

**RESPONSE TO NAVY COMMENTS FROM TECHNICAL REVIEW OF
DRAFT WORK PLAN FOR SITE ASSESSMENT/EXTENDED SITE ASSESSMENT
FOR POINTS OF INTEREST, NAVAL TRAINING CENTER, SAN DIEGO
CTO-0122**

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Comments from Aaron Yue

Written on 25 October 1996
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SPECIFIC COMMENTS

Comment 1: Page 1-2, Table 1-1

On October 21, 1996, DTSC received a fax addendum to the Draft Work Plan from Ms. Content P. Arnold of South West Division. The addendum added POI 93 to be inserted into the Draft Work Plan. Based on the addendum received, please revise and include the "POI 93 - Former Vertical Steel Structure (Near Building 49)" in Table 1-1.

Comment 2: Page 2-3, Section 2.4, Geology and Hydrogeology

Since this section suggests that imported fill soil and dredged fill has been used for the construction throughout NTC, please provide a fill area map detailing the area of NTC that has been potentially effected by fill materials. This map may assist in differentiating between environmental impacts by fill versus operations at NTC.

Response 1: Table 1-1 will be revised to include POI 93. In addition, all other tables and text, including the Field Sampling Plan (Attachment A), will be revised if appropriate to reflect the addition of POI 93.

Response 2: According to the USGS geologic quadrangle map showing the NTC area (Geology of the Point Loma Quadrangle, San Diego County, California, by Michael P. Kennedy, in "Geology of the San Diego Metropolitan Area, California," CDMG Bulletin 200, 1975), the majority of NTC is depicted as being underlain by artificial fill. Based on this map, the northwesternmost section of NTC (an area approximately 400 to 1,000 feet wide, along Rosecrans Avenue) is comprised of Bay Point Formation. It should be noted that the contact between the fill and Bay Point Formation as depicted on the map is approximate. Inclusion of the data from this map would be part of the evaluation once fieldwork is completed. This information will be included in the future Site Assessment/Extended Site Assessment report, if appropriate.

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Comment 3: Section 3, Project Specific Threshold Levels for Soil

According to the "note" for tables throughout Section 3, and Attachment B of this draft report, the Project Specific Threshold Levels are based on the 1996 Region IX preliminary remediation goals (PRGs) for residential land use as revised by U.S. EPA in August 1996. However, upon review of the PRGs, it was found that the threshold levels cited in the draft report do not match the PRGs as published by U.S. EPA; especially for volatile organic compounds. Please revise the Project Specified Threshold Levels in accordance with the published PRGs (see provided Attachment 1).

Please also note that the Department of Toxic Substances Control disagrees with the use of PRGs for site assessments and screening sites for No Further Action (NFA) without considering the additivity of risks and hazards associated with the chemicals of potential concern (COPCs). In order to use PRGs for screening purposes, an additional evaluation of risk for additivity must be conducted before the NFA nomination. A detailed procedure in the use of PRGs for screening sites is provided in a DTSC memorandum dated October 28, 1994. This memo is provided as Attachment 2. Procedure for calculating additivity is on Page 9, Section G of the Memo. Please revise the Draft Work Plan in accordance with these procedures.

Comment 4: Section 3, Method Detection Limits for Soil

In general, most of the Method Detection Limits for the stated analytical method in the draft report are too high. For example, according to the Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, published by U.S. EPA, the Method Detection Limits for Aluminum using test method 6010 is 45 ppb, not 10 ppm. Similarly, the method detection limits for Vinyl Chloride using 8010 is 0.18 ppb, not 0.05 ppm. If the detection limits as stated in the report are not "Method Detection Limits (MDLs)" but "Practical Quantification Limits (PQLs)", the report should specify the MDLs and the factors used to arrive at the PQLs. The report should also provide the rationale for the factors used. Please revise the report.

Response 3: Comment noted. The project-specific threshold levels on the tables in Section 3 and Attachment B, will be reviewed for consistency per the August 1996 PRGs and corrected as necessary.

As suggested, the draft Work Plan (Section 3.19) will be revised to clarify that the evaluation of risk for additivity (in accordance with the DTSC memorandum) will be included in the PRG screening process prior to nomination of a site for No Further Action.

Response 4: The detection limits listed in the document are practical quantitation limits and are based on the contract required detection limits listed in the CLP SOW. The detection limits listed in SW-846 are estimated and are "target" limits that will vary from laboratory to laboratory, from instrument to instrument and are dependent on the matrix. For metals analyses, we require the laboratory to report the MDL and any value between the MDL and the PQL be flagged as an estimated value. Likewise for organic analyses, values between the MDL and PQL are flagged as estimated values.

All analytical results will be provided, reviewed, and discussed with the regulators after Stage 1 fieldwork and before commencement of Stage 2 fieldwork.

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Comment 5: Page 3-11, Section 3.2.5, Decision Rules for POI 8

Since soil and groundwater sampling locations have not been proposed beyond the locations of the soil gas samples, we request that the Navy consult with the regulators on the result of the Phase I investigation and the proposed soil and groundwater sampling locations prior to commencement of sampling under Phase II.

Response 5: Comment noted. As discussed at the POI Work Plan storyboard meeting on 12 August 1996, additional drilling locations and/or well installation locations for any POIs resulting from Stage 1 work will be discussed and agreed upon with the regulators prior to beginning Stage 2 work. It is estimated at this time that sample results will be received by the week of 06 January 1997. A suggested time for a meeting with the regulators to discuss the Stage 1 results and the scope of Stage 2 work is 13 January 1997, depending on the receipt of data and the availability of regulators. A discussion with the regulators prior to Stage 1 fieldwork is also suggested on approximately 25 November.

Based on subsequent discussions between the Navy, BNI, and Mr. Martin Hausladen of U.S. EPA, the soil gas survey will not be conducted. Instead, four borings with groundwater sampling will be proposed at POI 8 in the Final Work Plan. One of the borings will be located near the sewer line, once located. In addition, the flammables locker will be inspected for evidence of cracks and staining during field activities. If warranted, an additional sample will be obtained at that location. Appropriate tables, text and figures will be modified to reflect this change in scope.

Comment 6: Page 3-16, Section 3.3.4, Study Boundaries for POI 14

The Site Plan for Building 49 indicated a foundry shop as well as numerous machine shops. It is recommended that this POI be studied for metals contamination as well as TRPH.

Response 6: As indicated in Sections 3.3.3, 3.3.4, 3.3.5, and 3.3.6 of the draft Work Plan, analysis for TAL metals in soil and groundwater are already included for this POI. Section 2.2.3.2 in the FSP also describes the rationale for including metals in the analyses.

Comment 7: Page 3-16, Section 3.3.6, Sampling Design for POI 14

According to the Site Plan for Building 49, there are numerous machine shops and a foundry shop in this building. We believe that collecting only two soil samples in this building is too limited.

Response 7: This POI was originally intended for potential sampling, pending further review of conditions regarding the former wood-block flooring. The wood blocks were thought to have been in direct contact with underlying soil. Based on additional review of plans, the wood blocks were found to have been situated on a concrete slab.

Furthermore, the location of MW-1 is not ideal. MW-1 is located almost directly south of the large machine shop and northeast of the shop area. Assuming that the groundwater flows down gradient toward the Boat Channel,

During the POI Work Plan storyboard meeting on 12 August 1996, the regulators indicated that there was sufficient existing information to warrant a subsurface investigation at the site. At that meeting, the consensus between

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the groundwater would be flowing toward southeast. Because of the location of MW-1, it is possible that contaminants in groundwater from the large machine shop and the shop area will flow past MW-1 undetected. To better characterize the potential groundwater contamination from the machine shop and the shop area, we recommend collecting groundwater samples from the soil boring areas within the shops. Monitoring of MW-1 is useful to detect any potential contaminants from the smaller shops northwest of its location.

Comment 8: Page 3-22, Section 3.4.1.2, Previous Investigations for POI 15

In other closing military bases, DTSC has discovered that some medical complexes have disposed of mercury into the sewer system as a past practice. This practice resulted in a high mercury vapor concentration found within the buildings and sewage lines. Please review NTC's records to ensure that mercury is not a COPC at this POI.

Comment 9: Page 3-29, Section 3.5.5, Decision Rules for POI 16

Since soil and groundwater sampling locations have not been proposed for the potential Phase II investigation, we request that the Navy consult with the regulators on the result of the Phase I investigation and the proposed soil and groundwater sampling locations prior to commencement of sampling under Phase II.

the regulators and the Navy was that sampling the existing well, along with two additional sampling points, would be sufficient, because the main concern of the regulators was evaluating gross contamination.

The DQOs in the draft Work Plan were written according to the resolutions of the 12 August meeting. As indicated in Section 2.2.3.2 of the FSP, "The smaller number of borings is based on the objective to evaluate the potential for gross impacts to soil and/or groundwater from leaking machine lubricants and cutting oils, rather than try to delineate any potential small, isolated, and randomly-impacted areas."

MW-1 was sampled to detect any potential contaminants from the smaller shops northwest of its location. The other two proposed direct-push soil and groundwater sampling locations are intended to address potential contamination from the other larger shop areas. Section 2.2.3.2 of the FSP, which describes the sample rationale for this POI, will be revised to clarify the rationale for selecting the sample locations.

