N62578.AR.002638
NCBC DAVISVILLE
5090.3a

LETTER AND U S NAVY RESPONSES TO FOLLOW UP COMMENTS FROM REGULATORS REGARDING DRAFT PROPOSED PLAN FOR REMEDIAL ACTION OPERABLE UNIT 9 (OU9) SITE 16 NCBC DAVISVILLE RI
11/2/2012
U S NAVY

DEPARTMENT OF THE NAVY
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE, NORTHEAST
4911 SOUTH BROAD STREET
PHILADELPHIA, PA 19112-1303

5090
BPMO NE/DB
Ser 13-009
November 2, 2012

Ms. Christine Williams
U.S. Environmental Protection Agency, Region I
5 Post Office Square, Suite 100
Mail Code: OSRR07-03
Boston, MA 02109-3912

Mr. Richard Gottlieb
Office of Waste Management
Rhode Island Department of Environmental Management (RIDEM)
235 Promenade Street
Providence, RI 02908-5767

Dear Ms. Williams and Mr. Gottlieb:

Enclosed are responses to follow-up comments received on the Draft Proposed Plan for Installation Restoration Program (IRP) Site 16 at the Former Naval Construction Battalion Center (NCBC) Davisville, Rhode Island. The comments were forwarded to the Navy from the United States Environmental Protection Agency (USEPA) - Region I and the State of Rhode Island Department of Environmental Management (RIDEM) in correspondence dated September 11, 2012. The follow-up comments were based on USEPA Region I and RIDEM review of Navy correspondence dated August 17, 2011.

We appreciate your continuing support regarding the Proposed Plan for Site 16 and look forward to our discussions on November 13, 2012.

If you have any questions, please do not hesitate to contact me at 617-753-4656.

Sincerely,

DAVID A. BARNEY
BRAC Environmental Coordinator
By direction of BRAC PMO

Enclosures: (2)
Response to Follow-up Comments on Draft Proposed Plan for IRP Site 16 at former NCBC Davisville, RI

Copy to:
J. Dale, NAVFAC Midlant
L. Rapp/B. Capito, NAVFAC Atlantic (electronic)
S. King, Quonset Development Corporation
J. Reiner, Town of North Kingston
J. Trepanowski, TtNUS PMO
J. Logan, TtNUS, Project FS Engineer
S. Anderson, TtNUS Project Hydrogeologist
L. Sinagoga, TtNUS Project Manager
NIRIS RDM (1 hard copy and 1 electronic copy)
S. Currie, TtNUS Project Files (CTO WE 51 112G02584)

**ENCLOSURE 1**

**Navy's Response to United States Environmental Protection Agency (USEPA) Region I Follow-up Comments on the Draft Proposed Plan for Remedial Action at OU9 IRP Site 16 at The Former Davisville Naval Construction Battalion Center (NCBC), Rhode Island**

October 2012

**Navy's Response to United States Environmental Protection Agency (USEPA) Region I Follow-up Comments on the Draft Proposed Plan for Remedial Action at OU9 IRP Site 16 at The Former Davisville Naval Construction Battalion Center (NCBC), Rhode Island**

**Original USEPA Comment Correspondence:** **July 3, 2012**
**Original Navy Response Correspondence:** **August 17, 2012**
**USEPA Follow-up Comments Correspondence:** **September 11, 2012**

**EPA Follow-Up Comment No. 1:** EPA has conditionally agreed with Navy's newest proposal for treatment of groundwater and has suggested the waste management area be expanded to include all the soil sources. We still consider the groundwater to be classified as a potential drinking water source and as such the groundwater will need to be cleaned up to federal drinking water and risk-based standards, along with more stringent state groundwater standards. However, these standards do not need to be met within the waste management area and along the coast line where the groundwater is saline and where the cleanup goals should be protective of the ecological receptors in the surface water and sediment.

The time period for how long monitored natural attenuation (MNA) will take to reach cleanup standards in the areas between the waste management area and the coastline should be recalculated to take into account the Navy's proposed groundwater treatment measures and the smaller area where cleanup standards will need to apply.

***Navy Response to EPA Follow-Up Comment No. 1:*** *Comment acknowledged. The EPA's "conditional agreement" with the groundwater treatment alternative presented in the Navy's correspondence of August 10, 2012 should facilitate the finalization of the Proposed Plan (PP) for Site 16. The "time period for how long monitored natural attenuation (MNA) will take to reach cleanup standards in the areas between the waste management area and the coastline" is being recalculated and will be forward to EPA when completed.*

**EPA Follow-Up Comments No. 2 and No. 3:** The point we were trying to make was that dense non-aqueous phase liquid (DNAPL) is often difficult to find in older plumes. So instead of direct detection, supporting evidence can be used to assess DNAPL presence. The Navy has made a case that DNAPL is not present and EPA will accept that at this time. EPA is pleased that Navy has agreed to treat the deep ground water at the eastern end of the former Bldg. 41 and shallow, intermediate, and deep ground water the Allen Harbor shoreline.

