming plant matter.	The potential exposure of small rodents to contaminants in plant matter is addressed via omnivorous and herbivorous food web models of exposure. Therefore, while foliar uptake is not specifically discussed, it is addressed in the RI Report. This point has been clarified in the revised document.
<b><i>General Comments from Mr. George B. Humphreys (RAB Community Co-Chair) – dated 2/17/2006</i></b>		
1	This is a very long and detailed report of great technical complexity. Nevertheless, there are a number of subjects which have not been addressed. Some of these areas are: site hydrology, plots of the radiation survey results, the disposal location of dredgings from the seaplane lagoon, the results of the seismic stability analysis, the location of the culvert connecting the north pond with the Bay, and the location of the slurry cut-off wall. These subjects should have been included for completeness.	The Navy provided all of the information that was reasonably possible to include in the RI Report, including some of the items mentioned in this comment (e.g., radiation survey results are presented in Appendix B and results of seismic stability analysis are described in a reasonable level of detail in Section 3.1.6). There is limited information available about the slurry cut-off wall. Please also see the responses to U.S. EPA specific comments #5, #14, #15, and #62 on pages 8, 11, 11, and 32, respectively. Note that the location of the pipe culvert connecting the North Pond to San Francisco Bay, which is described in the text of the RI Report, has been added to Figure 2-2 for clarity.

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Comment Number	Comment	Response
<i>General Comments from Mr. George B. Humphreys (RAB Community Co-Chair) (continued)</i>		
2	The report utilizes over fifty equations to evaluate human and ecological risks. These equations contain numerous factors which can be adjusted to include the results. There also is a great deal of uncertainty in many of the factors such as cancer slope factors and chemical toxicity, which are extrapolated from animal tests. Thus, the resulting conclusions should be regarded with considerable skepticism.	The risk assessments that were completed for IR Site 2 are sound, defensible, conservative, and rely on standard industry practices and conventions. No input parameters have been adjusted to influence results, but rather all input parameters have been selected to be reasonable, appropriate, and scientifically justifiable. There is inherent uncertainty in all risk assessments, especially those for such a complex site as IR Site 2. However, all equations and calculations are reliable, and have been checked by the Navy and other regulators as indicated in their comments. Uncertainty associated with the risk assessments is acknowledged and discussed in the RI Report. Please also see DFG general comment #1 on page 83.
3	Of particular concern, is the fact that many exposure pathways were ruled out or not evaluated because they were deemed "NA" or not likely to be complete. These excluded pathways primarily involve the release of subsurface wastes and contaminated groundwater plumes. It is suspected that the resulting lower calculated risks will be used to justify inaction or minimal corrective measures in later studies (i.e., the Feasibility Study and the Proposed Plan).	A comprehensive CSM identifying potential exposure pathways from chemicals to human and ecological receptors was prepared and used to guide the human health and ecological risk assessments. The Navy has not excluded any potentially significant exposure pathways. In fact, as described in Section 7.4.5 of the RI Report, there are several exposure pathways included in the ERA that are not truly complete at the site but are nevertheless assessed. For example, assessments have been completed for exposure to fish in the wetland ponds that do not actually exist in the ponds and exposure to aquatic vegetation that is not currently present in the ponds.
4	Finally, where higher potential human and ecological risks have been calculated, the report attempts to explain this by attributing the risks to "background" levels from China Camp. In situations where the Navy knows that certain hazardous elements and compounds were disposed of in the Site 2 waste dump and those materials are found by the RI, it appears misleading to the claim that their presence is due to natural backgrounds levels.	The Navy has not dismissed any potential risk driver at IR Site 2 based on comparisons to background or ambient levels. Establishing background/ambient levels in the various IR Site 2 media is a fundamentally important part of the project, as is true for every remediation project, and background/ambient risks may be important in developing appropriate risk management decisions for this site. CERCLA guidance clearly indicates that background COC concentrations and risk should be considered in the risk management framework for a site (see, for instance, OSWER 9285.6-07P). Please also see the response to Ms. Dale Smith's specific comment #8 and DTSC HERD general comment #2.