Response 8: The findings of the records review for POI 15, which included interviews with NTC office personnel, is presented on the POI Summary Sheet (for POI 15) in Attachment B of the Final Comprehensive Site Assessment Report for the POIs. Based on the available information, only potential fuels contamination was listed as a concern at this POI. However, the records review data will be reviewed again to evaluate whether problems with previous mercury disposal practices are indicated.

Response 9: Sampling and well locations will not be proposed for Stage 2 work until we evaluate and discuss the Stage 1 analytical data. As stated in Response 5, a suggested time for a meeting with the regulators to discuss the Stage 1 results and the scope of Stage 2 work is 13 January 1997, depending on the receipt of data and the availability of regulators.

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Comment 10: Page 3-39, Section 3.7.6, Sampling Design for POI 19

Since organochlorine pesticides are relatively immobile in soil, a soil sample should be taken just below ground surface. We recommend that an additional sample be collected at one foot below ground surface.

Comment 11: Page 3-44, Section 3.8.6, Sampling Design for POI 26

Since the groundwater flow is generally toward the Boat Channel, toward southeast, the rationale for collecting a groundwater sample southwest of the lift is unclear.

Comment 12: Page 3-48, Section 3.9.5, Decision Rules for POI 29

As stated in Section 3.9.1.2, previous investigations have determined that the sand in this POI will require removal action. Instead of focusing on the possibility of removing this POI from removal action, the decision rule should be revised to focus on determining the extent of contamination at this POI.

Response 10: Agreed. In addition to the collection of a soil sample from the top of the saturated zone (approximately 4 to 5 feet bgs), a second soil sample will be collected from each boring at a depth of approximately 1 foot bgs.

Response 11: As discussed in Section 2.2.8.2 (Sample Rationale) of the Field Sampling Plan (Attachment A), a groundwater sample was previously collected from WS-4A (Figure 2-8), located in the estimated downgradient direction, southeast of the lift during the previous Group D investigation. Sampling results are presented in the Final Comprehensive Site Assessment Report for the POIs. The southwest boring was originally selected to assess potential crossgradient contamination from the lift. However, upon further review of the location of POI 26 relative to the Boat Channel, collection of a groundwater sample from the direct-push boring on the northeast side of the lift, instead of the southwest side, is proposed to further assess the cross-downgradient groundwater quality. Figure 3-9 (draft Work Plan), Figure 2-8 (FSP), and Section 2.2.8.2 in the FSP will be modified to reflect this change.

Response 12: The purpose of the trenches is to provide additional data to assess the size of the area (i.e., the extent of impacted soil) that is contaminated with metals associated with former small-arms range No. 2 and, therefore, subject to the removal action. The decision statement does not indicate a decision to retain or remove the entire POI from removal action, rather, to either exclude or include the areas investigated by the trenches in the removal action. The decision rule established for POI 29 and stated in Section 3.9.5 has been clarified to read as follows: "If the lead, copper, and antimony concentrations in soil are below project-specific threshold levels, then areas defined by sampling locations will be excluded from the area designated for removal action based on previous studies. If the lead, copper, or antimony concentrations in the soil samples are above the project-specific threshold levels, then the areas defined by sampling locations be included in the area designated for removal action based on previous studies."

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Comment 13: Page 3-49, Section 3.9.6, Sampling Design for POI 29

This section states that 4 samples will be collected from each trench. How will the samples be selected? Will the soil within the trench be composited prior to collection of samples? What is the rationale for choosing the location of the two trenches since they still seem to be located 20 feet within the boundaries of the sand trap? How will the trenches determine the extent of contamination?

Response 13: As stated in Section 2.2.9.1 of the FSP (Attachment A of the draft Work Plan), "Four soil samples will be collected from near the surface in each trench, from a depth anticipated to be less than 5 feet bgs. For each trench, two samples are proposed to be collected at two different depths (one below each other) near the center of the trench, and one sample is proposed to be collected from each end of the trench." The soil samples will be discrete samples (not composited).

As originally presented during the POI Work Plan storyboard meeting on 12 August 1996, the trenches were proposed to be located at the boundaries of the sand trap. However, at that meeting, at the request of the regulators, the trenches were moved inward (toward the center of the sand trap). The location of the trenches will be moved back to the boundaries of the sand trap. Figure 3-10 of the Work Plan and Figure 2-9 of the FSP will be revised to reflect this change in location. As stated in Section 2.2.9.2 of the FSP, "The use of the trenches is to allow direct observation of the subsurface to evaluate the potential that the sand trap area had been excavated as previously recommended (LeRoy Crandall 1991). The trench locations were chosen to assess the lateral and vertical extent of the former sand trap and of metals reported during previous sampling near the middle of the sand trap area." Also, refer to the response to comment 12 regarding the decision rules and purpose of the trenches.

Comment 14: Page 3-50, Section 3.10.2, Identification of Decisions at POI 58

According to the first "If-then" statement, site maps will be used to locate borings if the geophysical survey does not identify an existing UST. Please provide an approximation of the UST location based on the site maps regardless of the geophysical survey result. The rationale for not extrapolating the information from the maps first is unclear.

Response 14: "Site maps" refers to the existing site map mentioned in Section 3.10.1.1 and any other available area maps that can be obtained. Please note that the site map referred to in Section 3.10.1.1 was produced in 1926 and that it covers a large area of NTC. Therefore, the map is outdated and the scale too large to be sufficiently accurate to locate the UST with any certainty on the figures. The geophysics will be used to attempt to locate the tank in the general area indicated on the map. If the geophysical survey does not indicate an UST or former excavation area, the default is to use the maps as best as possible to locate the borings.

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Comment 15: Page 3-55, Section 3.11.6, Sampling Design for POI 71

Since the actual location of the former Building 224 is unknown, 2 angled soil borings and 1 groundwater sample may not be a sufficient indicator of contamination. In addition, groundwater depth is 12 feet below ground surface. The angled borings at 20 - 30 degrees from vertical will only reach 4 - 6 feet respectively beyond the footprint of the current Building 94 if the angled borings are started immediately adjacent to the footing of the current building. If possible, we recommend the borings be conducted from within the current building.

Comment 16: Page 3-59, Section 3.12.6, Sampling Design for POI 72

The current sampling design states that one soil sample will be collected at the top of the saturated zone at each of the two soil borings. We recommend that an additional soil sample be collected between the concrete and soil interface at the soil boring located within the concrete pad. This sample will determine the need for a removal action for the soil regardless of groundwater conditions.

Comment 17: Page 3-64, Section 3.13.6, Sampling Design for POI 76

As stated in the third sentence of this section, a groundwater sample will be collected only if soil contamination is "obvious" at the top of the saturated zone. Please define "obvious". To avoid judgmental error by field personnel, it is recommended that a groundwater sample be collected for analysis regardless of odor or color of a sample.

According to Figure 3-14, the geophysical survey uncovered two anomalies. Why is a sample not proposed for the second anomaly?

Comment 18: Page 3-36, Section 3.15.1.1, Site Description

This section states that Building 519 burned down in 1995. Please explain the cause of the fire. Was it related to the materials stored within the storage area? What was stored in the area during the fire?

Response 15: Locating borings within the building would certainly be preferred; however, Building 94 access was investigated during preparation of the draft Work Plan, and as stated in Section 2.2.11.2 of the FSP, limited access prevents drilling within the building. Drilling angle borings was determined to be the best alternative. As discussed in the August 12 POI Work Plan storyboard meeting, two borings should adequately identify any gross contamination beneath the building. However, the DQOs for POI 71 will be revised to indicate that groundwater samples will be collected from both borings rather than just one.

Response 16: An additional soil sample will be obtained from inside the storage shed from directly beneath the concrete pad. This section as well as Section 2.2.12 of the FSP will also be revised to reflect this change.

Response 17: Obvious soil contamination refers to visual staining and odor, as well as elevated PID or FID measurements during soil screening. A groundwater sample will be collected. The appropriate sections of the draft Work Plan and FSP will be modified to reflect this change.

A sample is not proposed for the second location because the larger, closer anomaly to Building 77 is the most likely location for a UST that would have supplied the former generator. A geophysical survey will be conducted to confirm previous geophysical results and to assist in the selection of the appropriate sampling location. This section, as well as Section 2.2.13.1 of the FSP, will be revised to reflect this change.

Response 18: Building 519 was empty and no longer in use when it burned in 1993. The fire is suspected to have been caused by transients who had illegally entered the building.

The tank is used for storage of water, and it is unlikely to be the source of any contamination.

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Figure 3-16 shows a large tank (Tank 346) adjacent to Building 519. Please describe the function of the tank and whether contamination, if found, could be attributed to the presence of the tank.

Comment 19: Page 3-76, Section 3.16.6, Sampling Design

Almost all the proposed direct-push groundwater sampling locations are very near the NTC steam tunnels. The results from these samples may further complicate the interpretation of data from POI 38 (steam tunnels). Perhaps some groundwater sampling locations could be modified to areas that are less influenced by the steam tunnels. The analytical results can then be compared with results obtained from the POI 38 study.