***Navy Response to EPA Follow-Up Comments No. 2 and No. 3:*** *As indicated by the reviewer, the Navy has recommended focused, limited treatment of the groundwater at the eastern end of the former Bldg. 41. Per discussions between the Navy and EPA and as noted above, it is understood that the remedial goals established for groundwater do not apply to the groundwater underlying the Site 16 waste management area (WMA) and also do not apply along the coast line where the groundwater is saline and where remedial goals should be protective of the ecological receptors in the surface waters and sediments. No further response required.*

**EPA Follow-Up Comment No. 7:** Navy's response stated that the rip-rap will not extend into the harbor. The intertidal zone is under jurisdiction of the federal Clean Water ACT (CWA). Therefore, if the rip-rap extends into an area below the high tide line, Navy will need to address our comment to include in the Proposed Plan a solicitation for public comment on the "Least Environmentally Damaging Practicable Alternative".

***Navy Response to EPA Follow-Up Comment No. 7:*** *Comment acknowledged. As indicated in the original response to this comment, the Navy does not anticipate the need to extend the riprap into the*

*harbor such that the action will be subject to CWA 404. The Navy does not believe the action will extend below the high tide line.*

**EPA Follow-Up Comment No. 15:** The Navy needs to clarify that the marina area is being defined as a recreational area as opposed to the rest of the site which is defined as a commercial/industrial area. This clarification is provided for stakeholders who are interested in the disposition of the Navy Yacht Club.

***Navy Response to EPA Follow-Up Comment No. 15:*** *As indicated in the original response to this comment, the Navy agrees to adjust the referenced text of the PP to state that "the area in the immediate vicinity of the marina is used for recreational purposes".*

**EPA Follow-Up Comment No. 19:** EPA's revised standards need to be cited as guidance in the soil Chemical-specific applicable, relevant, and appropriate regulations (ARAR) tables. In addition, while the response indicates that the exceedances are in the Site 16 north central area (NCA), there is no indication of whether or not the exceedances are also co-located with the newly planned excavation to two feet. Will all exceedances be excavated or will dioxin above preliminary remediation goals (PRG) be managed in place?

***Navy Response to EPA Follow-Up Comment No. 19:*** *As indicated in the previous response, dioxins/furans will be identified as soil COCs in the PP and the new clean-up levels will be added to Table 1 of the PP. While some of the detected concentrations exceed the current EPA clean-up levels for residential soils, none exceed the EPA clean-up for commercial/industrial soils.*

*The finalized dioxin guidance will be included in the FS Addendum for the new alternatives and it can be noted that the final guidance is pertinent to the other alternatives, too. Please note that the May 2012 FS lists the Draft version as an ARAR and that document will not be revised. However, the final guidance will be cited in the ROD.*

**EPA Follow-Up Comments No. 32 and No. 36:** Since Navy is proposing to clean up to federal drinking water and risk-base standards, along with more stringent State groundwater standards outside of the waste management area (WMA), Navy is proposing to restore the aquifer outside of the WMA. The remedial action objective (RAO) should be changed as requested. There is no prohibition about modifying RAOs between the Feasibility Study (FS) and the Proposed Plan. The RAOs need to tie to the remedy that is being presented in this Proposed Plan and will be carried forward (pending any public comment) to the ROD. The groundwater RAOs should include restoring the aquifer to drinking water standards outside of the WMA within a reasonable timeframe and preventing contaminated groundwater from migrating beyond the compliance boundary for the WMA.

***Navy Response to EPA Follow-Up Comments No. 32 and No. 36:*** *Per the EPA RI/FS guidance, RAOs are established at the start of the FS process and the FS alternatives are developed accordingly. Although it is agreed that there is no specific prohibition in the guidance regarding the modification of RAOs between the FS and the Proposed Plan, a prohibition does not need to be stated explicitly. The Navy respectfully disagrees with the suggestion to modify the RAOs because the development of a FS follows a specific sequence; the development of RAOs is one of the first logical steps in that sequence. The technology selection, alternative assembly, and evaluations of the alternatives all follow and are based on the RAOs. Thus, RAOs cannot be readily changed after the FS has been finalized.*

