N00236.000073
ALAMEDA POINT
SSIC NO. 5090.3

Enclosure **March 20, 2001**

U.S. EPA Preliminary Review of the "Draft Remedial Action Work Plan for Operable Unit 5, Alameda Point, Alameda, California", dated January 18, 2001

General Comments:

1. Marsh Crust and Risk Issue. This RI Work Plan assumes the marsh crust will not be remedied under this program and that institutional controls will be sufficient to protect human health from exposure to the marsh crust. However, a baseline risk assessment must include the risk to human health posed by all of the contaminants present at the site, including the contaminants present in the marsh crust. It is possible that cumulative risk from all sources may exceed risk-based goals for the site, while risk from other sources alone may not exceed these goals. In this case, remediation of these other sources may be necessary to prevent excessive risk to the public and/or the environment. It is up to the remedial project managers to make a risk management decision regarding whether remedial action is necessary at the site due to the risks posed by the site and they must have a complete understanding of the total risks posed by the site. Please revise the work plan to assure that sufficient data is available to the risk assessors during the preparation of the site baseline risk assessment to quantify all of the risks posed by contamination at the site, including the risk posed by the marsh crust.

2. Proposed PAH Soil Sampling Locations. The RI Work Plan proposes a shallow soil sampling approach for polycyclic aromatic hydrocarbons (PAHs) that does not appear to recognize previous sampling results (and elevated risks in the northwestern portion of the Coast Guard Housing Area) and does not establish soil sampling locations that are based upon possible cleanup concentrations that must be evaluated in the Feasibility Study (FS). For example, U.S. EPA has indicated to Navy staff working on the OU5 work plan, that this agency believes an acceptable PAH cleanup concentration will be within the range of 0.5 to 1.0 mg/kg (or ppm) Benzo(a)Pyrene (BaP) equivant. Based on this input, the Navy should have designed an investigation sampling plan that would characterize the extent of PAH contamination for various cleanup concentrations proposed, and which would be subsequently be analyzed/compared in the FS. Please clarify how the sampling locations were selected and how the analytical information will be used in the FS.

3. Ecological Risk. No further ecological risk assessment is proposed for this operable unit; a screening-level ecological risk assessment has already been performed based on previous data. However, it is not clear whether this screening-level ecological risk assessment, which this text only summarizes, has already been reviewed and approved by the agencies. Please clarify this.

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▸ 9

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4. Ambient Concentrations Risk Issue. According to the work plan, all chemicals, and not just metals, will be compared to ambient concentrations. The Navy indicates that constituents detected in site soils will be compared to analytical results for soil samples collected from unimpacted areas at Alameda Point (termed "ambient" conditions instead of background or reference conditions). Chemicals that are present at levels the Navy believes to be representative of ambient (e.g., arsenic) will then be screened out of the risk assessment. It is inappropriate to screen out constituents of potential concern (COPCs) due to ambient contamination as the risk presented by ambient (and/or background) contamination is an important datum to be considered by the decision makers when they select an overall remedy for the facility. The Navy should present the total risk to the receptors present at the site due to all hazardous constituents present at the site.

   The Navy may present, in a separate section, a discussion of the portion of the total risk at the site that results from what the Navy believes is its contribution to the site contamination (e.g., the portion of the actual risk due to Navy contamination and the portion of the risk due to ambient contamination). This information will likely be considered by the decision makers in selecting a remedy for the site. Please revise the risk assessment to restore all COPCs that were eliminated based on a screening for ambient contamination.

5. Ambient Concentrations of Metals in Soil. Ambient concentrations for metals in soils will be determined from concentrations of metals in bay sediments. This is not appropriate. The bay sediments may have been subjected to additional contamination over the years. Or, the bay sediments may be less impacted today than they were when land was being created at Alameda Point due to better waste management practices practiced today. Using current sediment data has the potential to artificially elevate (or reduce) ambient metals concentrations. Please revise the work plan to include collecting ambient inorganic soil samples from locations at Alameda Point that were created during the same period as OU 5, but which have not likely been impacted by site operations.

