



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 9410

March 1, 2001

Mr. Greg Lorton
Department of the Navy
Southwest Division
Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92132-5190

RE: Draft Field Sampling Plan Supplemental Remedial Investigation Data Gap Sampling for Operable Units 1 and 2 and Quality Assurance Project Plan, Alameda Point, Alameda

Dear Mr. Lorton:

EPA has reviewed the above referenced documents, prepared by Tetra Tech EM Inc. and submitted by the Navy on December 28, 2000. The Field Sampling Plan (FSP) was generally well written and with one notable exception reflected the agreements reached during the BCT data gap sampling scoping meetings.

We are surprised and disappointed that the Navy has not included soil gas sampling as discussed and agreed to at the scoping meetings. Soil gas samples are easy to obtain, are low-cost and are especially useful when taken concurrently and co-located with soil and groundwater samples. Soil gas data provide valuable information both for site characterization purposes and for assessing potential risks from vapor inhalation from subsurface contaminant sources. EPA feels that it is shortsighted of the Navy not to pursue the slight additional effort of soil gas sampling as part of this data gap sampling effort, and instead run the risk of needing to mobilize yet again in another sampling effort to obtain soil gas information.

The other issue that is not sufficiently addressed in the FSP concerns the chlordane release at Site 16, which was discovered during the UST 608-1 tank pull. The FSP appropriately describes proposed groundwater sampling around the vicinity of the tank. However, soil sampling was not addressed and must also be performed in the vicinity of the tank to determine the source of the chlordane and determine the lateral and vertical extent of the contamination.

In addition to these two major comments, EPA is providing general and specific comments on

the FSP and QAPP. Please call me at (415) 744-2367 if you have any questions regarding our review of the documents.

Sincerely,



Anna-Marie Cook
Remedial Project Manager

enclosure

cc: Michael McClelland, SWDiv
Andrew Dick, SWDiv
Mary Rose Cassa, DTSC
Brad Job, RWQCB
Dina Tasini, City of Alameda
Michael John Torrey, Alameda RAB Co-Chair
Jeff Raines, TechLaw Inc.

**EPA COMMENTS ON
DRAFT FIELD SAMPLING PLAN SUPPLEMENTAL REMEDIAL INVESTIGATION
DATA GAP SAMPLING FOR OPERABLE UNITS 1 AND 2**

GENERAL COMMENTS

- 1. Fixed-base Laboratory Confirmation:** The confirmation of the mobile laboratory analytical results using fixed-base laboratory analyses is a useful procedure for assessing the quality of the mobile laboratory analytical results. Please revise the FSP to indicate that fixed-base laboratory confirmation will take place for 10 percent of the groundwater samples analyzed using a mobile laboratory. In addition, please revise the FSP to describe how the 10 percent samples for confirmation analysis, for both OU-1 and OU-2, will be selected. The text does not reference procedures that will be followed to compare the mobile laboratory results to the fixed-base laboratory results. Please revise the FSP to identify the procedures that will be used to compare the mobile laboratory results to the fixed-base laboratory results and to describe the steps that will be taken if the fixed-base laboratory results indicate that the mobile laboratory results may have an unacceptable bias or otherwise may not be representative of contaminant concentrations in the aquifer.
- 2. Presence of NAPL:** While it is useful to determine whether the presence of NAPL in the subsurface is probable, it is even more important to find the locations of high solvent concentrations, regardless of whether the 1% of solubility rule-of-thumb applies or not. Any area with extremely high solvent concentrations is a good target for the types of removal actions proposed for removing DNAPL. EPA suggests that the investigative sampling proposed for Sites 4 and 5 should focus on any area of high solvent concentration, even if it does not appear to “qualify” as a DNAPL area.
- 3. The Collection and Use of Filtered Groundwater Samples:** The third paragraph on page B-3-3 of Appendix B states “[a]ll groundwater samples will be filtered in the field and analyzed at the on-site mobile laboratory using EPA Method 6010B.” As described in the U.S. EPA *RCRA Ground-Water Monitoring: Draft Technical Guidance* (EPA/530-R-93-001) dated November 1992, U.S. EPA does not recommend that groundwater samples used to determine statistically significant evidence of groundwater contamination be filtered in the field. Potential chemical changes that may occur during the filtering process could result in non representative soluble metals concentrations. If the turbidity of the groundwater samples is considered a problem, U.S. EPA recommends the use of low-flow rate groundwater sampling procedures, whenever possible. Please revise the FSP to propose the collection of unfiltered groundwater samples for metals analysis to determine statistically significant evidence of groundwater contamination. In addition, please revise the FSP to address how filtered groundwater sample analytical results will be used in the RI/FS process, if filtered groundwater samples will still be collected. The