*Additionally, please note that the remedial goals have not changed. The PRG's remain the same and the intent to reach these levels has not changed. The emphasis has been on time. The current RAO is more appropriate to the site conditions since the remedy will inherently 'restore' the aquifer over time, the critical objective of "preventing human exposure" should be the driving RAO. The suggested change represents a fundamental shift in remedial objectives for groundwater from "prevention" of risk to "restoration" of aquifer. The remedial alternatives were not developed and evaluated for "restoration" as*

*the primary objective and therefore should not be altered as suggested.*

*Finally, the current RAOs do not affect the development selected remedy for Site 16. Further changes to the RAOs such that they tie specifically to the selected remedy are not necessary.*

**EPA Follow-Up Comment No. 34:** There is no prohibition about modifying RAOs between the FS and the Proposed Plan. The RAOs need to tie to the remedy that is being presented in this Proposed Plan and will be carried forward (pending any public comment) to the Record of Decision (ROD).

***Navy Response to EPA Follow-Up Comment No. 34:*** *Please see Navy Response to EPA Follow-up Comments No. 32 and No. 36. Also, there is no disconnect between the stated RAOs and the Proposed Plan. The Navy is recommending the excavation of soils in the vicinity of the southeast corner of Bldg. E-107 (where feasible) so that a soil management plan (SMP) for future excavations into the unsaturated soils in this area would not be necessary. (The Navy recognizes that the infrastructure needs of the QDC and its tenant in this area are such that the excavation into the unsaturated zone is likely from time to time and, therefore, excavations unencumbered by the constraints of a SMP is desirable.) The excavation is not recommended to allow "unrestricted" use of the marina area; please also see Navy Response to EPA Follow-up Comment No. 35.*

**EPA Follow-Up Comment No. 35:** Since Navy is proposing to cleanup soil at the Marina to support recreational use, Navy is preventing exposure to current and future recreation users of the marina area. The RAO should be changed as requested. There is no prohibition about modifying RAOs between the FS and the Proposed Plan. The RAOs need to tie to the remedy that is being presented in this Proposal Plan and will be carried forward (pending any public comment) to the ROD.

***Navy Response to EPA Follow-Up Comment No. 35:*** *The Navy is not necessarily assuming or allowing "unrestricted" recreational use of the area by the marina. Land use controls could be stipulated that prevent recreational activities that would result in exposure comparable to an unrestricted/residential land use. However, the Navy's August 10th, 2012 correspondence does indeed state that, "Excavation as necessary of the unsaturated zone soil in the immediate vicinity of Bldg. E-107 down to the top of the water table and backfill to meet RIDEM Direct Contact criteria for Residential soils." As noted in the previous response, this recommendation has been made to eliminate the need for a potentially cumbersome soil management plan in this portion of the NCA (i.e., any future excavation would take place in clean fill).*

**EPA Follow-Up Comment No. 38:** Regarding the WMA, the Navy will be required to implement permanent land use controls (LUC) to prevent groundwater use and monitor groundwater at the WMA compliance boundary to make sure contaminated groundwater exceeding the performance standards does not migrate beyond the compliance boundary.

***Navy Response to EPA Follow-Up Comment No. 38:*** *Land use controls to prevent groundwater use and groundwater monitoring are components of the remedy. However, migration of contaminated groundwater will occur and LUCs and natural attenuation will be required to address groundwater contaminant concentrations that are greater than remedial goals.*

*Regarding the WMA, the Navy will implement permanent land use controls (LUCs) to prevent groundwater use. In the long-term monitoring plan for Site 16, screening levels protective of both human and ecological receptors will be established for the monitoring wells located immediately upgradient of Allen Harbor. If these screening levels were to be exceeded, the Navy would further evaluate the need for additional groundwater remediation at Site 16 (in consultation with EPA and RIDEM).*

*EPA noted in its initial comment that the PP "should further indicate that performance standards for groundwater under the WMA are MCLs". In the EPA's follow-up comment (above), it states that the Navy*

*should "monitor groundwater at the WMA compliance boundary to make sure contaminated groundwater exceeding the performance standards does not migrate beyond the compliance boundary." COC concentrations in the groundwater underlying the WMA (and migrating downgradient of the WMA) already clearly exceed MCLs. This is not a plausible requirement given the COC concentrations in the groundwater underlying the WMA at Site 16 and the groundwater flow patterns at Site 16.*

**EPA Follow-Up Comment No. 41:** While EPA is not in total agreement with the Navy's response, we are in agreement with the proposed soil remedy (see also EPA's Response to Comments 15 and 47).

***Navy Response to EPA Follow-Up Comment No. 41:*** *Comment acknowledged.*

**EPA Follow-Up Comment No. 44:** The note should also state that the values are performance standards for inside the WMA.