Comment 20: Page 3-78, Section 3.17, Other Sampling

Building 490 and 491 are not identified in a site map. Please include a map to identify the locations of the two buildings in relations to other POIs.

Response 19: The groundwater sample borings were placed at various locations based on previous sampling results, their relationship to the Boat Channel, and the interpreted groundwater flow direction. The rationale for locating each boring is further detailed in the FSP, Section 2.2.16.2.

Because the steam tunnels are located in the Northeast Area Groundwater area, and in some cases adjacent to specific POIs that are being investigated within that area, moving the borings away from the steam tunnels would in many cases result in the borings being moved away from these POIs. Therefore, it would be difficult to adequately evaluate these POIs. Note that some of the proposed groundwater borings are located some distance from the steam tunnels (GW-8, GW-9, GW-10, and GW-12) or approximately upgradient from the nearest steam tunnel (GW-6 and GW-7). Also, note that the steam tunnels have not been confirmed as being the source of the high metals concentrations. Therefore, data from both the Northeast Area Groundwater sampling and the steam tunnel sampling will be compared and evaluated.

Response 20: The "other sampling" is not part of any current POIs identified at this time but was added by the Navy to investigate the potential for the existence of any impacted soil or groundwater. In addition, the location of the exploratory hole relative to those two buildings is unconfirmed. A figure will be provided in the Work Plan as Figure 3-19 and in the FSP as Figure 2-18.

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Comment 21: Page 3-87, Section 3.18, Data Quality Objectives Summary

Table 3-19 has identified numerous COPCs that do not have established criteria under the California Enclosed Bays and Estuaries Plan or the U.S. EPA National Ambient Water Quality Criterion. For these COPCs, please state if a project action level will be proposed, with the decision rules governing these chemicals. Similarly, please explain the decision rules to be followed for chemicals in soil which do not have established criteria.

Comment 22: Fax Addendum for POI 93, Sampling Design

The second paragraph indicated that the locations of sample points along the pipe will be chosen after file review and geophysical survey. We recommend that the Navy consults with the regulators on the result of the review and survey. We also request that the Navy discuss all proposed sampling locations with us prior to commencement of activities.

For this POI, please provide Sampling Location and Sampling Rationale similar to other POIs. In addition, we request that the sampling symbols used in the figure remain consistent with the other figures. Please replace the dotted circle with a dotted triangle for soil boring with groundwater sampling. Furthermore, we recommend 1 additional groundwater sample be taken inside the structure to confirm the presence of organochlorine pesticides and for risk analysis purposes.

Response 21: Project action levels will not be proposed for chemicals that have no established regulatory criteria.

Response 22: Comment is noted. In addition, Corey Walsh, of the RWQCB, stated in a telecon on 07 November that if piping is found to be connected to the storm drain, then sampling inside the pipe may be necessary. If the pipe is not connected to the storm drain or abandoned, he stated that sampling along the pipe line may be appropriate.

Regulators will be consulted prior to sampling along the pipe. The sewer line sampling may be conducted during either Stage 1 or Stage 2, depending on the findings of the file review and geophysical survey. A meeting with the regulators to discuss Stage 1 results is already proposed for 13 January 1997 (Response 5). However, results of the file review and geophysical survey will be discussed prior to this date if sampling will occur in Stage 1.

The Sampling Locations and Sampling Rationale sections will be provided in the final Work Plan, along with changes throughout the draft Work Plan and its attachments, as appropriate, to reflect the addition of POI 93. The sampling symbols will be modified to be consistent with other figures in the draft Work Plan. The proposed single groundwater sample was in accordance with the regulator comments to the Preliminary Draft Closure Report, Site 7, Naval Training Center, San Diego, California (prepared by OHM Remediation Services Corporation). The comment requesting additional sampling stated that "An additional groundwater sample should be collected near the cylindrical steel structure and analyzed for all chemicals of concern to confirm previous sample results." Also note that, as indicated in the "Previous Investigations" section of the faxed Addendum, pesticides were reported above detection limits in a groundwater sample obtained from within

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Comment 23: Page 4-3, Section 4.4.1, Direct-Push Rig Borings

Please further describe the procedures to be followed in field screening the recovered samples for VOCs using a photoionization detector (PID) or flame ionization detector (FID). Any recovered samples to be analyzed for VOCs should be sealed quickly to minimize the exposure of the sample to ambient air and light to avoid volatilization and UV destruction.

the structure (during the OHM investigation), confirming the presence of organochlorine pesticides.

Response 23: Section 3.6.1 in the FSP (Section 3.5.1 in the final FSP) describes the field-screening procedures. This section will be revised and referenced in Section 4.4.1 (Section 4.3.1 in the final Work Plan).

Each sample location will, under normal circumstances, consist of more than one sample container (e.g., brass sample tube). Each container will be designated for a specific purpose. The field screening will be conducted on a different container than the container to be sealed for shipment to the laboratory. Depending on sample requirements, the container to be used for field screening is generally the sample tube immediately adjacent to (i.e., in contact with) with the sample tube that will be sealed and shipped to the laboratory.

Samples sent to the lab will be handled in accordance with all applicable protocols and procedures, as described in Section 3 of Attachment B to the draft Work Plan. Sealing samples as quickly as possible is standard protocol in environmental sampling to minimize volatilization of VOCs.

Comment 24: Page A2-10, Section 2.2.3.2, Sample Rationale for POI 14

The objective for sampling is to locate potential contamination. Sampling locations chosen based on number of machines present may not be appropriate. The sampling location should be based also on cracks found within the area, visible stains, and/or the lowest elevation of the flooring within the area. Please also see comment 7 above regarding the location of MW-1.

Response 24: To the extent possible, cracks, visible stains, and other indications will be used to assist with siting the two borings.

Comment 25: Page A2-22, Section 2.2.7.2, Sample Rationale for POI 19

The sample location of the west boring should be based on cracks observed on flooring, visible stains or lowest elevation of the floor. We recommend an additional soil sample at the flooring/soil interface to determine any surface soil contamination.

Response 25: To the extent possible, cracks, visible stains, and other indications will be used to assist with siting the west boring. Pursuant to the response to comment 10, an additional soil sample will be collected at approximately 1 foot below ground surface.

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Comment 26: Page A2-22, Section 2.2.8.1, Sample Location for POI 26

If the ground penetrating radar anomaly is as located on Figure 2-8, why is the proposed soil sampling 10 feet north and upgradient from the anomaly? It would be more logical to obtain a sample directly from the area of the anomaly.

Furthermore, it is DTSC's impression that the general groundwater gradient is sloped toward the boat channel, which is at a southeastern direction. The proposed groundwater sample location is southwest of the anomaly, therefore; this may not be the best location to detect COPCs from this POI.

Comment 27: Page A2-24, Section 2.2.9.2, Sample Rationale for POI 29

We disagree with this sample rationale. If the proposed trenches were to allow observation of the subsurface to determine if the sand trap had already been excavated, the trenches should be located at areas previously sampled, rather than at the fringe of the small arms range. Furthermore, according to Section 3.9.1.2, the two soil samples taken during a soil investigation conducted by BNI in 1995 still show that the soil exceeded the project-specific threshold limits. Therefore, we believe that for this round of investigation, the purpose should be to determine the extent of contamination for a removal action. The trenches should be placed closer to the edge of the small arms range to define the boundaries of contamination.

Response 26: Soil sampling has previously been conducted in the area of the anomaly (refer to WS-3 and WS-4 on Figure 2-8). The results of this sampling are presented in Attachment D of the final Comprehensive Site Assessment report for the POIs. Figure 2-8 will be modified to indicate that WS-3 and WS-4 were also soil sample locations.

As indicated in the response to comment 11, a groundwater sample will be collected from the direct-push boring on the northeast side of the lift, instead of the southwest side. (Figure 2-8 and Section 2.2.8.2 will be modified to reflect this change.)

Response 27: It should be noted that removal action is already planned for this POI. Therefore, as discussed in the response to comment 12 and as indicated in the decision rule (Section 3.9.5 of the draft Work Plan), the purpose of the trenches is to provide additional data to assess the size of the area (i.e., the extent of impacted soil) that is contaminated with metals associated with former small-arms range No. 2 and, therefore, subject to the removal action. As originally presented during the POI Work Plan storyboard meeting on 12 August 1996, the trenches were proposed to be located at the boundaries of the sand trap. However, at that meeting, at the request of the regulators, the trenches were moved inward (toward the center of the sand trap). As stated in Section 2.2.9.2 of the FSP, the use of the trenches is to allow direct observation of the subsurface to evaluate the potential that the sand trap area had been excavated as previously recommended (LeRoy Crandall 1991).

The statement in the sample rationale section regarding visual observations was made to indicate that trenches are proposed (e.g., instead of soil borings) because trenches are considered to be the most appropriate investigation method for the information required. Part of the benefit of using trenches includes visual observation of the subsurface, which in this case will be used to evaluate the potential that the sand trap area has been excavated.