6. Lead in Soil. Extremely high lead concentrations (9,440 and 47,100 milligrams per kilogram [mg/kg]) have been detected in two soil samples collected from residences at OU 5. This RI Work Plan does not propose further investigation of soils for lead. EPA Region 9 Preliminary Remediation Goals (PRGs) list a residential soil level for lead of 400 mg/kg, and an industrial soil level for lead of 750 mg/kg. Please revise the work plan to indicate that all composite soil samples collected from the 0 to 2' below ground surface (bgs) interval in OU 5 will be analyzed for lead or show why this is not necessary (i.e., if a separate effort is underway to evaluate lead concentrations in soil at OU 5).

7. Groundwater/Surface Water Interaction Potential. A figure showing historical depths to groundwater should be included. In general, interactions between surface water and groundwater are not well described in this report; additional descriptions should be added

to clarify site-specific conditions. Text describes the land surface at OU 5 as 10-15 feet above sea level (Section 2.2.2, Page 2-5). Groundwater is expected to be found at about 8 feet below ground surface (bgs) (Section 6.2.1, Page 6-3). This means that shallow groundwater is from 2-7 feet above sea level; thus, it is not unreasonable to expect groundwater-surface water interactions. This will be important in determining fate and transport of mobile site contaminants such as benzene. Also, if there is a risk of benzene or other contaminants releasing into the Oakland Inner Harbor, it should be described.

8. Surface Water Runoff. Text and figures should show the surface water runoff paths at this operable unit, including ditches, storm and sanitary sewers. Text implies that sewers discharge to the north, but doesn't directly state whether they discharge to the Oakland Inner Harbor. The RI Work Plan should state whether any of these features discharge to the bay. If so, there may be ecological effects to consider. Please revise the work plan to include a figure showing the runoff paths and stormdrains in OU 5.

9. Features to Show in Figures. Some additional features should be shown in at least one figure in this report. Specifically, Figure 5-2 (Page 5-18) shows Parcel 182, as well as the three strata (areas) to be used for the remedial investigation, but there is no figure showing the boundaries of Parcels 181 and 183. The delineations between Operable Unit 5 parcels should be shown in a figure, preferably in an earlier section (one suggested section is Section 1.2, Site Location and Description). Other features described in the text should also be shown in at least one figure. This includes former nearby facilities (Pacific Coast Oil Works, the unspecified manufactured gas plant), and current facilities (Todd Shipyard). Although these facilities are described (including approximate location) in the text, they should also be shown in figures, so that the relationship with these features is clear.

10. Previous Data. Data from previous investigations are not included in the RI Work Plan, although this data would be useful to verify how previous data was analyzed to determine the need for further sampling and analysis. Please revise the work plan to include as much of the previously-collected data as practicable. U.S. EPA also requests that the Navy include in the revised work plan the widely circulated figure entitled, "PAH Distribution in Soils Site 25", that illustrates the BaP equivalent concentrations in soils < 2-feet below ground surface and approximately 7- feet bgs.

11. MTBE Data. As MTBE is an indication of a relatively recent release of gasoline, please indicate which wells MTBE was detected in.

Specific Comments:

1. **Section 1.1, Page 1-2.** Text states that "Collection of groundwater and soil gas samples will only commence if the average depth to groundwater is 5 ft or greater, in order to assure that the vadose zone is sufficiently deep for accurate measurement of constituents

in soil gas." Groundwater at this site is generally expected to occur at about eight feet below ground surface (bgs) (Section 6.2.1, Page 6-3). Shallow groundwater could be contaminated. Please explain why groundwater will not be collected if it is present at less than five feet below ground surface (bgs).

Also, please explain why soil gas will not be collected under these circumstances; other text states that soil gas samples will be collected from two feet bgs at all locations where sampling is planned (Section 6.3.1, Page 6-4). This is confusing; the rationale for not collecting soil gas if groundwater is shallow should be explained, and reconciled with the text in Section 6.