FSP should address the adequacy of any proposed groundwater sampling and analysis for metals for the assessment of risk at the site.

4. **Presentation of Available Information:** The proposed sampling program is intended to address data gaps in the available site information. Although the sample types and locations were extensively examined during the scoping meeting of this workplan, without the benefit of figures that show proposed sampling locations with respect to known areas of contamination, it is difficult to assess the adequacy of the proposed data gap sampling program without frequent reference to other sources of site data. During the step-out procedures described in the FSP, site managers will make sampling decisions based on the data gap analytical results. Even though the document may seem slightly more unwieldy with the addition of the appropriate figures, the sampling decisions that are made could benefit from figures that show proposed sampling locations with respect to historical contaminant concentrations (i.e., contaminant plumes in groundwater and contaminated soil areas).
5. **IR Site 6 Monitored Natural Attenuation:** Monitored natural attenuation (MNA) was proposed in the Draft OU1 Feasibility Study as a potential remedial alternative at IR Site 6. Insufficient information was provided in the Draft OU1 Feasibility Study to verify that substantial natural attenuation of contaminants is taking place at Site 6. The Draft Field Sampling Plan (FSP) does not discuss or propose the collection of samples from IR Site 6 to be analyzed for natural attenuation parameters. Soil samples should be analyzed for total volatile and extractable hydrocarbons, aromatic hydrocarbons, and total organic carbon. Ground-water samples should be analyzed for dissolved oxygen, oxidation-reduction potential, pH, temperature, conductivity, alkalinity, nitrate, sulfate, sulfide, ferrous iron, carbon dioxide, methane, total petroleum hydrocarbons, and aromatic hydrocarbons.

SPECIFIC COMMENTS

1. **Section 4.1.4.1, page 4-4:** This section suggests that groundwater samples collected from IR Site 6 will be analyzed for semivolatile organic compounds (SVOC) in the mobile laboratory. Table C-1 does not indicate that samples from IR Site 6 will be analyzed for SVOCs. Please revise either Section 4.1.4.1 or Table C-1 to address this apparent discrepancy. In addition, it is not clear through review of the FSP whether the mobile laboratory is capable of analyzing groundwater samples for SVOCs. If any groundwater samples will be analyzed for SVOCs, the FSP, QAPP, and Appendix C will require revision to specify whether samples proposed for SVOCs analysis will be analyzed in the "fixed" or "mobile" laboratory.
2. **Section 4.1.4.2, page 4-4:** Section 4.1.4.2 states that three samples will be collected from each of the four multi-depth sampling locations at IR Site 6. The deepest sample

proposed in the FSP will be from the first sandy zone within the BSU at a depth of approximately 20 to 25 feet. No provision is provided in the FSP to continue the vertical delineation of contaminants if contaminants are detected in the 20 to 25 foot interval. Please revise Section 4.1.4.2 to describe what criteria will be used and what procedures will be followed to adequately delineate the vertical extent of contaminants at IR Site 6 if contaminants are detected in the lowest currently proposed sampling interval.

