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REVISED U S NAVY RESONSES TO RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL
MANAGEMENT COMMENTS ON DRAFT FEASIBILITY STUDY FOR SITE 19 OPERABLE
UNIT 12 (OU 12) ON-SHORE DERECKTOR SHIPYARD NS NEWPORT RI
9/16/2013
TETRA TECH

Navy Revised Responses to RIDEM Comments | September 16, 2013
Draft Feasibility Study for Site 19 – On-Shore Derecktor Shipyard, NAVSTA Newport, RI

INTRODUCTION

On behalf of the Navy, Tetra Tech submits this response-to-comments (RTCs) document for comments received from the Rhode Island Department of Environmental Management (RIDEM) related to the *Draft Feasibility Study (FS) for Site 19 – On-Shore Derecktor Shipyard, Naval Station (NAVSTA) Newport, Rhode Island* (Tetra Tech, 2012). The following bullets summarize the milestones for the FS, RIDEM comments, Navy Draft RTCs, RIDEM follow-up responses, and Navy revised RTCs.

- Navy presented FS approach and key component preview topic (i.e., presentation of sub-area approach, methodology and selection of chemicals of concern [COC] and preliminary remediation goals [PRGs], proposed remedial action objectives [RAOs], and proposed remedial alternatives) at the NAVSTA Newport Remedial Project Manager (RPM) Meeting on November 28, 2012.
- Navy submitted Draft FS on December 31, 2012.
- RIDEM provided comments dated March 1, 2013.
- Following brief discussion of RIDEM's and U.S. Environmental Protection Agency's (EPA's) comments at the March 2013 RPM Meeting, the RPMs attended a conference call on April 3, 2013, to discuss comments and issues in depth. Meeting minutes and action items for each of Navy, EPA, and RIDEM were documented and distributed to RPMs.
- Navy submitted "Draft" RTCs on April 14, 2013, stating the RTCs would be updated following review and further discussion.
- RIDEM provided responses (i.e., "follow-up comments") to the Navy dated July 1, 2013.
- Original RIDEM Comments, Navy Draft RTCs, and [RIDEM Follow-Up Comments are provided below followed by respective Navy Revised RTCs](#). Draft RTCs with no RIDEM follow-up comments generally are considered final (unchanged) unless specified or discussed otherwise. Pending any additional discussion of comments/RTCs/issues, the Navy will issue the Draft Final FS.

COMMENTS AND RESPONSES

Comment 1

p. ES-3, Executive Summary; 1st paragraph after 1st set of bullets, 1st sentence. Vapor intrusion issues were identified in the [human health risk assessment (HHRA)] for the North Waterfront Area and the Former Building 234 Area, and not in the Central Shipyard Area. Please correct the sentence in the FS to read as follows: "The HHRA also determined potential vapor intrusion issues due to some volatile detections in groundwater and soil gas in the North Waterfront Area and in groundwater in the Former Building 234 Area."

Draft Response (April 2013): The text will be corrected to refer to the Former Building 234 Area instead of the Central Shipyard Area

Revised Response (September 2013): The text will be corrected to refer to the Former Building 234 Area instead of the Central Shipyard Area. However, the potential vapor intrusion issues within the Former Building 234 Area sub-area are due almost entirely to 1996 concentrations of VOCs from well MW104, which represents conditions from the adjacent, upgradient Building 7 site, not from Derecktor Shipyard. Building 7 will be addressed separately from On-Shore Derecktor Shipyard (see Response to EPA Comment G-4). This will be discussed in the Draft Final FS. The subject sentence will be revised to read as follows:

The HHRA also determined potential future vapor intrusion issues due to some volatile detections in groundwater in the North Waterfront Area (TCE) and the Former Building 234 Area (TCE and vinyl chloride). However, the TCE and vinyl chloride in groundwater within the Former Building 234 Area are attributable to adjacent, upgradient Building 7, which is being addressed as a separate IRP site.

Comment 2

p. 1-12, Section 1.5.3, North Waterfront Area; 2nd paragraph. This section states that TPH exceeded criteria at TP16 (4,900 mg/kg in surface soil, and 1,200 mg/kg at 11-12 ft). Please state in the text of the FS if the exceedances of soil were addressed in a previous removal action.

Draft Response (April 2013): The following text will be added to the paragraph: The surface and subsurface soil TPH exceedances at TP16 were not addressed by a removal action (under CERCLA or other regulatory framework).

