RESPONSES TO U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) COMMENTS ON THE DRAFT PARCEL E POTHOLE AREA CHARACTERIZATION WORK PLAN, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA, DATED JANUARY 8, 2013

The table below contains the responses to comments received from the regulatory agencies on the "Draft Parcel E Pothole Area Characterization Work Plan, Hunters Point Naval Shipyard, San Francisco, California," dated January 8, 2013. The comments addressed below were received from the U.S. Environmental Protection Agency (EPA); the California Department of Toxic Substances Control (DTSC); the California Regional Water Quality Control Board, San Francisco Bay Region (Water Board); and the City and County of San Francisco Department of Public Health (City). Throughout this table, *italicized* text represents additions to the document and ~~strikeout~~ text indicates deletions. Also throughout this table, references to page, section, table, and figure numbers pertain to the new document unless otherwise indicated.

Comment Number	Section/Page	Comment	Response to Comment
Responses to Comments from U.S. Environmental Protection Agency (Craig Cooper, dated January 22, 2013)			
General Comments			
1.	---	The Sampling and Analysis Plan (SAP) in Appendix A of the Draft Parcel E Pothole Characterization Work Plan (the Work Plan) does not provide criteria for changes to be made to the planned field activities based on observations on site. For example, Worksheet #17, Sampling Design and Rationale, states, "[E]xact sample depth may be based on the depth of the observed water table or may be adjusted in the field to sample intervals that appear to be more highly contaminated;" however, the person responsible for making an adjustment and the criteria that will be used are not specified. Similarly, in Work Plan Section 4.1, Define the Extent of Contamination, states, "An additional soil sample would be collected from the most-contaminated interval observed below 10 feet;" however, the criteria for determining what interval is the most contaminated as well as the person responsible for the decision are not specified. Please revise the Draft Work Plan and SAP to include criteria for these decisions and the person responsible for making these decisions.	Section 17.2 has been revised as follows: "…exact sample depth may be based on the depth of the observed water table or may be adjusted *by the geologist* in the field to sample intervals that appear to be more highly contaminated *(for example, higher PID or FID readings or visible signs of contamination such as staining or sheen).* The cited portion of Section 4.1 has been deleted based on other comments (see response to EPA general comment 6). However, subsequent text in Section 4.1 has been revised as follows: "Sample collection depths may be adjusted in the field *by the field geologist* to sample intervals that appear to be more highly contaminated based on visual or olfactory observations or *results of* screening with field equipment."

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2.	---	The Work Plan and SAP do not discuss whether the geophysical survey data (Section 5.2 and SAP Worksheet #14, Section 14.2) will be used to relocate the boring locations. If the geophysical survey data indicate that there are subsurface obstructions in a proposed boring location, the boring should be relocated before the first attempt to advance the boring. Criteria for relocation should also be provided. Please revise the Work Plan and SAP to specify that when a subsurface obstruction is identified by the geophysical surveys, the boring will be relocated and provide criteria for this process.	The response of the various geophysical survey instruments to potential buried obstructions will depend significantly on local ground conditions; therefore, precise geophysical criteria will not be prepared in advance to identify when a subsurface obstruction may be present. Section 5.2 of the work plan and Section 14.2 of the SAP have been expanded as follows. "*Results of the geophysical surveys will be correlated with observations of drilling conditions to allow identification of subsurface obstructions indicated by the geophysical surveys. These correlations may be used to relocate future borings to avoid potential subsurface obstructions*."
3.	---	The Work Plan does not provide sufficient information about dust control measures. For example, the proposed locations of the upwind and downwind dust monitors should be included on a site figure, since the Basewide Dust Control Plan is not site-specific. Also, the types of monitors that will be used should be specified. Please revise the Work Plan to include the type of dust monitors that will be utilized and a figure that depicts the locations of the dust monitors.	Similar to the field investigation for the remaining areas of Parcel E (Arcadis 2012), on only limited occasions is dust expected to be a concern. Consistent with the investigation of the rest of Parcel E, no site-specific dust monitoring will be conducted. As described in the text, activities will be conducted in accordance with the basewide dust control plan with the goal of "zero visible dust." The text was not changed as a result of this comment.
4.	---	The SAP does not address the items on page 14 and 15 of the Unified Federal Programs Quality Assurance Project Plan (UFP-QAPP) Workbook. For example, Worksheet #10 does not include the environmental questions being asked, the possible classes of contaminants and the affected matrices, the rationale for inclusion of chemical and nonchemical analyses, information concerning various environmental indicators, or project decision conditions ("If..., then..." statements). Worksheet # 11 does not specify who will use the data, what the data will be used for, what type of data are needed, how good the data need to be, etc. Please revise Worksheets #10 and 11 to include the items on pages 14 and 15 of the UFP-QAPP Workbook.	All of the questions referred to have been addressed in the SAP. The Navy formats for UFP-QAPPs contain all information as required by the UFP-QAPP manual and the necessary information to execute the project in the field. The content of each worksheet has been developed by the Navy Quality Assurance Officer to meet the UFP-QAPP implementation requirements. The UFP-QAPP workbook provides examples of possible templates and is not mandated, inclusive, or appropriate for all projects. All of the questions listed in the example of Worksheet #11 are fundamental to project execution and are addressed throughout the QAPP, although not all of them are detailed in Worksheet #11. Worksheet #2 provides a cross walk table that describes the worksheets in which information can be found. The SAP was not changed as a result of this comment.