3. **Section 4.2.1, page 4-6:** The fourth paragraph of Section 4.2.1 of the FSP mentions that storm drains located on the east and west sides of the Fire Training Area (FTA) may have provided a preferential pathway for contaminants from the FTA to reach the surface water of San Francisco Bay. Depending on the flow conditions, the nature of the contaminants in the vicinity of the storm drains at IR Site 14, and aspects of the water chemistry between the storm drains and the San Francisco Bay, it is possible that contaminants from IR Site 14 may have been deposited in the sediments in the Bay in the vicinity of the storm drains. The FSP does not propose collecting any sediment samples from locations near the storm drain discharges in the Bay. While some off-shore sediment data exists, there do not appear to be any dioxin/furan data for the sediments located off-shore from the FTA. Please revise the FSP to account for the characterization of Oakland Inner Harbor sediments in the vicinity of IR Site 14, or show why this data is not needed or reference a report/work plan where this data will be gathered.
4. **Section 4.2.4.4, page 4-13:** The final paragraph of Section 4.2.4.4 mentions that four surface soil samples will be collected from the potential FTA south of the perimeter road. No discussion is provided regarding what steps will be followed if contaminants are detected in this potential FTA location
5. **Section 4.2.4.5, page 4-13:** It appears that the two storm sewer outfalls (Outfalls W and BB) that are described in Section 4.2.4.5 discharge into the Oakland Inner Harbor at off-shore locations. Section 4.2.4.5 and Appendix B-4 of the FSP propose plugging an upstream portion of the storm sewer above Outfall W and measuring any remaining flow at the downstream end to assess the rate of groundwater infiltration into the storm sewer from damaged sections. It is not clear how the rate of infiltration will be measured at the outfall location if this location is underwater. Also, it is not clear whether tidal influence, rainfall, currents in the bay, or the timing of the sampling following the plugging activity will influence the sampling approach that is taken to "determine the concentrations of chemicals infiltrating into the storm sewer." For example, if the outfall is submerged and the storm sewer is plugged during a rising tide it seems possible that the rate of flow measured at the outfall may not be representative of the rate of groundwater infiltration into the storm sewer. Similarly, concentrations of contaminants measured at the outfall discharge location could be largely representative of Bay water if flow within the pipe is significantly reduced and the tide is rising.
6. **Section 4.3.4, page 4-17:** EPA does not agree that the 1mg/kg PCB number cited in this

section is sufficiently protective of ecological receptors. (See EPA comments on the Site 15 Action Memorandum Addendum dated January 18, 2001).

7. **Section 4.4.4.3, page 4-21:** Soil sampling designed to adequately locate the source and extent of the chlordane release near UST 608-1 needs to be added to this section.
8. **Section 5.2.1.1, page 5-12:** The third paragraph of Section 5.2.1 states that "All appropriate monitoring wells within site boundaries will be sampled and analyzed for VOCs, TPH, and SVOCs to help meet the objectives for delineating contamination plumes in groundwater." Sections 5.2.1.1 and 5.2.1.2 also indicate that samples collected from monitoring wells will be analyzed for TPH, VOCs, and SVOCs. Table C-5 in Appendix C presents the proposed analyses for the samples that will be collected from OU-2A. Table C-5 does not indicate that any monitoring well samples will be analyzed for VOCs as suggested in Sections 5.2.1, 5.2.1.1, and 5.2.1.2. Considering the plume delineation objectives for OU-2A, it appears that Table C-5 should be revised to propose that groundwater samples from monitoring wells at OU-2A will be analyzed for VOCs. Please revise Table C-5 to indicate that groundwater samples collected from monitoring wells in OU-2A will be analyzed for VOCs.
9. **Section 6.2.1, pages 6-10 through 6-14:** The ribbon NAPL sampling described in Sections 6.2.1.1, 6.2.1.2, and 6.2.1.3 proposes to profile the potential presence of NAPL in monitoring wells "... (every two feet) for the entire length of the screened interval..." The FSP does not specify the length of the screened interval in the monitoring wells that will be subjected to the ribbon NAPL sampling. The length and position of the screened interval in these wells would be useful information for the field team conducting the ribbon NAPL sampling and for independently assessing the adequacy of the proposed ribbon NAPL sampling events. \
10. **Section 6.2.1.1, page 6-11:** The sampling design presented in Section 6.2.1.1 states that "[t]he subfloor beneath the Building 360 Clean Shop will be inspected to determine potential DNAPL source locations." The monitoring wells that will be sampled for evidence of NAPL are located northwest of Building 360 and the four initial direct-push locations proposed for the assessment of DNAPL in the area northwest of Building 360 are located even farther to the northwest of Building 360. The FSP apparently does not propose collecting samples from the subsurface below the DNAPL source area, if a source area is identified during the inspection of the sub-floor beneath the Clean Shop. Please revise the FSP to address the adequacy of the proposed sampling design relative to the identification of the DNAPL source location. If the sample locations that are currently proposed in the FSP will not adequately characterize the potential for DNAPL to be present in source areas beneath the Clean Shop, please revise the FSP to propose collecting at least one direct-push sample from directly beneath potential source areas (i.e., sumps, tanks, pipe joints, and cracks) that are identified during the inspection of the subfloor beneath the Clean Shop.