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Comment Number	Comment	Response
<i>Specific Comments from Mr. George B. Humphreys (RAB Community Co-Chair) – dated 2/17/2006</i>		
1	<p>Figure 2-10 (page 2-26) shows the location of waste disposal areas. During the RAB site tour in 2005, a drum disposal area was pointed out west of the north entrance road and outside the red boundary line in Figure 2-10. It was stated that this was a drum disposal area where drums initially were crushed by heavy equipment. After fires started, the drums were intentionally punctured to allow the contents to drain into the disposal pit or trench. This drum disposal area should be shown on Figure 2-10. Figures 5-2, 5-3, and 5-4 show isoconcentration maps for heptachlor, heptachlor epoxide and benzene respectively. These plots show a plume in this drum disposal area. Also, the location of the slurry cut-off wall should be shown on Figure 2-10. Finally, the red boundary line surrounding the disposal area should be identified in the legends of Figures 2-10, 5-2, 5-3, and 5-4 (and any similar figures).</p>	<p>Past disposal practices and potentially discrete waste disposal areas, including presumed drum disposal locations, are accurately described in the RI Report and reflected on Figure 2-10 based on the available site information and documented site history. The Navy is not aware of a drum disposal area in the location inferred in this comment, and Navy personnel present at the RAB site tour recall only pointing out the potential for drum disposal in the northwestern portion of the landfill, not the northwestern portion of the site outside the landfill boundary. All contamination identified at the site has been characterized and site risks will be addressed regardless of coincidence with a discrete disposal area. With specific respect to the slurry wall, please see the response to U.S. EPA specific comment #5 on page 8. The red boundary line on the referenced figures depicts the boundary of the actual landfill area, as defined in available historical site information. Figures in the RI Report have been modified where necessary to identify this feature on the figure legends.</p>
2	<p>The Executive Summary (page iv) states that with few exceptions “the data <u>do not suggest clear source areas of contaminant hotspots</u>, but rather indicate a wide spread and diffuse occurrence of contaminants”. Nevertheless, Figures 5-2, 5-3, and 5-4 seem to show several large plumes of contaminants which can be regarded as hotspots.</p>	<p>Please see the responses to U.S. EPA specific comments #59 and #64 on pages 31 and 33, respectively.</p>

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<i>Specific Comments from Mr. George B. Humphreys (RAB Community Co-Chair) (continued)</i>		
3	The report (Section 2-1, page 2-3) states that the Navy in 1978 started to comply with Regional Water control Board (RWQCB) requirements for the closure of the Class II land fill. Apparently this closure was never properly completed. Note that the "partial clay-soil cover" was not completed (there was a shortfall of 55,000 cu. yd. to achieve an appropriate thickness). There is no indication that proper quality control procedures were followed in the placement of either the double ringed permeameter. The slurry wall is described as 820 ft long, 2-ft wide, by 20 to 30 ft deep. The location of the wall is not shown on the accompanying Figure 2-2. There is a further question as to why this waste dump would not be categorized as a Class-I facility, in view of the fact that hazardous wastes were or had been disposed of in the landfill. It is unclear why the RWQCB request for a Solid Waste Assessment Test (SWAT) report would have prevented the Navy from properly completing the landfill closure in accordance with Federal and State requirements. Further evidence of improper and incomplete closure is shown by the statement on page 2-4 that "waste debris has become exposed through the landfill capping material..."	This comment is noted. With specific respect to the location of the slurry wall, please see the response to U.S. EPA specific comment #5 on page 8.
4	In Figure 2-2, the "explanation" or legend identifies a long orange dash as the berm. However, this berm is not discernible on Figure 2-2, perhaps covered up by some other feature. Also, on Figure 2-2 a caption "West Beach landfill <u>Boundary</u> " appears in the middle of the landfill, but there is no arrow pointing to the boundary.	The caption "West Beach Landfill Boundary" has been changed to read "West Beach Landfill". The pink dashed line identified as the berm in the figure legend is closely collocated with the heavier red line defining the perimeters of the landfill, wetlands, and margins, and is discernible on the figure.
5	On page 2-5, it is stated that the temperature averages 80 deg. F from May through October. This appears too high. Probably what is meant is the average <u>maximum</u> daily temperature.	The Navy has checked the referenced information to ensure it is reported and defined accurately.

