

**Table 1. Responses to Comments from Department of Toxic Substances Control (DTSC) on the
Draft Work Plan for Data Gaps Investigation Installation Restoration (IR) Site 6 Former Fire Training School (Draft Site 6 Work Plan)**

Comment #	Page #	Section	Comment	Response
Comments provided by DTSC Remedial Project Manager (Remedios Sunga), dated October 5, 2009				
1 N60028_001707 TREASURE ISLAND SSIC NO. 5090.3.A	--	General	<p>Historical Site Use and Photographs.</p> <p>Test pits were proposed at the northwest corner of the site based on review of historical aerial photographs. These photographs should be included in the Work Plan or historical reports where they can be viewed should be referenced. The investigation focused on the northern, southern and eastern portions of the Site. The southwestern portion includes former Buildings 236 and 238. Building 238 was used as a boiler house and repair shop. The rationale for not sampling in this area should be provided. Based on the use of Building 238, soil and soil gas samples should be taken in this area for TPH and VOC analyses.</p>	<p>Locations of test pits in the northwest corner of the site were based on apparent burn areas observed on aerial photographs dated September 1, 1963, and May 19, 1969. Copies of the aerial photographs were incorporated into the Final Work Plan.</p> <p>Previous environmental assessments at Naval Station Treasure Island (NAVSTA TI) have not uncovered evidence of potential environmental contamination associated with the Building 238 boiler house/repair shop. As required in the initial stages of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process, the Navy conducted a Preliminary Assessment/Site Inspection (PA/SI) of NAVSTA TI in 1988 to identify potential threats to human health or to the environment caused by past storage, handling, or disposal of hazardous substances (Dames and Moore, 1988). In accordance with the Community Environmental Response Facilitation Act (CERFA), a Basewide Environmental Baseline Survey (EBS) of NAVSTA TI was conducted in 1995 to evaluate environmental conditions at all parcels within NAVSTA TI (ERM-West, 1995). Neither the PA/SI Report nor the EBS Report identified the Building 238 boiler house/repair shop at IR Site 6 as a potential source of contamination. The results of the PA/SI and EBS will be briefly summarized in the Remedial Investigation (RI) Report for IR Site 6.</p> <p>Although no samples have been collected directly within the footprint of former Building 238, an adequate number of samples have been collected around the building, both at IR Site 6 and adjacent parcel T107, to evaluate whether significant releases may have occurred. To date, the historic sampling data collected around Building 238 have not provided evidence of releases associated with operations at the former building. The Navy considers the available data near Building 238 to be adequate to support the RI. The data will be briefly summarized in the RI Report.</p>

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2	--	General	<p>Previous Investigations.</p> <p>The Work Plan provides a brief summary of previous investigations that makes it difficult to evaluate the data for delineation of lateral and vertical extent of contamination. Detected concentrations were discussed but the sampling depths were generally not provided. A summary table of the concentrations left-in-place after the removal actions at the Site should be included in the Work Plan. Concentration contours and cross-sections may also be helpful in understanding the extent of contamination at the Site and evaluating the potential data gaps that remain.</p>	<p>Based on discussions with the BCT, the Navy has decided to expand the data gaps investigation to include additional samples and analyses that will be useful to support the RI. The expanded data gaps investigation strategy was discussed with the BCT during a working meeting on January 12, 2010. A copy of the meeting minutes is provided in Attachment A. For the Final Work Plan, the Navy included additional background information, statistical summary tables, and figures that present the pertinent data needed to scope a comprehensive data gaps investigation for IR Site 6. Regarding DTSC's request to include concentration contours and cross-sections, the Navy believes that a detailed presentation of the nature and extent of chemicals should be deferred to the RI report. .</p>
3	--	General	<p>Revised Site Boundary.</p> <p>The Site 6 boundary was changed to include an area towards the Bay due to detections of dioxins. Please discuss any previous investigations and land uses of this area to support limiting the sampling to dioxin in soil and TPH in groundwater. If no additional data exists, additional sampling in this area may be warranted.</p>	<p>Sections 2 and 3 of the Final Work Plan were revised to discuss the following:</p> <ul style="list-style-type: none"> ▪ Most of the northeast portion of IR Site 6 was originally part of Parcel T111, although portions were also part of Parcels T109 and T112. As documented in the Basewide EBS Report, historical features and uses at Parcel T111 included a vehicle parking area, forklift parking area, hazardous materials storage area, hazardous waste storage area, a tear gas training area, and a storage area for former training structures (ERM-West, 1995). ▪ Soil and groundwater samples were collected during previous investigations in the northeast portion of IR Site 6. In total, 45 soil samples and 33 groundwater samples were collected within this portion of the site. Samples were analyzed for a variety of parameters, including dioxins and furans, total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides and herbicides, polychlorinated biphenyls (PCBs), metals, anions, and pH. References to the relevant historical reports are provided in the Final Work Plan.

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3 (cont.)	--	General	(see above)	<ul style="list-style-type: none"> ▪ As discussed in the response to comment 2, the Navy developed an expanded data gaps investigation strategy in consultation with the BCT. The Final Work Plan specifies additional samples within the northeast portion of IR Site 6 (to be collocated with the previously proposed dioxin sampling locations). <p>IR Site 6 boundaries were expanded specifically to incorporate areas of dioxin-impacted soil identified during the remedial excavation program performed in 2002 and the subsequent sampling event conducted as part of the 2003 EBS field activities. The objective of the boundary modification was to facilitate closure of dioxin-impacted soil from IR Site 6 activities through the CERCLA process.</p>
4	--	General	<p>Screening Criteria.</p> <p>Applicable screening criteria for TPH were discussed and the levels were provided in Figures 5, 6 and 7 that include TPH screening criteria in soil for unrestricted land use and protection of groundwater. A separate table of the applicable screening criteria for all COCs should also be included in the Work Plan.</p>	<p>The Final Work Plan includes additional text and tables that summarize the applicable screening criteria for all chemicals of concern (COCs).</p>
5	--	General	<p>Metals.</p> <p>Metal investigations were conducted in the early 1995 and 1997 prior to the completion of the ambient metal level study for Treasure Island in 2005. The metal results and the screening criteria used at that time as well as the rationale for eliminating metals as COCs at the Site should be discussed in the Work Plan. Some of the proposed samples should be analyzed for metals since Site remediation is planned for unrestricted use and screening levels have changed for some metals since the 1990s.</p>	<p>As discussed in the response to comment 2, the Navy developed an expanded data gaps investigation strategy in consultation with the BCT. The Final Work Plan includes a systematic screening of metals requiring further evaluation, and specifies additional samples in areas of the site where metals exceed the site-specific screening levels.</p>