Note also that part of this evaluation was already performed. Section 3.9.1.2 of the draft Work Plan indicates that one of the objectives of the 1995 BNI

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Comment 28: Page A2-32, Section 2.2.14.1, Sample Location for POI 85

Instead of angled borings, we prefer vertical borings within the building, if possible. The reason is that the groundwater is at 15 feet below ground surface. Assuming the angled boring begins at the edge of the building, the lateral reach of the borings at 20-30 degrees from vertical will only be 5-7 feet beyond the footprint of the building before reaching groundwater. With two proposed samples within the unsaturated zone, the lateral reach of the two samples may still be under the walls of the building which would not be the usual location of contamination.

Comment 29: Page A3-4, Section 3.3.1, Direct-Push Borings

According to the third paragraph of this section, the recovered samples will be field screened for VOCs using a PID or FID. Will all recovered samples be field screened first? If so, will the samples be exposed to ambient air? How much handling of the sample will occur prior to being sealed and preserved? In general, VOC samples must be properly handled to avoid volatility which can affect the precision and accuracy of the analytical results due to concentration change. Field personnel should minimize the exposure time of VOC samples to air.

investigation was to verify whether impacted soil was previously removed as recommended. Because the results of this investigation (refer to the locations of borings SB-35 and SB-36) indicated that three metals exceeded project-specific threshold limits, the POI was recommended for further action. Therefore, the proposed trench locations are placed at different locations than the previously sampled borings.

Response 28: The limitations regarding the lateral distance that can be attained using shallow angle borings is noted, and certainly inside borings are preferred. However, angle borings are proposed at Building 11 because there is currently no access to inside the building for drilling purposes. As stated in Section 3.14.1.1, the building is currently occupied by the Bureau of Personnel, Detachment Drug/Alcohol Prevention Management Assistance, which consists entirely of office space.

It should also be noted that, depending on the amount and location of a release of hazardous materials and the site geology, a release could just as likely extend outside or within the boundary of the building walls, as well as underneath the walls. The samples should adequately identify any gross contamination beneath the building.

Response 29: Refer to the response to comment 23. Each sample location will, under normal circumstances, consist of more than one sample container (e.g., brass sample tube). Each container will be designated for a specific purpose. The field screening will be conducted on a different container than the container to be sealed for shipment to the laboratory. Depending on sample requirements, the container to be used for field screening is generally the sample tube immediately adjacent to (i.e., in contact with) with the sample tube that will be sealed and shipped to the laboratory.

All samples for laboratory analysis are handled according to CLEAN SOPs to minimize exposure to air.

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Comments from Aaron Yue

Comment 30: Page A3-11, Section 3.6.1, Field Screening of Soil Samples

Since a PID is proposed for field screening, please provide a table of COPCs with their ionization potentials and the appropriate detector lamp to be used. Please note that the use of FID and PID for qualitative field screening is subject to interferences from other chemicals. In addition, as proposed, the result from field screening of samples for a duration of 3 to 5 seconds with a PID or FID 3 inches away will not provide good results. Within 3 to 5 seconds, the PID and FID may not even have enough time to stabilize. Also, at 3 inches above the sample, a great deal of air mixing will have occurred between the sample and the detector, especially if the field screens are conducted outdoors.

Based on the above limitations, the rationale for conducting field screens is unclear. In fact, due to the exposure of the sample to ambient air, and the time required to conduct the field screening, a decrease in the concentration of VOCs in the sample may occur because of volatilization. This will introduce additional errors in the laboratory analysis results. We request that the Navy reconsider the necessity in conducting the field screen and revise the Draft Work Plan accordingly.

Response 30: Some clarification and revision of this section is needed regarding the purpose of field screening. Field screening is common practice in environmental investigations, serving as an additional investigative tool to evaluate the potential presence of petroleum hydrocarbons, to choose samples for analysis, and to alert the lab to any potentially highly contaminated samples. Field screening of soil samples is intended as a qualitative evaluation of whether petroleum hydrocarbons (i.e., VOCs) are likely to be present in a sample and to evaluate the relative, order-of-magnitude levels of VOCs between samples. All field screening, even that utilizing compound-specific (e.g., benzene) Draeger tubes, is subject to some degree of interference. Field screening is not intended to identify specific VOC compounds (COPCs) or to evaluate the specific concentrations of the COPCs. This section will be revised to omit the discussion of the potential use of screening to conduct a quantitative "sweep." Also, as mentioned in the response to comment 23, field screening is not conducted on the same sample container as the one sent to the laboratory.

Additional explanation of the field-screening methodology (as explained in the response to comment 29) will be added to Section 3.6.1(Section 3.5.1 in the final FSP).

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Comments from Weston for U.S. EPA

Received by facsimile on 22 October 1996
Weston for U.S. EPA

GENERAL COMMENTS

Comment 1: Provide the results from previous investigations in Section 3. It is important to include results of previous analyses and COPC to facilitate evaluation of whether proposed analyses are appropriate and adequate.

Comment 2: Consider the use of Method 8260 rather than 8010/8020 for VOCs. The major advantage of Method 8260 is that mass spectral confirmation is obtained and false positive results are eliminated. If Methods 8010 and 8020 are to be used, second column confirmation is strongly recommended, especially in areas where petroleum hydrocarbon contamination is a possibility.

Comment 3: Include referenced SOPs which may be required by field personnel as an addendum or appendix to the document.

Comment 4: The significance of bold entries should be defined for all Tables in Section 3.

SPECIFIC COMMENTS

Comment 1: Page 3-7, Section 3.1.3

Include volatile organic compounds (VOC) in analyses to be performed based on historical presence of paint booths and parts dip tanks.

Response 1: The results of previous investigations are included in the Final Comprehensive Site Assessment Report for Points of Interest at NTC (dated July 1996), and/or in the documents prepared by other consultants as referenced in Section 3.

Response 2: Method 8260 will be used for the analysis of samples for VOCs. Methods 8010/20 were originally proposed to be consistent with methodology of previous investigations. We require our laboratories to perform second column confirmation on all samples submitted for 8010/20 analyses. Methods 8010/20 also give a slightly better reporting detection limit over 8260

Response 3: The SOPs were not included in the Draft Work Plan because they are internal CLEAN program documents that are readily available to all BNI field personnel. Inclusion of the SOPs would greatly increase the size and cost to produce the Draft Work Plan. Bonnie Arthur of the U.S. EPA has been provided a copy of the BNI CLEAN SOPs for review.

Response 4: The bold entries are defined in the footnotes for the appropriate tables in Section 3. However, the footnote definition was inadvertently excluded from Table 3-8, and will be added.

Response 1: As indicated in Section 3.1.1.2, the paint booths and parts dip tanks were previously investigated (refer to Figure 3-2 for sample locations). The results of this investigation are presented in the Final Comprehensive Site Assessment Report for Points of Interest at NTC (dated July 1996). No COPCs were detected above the project-specific threshold levels, therefore, no additional investigation was determined to be necessary for those areas. Further investigation of the vehicle lifts was recommended since they had not

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Comment 2: Page 3-11, Section 3.2.5

Soil gas can be used to delineate areas of contamination. However, it is not an appropriate tool to make the determination that no further action (NFA) is required if results are below some threshold level. Soil gas results are relative and cannot be directly compared to soil or groundwater concentrations of contaminants. Numerous factors affect soil gas concentrations including depth of probe, depth to contamination, depth to groundwater, soil organic carbon content, soil porosity, etc. To make an NFA determination, a minimum of two or three soil borings with soil and groundwater samples are required.

Comment 3: Page 3-14, Section 3.2.6, paragraph 1

Provide a complete reference and/or procedure for Standard Method (SM) 18. If a flame ionization detector is used in this method, chlorinated compounds are likely to exhibit low sensitivities.

Comment 4: Page 3-14, Section 3.2.6, paragraph 2

This paragraph seems to contradict Section 3.2.3 and 3.2.5. If three soil borings are proposed, regardless of the outcome of the soil gas survey, the NFA decision can be based on the results of the soil and groundwater analyses. As noted in Comment 2, a minimum of two or three soil borings with both soil and groundwater analyses are required. Review and revise this paragraph and Sections 3.2.3 and 3.2.5 for consistency.

Comment 5: Page 3-15, Section 3.3.1.2

At similar facilities, wood block floors have been found to be a RCRA hazardous waste because they tend to absorb even small spills. Sampling and analysis of the wood blocks is recommended.

been previously investigated. The sample analyses were chosen based on the type of hazardous substances that may have been associated with the lifts.

Response 2: The soil gas survey was originally proposed by Martin Hausladen of the U.S. EPA during the Work Plan storyboard meeting with the regulators on 12 August 1996. However, based on subsequent discussions between the Navy, BNI, and M. Hausladen, the soil gas survey will not be conducted. The discussions involved further evaluation of site conditions, the data required, and the intended purpose of sampling. Instead, three soil borings with groundwater sampling will be proposed. Section 3.2, Figure 3-3, Table 3-2, Table 3-18; and Section 2.2.2, Figure 2-2, Table 2-1, and Table 5-1 in the FSP will be modified to reflect this change in scope.

Response 3: Refer to the response to specific comment 2. The soil gas survey will not be conducted.

Response 4: Refer to the response to comment 2.

Response 5: The wood blocks were removed during reconstruction of the building (mid 1980s). The current floor consists of a concrete slab. Section 3.3.1.2 will be modified to clarify this issue.