2. **Section 2.1, Pages 2-1 and 2-2.** The RI Work Plan refers to site features such as the railroad mole, Todd Shipyard, railroads, and roads; these features are difficult to locate in Figure 1-3 (Page 2-3). These features, which are fundamental to understanding the vicinity of Operable Unit 5, should be identified in at least one figure; aerial photographs should be enlarged to make these features more visible, if needed. Also, text refers to a stained area shown in a 1966 aerial photograph, but this photo was not included as a figure. Please show this 1966 aerial photograph.

   Text mentions an extensive system of sanitary and storm water sewers that underlie OU5 and drain from south to north. Please state whether this system drains directly into the Oakland Inner Harbor. This system should be shown in a figure to clarify where these drains are and where they discharge.

3. **Section 3.1.1 (Metals), Page 3-5.** According to this section, very high concentrations of lead were found in two soil samples collected from specific residences (9,440 and 47,100 milligrams per kilogram [mg/kg]). Regardless of the source of the soil contamination (paint chips in soil, or otherwise), lead concentrations in soils at these residences should be investigated further and remedied if necessary. The exact location where these soil samples were collected should be specified, rather than just the address; specifically, where in the yard were these samples collected. The work plan should outline how this issue will be investigated. Please revise the work plan to indicate that all composite soil samples collected in the 0 to 2' bgs interval will be analyzed for lead.

4. **Section 3.3.3, Page 3-9.** According to this section, there were at least three potential sources of fill used at this operable unit, which were placed at OU5 at different times. Please revise the RI Work Plan to specify the dates of filling if they are known.

5. **Section 5.1, Page 5-2.** This text outlines how existing PAH data is used to define concentration gradients. These gradients are then used to define areas (strata) with generally similar concentrations. By grouping these areas, it appears that fewer total samples will be needed. The work plan should clarify the purpose of dividing the site into these three general areas, or strata (equivalent to >6 ppm benzo(a)pyrene [BAP];

>1.5 and <6 ppm BAP; and >1 and less than 1.5 ppm BAP, as shown in Figure 5-1). None of these areas generally contain less than 1 ppm of equivalent BAP. The EPA Region 9 PRG for BAP is 0.062 mg/kg for residential soils, per the EPA Region 9 web page at www.epa.gov/region09/waste/sfund/prg/index.htm. Hence, it appears that all soils will exceed the upper limit for residential soils. Please explain how and why these concentrations were used to divide OU 5 into these strata.

6. **Table 5-2, Page 5-8.** TheNavy proposes to check the vertical profile of VOC concentrations in groundwater. However, the SOP for collecting this VOC concentrations by depth in groundwater is not present in Appendix H. Please revise the RI Work Plan to include an SOP for collecting groundwater samples at discrete elevations within the aquifer.

   The decision rule in this table states that if the marsh crust is established to be the source of benzene contamination in groundwater, then no remediation will be recommended. However, the decision to remediate must be based on the risk to human or environmental health. If a COPC, or combination of COPCs, is causing an unacceptable risk, then the situation should be remedied to reduce that risk to acceptable levels. Revise this decision rule such that it is based on risk.

7. **Table 5-3, Pages 5-9 to 5-11.** This table shows the next element in the OU 5 RI risk decision process. The problem statement includes that PAHs and benzene are known to be present, but acknowledges that other COPCs of petroleum origin could also be present. This problem statement should include that metals can also be present in waste of petroleum origin. The statements with regard to comparison to ambient concentrations should be revised to show how ambient concentrations will be used, including that: (1) all COPCs will be included in the risk assessment; but that (2) ambient concentrations may be considered when determining the remedial action to be taken. It is suggested that text describing how strata (general areas of PAH concentrations) will be defined be modified to reflect that all of the residential areas appear to have soil concentrations in excess of EPA Region 9 residential soil PRGs.

8. **Table 5-3.** The last box in Step 3 states that "Exposure assumptions reflective of OU-5 housing residential use" will be used as inputs to the decision. Please state the exposure assumptions.