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6	--	General	<p>Naphthalene. The left-in-place concentrations of naphthalene in soil at three locations were above the PRG of 3.9 mg/kg and/or the screening criterion of 0.46 mg/kg in Figure 11 of the December 16, 2005 Final Closure Report. Please provide the rationale for not proposing soil samples near these locations for PAH analysis.</p>	<p>As discussed in the response to comment 2, the Navy developed an expanded data gaps investigation strategy in consultation with the BCT. The expanded approach to evaluating naphthalene, as detailed in the Final Work Plan, consists of: (1) targeting specific areas where naphthalene and other individual PAHs exceeded EPA residential Regional Screening Levels (RSLs); (2) analysis of both "shallow" and "deep" samples; and (3) collection of additional samples in the former helicopter training and 40'x40' excavation area where historic PAH data are sparse.</p>
7	--	General	<p>Radionuclides. Radionuclide contamination is also possible at Site 6 due to its proximity to the Site 12 solid waste disposal areas (SWDAs), the anomaly detected in the ground at Site 12 outside of the SWDAs, and the historic use of Site 6 as temporary storage of radiologically impacted materials excavated from Site 12. Therefore, a radionuclide survey should be conducted at Site 6 along with the ongoing Site 12 survey.</p>	<p>Based on the Historical Radiological Assessment Report for NAVSTA TI (Weston, 2006), IR Site 6 was not identified as a radiologically impacted site or a site that has the potential for radioactive contamination based on historical uses. IR Site 6 had no history of radiological isotope use or prior solid waste disposal activity. IR Site 6 was maintained as an operational facility prior to and during the construction of base housing at IR Site 12 and was not impacted by the housing construction activities. Because no historically identifiable mechanisms for radioactive contamination from IR Site 12 to impact IR Site 6 have been identified, a radiological investigation of Site 6 is not necessary.</p> <p>IR Site 6 is currently being used as a temporary staging area for roll-off bins in support of the ongoing radiological removal action at IR Site 12. The removal action is being conducted in accordance with the approved Final Removal Action Work Plan/Remedial Design (Shaw Environmental, Inc., [Shaw], 2007). Field activities are being performed in accordance with a radiological sampling and analysis plan that outlines specific radiological screening procedures and release limits and work instructions to ensure low-level radioactive waste from IR Site 12 is properly handled prior to off-site disposal (Shaw, 2007). Final radiological surface scans will be performed at IR Site 6 as part of the closeout process for the non-time-critical removal action at IR Site 12.</p>

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Comments provided by DTSC Remedial Project Manager (Remedios Sunga), dated October 5, 2009 (continued)				
7 (cont.)	--	General	(see above)	Data gap investigation activities at IR Site 6 will be performed in accordance with radiological work instructions furnished by Environmental Management Services, Inc., the designated Nuclear Regulatory Commission (NRC)-licensed low-level radiological waste disposal contractor. Radiological release surveys will be performed for all outgoing equipment, personnel, and materials, including samples to be transported to an off-site laboratory for analysis. A copy of the work instruction document was included in the Final Work Plan (EMS, 2010).
8	4-2,4-3, & 4-4	Data Gap 1	<p>Delineate Dioxins and Furans in Soil, Pages 4-2 to 4-4.</p> <p>First Paragraph, Page 4-2. The last sentence states that burn material was less evident on the ground surface north, south, and east of the former Building 464. East should be changed to west.</p> <p>First Complete Paragraph, Page 4-3. Please clarify whether the maximum dioxin TEQ concentrations of 1250 and 1013 ng/kg were composite or discrete samples.</p> <p>Third Paragraph, Page 4-3. The 1250 ng/kg at sample location 06-177 was detected during the excavation confirmation in 2002 and not during the Environmental Baseline Survey sampling in 2003. This sample ID is missing an "S", i.e, the ID should be 06-S-177. It should be specified that sample location 06-S-177 is shown as a 4-point composite sample in the Site 06 Fire Training School Remedial Excavation report dated June 24, 2003</p> <p>Dioxins and Furans Sampling Strategy, Page 4-4. Please clarify if all dioxin and furan contamination is thought to be associated with burn residue and if samples will not be collected at trenches with no visible burn residue.</p>	<p>Comment noted. The text was revised accordingly.</p> <p>The dioxin toxicity equivalent (TEQ) concentration of 1,250 nanograms per kilogram (ng/kg) was reported for a 3-point composite sample collected from sample location 06-177 during the 2002 remedial excavation (Shaw, 2004). The dioxin TEQ concentration of 1,013 ng/kg was reported in a discrete sample from location TP022 during the 2003 EBS. This sample was collected at 6 inches below ground surface (bgs) from former test pit TP022 (Shaw, 2005).</p> <p>The text was revised to cite the correct report reference. For ease of presentation, the location ID numbers or appropriate abbreviations are used in the figures and text. Figures and text were revised to clarify which samples were composited for analysis.</p> <p>The Navy assumes that dioxin and furan contamination at IR Site 6 is associated with either burn residue or wind deposition. A number of samples are proposed for delineating the lateral and vertical extent of dioxin-impacted soil, in areas with and without burn residue. If burn residue is not visible in a trench excavated for delineation purposes, then a soil sample will be collected at the appropriate depth to evaluate the extent of potential dioxin and furan contamination.</p>

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9	4-5	Data Gap 2	Data Gap 2 -Delineate Total Petroleum Hydrocarbons and Petroleum-Related Compounds in Soil, Page 4-5. Based on the use of Building 238 as boiler house and repair shop, soil borings should be installed in this area for soil sampling and analyzed for TPH and VOCs.	Please see the response to comment 1.
10	4-8	Data Gap 3	Data Gap 3 -Collect Soil Gas Samples to Evaluate Vapor Intrusion Pathway, Pages 4-8 to 4-8. Soil gas samples must also be collected in areas with left-in-place naphthalene concentrations in soil above the screening criterion in order to verify if potential vapor intrusion issues need to be evaluated and addressed moving forward.	Soil gas samples will be collected from six locations (SG01, SG11, SG14, SG15, and SG19) where historical samples exhibited naphthalene concentrations exceeding the soil screening criterion (0.46 mg/kg). The text was revised accordingly.
11	--	Figure 4 & SAP Worksheet 18.1	Figure 4 and SAP Worksheet 18.1. Please specify which results are from discrete and composite samples. The excavation confirmation samples in 2002 were composited for dioxin analysis and the 2003 EBS investigation were discrete samples from test pits. Please explain why all test pit (TP) sample results are inconsistent with the results shown in Figure 25 of the EBS report, e.g., Figure 4 shows a concentration of 1013 ng/kg at TP022 while Figure 25 of the EBS report presents 949 and 950 ng/kg. The confirmation sample IDs that start with 06 are missing an S, i.e., sample 06-098 should be 06-S-098.	Comment noted. The appropriate figures in both the Work Plan and Sampling and Analysis Plan (Figure 6 and Figure 5, respectively) and the text in Worksheet 18.1 were revised to distinguish between discrete and composite samples. The difference in dioxin and furan TEQ concentrations is the result of revisions to the World Health Organization (WHO) toxicity equivalency factors (TEFs) in June 2005 (Van den Berg, M. et al, 2006). The discrepancy was noted in the Final Work Plan, with clarification that dioxin TEQs at NAVSTA TI are now calculated using the June 2005 WHO TEFs. For ease of presentation, the location ID numbers or appropriate abbreviations are used in the figures and text.

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11 <i>(cont.)</i>	--	Figure 4 & SAP Worksheet 18.1	Additional test pits should be dug at locations near the site boundary where dioxin TEQ exceeds the screening concentration, i.e., near sample locations TP-004 and in the area of TP-002, TP-016 and TP031.	<p>The Navy does not believe that additional samples are warranted near the site boundaries to the wastewater treatment plant parcel, based on an adequate density of samples along Avenue M. As indicated on Figure 4, six dioxin samples were collected adjacent to the wastewater treatment parcel along Avenue M. Five of the samples exhibited dioxin TEQs below the EPA RSL of 4.5 ng/kg. One sample, TP004, exhibited a dioxin TEQ of 72 ng/kg, which exceeds the EPA RSL and the TI ambient concentration of 12 ng/kg. However, sample TP004 is adequately bounded within the wastewater treatment parcel by historical sample SB001, which is approximately 54 feet to the east / northeast. Please note that Figure 4 of the Draft Work Plan did not illustrate sample location SB001 with the correct symbol, thus its location was obscured. This figure was revised with the correct symbol.</p> <p>Near the northern boundary of the wastewater treatment parcel, IR Site 6 test pits TP002, TP016, and TP031 exhibited dioxin TEQ concentrations of 19, 22.1, and 13.7 ng/kg, respectively. These concentrations do not significantly exceed the TI ambient concentration of 12 ng/kg. All three sample locations are within 50 feet to the north of the southern parcel boundary in that area. The extent of dioxins in soil to the south/southeast was delineated by six soil samples collected from a utility trench in April 2003. The 30-foot-long utility trench was excavated directly adjacent to the parcel boundary, roughly southeast of TP002 and southwest of TP016. Six soil samples from the utility trench exhibited dioxin concentrations ranging from 0.25 to 2.3 ng/kg. Figure 5 of the Work Plan showed the six locations as one sample. The figure was revised to show the utility trench and the six individual sample locations.</p> <p>In summary, the Navy believes that adequate data exist to evaluate the extent of dioxins in soil adjacent to the wastewater treatment parcel. In addition, the Navy wishes to clarify that the treatment plant parcel was evaluated in detail as part of the IR Site 7 request for no further action letter (Navy, 2005). The letter presented historical investigation data and plant construction information to support the conclusion that further assessment of dioxins within or adjacent to the wastewater treatment plant parcel is not required.</p>