RIDEM Follow-Up Comment (July 2013)

Please indicate in this FS how the Navy plans to address these exceedances. Please specify all locations where concentrations of TPH exceed RIDEM's IC DEC and indicate whether the TPH is commingled with CERCLA contaminants for each location. If the TPH is not commingled, the Navy will be required to address these locations as Category 2 AOCs under the State program following the CERCLA remedy. For the remaining TPH concentrations across the site that are above RIDEM's residential DEC but below the ICDEC, the FS should discuss how the LUCs for the site will address any remaining TPH exceedances of residential criteria

Revised Response (September 2013): 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 Direct Exposure Criteria (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

If TPH is “collocated” 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 “commingled” 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. polycyclic aromatic hydrocarbons). The Navy would include state Petroleum remediation criteria as PRGs for the implemented action. They would not be ARARs for the CERCLA cleanup.

The Draft Final FS will detail all locations where concentrations of TPH exceed RIDEM's IC DEC, indicate whether they were addressed by previous removal action, and the collocated vs. commingled determination. For TPH in the surface soil sample at TP14, there is no indication that TPH is commingled. The CERCLA risk assessment process evaluated polycyclic aromatic hydrocarbon (PAH) data from TP16 (all non-detects less than 12 mg/kg)—no unacceptable risk was identified (from PAHs or other COPCs).

Comment 3

p. 1-15, Section 1.5.6, Former Building 234 Area; 2nd paragraph. “Ethylbenzene and xylenes were detected in subsurface soil on the north side of the foundation (TP26) between 3 and 5 feet bgs. TPH also was detected in this vicinity above criteria (500 mg/kg) at TP26 (2,200 mg/kg) between 3 and 5 feet bgs. This area is near several former USTs. UST piping was discovered during excavation of TP26.” Please specify in the text of the FS if this area was addressed during a previous removal action and indicate if the USTs have been removed or permanently closed out under RIDEM's UST Regulations. Also, please include more information in the text of the FS on the USTs including the size and what they were used for at this Site.

Draft Response (April 2013): This area was addressed by a removal action and the USTs were removed. The text will be revised with available information to provide more detail and reference any historical documentation.

Comment 4

p. 1-18, Section 1.7, Human Health Risk Assessment; last paragraph. “If unacceptable risk was determined for a medium and receptor in a sub-area, then the associated COC is addressed in the FS (Section 2.3). Further, for the medium and receptor found to have unacceptable risk in the respective sub-area, ARARs were reviewed for exceedances – in these cases, the COPCs exceeding ARARs also are included as COCs to be addressed in the FS (Section 2.3).”

This Site was divided into sub-areas to focus the investigation activities for the Site based on historic operations and/or site conditions. However, since risk was found for both soil and groundwater at this Site, ARARs are applicable to all areas of the Site. Please revise this FS to develop PRGs for any contaminant exceeding ARARs for soil and/or groundwater at this Site, and propose to address any locations exceeding these PRGs in all sub-areas at the Site.

Draft Response (April 2013): Navy disagrees. The sub-area approach began following the Halliburton NUS (1993) Preliminary Assessment (PA) with the Study Area Screening Evaluation (SASE) investigation results and recommendations, followed by the Data Gaps Investigation (reported in the Tetra Tech [2012] SASE Addendum). It is not clear why a change in approach is warranted. Obvious differences between the sub-areas exist(ed) based on physiography and known different/separate historic operations in each sub-area. CERCLA release(s), if any, are different and separable between the sub-areas due to the varying site conditions, usage, and historical operations. The analytical data confirm the different nature of “contamination” in each sub-area. There is no evidence of contaminant groundwater plumes migrating across the entire Site 19 nor interconnected soil contamination / source areas (if any).

The CERCLA HHRA (provided in the SASE Addendum) evaluates risks for each individual sub-area, or decision unit. A site-wide exposure assumption is not appropriate for determining risks at this large Installation Restoration (IR) Program Site 19 containing essentially mini-sites (decision units / sub-areas). The CERCLA response actions (i.e., remedial actions) will not be applied site-wide—they will address receptor-specific-PRG exceedances in sub-areas exhibiting unacceptable risk as determined by the CERCLA HHRA. Similarly, state ARAR exceedances will be addressed in the respective sub-areas with unacceptable risk for the associated receptor as determined by the CERCLA HHRA.

Because there is no unacceptable risk from industrial exposure to soil in any sub-area, RIDEM Industrial DEC exceedances are not appropriate to be addressed by the FS. Further, if a sub-area does not have any unacceptable risks for any receptor as determined by the CERCLA HHRA (e.g., South Waterfront Area), it is not appropriate to address ARAR exceedances under CERCLA. This approach is consistent with the intent of the ‘risk vs. ARARs’ Tier 2 Dispute Resolution dated January 12, 2012. While it is understood the Tier 2 Dispute Agreement references “site,” the meaning is clearly intended to apply to the appropriate decision unit, or distinctly defined “sub-area,” in the case of this large Site 19.

