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U S NAVY RESPONSES (ADDENDUM) TO U S EPA AND RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT COMMENTS TO REVISED DRAFT FEASIBILITY STUDY SITE 8 NUSC DISPOSAL AREA NAVSTA NEWPORT RI
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March 6, 2012

Project Number 112G02124

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Ms. Pamela Crump
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Reference: CLEAN Contract No. N62470-08-D-1001
Contract Task Order No. WE19

Subject: Navy Responses (Addendum) to EPA and RIDEM Comments on the Revised Draft Feasibility Study for Site 8, NUSC Disposal Area, Naval Station Newport, Rhode Island

Dear Ms. Lombardo and Ms. Crump:

On behalf of Ms. Maritza Montegross, U.S. Navy NAVFAC MIDLANT, Tetra Tech is pleased to provide the enclosed responses to EPA's and RIDEM's comments on the revised draft Feasibility Study (FS) for Site 8 at the Naval Station Newport, Rhode Island. These responses are an addendum to the response documents provided on December 7 and 8, 2011.

Please contact me at (978) 474-8449 or jim.ropp@tetratech.com should you have any questions.

Sincerely,

James Ropp, P.E.
Project Manager

Encl: Responses (Addendum) to EPA and RIDEM Comments on the Revised Draft FS (email, hardcopy)

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Navy Responses (Addendum) to EPA Comments on the Revised Draft Feasibility Study for Site 8 – NUSC Disposal Area NAVSTA Newport, Rhode Island March 6, 2012

On August 11, 2011 and September 8, 2011, the United States Environmental Protection Agency (USEPA) provided comments on the Revised Draft Feasibility Study (FS) for Site 8, the Naval Undersea Systems Center (NUSC) Disposal Area (Tetra Tech, July 2011) at the Naval Station (NAVSTA) Newport, Rhode Island. EPA's August 11, 2011 comments also referred to past comments on the Draft FS (August 2010). On December 8, 2011, the Navy provided responses, except for those comments related to the formal dispute process that commenced on October 5, 2011. The following Navy responses address those deferred comments and are in accordance with the Dispute Agreement signed on January 12, 2012 as well as subsequent discussions between the Navy, USEPA, and the Rhode Island Department of Environmental Management (RIDEM).

AUGUST 11, 2011 COMMENT LETTER

Remaining EPA Comments (October 18, 2010) from the Draft FS (August 2010):

Specific Comment 22: Page 1-20 [Page 1-34 in Revised Draft], Section 1.10.1: Although EPA's blood lead models recommend use of the average lead concentrations and the results of the models are below the EPA's level of concern, the maximum detected lead concentrations in surface and subsurface soils are 2,870 mg/kg and 4,650 mg/kg, respectively, in the exposed area. In the paved area, the maximum detected lead concentration in subsurface soil is 27,200 mg/kg. These concentrations exceed EPA's screening level of 400 mg/kg and RIDEM residential direct contact criteria of 150 mg/kg for lead. Since PRGs were not developed for lead and these high concentrations are proposed to be left in place without remediation, ICs are necessary to prevent any current or future exposures due to any potential development. [Provide further discussion of lead in this section.]

Response: As per the Dispute Agreement, if a CERCLA risk is identified for site soil, then PRGs will be developed in the FS which are based on both CERCLA risk-based calculations as well as RIDEM's soil criteria promulgated in the Remediation Regulations. The Site 8 FS will be modified to identify and mitigate CERCLA contaminants exceeding RIDEM's direct exposure criteria (DEC), including lead.

The remedial alternatives will prevent exposure to lead in soil through surface soil excavation and backfilling with clean soil (Alternative SO2) or by a soil cover (Alternative SO3). Alternatives SO2 and SO3 also will include Land Use Controls (LUCs) to prevent future residential redevelopment and to support the continued industrial use of the site. The extent of the LUCs will include the areas with soil containing contaminants above EPA's lead screening level and RIDEM's residential DEC.