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Comment 6: Page 3-16, Section 3.3.3

Include BTEX on the list of analyses to be performed (Table 3-4) since it was previously detected adjacent to Building 49. No additional effort or cost will be incurred since Method 8020 is proposed for analysis of chlorinated benzenes at this location. Also include cyanide on the list of analyses, because plating was formerly done in this building. Include these analyses in the decision rules.

Comment 7: Page 3-21, Section 3.4.1.1, paragraph 1

Sentence 6 does not provide any useful information since this information is presented more specifically in sentence 4. Delete sentence 6.

Comment 8: Sections 3.4.4 and 3.4.5

Extreme caution is recommended to avoid puncturing UST's and/or utility lines. It is recommended that borings be advanced by hand auger to a depth of 6 feet since there are potential interference problems with the geophysical survey.

Comment 9: Page 3-26, Section 3.4.6

Describe the geophysical survey in more detail, including the specific instruments to be used, grid spacing to be used, etc. Alternatively, add this information to Appendix A, Section 3.1 and reference the Appendix in Section 3.4.6.

Response 6: Refer to the response to general comment 2 (BTEX is included in the VOCs analysis). Analysis of cyanide will be added to Sections 3.3.3, 3.3.5, and 3.3.6, and Tables 3-4 and 3-18.

Response 7: Sentence 6 will be deleted

Response 8: Comment noted. It is standard practice on the CLEAN program for borings drilled with powered equipment in areas where subsurface structures are possible to first hand-auger to a depth of approximately 5 feet bgs, for obvious reasons mentioned in the comment. Note that Sections 3.1 and 3.3.3 in the FSP specify this initial hand-augering. This procedure will also be added to Section 4.2, Utility Clearance/Geophysical Survey Techniques.

Response 9: As stated in Section 3.1 of the Field Sampling Plan, the combination of methods to be used for each POI will be selected by the CLEAN II field supervisor and the geophysical contractor. The details of the surveys, including instruments and grid spacing, will be specified once the geophysical contractor has been selected. The methods and specific instruments selected will be appropriate for the stated purpose at each POI. These specifics on the geophysical surveying will be described in the future SA/ESA report.

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Comment 10: Page 3-29, Sections 3.5.2, 3.5.3, and 3.5.5

Discuss whether Geoservices, Inc. samples were analyzed for chlorinated solvents, since PCE is commonly used for dry-cleaning and has been used at other Navy facilities. If the Geoservices, Inc. samples were not analyzed for chlorinated solvents, and if groundwater samples were not collected above fine grained layer (where solvents accumulate) and at depth, additional samples will likely be required.

Comment 11: Page 3-31, Section 3.5.6

To evaluate the potential presence of chlorinated solvents groundwater samples should be collected from above the first significant fine-grained layer that occurs below the water table. It is not sufficient to merely collect a groundwater sample from the top of the water table; such a sample should not likely be representative of dissolved concentrations of chlorinated solvents because of the separate phase Stoddard solvent detected in this area.

Comment 12: Page 3-33, Section 3.6.3

Include cyanide on the list of analyses (Table 3-7) based on potential historical metal plating activities in Building 51. Also, include cyanide in the decision rules.

Response 10: As indicated in Sections 3.5.2, 3.5.3, and 3.5.5, part of the investigation for POI 16 is to review the existing data to decide whether additional sampling is necessary or warranted. This data review will include assessing previous sampling locations, sampling depths, and analytical results.

During the Geoservices, Inc. investigation for Site 11, the soil sample with the highest TPH-Stoddard concentration (from MW3), one *in situ* groundwater sample (HP7B), and three groundwater samples from monitoring wells (MW1, MW3, and MW1-X) were analyzed for VOCs (U.S. EPA Method 8260). In the soil sample, cis-1,2-DCE, toluene, PCE, ethylbenzene, and total xylenes were detected at low levels (all less than 2 mg/kg). VOCs were not detected above laboratory detection limits in the groundwater samples.

Response 11: As indicated in the response to comment 10, part of the investigation for POI 16 is to review the existing data collected for Site 11 to decide whether additional sampling is necessary. If it appears that DNAPL is present, then appropriate sampling will be considered. Also, note that since Stoddard solvent is less dense than water, any dissolved compounds that comprise Stoddard solvent would also be likely to remain within the solvent and not partition out into water separately. In addition, the subsurface material at NTC is fine grained, and any DNAPL, if present, would be expected to spread out near the top of the water table, and not travel to significant greater depths over a small area as would be expected in coarse grained materials.

Response 12: Analysis of cyanide will be added to Sections 3.6.3, 3.6.5, and 3.6.6, and Tables 3-7 and 3-18.

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Comment 13: Page 3-35, Section 3.6.3

Describe the geophysical survey in more detail, or add more detail to Section 3, Appendix A, and cite the Appendix. Also see Comment 9.

Comment 14: Page 3-39, Section 3.7.3

Include organophosphate pesticides and triazine herbicides on the list of analyses to be performed since the compounds are listed (in Section 3.7.1.2) as being stored in at POI 19. Include metals (many metals were used in paint and fungicides) and chlorinated volatile organic compounds (VOC) in addition to BTEX on the list of analyses (Table 3-8) based on historical paint spray-booth activities. In addition, a number of metal compounds, notably arsenic and cadmium formulations, have been used extensively as lawn fungicides. These additional analytes (organophosphate pesticides, triazine herbicides, metals, and chlorinated VOCs) should also be included in the list of COPCs in Sections 3.7.4, 3.7.5, and the list of analytical methods in Section 3.7.6.

Comment 15: Page 3-41, Section 3.8.1.1 and Figure 3-9

At a minimum, please label the engine overhaul shop, two battery rooms, and paint storage area mentioned in Section 3.8.1.1 on Figure 3-9. Also label the outdoor sump (mentioned on page 3-42). Discuss where the water generated by steam cleaning and air scrubbing water from the paint spray booth was discharged. Discuss whether this water may have been historically discharged to the boat channel.

Comment 16: Page 3-43, Section 3.8.1.2

Discuss whether previous investigation analyzed for lead (batteries, paint) and other metals (paint).

Comment 17: Page 3-43, Section 3.8.2

Include the possible presence of PCBs in an if-then decision statement, since PCBs are included in the proposed analytes. Alternatively, explain why PCBs are a concern (e.g., hydraulic fluid may have contained PCBs) in Sections 3.8.3 and 3.8.4.

Response 13: Refer to the response to comment 9.

Response 14: Organophosphate pesticides and triazine herbicides, metals, and chlorinated VOCs will be added to the analyses described in Sections 3.7.3, 3.7.4, 3.7.5, 3.7.6, Table 3-8, Section 2.2.7 of the FSP, and any other pertinent sections.

Response 15: As discussed in Section 3.8.1.2, the further action for this POI pertains specifically to the vehicle lift. Other operations/facilities of concern at POI 26 were previously investigated as documented in the final comprehensive POI report. Details about other operations at POI 26, which can be found in the final comprehensive POI report, were excluded from Section 3.8.1.1 since they are not relevant to the current investigation.

Response 16: Analyses conducted during the previous investigation included TPH, TRPH, AVOCs, and TAL metals.

Response 17: PCBs will be added to the if-then statements in Section 3.8.2 (PCBs are part of the decision rule in Section 3.8.5). Section 2.2.8.2, Sample Rationale (in the FSP) explains why PCBs are of concern.

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Comment 18: Page 3-44, Section 3.8.5

Include metals and volatile organic compounds on the list of analyses to be performed (Table 3-9) based on historical painting activities and the presence of battery storage rooms. Metals are listed in Table 3-9 but are not discussed in Section 3.8. Rewrite the decision rules to reflect these additional analytes.

Response 18: As discussed in the response to comment 15, the further action for POI 26 pertains specifically to the vehicle lift, as other areas of concern were previously investigated. However, as noted in Section 3.8, the groundwater sample for POI 26 will also be analyzed for TAL metals and hexavalent chromium to contribute to information regarding the Northeast Area Groundwater (Section 3.16). To avoid confusion and to be consistent with other POIs where metals are also being analyzed for the Northeast Area Groundwater investigation, the metals for POI 26 will be removed from Table 3-9. Refer to Section 3.16 for the decision rules for the Northeast Area Groundwater.

Comment 19: Page 3-50, Section 3.10.4, and page 3-53, Section 3.10.6

Discuss the specific geophysical instrumentation, grid spacing, etc. to be used. Describe how the effect of the electrical transformer and power lines will be minimized. Note that power lines and transformers can both mask subsurface anomalies and create apparent anomalies.

Response 19: Refer to the response to comment 9. It is recognized that the geophysical anomalies produced from power lines, transformers, fences, and other surface features (particularly those containing metal) will often be large enough to partially or completely obscure the signal from any subsurface features located beneath or very close to the surface feature. Depending on site-specific conditions, in some cases the surface feature (for example, vehicles or other equipment) can be moved temporarily. However, since the transformer is a permanent surface structure, the only way its effect is minimized is with increasing distance from the transformer. This distance varies depending on the method used and the nature of the surface feature. Therefore, the effects of the transformer (and any other anomalies) will be considered during the data interpretation.