RIDEM Follow-Up Response (July 2013)

As stated in RIDEM's comment above, this Site was divided into sub- areas to focus the investigation activities based on historic operations and/or site conditions. It was not divided into separate decision units (DUs) that were to be addressed as separate sites. Therefore, once risk is identified for soil and/or groundwater anywhere on the Site, ARAR standards apply throughout the entire site. Please summarize in the FS the additional exceedances of ARARs in soil and groundwater that will need to be addressed in each sub-area.

Revised Response (September 2013): Navy agrees that for informational purposes (similar to other recent NAVSTA Newport FSes), the Draft Final FS will present screening results against all ARARs regardless of CERCLA HHRA results in each sub-area. However, Navy disagrees with a site-wide approach for remedy implementation and ARAR evaluation for soil and groundwater, as explained below.

The Navy concurs with concept that once a media specific risk is identified within discrete area at which a particular risk assessment was conducted, then ARARs standards specific to that media would apply throughout that discrete area for that media (i.e. for soils, RIDEM DECs and Leachability Criteria). As noted in RIDEM's comment, "...*this Site was divided into sub- areas to focus the investigation activities based on historic operations and/or site conditions,*" this is consistent with how the Dereecktor Shipyard On-Shore investigation was scoped (by EPA, RIDEM, and Navy) since the site was identified for assessment. There appears to be a difference of opinion about the intention behind the term "site" as it was used in the final dispute resolution dated January 12, 2012. We interpret the phrase "if unacceptable risk is identified at a site" to refer to a discrete area at which a particular risk assessment was conducted. The Navy therefore disagrees with a site-wide approach, as described by RIDEM, for remedy implementation and ARAR evaluation for soil and groundwater.

The assessment followed the Study Area Screening Evaluation (SASE) approach defined in the Newport Federal Facility Agreement (FFA) (Section 31.4). Throughout the development of the Dereecktor Shipyard On-Shore SASE Work Plan (April 1996) and Report (June 1997), the Navy clearly identified sub-areas within the Dereecktor Shipyard On-Shore site based on specific historic operations and/or site conditions. Though we have not to this point labeled them OUs, they have always functioned as such. The identification of these subareas is in alignment with and meets the definition of "Operable Unit" in 40 CFR 300.5:

Operable unit means a discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of a release, or pathway of exposure. The cleanup of a site can be divided into a number of operable units, depending on the complexity of the problems associated with the site. Operable units may address geographical portions of a site, specific site problems, or initial phases of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site.

This definition is the basis for the definition of OU in the Newport FFA. The investigation and removal actions taken at the Dereecktor Shipyard On-Shore sub-areas are discrete by design to address the different conditions within each sub-area (or OU). These sub-areas or OUs address different geographical portions with different conditions resulting from different activities performed within the boundaries of the former Dereecktor Shipyard. The "site-wide" approach is appropriate within discrete sub-areas/OUs, but not across several different sub-areas.

This approach is consistent with the intent of the 'risk vs. ARARs' Tier 2 Dispute Resolution dated January 12, 2012. While it is understood the Tier 2 Dispute Agreement references "site," the meaning is clearly intended to apply to a specific remedial response to manage migration, or eliminate or mitigate a release, threat of a release, or pathway of exposure for which a response is determined necessary to address the specific site problems identified by the specific risk assessment. Further, such responses or cleanup actions may be divided into a number of operable units or subareas, such is the case at the Dereecktor Shipyard On-Shore subareas.

To address post-soil removal data gaps and update the 1997 SASE Report, the Navy worked with the agencies to scope and develop the Data Gaps Investigation Work Plan (February 2011) and SASE Addendum Report (January 2013). These documents continue the separation of these discrete units with individual evaluations (i.e., nature and extent of contamination and risk assessment) for each sub-area or OU. Because of the comprehensive nature of the SASE and its Addendum, these investigations/documents fulfill the requirement of a Remedial Investigation (RI), rather than to determine if the Study Area ("area or areas with the Site"), Dereecktor Shipyard On-Shore, should proceed to an RI or determine that no additional investigation is warranted. As the RI has been completed, the Navy is required to progress into the Feasibility Study (FS) phase of the CERCLA process to develop and evaluated appropriate remedial alternative(s) for each OU, such that relevant information concerning the remedial action options, including no action/no further action, can be presented to the decision maker and an appropriate remedy can be selected.

Accordingly, the individual risk assessments of each OU are used to determine specific problems (risks), identify COCs (if any), and determine if a remedial action is necessary to address identified risks for an OU. By definition, the cleanup of a site can be divided into a number of OUs, not that the cleanup (and identification of ARARs) for a site is determined by the remedial action deemed necessary for one OU within that Study Area.