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5.	---	It is unclear why the sampling depths of 1.5 to 2 feet and 7 to 7.5 feet were selected; although this is explained briefly in the text of the Work Plan, it should also be included SAP Worksheet #17. Please revise SAP Worksheet #17 to include the rationale that discusses how the proposed sample depths, numbers, and locations are sufficient to meet project goals, or to provide a reference for where this information may be found.	Section 17.1 has been expanded as follows. *"Samples from initial delineation borings will be collected at depths of 2 and 9 feet bgs to characterize each boring vertically. These depths are consistent with the depths of contamination observed in the pothole excavations. Samples will be collected from the step-out contingency borings at the same depths where analytical results exceeded the screening criteria in the original boring."* Section 17.2 has been expanded as follows. *"The distribution of initial and step-out contingency borings is expected to provide a regular, grid-based data distribution that will be sufficient to characterize the horizontal and vertical extents of contamination and to refine the excavation volume estimates for remedial alternatives that include excavation."*
6.	---	The sampling described in the SAP is inconsistent with the sampling proposed in the Work Plan. The SAP does not include the additional sampling to a depth of 20 feet that is discussed in Work Plan Section 4.1, Define the Extent of Contamination. Please revise the SAP to be consistent with sampling described in the Work Plan.	Based on data obtained at the previous pothole locations, it is unlikely that contamination extends deeper than 10 feet below ground surface (bgs). The work plan and SAP have been revised to remove discussion of sampling deeper than 10 feet bgs.
7.	---	The SAP does not provide the laboratory standard operating procedures (SOPs) for the proposed analytical methods, and indicates that these SOPs will be included in the final version of the SAP. However, without this information, the adequacy of the laboratory methods cannot be evaluated and some information in the SAP cannot be verified. Please provide the relevant laboratory-specific SOPs as discussed in Section 3.2.1, Analytical SOPs, of the Uniform Federal Policy for Quality Assurance Project Plans Manual, dated March 2005 (UFP QAPP Manual) for review before the Work Plan is finalized.	Laboratory SOPs have been included with these responses to comments for EPA's review.

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8.	---	The SAP does not include the referenced project sampling SOPs, including four Tetra Tech SOPs listed in Worksheet #21 and a Manufacturer's SOP referenced in Worksheet #22. Further, Worksheet #22 indicates that the manufacturers' specifications will be used for field equipment calibration, maintenance, testing, and inspection activities, but these specifications and the Manufacturer's SOP have not been included. Please revise the SAP to provide the referenced sampling SOPs, and please revise Worksheet #22 to include the aforementioned specifications or to provide a specific reference where this information may be found (e.g., a link to a webpage).	The SAP has been revised to include the standard operating procedures (SOP) listed on Worksheet #21 and to include a link to the manufacturer's SOP on Worksheet #22.
9.	---	The SAP does not include the collection of field duplicates for soil and sediment samples. Since remedial decisions will be based on discrete samples, it is necessary to document the heterogeneity of contaminants in situ. Please revise the SAP to include the collection of field duplicate samples for soil and sediment.	Field duplicate samples for soil and sediment would not be useful for this investigation based on the highly heterogeneous nature of the fill known to exist at Hunters Point Naval Shipyard (HPNS). The adjacent investigation of the remainder of Parcel E, likewise and for the same reason, did not incorporate collection of field duplicate samples for soil (Arcadis 2012). The text was not changed as a result of this comment.
10.	---	The SAP indicates that 20 percent (%) of the results will be subjected to Level IV validation, and the remaining 80% of the data will undergo Level III validation, but does not specify how the 20% for Level IV validation will be selected (e.g., randomly?). Section 14.5, Data Management and Review, indicates that the 20% will be routine field samples, but it is unclear what this means. Also, Worksheet #35 indicates the percentages of the validation levels listed on the chain-of-custody will be checked daily for accuracy, but the SAP does not specify how the different levels will be selected and indicated on these forms. Finally, the difference between Level III and Level IV validation should be discussed briefly. Please revise the SAP to clarify how the different validation levels for results will be selected and how this will be noted on the chain-of-custody forms. Also, please define Level III and Level IV validation.	Worksheet #14 (Section 14.5) has been expanded as follows. "Twenty percent of the data *will be randomly selected by the validator and* will be subjected to EPA Level IV validation…" "The 20 percent portion of the data set will be composed of routine field samples *(that is, not blanks or other quality control samples*)." Chain-of-custody forms will not be used to select samples for Level III or IV validation, and this information has been deleted from Worksheet #35. Section 14.5 already contains the following reference describing data validation levels: "Details with respect to data validation levels are described in Worksheet #36." Therefore, no additional text was added.

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11.	---	The data management, reduction and reporting discussion is insufficiently detailed in the SAP. For example, the SAP does not specify where (i.e., physical location) hardcopy project documents and electronic data will be stored and for how long the documents and data will be stored before archival/disposal. The archival process is also unclear (e.g., who, where, and the length of time that the hard copy and electronic data will be archived). Please revise the SAP to provide greater detail regarding the data management, reduction and reporting tasks as per Section 3.5, Data Management Tasks, of the UFP QAPP Manual.	Worksheet #29 has been expanded to include physical locations of files, file manager, and length of time archived as follows: "*TriEco-Tt project files located at Tetra Tech, Inc., 518 17th Street, Suite 900, Denver, Colorado, 80202 in document library at north corner of the suite in care of project manager, Tim Mower. Data are maintained for a minimum of 5 years.* *NAVFAC SW administrative record files located at NBSD Building 3519, 2965 Mole Road, San Diego, California, 92136 in care of Diane Silva.* *Laboratory files located at Curtis and Tompkins, Ltd., 2323 5th Street, Berkeley, California, 94710 in care of project manager, Mike Dahlquist. Data are maintained by the laboratory for a minimum of 3 years for electronic data and 10 years for hard-copy data after submittal of final data. The laboratory shall use a CD, or other similar storage device capable of recording data for long-term, off-line storage. All raw data shall be retained in accordance with the appropriate instrument.*"
12.	---	The SAP does not indicate that manual integrations for chromatographic analyses will be included in the data packages and reviewed during data validation. Please revise the SAP to ensure that if manual integration is required, the supporting information (i.e., chromatograms before and after manual integration as well as a brief explanation for the manual integration) will be included in the data package deliverables and evaluated during data validation.	Worksheet #34 has been expanded to include the following note. "*If manual integration is required, the supporting information (that is, chromatograms before and after manual integration as well as a brief explanation for the manual integration) will be included in the data package deliverables and evaluated during data validation.*"