Note that the maximum concentration of lead detected in subsurface soil at the paved area is 159 mg/kg, not 27,200 mg/kg. The detection of 27,200 mg/kg was from sediment sample DA-SD100-071207.

Specific Comment 38: Page 3-10 – 3-11 [Pages 3-9 – 3-10 in Revised Draft], Section 3.3.3: The Impermeable Cap option is eliminated because Navy contends that construction of an impermeable cap would not be possible at the Paved Storage Area due to access restrictions and because infiltration would increase in areas that are not capped. EPA does not accept the premise that Navy's operational access restrictions should prevent a CERCLA cleanup nor does EPA accept that construction of an impermeable cap should be eliminated from consideration as a viable remedy. The paved area could be considered an impermeable or low permeability cover or the cap could be constructed to allow it to be paved to restore its current use. Note that if an impermeable cap is needed to comply with RIDEM Remediation

Regulations leachability criteria, the cap construction would need to comply with applicable requirements. An impermeable cap option should be evaluated in the FS.

Response: As described in the December 8, 2011 response document and during subsequent technical meetings, the Navy will operate the paved storage area as a waste management area and will implement LUCs to maintain the pavement as well as a groundwater monitoring program to ensure that COCs are not adversely migrating from the waste management area.

As per the Dispute Agreement, CERCLA hazardous substances, pollutants or contaminants, while not posing unacceptable risk, will be included as COCs if detected at concentrations exceeding RIDEM's Remediation Regulations soil DEC or leachability standards. Accordingly, Table 2-4 of the draft final FS will be updated to include not only the risk-based COCs identified from the CERCLA risk assessments, but also those contaminants exceeding RIDEM's DEC and leachability standards.

As discussed during the February 15, 2012 technical meeting and summarized below, there are several contaminants exceeding DEC that will be added to the list of COCs and PRGs. These contaminants will be addressed by the existing remedial alternatives for soil in the FS, expanded as needed to include any sample locations not already covered in the current FS.

COPCs in Surface and/or Subsurface Soil	COCs identified in the revised draft FS	COCs based on exceedences of RIDEM Residential DEC	COCs based on exceedences of RIDEM Industrial DEC	New COC for the draft final FS?
1,1-biphenyl		x		Y
acenaphthalene		x		Y
anthracene		x		Y
benzo(a)anthracene	x	x	x	
benzo(a)pyrene	x	x	x	
benzo(b)fluoranthene	x	x	x	
benzo(g,h,i)perylene		x		Y
benzo(k)fluoranthene		x	x	Y
chrysene		x	x	Y
dibenzo(a,h)anthracene	x	x	x	
fluoranthene		x		Y
fluorene		x		Y
indeno(1,2,3-cd)pyrene	x	x	x	
naphthalene		x		Y
phenanthrene		x		Y
pyrene		x		Y
arsenic	x	x	x	
beryllium		x	x	Y
cadmium	x			
chromium	x			
lead		x	x	Y
manganese		x		Y
zinc		x		Y

Note: Comparison to background levels is not included here.

As also discussed during the February 15, 2012 technical meeting, there are only two organic contaminants that exceed RIDEM's soil leachability criteria: benzo(a)pyrene (two locations) and naphthalene (eight locations).

- **The maximum concentrations of benzo(a)pyrene exceeded the leachability criterion at only two adjacent locations by the northwest corner of the paved area (440 mg/kg at SB110 and 1,300 mg/kg to 1,500 mg/kg at two depths in TP-15). An impermeable cap for the site is not warranted to address these two locations which can be addressed through selective excavation instead.**

- **The three highest concentrations of naphthalene in soil (maximum of 220 mg/kg) are co-located with benzo(a)pyrene in locations SB110 and TP15. Upon removal of those two locations as described above, the representative site concentration (95%UCL) of the residual naphthalene in surface and subsurface soil across the site would be 0.855 mg/kg which slightly exceeds RIDEM's leachability criterion for naphthalene of 0.8 mg/kg. Removal of the next-highest naphthalene concentrations (location SS127/SB127) would reduce the 95%UCL for surface and subsurface soil to 0.515 mg/kg.**

The concentrations of these two compounds in soil are not leaching and adversely impacting groundwater at Site 8. Neither benzo(a)pyrene nor naphthalene were detected in any of the groundwater samples collected across the site during the RI or SRI. Therefore, following removal of the highest concentrations at SB110, TP15, and SS/SB127, no further action to address leachability criteria for organics will be warranted.

