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U S NAVY RESPONSES TO U S EPA COMMENTS TO DRAFT FINAL REMEDIAL INVESTIGATION BUILDING 82 WITH TRANSMITTAL NAS SOUTH WEYMOUTH MA
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September 9, 2009

Project Number G02073

Mr. Brian Helland, RPM
BRAC PMO, Northeast
4911 South Broad Street
Philadelphia, Pennsylvania 19112

Reference: CLEAN Contract No. N62470-08-D-1001
Contract Task Order (CTO) No. WE11

Subject: Draft Final Remedial Investigation Report – Building 82
Naval Air Station South Weymouth, Weymouth, Massachusetts

Dear Mr. Helland:

Tetra Tech NUS, Inc. (TtNUS) has prepared a draft final Remedial Investigation (RI) Report for Building 82, Naval Air Station South Weymouth, Weymouth, Massachusetts. The RI Report has been revised to incorporate Navy's responses to comments received on the draft document as well as the results of the supplemental field work performed in May 2009.

Through copy of this letter, the draft final RI Report for the Building 82 Site is being provided to the recipients listed below. Any questions regarding the document should be directed to your attention at (215) 897-4912. Please contact me at (978) 474-8403 should you have any questions.

Very truly yours,

Phoebe A. Call

Phoebe A. Call
Project Manager

PAC/lh

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NAVY RESPONSES TO U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) COMMENTS (DATED OCTOBER 13, 2009) DRAFT FINAL REMEDIAL INVESTIGATION, BUILDING 82 NAVAL AIR STATION (NAS) SOUTH WEYMOUTH, MASSACHUSETTS

EPA Letter Comments

Letter Comment 1: *EPA believes that source area definition and groundwater flow directions and contaminant migration pathways should be examined further. EPA understands that additional data are forthcoming from the recent groundwater profiling efforts in the southern portion of the site and adjacent areas. EPA recommends that the site team meet after these data are available as the new data may provide additional insights.*

Response: Source area definition and groundwater flow results are discussed in detail in Letter Comment 4. Please see the Response to Letter Comment 4 for details.

Once the Fall 2009 groundwater profiling data are received and validated, they will be made available for regulator review. Navy agrees that once the data are available, a meeting can be scheduled to discuss the results. Please note that as agreed between Navy and EPA, the Fall 2009 supplemental field program results will be presented in an RI Addendum.

Letter Comment 2*: While the primary source areas appear to be reasonably well delineated, EPA noted inconsistencies with the presentation of PCB data. Leaching of PCBs from the western site drainage ditch is identified as a particular source release mechanism. While residuals in the subsurface area beneath the ditch may be a source, it does not fully explain occurrence of PCBs in groundwater at MW-11D and MW-08-16D. This concept calls on west to east transport in groundwater, which may be supported by the data. The assertion that contaminant transport is "significantly retarded" in this area with respect to groundwater velocity requires additional discussion. EPA agrees that the fine-grained subunits near these wells may be partly responsible for these detections. Low-level PCB hits in surface soils (Figure 4-7) correlate with the ditches and drainage features and therefore the source for the detections at MW-11D and MW-08-16D may be eastward. A source in the western ditch necessitates further examination of potential transport to the west of this feature in addition to that to the east. Similarly, the detection or Arochlor-1248 at up-gradient location MW-07 does not necessarily indicate an off-site source. The former Houghton street and associated ditches shown on Figure 1-3 could be a source of PCBs in that area. Please prepare a map indicating all PCB detections in groundwater so that we can discuss it at an upcoming meeting when the new data are available.*

Response: PCBs were detected in four locations in groundwater, MW-07D, MW08-016D, MW-11D, and MW-204D. As part of the supplemental field work performed in Fall 2009, these wells were redeveloped and sampled for PCBs to determine whether the PCB values in the draft final RI could be from high sample turbidity. This work was performed at Navy's request since it was the one potential additional data collection activity discussed at the March 4, 2008 Base Cleanup Team meeting which was not included in the RI Work Plan Addendum. The results will be made available for discussion once validated. Please note that as agreed between Navy and EPA, the Fall 2009 supplemental field program results will be presented in an RI Addendum. Navy will consider the use of additional maps once the revised PCB data are available.