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Specific Comments			
1.	Section 5.4, page16	Section 5.4, IDW Management, Page 16: This section states that, "For soil waste, a composite sample will be collected by compositing subsamples collected from several areas within each container," but since the samples will be analyzed for total petroleum hydrocarbons (TPH), composite samples should not be used due to the risk of TPH volatilizing into the atmosphere during the collection of the composite samples. Encore or similar samplers should be used for TPH samples. Please revise the Draft WP to specify collection of TPH samples with Encore samplers.	Section 5.4 has been expanded as follows: "*Samples for analysis for TPH-p will not be composited but will be collected from a single location (one per container) using an Encore sampler*."
2.	SAP WS #2	Appendix A, Worksheet #2, SAP Identifying Information, Pages 12 to 13: This table identifies the information required in each section and worksheet of the SAP, but does not list the documents referenced by the SAP for information that has not been included within these worksheets (e.g., the Final Feasibility Study Report for Parcel E for previous investigations referenced in Worksheet #10). Please revise this table to include the references to other documents when the required information has not been presented in the SAP.	Worksheet #2 has been expanded to include the following note at the end of the table: "*Refer to the References section following Worksheet #37 for documents referenced by this SAP*."
3.	SAP WS #6	Appendix A, Worksheet #6, Communication Pathways, Pages 18 to 20. Please revise this worksheet to specify that EPA, DTSC, and the Water Board will be notified when significant corrective actions or changes to the SAP occur and clarify when EPA approval of such changes is necessary.	Worksheet #6 has been revised as follows: The entry for "Minor deviations from SAP procedures" has been expanded to include: "*EPA, DTSC, and the Water Board will be notified of minor changes for information only*. The entry for "SAP amendments" has been expanded to include: "*Substantive changes requiring preparation of an addendum will be submitted to EPA, DTSC, and the Water Board for approval before field activities begin*."

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4.	SAP WS #11	Appendix A, Worksheet #11, Project Quality Objectives/Systematic Planning Process Statements, Page 33 of 102: Step 5, Develop the Analytic Approach, of this worksheet states that, "If physical, operational, or other constraints preclude further sampling, then no boring will be advanced and no samples will be collected;" however, it is unclear how a potential data gap will allow for complete delineation of the vertical and horizontal nature and extent of contamination if a planned sampling location does not provide a sample. For example, the Work Plan states that "a maximum of two additional locations, offset within a 5-foot radius of the original location, will be attempted in cases where an obstruction is present;" this should be incorporated into Step 5. Please revise the SAP to include the steps that will be taken to ensure full delineation in the event of an unforeseen obstacle preventing sampling at a proposed location.	Decision rule 2a in Step 5 of Worksheet #11 has been expanded as follows: "*A maximum of two additional locations, offset within a 5-foot radius of the original location, will be attempted in cases where an obstruction is present.*" Data gaps that may result from locations where samples are not collected will be addressed in the remedial design. The investigation is intended to supplement existing information to support the design, not to provide a complete delineation. Step 1 has been expanded as follows with text from the work plan (Section 4.0) to reiterate this concept: "*This investigation seeks to balance the level of effort that is invested into the characterization versus the potential for additional remediation costs that could be associated with a less thorough characterization.*"
5.	SAP WS #11	Appendix A, Worksheet #11, Project Quality Objectives/Systematic Planning Process Statements, Page 34 of 102: Step 7 (Develop the Plan for Obtaining Data) of this worksheet states that, "Initial soil and sediment samples will be collected at depths of 2 and 7.5 feet bgs on a 50-foot by 50 foot grid laid over the investigation area (except for the borings nearest the shoreline, where the spacing will be 25 feet);" however, justification for selecting the size of the grid is not included. Similarly, justification for spacing the sampling locations 25 feet apart nearest the shoreline is not included. Please revise Worksheet #11 to provide the rationale for the placement of the sampling locations.	Step 7 of Worksheet #11 has been expanded as follows: *"The 50-foot grid spacing was selected to be consistent with the investigation spacing used during excavation activities at the adjacent PCB hot spot area. A 25-foot spacing along the shoreline was selected to provide additional data within the area closest to the bay where potential for leaching of chemicals to the bay is greatest.*"