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11 <i>(cont.)</i>	--	Figure 4 & SAP Worksheet 18.1	<p>Sample location DX06 or a new boring should be placed closer to the northern property, boundary towards the Bay to determine the contamination extent from TP013 with 114 ng/kg dioxins TEQ.</p> <p>The rationale for sample location DX09 in the Worksheet is "Primary shallow sample in central portion of IR Site 6 for horizontal delineation near site boundary." This location is not at the center of the Site and at about 30 feet from the site boundary. The highest detections nearest to the site boundary were at TP004 and 06-098. Another boring should be installed near these borings at the site boundary or DX09 can be moved at this location.</p>	<p>Additional sampling to the north of DX06 is physically constrained by riprap material that bounds IR Site 6 approximately 30 feet away. The proximity of the riprap to the IR Site 6 boundary is shown on Figure 2. Rather than collect additional data only 30 feet away to delineate horizontal impacts toward the shoreline, the Navy believes that collection of sampling data to assess the vertical distribution of dioxin impacts in this area would be more useful. The deeper sampling data (i.e., below 0.5 feet bgs) will be used to evaluate risk and potential remedial action decisions.</p> <p>Comment noted. Worksheet 18.1 was revised to state "Primary shallow sample in southeastern portion of IR Site 6 for horizontal delineation near site boundary."</p> <p>Based on historical data collected within the wastewater treatment parcel, the Navy does not believe that additional dioxin evaluation is required east of TP004 or 06-098 (please see the response to comment 11).</p>
12	--	Figure 7	<p>Figure 7 - Proposed Soil Gas Sampling Locations</p> <p>Sample locations should be placed in the area of Buildings 238 for soil and soil gas samples. See General Comments.</p> <p>A soil gas sample should be collected further downgradient of the UST 248 plume at the site boundary near former monitoring well 06-MW18. Total TPH was detected at this well 920 µg/L in 2004.</p>	<p>Please see the response to comment 1.</p> <p>As discussed in Section 4.3 of the Draft Work Plan, soil gas data will be collected specifically to support the human health risk assessment for the vapor intrusion pathway. To support this effort, soil gas sampling locations were selected primarily at areas most likely to contain elevated concentrations of VOCs based on previous results for soil, soil gas, and groundwater. Using this approach, monitoring wells that historically exhibited at least one VOC concentration above groundwater screening criteria were targeted for collection of soil gas samples. Former monitoring well 06-MW18 did not exhibit any VOCs at concentrations above screening criteria. Furthermore, TPH compounds historically detected in this well were in the diesel- and motor-oil range. Based on the historical data, this location has a low potential for vapor intrusion concerns.</p>

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Comments provided by DTSC Remedial Project Manager (Remedios Sunga), dated October 5, 2009 (continued)				
12 (cont.)	--	Figure 7	Please discuss the analytical method for the soil gas samples and specify that naphthalene will be included in the analytical suite for VOCs.	<p>Please note that, in reference to the Navy's response to the Treasure Island Development Authority's comment 8, the Navy is amenable to adjusting proposed soil gas location SG07 adjacent to Building 468, which would place it closer to 06-MW18. This change requires a corresponding adjustment of proposed temporary well TW-4 to the same location.</p> <p>The Navy also wishes to clarify that the total TPH groundwater plumes illustrated on Figures 7 and 8 of the Draft Work Plan:</p> <ul style="list-style-type: none"> ▪ were conservatively estimated for data gaps planning purposes only, using data collected from different time periods between 1995 and 2004; ▪ were identified solely to support the placement of temporary monitoring wells being installed to evaluate potential impacts to aquatic wildlife in the bay (relative to the screening criterion of 1.4 milligrams per liter); and ▪ should not be construed as a contiguous area that poses a risk to humans. <p>The proposed soil and soil gas sampling will, in combination with previous site data, adequately characterize chemicals that pose a risk to humans within IR Site 6.</p> <p>Soil gas samples will be analyzed for VOCs by EPA Method TO-15 (U.S. Environmental Protection Agency, 1999). As stated in SAP Worksheet #15.2, the VOC compound list includes naphthalene.</p>
13	--	Tables 1,2,3	The tables (Tables 1, 2 and 3) are missing from the paper copy of the Report.	Comment noted.
14	--	Appendix A	Appendix A -Sampling and Analysis Plan. Please review the Worksheets and Attachments to verify their applicability for the proposed work at the Site, e.g. Attachment 24-1 (Key Ions and Abundance Criteria).	Attachment 24.1 presents instrument calibration criteria required for the analysis of PAHs by EPA Method 8270C. The entire SAP document was reviewed, and all other worksheets and attachments are applicable for the proposed work.

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14 <i>(cont.)</i>	--	Appendix A	<p>SAP Worksheet #10 -Problem Definition, Page 37 of 147. The third paragraph state that the ambient concentration will be used as the project action limit (PAL) to guide further RI actions. If the PALs are the same as the screening criteria, then this term should be replaced throughout the document with screening criteria.</p> <p>SAP Worksheet #11.1 to #11.4 - Data Quality Objectives (DQOs). Additional DQOs for metals and radionuclides should be included in this worksheet. See General Comments #5 and #7.</p> <p>SAP Worksheet #11.1-Dioxin DQOs. Worksheet 15.1 was referenced for the TI ambient dioxin soil screening criterion in Step 3 and the calculated TEQ is compared to PAL in Step 5 of this worksheet. Worksheet 15.1 does not include the PAL or screening criterion for dioxin.</p> <p>SAP Worksheet #18-2. Please include in the rationale that naphthalene was detected in soil above screening criterion at borings near the proposed soil gas sample locations SG-01, SG-11 and SG-14.</p>	<p>Comment noted. The term PAL is used by the Navy in sampling and analysis plans to ensure consistency with UFP-QAPP guidance.</p> <p>Please see the responses to comments 5 and 7.</p> <p>Comment noted. Worksheet 15.1 was revised accordingly.</p> <p>Comment noted. The text was revised accordingly.</p>

Table 2. Responses to Comments from Regional Water Quality Control Board (RWQCB) on the Draft Work Plan for Data Gaps Investigation Installation Restoration (IR) Site 6 Former Fire Training School (Draft Site 6 Work Plan)