Comment 20: Page 3-55, Section 3.10.6

Shallow soil samples collected near the transformer should also be analyzed for PCBs. If PCBs are present they can be mobilized by petroleum compounds.

Response 20: POI 58 consists of a potential gasoline UST which was indicated on a historical base map. The transformer is a structure that is located in the area of the POI, and is not part of the POI itself. Transformers at NTC (including P-179) were evaluated as POI 40 of Attachment B in the Final Comprehensive POI Report). No further action was recommended for POI 40, a recommendation that received regulator concurrence.

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Comment 21: Page 3-59, Section 3.11.3

Include VOCs and BTEX on the list of analyses to be performed (Table 3-12) based on potential solvent use and disposal in Building 224. In addition, groundwater samples should be collected from both borings, since the exact nature and location of site activities is unknown.

Comment 22: Page 3-59, Section 3.12.3

Include metals and volatile organic compounds on the list of analyses to be performed (Table 3-13) based on historical paint storage and use. Also include organotins as an analyte since marine paint was used.

Comment 23: Page 3-59, Section 3.12.6

The soil boring inside the shed should be advanced into the water table to evaluate whether a sheen or separate phase layer is present on the water table. The borehole should be allowed to stand open for a period of time, and a water sample should be collected for visual evaluation of the potential presence of a separate phase layer. Explain why a water sample from this boring is not proposed for BTEX and TPH analysis.

Comment 24: Page 3-64, Section 3.13.6

It is not always possible to visually observe soil contamination. It is also possible that the boring will be completed in an area backfilled with clean fill. Collection of a groundwater sample from this single boring should be done to support a potential NFA decision.

Response 21: Due to the unknown nature of activities at the former auto hobby shop, analysis of VOCs (which includes BTEX) will be added for POI 71. In addition, groundwater samples will be collected from both borings.

Response 22: As described in Section 3.12.1.2, staining and absorbent material was found on the floor of the shed, and past storage consisted of gasoline and motor oil. No evidence of paint spillage was noted. The further action was based on stains from petroleum hydrocarbons. Therefore, the DQOs were based on a petroleum hydrocarbon source only.

Response 23: Due to very limited access within the shed, the boring will be advanced using a hand auger. A water sample from this boring is not recommended since water samples collected from open boreholes (such as hand augers) and analyzed for petroleum hydrocarbons are of questionable quality. In addition, regulatory agencies generally have not accepted such samples as valid and representative.

Because the shed was used only for storage of limited quantities of petroleum products, it is not expected that any spills would be significant enough to result in a sheen or free product on groundwater. However, the groundwater sample boring outside the shed will be located only approximately 10 feet away (or less) and downgradient of the shed; therefore, this boring can be used to visually assess the potential for free product. This boring would be expected to intercept any impacted groundwater from the shed (particularly if there are significant dissolved concentrations).

Response 24: Obvious soil contamination also refers to odors (including screening using a PID or FID). It is recognized that visual observations alone are insufficient. A groundwater sample will be collected. The appropriate sections of the Draft Work Plan and FSP will be modified to reflect this change.

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Comment 25: Page 3-66, Section 3.14.3

Include VOCs and PCBs on the list of analyses to be performed (Table 3-15) since solvents were routinely used for cleaning equipment and PCBs were historically used as a vehicle for printing inks. Modify other subsections as necessary to reflect this change.

Comment 26: Page 3-68, Section 3.14.6

Please explain the criteria for determining if the "deepest soil sample appears contaminated," since many contamination is frequently not "visible." EPA recommends that groundwater samples be collected from the borings to present a stronger case for NFA.

Comment 27: Page 3-10, Section 3.15.3

Include organophosphate pesticides and triazine herbicides on the list of analyses to be performed (Table 3-16) since these compounds have been extensively used on golf courses. In addition, metals should be included since a number of metal compounds, notably arsenic and cadmium formulations, have been used extensively as lawn fungicides.

Comment 28: Page 3-70, Section 3.15.6 and Figure 3-16

Please explain how the boring locations were chosen and why a boring is not being completed on each side of each structure. Discuss whether borings will be completed near doors, outdoor spigots (potentially used to rinse out containers) containment areas, etc. Discuss whether interviews with former facility employees have been conducted. Long-term employees can often provide information about where pesticide/herbicide mixing and equipment cleanup took place.

It would be more cost effective to collect and analyze groundwater samples during the initial sampling, and would provide conformation data if information from former employees is not available.

Response 25: Analyses for VOCs and PCBs will be added to POI 85.

Appropriate sections and tables will be modified. However, per specific comment 15 on the FSP, only VOCs will be included for groundwater as an additional analysis.

Response 26: Obvious soil contamination also refers to odors (including screening using a PID or FID). It is recognized that visual observations alone are insufficient. A groundwater sample will be collected from the downgradient (southeastern) boring. The appropriate sections of the Draft Work Plan and FSP will be modified to reflect this change.

Response 27: Analyses for organophosphate pesticides, triazine herbicides, and arsenic and cadmium will be added for POI 87. Appropriate sections and tables will be modified.

Response 28: The rationale for placement of borings is presented in Attachment A, the Field Sampling Plan, Section 2.15. As stated in that section, "The borings were placed near the doors to the buildings and approximately downslope of the buildings, which are considered to be the most likely areas where releases, if any, would have impacted the soil." Text will be added to Section 2.2.15.2 in the Field Sampling Plan indicating that the locations of outdoor spigots, if any, will be considered in the field when siting boring locations.

Information about this POI was based on the Site-Specific Environmental Baseline Survey for NTC. The POI was discussed in the Comprehensive POI Report. No extensive investigation has previously been conducted at this POI.

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Comment 29: Page 3-76, Section 3.16.3

Include chlorinated VOCs in addition to BTEX to the list of analyses (Table 3-17) based on the proximity of auto shop, hazardous waste storage area, and painting areas.

Comment 30: Table 3-18

Please revise this table to reflect changes made in response to the comments in Section 3.

The DQO decision to include groundwater sampling during Stage 2 was based on the chemical nature of pesticides. Pesticides are designed to be immobile, and it is not considered likely that releases of pesticides at the ground surface would leach to groundwater at this site, which is at a depth of approximately 35 feet bgs. In addition, based on the past use of the buildings, only small quantities of pesticides were likely stored and/or used. Therefore, the decision to sample groundwater is a contingency should pesticides be found at depth.

Response 29: The DQOs and analyses for the auto shops and painting areas (POIs 7 and 26) are already presented in Section 3.1 (refer to response to comment 1), and Section 3.8 (responses to comments 15, 16, 17, and 18). The Northeast Area Groundwater pertains to metals in groundwater only, with one exception. The analyses of TPH and BTEX pertain only to POI 20, since TPH was detected previously in groundwater above the project-specific threshold limit. HVOCs were not detected above their respective project-specific threshold limits at the site; therefore, HVOC analysis was not determined to be necessary.

Response 30: Table 3-18 will be revised as noted in the responses to comments 6, 21, 22, 25, and 27.

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Comment 31: Page 3-87, Section 3.18, paragraph 3

Expand the discussion to explain why a mixing factor of 30 can account for attenuation. Attenuation is contaminant dependent and is influenced by dilution, soil binding capacity, cation exchange capacity, total organic carbon, as well as the physico-chemical properties of the COPCs.

Response 31: The factor of 30 was used in a modeling effort for the Naval Exchange gas station located in NTC. The factor was calculated using a solution for a tidal mixing factor for coastal aquifer, as presented by Todd (1959) in Groundwater Hydrology. The number is based only on hydraulic characteristics of the aquifer, and does not account for distance of the source to the surface water body. If distance from the source, dilution, advection, molecular diffusion, hydrodynamic dispersion, adsorption (onto soil) and biodegradation were also taken into account, lower concentrations of contaminants would be predicted to reach the bay than the concentrations that would be predicted by using the tidal mixing factor alone. These additional factors would further act to reduce the contaminant concentrations before the contaminants reached the groundwater/surface water interface, where maximum tidal mixing would occur. Therefore, a tidal mixing factor of 30 represents a conservative approach.

Comment 32: Page 4-3, Section 4.4.2

Please explain how split spoon samples will be collected from an angle boring when only part of the force from the hammer drop will be applied to the sampler because of the angle of the boring. Explain how this will be solved so that samples are collected in accordance with the requirement for a 140-pound hammer dropped 30 inches.

Response 32: The requirement for a 140-lb. hammer to be dropped from 30 inches to drive a sampler is an ASTM standard for collection of geotechnical samples, in particular, to evaluate relative soil density in the field based on blow-counts. While blow-counts for geotechnical purposes are not valid in angle borings, they are irrelevant in any borings for collection of environmental soil samples where the objective is chemical analysis of samples (or geologic logging of soil types), as is the case for these POI investigations. It should be noted that there is no available correction method when using angle borings to collect relative soil density data in the field using blow-counts.

Comment 33: Page 4-7, Section 4.6.3, paragraph 2, sentence 2

At facilities where chlorinated solvents may be present, for example POI 16, the interval of interest would either be the zone immediately above the first significant fine-grained unit below the water table, or the bottom of the aquifer. Please revise this sentence.

Response 33: Refer to the responses to comments 10 and 11.