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6.	SAP WS #12	Appendix A, Worksheet #12, Measurement Performance Criteria Table, Page 35: The measurement performance criterion for matrix spikes/matrix spike duplicates (MS/MSDs) is that no target compounds are greater than the project-required reporting limit. However, MS/MSDs should be evaluated based on the percent recovery (%R) for accuracy and relative percent difference (RPD) for precision. Please revise this worksheet to provide the measurement performance criteria for the MS/MSD %R and RPD for each analytical group or reference where this information can be found (e.g., Worksheet #28).	The entry for MS/MSD on Worksheet #12 under "Measurement Performance Criteria" has been replaced with the following: "*Laboratory statistically derived control limits (see Worksheet #28)*"
7.	SAP WS #14	Appendix A, Section 14.4, IDW Management, Pages 41 to 42: The discussion of the investigation derived waste (IDW) sampling and analysis is insufficiently detailed. The procedure for collecting representative sample(s) to characterize the liquid waste is not discussed. To characterize the soil waste, the SAP indicates that composite samples will be collected from several areas within the soil waste containers, but the number of subsamples to be collected for each composite sample and the size of the waste containers are not discussed. Therefore, it is unclear how it was determined that the composite samples would sufficiently characterize the waste. Further, the analyses for the waste characterization are not identified. Please revise the SAP to provide greater detail for the soil and liquid waste sampling and analysis, including the rationale for the number of samples and subsamples per volume of waste and the selected analytes.	Section 14.4 already indicates that the representative sample will be collected using a clean, disposable bailer for liquid waste. This section has been revised to indicate that 55-gallon drums will be used as waste containers, and that four subsamples will be collected from each drum containing waste soil. Selection of four subsamples is consistent with ASTM International (ASTM) D6051-96 Standard Guide for Composite Sampling and Field Subsampling for Environmental Waste Management Activities. The exception to compositing for total petroleum hydrocarbons-purgeable (TPH-p) analysis discussed in the response to EPA specific comment 1 was also added. The section has been expanded as follows to add the analytical suite: "*Waste characterization samples will be analyzed for TPH-p, TPH-e, PAHs, PCBs, pesticides, and metals*."
8.	SAP WS #17	Appendix A, Worksheet #17, Sampling Design and Rationale, Page 50 of 102: This worksheet states that, "Samples rejected for radiological reasons will be replaced by samples from new borings collected near the borings with the rejected samples;" however, it is unclear how the new location will be determined. Please revise Worksheet #17 to discuss this issue.	The text has been expanded as follows: "*Replacement borings will be located within a 5-foot radius of the original boring and, to the extent practicable, as near as possible to the original boring*."

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9.	SAP WS #18	Appendix A, Worksheet #18, Sampling Locations and Methods/SOP Requirements Table: Worksheet #18 does not follow the UFP QAPP Guidance, in that a column that details the rationale for selecting each sampling location is not included. Additionally, the column titled "Sampling SOP Reference" reads "Worksheet #17;" however, Worksheet #17 does not include the relevant SOP references and instead references Worksheet #21. Please review the UFP QAPP Guidance and revise Worksheet #18 to include the rationale for each sampling location as well as the relevant SOP reference.	The Navy formats for UFP-QAPPs contain all information required by the UFP-QAPP manual, and the necessary information to execute the project in the field. The content of each worksheet has been developed by the Navy Quality Assurance Officer to meet the UFP-QAPP implementation requirements. The UFP-QAPP workbook provides examples of possible templates and is not mandated, inclusive, or appropriate for all projects. A separate column for sampling rationale would not be useful for the grid-based sampling plan envisioned for this investigation because every entry in the column would be the same ("based on established grid," for example). The entry for "Sampling SOP Reference" was revised to indicate Worksheet #21 instead of #17.
10.	SAP WS #19	Appendix A, Worksheet #19, Analytical SOP Requirements Table, Pages 55 to 56: The holding time for aqueous analyses after extraction (e.g., 40 days) is not included for applicable methods. Please revise the SAP to provide the holding time for aqueous analyses after extraction for the applicable methods.	Worksheet #19 has been revised to clarify the holding times presented for analysis of water samples. The holding time (40 days) after extraction has been added to aqueous analyses for TPH-e, polychlorinated biphenyls (PCB), polycyclic aromatic hydrocarbons (PAH), and pesticides.
11.	SAP WS #22	Appendix A, Worksheet #22, Field Equipment Calibration, Maintenance, Testing, and Inspection Table, Page 60: This worksheet identifies a photoionization detector (PID), but the use of this equipment is not discussed in the SAP. In addition, this worksheet does not include the global positioning system (GPS) for identifying sample locations and the electromagnetic, magnetic, and ground penetrating radar equipment discussed in Section 14.2. In addition, it is unclear how the PID will be used as use of this instrument is not discussed in the Work Plan or SAP. Please revise Worksheet #22 to include all field equipment that will be used for the planned sampling activities, and please revise the SAP to clarify how the PID will be used.	Worksheet #22 has been expanded to include information related to the GPS equipment. Worksheets #14 and #17 have been expanded to include information on use of the PID during the investigation.

RESPONSES TO EPA COMMENTS ON THE DRAFT PARCEL E POTHOLE AREA CHARACTERIZATION WORK PLAN, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA, DATED JANUARY 8, 2013 (CONTINUED)

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12.	SAP WS #24	Appendix A, Worksheet #24, Analytical Instrument Calibration Table, Page 64: This table defines the acceptance criterion for second-column confirmation as the same as the primary analysis, but this is not an appropriate criterion for second-column confirmation. Instead, the SAP should define the acceptable precision between the two columns (e.g., RPD of less than 40%). Please revise the SAP to define the criterion for acceptable precision between the primary analysis and second-column confirmation.	On Worksheet #24, the entry for "Acceptance Criteria" for second column confirmation for GC/ECD pesticides has been replaced as follows: "*RPD ± 40% between primary and secondary column*"
13.	SAP WS #28	Appendix A, Worksheet #28, Laboratory QC Samples Table, Pages 79 to 80: The tables indicate serial dilution samples will be performed when post digest spikes (PDSs) fail and at a frequency of one per digestion batch for analyses of metals and mercury. It is unclear if serial dilutions will be performed only when PDS samples fail or if they will be performed at a frequency of one per digestion batch in addition to when PDS samples fail. Please revise the tables to clarify when serial dilution will be performed.	On Worksheet #28, the entry for "Frequency/Number" for serial dilution for analysis of mercury by cold vapor atomic absorption has been revised as follows: "Post-digestion spike failure, *and* one per digestion batch"
14.	SAP WS #30	Appendix A, Worksheet #30, Analytical Services Table, Page 82: The table does not include the sediment and water matrices. Please revise this worksheet to include the analyses and laboratory information for these matrices.	Worksheet #30 has been revised to include sediment and water matrices.
15.	SAP WS #36	Appendix A, Worksheet #36, Analytical Data Validation (Steps IIa and IIb) Summary Table, Pages 94 to 96: The table indicates data validation will be performed using the laboratory analytical method SOPs, Department of Defense Quality Systems Manual (DoD QSM) Version 4.2 requirements, and the SAP. Section 36.1.4, Laboratory Data Validation, also identifies the National Functional Guidelines (NFG) for data validation. Since multiple sources are referenced for data validation procedures, the SAP should provide data validation checklists describing how samples will be qualified (e.g., the qualifiers that will be used, when samples will be qualified estimated/rejected, and if individual or all samples in a batch will be qualified). It is noted that Section 36.1.7, Data Validation Criteria, indicates a table that presents data validation criteria is provided, but this table does not appear to be included in the SAP. Please revise the SAP to provide data validation checklists.	A third-party data validator will apply qualifiers according to EPA NFG data validation procedures. A data validation report will be provided. The primary source for data validation criteria will be this SAP, followed by DoD QSM, and finally EPA NFG. Worksheet #36 has been revised to correct the reference to the table included in Worksheet #36 at the beginning of the worksheet rather than following Section 36.1.7.