***Navy Response to EPA Follow-Up Comment No. 44:*** *Agree. However, please see Navy's original and follow-up responses to EPA Comment No. 38. It is the Navy's understanding that, even though the MCLs are exceeded under the WMA, the Navy is not required to take an action (i.e., active remediation) with respect to groundwater in this area due to MCL exceedances.*

**EPA Follow-Up Comment No. 47:** For the area around the Marina, where the Navy wants to permit recreational use, they can excavate and remove contaminated soil standards down to a level where there is no recreational exposure risk and backfill with clean material. They then put an LUC on the area that maintains the protective cover (assuming there is still deeper contamination below the clean cover). Therefore, the LUC wouldn't prevent recreational or residential use, but instead protect the cover and require soil management standards to be adopted that would need to be met if someone were to dig through the cover (for utility or other construction reasons) down to the remaining underlying contaminated soil to prevent any risk of exposure. This will clarify the Proposed Plan for the stakeholders who will wonder if the Marina will still be able to be in business with an environmental land use restriction (ELUR or LUC) in place.

***Navy Response to EPA Follow-Up Comment No. 47:*** *Please see Navy Response to EPA Comments No. 34 and 35. Soil in the vicinity of the marina building will be excavated to the water table. In terms of remediation decisions, contaminated saturated soil will be treated as contaminated groundwater; the prevention of exposure to contaminated groundwater will be addressed through the groundwater LUCs.*

**EPA Follow-Up Comment No. 51:** LUCs can be warranted for contaminated soil below the water table if construction activities or other work might involve excavating contaminated saturated soils below the water table.

***Navy Response to EPA Follow-Up Comment No. 51:*** *Agree.*

**EPA Follow-Up Comment No. 52:** In the definition of WMA, change "left in place" with "managed in place as part of the remedial action." Remove the second sentence since discussing groundwater standards is not part of the definition of the term.

***Navy Response to EPA Follow-Up No. 52:*** *Agree.*

**EPA Follow-Up Comment No. 58:** Alternative S-5 can be implemented so it meets the criteria. The purpose of the designation is not a scale of how easy it is to implement the alternative, just whether it can be implemented or not.

***Navy Response to EPA Follow-Up No. 58:*** *The middle five criteria (Long-term effectiveness and permanence; Reduction of toxicity, mobility, or reduction through treatment; Short-term effectiveness,*

*Implementability, and Cost) are balancing criteria and not necessarily thresholds to be met. (The reduction of toxicity, mobility, or reduction through treatment criterion does focus on treatment, but for alternatives with treatment, there can be degrees of treatment.) This relative comparison is considered in the comparative analysis in the FS.*

*As noted in the ROD Guidance, in Section 3.3.8, "A table may be helpful in summarizing key information from the evaluation of alternatives". Thus, if a particular criterion occupies a middle ground for an alternative, then it should be so indicated.*

**EPA Follow-Up Comment No. 59:** The Navy needs to calculate how long MNA will take under the proposed alternative that will include groundwater treatment, as well as MNA. If the chosen alternative can meet cleanup standards faster than 300 years then G-2, as an MNA-only alternative, does not meet the ARAR criterion.

***Navy Response to EPA Follow-Up Comment No. 59:*** *The guidance states: "MNA will be an appropriate remediation method only where its use will be protective of human health and the environment and it will be capable of achieving site-specific remediation objectives within a timeframe that is **reasonable compared to other alternatives**." (emphasis added.) Therefore, the duration of an MNA does not have to be shorter than the other alternatives, only "reasonable" when compared to the other alternatives. Thus, if the durations of all of the other alternatives are shorter than an MNA-only alternative, it does not mean that the MNA-only alternative does not meet the ARAR/TBC criterion for MNA.*

**ENCLOSURE 2**

**Navy's Response to the Rhode Island Department of Environmental Management Follow-up Comments on the Draft Proposed Plan for Remedial Action at OU9 IRP Site 16 at The Former Davisville Naval Construction Battalion Center (NCBC), Rhode Island**

# Navy's Response to the Rhode Island Department of Environmental Management Follow-up Comments[1] on the Draft Proposed Plan for Remedial Action at OU9 IRP Site 16 at The Former Davisville Naval Construction Battalion Center (NCBC), Rhode Island

**Original RIDEM Comment Correspondence:** **June 8, 2012**
**Original Navy Response Correspondence:** **August 17, 2012**
**RIDEM Follow-up Comments Correspondence:** **September 11, 2012**

[1]Note to the reader: The comments narrative is as presented in RIDEM correspondence of September 11, 2012 except that a few of the original comments have been typed in for the readers benefit. The Navy's responses to the RIDEM follow-up comments are presented in italics.