In addition, the fifth paragraph of Section 6.2.1.1 states that “samples for quantitative analysis will be collected ... for confirmation.” The numbered list following this text in the FSP then provides some information on assessing the vertical definition of the plume. The FSP does not specifically discuss how the confirmation samples will be used to assess the lateral limits of the source area or what steps may be taken if the confirmation samples indicate that additional sampling may be necessary. Please revise the FSP to provide additional information on the use and purpose of the confirmation samples that are proposed.

11. **Section 6.2.2., pages 6-14 through 6-21:** The third paragraph in Section 6.2.2 describes, in general terms, the groundwater sampling procedures that will be used at OU-2B. In describing the direct-push step-out procedures that will be used the text states “groundwater samples will be submitted to a mobile laboratory to generate screening level data for field team leaders to decide whether step-out sampling is necessary.” In the area-specific portions of the text throughout most of Section 6.2.2, the text then describes the location selection process for the “initial” direct-push sampling location while the “step-out” directions are presented on Figure 6-3. Several direct-push sampling locations are presented which, according to Figure 6-3, may not be subject to the step-out procedures described in Appendix B. For example, direct-push sampling locations S21-DGS-DP05, S21-DGS-DP06, S04-DGS-DP15, S21-DGS-DP07, S04-DGS-DP06, and S04-DGS-DP16 through DP19, and others, are not presented with step-out directions on Figure 6-3. It is not clear from the FSP whether the absence of step-out directions is merely a graphical error or whether the Navy is proposing that step-out sampling is not necessary at these locations. Please review the step-out sampling procedures proposed in the text of the FSP and on the appropriate Proposed Data Gap Sampling figures.
12. **Section 7.2.1:** The highest concentrations of VOC detected in OU 2C were located in the vicinity of a removed solvent tank located east of Building 5 near groundwater monitoring well M05-07 (not the waste solvent tank where steam-enhanced NAPL removal was demonstrated). While the Navy has not attributed the VOC release to this tank, it does appear to be a likely source of the VOC. Hence, it is not clear why the Navy is not considering a more thorough investigation of the site of the removed solvent tank. While the Navy believes the regional groundwater flow direction is to the northeast in OU 2C, DNAPL can, and does, move with the regional elevation gradient of the low permeability strata that it collects upon, in this case probably the Bay Sediment Unit (BSU). It is unclear what the gradient of the BSU is in the vicinity of the removed solvent tank, though it could easily be toward Seaplane Lagoon. It is also unclear what solvent was contained within in the tank and how this solvent was moved between the tank and Building 5, though it seems likely that a pipeline (buried or above ground) was used. Please revise the sampling plan to address i) what solvent was contained within the removed solvent tank, ii) how the solvent was moved in and out of the tank, and iii) why a hydropunch groundwater sample/Ribbon NAPL Sample is not proposed for the former

tank location.