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<i>Specific Comments from Mr. George B. Humphreys (RAB Community Co-Chair) (continued)</i>		
6	<p>Page 2-3 mentions the implementation of "methane gas control". Neither the location or details of the system are shown. Normally, such a system would entail gas collection wells, surface gas collection piping and either a landfill gas flare or energy recovery system. The Navy might argue that decay of the refuse has been completed and, thus, methane production has ceased. However, as described at the February 2, 2006 RAB meeting, trenching operations dug up newspapers which were still readable. This indicates that perhaps anaerobic decomposition and methane gas generation are not yet complete. If there is a gas collection system, why didn't it interfere with clearing of the surface of the radiation survey and with surface removal of OEW? Another aspect of the gas control system is the possible exposure of construction/excavation workers to toxic gases and volatile organic compounds (VOC's). Section 6.4.2.3 gives equations for inhalation doses to construction workers from volatilization of VOC's in the soil. If there are open vents, this would provide a direct pathway to the surface for VOC's and other gases.</p>	<p>Additional details pertaining to the methane gas collection system and field logistics associated with the radiation survey and OEW clearance activities at IR Site 2 can be found in other documentation (please see the response to Samantha Murray's general comment #2 on page 54). The risk assessments completed for the site evaluated all pertinent data, receptors, and pathways, including a conservative assessment of contaminants and risks in the soil vapor phase (i.e., including both soil gas and groundwater data). In the risk management and remediation planning, design, and implementation phases of the IR Site 2 program, issues related to the methane gas collection system will be handled appropriately.</p>
7	<p>As previously noted, the location of the perimeter land fill berm is not clearly identified. However, the plumes shown in Figures 5-2, 5-3, and 5-4 seem to extend beyond the inferred location of the berm. These contaminants seem to be entering the wetlands area currently and probably have been for a number of years. It may be that seawater entering the north pond is diluting these discharges, but it should be noted that the point of waste discharge would be somewhere under the berm or wherever tidal influence extends.</p>	<p>Please see the responses to Mr. George Humphreys' specific comment #4 on page 77 and U.S. EPA specific comment #4 on page 8. The berm should not be considered a hydrologic barrier, and the RI Report acknowledges and discusses the migration of groundwater, including the potential communication between groundwater and surface water (see Sections 2, 5, and 8 of the document). All contamination identified in groundwater has been discussed in the RI Report, evaluated for potential risks, and will be addressed accordingly during remedial planning, design, and implementation.</p>