**RIDEM (Original) General Comment No. 1:** The Navy is proposing Alternative G-2 (Monitored Natural Attenuation and Land Use Controls) as the preferred groundwater remedial alternative. The Navy estimates that it will take 300 years before remedial action objectives (RAQs) are met. This is an extremely long period of time. To put this in perspective if the Navy were to have implemented this alternative on the day the United States declared its independence from England we would have gone through the Revolutionary War, the War of 1812, Westward Expansion, the Industrial Revolution, the Civil War, the Spanish-American War, World War I, the Great Depression, World War II, the Korean War, the Vietnam War, putting a man on the moon and the Afghan and Iraqi Wars and we would still have more than another half century to go before the remedial action objectives are met for this alternative! RIDEM would find it very difficult to accept this as the preferred remedial alternative due to the time frame which it would take to meet RAOs.

In order for RIDEM to accept a remedial alternative it needs to meet its objectives in a reasonable time frame. Based on the above, the Navy must take a closer look at groundwater alternatives that utilize active remediation of the contamination. Of those active groundwater remediation alternatives evaluated, in the Feasibility Study, the time to complete would be reduced by a factor of at least 2. Depending on the agreed to cleanup standard (MCL or RIDEM GB Groundwater Objectives) RAOs could be met in as little as 25 years based on Navy estimates with active treatment. Please note that RIDEM could accept Monitored Natural Attenuation as a component of an active groundwater treatment alternative.

**Navy Response:** As stated in the draft Proposed Plan for Site 16 and also in the response-to-comments (RTCs) prepared for EPA Region I (also included herein), Remedial Alternative G-2 (MNA, LUCs, and Five-Year Review) was recommended by the Navy because:

- Human health and the environment will be adequately protected through the implementation of LUCs and MNA.
- The current/future land use at Site 16 is industrial/commercial and is not conducive to use of the underlying groundwater for public water supply; the groundwater underlying Site 16 is not currently used as a water supply source.
- The groundwater quality in the area of its current discharge to Allen Harbor does not adversely impact human or ecological receptors in the harbor.
- Groundwater restoration via active remediation would not be accomplished in less than 50 to 100 years, even under the most aggressive treatment alternatives.
- Due to existing contaminant types and aquifer conditions, the active treatment of groundwater could achieve, at best, only partial restoration (using treatment alternatives and associated

timeframes as presented in Table 4). Consequently, active remediation of groundwater is considered minimally cost-effective.

While the Navy concurs, in principle, with the goal to "restore groundwater to its beneficial uses within a reasonable timeframe" whenever possible/practicable, the Navy strongly believes that the factors listed above must be considered when making necessary, site-specific risk management decisions for Site 16. The Navy's consideration of these factors has caused the Navy to conclude that active remediation of the groundwater underlying Site 16 as proposed in the current alternatives will be minimally cost effective, is not necessary to protect human health and the environment, and will have significant adverse impacts on current commercial operations in the developed portion of Site 16 for several years.

**RIDEM (Follow-up) Comment:** As noted in Section 1.02 of the RIDEM Remediation Regulations it is the policy of the State that the environment shall be restored, to the extent practicable, to a quality consistent with its beneficial uses. This means ideally that there should not be the need for institutional controls on the land or water due to contamination.

The current state of the site will require a soil management plan to protect against contact with contaminated soils (PAHs/VOCs, arsenic, lead), soils that contain concentrations of contaminates above the groundwater's leachability criteria (TPH), and groundwater contamination (primarily TCE) which has the potential for vapor intrusion issues.

The Navy's statement that human health and the environment will be adequately protected through the implementation of LUCs and MNA does nothing to restore the natural resources of the State of Rhode Island. The Navy notes that the site is commercial/industrial and is not conducive to use of the underlying groundwater for a public water supply. Simply because the groundwater resource is not being used to its highest potential does not diminish the value of the resource. RIDEM therefore, re-iterates that the Navy must make a reasonable effort to actively remediate the groundwater which could include MNA as a part of that groundwater remedial alternative. RIDEM does note that on 10 August 2012 communication from the Navy does propose groundwater treatment consisting of a reactive bio-barrier along the southern edge of Allen Harbor, limited and short duration in-situ treatment (chemical oxidation) in existing pilot injection wells along with monitored natural attenuation. RIDEM will evaluate this proposal.