13. **Section 7.2.1, page 7-9:** Section 7.2.1 and its subsections describe characterizing groundwater quality in monitoring wells by vertically profiling the wells “at 2-foot intervals to identify depth intervals of potential DNAPL contamination.” Section 7.2.1 does not describe the sampling procedure that will be used to vertically profile the groundwater quality in these wells. Please revise the FSP to specify the sampling and analysis procedures that will be used to assess the vertical distribution of contaminants in the wells associated with the NAPL study.
14. **Section 7.2.1, page 7-9:** The NAPL investigation procedures described in Section 7.2.1 proposes collecting groundwater samples from monitoring wells in areas that historically indicated high concentrations of VOCs and that “if VOC concentrations are less than 1 percent solubility in samples collected from existing monitoring wells then no RNS will be conducted.” This statement suggests that the NAPL sampling at OU-2C will be contingent upon this initial characterization of the groundwater. This approach is not consistent with the procedures described in Sections 7.2.1.1, 7.2.1.2, and 7.2.1.3 which propose conducting RNS sampling regardless of data gap groundwater sampling results. Appendix B proposes conducting RNS sampling in areas where “concentrations in any interval of the monitoring wells exceeds one percent solubility or if an increasing concentration trend with depth exists in the well” Please revise Section 7.2.1 of the FSP to be consistent with its subsections and to clearly present the procedure that will be used to assess areas potentially containing DNAPL. The procedures described in the FSP should be consistent with the RNS sampling procedures described in Appendix B.
15. **Section 7.2.2, page 7-13:** The metals investigation described in Section 7.2.2 of the FSP does not address assessing metals contamination in groundwater in the vicinity of the Former Plating Shop at Site 5. Please revise the FSP to address the potential need to characterize metals concentration in groundwater in this area in accordance with the procedures described in Appendix B.
16. **Section 7.2.3.2, page 7-17:** Direct-push sample location S05-DGS-DP24 is proposed to help define the western limits of the southwestern plume in the Building 5 area. Figure 7-3 does not display step-out directional arrows associated with location S05-DGS-DP24. Please revise Figure 7-3 to indicate the step-out directional arrows that are proposed for this sample location.
17. **Section 8.6, page 8-17:** The FSP addresses the possibility that surface water samples may need to be collected from the storm sewers if infiltrate is observed following the infiltration assessment. The FSP does not reference a surface water sampling standard operating procedure (SOP). Please revise the FSP to include and reference an appropriate surface water sampling SOP. In addition, if sediments will be sampled in the vicinity of the outfalls near IR Site 14 as a result of the storm sewer assessment in that area, please

revise Section 8 and Appendix E of the FSP to include and reference an appropriate sediment sampling SOP.