Some terms frequently are used interchangeably and have different meanings in different agencies. For clarification, the Newport FFA defines:

“Site” shall mean the land encompassed by the existing real estate boundaries at the Naval Education and Training Center Newport (NETC Newport) and any area off NETC Newport to or under which a release of Hazardous Substances, pollutants, or contaminants has migrated from a source on or at NETC Newport, and any area off NETC Newport to or under which there is a substantial threat of a release of Hazardous Substances, pollutants, or contaminants from a source on or at NETC Newport.

(EPA “Site” terminology equates to “Installation” within DON terminology).

“Study Area” or “SA” shall mean an area or areas within the Site, identified pursuant to this Agreement as an area of potential contamination. For purposes of the this Agreement, a Study Area shall be considered part of a Remedial Investigation.

(EPA “Study Area” terminology equates to a “site” within DON terminology (e.g., NAVSTA Newport Site 1 is McAllister Landfill); when used to identify a specific site, the term is capitalized as a proper noun to reflect the name of the site).

“Operable Unit” or “OU” shall mean a discrete action that comprises an incremental step toward comprehensively addressing Site problems. Each Operable Unit is a discrete portion of a Remedial Response that manages migration, or eliminates or mitigates a release, or threat of release, or pathway of exposure. Operable Units may address specific geographical portions of the Site, specific Site problems, or initial phases of an action or may consist of any set of actions performed over time or that are concurrent but located in different parts of the Site.

EPA’s OU terminology equates to sub-area within the DON’s “site” terminology (akin to the initial separation of Dereecktor Shipyard Off-Shore [OU-5] from On-Shore [OU-12]). And, as discussed, the sub-areas of Dereecktor Shipyard On-Shore were intended to, and do, meet the definition of an OU.

Comment 5

p. 2-4, Section 2.2.2.1, Soil; 1st paragraph. *“Separate DEC’s are established for residential and industrial/commercial land uses; however, there is no unacceptable risk associated with exposure to soil under industrial/commercial land uses in any of the sub-areas at the Site (see Sections 1.7, 2.3.1, and 2.4.1), so industrial DEC’s are not considered.” Since the HHRA determined that there is risk from exposure to soil at this Site, RIDEM’s Direct Exposure Criteria are applicable ARARs for this Site, in all sub-areas. Please revise this FS as necessary.*

Draft Response (April 2013): Navy disagrees. See Response to Comment 4.

RIDEM Follow-Up Response (July 2013)

See response to comment #4.

Revised Response (September 2013): The text will be revised to remove the portion, “however, there is no unacceptable risk..., so industrial DEC’s are not considered.” The Draft Final FS will be revised to include RIDEM Industrial DEC’s and GA Leachability Criteria as applicable ARARs for subareas which pose an unacceptable CERCLA risk for soils (Building 234 and PCB Area subareas). ARARs will not be addressed in sub-areas (OUs) in which no unacceptable CERCLA risk was identified by the HHRA. Also, see Response to Comment 4.

Comment 6

p. 2-5, Section 2.3.1, Media of Concern; last paragraph. Please refer to Comment #4.

Draft Response (April 2013): Navy disagrees. See Response to Comment 4.

RIDEM Follow-Up Response (July 2013)

See response to comment #4.

Revised Response (September 2013): There appears to be a difference of opinion about the intention behind the term “site” as it was used in the final dispute resolution dated January 12, 2012. We interpret the phrase “if unacceptable risk is identified at a site” to refer to a discrete area at which a particular risk assessment was conducted. The Navy therefore disagrees with a site-wide approach, as described by RIDEM, for remedy implementation and ARAR evaluation for soil and groundwater. Please see Response to Comment 4.

Comment 7

p. 2-6, Section 2.3.1.1, Soil; 2nd paragraph. “However, unacceptable risks were identified for hypothetical residential exposure to surface and subsurface soil in the Former Building 234 Area (Table 2-4 and Figure 2-2) and PCB Removal Area (Table 2-5 and Figure 2-3). Soils in these two sub-areas also will be addressed for state ARAR (residential) exceedances.” Please see Comment #4. Since risk was determined from soil at these two sub-areas, state ARAR exceedances must be addressed for the entire Site. Please revise this FS to address state ARAR exceedances for the entire Site.

Draft Response (April 2013): Navy disagrees. See Response to Comment 4.

RIDEM Follow-Up Response (July 2013)

See response to comment #4.

Revised Response (September 2013): The Draft Final FS will be revised to include RIDEM Industrial DEC’s and GA Leachability Criteria as applicable ARARs for subareas which pose an unacceptable CERCLA risk for soils (Building 234 and PCB Area subareas). ARARs will not be addressed in sub-areas (OUs) in which no unacceptable CERCLA risk was identified by the HHRA. Also, see Response to Comment 4.