***Navy Response to RIDEM General Comment No. 1:*** *As noted by the reviewer, the current Navy proposal is presented in Navy correspondence dated August 10, 2012. The Navy also notes that the state wisely acknowledges that instances may occur where it may choose to "allow lower water quality as a result of the essential, desirable and justifiable economic, commercial, industrial, or social development." (RIDEM, Rules and Regulations for Groundwater Quality, Section 6.1, Legislative Findings, paragraph 6.1.9.)*

**RIDEM (Original) General Comment No. 2:** Similar to the Feasibility Study, the Proposed Plan fails to adequately convey to the reader that there is recreational use of a portion of Site 16 which has different soil cleanup standards than a cleanup for industrial/commercial use. Please revise this document so that the reader can gain a better understanding of activities that are currently, and in the foreseeable future, going to take place at Site 16. This would go a long way to help the public understand why there is limited excavation associated with Alternative S-6.

**Navy Response:** The text in PP Section "What are the current and future land uses at the site?" will be modified to acknowledge the marina immediately abutting the north central area (NCA) of Site 16 which is used for recreational purposes. However, the area south and east of Bldg. E-107 is primarily used to support boat maintenance/usage activities. The area immediately south of Bldg. E-107 is a fenced area for equipment and supplies for boat and grounds maintenance. A portion of the area immediately east is paved with asphalt. A boat fueling station is also located in this general area.
A picnic table has been observed in this area and families certainly use the marina area for recreational boating. However, there are no permanent playgrounds, beaches, or other facilities that would result in

receptors being intensively exposed to soils in a manner similar to the exposure experienced under a typical residential land use scenario. Also, the boats are removed from the marina (some appear to be staged on the northern side of Bldg. E-107 during the cold weather months) further limiting human activities (and, thus, the potential for exposure) in the Bldg. E-107 area.

Please also see Navy response to RIDEM Specific Comment No. 8.

**RIDEM (Follow-up) Comment:** IDEM appreciates the Navy's breakdown of land usage within the marina; however, the entire marina property is considered recreational use as the general public has access to the vast majority of areas described by the Navy. The additional verbiage is not necessary to note the different land uses of the site.

***Navy Response to RIDEM General Comment 2:*** *Agree.*

**RIDEM (Original) Specific Comment No. 3:** Page 2, Column 1, Introduction, Paragraph 3, Sentence 1 – Please change "The Navy and EPA encourage the public..." to "The Navy, EPA and RIDEM encourage the public...".

**Navy Response:** Agree.

**RIDEM (Follow-up) Comment:** Navy response is acceptable.

***Navy Response to RIDEM Specific Comment No. 3:*** *No additional response required.*

**RIDEM Specific Comment No. 4:** Page 4, Column 1, Site Background, Paragraph 3, Last Sentence – This sentence states that the anticipated future use of Site 16 is commercial/industrial. Please revise to note the recreational use of a portion of the site.

**Navy Response:** Agree. Please also see Navy response to RIDEM General Comment No. 2.

**RIDEM (Follow-up) Comment:** Navy response is acceptable. Please also see RIDEM Comment No. 2 on Navy response.

***Navy Response to RIDEM Specific Comment No. 4:*** *No additional response required.*

**RIDEM Comment No. 5:** Page 3, Column 1, Introduction, Paragraph 5, Last Sentence – The sentence mentions the maximum concentration of contaminates detected. It would be helpful to mention the accepted standard so the reader can gain an appreciation of how contaminated the groundwater is.

**Navy Response:** Agree. A sentence will be added stating that the current SDWA MCL for trichloroethene is 5 ug/L.

[The text that the comment refers to is on page 4.]

**RIDEM (Follow-up) Comment:** Navy response is acceptable.

***Navy Response to RIDEM Specific Comment No. 5:*** *No additional response required.*

**RIDEM Specific Comment No. 6:** Page 5, Column 1, Expressing Estimated Human Health Risks – Please revise the carcinogens risk statement to say that the values are the probability of having *one additional* case of cancer over the normal background rather than a probability of a 1 in 10,000, 100,000 or 1,000,000 chance of developing cancer.

**Navy Response:** Disagree. The wording presented is standard risk assessment/CERCLA-type language. The explanation that a cancer risk of 1E-04 (for example) is the same as a 1 in 10,000 probability of developing cancer is added to assist in the layman's understanding of risk assessment results.

**RIDEM (Follow-up) Comment:** Section 8.01(A) of the RIDEM Remediation Regulations discusses an excess lifetime cancer risk, i.e. additional risk beyond the natural background cancer rate. This was discussed in conversation with USEPA on 10 September 2012 and it was determined that this value is as stated in the original RIDEM comment. Please revise the document as requested.

***Navy Response to RIDEM Specific Comment No. 6:*** *Agree.*

**RIDEM Specific Comment No. 7:** Page 5, Column 2, Groundwater, Bullet 2 – In the section of this paragraph that lists potential risks (PAHs, metals, etc.) please include TPH since it exceeds both RIDEM GA and GB groundwater objectives.