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16.	SAP WS #37	Appendix A, Section 37.2, Reconciliation with User Requirements, Page 100: The guidance referenced for performing the data quality assessment is outdated. The Guidance for Data Quality Assessment, Practical Methods for Data Analysis from 2000 has been replaced by Data Quality Assessment: A Reviewer's Guide (QA/G-9R) and Data Quality Assessment: Statistical Tools for Practitioners (QA/G-9S), both dated February 2006. Please revise the SAP to indicate the updated guidance for data quality assessments will be used.	Section 37.2 has been revised to incorporate the cited guidance.
17.	SAP WS #37	Appendix A, Section 37.2, Reconciliation with User Requirements, Page 100: This worksheet indicates potential impacts from data quality reviews will be discussed in the final report, but does not provide sufficient details. The usability assessment in the final report should include a detailed description of how the reviews and evaluations were performed with sufficient information to support the data usability conclusions. In addition, the data quality reviews should include an evaluation of significant trends and biases in the data. Please revise the QAPP to indicate that a detailed discussion of the data quality reviews, including evaluations of trends and biases in the data, will be included in the final report, along with sufficient information to support the data usability conclusions.	Section 37.2 has been expanded to include the following: "*The report will include a detailed discussion of the data quality reviews, including evaluations of trends and biases in the data, along with sufficient information to support the data usability conclusions.*"
Responses to Additional Comments from U.S. Environmental Protection Agency (Craig Cooper, dated April 5, 2013)			
1.	EPA General Comment 4	EPA has completed its review of the Navy's Response to Comments (RTCs) and Redline of the Work Plan and Sampling and Analysis Plan (SAP) for its Parcel E Pothole Area Characterization described in your email below. EPA finds all RTCs and redlines/edits acceptable except for the Navy's response to EPA General Comment 4. The Navy's RTC addresses this comment; however, the SAP Worksheet #2 is missing the cross-walk information referenced in the response. The entire crosswalk column is blank in this table in the redline file of the SAP. SAP Worksheet #2 should be revised to include cross-walk information.	The table at the end of Worksheet #2 has been expanded to identify worksheets where *additional* information is referenced on other worksheets. Most SAP worksheets do not reference other worksheets and, therefore, there is no entry in the column titled "Crosswalk to Related Information."

RESPONSES CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL (DTSC) COMMENTS ON THE DRAFT PARCEL E POTHOLE AREA CHARACTERIZATION WORK PLAN, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA, DATED JANUARY 8, 2013

Comment Number	Section/Page	Comment	Response to Comment
Responses to Comments from California Department of Toxic Substances Control (Ryan Miya, dated February 6, 2013)			
Specific Comments			
1.	Section 2.1.2, page 5	Section 2.1.2 – Area for Investigation. Paragraph three. Please consider adding additional details regarding the results of previous sampling in the area of investigation in the text (i.e. highest TPH and PCBs concentrations detected at what depths as well as the fact that all of the 2010 pothole sample locations had at least one screening level exceedance for Total PCBs and/or Total TPH) in order to provide a clearer explanation and technical rationale for the current investigation.	The text of Section 2.1.2 has been expanded as follows: "*At least one screening level was exceeded at each of the 12 pothole locations. The maximum PCB concentration was 550 mg/kg in a sample collected at 5 feet bgs at location PH-02. PCB concentrations in samples from pothole locations were generally higher near the boundary with Parcel E-2. The maximum total TPH concentration was 20,700 mg/kg in a sample collected at 8 feet bgs at location PH-06 in the central portion of the site. Total TPH concentrations were more scattered across the site; deeper samples (7 to 9 feet bgs) tended to have higher concentrations.*"
2.	Section 2.4, page 8	Section 2.4 – Summary of Previous Investigations and Removal Actions. Please identify those previous actions and investigations listed herein that apply specifically to area of investigation identified in the current Work Plan.	Removal actions that directly affect the area of investigation have been indicated in **bold** text in the bulleted list in Section 2.4. These actions include removal of shoreline debris in 2003 to 2004 and two actions at the PCB hot spot area (2005 to 2007 and 2010 to 2012).
3.	Section 4.3, page13	Section 4.3 – Evaluate the Soil and Sediment Data. The text states that the data from the original delineation borings will be distributed to the BCT to "promote discussion of potential locations for step-out borings." Please clarify what this statement means in terms of regulatory expectations and input to the process moving forward. For example, are future triad meetings and regulatory concurrence expected for these future data discussions prior to step-out boring implementation or is the data distribution intended for regulatory notification and informational purposes only?	Sections 4.1 and 4.3 have been expanded as follows to clarify that the Navy intends to seek concurrence on the locations of step-out borings: "*A meeting or teleconference will be held with the BCT to discuss and reach concurrence on the locations proposed for step-out borings.*"