Letter Comment 3*: Similarly, the source for TCE contamination needs further discussion. While the forthcoming data should illuminate this subject, it is premature to dismiss Building 81 as the ultimate source of this material. The contamination at Building 81 penetrates deeply into the bedrock and it is therefore difficult to draw meaningful conclusions from the limited shallow overburden characterization program at Building 82 with respect to any potential interconnections between the two sites. EPA encourages the Navy to examine the two sites from a broader perspective, with the requisite detail, including bedrock data from the Building 82 site.*

Response: As noted by EPA, additional groundwater profiling was performed in Fall 2009 to determine the full extent of TCE in groundwater. Once received and validated, the results will be shared with the regulators. Navy anticipates discussing these results in a Base Cleanup Team meeting. Please note that as agreed between Navy and EPA, the Fall 2009 supplemental field program results will be presented in an RI Addendum.

Potential contamination from Building 81 is being addressed in the current Building 81 field program, which includes a series of bedrock wells downgradient of Building 81 and between the two sites. Contamination emanating from Building 81 will be addressed in reports for that site.

Letter Comment 4*: While EPA agrees that the two 42-inch storm drains influence overburden groundwater, the site team should discuss the magnitude of this phenomenon. The basis for this interpretation, particularly the closure of contours to the west, requires the high heads posted for MW-11 and MW-08-16. These wells are located near MW08-15 which has anomalously high head values. The report cites artesian conditions at this location. This interpretation is difficult to support since no deep head values are co-located with MW08-15. Furthermore, the vertical gradients between MW08-16S/D are quite small. At MW-11S/D, the two screens are essentially screened in roughly the same interval of the overburden which is neither shallow nor deep. Use of these values to constrain either the deep or shallow flow fields is suspect. Fine-grained deposits may be responsible for semi-perched rather than artesian conditions in this part of the site. MW08-16S and MW08-15 are both screened in fill, whereas MW08-16D is partly screened in silt and partly in sand, silt, and gravel (potential till). Likewise MW-11S/D is screened in sand, silt, and gravel (potential till). The-finer-grained subunits in these areas may skew the head results. Also, the screened intervals for MW-11S/D may essentially overlap when the sand pack depths are considered. Again, the near-identical head values reported from these two wells may be misleading. In the absence of these constraining head values, it would be possible to contour the data with a flow vector slightly more to the SSW than the RI indicates. The result is a flow direction that is essentially north to south from the west central portion of the building toward the low area shown on the bedrock surface (110 ft contour shown on Figure 3-8). A smaller scale depression on the bedrock surface appears to coincide with this N-S alignment, consistent with the orientation of a mapped feature. Lastly, the RI relies heavily on an interpretation which upward gradient from the deep overburden to the shallow overburden, and ultimately to the 42-inch drains. EPA maintains that the TCE detections, and perhaps other constituents, identified in deep overburden may originate from a deeper source. Further examination of the bedrock appears necessary to better understand the groundwater system holistically. Additional monitoring is needed along the western and southern perimeters of the site. EPA looks forward to discussing the groundwater flow interpretation with the site team.*

Response: Navy agrees that MW08-15 does have anomalously high head values. However, Navy considers the presence of higher water levels at two pairs of wells (the MW-11 cluster and the MW-08-016 cluster) which are more than 50 feet apart to be representative of water conditions in the southwest apron area. As shown by the cross-sections (Figures 3-3 through 3-6), a till-like sand, silt, and gravel unit has been found throughout the site; therefore, the stratigraphy noted for MW-11S/D does not appear anomalous. Finally, the screens for MW08-16 and MW08-16D are separated by 9 feet. Therefore, Navy is satisfied that the contours in the draft final RI are reasonably representative of site conditions. The absence of VOCs (the more mobile contaminants) at the MW-09 and MW08-016 clusters indicates that groundwater does not appear to be travelling across the apron to the south.