**Navy Response:** A review of the November 2011 version of the RIDEM Remediation Regulations indicates that there are no GA/GB groundwater objectives for TPH.

However, the text of the Proposed Plan will be amended to note the presence of TPH in the soils at Site 16 (a footnote will be added to Table 1, Soil Cleanup Levels). Elevated TPH concentrations are generally located at the same locations as elevated PAH concentrations. Thus, remediation of the PAHs will also generally remediate the TPH. No RAOs were developed for TPH contamination in soil since CERCLA does not have jurisdiction for TPH. TPH will be addressed separately under State authority.

**RIDEM (Follow-up) Comment:** Section 8.02(A)(iv)(2)(c) – (Soil Objectives) of the RIDEM Remediation Regulations states that the Method 1 GB Leachability criterion shall be 2500 ppm. Please include as requested.

***Navy Response to RIDEM Specific Comment No. 7:*** *The Navy acknowledges the RIDEM has* ***soil*** *objectives for TPH (both direct contact and leachability). However, the referenced text on page 5 is discussing chemicals of concern in groundwater. Again, there are no RIDEM* ***groundwater*** *objectives for TPH. (The RIDEM comment is referencing RIDEM soil objectives, not groundwater objectives.) Also, please see original Navy response to RIDEM Specific Comment No. 7. The Navy has agreed to acknowledge the presence of elevated TPH in the Site 16 area soils.*

*To keep the TPH leachability issue in perspective, there are only four soil sample locations that exceed RIDEM GB leachability criterion. They are:*

| *Location* | *Depth* | *TPH (mg/kg)* |
|---|---|---|
| *SB16-059* | *10* | *3,000* |
| *P16-16* | *10* | *3,100* |
| *SB16-094* | *5* | *2,600* |
| *SB16-007* | *6* | *7,800* |

*Of these four locations, the first three are likely below the water table and not amenable to excavation. This leaves one location, above the GB leachability criterion, and within the unsaturated zone. There are other soil sample results above various leachability criteria and TPH will be addressed (via monitoring of groundwater, as necessary) in a consistent manner.*

**RIDEM Specific Comment No. 8:** Page 7, Table 1 (Soil Cleanup Levels) – Please change the heading in column 2 from "Industrial or Recreational User" to "Industrial User" and "Residential User" to "Residential and Recreational User". Recreational Direct Exposure Criteria are the same as Residential

Direct Exposure Criteria. The public could construe that recreational standards are the same as industrial/commercial standards.

**Navy Response:** The Navy does not agree with the statement that Recreational DECs are the same as Residential DECs. While the Navy can elect to remediate soils in the immediate vicinity of Bldg. E-107 to RIDEM Residential DECs, it should be noted that the RIDEM remediation regulations (Section 3.3.9) state that:

> Industrial/Commercial Activity shall mean any activity related to the commercial production, distribution, manufacture or sale of goods or services, or any other activity which is not a traditional Residential Activity as defined by this Section **including activities related to outdoor recreational areas with restrictions in place to limit potential exposure.** ***(bolding added).***

The language in the later part of this definition implies that remediation to "RIDEM Residential DECs" is not an automatic requirement for all sites potentially used for recreational purposes. Rather the potential exposure at some sites (and, thus, risk) may be limited by land use restrictions and, as acknowledged in previous RIDEM comments/responses on the Site 16 FS (please see RIDEM correspondence dated September 13, 2011), the Navy could elect this approach at Site 16.

Per recent Navy correspondence of August 10, 2012, the Navy can elect to mitigate potential risk immediately adjacent to the marina by excavating soil above the water table and replacing it with soil that meets RIDEM residential criteria. This would mitigate the need for a soil management plan for potential future excavations above the water table immediately adjacent to the marina. Land-use controls (LUCs)/environmental land use restrictions (ELUR) may still be required for soil below the water table immediately adjacent to the marina (and elsewhere).

Please note that the remedial levels presented in the "Industrial or Recreational User" column in Table 1 are the *lower* of these two values (i.e., the lower of the remedial levels for the industrial worker or the recreational user) presented in Tables 2-3a and 2-3b of the FS for Site 16. A footnote will be added to the table explaining this for the reader. All of the risk-based remedial goals presented in the referenced FS tables were calculated based on risk assessment methodology presented in the Phase III Remedial Investigation report.

Please also see Navy response to RIDEM General Comment No. 2.