For inorganics (metals), RIDEM's leachability criteria are based on TCLP/SPLP analyses. As discussed during recent technical meetings, no TCLP/SPLP data are currently available to characterize the leachability of metals remaining in site soil (i.e., the available TCLP data pertain to combined waste soil piles or drill cuttings and not individual sample locations). Therefore, consistent with the intent of the leachability criteria [Remediation Regulations Section 8.02(A)(ii)(1)], the available site groundwater data were evaluated with respect to the protection of the aquifer as a potential drinking water source. The Navy believes that site groundwater data are more indicative of the actual aquifer conditions rather than relying on a "20x" rule of thumb which is sometimes used for estimating the potential leaching of contaminants from waste soil. When considering the metals for which soil leachability criteria have been promulgated by RIDEM, there are only two groundwater sampling locations (MW119B, MW103S) where these metals exceed federal MCLs and/or RIDEM's GA groundwater standards (i.e., even if soil leachability criteria are being exceeded, there is no substantial impact to groundwater from those contaminants):

- **At MW119B, the concentration of total thallium in groundwater (2.3 ug/L) only slightly exceeded the federal and state standard of 2 ug/L. Thallium was non-detect in co-located soil samples DA-SS119B-011608 (0.06 UJ mg/kg) and DA-B119B-0204 (0.01 U mg/kg). Therefore, leaching of thallium from soil to groundwater is not of concern and the Navy will continue to monitor thallium concentrations in groundwater until its remedial goal is achieved.**

- **At MW103S, total concentrations of four metals exceeded federal and/or state standards: beryllium (17.8 ug/L), chromium (868 ug/L), lead (1,890 ug/L) and nickel (1,160 ug/L). The drinking water standards are 4 ug/L, 100 ug/L, 15 ug/L, and 100 ug/L, respectively. The detected concentrations are believed to be associated with particulates in the samples because those results were obtained from a highly turbid sample and the dissolved (filtered) results indicated that only lead (19.9 ug/L) slightly exceeded the standards. In the co-located soil samples DA-SS103B-011508 and DA-B103B-0810, only lead and nickel were detected at concentrations which have the potential to exceed leachability criteria (if assuming the 20x rule of thumb).**

Of these four metals, only beryllium and lead also exceed DEC in soil:

- **Beryllium only exceeded DEC at one location (TP-15) in subsurface soil (at 2 to 3 feet below ground surface [bgs] and 5 to 6 feet bgs) which is co-located with benzo(a)pyrene and naphthalene and is planned for removal, as described above.**

- **Lead exceeded DEC in surface and subsurface soil at only eight locations (see map provided on October 10, 2011), two of which are planned for removal (SS149 and SB106). The highest remaining lead location is B110B-1012 (4,540 mg/kg) which is located in the South Meadow. The co-located groundwater sample (MW110B) did not contain lead above the federal or state standards (1.1 ug/L total lead and 0.97 U ug/L dissolved lead). Similarly nearby/downgradient groundwater sample locations (MW04B, MW122) were non-detect for lead.**