Regarding a deeper source for TCE detections, the TCE detections in deep overburden are all below the MCL, except for one detection, and are bounded on three sides with concentrations below the MCL. The concentrations in shallow overburden are generally higher, and have a much larger footprint. This pattern is not consistent with a bedrock or deep overburden TCE source and further examination of the bedrock is not warranted. Please note that as agreed between Navy and EPA, the Fall 2009 supplemental field program results will be presented in an RI Addendum.

Letter Comment 5*: While the detections of TCE in groundwater in the SE portion of the site were not alarming (maximum concentrations were below 10 ppb, and the detections are not widespread), EPA was concerned because the higher detections were not bounded on the upgradient side. It is therefore possible that the TCE detected is just the downgradient expression of something worse upgradient, closer to an unknown source. The May 2009 sampling found a few more detections in the same range (max 6.5 ppb), but leaves some questions open. In particular, Figure 4-31 shows the shallow TCE unbounded to the SE (the maximum detection is at the SE extreme of the area characterized). While the deep TCE (Figure 4-37) seems to be reasonably well bounded, with the maximum detections surrounded to the SW, NE, and E by lower detections, this is somewhat difficult to reconcile with the interpretation that the shallow contamination derives from the deep because of upward hydraulic gradients. Why is the maximum shallow detection upgradient of the maximum deep detection? While the report alludes to further work that may clarify this, all questions*

regarding the TCE in groundwater have not been answered. EPA looks forward to meeting with the site team to discuss the additional data when they are available and possible next steps.

Response: The area with TCE concentrations (the southeast portion of the site) has a single pair of monitoring wells to determine vertical gradients: the MW-10S/D cluster. As shown in Table 3-3 and Table 3-4, the MW-10S/D cluster has a very slight downward gradient under both low and high water conditions. The report will be revised to clarify that although the general trend is for upward gradients from deep to shallow overburden groundwater, some areas do have slight downward gradients.

Once the data from the recent groundwater profiling at Building 82 is available, it will be shared with the regulators and presented in an RI Addendum, as noted above. In that context, the appropriate course of action for this site within the CERCLA framework will be determined.

Letter Comment 6*: Part of Letter Comment 21 referred to the appropriateness of using average sediment COPC concentrations to assess risk to wildlife receptors foraging in the ditches. EPA maintains that it is not appropriate to determine risk based on average site concentrations. While the additional explanation in the uncertainties is welcome, it does not sufficiently mitigate potential unacceptable risk. The home ranges are small for the ecological receptors evaluated in this risk assessment (i.e., 0.3 acres for the Carolina wren and 1 acre for the star-nosed mole). Relative to these home range sizes, the Building 82 site is composed of two exposure units: 1) the northern ditch area where sample SD-100 was collected and 2) the southern area where SD-101 and SD-102 were collected. Since the focus of the comment was PAHs and none of the HQs based on maximum sediment concentrations suggest unacceptable risk for the mole from exposure to PAHs, further evaluation is only warranted for the wren. The area to the north of Building 82, represented by one hit of elevated PAHs (total PAH = 81,460 ug/kg), is large enough to support birds with small home ranges. Further, given that the northern ditch area appears to be more suitable to small birds than does the southern ditch area, these receptors are more likely to forage in the area with the elevated PAHs. The elevated PAH HQs (LOAEL HQs greater than 1) warrant further evaluation (pending resolution of new comments related to the BSAF and invertebrate EPC for PAH). The 81,460 ug/kg hit of total PAH should be delineated to determine the extent of contamination in that area.*

Response: Navy disagrees with the EPA comment. The total area of the ditch is approximately 4000 sq. feet. The entire ditch would constitute at most a fraction of habitat area that the wren would frequent. The habitat range of the wren would be approximately 15,000 sq. feet. Additionally, the PAH contamination adjacent to the ditch has been removed, as discussed in Section 2.8.