RESPONSES TO DTSC COMMENTS ON THE DRAFT PARCEL E POTHOLE AREA CHARACTERIZATION WORK PLAN, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA, DATED JANUARY 8, 2013 (CONTINUED)

Comment Number	Section/Page	Comment	Response to Comment
Specific Comments (Continued)			
4.	Section 5.0, page 13	Section 5.0 – Proposed Investigation Activities. Are the soil and sediment samples going to be scanned for radiological constituents prior to being sent to the offsite laboratory for analysis? This information should be added as a bullet item to this section of the text.	Correct. All samples collected from the investigation area will be scanned for radiological constituents before being sent off site for analysis. This information has been added to the bulleted list in Section 5.0.
5.	Section 5.3, page 14	Section 5.3 – Soil Boring and Sampling. Please briefly describe contingency plans that will be implemented if resistance is encountered at any proposed location(s) preventing boring advancement and sample collection.	Section 5.3 has been expanded as follows: *"Where a surficial or buried obstruction is present, a maximum of two additional attempts to advance borings for logging and sampling will occur within a 5-foot radius of the original location."*
6a.	SAP	Any of the Work Plan comments above that are also applicable to identical Sampling and Analysis Plan (SAP) text should also be carried forward and incorporated into the SAP for consistency.	The SAP has been revised to be consistent with the changes made to the work plan.
6b.	SAP	If "soil" and "sediment" as defined by the current project are going to be analyzed using the same methods, please include "sediment" in any applicable SAP worksheet entries currently populated with "soil."	Changes have been made throughout the SAP to more clearly identify soil and sediment matrices in the analytical methods tables.
6c.	SAP WS #3	SAP Worksheet #3 – Distribution List. Please remove "Suite 200" from the DTSC mailing address as well as updating my e-mail to Ryan.Miya@dtsc.ca.gov	Changes have been made as requested.
Responses to Additional Comments from California Department of Toxic Substances Control (Ryan Miya, dated April 8, 2013)			
1.	---	The responses and modifications to the document have adequately incorporated all of DTSC's comments to the subject document. DTSC has no additional comments at this time and looks forward to receiving the final document to verify comment incorporation.	Comment noted.

RESPONSES TO SAN FRANCISCO BAY REGIONAL WATER QUALITY CONTROL BOARD (WATER BOARD) COMMENTS ON THE DRAFT PARCEL E POTHOLE AREA CHARACTERIZATION WORK PLAN, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA, DATED JANUARY 8, 2013

Comment Number	Section/Page	Comment	Response to Comment
Responses to Comments from San Francisco Bay Regional Water Quality Control Board (Tina Low, dated February 12, 2013)			
Specific Comments			
1.	Section 4.1, page 10	**4.1 Define the Extent of Contamination (p. 10):** We concur that soil and sediment adjacent to the shoreline is more apt to leach chemicals to the bay based on their proximity. Please clarify the objectives of observing and sampling soil or sediment bayward of the mean high water (MHW) line, at depths of 10 to 20 feet bgs. Please then clarify how the sampling approach will meet the objectives. This section states that the approach involves examining the borings at a maximum depth of 10 feet bgs, and advancing the borings (up to 20 feet bgs) if visible contamination is found, after which an additional soil sample would be collected from the interval that appears most contaminated. However, the sediment COCs (TPH, Aroclors, pesticides, and metals) are not all visually detectable. Therefore, if the intent of sampling sediment bayward of the MHW line at 10-20 feet bgs is to characterize the vertical extent of COCs, please clarify how this will be accomplished. Also, SAP Worksheets #17 and 18 should be revised to incorporate the sampling rationale, depths, and methodology for examining and potentially sampling sediment below 10 feet bgs.	Based on data obtained at the previous pothole locations, it is unlikely that contamination extends deeper than 10 feet bgs. The work plan and SAP have been revised to remove discussion of sampling deeper than 10 feet bgs.
2.	Section 4.1, page 11	**4.1 Define the Extent of Contamination (p.11):** This section states that samples from initial delineation borings will be collected at depths of 2 and 7.5 feet bgs. Previous sample data show COC concentrations exceeding PALs at 8 and 9 feet bgs at most of the Shaw 2010 pothole sample locations. Please revise the sampling plan to include collection of samples at 9-10 feet bgs, or provide an explanation why samples from deeper than 7.5 bgs are not needed to accomplish the objectives of the investigation. Please also revise SAP Worksheet #18 accordingly.	The work plan and SAP have been revised to adjust the collection depth for the deeper sample from 7 to 7.5 feet bgs to 8.5 to 9 feet bgs to account for the observation that most of the higher detections observed in the potholes were found in samples collected at either 8 or 9 feet bgs.