The Navy believes that the intent of RIDEM's leachability criteria (aquifer protection) has been met because soil COCs are not adversely impacting groundwater at the site. As discussed during the February 15, 2012 technical meeting, the Navy will modify the FS to include the leachability criteria discussion presented herein but will not develop a new remedial alternative for soil that specifies an impermeable cap. Instead, the soil remedial alternatives in the FS will be modified to specify that additional soil samples will be collected during the Remedial Design/Remedial Action (RD/RA) phase subsequent to the ROD. The samples will be collected from the area(s) containing the highest remaining lead concentrations and will be analyzed for SPLP-metals. If the results do not exceed RIDEM's leachability criteria, then it will be concluded that no further action regarding leachability criteria will be required. If the results exceed leachability criteria, then those location(s) would be excavated (i.e., hot spot removal) as part of the overall Remedial Action. This sampling can be performed either during the early design (planning) phase or during the remedial action phase (collected as post-excavation confirmatory samples). The Navy will prepare the Uniform Federal Policy (UFP) Sampling and Analysis Plan (SAP) for this additional sampling in coordination with EPA and RIDEM.

The Navy also plans to collect additional groundwater samples in 2012 as part of the monitored natural attenuation (MNA) evaluation for site groundwater. This groundwater sampling will include metals analyses from MW103S and other selected locations to evaluate potential trends in metals concentrations over time.

Specific Comment 61: Sections 4.1.2 and 4.1.3: Any alternatives that leave contaminated soil in place need to be covered and meet the applicable or relevant and appropriate standards for covers, in this case likely the RI Remediation Regulations or the RI Solid Waste Regulations. The cover needs to address both contact and leachability risks posed by the contaminated soil.

Response: Comment noted regarding soil cover ARARs (see also the ARAR discussions in the December 8, 2011 response letter). Regarding leachability criteria, see the response to Specific Comment #38 above.

EPA Comments (August 11, 2011) on the Revised Draft Feasibility Study (July 2011):

Specific Comment 8: Page 3-10, Section 3.3.3, Conclusion: The report states "*soil PRGs and groundwater conditions do not require mitigating COC leachability in soil.*" Subsurface vadose soil concentrations in the South Meadow exceed the RIDEM leachability criteria. Therefore, remedial alternatives must be designed to eliminate leaching in those areas where the criteria are exceeded.

Response: See the response to October 18, 2010 Specific Comment #38 above.

Specific Comment 14: Section 4: See comments 38 and 61 of EPA's October 18, 2010 comments (restated above). If leachability criteria are exceeded in vadose soil, then an impermeable cover would

be required to limit leaching. The data suggest that the leachability criteria exceedances are limited to a small area in the South Meadow.

Response: See the response to October 18, 2010 Specific Comment #38 above.

Specific Comment 38: Table 2-4: Please clarify why RIDEM's leachability criteria are not applicable for site soil. Benzo(a)pyrene concentrations far in excess of RIDEM's leachability criteria exist in subsurface vadose soil in the South Meadow (TP-15A and SB 110). The absence of significant PAH concentrations in groundwater does not obviate the need to satisfy the RIDEM leachability criteria.

Response: See the response to October 18, 2010 Specific Comment #38 above.

Navy Responses (Addendum) to RIDEM Comments on the Revised Draft Feasibility Study for Site 8 – NUSC Disposal Area NAVSTA Newport, Rhode Island March 6, 2012

On September 19, 2011, the Rhode Island Department of Environmental Management (RIDEM) provided comments on the Revised Draft Feasibility Study (FS) for Site 8, the Naval Undersea Systems Center (NUSC) Disposal Area (Tetra Tech, July 2011) at the Naval Station (NAVSTA) Newport, Rhode Island. On December 7, 2011, the Navy provided responses, except for those comments related to the formal dispute process that commenced on October 5, 2011. The following Navy responses address those deferred comments and are in accordance with the Dispute Agreement signed on January 12, 2012 as well as subsequent discussions between the Navy, RIDEM, and the U.S. Environmental Protection Agency (USEPA).

Responses to Comments on the Revised Draft Feasibility Study

Comment 2 – Page 1-34, Section 1.10.2, Selection of Chemicals of Concern for Human Health; whole section.