Five sediment samples were collected from the north ditch and east/west ditch as part of the RI for the Abandoned Bladder Tank Fuel Storage Area (Tetra Tech NUS, Inc., 2002). The total PAH concentrations for the five sediment samples ranged from 2,392 to 5,383 µg/kg (data were rejected for one of the samples). Three samples were collected in the east/west ditch. The western most of the three samples had a total PAH concentration of 5,383 µg/kg. The sample corresponding to the current SD-100 sample location (where the three ditches meet) had a total PAH concentration of 4,690 µg/kg. The third sample was collected between those two samples and had no detectable PAH concentrations. A sample collected in the Fuel Farm Swale (north ditch) had a total PAH concentration of 2,060 µg/kg. The Fuel Farm Swale was remediated as part of MCP site activities in 2002. The 2002 confirmation sample collected near SD-100 also had PAH concentrations lower than those in SD-100 in 2006. Therefore, it does not appear that the elevated levels of PAHs at SD-100 are widespread and further delineation of the ditch is not needed. Also, based on the low concentrations, it is not likely that significant food chain related risks to the wren would occur from the north ditch.

Letter Comment 7*: While the response [to Letter Comment 21] notes that "some of the locations with the greatest PAH concentrations are no longer present," the sediment data set in the Draft Final is the same as that in the Draft. Please explain.*

Response: The response to Letter Comment 21 was referring to soil samples (B82-SS-116 and B82-SS-117) that are no longer present because the access road was constructed in that area (see Section 2.8 of the RI Report). Those two samples were removed from the data set used for the two risk assessments and are not included in the revised ERA.

Letter Comment 8*: The concentration of total PAHs at SD-100 is 81,460 ug/kg. This concentration exceeds the PEC (22,800 ug/kg), suggesting potential significant effects for benthic invertebrates. The only line of evidence that this concentration may not pose unacceptable risk for invertebrates is the lack of aquatic habitat, as discussed on page 7-21. While the habitat is not optimal, based on the site description and on Photograph 10 in Appendix H, it is suitable for benthic invertebrates. Risk to invertebrates in this area is not fully evaluated. The high hit of PAH at SD-100 should be delineated.*

Response: Navy disagrees with the EPA comment. Please see the second part of the Navy's response to Letter Comment 6.

Letter Comment 9*: The data from B82-SS-116 are no longer included in the ecological risk assessment. The result is that many of the PAHs have much lower maximum concentrations. However, the data are still shown in Table 4-2. Was the location removed? If so, please delete the sample results from Section 4. If not, please explain why they are no longer evaluated in the ecological risk assessment.*

Response: The changes to the dataset used in the risk assessments were made per the Responses to EPA's comments on the draft RI Report. The sample results were left in Section 4 because they were collected consistent with the RI Work Plan and thus represent the 2006 RI dataset. However, since the ecological risk assessment was prepared using data representative of current site conditions, and potential risks, the results from the samples removed during the access road construction were not included.

Letter Comment 10*: The invertebrate EPCs used for the intake calculations for the star nosed mole and Carolina wren are questionable. The maximum sediment concentration of benzo(a)pyrene, for example, is 3.1 mg/kg and the conservative BSAF is 1.0. The invertebrate concentration should be 3.1 mg/kg, not 29.3 mg/kg, which is used instead. Similarly, the average sediment concentration of benzo(a)pyrene is 1.28 mg/kg and the average-inputs BSAF is 9.7E-2. The calculated invertebrate concentration for benzo(a)pyrene in the Appendix H Table entitled STAR-NOSE MOLE - AVERAGE INPUTS is listed as 1.17 but should be lower. Please correct.*

Response: Navy disagrees with the EPA comment. The invertebrate concentrations for the organic chemicals are calculated by multiplying the sediment concentration by the bioaccumulation factors and percent lipids of the invertebrate and dividing by the percent total organic carbon. This statement was included in Appendix H Table B.7. Table B.7 was unintentionally not included in the draft final report and is provided with these responses.