RESPONSES TO SAN FRANCISCO BAY REGIONAL WATER QUALITY CONTROL BOARD (WATER BOARD) COMMENTS ON THE DRAFT PARCEL E POTHOLE AREA CHARACTERIZATION WORK PLAN, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA, DATED JANUARY 8, 2013 (CONTINUED)

Comment Number	Section/Page	Comment	Response to Comment
Responses to Additional Comments from San Francisco Bay Regional Water Quality Control Board (Tina Low, dated April 16, 2013)			
1.	---	I've reviewed the RTCs and have the following comment on the response to my original Comment #1: My original comment was that the proposed approach for sample locations adjacent to the shoreline (examining the borings to a maximum depth of 10 feet bgs and advancing the borings up to 20 feet bgs if visible contamination is found, after which an additional sample would be collected from the interval that appears most contaminated) may not detect soil/sediment COCs that are not visible. The Navy's response is that it is unlikely that contamination extends deeper than 10 feet (based on data obtained at the previous pothole locations) and discussion of sampling deeper than 10 feet has been removed. We do not concur with this interpretation of the data, as Figure 4 shows several locations where contamination exceeding PALs was found at 8 or 9 feet bgs. There is also a groundwater metals plume in the northern section of the shoreline area. Our overall concern is that there is the potential for contamination exceeding PALs to exist deeper than 10 feet bgs, and that it may leach into the bay due to its close proximity, as discussed in the text of the draft work plan (Section 4.1). Our specific concerns are that: 1) visible contamination in the upper 10 feet is not a suitable trigger for advancing the boring deeper, and that visual observation alone is not a suitable approach for selecting the interval to sample; and 2) the discussion of investigation deeper than 10 feet in the shoreline area has been deleted in the revised work plan. Please un-delete the sections of the workplan and SAP that discuss sampling deeper than 10 feet bgs, and address the original comment regarding detecting nonvisible soil/sediment COCs.	The work plan and SAP have been revised to adjust the collection depth for the deeper sample from 7 to 7.5 feet bgs to 8.5 to 9 feet bgs to account for the observation that most of the higher detections observed in the potholes were found in samples collected at either 8 or 9 feet bgs. The scope of the proposed field work does not include investigation of groundwater. In addition to visual and olfactory screening, soil cores will also be screened using a PID and a flame ionization detector (FID). Any observations made at the maximum depth of any boring that indicate the potential for deeper contaminated intervals will be highlighted in the completion report for potential further action during the remedial design. Those observations, together with the analytical data collected during the investigation, will be useful in the remedial design of future actions. The work plan and SAP have been revised to add screening using an FID in addition to the PID.

RESPONSES TO CITY AND COUNTY OF SAN FRANCISCO (CITY) COMMENTS ON DRAFT PARCEL E POTHOLE AREA CHARACTERIZATION WORK PLAN, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA, DATED JANUARY 8, 2013

Comment Number	Section/Page	Comment	Response to Comment
Responses to Comments from City and County of San Francisco (Amy Brownell, dated February 7, 2013)			
Specific Comments			
1.	Section 2.0, page 3	**Section 2.0, Site Conditions and Background, Page 3:** Please add a section that summarizes known contamination within the study area. Within this section, please define the chemicals of concern (COCs) for shoreline sediment and inland soil. Please describe how these COCs were selected or provide a reference to an earlier document that details the selection process.	Section 2.1.2 has been expanded as follows to include this information: "*COCs for the area of investigation were identified in the FS (ERRG 2012) for block EOS-1. Identification of COCs was based on (1) recreational reuse of the inland areas (landward of the mean high water [MHW] line) and (2)potential impact on ecological receptors in the shoreline areas (bayward of the MHW line). COCs include TPH, PCBs, PAHs, pesticides, and metals. Section 4.1 presents the complete lists of COCs for the inland and shoreline areas.*"
2.	Section 4.0, page 9	**Section 4.0, Proposed Sampling Approach, Page 9**: Please include a brief background explanation and/or technical justification for use of Tier 1 PALs (10 times remedial goals (RG)) and Tier 2 PALs (5 times RGs), rather than RGs. Please also include a description of circumstances when Tier 1 PALs, Tier 2 PALs or RGs will be used to justify over-excavation and/or additional characterization/step-out sampling efforts.	Section 4.0 has been expanded as follows: "*Tiers 1 and 2 were established in the FS to acknowledge that low concentrations of COCs exceeding remediation goals could remain in place within areas where implementation of covers and institutional controls are planned. Use of Tiers 1 and 2 was intended in the FS to focus excavation on areas with the highest concentrations of COCs.*" Section 4.1 (refer to the final bullet point) already describes use of Tier 1 and Tier 2 criteria in the selection of step-out contingency borings. Use of Tier 1, Tier 2, and remediation goals in justifying over-excavation is beyond the scope of the field work plan, but would likely be addressed in the remedial design.

RESPONSES TO CITY COMMENTS ON THE DRAFT PARCEL E POTHOLE AREA CHARACTERIZATION WORK PLAN, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA, DATED JANUARY 8, 2013 (CONTINUED)

Comment Number	Section/Page	Comment	Response to Comment
Specific Comments (Continued)			
3.	Section 4.1, page 11	**Section 4.1, Define the Extent of Contamination, Page 11:** Previous investigations at HPNS have indicated COC screening criteria and remedial goal exceedances without corresponding obvious staining or olfactory impacts. For this reason, it is not recommended to base sampling solely on visual indications of contamination and instead couple visual and olfactory observations with the use of additional field screening tools (e.g., photo-ionization detector, flame ionization detector or other field testing equipment).	The work plan already incorporates use of field equipment for screening, as noted in the following text from Section 4.1: "Sample collection depths may be adjusted in the field *by the field geologist* to sample intervals that appear to be more highly contaminated based on visual or olfactory observations or *results of* screening with field equipment." The text was not changed as a result of this comment.
4.	Section 4.1, page 11	**Section 4.1, Define the Extent of Contamination, Page 11:** DDT detections above the screening criteria are highlighted on Figure 4 for areas landward of the MHW line. Please clarify whether DDT is a COC in soil.	Dichlorodiphenyltrichloroethane (DDT) is a COC only for sediment in the area bayward of the MHW line. Figure 4 has been revised to correct the highlighting of DDT results.
5.	Figure 5	**Figure 5, Proposed Sample Locations:** Drill rig access may be difficult along the shoreline due to the weight of the equipment and saturation of the shoreline sediments. It may be necessary to use drill mats to ensure safe drill rig access. If the use of drill mats is anticipated, please include this item in the Site Preparation Section (Section 5.1). If the use of drill mats is not anticipated, the shoreline sampling locations may be largely limited to hand-augering, which would significantly limit the vertical extent of the investigation as defined in Section 4.1.	Use of drill mats is anticipated in shoreline areas. Sections 4.1 and 5.3 have been expanded to clarify, as follows: "*Borings will be advanced bayward…as necessary. Drill mats will be used, as necessary, to maximize the safe use of drilling equipment near the shoreline.*"
6.	SAP WS #10	**SAP Worksheet #10, Problem Definition, Site History, and Background, Pages 25 to 31 of 102:** Please see Comment 1.	Worksheet #10 has been expanded to include similar text as listed in the response to comment 1.
7.	SAP WS #11	**SAP Worksheet #11, Project Quality Objectives/Systematic Planning Process Statements, Step 4, Define the Boundaries of the Study, Page 33 of 102:** Please define the vertical boundaries of the investigatory borings.	Step 4 has been expanded as follows: "*Vertical: Borings will not extend deeper than 10 feet bgs.*"