Although not selected as a COC in the RI/SRI, concentrations of lead in the surface and subsurface soil exceed RIDEM's risk based criteria of 150 mg/kg. In the exposed area, the maximum concentrations of lead detected were 2,870 mg/kg in the surface soil and 4,650 mg/kg in the subsurface soil. In the paved area, a concentration of 27,200 mg/kg was detected in the subsurface soil. Please include lead as a COC for surface and subsurface soil and include a discussion of lead in this section explaining how the Navy proposes to prevent exposures of lead for any receptor/exposure scenario.

Response: As per the Dispute Agreement, the FS will be modified to include lead as a contaminant of concern (COC) in soil based on the exceedences in soil of RIDEM's direct exposure criteria (DEC) as an ARAR.

The remedial alternatives will prevent exposure to lead in soil through surface soil excavation and backfilling with clean soil (Alternative SO2) or by a soil cover (Alternative SO3). Alternatives SO2 and SO3 also will include Land Use Controls (LUCs) to prevent future residential redevelopment and to support the continued industrial use of the site. The extent of the LUCs will include the areas with soil containing contaminants above RIDEM's residential DEC.

Please note that the maximum concentration of lead detected in subsurface soil at the paved area is 159 mg/kg, not 27,200 mg/kg. The detection of 27,200 mg/kg was from sediment sample DA-SD100-071207.

Comment 3 – Page 2-6, Section 2.1.4.1, Chemical Specific Applicable or Relevant and Appropriate Requirements, Sediments; Whole Section.

The report notes that there are no promulgated chemical specific ARARs for sediments. As such it proposes to use federal TBC guidance to develop site specific cleanup values. Please be advised that the Site Remediation regulations are also applicable. Please modify the report to state this.

Response: ***[Note: the comment appears to pertain to the text on page 2-3, not page 2-6.]*** **The Remediation Regulations do not provide numerical ("Method 1") values for sediment or a specific methodology to be used for chemical-specific ARARs for sediment. The Remediation Regulations only state the following in Section 9.02(B) (Remedial Objectives) regarding sediment:**

> **"Surface Water and Sediment Objectives: The Performing Party shall propose a remedial objective for all Hazardous Substances found to have actual or potential impacts on surface water and/or sediments, that is consistent with the actual and potential uses of the surface**

water and/or sediment in the impacted area, and the policies and regulations of the Office of Water Resources;"

Risk-based Preliminary Remediation Goals (PRGs) for sediment were developed in Section 2 of the FS (see Table 2-6) and were used for the sediment remedial alternatives in Section 6 of the FS. The paragraph on page 2-3 will be clarified to read as follows:

> **"There are no promulgated federal or state ARARs that specify numerical limits for the concentrations of COCs in sediment at the site. Therefore, the Navy has calculated site-specific, risk-based PRGs for sediment utilizing federal TBC guidance."**

Additionally, because site-specific PRGs were developed for sediment which include PEC-Q values (Table 2-6), the following TBC document will be added to the chemical-specific ARAR tables for sediment:

> **MacDonald, D.D., C.G. Ingersoll, and T.A. Berger, 2000. "Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems." Archives of Environmental Contamination and Toxicology, Vol. 39, pp. 20-31**

Probable Effects Concentration Quotients (PEC-Qs)	**MacDonald, et al., 2000 and Ingersoll et al., 2000.**	**TBC**	**Provide guidance values for identifying potential risk to ecological receptors exposed to contaminated sediments.**	**Primary basis for evaluating risk to aquatic ecological receptors. This guidance can be used to develop PRGs.**

Comment 5 – Page 2-7, Section 2.2.2, Derivation of Preliminary Remediation Goals, Human Health PRGs; whole section.

This section slates that the cumulative target goal for PRGs is 10^{-5}. A review of the information provided in Table 2-4 and 2-5 indicates that this goal will not be achieved if more than one contaminant is present at the target PRG concentration. To avoid this problem and in order to meet regulatory requirements, please set the PRGs to the 10^{-6} criteria. Please ensure that any compound which exceeds RIDEM's risk based criteria was carried forth in the PRG process.

Response: As per the Dispute Agreement, CERCLA contaminants in soil that exceed the Remediation Regulation Method 1 DEC will be included as a COC to be addressed by the FS.