Comment 8

p. 2-6, Section 2.3.1.2, Groundwater. Groundwater should be addressed as a media of concern for the entire Site. Please ensure that all groundwater ARARs are met for the entire Site.

Draft Response (April 2013): Navy disagrees. See Response to Comment 4. Note as a result of the April 5 conference call, the RIDEM GB Groundwater Objectives in the groundwater PRG tables for the North Waterfront Area, Central Shipyard Area, and Former Building 234 Area (i.e., the sub-areas with unacceptable risk for groundwater) will be replaced with the RIDEM GA Groundwater Objectives.

RIDEM Follow-Up Response (July 2013)

See response to comment #4.

Final RTC: The Draft Final FS will be revised to include RIDEM Industrial DECs and GA Leachability Criteria as applicable ARARs for subareas which pose an unacceptable CERCLA risk for soils (Building 234 and PCB Area subareas). These ARARs will not be addressed in sub-areas (OUs) in which no unacceptable CERCLA risk in soil was identified by the HHRA. RIDEM GA Groundwater Objectives will be applicable ARARs for subareas which pose an unacceptable CERCLA risk for groundwater (North Waterfront, Central Shipyard/PCB Area, and Building 234 subareas).

No unacceptable CERCLA risk from exposure to soils at the North Waterfront Area or Central Shipyard Area were identified; however, an identified CERCLA risk from exposure to the groundwater in these subareas does exist. Although lead was determined not contribute to the identified risk and was not identified as a groundwater COC (risk-based or ARAR-based), it was detected at levels exceeding the RIDEM GA Leachability Criteria. Therefore, to be protective of an unlikely potential for future leaching of lead to the groundwater, the Navy agrees that lead in groundwater should be further evaluated in these subareas. The Navy will monitor for lead in these subareas as part of the groundwater remedial alternative; an explanation for the actions related to the lead will be presented in the uncertainties section of the FS and Proposed Plan. To further assess the uncertainty associated with use of TCLP vs. SPLP to determine soil leachability, the Navy concurs with EPA (see EPA Comment G-2) that the uncertainty can be resolved when the long-term monitoring program is developed; therefore, the Navy may consider limited soil sampling for SPLP lead analysis as part of the plan.

For the Building 234 subarea, a CERCLA risk was identified for exposure to soils. Although naphthalene was not determined to contribute to the identified risk, it was detected at a concentration exceeding RIDEM's GA Leachability Criteria; therefore, naphthalene will be added as an ARAR-based COC for groundwater. Because the soil concentration does not pose unacceptable direct exposure risk, as determined by the CERCLA risk assessment and comparison to RIDEM DEC, the remedial action to address naphthalene should be related to the protection of groundwater, rather than direct exposure to soils. Therefore, the Navy proposes to monitor for naphthalene in this subarea as part of the groundwater remedial alternative. Lead already is a [residential] COC in soil in the Former Building 234 Area, because the maximum surface soil concentration (189 mg/kg) exceeded RIDEM's Residential DEC of 150 mg/kg. Lead exceeded the GA Leachability Criteria, but was not detected in groundwater at levels contributing to risk or exceeding the RIDEM GA Groundwater Objective. The Navy will include monitoring for lead in this subarea as part of the groundwater remedial alternative. Again, to further assess the uncertainty associated with use of TCLP vs. SPLP to determine soil leachability, the Navy may consider limited soil sampling for SPLP naphthalene and lead analyses as part of the this plan.

Also, see Response to Comment 4.

Comment 9

p. 2-6, Section 2.3.1.3, Soil Gas; 2nd to last sentence. Please revise this sentence to read "Therefore, the soil vapor medium is not a medium of concern in this FS..."

Draft Response (April 2013): Agree with the correction. Note that Building 7 and the vicinity-CVOCs will become part of the Navy IR Program (previously thought to be addressed under UST Program); however, it is unclear at this time whether they will become part of On-Shore Derracketor Shipyard IRP Site 19 or if a new IR site will be generated. The text here and in other locations will be revised to reflect the final outcome of this decision.

Comment 10

p. 2-7, Section 2.4, Development of Preliminary Remediation Goals. RIDEM's Leachability Criteria are also considered in the derivation of PRGs, as indicated in Section 2.2.2.1 and the Appendix B tables; please reference RIDEM's Leachability Criteria in this section. Also, please fix the spelling of "Development" in the section heading.

Draft Response (April 2013): "Development" will be corrected. The text here is not intended to limit what is considered for PRG selection; however, it will be revised to emphasize state leachability criteria are considered as

candidate PRGs. Note the PRG selection tables in the Draft FS include GB leachability criteria for soil. Per Response to Comment 8, the GB criteria will be replaced with the Relevant and Appropriate GA leachability criteria in the DF FS.