   Step 4 of this DQO process states "For design purposes, four to five housing complex/open areas (each approximately ½ acre in size) will be the minimum size of decision areas." Decision area size should also be based on data necessary for remedial action. Since the text states that these areas are considered homogeneous for PAH contamination, this implies that all of the ½ acre area will have to be remediated if the average concentration is above action limits because that is the decision area size. This also implies that hot spots, which in of themselves could pose unacceptable risks to some

receptors, might not be remediated if they were averaged with samples with lesser contaminant concentrations. Revise the work plan to discuss the acceptability of ½-acre exposure areas considering typical recent residential developments in Alameda and to discuss how hot spots will be assessed to determine if they pose unacceptable risks to human or ecological receptors.

Step 5 of the DQO process is to Develop a Decision Rule. The text should include an option if human health risk is found to be unacceptable.

9. **Section 5.2.1.1, Pages 5-15 and 5-16.** In the last paragraph in this section, the text states that "An RBC was developed for napthalene." Please revise the work plan to show how the RBC was developed or provide a reference to where the RBC was developed.

10. **Section 5.2.2.1, Page 5-19.** Text describes how housing areas (HAs) will be aggregated to determine a mean exposure point concentration (EPC). While means (averages) may be used for EPCs, a reasonable maximum exposure (RME) concentration is also generally used to show what exposures could occur if, for example, an individual is exposed to concentrations greater than the average, but within the range of probable exposure. Please revise the work plan to include a methodology for developing a RME concentration to be used in the risk assessment.

11. **Section 5.2.3, Page 5-25.** This RI Work Plan assumes that the only contamination of interest originates from the contaminated fill placed on the site decades ago. Other, more recent sources are also possible, including, but not limited to, spills, or lead-based paint. Specifically, the sample location strategy described in text on this page states that random sample locations will be identified within each HA, after unavailable areas are excluded (e.g., paved surfaces, or where a building is located). If the fill material is the only source, this could be an acceptable strategy. However, there are other possible sources. Surface soil samples should be collected from points where contaminants would be expected to accumulate, such as low spots in the topography, to ensure that the potential for alternate sources is also evaluated. Please revise the work plan to include sampling at locations where contaminants would be expected to accumulate or show why this is not necessary.

12. **Figure 5-5, Proposed Soil Sampling Locations, Page 5-28.** According to this figure, soil sampling locations will be determined randomly throughout the housing area. It appears from the figure that multiple samples will be collected adjacent to one another (e.g., HA6, 43), while other larger areas will be characterized based upon a limited sample size. Please revise the RI Work Plan to indicate how the sample locations were selected and provide justification for the procedures used.

13. **Section 6.2.1, Page 6-3, and Section 6.3.1, Page 6-4.** Text here should reference specific figures showing proposed sample locations for groundwater and soil gas; these

figures are included in the Field Sampling Plan (FSP), although this text does not reference the FSP. Please provide this internal reference.

14. **Appendix B, Section 3.2, Page 3-5.** The text states that "A distribution shift test is used to determine whether site data are systematically greater that reference/ambient data." Please provide a better description of the "reference/ambient data," and provide a reference for the source of this data.

15. **Appendix C, Table C-4, Sample Containers, Preservatives, and Holding Times.** For the groundwater analysis of nitrate, Table C-4 cites Method 9056 and indicates both that no preservative should be used, and that the holding time is 28 days. According to Method 9056, "Analyze samples as soon as possible after collection. Preserve by refrigeration at 4 degrees Celsius." The general holding time for unpreserved nitrate samples is 48 hours (not 28 days) and cooling of samples to 4 degrees C is necessary. Please revise the text to meet method requirements.

    For the soil analysis of Oil and Grease, Table C-4, cites Method 418.1. This method uses Freon, which has been phased out by the EPA due to its ozone-depleting characteristics. Method 1664 is now being used by most laboratories for Oil and Grease analysis, because the method uses n-hexane as a replacement to Freon. Although Method 418.1 can be used for Oil and Grease analysis, Method 1664 is recommended.