Tables 2-4 and 2-5 will be revised to show PRGs developed using 10^{-6} risk-based levels for the COCs identified from the human health risk assessment, chemical-specific ARARs such as RIDEM's DEC, and background levels.

Comment 7 – Page 2-7, Section 2.2.2, Derivation of Preliminary Remediation Goals, Human Health PRGs; Table 2-4.

Please explain why RIDEM's leachability criteria are listed as "Not Applicable" in this table. RIDEM's leachability criteria are ARARs for this Site and must be included in this table and throughout this FS.

Response: As per the Dispute Agreement, CERCLA hazardous substances, pollutants, or contaminants, while not posing unacceptable risk, will be included as COCs if detected at concentrations exceeding RIDEM DEC or leachability standards. In the FS, these criteria will be used in the development of PRGs for all COCs. As discussed during the February 15, 2012 technical meeting, there are only two organic contaminants that exceed RIDEM's soil leachability criteria: benzo(a)pyrene (two locations) and naphthalene (eight locations).

- **The maximum concentrations of benzo(a)pyrene exceeded the leachability criterion at only two adjacent locations by the northwest corner of the paved area (440 mg/kg at SB110 and 1,300 mg/kg to 1,500 mg/kg at two depths in TP-15). An impermeable cap for the site is not warranted to address these two locations which can be addressed through selective excavation instead (the FS will be modified accordingly).**

- **The three highest concentrations of naphthalene in soil (maximum of 220 mg/kg) are co-located with benzo(a)pyrene in locations SB110 and TP15. Upon removal of those two locations as described above, the representative site concentration (95%UCL) of the residual naphthalene in surface and subsurface soil across the site would be 0.855 mg/kg which slightly exceeds RIDEM's leachability criterion for naphthalene of 0.8 mg/kg. Removal of the next-highest naphthalene concentrations (location SS127/SB127) would reduce the 95%UCL for surface and subsurface soil to 0.515 mg/kg.**

The concentrations of these two compounds in soil are not leaching and adversely impacting groundwater at Site 8. Neither benzo(a)pyrene nor naphthalene were detected in any of the groundwater samples collected across the site during the RI or SRI. Therefore, following removal of the highest concentrations at SB110, TP15, and SS/SB127, no further action to address leachability criteria for organics will be warranted.

For inorganics (metals), RIDEM's leachability criteria are based on TCLP/SPLP analyses. As discussed during recent technical meetings, no TCLP/SPLP data are currently available to characterize the leachability of metals remaining in site soil (i.e., the available TCLP data pertain to combined waste soil piles or drill cuttings and not individual sample locations). Therefore, consistent with the intent of the leachability criteria [Remediation Regulations Section 8.02(A)(ii)(1)], the available site groundwater data were evaluated with respect to the protection of the aquifer as a potential drinking water source. The Navy believes that site groundwater data are more indicative of the actual aquifer conditions rather than relying on a "20x" rule of thumb which is sometimes used for estimating the potential leaching of contaminants from waste soil. When considering the metals for which soil leachability criteria have been promulgated by RIDEM, there are only two groundwater sampling locations (MW119B, MW103S) where these metals exceed federal MCLs and/or RIDEM's GA groundwater standards (i.e., even if soil leachability criteria are being exceeded, there is no substantial impact to groundwater from those contaminants):

- **At MW119B, the concentration of total thallium in groundwater (2.3 ug/L) only slightly exceeded the federal and state standard of 2 ug/L. Thallium was non-detect in co-located soil samples DA-SS119B-011608 (0.06 UJ mg/kg) and DA-B119B-0204 (0.01 U mg/kg). Therefore, leaching of thallium from soil to groundwater is not of concern and the Navy will continue to monitor thallium concentrations in groundwater until its remedial goal is achieved.**