ERRATA/MINOR COMMENTS

- 1. General, Sample Locations:** Many well and sample locations are referenced by name (e.g., BERCS05-3B-C-10, MLS-1, MLS-5, MLS-6, B05PS-04) but are not shown on any figure. Please revise the plan to show the location of any well or sampling location that is specifically called out in the text.
- 2. Section 4.1.4, page 4-3:** Section 4.1.4 refers to Figure 4-4 and Appendix C for the data gap sampling locations, analytical methods, and sample designations. There is an inconsistency between Figure 4-4 and Table C-1 in Appendix C that could lead to confusion during the implementation of the proposed sampling. Figure 4-4 indicates that sample location S06-DGS-DP4 will be a multi-depth direct push groundwater sampling location. Table C-1 in Appendix C indicates that sample location S06-DGS-DP5, located near S06-DGS-DP4, will be the multi-depth direct push groundwater sampling location. Please revise the FSP to address this discrepancy.
- 3. Section 4.2.4.4, page 4-12:** The ecological risk-based clean-up goal for dioxin at the Fire Training Area (FTA) is presented as 0.0135 mg/kg. This concentration should be 0.0135 ug/kg. Please revise the text to reflect the correct units.
- 4. Abbreviations, Acronyms, and Symbols and Section 4.2.4.5, page 4-14:** The list of Abbreviations, Acronyms, and Symbols defines "ERV" as "Ecological Risk Value." Section 4.2.4.5 defines "ERV" as "Ecological Reference Value." Please review the FSP for occurrences of the acronym "ERV" and revise the FSP, as necessary, to assure that the acronym "ERV" is used in a consistently defined manner throughout the text.
- 5. Section 4.2.4.3, page 4-12:** The fifth sentence of this paragraph is incomplete.
- 6. Section 5.2.1.1, page 5-12:** Section 5.2.1.1 states that the OU-2A monitoring wells that will be sampled are presented in Figure 5-3. Upon review of Figure 5-3 it appears that monitoring wells MW410-5 and M07C-7 are not presented on the figure.
- 7. Appendix B, Section B-3, page B-3-3:** The third paragraph on page B-3-3 states "[a]ll groundwater samples will be ... analyzed at the on-site mobile laboratory." Section 6.2.3, Metals Investigation, states "[s]amples will be submitted to a fixed laboratory and analyzed under a rapid turn-around to determine whether step-out samples are needed." The text, tables, and appendices of the FSP should clearly present whether samples will be analyzed in a mobile laboratory or a fixed laboratory. The distinction should be clear in the text whether references are being made to soil or groundwater sampling and

analysis procedures. Please revise the text, tables, and appendices of the FSP to clarify which samples are intended to be analyzed for metals in a mobile laboratory and which samples will be analyzed in a fixed laboratory.

EPA COMMENTS ON DRAFT QUALITY ASSURANCE PROJECT PLAN

General Comment

1. The QAPP does not clearly demonstrate that sufficient data of appropriate quality will be collected to meet the objectives of the investigation. Please revise the QAPP to present the criteria to be used to assess the data collected (will it be used in a human health risk assessment), any data analysis tools (statistical or otherwise) to be used to summarize the data for comparison with the data assessment criteria, and how fixed laboratory confirmatory results will be used to verify that the field screening results are of sufficient quality to be used in a human health risk assessment, if that is their purpose.

Specific Comments

1. Section A5.1 and Figure A-1, Project and Task Organization: The QAPP fails to discuss the roles and responsibilities of all key personnel. Section 3.2.4 of EPA QA/R-5 states "Identify the individuals or organizations participating in the project and discuss their specific roles and responsibilities." Please revise the QAPP to:
 - Identify the roles and responsibilities of the Data Validation and Tracking Coordinator and designate this role on Figure A-1;
 - The project H&S officer is designated as Rich Howell on page A-2. However, Figure A-1 designates Rick Mueller as the project H&S officer. This discrepancy needs to be clarified; and,
 - Identify, if possible, the data validators to be used for this project.
2. Section A7.2, Applicable Technical Quality Standards: the QAPP should describe any statistics that will be used for the project. For example if groundwater concentrations will be compared against MCLs for the data quality assessment this needs to be stated. Section 3.2.5 of EPA QA/R-5 requires that the QAPP must "State the specific problem to be solved, decision to be made, or outcome to be achieved. Include sufficient background information to provide a historical, scientific and regulatory perspective for this particular project." Please revise the QAPP to provide a clear understanding of how the PRGs and MCLs will be used. In addition, provide a description of the human health and ecological protocol that will be used to evaluate the project data. Any statistics to be used during these assessments should be specified.