Comment 11

p. 2-8, Section 2.5, Development of Remedial Action Objectives. If the Navy determines that there are exceedances of ARARs in soil and groundwater in the sub-areas where a risk was not determined, then please list the RAOs to be applicable site-wide rather than specific to each sub-area.

Draft Response (April 2013): Navy disagrees. See Response to Comment 4. Sub-areas are decision units at this site. Decision units with no unacceptable risk are not addressed by a response action, so are not subject to ARARs and do not need RAOs.

RIDEM Follow-Up Response (July 2013)

See response to comment #4.

Revised Response (September 2013): There appears to be a difference of opinion about the intention behind the term “site” as it was used in the final dispute resolution dated January 12, 2012. We interpret the phrase “if unacceptable risk is identified at a site” to refer to a discrete area at which a particular risk assessment was conducted. The Navy therefore disagrees with a site-wide approach, as described by RIDEM, for remedy implementation and ARAR evaluation for soil and groundwater. Please see Response to Comment 4.

Comment 12

p. 2-8, Section 2.5, Development of Remedial Action Objectives. If preventing unacceptable risk from vapor intrusion is specified as a RAO, then groundwater PRGs should include risk-based concentrations protective of the vapor intrusion pathway. However, it is noted that the FS states that vapor intrusion is anticipated to be managed via LUCs (p. 2-6). In Section 3.4.2.1 (Land Use Controls), the FS states that LUCs would be established to prevent “use of groundwater until groundwater PRGs are met”. However, vapor intrusion is independent of groundwater use (i.e. irrigation, potable water, etc.), and so LUCs, if used, will need to explicitly prevent indoor air exposures via management of vapor migration pathways (e.g., prohibit building construction altogether, or require installation of vapor mitigation systems in future buildings). Additionally, if LUCs are only in place until groundwater PRGs are met, and groundwater PRGs (as currently derived) do not take into consideration vapor intrusion and hence may be under-protective for certain volatile constituents, then there could be a potential unmitigated risk under future conditions, should buildings be constructed at the Site. Therefore, please include risk-based concentrations protective of the vapor intrusion pathway in the development of groundwater PRGs and revise the FS accordingly.

Draft Response (April 2013): The groundwater PRGs for protection of direct exposure also serve as benchmarks for groundwater concentrations that would not generate a soil gas issues or indoor air vapor intrusion issue. That is, when groundwater VOCs are below or near these PRGs, there will not be a vapor intrusion issue. LUC boundaries for decision units (sub-areas) with unacceptable risks due to volatile COCs correspond to LUC boundaries for vapor intrusion issues.

RIDEM Follow-Up Response (July 2013)

Please ensure that vapor intrusion mitigation measures (e.g., installing a vapor barrier, sub-slab depressurization system, etc.) are incorporated into any LUCs for the Site, as part of the best management practices.

Revised Response (September 2013): The groundwater PRGs for direct exposure protection also serve as benchmarks for groundwater concentrations that would not generate a soil gas issues or indoor air vapor intrusion issue. That is, when groundwater VOCs are below or near these PRGs, there will not be a vapor intrusion issue.

LUC boundaries for sub-areas (OUs) with unacceptable risks due to volatile COCs correspond to LUC boundaries for vapor intrusion issues.

Unless a site-/location-specific vapor intrusion evaluation is performed for the to-be-built structure, Navy agrees some form of vapor intrusion mitigation would be necessary. The LUC remedial design will be prepared (and reviewed by the RPMs) following the Record of Decision (ROD).

Comment 13

p. 2-9, Section 2.6, Estimation of Areas and Volumes. Please update this section accordingly based on Comment #4.

Draft Response (April 2013): Navy disagrees. See Response to Comment 4.

RIDEM Follow-Up Response (July 2013)

See response to comment #4.

Revised Response (September 2013): There appears to be a difference of opinion about the intention behind the term “site” as it was used in the final dispute resolution dated January 12, 2012. We interpret the phrase “if unacceptable risk is identified at a site” to refer to a discrete area at which a particular risk assessment was conducted. The Navy therefore disagrees with a site-wide approach, as described by RIDEM, for remedy implementation and ARAR evaluation for soil and groundwater. Please see Response to Comment 4.

Comment 14

p. 3-16, Section 3.4.2.3, Natural Attenuation; 1st bullet, Effectiveness. “Limited historical sampling events are available and more data over time would be necessary for further evaluating the effectiveness of natural attenuation at the Site. Groundwater monitoring would provide an effective means of evaluating the changing concentrations of COCs in groundwater and of assessing the rate of decrease of these concentrations.”