RESPONSES TO CITY COMMENTS ON THE DRAFT PARCEL E POTHOLE AREA CHARACTERIZATION WORK PLAN, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA, DATED JANUARY 8, 2013 (CONTINUED)

Comment Number	Section/Page	Comment	Response to Comment
Specific Comments (Continued)			
8.	SAP WS #11	**SAP Worksheet #11, Project Quality Objectives/Systematic Planning Process Statements, Pages 32 to 34 of 102:** The Work Plan and SAP Worksheet #17 state that sample intervals may be adjusted in the field to sample soil that appears to be more highly contaminated. Please reference this sampling approach in Worksheet #11.	Step 7 has been expanded as follows: "*Sample collection depths may be adjusted in the field by the field geologist to sample intervals that appear to be more highly contaminated based on visual or olfactory observations or results of screening with field equipment.*"
9.	SAP WS #11	**SAP Worksheet #11, Project Quality Objectives/Systematic Planning Process Statements, Pages 32 to 34 of 102:** Section 4.1 of the Work Plan states that samples from borings located bayward of the mean high water (MHW) line will be advanced to observe the vertical extent of contamination to a maximum depth of 20 feet bgs and that an additional sediment sample would be collected from the most-contaminated interval observed below 10 feet. Please define the sample collection process and objectives for samples collected from 10 to 20 feet bgs.	Based on data obtained at the previous pothole locations, it is unlikely that contamination extends deeper than 10 feet bgs. The work plan and SAP have been revised to remove discussion of sampling deeper than 10 feet bgs.
10.	SAP WS #14	**SAP Worksheet #14, Summary of Project Tasks, Pages 39 to 42 of 102:** Please expand the summary of project tasks to include a discussion of sampling locations, sample collection depths, and analysis tasks.	Worksheet #14 already refers to Figure 5 for sampling locations. Worksheet #14 already refers to Worksheet #11 for the sample collection process, including sample depths. Worksheet #14 has been expanded to include the following reference for analytical tasks: *"Worksheet #18 summarizes sampling locations and analytical methods."*
11.	SAP WS #15	**SAP Worksheet #15, Reference Limits and Evaluation Table, Pages 43 to 47 of 102:** Are both Tier 1 and Tier 2 PALs going to be evaluated as part of this SAP? While evaluation of Tier 1 PALs may not be necessary for step-out decisions, evaluation may be helpful for later remediation decisions. Please consider adding additional evaluation tables for Tier 1 PALs.	Step-out decisions will be made only in relation to Tier 2 criteria; therefore, Worksheet #15 was not changed. However, screening against Tier 1 criteria may be considered in the data presentation in the technical memorandum summarizing results of the investigation.

RESPONSES TO CITY COMMENTS ON THE DRAFT PARCEL E POTHOLE AREA CHARACTERIZATION WORK PLAN, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA, DATED JANUARY 8, 2013 (CONTINUED)

Comment Number	Section/Page	Comment	Response to Comment
Specific Comments (Continued)			
12.	SAP WS #18	**SAP Worksheet #18, Sampling Locations and Methods/SOP Requirements Table, Page 51 to 54 of 102:** Please identify samples to be collected below 10 feet bgs, as applicable.	Please refer to the response to city comment 9.
Minor Comments			
1.	---	**General:** Please define/clarify the difference between remedial goal, source criteria, and screening criteria.	Remedial goals are established in the record of decision (ROD) for specific chemicals. Source criteria apply only to TPH. Both multiples of remedial goals (Tier 1 and Tier 2) and source criteria are screening criteria used in this investigation.
2.	SAP WS #7	**SAP Worksheet #7, Personnel Responsibilities and Qualifications Table, Page 21 of 102**: Qualifications is misspelled in the worksheet title.	This typographical error has been corrected.
3.	SAP WS #11	**SAP Worksheet #11, Step 4, Define the Boundaries of the Study, Page 33 of 102**: The West boundary definition is duplicated.	This typographical error has been corrected.
4.	SAP WS #11	**SAP Worksheet #11, Step 6, Specify Performance or Acceptance Criteria, Page 34 of 102**: Please ensure the latest DoD QSM has been cited.	The cited version (DoD 2010) is the most recent incorporated into the Navy SAP guidance.
Responses to Additional Comments from City and County of San Francisco (Amy Brownell, dated April 15, 2013)			
1.	---	No comments from SFDPH.	Comment noted.

REFERENCES

Arcadis U.S., Inc. (Arcadis). 2012. "Final Parcel E Soil Excavation Characterization Work Plan, Hunters Point Naval Shipyard, San Francisco, California." August.

U.S. Department of Defense (DoD). 2010. "Quality Systems Manual for Environmental Laboratories, Version 4.2." April 22.