Comment #	Page #	Section	Comment	Response
Comments provided by RWQCB Engineering Geologist (Ross Steenson), dated September 30, 2009				
1	--	General	Document Formatting Problem There is a problem with the text formatting throughout the document in which words are broken up to maintain the right-hand justification. As a result, the document is difficult to read. Please correct this in future versions of the document.	Comment noted. The formatting problem was caused during the PDF conversion process, and the Navy apologizes for any difficulty this caused during the review. Future documents will not be distributed with this issue.
2	2-5	Section 2.5	(Current Land Use and Proposed Reuse), page 2-5 The most appropriate document to be cited regarding proposed reuse is the 1996 City and County of San Francisco <i>Naval Station Treasure Island Reuse Plan – Public Review Draft</i> .	Comment noted. The 1996 reuse plan was referenced in the Final Work Plan.
3	5-4	Section 5.2.5	Section 5.2.5 (Groundwater Sample Collection), page 5-4 Please describe the construction of existing well 06-MW1 so that the temporary well construction approach can be better evaluated. Also, based on the wording of this section, the temporary well screen lengths might exceed 10 feet; this would conflict with the language in Sampling and Analysis Plan (SAP) Worksheet #11.4.	The Final Work Plan was revised to briefly state that the proposed construction of the temporary wells is similar to existing monitoring well 06-MW01 and other historical wells installed at IR Site 6. Monitoring well 06-MW01 consists of 2-inch-diameter, Schedule 40 polyvinyl chloride casing installed to a depth of 15 feet below ground surface (bgs). The screened portion of the well casing extends from 4.5 to 14.5 feet bgs and consists of 0.02-inch slot size. A filter pack of No. 3 sand was placed in the annular space from the borehole bottom to approximately 1 foot above the top of the well screen. A 6-inch-thick layer of bentonite was placed above the sand, and the remaining annular space was backfilled with Portland cement grout. For reference, the monitoring well completion details for well 06-MW1 (Harding Lawson Associates, 1987) are attached to these responses. Temporary monitoring well screens will not exceed 10 feet in length. The text in Section 5.2.5 was revised accordingly.

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Comment #	Page #	Section	Comment	Response
Comments provided by RWQCB Engineering Geologist (Ross Steenson), dated September 30, 2009				
4	--	Figure 4	<p>Figure 4 (Proposed Soil Sampling Locations for Dioxins)</p> <p>For locations TP004 (east of former building 464, adjacent to the wastewater treatment plant) and TP013 (northern portion of Site 6), what is the rationale for not proposing soil sampling locations to define the lateral extent to the north?</p>	<p>The area north and northwest of TP004 has been defined by historical sample TP008, which exhibited a dioxin and furan concentration of 0.08 nanograms per kilogram (ng/kg). The area north and northeast of TP004 has been defined by historical sample SB001, which exhibited a dioxin and furan concentration of 4.5 ng/kg. Please note that Figure 4 of the Draft Work Plan did not illustrate sample location SB001 with the correct symbol; therefore, its location was obscured. This figure was revised with the correct symbol in the Final Work Plan. In addition, the Navy wishes to clarify that the treatment plant parcel was evaluated in detail as part of the IR Site 7 request for no further action letter (Navy, 2005). The letter presented historical investigation data and plant construction information to support the conclusion that further assessment of dioxins within or adjacent to the wastewater treatment plant parcel is not required.</p> <p>Additional sampling to the north of TP013 is physically constrained by riprap material that bounds IR Site 6 approximately 30 feet away. The proximity of the riprap to the IR Site 6 boundary is shown on Figure 2.</p>
5	--	Figure 6	<p>Figure 6 (Proposed Soil Sampling Locations for TPH, UST 248A-D Area)</p> <p>In the northwestern portion of Site 6, there are two deep soil sample locations where total petroleum hydrocarbon (TPH) results exceed the residential screening level. What is the rationale for not proposing soil sampling near these locations?</p>	<p>Proposed soil sampling locations to delineate total petroleum hydrocarbons (TPH) in these two areas are shown on Figure 5 (Proposed Soil Sampling Locations for TPH, UST 240A/B Area). Figure 6 was revised to include a note indicating that the two sample locations are shown on Figure 5.</p>
6	--	Figure 8 2.3.3	<p>(Proposed Temporary Well Locations)</p> <p>Monitoring well 06-MW1 has been sampled more recently than 2004. Please add the more recent TPH results for well 06-MW1 to this figure beneath the January 2004 result.</p>	<p>Comment noted. Figure 8 was revised to show the most recent TPH data for well 06-MW1.</p>

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Installation Restoration (IR) Site 6 Former Fire Training School (Draft Site 6 Work Plan)**

Comment #	Page #	Section	Comment	Response
Comments provided by RWQCB Engineering Geologist (Ross Steenson), dated September 30, 2009				
7	--	SAP Worksheet #11.2 & #17	<p>SAP Worksheet #11.2 (Project Quality Objectives and Systematic Planning Process Statements for Data Gap 2 – Delineation of TPH and Petroleum-Related Compounds in Soil), page 52 of 147 and SAP Worksheet #17 (Sampling Design and Rationale), page 81 of 147.</p> <p>These worksheets state that “Additional headspace measurements may be collected, at the discretion of the field team leader, based on site conditions such as visible staining or noticeable petroleum odor.” Field screening such as headspace measurements should be performed and documented where there is visible staining or petroleum or other unknown odors.</p>	<p>Comment noted. The text was revised to state “Additional headspace measurements will be collected and documented where staining and odors are evident.”</p>

**Table 3. Responses to Comments from U.S. Environmental Protection Agency (EPA)
on the Draft Work Plan for Data Gaps Investigation Installation Restoration (IR) Site 6 Former Fire Training School (Draft Site 6 Work Plan)**

Comment #	Page #	Section	Comment	Response
Comments provided by EPA Region 9 Representative (Christine Katin), dated October 2, 2009(continued)				
1	4-3	Section 4.1	<p>Data Gap 1 - Summary of Conceptual Site Model for Dioxins and Furans, Page 4-3:</p> <p>It is unclear from the descriptions here and in Worksheet #17.1 whether the former burn pit is assumed to be associated strictly with fire training activities or could be a pit where waste was brought from other areas for disposal and burned. If the nature of the pit is assumed to be the latter, has the Navy considered the potential for waste items such as those found in Site 12 SWDAs (deck markers, decorative buttons) or contaminants other than dioxins/furans to be present here?</p>	<p>The Navy's review of historical data indicates that the Site 6 former burn pit was used for fire training, which involved setting and extinguishing various types of controlled fires using flammable solids and liquids in support of the Fire Fighting School's Training Mission. The burn pit was not used for the general reduction of refuse waste, unlike the wastes identified at the former incinerator location at Site 12 SWDA 1231/1233.</p> <p>No historical reports, including the Preliminary Assessment/Site Inspection (PA/SI) of Naval Station Treasure Island (NAVFAC TI) (Dames and Moore, 1988) and the Basewide Environmental Baseline Survey (EBS) (ERM West, 1995), have identified the former burn pit as a known or potential disposal site. No evidence exists to suggest wastes were brought from other areas of Treasure Island and disposed of at the former burn pit. In addition, the Historical Radiological Assessment (HRA) Report for NAVSTA TI (Weston, 2006) did not identify Site 6 as a radiologically impacted site or a site that has the potential for radioactive contamination based on historical uses. The results of the PA/SI, EBS, and HRA will be briefly summarized in the Remedial Investigation (RI) Report for IR Site 6.</p>
2	--	Figure 4	<p>Proposed Soil Sampling Locations for Dioxins:</p> <p>If physical limitations prevent sampling north of TP031 and TP013, please state the assumptions about dioxin concentrations in this area (e.g., considered consistent with the higher or lower concentration?).</p>	<p>Additional sampling to the north of TP031 and TP013 is physically constrained by riprap material that bounds Site 6 approximately 30 feet away. The proximity of the riprap to the Site 6 boundary is shown on Figure 2. Assumptions about the lateral and vertical extent of dioxin and furan contamination beyond the Site 6 boundary, considering historic data and data collected during the data gaps investigation, will be addressed in the RI Report.</p>
3	37	SAP Worksheet #10	<p>SAP WORKSHEET #10, Page 37:</p> <p>The former burn pit located on historical aerial photographs was not analyzed for dioxins. Were other constituents analyzed?</p>	<p>Two previous soil borings were completed in the immediate vicinity (i.e., within 5 feet) of the presumed location of the former burn pit: 06-HP025 and 06-HP086. These borings were completed as part of the Phase IIB RI in 1995 and a subsequent focused site characterization effort in 2000. Soil samples from 06-HP025 were analyzed for volatile organic compounds (VOCs), and soil samples from 06-HP086 were analyzed for total petroleum hydrocarbons (TPH). No VOCs or TPH compounds were detected in the soil samples at concentrations above the soil screening levels for Site 6. The analytical results for the samples are summarized in the Final Corrective Action Plan for Site 6 (Tetra Tech EM, Inc., 2002).</p>