The Navy has not demonstrated to date that monitored natural attenuation (MNA) is a viable remedial alternative at this site. To show that natural attenuation of metals is occurring at this site, the Navy must have multiple rounds of groundwater data with seasonal variances showing decreasing trends. The only existing groundwater data for this Site is one sampling round in 1996 and one sampling round in 2011. This is not sufficient to prove that MNA will be effective for this site. Therefore, please include an additional groundwater alternative in this FS (i.e., in situ treatment).

Please note that the Office of Waste Management is unaware of any Record of Decisions (RODs) which include an MNA remedy for groundwater without sufficient existing MNA data showing a decreasing trend at a site. If the Navy wishes to proceed with MNA as the preferred groundwater remedy for the Site, it would seem prudent and consistent with other MNA RODs to conduct an MNA program as a data gaps assessment prior to the issuance of the Proposed Plan and ROD.

Draft Response (April 2013): This issue is under discussion and as of yet unresolved by the Project Team. The Navy will make appropriate changes when resolved. Note the efficacy of MNA can be determined during performance monitoring, just as a treatment alternative’s efficacy is determined by collecting performance monitoring data. If it is determined that the remedial alternative is not performing in accordance with the established metric (e.g., decline in COC concentrations over period of time), then another response would be considered (this is the approach for any remedial alternative).

RIDEM Follow-Up Response (July 2013)

After review of the previous groundwater data collected in 1996 and the current data collected in 2011, it is apparent that additional rounds of groundwater sampling are necessary in order for the Navy to consider MNA as a viable remedial alternative.

In the Northern Waterfront Area, only two of the existing monitoring wells were resampled in 2011, which did show decreasing trends of TCE. However, several new monitoring wells indicated exceedances of the PRG for TCE. Therefore, the extent of the plume may be larger than previously identified. In addition, there were exceedances of the PRGs for arsenic and manganese in 1996 in the Northern Waterfront. The sampling conducted in 2011 did not include metals analysis for this sub-area. Therefore, additional sampling for metals will be necessary to determine if PRG exceedances for metals still exist in this area. Please include the previous monitoring well MW-04 on Figure 3-1 in the FS.

In the Central Shipyard Area, none of the existing monitoring wells were resampled in 2011. The results from the new monitoring wells indicate increasing concentrations (compared to the previously sampled upgradient locations) of arsenic, manganese, and iron across this area. Note that concentrations of arsenic, 76.3 ug/L in MW-219 and 27.8 ug/L in MW-218, and manganese, 4,700 ug/L in MW-219 and 9,100 ug/L in MW-218 significantly exceed the PRGs. Additional sampling will be necessary to determine the extent of metals contamination in groundwater in this sub-area.

In the Building 234 Area, only one location was sampled for groundwater (MW-08). The 2011 results did indicate decreasing concentrations in metals since 1996; however, additional wells should be installed downgradient of this location as this one location does not provide sufficient groundwater data for this sub-area.

Therefore, given that only three monitoring wells that were sampled previously in 1996 were resampled in 2011, the metals concentrations in groundwater across the Central Shipyard Area have increased since 1996, there are significant exceedances of several PRGs, the extent of the TCE plume in the Northern Waterfront is unknown, and there is a lack of consistent and sufficient data across the Site, RIDEM suggests that the Navy implement a groundwater sampling program for this Site to address these data gaps and concerns.

Revised Response (September 2013): RIDEM and EPA agreed there was enough data to perform the FS. The intent of the Data Gaps Investigation (results provide in the SASE Addendum) was to address data gaps in the SASE Report identified by EPA and RIDEM. The FS inherently makes many conservative assumptions in an alternative's conceptual design and planned operation. These assumptions are refined during the remedial design, implementation, and operation, and performance monitoring.

Exceedances of PRGs do not preclude the anticipated effectiveness of MNA (short of, for example, the presence of a continuing source). None of the current data (concentrations), as compared to the respective PRGs, preclude the potential effectiveness of an MNA alternative.

There are no arsenic and manganese PRGs for the North Waterfront Area. TCE currently is the only groundwater COC in the North Waterfront.

There is no Figure 3-1 in the Draft FS. Well MW04 is included on Figure 2-1 and Figure 5-1. The well symbol is shown on each figure indicating it is a "former or unusable monitoring well."

It has been resolved that groundwater treatment alternative(s) in addition to MNA will be included in the Draft Final FS. The efficacy of MNA can be determined during performance monitoring. There will be uncertainty with the effectiveness of any remedial alternative developed in the FS. If it is determined that the remedial alternative is not performing in accordance with the established metric (e.g., decline in COC concentrations over period), then another response would be considered (this is the approach for any remedial alternative). The recent Tank Farm 4

FS developed MNA based on similar limited data, and the Tank Farm Proposed Plan (public review ended in July) proposed the MNA alternative.