16. **Appendix E, Quality Assurance Project Plan.** This QAPjP was checked against EPA Region 9 Guidance for Preparing Quality Assurance Project Plans for Superfund Remedial Projects, which states that a project schedule/sequence of milestones should be included; neither the QAPjP, WP, or FSP includes a project schedule. Please revise the QAPjP to include a schedule.

17. **Appendix H, Groundwater Sampling SOP, Section 4.2.1, Page 5.** This section states that if non-dedicated groundwater sampling equipment is used, that groundwater samples will be collected from the least contaminated well first, and then progress through increasing degrees of contamination until the most contaminated well is the last one sampled. This assumes that the degree of contamination in each is known. To assist field personnel, please revise the FSP to include a suggested order for collecting the groundwater samples.

18. **Appendix H, Groundwater Sampling SOP, Section 4.2.2.10, Page 7.** Text states that slowly recharging wells will be defined in the project work plan. The definition for a slowly recharging well was not found in the work plan; please add it to the next draft.

19. **Appendix H, Borehole Abandonment SOP.** The borehole and well abandonment SOP does not discuss abandonment of the Hydropunch temporary wells. Instead, the SOP is a boilerplate of general abandonment procedures for a variety of conventional monitoring

well construction types; the proper abandonment of shallow small diameter water table wells is not described. Please describe the abandonment procedures which will be followed for the shallow Hydropunch wells.

20. **Appendix H, Soil Organic Vapor Sampling SOP.** The SOP describe soil organic vapor sampling (SOVS) activities in generic terms, with no specific information on how the sampling will actually be conducted. For example, the SOP fails to mention performance of depth versus concentration profiles to determine the optimum sampling depth. Further, with regard to the purging procedures, it references the work plan rather than a specific volume based on depth; similarly, this SOP provides a list of all the potential sample collection devices, rather than specifying the type that will be used for this project. This SOP should provide specific SOVS sampling activities planned at this operable unit.

21. **Appendix H, Cone Penetrometer Testing (CPT) and Hydropunch Groundwater Sampling SOP.** This SOP describes two different sampling techniques, which use either a CPT rig, or a Hydropunch rig, depending on which kind of testing is being performed. Both techniques use different equipment, and collect different types of data. It is not clear why these two methods are presented in a single SOP. Additionally, this SOP is generic and does not provide a specific description of proposed activities.

    Groundwater levels will be measured after groundwater sample collection (Page 10 of this SOP). The SOP states, "... allow enough time for the groundwater to fill the sample chamber and push rods." And "After static water level conditions are reached ... " prior to sample collection. The SOP should describe a time period, or water level measurements that will be used, to determine that static groundwater elevations have been attained. If groundwater elevation data is collected prior to reaching static water level conditions, the data collected will not be representative of actual groundwater flow directions.

22. **Appendix H, Surface and Subsurface Geophysics SOP.** The SOP provided does not cover any one geophysical method with specific information, but provides only a general description of several geophysical techniques. There is no method selected, or site-specific information provided, to show how geophysical surveys will be conducted. Please provide specifics for the work that is being proposed, so that the techniques and field methods proposed can be evaluated.

Minor Comments

1. **List of Figures, Page iv.** Page numbers are absent for some figures, and incorrect for others. For example, no page numbers are listed for Figures 5-2 and 5-3. Also, Figure 5-6 is not on Page 5-2, as shown; it is on Page 5-29. All such errors should be corrected.

2. **Figure.** Figure 1-3 should be renumbered to show that it is, in fact, part of Section 2 and not part of Section 1 of this report.

3. **Table 5.3.** Step 3 of this DQO process includes a reference box for SQ3; however, there is no SQ3 in the text. Please correct the work plan.

4. **Appendix B, Section 1.0, Page 1-1, and Section 2.2, Pages 2-3 and 2-4.** These sections contain incorrect references to the Work Plan text and tables. Please correct these references.

5. **Appendix H, Groundwater Sampling SOP, Section 4.2.2.6, Page 6.** The equation shown in this section is unreadable due to a printing error; this should be corrected in the next revision of this RI Work Plan.

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NOTES/COMMENTS:

Preliminary EPA Comments

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