**Table 3. Responses to Comments from U.S. Environmental Protection Agency (EPA)
on the Draft Work Plan for Data Gaps Investigation Installation Restoration (IR) Site 6 Former Fire Training School (Draft Site 6 Work Plan)**

Comment #	Page #	Section	Comment	Response
Comments provided by EPA Region 9 Representative (Christine Katin), dated October 2, 2009(continued)				
4	83	SAP Worksheet #17.4	<p>SAP WORKSHEET #17.4 Groundwater Sampling for Total Petroleum Hydrocarbons and Volatile Organic Compounds, Appendix A, Page 83:</p> <p>This worksheet states that the temporary wells will be removed once the DQOs have been attained. The DQOs (Worksheet #11.4) state simply that the wells will be abandoned within 30 days or an appropriate timeframe determined by the Navy (Step 7). It is not clear from the DQOs whether the wells will be removed regardless of the sampling conclusions (Step 5). If the TPH plumes are found to have migrated, will the DQOs be considered met and the wells removed or will they potentially be kept for RI purposes?</p>	<p>If groundwater data from the temporary wells demonstrate the TPH plumes may be migrating, the need for additional sampling will be evaluated in the RI report. For the purpose of this data gap investigation, the temporary wells will be sampled one time only. Worksheet 17.4 was revised to clarify this approach.</p> <p>The Navy also wishes to clarify that the total TPH groundwater plumes shown on Figures 7 and 8 of the Draft Work Plan:</p> <ul style="list-style-type: none"> ▪ were conservatively estimated, for data gaps planning purposes only, using data collected from different time periods between 1995 and 2004; ▪ were identified solely to support the placement of temporary monitoring wells being installed to evaluate potential impacts to aquatic wildlife in the bay (relative to the screening criterion of 1.4 milligrams per liter); and ▪ should not be construed as a contiguous area that poses a risk to humans. <p>Following collection of additional data during the forthcoming investigation, the RI report will present a detailed interpretation of current total TPH concentrations in groundwater.</p>

Table 4. Responses to Comments from AMEC Geomatrix Inc. (AMEC) on the Draft Work Plan for Data Gaps Investigation Installation Restoration (IR) Site 6 Former Fire Training School (Draft Site 6 Work Plan)

Comment #	Page #	Section	Comment	Response
Comments provided by AMEC Principal Geologist (Gary R. Foote) on behalf of the Treasure Island Development Authority, dated September 30, 2009 (continued)				
1	--	General	<p>Potential Impacts beneath Building 461.</p> <p>During the June 3, 2009 Base Realignment and Closure (BRAC) Cleanup Team (BCT) scoping meeting, the Navy agreed to discuss the construction date of Building 461 relative to the know timeframe the burning activities occurred at Site 6, to assess whether potential contamination may exist beneath the building. Based on information presented in Section 2.6, Building 461 was constructed in 1970. Site 6 operations were conducted for at least 25 years prior to construction of the building (since 1944). The southeast corner of the building appears likely to have been downwind of the Former Burn Pit and it is possible that airborne deposition of dioxins may have occurred over soil that is now beneath the building. Sample locations DX17 and DX18 (near the southern side of this building) are proposed as contingency sample locations. We believe it is prudent to collect primary samples at these locations to assess whether dioxins could be present beneath Building 461.</p>	<p>The Navy will re-designate the shallow soil samples at DX17 and DX18 as primary samples and the deep samples as secondary samples. In accordance with the tiered analytical approach outlined in the Draft Work Plan, results of the primary samples will be used to evaluate the need for analyzing the secondary samples (e.g., if primary sample concentrations exceed the screening level for dioxin toxicity equivalent quotient (TEQ) of 12 nanograms per kilogram [ng/kg]). The Work Plan text, figures, and tables were revised accordingly.</p> <p>Building 461 as-built drawings indicate that the foundation is supported by a cement-treated sand base fill that was placed at depths of approximately 3 to 6 feet below the current ground surface. In addition, dioxins are typically found in near-surface soils (0 to 0.5 foot below ground surface [bgs]). Based on this information, the Navy believes there is an extremely low potential for residual dioxins to be present beneath the building.</p> <p>A thorough evaluation of potential impacts to Building 461 will be conducted after the planned data gaps investigation is completed. Following completion of the Remedial Investigation (RI) Report, which will include identifying any uncertainties associated with the investigation and the extent of potential contamination at the site boundaries, the Navy will evaluate appropriate management decisions for Building 461.</p>
2	--	General	<p>Dioxin Data Gaps-Soil Sampling Strategy.</p> <p>The conceptual model for the release of dioxins and furans states, "Due to their limited mobility, dioxins are commonly found only in the upper 6 inches of soil and do not readily migrate into deeper soils or leach into groundwater. Burn layers from previous IR Site 6 test pits were generally thin and encountered within 6 inches of the surface." However, the sampling strategy proposed indicates that samples will be collected at depths ranging from 0.5 to 2.5 feet below ground surface (bgs). It appears that the proposed sampling will miss the interval where the dioxins are most likely to be found (upper 6 inches).</p>	<p>The dioxin sampling depth presented in the worksheet represents the maximum depth of a given sampling interval, which will not exceed 6 inches. Worksheet 18.1 was clarified accordingly. Therefore, the proposed sampling will provide adequate data within both the 0-to-0.5-foot-bgs interval and the 1.5-to-2.5-feet-bgs interval.</p> <p>The area south of TP022 is adequately bounded by former sample location TP028, which is approximately 75 feet away from TP022. This sample exhibited a dioxin TEQ concentration of 0.13 ng/kg. The area west and southwest of TP022 is bounded by historical sample location TP027, located approximately 100 feet away from TP022. This sample exhibited a dioxin TEQ concentration of 3.94 ng/kg.</p>

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Comment #	Page #	Section	Comment	Response
Comments provided by AMEC Principal Geologist (Gary R. Foote) on behalf of the Treasure Island Development Authority, dated September 30, 2009 (continued)				
2 (cont.)	--	General	Please clarify sample depths on Worksheet 18.1 by providing the entire sample interval (not just a single depth). Does a depth of 0.5 (Worksheet 18.1) refer to a sample interval is 0-0.5 feet or a sample interval is 0.5 to 1 foot? Additionally, we believe that soil borings should be advanced in the area south and west of TP022, where dioxin TEQ was 1,013 nanograms per kilogram (ng/kg). The lateral extent south and west of this location has not been delineated.	(see above)
3	--	General	Total Petroleum Hydrocarbons (TPH) Data Gaps-Soil Sampling Strategy. The text on page 4-5 indicates that the objectives of the soil sampling are to assess whether petroleum constituents in vadose zone soil (0 to 5.5 feet bgs) pose an unacceptable risk to humans and to assess whether petroleum constituents in both saturated and unsaturated soil (0 to 10 feet bgs) may be serving as a source to groundwater. Because humans may come into contact with soil that is greater than 5.5 feet deep (especially construction and utility workers), we believe that deeper soil also should be assessed to determine whether it poses an unacceptable risk to human health. The sampling and analysis plan should collect data (volatile organic compounds [VOCs] and polycyclic aromatic hydrocarbons [PAHs]) to assess risk to human receptors that may come into contact with deeper soil. (This comment also applies to relevant sections of the SAP, including SAP Worksheet 11.2) We also believe that several borings should be advanced in the vicinity of the 40x40 excavation and the helicopter training area.	Based on discussions and strategy meetings with the BRAC Cleanup Team (BCT), the Navy revised the approach to evaluating chemicals in soil at IR Site 6. To support the RI, data will be collected to assess whether constituents pose an unacceptable risk in both shallow (0-5.5 feet bgs) soil and deep (>5.5 feet bgs) soil. Additional data will be collected in the shallow soil horizon to evaluate risks associated with residential and recreational exposure pathways (including ingestion, dermal contact, and inhalation). Sampling data will be collected in the deeper soil horizon to evaluate exposure of chemicals to potential future construction or utility workers that may perform intrusive activities deeper than 5.5 feet bgs. Data gap sampling will also include evaluating specific locations of IR Site 6 where sparse data exists (e.g., the former helicopter training area). The revised sampling strategy was discussed in detail with the BCT during a working meeting on January 12, 2010. A copy of the meeting minutes is included as Attachment A. The Final Work Plan includes revised figures that depict the additional soil samples to be analyzed for various constituents, including volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs).