3. Section A7.5, Project Schedule: The project schedule does not list all key activities (e.g. fixed laboratory analysis, data validation, report preparation). Please revise the project schedule to provide a complete list of activities for the sampling event and their scheduled durations.
4. Tables A-5 through A-8: These tables specify the data quality objectives (DQO) process for all sites at Operable Units 1 and 2. However, Tables A5, A6, A7a, A7b, and A8 do not clearly state which DQOs are associated with the sites within the operable units. Please revise these tables to more clearly designate the sites within the operable units to which the DQOs refer.
5. Section A8.2.1, Analytical Methods for Screening Data: This section discusses the mobile laboratory analytical methods to be used for this project. However, the QAPP specifies the CLP SOW for Organics as OLM03.1 and the CLP SOW for Inorganics as ILM04.0. However, these are not the current CLP SOW versions. The current CLP SOWs are OLM04.2 for organics and ILM05.0 for inorganics. Section B.5.3 states that the laboratory will demonstrate instrument detection limits (IDLs) for all inorganic analytes. However, based on the current CLP SOW for Inorganics (ILM05.0), IDLs shall no longer be used. Method detection limits (MDLs) are to be used for inorganic target analytes. Please revise the QAPP to ensure that all sections of the text that require IDLs are amended to specify MDLs. The QAPP should be revised to specify the current CLP SOW revisions and ensure that the current CLP SOW information is incorporated into the QAPP. However, if using the current CLP SOWs would lead to problems with data comparability between these and previous analyses, the Navy should document in the QAPP why it is using out-dated CLP SOWs.
6. Section 8.3.3, Evaluation Criteria: The second paragraph of this section states that field duplicates for soil samples will not be collected. Field duplicates should be collected for soil samples at a frequency of one per ten investigatory samples. Please revise the QAPP to delete this sentence and provide the appropriate level of QC for soil samples throughout the QAPP or provide a rationale for not collecting soil duplicates.
7. Section B9, Data Acquisition Requirements for Non-Direct Measurements: This section describes data acquisition requirements by referencing the TtEMI draft data management work plan. Please revise this section to:
 1. Define the acceptance criteria for the use of non-direct measurement data in the project; and,
 2. Discuss any limitations on the use of the data resulting from the uncertainty in data quality.
8. Section B10, Data Management: The independent data validation subcontractor has not

been designated. EPA QA/R-5 states that critical personnel such as the data validator be identified in the QAPP. EPA QA/R-5 also states that the validation forms and checklists should be included in the QAPP. If it is possible within the contracting constraints the Navy works under, please revise the QAPP to provide the name of the independent data validator and provide examples of the forms and checklists that the data validator will use.

9. Table A-14, Evaluation Criteria for Data Validation: This table lists the criteria to be evaluated during data validation. However, there is no sample result verification listed for the organic data validation. For those data packages that will undergo full data validation, the sample result should be verified from the raw data. Please revise the QAPP to include this review item.

Minor Comments

1. Table A-12-7, Target Analytes and Quantitation Limits: There are three additional anions listed in this table (hydroxide, bicarbonate, and carbonate) that do not appear anywhere else in the QAPP. Clarify the discrepancy by deleting these analytes or providing the required detection limits, method numbers, and QC criteria for these analytes.
2. Table A-9, Recommended Sample Containers, Preservation, and Holding Time: The following changes should be made to this table:
 - Turbidity and pH are missing from the table. Please note that the holding time for pH is "as soon as possible" and the holding time for turbidity is 48 hours; and,
 - The holding time for total dissolved solids is specified incorrectly as 7 days. The actual holding time is 48 hours.
3. To assist field personnel using the document, the QAPP should undergo a format/grammar/etc check before being issued. Specific examples of formatting problems that might make the document difficult to use in the field include:
 - The Table of Contents does not list many of the tables present in the document. Field personnel attempting to find a specific table (e.g., Field Measurements, Field Equipment, and Calibration) will have to flip through the document to find it.
 - The page breaks are off throughout the document, including leaving some rather strange table pages, including pagination problems in the headers of Tables A6, A7 and A8 (page 3 of 3 follows page 2 of 2).
 - Tables in Sections B, C and D are labeled as Ax rather than Bx, Cx, Dx.