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Comments from Weston for U.S. EPA

Comment 34: Page 5-2, Section 5.2.2

Indicate that the first data packages received from laboratories for each matrix and analytical class will undergo Level IV validation. This will identify potential laboratory quality problems early in the project so that corrective action can be taken if required.

Response 34: When data packages are first received from the laboratory, they are subjected to a contract compliance screening by the project chemist to determine if all the required elements are present in the data packages. Part of the screening process is a cursory review of the QC elements of the package. Any gross QC outliers would be seen during this process which occurs usually several weeks prior to the formal validation process. Due to the short duration of the field activities, most the samples will have been submitted and most will probably have been analyzed by the time the first of the formal validation reports are available.

**Attachment A, Field Sampling Plan
GENERAL COMMENTS**

Include copies of referenced SOPs.

Response: Refer to the response to general comment 3 on the Draft Work Plan.

SPECIFIC COMMENTS

Comment 1: Page A2-4, Section 2.1.3

The last two sentences of paragraph 5 are superfluous and should be deleted. Paragraph 6 states that alternative methods may be used to collect the soil gas samples. Describe these methods in Section 3.2.1 or change this paragraph.

Response 1: The alternative sampling methods refer to using direct push, hollow stem auger, or hand auger methods, and not soil gas. Also, refer to the response to comment 2. The soil gas survey will not be performed, therefore, Section 2.1.3 will be removed.

Comment 2: Page A2-6, Section 2.2.1.2

Per specific Comment 1 on the Draft Work Plan also analyze samples for VOCs.

Response 2: Refer to response to specific comment 1 on the Draft Work Plan.

Comment 3: Page A2-10, Section 2.2.3.1

Samples of the wood block floor should also be analyzed. See specific Comment 5 on the Draft Work Plan.

Response 3: Refer to response to specific comment 5 on the Draft Work Plan.

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Comments from Weston for U.S. EPA

Comment 4: Page A2-10, Section 2.2.3.2

Per specific Comment 6 on the Draft Work Plan also analyze samples for BTEX and cyanide.

Comment 5: Page A2-15, Section 2.2.4.3

Explain how puncturing potential USTs will be avoided if the geophysical survey is not definitive.

Comment 6: Page A2-20, Section 2.2.6.3

Per specific Comment 12 on the Draft Work Plan also analyze samples for cyanide.

Comment 7: Page A2-22, Section 2.2.7.2

Per specific Comment 14 on the Draft Work Plan also analyze samples for organophosphate pesticides, triazine herbicides, metals and chlorinated VOCs.

Comment 8: Page A2-22, Section 2.2.8.2

Per specific Comment 18 on the Draft Work Plan also analyze samples for metals and VOCs.

Comment 9: Page A2-27, Section 2.2.10.3

Analyze shallow soil samples collected near the transformer for PCBs (see specific Comment 20).

Comment 10: Page A2-27, Section 2.2.11.1

As indicated in specific Comment 21, collect water samples from both borings.

Response 4: Per the response to specific comment 6 on the Draft Work Plan, analysis of BTEX and cyanide will be added to Section 2.2.3.2. Table 5-1 will also be modified to include these analytes.

Response 5: Refer to the response to specific comment 8 on the Draft Work Plan. Note that as indicated in Section 3.1 (page A3-1), the initial 5 feet will be drilled by hand auger.

Response 6: Refer to response to specific comment 12 on the Draft Work Plan. The appropriate sections in the FSP will be modified.

Response 7: Per the response to specific comment 14 on the Draft Work Plan, analysis of organophosphorus pesticides and triazine herbicides, metals, and chlorinated VOCs will be added to Section 2.2.7.2. Table 5-1 will also be modified to include these analytes.

Response 8: Refer to response to specific comment 12 on the Draft Work Plan.

Response 9: Refer to response to specific comment 20 on the Draft Work Plan.

Response 10: Per the response to specific comment 21 on the Draft Work Plan, Section 2.2.11.1 will be modified to indicate that groundwater samples will be collected from both borings.

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Comments from Weston for U.S. EPA

Comment 11: Page A2-27, Section 2.2.11.2

Also analyze samples for VOCs and BTEX (see specific Comment 21).

Comment 12: Page A2-29, Sections 2.2.12.1 and 2.2.12.2

Water samples should be collected from both soil borings. In addition to TPH and BTEX samples should be analyzed for metals, VOCs and organotins (see specific Comments 22 and 23).

Comment 13: Section 2.2.13

A groundwater sample should be collected even if there is no visual evidence of soil contamination (see specific Comment 24).

Comment 14: Page A2-32, Section 2.2.14.1

Reference POI No. 85 instead of POI No. 76.

Comment 15: Page A2-32, Section 2.2.14.2

Also analyze soil samples of VOCs and PCBs and groundwater samples for VOCs (see specific Comment 25).

Comment 16: Page A2-32, Section 2.2.15.1

Reference POI No. 87 instead of POI No. 76.

Comment 17: Page A2-35, Section 2.2.15.2

Consideration should also be given to locating borings adjacent to outdoor spigots if present. These would be logical locations for the rinsing of pesticide containers. Samples should also be analyzed for organophosphate pesticides, triazine herbicides and metals (see specific Comment 27).

Response 11: Per the response to specific comment 21 on the Draft Work Plan, Section 2.2.11.2 and Table 5-1 will be modified to include analysis of VOCs and BTEX.

Response 12: Refer to the response to specific comment 23 on the Draft Work Plan regarding additional water sample collection. Refer to the response to specific comment 22 on the Draft Work Plan regarding additional analyses.

Response 13: Refer to the response to specific comment 24 on the Draft Work Plan.

Response 14: The POI number will be corrected as indicated.

Response 15: Per the response to specific comment 25 on the Draft Work Plan, Section 2.2.14.2 and Table 5-1 will be modified to include analysis of VOCs and PCBs in soil samples, and VOCs in groundwater samples.

Response 16: The POI number will be corrected as indicated.

Response 17: Per the response to specific comment 28 on the Draft Work Plan, text will be added to Section 2.2.15.2 indicating that the locations of outdoor spigots, if any, will be considered in the field when siting boring locations. Per the response to specific comment 27 on the Draft Work Plan, Section 2.2.15.2 and Table 5-1 will be modified to include analysis of organophosphate pesticides, triazine herbicides, and arsenic and cadmium.

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Comment 18: Page A2-35, Section 2.2.16.2

Samples should also be analyzed for chlorinated VOCs and BTEX (see specific Comment 29).

Comment 19: Pages A301 through A302, Section 3.1

Please specify the instrument to be used. For example, specify whether an EM-31, EM-34 or other EM instrument will be used. Also specify the GPR system and antenna to be used (e.g., GSSI SIR 8 with a 500 MHz antenna).

Comment 20: Page A3-6, Section 3.3.2, paragraph 4

Indicate how hollow-stem auger borings will be backfilled.

Comment 21: Page A6-5, Section 6.4

Include groundwater sample container requirements on Table 6-1.

**Appendix B, Draft Quality Assurance Plan for Points of Interest
GENERAL COMMENTS**

Include referenced SOPs which may be required by field personnel as an addendum or appendix to the document.

SPECIFIC COMMENTS

Comment 1: Pages B1-2 and B1-3, Section 1.3

Identify individuals assigned to each role. Include telephone numbers.

Comment 2: Page B2-3, Section 2.3

Consider the use of Method 8260 rather than 8010/8020 for VOCs. The major advantage of method 8260 is that mass spectral confirmation is obtained and false positive results are eliminated. If Methods 8010 and 8020 are to be used,

Response 18: Refer to the response to specific comment 29 on the Draft Work Plan.

Response 19: Refer to the responses to specific comments 9,13, and 19 on the Draft Work Plan.

Response 20: Section 3.7, Borehole Completion (page A3-11 of the Draft Field Sampling Plan) describes backfilling of the borings.

Response 21: A table of groundwater sample containers and preservations can be included in the plan.

Response: Refer to the response to general comment 3 on the Draft Work Plan

Response 1: The requested information will be provided.

Response 2: See response to general comment 2 for the Draft Work Plan.

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Comments from Weston for U.S. EPA

second column confirmation is strongly recommended, especially in areas where petroleum hydrocarbon contamination is a possibility.

Comment 3: Page B2-3, Section 2.3

Provide a complete reference and/or procedure for Standard Method (SM) 18. If a flame ionization detector is issued in this method, chlorinated compounds are likely to exhibit low sensitivities.

Response 3: See response to specific comment 3 for the Draft Work Plan.

Comment 4: Pages B2-6 and B2-7, Section 2.3.7

Indicate that the first data packages received from laboratories for each matrix and analytical class will undergo Level IV validation. This will identify potential laboratory quality problems early in the project so that corrective action can be taken if required.

Response 4: See response to specific comment 34 for the Draft Work Plan.

Comment 5: Page B5-8, Section 5.1.4

Specify the method to be used for extraction of hexavalent chromium. The alkaline carbonate method (U.S. EPA 3060A) is recommended for soil.

Response 5: Method 3060A will be used for the preparation of soil samples for hexavalent chromium analysis.