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Comment Number	Comment	Response
<i>Specific Comments from Mr. George B. Humphreys (RAB Community Co-Chair) (continued)</i>		
8	<p>Page 2-2 describes the roads on the landfill as having been constructed using <u>sandblasting grit</u>. One would expect this material to contain <u>lead</u> from the lead-based paint and <u>tributyltin</u>, a material used to prevent barnacle growth on ship hulls. Figure E-1 shows hits of tributyltin at SOC-32, SOC-18, SOC-21, SOC-23, and SOC-11, on or near the landfill roads. It could be expected that tributyltin would be harmful to benthic invertebrates and other water-filtering organisms. Table 6-3 identifies tributyltin cation as a contaminant of potential concern. However, on page 7-23, it states that benthic invertebrates were not analyzed for organotins. Table 7-31, "Screening-Level HQ for Wetland Invertebrates" lists tributyltin cation but lists the hazard quotient as "NA" because not uptake factors for organotins were found for wetland invertebrates.</p>	<p>Sampling locations on and near the landfill roadways were specifically evaluated for metals and TBT for the reasons specified in this comment. This comment draws a direct correlation between specific information presented on Table 6-3 and in Section 7 of the RI Report, but these two portions of the document describe separate protocols. Table 6-3 is part of the human health risk assessment methodology, while Section 7 of the document describes the ecological risk assessment. The human health and ecological risk assessments were both conducted appropriately, incorporating all necessary inputs, including toxicity data, uptake factors, and other variables, and generated output that will be used to address and mitigate risks at the site.</p>
9	<p><u>Ecological Risk Assessment</u> In Figures 7-2, 7-3, and 7-4, which delineate the conceptual site models for the ecological risk assessment, many pathways are excluded as "NA" (pathway not likely to be complete). These pathways involve primarily ingestion and dermal contact with surface and subsurface soils. This assumes the waste materials stay in place, i.e., no release. This might be credible if the wastes had been properly isolated from the environment by completion of the cap and perimeter slurry cut-off wall. The report states that although capping was started, it was not completed for proper closure of the site. Also, what about waste materials brought to the surface by ground squirrels or the breaching of containment by seismic events?</p>	<p>The CSMs provided in the RI Report address all potentially significant exposure pathways given the current and planned future use of the property, and the ERA has appropriately considered all scenarios that are reasonably possible or likely. Ingestion of and dermal contact with soil is appropriately considered, for some scenarios (e.g., for exposure of birds and mammals to subsurface contamination), not likely to be complete. Other receptor/pathway combinations are not considered incomplete, but rather not likely to be significant (e.g., exposure of birds and mammals to surface contamination via dermal contact). In this case, the incidental ingestion pathway is more realistic and wildlife is unlikely to be directly exposed via dermal contact given dense outer coats or feathering (see Section 7.2.2.1 of the RI Report). Please also see the responses to Samantha Murray's specific comment #7 on page 64, George Humphreys' general comment #3 on page 78, as well as DFG general comment #1 on page 83.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Mr. George B. Humphreys (RAB Community Co-Chair) (continued)</i>		
10	In Section 7 (page 7-12), it is stated that one of the criteria for the selection of surrogate species is that the receptor have a <u>small relative body size</u> . Nevertheless, the fish-eating bird selected is the great blue heron, which is larger by orders of magnitude than other fish-eating bird species such as snowy egrets, grebes, and least terns. Page 7-15 mentions a large colony of <u>Caspian terns</u> , but fails to mention the nearby breeding colony of <u>least terns</u> which is one of the reasons for establishing the wildlife refuge.	The great blue heron is an appropriate representative species for fish-eating birds, and was selected as a representative species on the basis of several lines of reasoning, only one of which was relative body size. The presence of least terns near IR Site 2 is described in Section 2.10 of the RI Report. However, Section 7.2.4.3 of the RI Report has been modified to indicate the presence of least terns in the vicinity of IR Site 2. This does not alter the conclusion that the great blue heron is an appropriate representative species for fish-eating birds.
11	<u>Human Health Risk Assessment (HHRA)</u> The Conceptual Exposure Pathway Model for the HHRA is shown in Figure 6-5. As noted above in comment 9, waste materials can be brought to the surface by ground squirrels or released by breaching of containment by the seismic event. Also, as noted in comment 7, the plume of contaminants appear to be entering the wetlands currently. Thus, dermal contact and ingestion by the site ranger/tour guide and site visitor to subsurface soils are credible pathways. Also, dermal contact, and inhalation of VOC's from groundwater by the Range/Tour Guide, site visitor and construction worker should have been considered.	As specifically provided in CERCLA guidance, the purpose of the risk assessment is not to assess each and every conceivable receptor and pathway combination, but to evaluate reasonably likely exposure scenarios based on likely future use and likely site activities/ characteristics. The Construction/Excavation Worker and Habitat Restoration Supervisor are already assumed to be exposed to groundwater (via dermal contact). Also, the vapor intrusion assessment evaluates potential risks from indoor exposure to VOCs in soil gas and groundwater. Other receptors (i.e., Site Visitor and Ranger/Tour Guide) are not likely to be exposed to groundwater at the site, and the dermal contact with groundwater pathway is reasonably not evaluated for these receptors. Please also see the responses to U.S. EPA specific comments #44 and #48 on pages 26 and 28, respectively.
12	The HHRA assumes that the park range/tour guide spends only one hour per day outdoors at the site. If one ranger give indoor lectures and another conducts walking tours, the latter could spend up to 8 hours per day exposed to contaminants. As the adjacent planned golf course/convention center develops, it is easy to contemplate nature tours at the wildlife refuge becoming quite popular with conference attendees, non-golfing spouses and children. The report considers the doses received by the park range/habitat restoration supervisor, but not the workers being supervised. These workers might very well be immersed in the pond sediments and water while restoring the wetlands. This could include dermal contact while replanting native cordgrass, eradicating non-native species etc. Such activities could go on for years as the habitat is restored. Exposure could be for longer periods than the supervisor.	Please see the responses to U.S. EPA specific comments #44 and #48 on pages 26 and 28, respectively, DTSC HERD specific comment #21 on page 45, Dale Smith's specific comment #6 on page 73, and George Humphreys' specific comments #9 and #11 on pages 79 and 80, respectively.