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3 (cont.)	--	General	Although many shallow soil samples (less than 5.5 feet bgs) were collected in this area, virtually no deeper soil samples were collected. One deeper sample was collected at a depth of 7 to 7.5 feet bgs and it had TPH as gasoline (TPHg) detected at 12,000 milligrams per kilogram (mg/kg) (06-HP064). The lateral extent of this deeper impact has not been delineated.	(see above)
4		General	<p>Recent Department of Toxic Substances Control (DTSC) Interim Guidance Pertaining to Evaluation of TPH.</p> <p>The BCT should discuss the recent DTSC Interim Guidance pertaining to evaluation of TPH in risk assessments and the collection of analytical data using a fractionated approach. If the new Interim Guidance is followed, it will impact the methods used to analyze soil, groundwater and soil vapor samples for TPH.</p>	<p>The Navy has reviewed DTSC's Interim Guidance, and has identified several critical issues that prevent its implementation at IR Site 6:</p> <ul style="list-style-type: none"> ▪ The proposed analytical method, 8015C, has not been officially accepted by DTSC and, for the few laboratories that do perform the 8015C method, there is little consistency on how the method is performed. ▪ New fractionated total petroleum hydrocarbon (TPH) data cannot be readily compared with the large existing data set for TPH, which quantifies gas, diesel, and motor oil range TPH and does not align with the aliphatic and aromatic hydrocarbon groups identified in DTSC's interim guidance. ▪ Analytical costs are on the order of three times more expensive for the fractionated TPH analysis than the standard TPH analysis ▪ Toxicity values selected by DTSC to represent the TPH fractions are based on a surrogate thought to be the most toxic or comprise a significant portion of the hydrocarbon. However, chemical composition may be quite variable across sites, especially as a result of weathering. <p>In addition to these implementation issues, the Navy believes that its current approach for evaluating TPH is adequately conservative to support an informed risk management decision for IR Site 6. This determination is based on the following rationale:</p> <ul style="list-style-type: none"> ▪ TPH is composed of hundreds of individual chemicals, the most toxic of which are petroleum-related VOCs and PAHs which will be accounted for in the Navy's risk assessment.

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4 (cont.)	--	General	(see above)	<ul style="list-style-type: none"> ▪ The current Treasure Island Preliminary Remediation Criteria (PRC) for petroleum and petroleum constituents are based on the Presidio Fuel Product Action Levels (FPALs), which were developed using a conservative, risk-based approach similar to what is proposed in DTSC's Interim Guidance. The Presidio FPALs were developed using a surrogate chemical approach whereby unfractionated TPH (gasoline, diesel, and motor oil range TPH) were assumed to represent extractable fractional ranges (aliphatic and aromatic compounds) and assigned an appropriate surrogate chemical for which a residential health protective concentration based on a Hazard Quotient of 0.1 had been determined. The final Presidio FPALs were based on the fraction of gasoline, diesel, and motor oil range TPH that was determined to be most conservative. <p>The Navy will continue to use: (1) the established TPH analytical methods (that quantify gasoline, diesel, and motor oil range TPH) to fill data gaps at IR Site 6; and (2) the widely accepted petroleum PRCs established for Treasure Island to evaluate the nature and extent of TPH in soil and groundwater. This approach, as described in the IR Site 6 data gaps investigation Work Plan, are adequately conservative to support an informed risk management decision for TPH and petroleum constituents.</p>
5	--	Section 2.5	<p>Current Land Use and Proposed Reuse (and Section 10.1.2 of SAP).</p> <p>The text states that the proposed reuse for IR Site 6 may include residential, open space, and publicly oriented uses and cites Tetra Tech's 2007 Final Site Management Plan as the source of information. We suggest that the appropriate source document be cited (i.e., the 1996 Draft Reuse Plan).</p>	Comment noted. The 1996 reuse plan was referenced in the Final Work Plan.

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6	--	Section 3.2	Additional Investigations and Remedial Activities. Samples from several previous investigations have been analyzed for metals. Has the Navy reviewed these data to ensure that there are no data gaps associated with metals?	As discussed in the response to comment 3, the Navy developed an expanded data gaps investigation strategy in consultation with the BCT. The Final Work Plan includes a systematic screening of metals requiring further evaluation, and specifies additional samples in areas of the site where metals exceed the specific screening levels.
7	--	Section 4.1	Data Gap 1-Delineate Dioxins and Furans in Soil. Please provide the dates of the aerial photographs that suggest the presence of a former burn pit at the site.	The apparent burn pit was observed on aerial photographs dated September 1, 1963, and May 19, 1969. The dates of the aerial photographs were included in the Final Work Plan.
8	--	Section 4.3	Data Gap 3-Collect Soil Gas Samples to Evaluate Potential Vapor Intrusion Pathway. Some of the planned soil vapor sample locations are near former location SV-04B, where VOCs were detected at concentrations above screening levels. It would be helpful to show the former sample location on Figure 7. Additionally, we believe it would be appropriate to collect soil vapor samples near Building 468 (Waste Water treatment Plant parcel), which overlies the UST 248 groundwater plume and an additional sample adjacent to Building 461 (east of proposed sample SG03) because of the uncertainty of the extent of the UST 240 plume.	The appropriate figures in both the Final Work Plan and Sampling and Analysis Plan (Figures 17 and 16, respectively) were revised to include a sample identification label for SV-04B. The Navy is amenable to adjusting proposed soil gas location SG09 to the requested location adjacent to Building 461. The Navy is also amenable to adjusting proposed soil gas location SG07 closer to Building 468; however, this change requires a corresponding adjustment of proposed temporary well TW-4 to the same location. As described in the Work Plan, collocated soil gas and groundwater samples will be collected near the suspected leading edge of the TPH plume at Underground Storage Tank (UST) 248 to support the human health risk assessment.
9	--	Section 4.3	Data Gap 3-Collect Soil Gas Samples to Evaluate Potential Vapor Intrusion Pathway (TI Specific Screening Levels for Soil Gas). The text states that "The preliminary screening levels selected for the data gap evaluation are the TI specific screening levels for TPH fractions and TPH constituents documented in recent IR Site 6 reports (Shaw, 2005c)." The Shaw 2005 document referenced does not present screening levels for TPH fractions.	Soil screening levels for TPH fractions are presented in Table 2 of Shaw (2005). The table also includes the 2005 environmental screening levels (ESLs) for TPH fractions. The appropriate sections of the Final Work Plan (text and figures) were revised to reference the most recent ESLs from the Regional Water Quality Control Board. The human health risk assessment will evaluate cumulative risk associated with all detected constituents.