- **At MW103S, total concentrations of four metals exceeded federal and/or state standards: beryllium (17.8 ug/L), chromium (868 ug/L), lead (1,890 ug/L) and nickel (1,160 ug/L). The drinking water standards are 4 ug/L, 100 ug/L, 15 ug/L, and 100 ug/L, respectively. The detected concentrations are believed to be associated with particulates in the samples because those results were obtained from a highly turbid sample and the dissolved (filtered) results indicated that only lead (19.9 ug/L) slightly exceeded the standards. In the co-located soil samples DA-SS103B-011508 and DA-B103B-0810, only lead and nickel were detected at concentrations which have the potential to exceed leachability criteria (if assuming the 20x rule of thumb).**

Of these four metals, only beryllium and lead also exceed DEC in soil:

- **Beryllium only exceeded DEC at one location (TP-15) in subsurface soil (at 2 to 3 feet below ground surface [bgs] and 5 to 6 feet bgs) which is co-located with benzo(a)pyrene and naphthalene and is already planned for removal, as described above.**

- **Lead exceeded DEC at only eight locations in surface and subsurface soil (see map provided on October 10, 2011), two of which are planned for removal (SS149 and SB106). The highest remaining lead location is B110B-1012 (4,540 mg/kg) which is located in the South Meadow. The co-located groundwater sample (MW110B) did not contain lead above the federal or state standards (1.1 ug/L total lead and 0.97 U ug/L dissolved lead). Similarly nearby/downgradient groundwater sample locations (MW04B, MW122) were non-detect for lead.**

The Navy believes that the intent of RIDEM's leachability criteria (aquifer protection) has been met because soil COCs are not adversely impacting groundwater at the site. As discussed during the February 15, 2012 technical meeting, the Navy will modify the FS to include the leachability criteria discussion presented herein but will not develop a new remedial alternative for soil that specifies an impermeable cap. Instead, the soil remedial alternatives in the FS will be modified to specify that additional soil samples will be collected during the Remedial Design/Remedial Action (RD/RA) phase subsequent to the ROD. The samples will be collected from the area(s) containing the highest remaining lead concentrations and will be analyzed for SPLP-metals. If the results do not exceed RIDEM's leachability criteria, then it will be concluded that no further action regarding leachability criteria will be required. If the results exceed leachability criteria, then those location(s) would be excavated (i.e., hot spot removal) as part of the overall Remedial Action. This sampling can be performed either during the early design (planning) phase or during the remedial action phase (collected as post-excavation confirmatory samples). The Navy will prepare the Uniform Federal Policy (UFP) Sampling and Analysis Plan (SAP) for this additional sampling in coordination with EPA and RIDEM.

The Navy also plans to collect additional groundwater samples in 2012 as part of the monitored natural attenuation (MNA) evaluation for site groundwater. This groundwater sampling will include metals analyses from MW103S and other selected locations to evaluate potential trends in metals concentrations over time.

Comment 8 – Page 2-7, Section 2.2.2 Derivation of Preliminary Remediation Goals, Human Health PRGs; 2nd paragraph.

"The RIDEM Method 1 Direct Exposure values are also included for comparison, however, the risk-based calculated values supersede them. "

The RIDEM Method 1 Direct Exposure values are ARARs for this Site. Pursuant to the NCP and CERCLA, the most conservative criteria between EPA and RIDEM must be used to determine PRGs for this Site. Please change the above sentence in the FS to reflect this and any other section of the FS and in addition please add any exceedances to RIDEM's Criteria as PRGs, including TPH.

Response: As per the Dispute Agreement, the FS will be modified to indicate that RIDEM's Method 1 soil DEC are ARARs for the site. CERCLA contaminants that exceed DEC will be included as a COC to be addressed by the FS. PRGs will be developed utilizing the lower of the risk-based and ARAR-based values, or background levels. See the response to Comment #7 regarding RIDEM's Method 1 soil leachability criteria.