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Mr. George B. Humphreys (RAB Community Co-Chair) (continued)</i>		
13	<p><u>Background Contaminants</u>                      The report attempts to explain away human health and ecological risks by using China Camp State Park concentrations of certain contaminants and comparing them to levels found at Site 2. It should be noted that soils and sediments at China Camp could be contaminated by releases (petroleum, PAH's, organic compounds, and vanadium) from the oil refineries at Richmond and Oleum across the Bay from China Camp. Also, there was a lead smelter which was operated for many years at Selby by the American Smelting and Refining Co. (ASARCO). The lead smelter received lead concentrates in the form of lead sulfides. There was a 300-ft stack which discharged gases from sintering operations. Lead discharged from the stack was reported in the 1950's to be killing horses in Solano County from depositions there. Also, the lead sinter was smelted in a blast furnace. The slag from the blast furnace, containing zinc and some lead, was dumped into the Bay near Carquinez straits. During off-share wind flow conditions, lead in the stack discharge would have been directed toward Marin County and China Camp.</p>	<p>Please see the responses to U.S. EPA specific comments #56 and #63 on pages 30 and 32, respectively, DTSC HERD general comment #2 on page 39, Samantha Murray's specific comment #23 on page 69, and George Humphreys' general comment #2 on page 75.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Mr. George B. Humphreys (RAB Community Co-Chair) (continued)</i>		
14	<p>On pages 5-84 and 6-38, the presence of RA-226 and RA -228 is attributed to the presence of naturally occurring uranium and thorium. This explanation appears disingenuous because of the known discharge of radium paints and other radium wastes (rags, paint brushed) into the Site-2 land fill. Also, radium wastes from decontaminating Building 5 storm drains were reportedly discharged into the Site-2 landfill. Radium was extracted from uranium ores, some of which (like pitchblende) also contained thorium. Thus, the presence of RA-226, RA-228, uranium and thorium would be expected in the radium wastes discharged into the landfill. Further, some radium was discharged from Building 5 into the seaplane lagoon through the storm drain. As described in the report, dredgings from the seaplane lagoon were dumped in the wetlands area of Site 2. Thus, radium would be expected to be present in the wetlands sediments.</p>	<p>The RI Report specifically acknowledges the likely contribution of Ra-226 from past disposal practices (i.e., related to the disposal of radium painted dials and associated wastes). However, Ra-228 is not specifically associated with any known waste stream at IR Site 2. Similarly, the radionuclide of concern in Seaplane Lagoon is principally Ra-226, and there is no conclusive evidence that dredge material from Seaplane Lagoon that was disposed at IR Site 2 would have necessarily contained radionuclides. Specifically, the dredge material deposited at IR Site 2 from Seaplane Lagoon originated in the southern portion of the lagoon. The majority of contamination in the lagoon is concentrated in the northern portion, nearer the storm/process water system outfalls. The discussion of naturally occurring radionuclides and radioactive decay processes provided in Section 5 (and Section 8) highlights potential mechanisms that could be responsible, at least to a degree, for the presence of certain compounds identified at the site. The referenced discussion in Section 6 specifically highlights the potential uncertainty associated with background/ambient levels of radionuclides. Radionuclides were evaluated appropriately through a detailed sampling and analysis plan implemented at the site, including in the wetland area. Radionuclide data were incorporated into the discussion of contaminant nature and extent and risk, and, as indicated in Section 8 (see Tables 8-1 and 8-2), radionuclides have not been discounted as potential risk drivers at the site.</p>
15	<p><u>Vapor Intrusion Screening HHRA</u> On page 6-10 in discussing Tale 6-15, the report says that <u>benzene</u> exceeds the screening level by a factor of 1.6. Actually, this should be a <u>factor of 16</u>. Similarly, the exceedance for vinyl chloride is <u>cited as 2.5</u>, whereas from Table 6-15 it should be a <u>factor of 25</u>.</p>	<p>Table 6-15 and text in Section 6 of the RI Report have been revised as suggested to accurately convey the magnitude of vapor intrusion screening level exceedances.</p>