Letter Comment 11 *Please review the plant BAFs and calculations of plant EPA for the intake equations for the Carolina wren. For arsenic, for example, the listed plant concentration is 21 mg/kg. Given that the maximum sediment concentration was 1.36 mg/kg and the plant BAF was 3.75E-02, the plant EPC should be much lower.*

Response: Agree. The change will be made as requested. There was an error in the plant tissue calculation for several chemicals for the wren. However, none of the HQs changed as a result.

<u>Attachment A Comments</u>

Comment 1, §6.2.2.2: *In the second sentence of the penultimate paragraph of this section, the text states that Aroclor 1260 was detected in groundwater but was not selected as a groundwater COPC. Please explain.*

Response: Section 6.2.2.2 discusses the potential for chemicals in soil to migrate to groundwater. The maximum concentration of Aroclor-1260 in surface soil exceeded the groundwater protection SSL. However, Aroclor-1260 was detected in only one of 26 groundwater samples and the detected concentration did not exceed the corresponding EPA tap water RSL or the MCL. Because individual Aroclor screening levels and toxicity criteria were used in the risk evaluation (i.e., not total Aroclor), Aroclor-1260 was not selected as a groundwater COPC. Aroclor-1248 was detected in site groundwater and was selected as a groundwater COPC.

The sentence in question will be revised as follows:

"Aroclor-1260 was detected in site groundwater but was not selected as a groundwater COPC because its only detected concentration was less than corresponding screening criteria."

Comment 2, §6.2.2.3: *In the fifth sentence of the last paragraph, the text states that lead was not selected as a COPC in site groundwater, and therefore, the available data do not suggest that lead is leaching from soil to site groundwater at this time. Lead was not selected as a COPC because it was below the action level of 15 ug/l, but the action level by itself does not indicate whether lead leaches from soil to groundwater. Lead was detected in shallow and deep groundwater, albeit at levels below 1 ug/l for all but one deep groundwater sample. Please support the conclusion that lead is not leaching to groundwater at significant levels by summarizing the lead results in groundwater (i.e. frequency of detection, concentration range, etc.).*

Response: Lead was detected in 18 of 26 samples in the groundwater data set with detections ranging from 0.103 µg/L to 1.09 µg/L. Lead was detected in 10 of 14 shallow groundwater samples with detections ranging from 0.116 µg/L to 0.848 µg/L. The greatest concentration of lead in groundwater, 1.09 µg/L, is an order of magnitude lower than the MCL of 15 µg/L. Therefore, the available data do not indicate that lead is leaching from soil to groundwater at significant levels.

Comment 3, §6.3.2.2: *Dermal risks were not calculated for Aroclor-1248 in groundwater owing to high uncertainty as noted in RAGS Part E. Please identify the specific location in RAGS Part E where this uncertainty is described.*

Response: Appendix A in RAGS Part E discusses uncertainty associated with risk estimates developed for dermal exposure to certain organic chemicals in water. Specifically, Exhibit A-2 lists chemicals that are outside of the effective predicted domain of the correlations used. Exhibit B-3 in Appendix B also lists chemicals that are outside of the effective predicted domain.

Comment 4, §6.6.1: *This section notes that PAHs and PCE occur at concentrations several orders of magnitude higher in deeper soil (8-20 ft bgs) than in soil above the water table (0-8 ft bgs). Please identify possible causes for this phenomenon and discuss the role this contamination may have on groundwater concentrations.*

Response: As discussed in Section 6.6.1, the maximum concentration of PCE and the PAHs in question are hotspots, with non-detects in samples from the surrounding locations. Other detections of these compounds in the 8-20 foot zone were several orders of magnitude lower. These locations are close to piping which has subsequently been removed.

Monitoring wells MW-01 and MW-01D and groundwater profiling point GP-A01 are located within 20 feet of where these maximum concentrations were located. Contamination from these hotspots does not appear to have a significant impact on groundwater PCE and PAH concentrations.