Comment 6: Page B5-9, Section 5.4

Include a discussion of requirements for laboratory holding time, laboratory duplicate sample analysis, metals serial dilution, internal standard areas, etc.

Response 6: The requirements for holding times and other method specific QC are those listed in the respective analytical methods to be employed. There are no deviations from the requirements listed in the methods

Comment 7: Page B5-9, Section 5.4, paragraph 2

Include language requiring the laboratory to contact the BNI CTO or laboratory coordinator if internal quality control problems cannot be resolved.

Response 7: The laboratory is required in their subcontract to notify the laboratory coordinator immediately of any quality control failure.

Comment 8: Page B5-9, Section 5.4, paragraph 4

Include the Technical Specifications for Analytical Laboratory Services (BNI 1996a) as an addendum or extract appropriate tables from the document listing QC acceptance criteria.

Response 8: The QC acceptance criteria are listed in the quality assurance project plan attachment B table 5-2 and were extracted directly from the technical specification

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Comment 9: Page B5-10, Section 5.6

Analytical Laboratory Services (BNI 1996a) as an addendum or extract appropriate tables from the document listing required laboratory deliverables.

Comment 10: Page B6-1, Section 6.2.3

Include a summary of items included in Level III and Level IV data validation.

Response 9: Laboratory deliverables requirements are listed in the technical specification for laboratory services and are modeled after the CLP SOW requirements. Deliverables consist of all CLP SOW forms or their equivalent for non CLP methods and all associated raw data. An U.S. EPA level IV equivalent data package is required for all analytical methods.

Response 10: Level III and IV data validation criteria for the CLEAN program are the same as the U.S. EPA functional guidelines for data review. No deviations are made for this program.

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Comments from John P. Anderson

Written on 05 November 1996
Received by facsimile on 05 November 1996

John P. Anderson
Senior Engineering Geologist, Site Mitigation and Cleanup Unit
California Regional Water Quality Control Board, San Diego Region

GENERAL COMMENTS

The RWQCB acknowledges that subsurface conditions are highly variable and there is always some uncertainty associated with evaluating data from a site. The cost of obtaining additional site assessment data must be weighed against the benefit from obtaining that additional data and the effect the data may have on the certainty of decisions made for the site. Due to the lack of site specific data or information on historic use for the sites under investigation, the proposed P-STL may not always be adequate to protect water quality, human health, or the environment. In some cases (i.e. POI 19, 72, and 76 etc.) the proposed P-STLs are not consistent with existing RWQCB guidance entitled *Interim Guidance on Required Cleanup at Low-Risk Fuel Contamination Sites*, dated April 1, 1996 (revised February 29, 1996). The extent of any subsurface impact should be defined to the degree that is necessary to determine if the site poses a threat to human health, the environment, or other nearby sensitive receptors. The RWQCB does not concur with the proposed decision rules establishing project-specific threshold levels (P-STL) where no further action is recommended, but will evaluate the data collected and any request for no further action based on a site by site basis.

Response: Comment noted.

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Comments from John P. Anderson

SPECIFIC COMMENTS

Comment 1: Page 3-11, Section 3.2.6, POI 8 – Former Dry-Cleaning Trainer

Provide information concerning the location of the sewer pipe lateral for the building and collect two additional soil gas samples along its alignment. Also provide one additional sample location adjacent to flammables locker. Or provide groundwater samples instead of soil gas samples.

Comment 2: Page 3-26, Section 3.5.1.2, POI 16 – Former Navy Exchange Dry Cleaners

Please explain why POI 16 and Site 11 are separate investigations?

Comment 3: Page 3-39, Section 3.7.6, POI 19 – Former PWC Aztec Landscape Storage Area

Collect and analyze shallow soil samples (approximately top one foot) and groundwater samples from each boring.

Response 1: As indicated in the response to specific comment 2 from the U.S. EPA, based on recent discussions between the Navy, BNI, and Martin Hausladen of the U.S. EPA, the soil gas survey will not be conducted. The discussions involved further evaluation of site conditions, the data required, and the intended purpose of sampling. Instead, three soil borings with groundwater sampling will be proposed. Section 3.2, Figure 3-3, Table 3-2, Table 3-18; and Section 2.2.2, Figure 2-2, Table 2-1, and Table 5-1 in the FSP will be modified to reflect this change in scope.

Response 2: Site 11 is designated as a UST restoration site, and pertains to the UST release only. The remainder of the dry cleaning facility is designated as a POI, which is a non-restoration site that is not a confirmed area of contamination, but is an area with potential for environmental concern. POI 16 therefore pertains to the remainder of the above-ground facilities and operations at the dry cleaning facility. More detailed descriptions of the restoration and POI designations are contained in Chapter 3 of the Base Realignment and Closure Cleanup Plan (BCP) for NTC, dated March 1995.

Response 3: Due to the potential for pesticides, an additional soil sample will be collected from each boring at approximately 1 foot bgs.

Access for a drill rig is restricted within the building such that drilling using a hand auger is necessary. A water sample will not be collected at that location. Water samples collected from open boreholes (such as hand augers) and analyzed for petroleum hydrocarbons are of questionable quality, and regulatory agencies generally have not accepted such samples as valid and representative. However, the proposed groundwater sample boring outside the building is located only approximately 10 feet from and downgradient of the building (between the boat channel and the building); therefore, this boring would be expected to intercept any groundwater impacted from operations at the building.

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Comments from John P. Anderson

Comment 4: Page 3-44, Section 3.8.6, POI 26 – Navy Public Works Center Workshop

Provide analysis for VOCs in soil and groundwater if not already collected from adjacent sample location WS-4 or WS-4A.

Comment 5: Page 3-55, Section 3.11.6, POI 26 – Former Auto Hobby Shop No. 1

Provide analysis for VOCs in soil and groundwater and TPH 8015 modified for Stoddard solvent.

Comment 6: Page 3-59, Section 3.12.6, POI 72 – Marina Building

Collect a groundwater sample from location in or adjacent to “Flammable Materials Storage Shed”. Also include a soil sample from the “unsaturated zone near surface”.

Comment 7: Page 3-64, Section 3.14.6, POI 85 – Former Printing Facility

Provide information concerning the location of the sewer pipe lateral to the building and locate one boring adjacent to this alignment. Collect groundwater samples and provide analysis for VOCs in soil and groundwater.

Response 4: Soil and groundwater sampling for AVOCs (U.S. EPA Method 8020) has previously been conducted at the direct push locations of WS-3, WS-4, and WS-4A (Figure 3-9). The results of this sampling are presented in Attachment D of the Final Comprehensive Site Assessment report for the POIs. The proposed sampling analysis in the Draft Work Plan was based on the sampling results presented in the comprehensive report.

Response 5: Due to the unknown nature of activities at the former auto hobby shop, analyses of VOCs will be added for POI 71 (refer also to the response to specific comment 21 by the U.S. EPA). Analysis for VOCs would be expected to identify components of Stoddard solvent, if present

Response 6: Due to very limited access within the shed, the boring will be advanced using a hand auger. A water sample from this boring is not recommended since water samples collected from open boreholes (such as hand augers) and analyzed for petroleum hydrocarbons are of questionable quality. In addition, regulatory agencies generally have not accepted such samples as valid and representative. The groundwater sample boring outside the shed will be located only approximately 10 feet away (or less) and downgradient of the shed, therefore this boring would be expected to intercept any impacted groundwater from the shed (particularly if there are significant dissolved concentrations).

Due to the shallow depth of groundwater (approximately 5 feet bgs), and the nature of the hazardous materials stored (petroleum hydrocarbons), a soil sample collected at approximately 5 feet bgs is considered to be adequate to assess the potential for soil contamination.

Response 7: Plans and other pertinent information will be reviewed. The location of the sewer pipe lateral will be considered in siting the boring locations. A groundwater sample will be collected from the downgradient (southeastern) boring. The appropriate sections of the Draft Work Plan and FSP will be modified to reflect this change.

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Comments from John P. Anderson

Comment 8: Page A2-10, Section 2.2.3.1, POI 14 – Machinery Repairman School

Define proposed sample depth described by “unsaturated zone near surface”.

Comment 9: Page A2-29, Section 2.2.13.1, POI 76 – Possible UST

Why are two (any) unsaturated zone near surface soil samples proposed for this UST location? Collect and analyze a groundwater sample for the listed chemicals of concern for the site.

Analysis for VOCs will be included for soil and groundwater samples (refer to the response to specific comment 25 on the Draft Work Plan by the U.S. EPA).

Response 8: The introductory paragraphs to Section 2.2 (which describes the rationale for depth of soil sample collection for all POIs) discusses that the depths and number of borings may be modified in the field as necessary, based on field observations, “... in order to collect samples that will be representative of subsurface conditions at each boring location, and to support the objectives of the investigation. However, based on the depth to groundwater (Table 2-1), the soil sample from the unsaturated zone is tentatively proposed to be collected from approximately 5 feet bgs.

Response 9: The near surface soil samples are proposed since relatively shallow soil contamination is a possibility if a UST is present (e.g., overfill/spillage). The shallow soil samples will be collected from appropriate depths. A groundwater sample will be collected. The appropriate sections of the Draft Work Plan and FSP will be modified to reflect this change.