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9 (cont.)	--	Section 4.3	This document does present 2005 Water Board Environmental Screening Levels (ESLs) for TPH constituents (benzene, toluene, ethylbenzene and xylenes [BTEX] and methyl tertiary butyl ether [MTBE]), but it does not include ESLs for TPH itself. Additionally, the ESLs were updated in 2008 and the preliminary screening levels should be revised accordingly (e.g., ethylbenzene). Finally, we note that the Navy modified the screening levels by normalizing the values to a target Hazard Quotient (HQ) of 1 (rather than a HQ of 0.2 used by the Water Board). We do not object to this modification to the preliminary screening level, however, the Navy should consider cumulative risk and hazards (e.g., the Hazard Index) for all constituents detected when screening soil vapor samples.	(see above)
10	--	Section 4.4	Data Gap 4-Groundwater Sampling to Evaluate Petroleum Hydrocarbon Plume Stability. The groundwater elevation contours presented on Figure 8 provide the primary basis for the placement of the proposed temporary wells. The report should provide the date that groundwater elevations were measured and provide some indication about whether historic groundwater flow directions have varied. Are the groundwater contours presented on Figure 8 indicative of typical groundwater flow directions or have there been historical fluctuations? Additionally, we believe that it would be appropriate to install a temporary well along the leading edge of the UST 240 plume, between proposed temporary well TW-4 and former well 06-MW18. Such a well would be downgradient of former well 06-MW22, where elevated concentrations of TPH were detected in groundwater.	<p>The groundwater contours presented in the figure were based on water level data collected in January 2004 (Shaw, 2004b). The figure was revised to denote the date of the water level data. Note: The referenced figure was re-numbered as Figure 18 in the Final Work Plan.</p> <p>The groundwater contours presented in the figure (Figure 18 in the Final Work Plan) are typical of groundwater flow directions at Site 6. Historical investigation and groundwater monitoring reports have consistently reported groundwater flow to the north/northeast.</p> <p>Based on the details provided, the Navy assumes that the reviewer is referring to the proposed placement of temporary wells at the UST 248 petroleum plume, not the UST 240 plume. The Navy does not believe additional temporary wells are necessary at the leading edge of the UST 248 petroleum plume; however, the Final Work Plan was revised to shift proposed temporary well TW-4 about 50 feet to the east-northeast to be more directly downgradient of former wells 06-MW22 and 06-MW-12, where elevated petroleum hydrocarbons have been detected.</p>

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10 (cont.)	--	Section 4.4	Finally, the last paragraph of this section indicates that groundwater plume stability will be evaluated by preparing time-series plots depicting chemical concentrations over time. However, Section 5.2.5 indicates that the temporary wells will only be left in place until one round of validated data are collected. How will time-series plots be developed with only one round of data?	<p>In addition, proposed temporary well TW-5 is downgradient of former well 06-MW22 and will provide additional TPH and VOC data downgradient of the UST 248 petroleum plume and adjacent to the shoreline.</p> <p>The appropriate section in the Final Work Plan (Section 4.3.4.2) was revised to clarify that a time-series plot will be used only for evaluating plume stability at existing well 06-MW01. For the remaining temporary wells, a qualitative assessment of plume stability will be performed by comparing concentrations collected from the data gaps investigation to historical data from nearby former monitoring wells. In addition, the BIOSCREEN model will be updated to predict future petroleum concentrations in groundwater.</p> <p>The Navy also wishes to clarify that the total TPH groundwater plumes shown on Figures 7 and 8 of the Draft Work Plan:</p> <ul style="list-style-type: none"> ▪ were conservatively estimated for data gaps planning purposes only, using data collected from different time periods between 1995 and 2004; ▪ were identified solely to support the placement of temporary monitoring wells being installed to evaluate potential impacts to aquatic wildlife in the bay (relative to the screening criterion of 1.4 milligrams per liter); and ▪ should not be construed as a contiguous area that poses a risk to humans. <p>Following collection of additional data during the forthcoming investigation, the RI Report will present a detailed interpretation of current total TPH concentrations in groundwater.</p>

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11	--	Section 5.2.5	Groundwater Sample Collection. The text does not discuss whether the temporary wells will be developed prior to sample collection. However, SAP Worksheet 11.4 does mention well development. Please discuss well development and the methods to be used in section 5.2.5. Additionally, the text states that screen lengths may be approximately 12 feet long whereas SAP Worksheet 11.4 states that well screens will be no longer than 10 feet. Please resolve the discrepancy. We encourage the use of shorter well screens.	Temporary wells will be developed prior to sample collection. A discussion of well development methods was added to Section 5.2.5 of the Final Work Plan. Temporary monitoring well screens will not exceed 10 feet in length. The text in Section 5.2.5 was revised accordingly.
12	--	Section 5.2.7	Soil Boring and Well Abandonment. It is unclear whether temporary well construction materials will be removed prior to backfilling with cement-bentonite grout.	Temporary well construction materials will be removed prior to backfilling with cement-bentonite grout. The text in Section 5.2.7 was revised accordingly.
13	--	Section 5.3	Test pit Excavation and Sampling. The section should describe the measures that will be taken to ensure that backfilled test pits are adequately compacted.	Test pits will be backfilled and compacted using a hydraulic ram. The text in Section 5.3 was revised accordingly.
14	--	Figures 5 & 6	It is not clear whether previous samples were analyzed for petroleum-related VOCs and PAHs. Most posted sample results are for TPH and it is not clear whether (1) samples were not analyzed for VOCs and PAH or (2) samples were analyzed for VOCs and PAHs and concentrations were below screening levels.	The previous sample locations shown on Figures 5 and 6 do not differentiate between the petroleum analyses that were performed (i.e., any given sample location could have been analyzed for TPH, VOCs, and PAHs). To differentiate between the analytical groups, the Final Work Plan includes separate figures that depict historic data for TPH, VOCs, and PAHs separately (Figures 7 through 13).

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15	--	SAP Worksheet 11.3	Based on information presented under Step 7 of this table, it appears that soil vapor samples will only be analyzed for VOCs (including naphthalene). It is common practice to analyze soil vapor samples at petroleum release sites for TPH and the Water Board has developed TPH environmental screening levels for soil vapor samples. We believe that it is appropriate to analyze soil vapor samples for TPH.	The Navy believes that evaluating risk for TPH mixtures, which are often composed of hundreds of individual chemicals having no chemical-specific criteria, poses a high degree of uncertainty. It is more appropriate to evaluate risk for chemicals with specific, scientifically accepted toxicity values. Because the Navy intends to use the soil gas data primarily to support the risk assessment, soil gas samples will be analyzed only for VOCs. During the December 2, 2009 BCT Meeting, the Water Board concurred that TPH analysis was not required for the soil vapor samples.
16	--	SAP Worksheet 15.1	The Project Action Limit (PAL) for dioxins/furans is simply identified as "TEQ" in the worksheet. We understand how the TEQ system will be used, but what numerical action limit will be used for the calculated TEQ results?	The project action limit (PAL) for dioxins and furans in soil is 12 ng/kg. Worksheet #15.1 was revised to include the PAL.
17	--	SAP Worksheet 18.1	<p>We have the following comments on this worksheet.</p> <ul style="list-style-type: none"> • The work sheet indicates that sample location DX12 will be in the central portion of Site 6. However Figure 4 shows this location at the southern property boundary. <p>Please resolve.</p> <ul style="list-style-type: none"> • At sample location SB06, a soil sample is proposed to be collected only at a depth of 3 feet bgs. We believe that a deeper soil sample also needs to be collected at this location because elevated concentrations of TPH were detected at depths of 6 to 7 feet bgs in nearby borings 06-HP069 and 06-HP087. 	<ul style="list-style-type: none"> ▪ Figure 4 is correct. Worksheet #18.1 was revised to indicate that sample location DX12 will be in the southern portion of IR Site 6. ▪ The Navy agrees with the comment. A sample will be collected at this location at a depth of 6 to 7 feet bgs for analysis of TPH. Based on the expanded investigation, the sample was re-labeled as SB07 for the Final SAP. Worksheet #18.1 has been revised to address this change. ▪ Based on historical data collected from monitoring well 06-MW01, groundwater levels within the UST 240 Area are expected to be approximately 3.5 to 5 feet bgs. Therefore, most of the soil borings in the UST 240 Area will penetrate the water table in accordance with the proposed sampling strategy. At each location, soil cores will be collected and inspected for the presence of free product, discoloration, and noticeable odors.