Comment 5, §6.3: *EPA's review of the table of chemicals without screening values on page 6-75 found that there are PPRTV oral reference dose values for dibenzofuran (1E-03 mg/kg-day) and 1,2,3-trichlorobenzene (8E-04 mg/kg-day). Please describe in the uncertainty section the potential contribution of these chemicals to the total risk for the pathways where they occur.*

Response: The Navy respectfully requests that EPA provide the toxicity profiles for dibenzofuran and 1,2,3-trichlorobenzene that contain the RfDs. The following text can be added to the Uncertainties Analysis in Section 6.6:

"Although toxicity information was not available for 1,2,3-dichlorobenzene and dibenzofuran from IRIS, the following RfDs for these chemicals were available from PPRTV:

Dibenzofuran: 1E-03 mg/kg-day

1,2,3-Trichlorobenzene: 8E-04 mg/kd-day

Hazard quotients developed using these RfDs and the maximum concentrations of dibenzofuran and 1,2,3-trichlorobenzene for each medium are provided below; the receptor considered is the child resident (the most conservative receptor for non-carcinogenic effects). The hazard quotients indicate that these chemicals do not add significant risk:

Chemical/Medium	Maximum Concentration	Estimated Ingestion HQ	Estimated Dermal HQ
Dibenzofuran in Soil	260 ug/kg	3.3E-03	9.3E-04
Dibenzofuran in Sediment	1500 ug/kg	1.4E-03	1.6E-03
1,2,3-Trichlorobenzene in Soil	1 ug/kg	1.6E-05	NA*

*Dermal risks in soil are not calculated for VOCs.

Non-cancer HQs well below the threshold of 1.0 indicate that adverse risks due to these chemicals are not expected. The contribution of these chemicals to overall receptor risks would be minimal."

Comment 6, Table 2.5B: *Please edit this table in the Appendix because pages 4, 5, and 6 of 6 are incomplete. The potential ARAR/TBC for ethylbenzene should be revised to the EPA Region 1 risk-based value, 3.0 ug/l (instead of 6.91 ug/l).*

Response: Agreed. Based on comments received on both the Newport NUSC and Weymouth projects the Navy is aware that Region I has recalculated a number of the vapor-intrusion-based screening values for groundwater (versus that which appears in the 2002 Vapor Intrusion guidance). Thus, there appears to be a EPA Region I-specific table of screening levels for groundwater for the vapor intrusion pathway. The Navy respectfully requests the back-up calculations/tables used by EPA Region I to develop/document the screening values so that we understand the toxicity criteria and assumptions used by EPA Region I to derive the screening values.

Comment 7, Appendix G, Table 2.5B: *The left side of the table is missing in the electronic version.*

Response: The electronic version will be updated to include the left side of the table.

Comment 8, Appendix G, Table 7.5A, CTE: *In several of the Appendix G-1 tables (e.g., Table 7.5A CTE) showing the human health risk calculations, the CTE EPA for trichloroethylene is listed as 9 ug/L in inhalation risk sections. This is the RMA EPC, not the CTE, which is 0.88 ug/L. Please correct the tables. It appears that the correct concentration was used in the calculations.*

Response: Agreed. The tables will be changed to display the correct CTE EPCs.

Comment 9, Table H.6 and H.7: *These tables are missing.*

Response: The tables were unintentionally not included. They will be added to the final ERA.

NAVY RESPONSES TO MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (MassDEP) COMMENTS (DATED SEPTEMBER 25, 2009)
DRAFT FINAL REMEDIAL INVESTIGATION, BUILDING 82
NAVAL AIR STATION (NAS) SOUTH WEYMOUTH, MASSACHUSETTS

Comment 1: *Section 4.3: Based on the Navy's response to MassDEP Comment 4 on the draft remedial investigation report, MassDEP expects that the following releases to the environment associated with floor drain system structures and pipelines will be addressed during the feasibility study:*

Response: It appears that MassDEP interprets these soil results to be indications that there are significant sources elsewhere on the Site. Navy has not made similar conclusions. None of the results discussed in the RI appear to be high enough to indicate additional unknown contamination. Navy finds these results consistent with the conclusion that there is no soil risk. A response is however provided below to each area of concern based on another review of the data in the RI.