Regarding TPH, petroleum is not a CERCLA contaminant. CERCLA cleanups address "hazardous substances, pollutants or contaminants," which have definitions that explicitly exclude petroleum [CERCLA sec 101(14) & 101(3)]. RIDEM Remediation Regulation DEC may be CERCLA ARARs only if they pertain to CERCLA "hazardous substances, pollutants or contaminants" being addressed by

the CERCLA cleanup. [CERCLA sec 121(d)]. Other state regulated contaminants, such as TPH, would be addressed outside CERCLA.

In general, if TPH is "co-located" with a CERCLA release that requires remedial action, the Navy may choose to address the TPH contamination concurrent with the CERCLA action. However, the action to address the TPH would follow state petroleum remediation requirements, and would be accomplished outside the CERCLA process. If TPH is "co-mingled" with a CERCLA release that requires remedial action, the Navy will address the TPH contamination and the CERCLA contaminants together in a single cleanup. However, risk from the petroleum will be assessed on its individual hydrocarbons constituents (i.e. PAHs). The Navy would include state petroleum remediation criteria as PRGs for the implemented action. They would not be ARARs for the CERCLA cleanup.

At Site 8, the soil and sediment sample locations which exceeded RIDEM's TPH criteria are co-located with areas to be addressed as part of the CERCLA action, except for one sample location (SD-B179-01 at 640 J mg/kg) which exceeded the residential criterion (500 mg/kg) but not the industrial criterion (2,500 mg/kg). The current and planned future use of the site is industrial; therefore, that location will be address through the residential LUC planned for that area.

Comment 10 – Page 3-10, Section 3.3.3, Containment, Impermeable Cap; Conclusion.

" *... the soil PRGs and groundwater conditions do not require mitigating COC leachability in soil. "*

This statement is incorrect. Contaminants in the subsurface soil exceed RIDEM Leachability Criteria in the South Meadow. Please develop remedial alternatives to address leaching in the areas of exceedances and carry this option further in the FS process.

Response: See the response to Comment #7. Section 3.3.3 will be clarified accordingly.

Responses to Comments from the Supplemental Remedial Investigation

On May 31, 2011, the Navy issued the draft final SRI for Site 8 and RIDEM provided comments on June 16, 2011. The Navy provided responses on July 13, 2011 and RIDEM provided additional comments on August 3, 2011. On September 21, 2011, it was agreed to defer the following comment to the FS so that the SRI could be finalized. The comment number used below refer to the numbering used in the June 16, 2011 letter.

Comment 4 – As stated in the previous comment, RIDEM does not accept the levels of arsenic documented in the background study. PRGs should also be developed for individual PAHs based on 1×10^{-6} risk level for each contaminant. Please be advised that any contaminant that exceeded a risk level of 1×10^{-6} in the RI or the SRI must be carried forth into the FS.

Response: Decisions as to whether risk is present at the site will be made using the EPA cancer risk range as stated in CERCLA and the USEPA guidance document entitled *Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions. Washington DC. OSWER Directive 9355.0-30 (USEPA, 1991).*

In accordance with this document, if total site risk exceeds the incremental lifetime cancer risk (ILCR) range of 10^{-4} to 10^{-6}, then a remedial action is likely warranted, depending on site-specific conditions. As stated in the EPA guidance document:

> **"Where the cumulative carcinogenic site risk to an individual based on reasonable maximum exposure for both current and future land use is less than 10^{-4} and the non-carcinogenic hazard quotient is less than 1, action generally is not warranted unless there are adverse environmental impacts."**

Upon identification of risk based COCs, additional CERCLA hazardous substances, pollutants or contaminants, while not posing unacceptable risk, will be included as COCs if detected at concentrations exceeding RIDEM DEC or leachability standards. In the FS, these criteria will be used in the development of PRGs for all COCs.

Regarding the PRGs for arsenic and PAHs, see the December 7, 2011 response document. Also, during the February 1, 2012 technical meeting, RIDEM indicated their agreement with the 18 mg/kg PRG cited for arsenic in Table 2-4 of the FS[1].

[1] The arsenic PRG is based on the 95%UPL of the background data set for surface soil.