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17 (cont.)	--	SAP Work-sheet 18.1	<ul style="list-style-type: none"> • Some borings in the UST 240 Area will have the deepest samples collected at 4.5 to 5 feet (SB01, SB04 and SB05). Borings should be advanced deep enough to assess whether there is floating product on top of the water table (which reportedly is at a depth of 5.5 feet bgs). We have previous expressed concerns about the potential for free product to remain in this area (October 14, 2005 comments on Draft Closure Report) • Sample locations SB01 through SB28 are being advanced to further assess the extent of petroleum impacts. The table indicates that some soil samples will only be analyzed for TPH, others will only be analyzed for VOCs and PAHs, and other samples will be analyzed for TPH, VOCs and PAHs. In the absence of a clear rationale for excluding some analyses, we believe that all soil samples should be analyzed for TPH, VOCs and PAHs. 	<ul style="list-style-type: none"> ▪ Soil sample locations will be selected to laterally delineate specific areas of the site where prior soil samples exhibited concentrations exceeding applicable screening levels. For chemicals, the screening levels used are the EPA Region 9 residential soil Regional Screening Levels (EPA, 2010), California Human Health Screening Levels, and other applicable criteria. For TPH fractions, the screening levels used are the preliminary remediation criteria established for NAVSTA TI that are protective of aquatic wildlife (TiEMI, 2001).
18	--	Section 5.1.1	<p>Permitting and Notifications.</p> <p>Under the list of parties to be notified of the work, the text refers to the TI Development Agency. The correct name is the Treasure Island Development Authority.</p>	<p>Comment noted. The text was revised accordingly. In the Final Work Plan, permitting and notifications are discussed in Section 5.1.2.</p>

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- Dames and Moore, 1988. "Preliminary Assessment/Site Inspection of Naval Station Treasure Island, California." Volume I. April.
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ATTACHMENT A
TECHNICAL WORKING MEETING
NAVAL STATION TREASURE ISLAND IR SITE 06
JANUARY 12, 2010 AT 10:00 AM
LOCATION: AMEC OFFICE, 2101 WEBSTER STREET, OAKLAND, CA

Attendees

Tony Konzen – Navy
Remedios Sunga – DTSC
Brian Davis – DTSC (via conference call)
Gary Foote – AMEC
Doug Bielskis – ERRG
Phil Skorge – ERRG
Charles Smith - Caltrans

DTSC TPH Risk Assessment Interim Guidance

Brian Davis requested background information on TI Site 06, which was provided by Doug Bielskis. Brian commented that most of the proposed data gap samples appear geared toward addressing potential impacts of deep soil contaminants to human receptors (e.g., construction worker). Brian suggested verifying that the density of near-surface soil samples (0-0.5 feet bgs) is adequate to support the risk assessment.

Since Site 06 is being evaluated under CERCLA, Brian Davis recommends that the Navy evaluate TPH fractions in the risk assessment consistent with the interim guidance. He recommends collecting TPH speciated data during the forthcoming data gaps investigation. Gary Foote noted that laboratories are just now getting up to speed with the required analyses, and that there are challenges to correlating new speciated TPH data with older TPH data quantified in gas, diesel, and motor oil ranges. Tony Konzen expressed concerns regarding potential implementation challenges, and how they might affect the Navy's overall environmental program. The Navy is performing an internal technical evaluation through the Rapid Response Technical Support contract, but doesn't expect results prior to finalizing the Site 06 Data Gaps Investigation Work Plan. The Navy does not want to delay the Site 06 fieldwork to await the results of the technical evaluation. Doug Bielskis stated that one aspect of the analysis would be to calculate risk-based concentrations (RBCs) using the interim guidance and compare those RBCs with the risk-based TPH criteria already established for TI in 1996 (Preliminary Remediation Criteria). If it can be demonstrated that the established criteria are adequately conservative, relative to the RBCs calculated from the interim guidance, then full implementation of the interim guidance may not be required to support the risk management decisions to be made at Site 06. The group agreed to re-visit the issue during the February BCT meeting to determine whether or not it is practical to implement the interim guidance at Site 06.

Doug Bielskis asked about specific guidance on appropriate sampling designs (i.e., number of samples) to comply with the interim guidance. Per Brian Davis and Gary Foote, site heterogeneity must be taken into account (i.e., assumptions regarding TPH sources, mixtures, and estimated duration of releases in the environment should be considered). Overall, the sampling design is flexible and there is no specific guidance regarding number of samples. Also, Brian and Gary emphasized that the DTSC typically does not re-open sites due to publication of new regulatory guidance; therefore, sites with comingled TPH and CERCLA-regulated chemicals that have proceeded past the RI stage would not be subject to the interim guidance.

Site 06 Data Gaps Sampling

- In reference to **Figure 6 – Soil Sampling Locations for TPH, UST 248A-D Area**, Gary Foote recommended adding another deep data gap sampling location west of former Building 241, to address data gap between historic sampling locations 06-HP021 and 06-HP079.
- DTSC (Remedios Sunga) requested clarification whether Building 238 has been addressed as a potential source area, based on its historic use as a boiler room and repair shop. The Navy responded that, as required under CERCLA, potential chemical source areas were addressed in the PA/SI and EBS documents prepared for Site 6. In both reports, no evidence of chemical usage or potential releases to the environment associated with Building 238 historic activities was found. As a result, no sampling within the footprint of Building 238 has been performed, and the Navy considers the available data collected near Building 238 to be adequate to support the RI.
- In reference to PAH analyses (EPA 8270C SIM) Gary Foote recommended silica gel cleanup to address potential matrix interference during the analytical procedure.
- In reference to **Figure 12 – Soil Sampling Locations for Arsenic**, DTSC requested clarification whether historic samples shown on the figure were analyzed for metals other than arsenic. The response from Navy / ERRG was that the historic samples were analyzed for a full suite of metals (e.g., CAM 17). All metals data in soil were evaluated in statistical summary tables that will be included in the Final Work Plan.
- In reference to **Figure 15 – Proposed Soil Gas Sampling Locations**, Gary Foote indicated that the Navy's RTCs had concurred with AMEC's recommendation to re-locate another proposed soil gas location adjacent to Building 461. Figure 15 needs to be revised to shift proposed soil gas sampling location SG09 from the UST 248 Area to Building 461 (east of former monitoring well 06-MW23).
- In reference to **Figure 17 – Groundwater Sampling Locations for Arsenic**, DTSC requested clarification regarding the groundwater screening level for arsenic (36 µg/L is indicated on the figure). The response from the Navy / ERRG was that we were applying the TI surface water screening levels, which are also the criteria being applied at Hunters Point and the Presidio. DTSC stated that the criteria should be consistent with adjacent IR Site 32. DTSC indicated that the groundwater screening level for arsenic at IR Site 32 is 0.14 µg/L. DTSC also requested that all screening criteria be consistent with IR Site 32 (e.g., Medi pointed out that the TPH-diesel soil screening level at Site 32 is 1,450 mg/kg, not 1,500 mg/kg as indicated on IR Site 06 figures).