• *GTM-1 (Gas Trap Manhole No. 1), FDS-D1, and nearby catch basin: CVOCs were detected in the storm sewer sample B82-SW-MH1EAST, which was collected upgradient of the previously known release from GTM-2.*

Response: B82-SW-MH1EAST is downgradient of GTM-1 and upgradient of GTM-2. In B82-SW-MH1EAST, TCE and arsenic concentrations were greater than PRGs, but less than MCLs. The naphthalene concentration was greater than PRG, but there is no MCL for comparison. (PRG is tap water RSL.) Iron and manganese concentrations are high, like all groundwater samples in this area. All other CVOC concentrations are insignificant.

• *GTM-2 and FDS-D2: The RI sample results confirmed the release of CVOCs from GTM-2 and/or the associated pipelines (CVOCs were detected in downgradient groundwater samples B82-GP-A01, B82-MW-01, and B82-MW-02).*

Response: In GP-A01, 1,1,1-TCA, 1,1-DCA, and 1,1-DCE concentrations are greater than PRGs, but less than MCLs. The naphthalene concentration is greater than its PRG. In MW-01 and MW-02, a few low concentrations of organics exceed PRGs, but are less than MCLs. As discussed in the FS, for alternatives with active treatment, this area is included.

• *GTM-3 and FDS-D3: CVOCs were detected in a subsurface soil sample collected between 12 to 14 feet below ground surface (bgs) from sample location B82-SB-112. However, the dominant CVOC in the sample was PCE (1.1 mg/kg), indicating a source other than GTM-2 (where TCA is the dominant contaminant).*

Response: One high concentration saturated soil sample (PCE at 1,100 µg/kg) was found in SB-112, but nearby well MW03 has a PCE concentration of only 1.14 µg/L. (SB-112 and MW03 appear to be on opposite sides of the storm sewer.) The PCE and TCE may be sorbed to the soil, but neither appears to be migrating from it.

Also the partition coefficients of PCE and 1,1,1-TCA were considered. The Koc of PCE is 665 L/kg; the Koc of 1,1,1-TCA is 150 L/kg. More PCE will be sorbed to the soil than will TCA.

• *GTM-4, oil/water separator, FDS-D4, FDS-D5, and nearby catch basin: Metals concentrations reported in storm sewer sample B82-SW-MH3EAST significantly exceeded the concentrations reported in upstream storm sewer sample B82-SW-MH2EAST (e.g., lead at 154 ug/L vs. < 0.858 ug/L), indicating the presence of an intermediate contaminant source.*

Response: A comparison of dissolved metals concentrations shows little difference between the two surface water samples. The high concentrations from the total metals sample in B82-SW-MH3EAST may be caused by metals attached to suspended solids. Also, the results from SB-113 show only

elevated chromium. If there were other metals in the groundwater, they would be expected to be in SB-113, too.

Also based on the Navy's response to MassDEP Comment 4 on the draft remedial investigation report, MassDEP expects that the following releases to the environment will be addressed during the feasibility study:

• *Subsurface soil and groundwater beneath the Building 82 apron in the vicinity of sample locations SB08-025 and SB08-026; information obtained during recent construction work indicates that petroleum contamination extends under the apron.*

Response: In the two cited samples, only SB08-025 had a contaminant with a concentration greater than a PRG. The roadway data (EP Letter report dated 12/22/06) shows elevated PAHs, greater than, but similar to the SB-025 data. No data were available for the RI that indicate petroleum contamination extends under the apron.

• *Subsurface soil in the vicinity of sample location B82-SB-200; VOCs were detected in a shallow soil sample (B82-SS-MW200S-0002) collected from this location.*

Response: The VOC concentrations in the sample in question were less than PRGs.