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<b><i>General Comments from Dr. Charlie Huang (Department of Fish and Game [DFG]) – dated 2/28/2006</i></b>		
1	Overall the document is clearly written and provides useful illustrations. All major components of the ERA are included. It may be useful to include pictures of the representative plant and invertebrate samples collected. Also, a table providing a listing of the types of species collected at each sampling location would improve the report and assist in the interpretation of data.	This comment is noted and appreciated. Representative pictures of plants that were collected from the site have been added to the field summary report in Appendix B of the RI Report. However, given that only generally small volumes of several tissue types (e.g., terrestrial, benthic, and aquatic invertebrates, mammals, and fish) were collected, the table suggested in this comment would likely not be highly informative and has not been included.
<b><i>Specific Comments from Dr. Charlie Huang (DFG) (continued) – dated 2/28/2006</i></b>		
2	Page 7-21, <i>Site-Specific Bioaccumulation Bioassays</i> : The discussion of <i>Macoma</i> bioaccumulation tests provides no evidence from the literature or other sources that a 28-day exposure is sufficient for these organisms to reach steady-state concentrations of bio-accumulative compounds. Data from the United Heckathorn Superfund Site suggest that it is not. At that site, dichlorodiphenyltrichloroethane (DDT) tissue concentrations in <i>Macoma</i> exposed to site sediment of 28 days were about half of those in <i>Macoma</i> exposed for 90 days (U.S. EPA 1994). While it is true that in general field collected organisms have concentrations similar to laboratory <i>Macoma</i> , this trend does not hold for the bio-accumulative compounds that are of the most concern, including DDTs, PCBs, and mercury. In addition, there are apparent differences for a number of metals, including cadmium, chromium, and lead, in aquatic benthic invertebrates compared to laboratory <i>Macoma</i> .	The Navy has previously responded to similar comments on other Navy sites (e.g., Seaplane Lagoon and Hunter's Point Shipyard). The 28-day exposure duration is sufficient to evaluate uptake and support remedial decisions making at Navy sites, including IR Site 2. Furthermore, the procedures followed are consistent with standards promulgated by U.S. EPA and the U.S. Army Corps of Engineers, and provide data that are comparable to many previous studies, including those conducted at other Bay Area Navy sites and major navigation projects.
3	Page 7-54, Section 7.4.5: A number of factors that contribute to uncertainty were not adequately addressed in this section. First, no attempt is made to account for the potential additive or synergistic effects of multiple contaminants. Second, the interaction of non-contaminant stressors with chemical stressors in the receptors of concern is not discussed.	The Navy has reviewed the uncertainty discussion referenced in this comment and updated it with additional details as suggested.