**RIDEM (Follow-up) Comment:** Navy is misunderstanding the intent of Section 3.39 of the RIDEM Remediation Regulations. The intent of this Section was to cover recreational areas associated with industrial/commercial uses that are essentially limited in use to the employees and public access is rare (portion of the Regulation that has restrictions to limit potential exposure). For example, if a company has an outdoor picnic area for its employees or hosts a company outing on its property or the general public has limited access to the site such as for a company open house. The marina is open to the general public with access all year round. Therefore, there are no restrictions to limit potential exposure and as a result Section 3.39 of the RIDEM Remediation Regulations does not apply to the portion of NCBC Site 16 that is associated with the marina. Please change the headings as requested.

***Navy Response to RIDEM Specific Comment No. 8:*** *The reviewer is correct that there are currently "no restrictions to limit potential exposure" to the marina area. However, per previous discussions with RIDEM, the Navy does have the option of stipulating restrictions such that exposures comparable to those experienced under a residential land use scenario are prohibited (e.g., prohibit formal recreational play areas for children, day care centers, etc.). Also, please see Navy correspondence of August 10, 2012. A continued response-to-comment exchange on this subject is somewhat academic given the Navy's most current proposal for soils in the immediate marina area.*

**RIDEM Specific Comment No. 9:** Page 8, Table 2 (Groundwater Cleanup Levels) – In Column 2 please change "Residential User" to "Groundwater Criteria". Groundwater standards are not based solely on land use. Neither USEPA nor RIDEM have residential or industrial/commercial groundwater standards.

**Navy Response:** Agree. The column heading will be changed to "Groundwater Criteria".

**RIDEM (Follow-up) Comment:** Navy response is acceptable.

***Navy Response to RIDEM Specific Comment No. 9:*** *No additional response required.*

**RIDEM Specific Comment No. 10:** Pages 9 and 10, Description of Soil Alternatives, Alternative S-6 – Please include a sentence to explain that the excavation of soil near Building E-107 is to allow for the existing and continued use of this property for recreational use associated with the marina. This is necessary so the public can understand this aspect of the remedial alternative.

**Navy Response:** Agree. However, please see Navy response to RIDEM Specific Comment No. 8.

**RIDEM (Follow-up) Comment:** Navy response is acceptable per RIDEM comment on Navy Response to Comment No. 8.

***Navy Response to RIDEM Specific Comment No. 10:*** *No additional response required.*

**RIDEM Specific Comment No. 11:** Page 10, Column 2, Preferred Alternative, Soil Alternative S-6 – See Comment No. 10, above.

**Navy Response:** Agree. However, please see Navy response to RIDEM Specific Comment No. 8.

**RIDEM (Follow-up) Comment:** Navy response is acceptable, but see above RIDEM Comment No. 10.

***Navy Response to RIDEM Specific Comment No. 11:*** *No additional response required.*

**RIDEM Specific Comment No. 12:** Page 12, Table 3, Evaluation of Soil Alternatives – For Item 4 (Reduces Mobility, Toxicity and Volume) all alternatives are rated as not meeting criteria. Alternatives S-3, S-4, and S-6 (though not stated) involve some form of excavation of contaminated soil. Therefore a full circle which means the alternative partially or potentially meets criteria should be shown for these alternatives. Alternative S-5 is complete excavation of contaminated soils which according to the Table legend means that it meets or exceeds criteria. Please make changes as appropriate.

**Navy Response:** Disagree. The subject of this criterion – Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment – is "treatment". Therefore, because Alternatives S-2, S-3, S-4, and S-5 do not include treatment, they do not meet the criterion. Cost assumptions in the FS were that the excavated soil would be placed in a landfill and not subject to treatment. No changes will be made to Table 3 based on this comment.

**RIDEM (Follow-up) Comment:** Navy response is acceptable.

***Navy Response to RIDEM Specific Comment No. 12:*** *No additional response required.*

**RIDEM General Comment No. 13:** These comments are based on a satisfactory response by the Navy of RIDEM's 5 June 2012 comments on the Feasibility Study submitted by the Navy on 2 May 2012 for NCBC IR Site 16 (Creosote Dip Tank and Old Fire Fighting Training Area).

**Navy Response:** The Navy acknowledges receipt of RIDEM correspondence dated June 5, 2012. While the Navy does not plan to formally respond to these comments, the comments will become part of the

Administrative Record for Site 16 and will be considered in the continued development of the Proposed Plan (PP) and Record of Decision (ROD) for Site 16.

**RIDEM (Follow-up) Comment:** Since the Navy does not plan to formally respond to RIDEM's 5 June 2012 Feasibility Study comments makes it difficult for RIDEM to fully understand the Navy's thought process for what is envisioned for each of the evaluated alternatives.

***Navy Response to RIDEM Specific Comment No. 13:*** *Comment acknowledged.*