• *Subsurface soil and groundwater in the vicinity of sample locations B82-GP-D02 and SB-108; petroleum constituents were detected in soil and groundwater samples collected from these locations, and lead was detected above background levels in a soil sample (FDS5-R1-T1) collected nearby during a previous investigation.*

Response: Contaminants were not present at significant concentrations. Benzo(a)pyrene was detected at a concentration greater than its PRG in 10 -12 ft bgs sample, but that is in saturated zone and the PRG is not applicable. A few PAHs are at concentrations greater than eco criteria, but those criteria are not relevant at depth. Lead may have been detected at a concentration greater than background, but was less than the PRG.

• *Subsurface soil and groundwater in the vicinity of the former location of FDS-D6; CVOCs, petroleum constituents, and metals with elevated concentrations were reported in samples collected from locations B82-GP-D01 and B82-SB-109, and lead and petroleum constituents with elevated concentrations were reported in a soil sample (FDS6-RR-FCO) collected nearby during a previous investigation.*

Response: Concentrations of organics in GP-D01 were less than PRGs. PAH results in SB-109 and FDS6-RR-FCO were at similar concentrations, greater than PRGs, but at a depth of 6 - 8 ft bgs. Although concentrations were greater than PRGs, the overall site risk is at an acceptable level.

• *Subsurface soil and groundwater in the vicinity of the former location of FDS-D4; soil beneath the former locations of the FDS-D4 drains and pipelines, which served a potential source of metals contamination (battery locker), was not sampled during the RI or the FDS-D4 removal action that preceded the RI.*

Response: Well MW-203S was installed in the general vicinity of and downgradient of FDS-D4. Trace concentrations of a few organics were detected and metals concentrations are typical of other wells at the site and were less than PRGs.

• *Subsurface soil in the vicinity of the west end of test pit TP-100; elevated concentrations of lead and cadmium, which are not typical constituents of weathered roadway, were reported in sample B82-TP-100C-0303.*

Response: The lead concentration was less than the PRG. The cadmium concentration at 4.13 µg/kg was only slightly greater than the PRG of 3.7.

Comment 2: *Section 6.6: As proposed in response to MassDEP Comments 7 and 8 on the draft remedial investigation report, the revised report should include a discussion of the possibility of underestimating risks from individual release areas through use of whole site UCLs rather than maximum detected concentrations. This discussion is needed to capture an important general result from the remedial investigation: the Building 82 site does not consist of a single contaminant source and release area; rather, the site is complex, consisting of multiple sources and release areas separated by relatively non-impacted areas (refer to Comment 1). Accordingly, a remediation strategy that addresses the risks associated with each of the discrete source and release areas should be developed during the feasibility study.*

Response: As discussed in Section 6.2.3 of the RI, where appropriate (i.e., where the data sets were large enough), the 95 percent UCL on the mean was used as the EPC for all site media except groundwater that, hypothetically, may be used as drinking water (for residents). The 95 percent UCL is typically recommended as the EPC instead of the maximum concentration because receptor activities generally result in *exposure across an exposure unit* and not at a single location only. The use of the maximum concentration as the EPC would be extremely conservative because this practice assumes that receptors are exposed to the maximum concentration of all chemicals throughout the entire exposure period. Therefore, the 95 percent UCL is considered more representative of site-wide exposure likely to be experienced by a receptor.

The following text will be added to Section 6.6: "There is uncertainty in using the 95 percent UCL (or, for lead, using the mean concentration) as the EPC because there are thought to be multiple source areas of contamination present at the site. Calculating 95 percent UCLs from data sets comprised of samples collected across the site could potentially underestimate risks from the individual contaminant source areas. However, because receptor exposure is expected to be site wide and not limited to a single location, the 95 percent UCL or the mean concentration for lead is assumed to be representative of reasonable maximum exposures. Additionally, a review of the available soils data for the Building 82 area (as summarized on the COPC selection tables) indicates that there are no significant sub-areas or "hot spot" areas of contamination. Thus, there is no reason to sub-divide the Building 82 area into multiple sub-areas for purposes of risk assessment."