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Specific Comments from Dr. Charlie Huang (DFG) (continued)</i>		
4	Page 7-54, Section 7.4.5: The Navy has completed a credible effort for validating potential COPEC doses to selected receptors by completing soil/sediment and tissue measurement at IR Site 2. This study provided site specific concentrations for contaminants in order to check and verify the predictions made for certain receptors and pathways presented in the ERA. It should also have included the other components of the risk equation, namely the life history characteristics of the receptors to fully evaluate the "exposure" part of the risk estimate. These life history parameters, although often provided in the literature, can vary with site-specific conditions. Plant cover, plant distribution, quantity of available food, overall habitat quality and availability are some of the factors that can significantly affect the numbers and distribution of receptors. The Navy should discuss the uncertainty in this part of the exposure estimates that ultimately can have a great effect on the overall risk to site receptors.	The Navy has reviewed the uncertainty discussion referenced in this comment and updated it with additional details as suggested.
5	Page 7-54, Section 7.4.5: Since groundwater in IR Site 2 is hydrologically connected to surface water in San Francisco Bay and is tidally influenced, there is potential for migration of contaminants from IR Site 2 to the aquatic environment and selected aquatic receptors, either by surface runoff or subsurface flow. Please address this concern in Section 7.4.5.	The Navy has reviewed the uncertainty discussion referenced in this comment and updated it with additional details as suggested. Please also see the responses to DTSC HERD specific comment #34 on page 47, Samantha Murray's general comment #12 on page 60, and U.S. EPA specific comment #62 on page 32.
<i>Conclusions from Dr. Charlie Huang (DFG) – dated 2/28/2006</i>		
1	DFG-OSPR generally accepts the conclusion of the ERA in this RI report. As detailed above, the report has several areas of concern to DFG-OSPR that should be addressed. DFG-OSPR recommends that the Navy provide a revised report that clearly addresses these concerns.	This comment is acknowledged. Please see the responses to individual DFG comments. A revised RI Report has been provided.
2	The line-of-evidence analysis should be revised based on comments herein. The document should more clearly highlight contradicting or complementary lines-of-evidence for each representative species.	The Navy has reviewed the lines-of-evidence analysis for each representative species and has revised these as suggested.
3	While the bioassays addressed the possible additive, synergistic, or antagonist interactions among contaminants in soil/sediment, the uncertainty discussion in the document included no discussion of such interactions affecting toxicity to birds and mammals. Please provide this discussion in the uncertainty assessment (Section 7.4.5).	The Navy has reviewed the uncertainty discussion referenced in this comment and updated it with additional details as suggested.

**Responses to Regulatory Comments on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands,  
Alameda Point, California [dated December 8, 2005] (Continued)**

Comment Number	Comment	Response
<i>Conclusions from Dr. Charlie Huang (DFG) (continued)</i>		
4	Ecological PRGs for terrestrial organisms should not be finalized until it is verified that these soil concentrations are protective of aquatic environment (i.e., the suspended sediment/surface water drainage exposure pathway).	This comment is noted. Remediation goals will be developed properly during the feasibility study stage to take into account necessary risk mitigation, and will provide suitable levels of protectiveness for appropriate receptor groups. .

**ATTACHMENT A**

**ATTACHMENT A**  
**ABS d Values Used for the Alameda IR Site 2 Human Health Risk Assessment**

Chemical Name	U.S. EPA, 2004 <sup>1</sup>	Reference	DTSC, 1999 <sup>2</sup>	Reference
<b>Metals</b>				
Arsenic	0.03	Wester, 1993 <sup>7</sup>	0.03	Wester, 1993 <sup>7</sup>
Cadmium	0.001	Wester 1992 <sup>4</sup> , U.S. EPA, 1992 <sup>10</sup>	0.001	Wester, 1992 <sup>4</sup>
Chromium (VI)	--	--	0	
other metals	--	--	0.01	SCAQMD, 1988 <sup>12</sup>
<b>Chlorinated Insecticides</b>				
Chlordane	0.04	Wester, 1992 <sup>5</sup>	--	--
DDT	0.03	Wester, 1990 <sup>3</sup>	--	--
Lindane	0.04	Duff and Kissel, 1996 <sup>11</sup>	--	--
chlorinated insecticides <sup>(a)</sup>	--	--	0.05	Wester, 1990 <sup>3</sup> , Wester, 1992 <sup>5</sup>
<b>Herbicides</b>				
2,4-Dichlorophenoxyacetic acid	0.05	Wester, 1996 <sup>9</sup>	--	
<b>Pesticides</b>				
pentachlorophenol	0.25	Wester, 1993 <sup>8</sup>	0.25	Wester, 1993 <sup>8</sup>
<b>Dioxins</b>				
TCDD and other dioxins	0.03, 0.001 <sup>(c)</sup>	U.S. EPA 1992 <sup>12</sup>	0.03	U.S. EPA 1992 <sup>10</sup>
<b>Polyneuclear Aromatic Hydrocarbons (PAHs)</b>				
Benzo(a)pyrene and other PAHS	0.13	Wester, 1990 <sup>3</sup>	0.15	Wester, 1990 <sup>3</sup>
<b>Polychlorinated Biphenyls (PCBs)</b>				
Aroclors 1254/1242 and other PCBs	0.14	Wester, 1993 <sup>6</sup>	0.15	Wester, 1993 <sup>6</sup>
<b>Semi-Volatile Organic Compounds (SVOCs)</b>				
SVOCs	0.1 <sup>(d)</sup>	--	--	--
other organics	--	--	0.1 <sup>(d)</sup>	SCAQMD, 1988 <sup>12</sup>
<b>organophosphates</b>				
organophosphates <sup>(b)</sup>	--	--	0.25	Cal/EPA OEHHA <sup>2</sup>
<b>Free cyanide</b>				
Free cyanide	--	--	0.1	SCAQMD, 1988 <sup>12</sup>

**Notes:**

ABS\_d values used in Alameda IR Site 2 HHRA are all highlighted.

"--" indicates that an ABS value was not specified.

- (a) Chlorinated insecticides are not specifically defined in this reference; therefore, it is assumed that this ABS\_d value applies to the chlorinated insecticides listed in Method EPA SW 846-8081 (<http://www.epa.gov/sw-846/pdfs/methdev.pdf>)
- (b) Organophosphate compounds are not specifically defined in this reference.
- (c) ABSd value for this class of compounds if soil organic content at the site is greater than 10%.
- (d) This value is the same as the U.S. EPA default value for SVOCs (0.1). It is assumed that this value applies to any SVOCs that are not specifically identified by DTSC.

**References:**

1. U.S. EPA, 2004. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)
2. DTSC, 1999. Preliminary Endangerment Assessment, Guidance Manual
3. Wester R.C., 1990. Percutaneous Absorption of [<sup>14</sup>C] DDT and [<sup>14</sup>C] benzo(a)pyrene from soil. *Fundamental of Applied Toxicology*, 15:510-516.
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5. Wester R. C., 1992. Percutaneous Adsorption of [<sup>14</sup>C] Chlordane from soil. *Journal of Toxicology and Environmental Health*, 35: 269-277.
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11. Duff and Kissel, 1996. Effect of soil loading on dermal absorption efficiency from contaminated soils, *Journal of toxicology and environmental health* 48: 93-106.
12. South Coast Air Quality Management District (SCAQMD), 1988. Multi pathway health risk assessment input parameters guidance document prepared by clement associates.