Comment 15

p. 3-19, Section 3.5.1, Soil Alternatives. See Comment #4. Please ensure that the soil alternatives include measures to address all exceedances of ARARs throughout the entire site.

Draft Response (April 2013): Navy disagrees. See Response to Comment 4.

RIDEM Follow-Up Response (July 2013)

See response to comment #4.

Revised Response (September 2013): There appears to be a difference of opinion about the intention behind the term “site” as it was used in the final dispute resolution dated January 12, 2012. We interpret the phrase “if unacceptable risk is identified at a site” to refer to a discrete area at which a particular risk assessment was conducted. The Navy therefore disagrees with a site-wide approach, as described by RIDEM, for remedy implementation and ARAR evaluation for soil and groundwater. Please see Response to Comment 4.

Comment 16

p. 3-19, Section 3.5.2, Groundwater Alternatives. See Comments #4 and #14. Please ensure that the groundwater alternatives include measures to address all exceedances of ARARs throughout the entire site. Also, please include a groundwater treatment alternative (i.e., in situ treatment) in addition to MNA and LUCs.

Draft Response (April 2013): Navy disagrees about all ARAR exceedances and application site-wide. See Response to Comment 4. Groundwater treatment alternatives will be evaluated again in the Draft Final FS, and, as decided during the April 3rd Project Team conference call, the information for these new alternatives will be provided to the Project Team prior to issuing the DF FS. Tentative additional groundwater alternatives include G-3 (Enhanced Reductive Dechlorination) and G-4 (In Situ Chemical Oxidation). Note these treatment groundwater alternatives initially were considered in the Draft FS, but were screened out due to impracticability or because they were cost prohibitive for the conditions at the site. For example, the highest TCE concentration in the North Waterfront Area is 12.2 µg/L (well MW221). A treatment alternative to decrease this concentration to 5 µg/L or below is impracticable. Further, the decrease to meet the PRG in this situation could occur immediately simply due to dilution from the volume of injection material (in an enhanced bioremediation alternative).

RIDEM Follow-Up Response (July 2013)

See response to comment #4 regarding site-wide ARAR exceedances.

Revised Response (September 2013): There appears to be a difference of opinion about the intention behind the term “site” as it was used in the final dispute resolution dated January 12, 2012. We interpret the phrase “if unacceptable risk is identified at a site” to refer to a discrete area at which a particular risk assessment was conducted. The Navy therefore disagrees with a site-wide approach, as described by RIDEM, for remedy implementation and ARAR evaluation for soil and groundwater. Please see Response to Comment 4.

It has been resolved that groundwater treatment alternative(s) will be included in the Draft Final FS. Tentative additional groundwater alternatives are G-3 – Enhanced Reductive Dechlorination (TCE in North Waterfront) and G-4 – In Situ Chemical Oxidation (metals in Central Shipyard and Former Building 234 Areas).

Comment 17

p. 4-1, Section 4.0, Description and Detailed Analysis of Remedial Alternatives for Soil; whole section. Refer to Comment #4. Please revise this section to include all sub-areas of the Site where ARAR exceedances occur in soil.

Draft Response (April 2013): Navy disagrees. See Response to Comment 4.

RIDEM Follow-Up Response (July 2013)

See response to comment #4.

Revised Response (September 2013): There appears to be a difference of opinion about the intention behind the term “site” as it was used in the final dispute resolution dated January 12, 2012. We interpret the phrase “if unacceptable risk is identified at a site” to refer to a discrete area at which a particular risk assessment was conducted. The Navy therefore disagrees with a site-wide approach, as described by RIDEM, for remedy implementation and ARAR evaluation for soil and groundwater. Please see Response to Comment 4.

Comment 18

p. 4-1, Section 4.1.2, Alternative S-2 – LUCs. To determine if LUCs would be an acceptable alternative for this Site, please indicate if sufficient data exists in the 1-2 ft zone for this Site to satisfy RIDEM’s ELUR requirements.

Draft Response (April 2013): The text will be revised to indicate that sufficient data exists.

Comment 19

p. 5-1, Section 5.0, Description of Detailed Analysis of Remedial Alternatives for Groundwater; whole section. Refer to Comments #4 and #14. Please revise this section to include all sub-areas of the Site where ARAR exceedances occur in groundwater. Also, please include a groundwater treatment alternative (i.e., in situ treatment) in addition to MNA and LUCs.

Draft Response (April 2013): See Responses to Comments 4, 14, and 16.

RIDEM Follow-Up Response (July 2013)

See responses to comments #4 and #14.

Revised Response (September 2013): There appears to be a difference of opinion about the intention behind the term “site” as it was used in the final dispute resolution dated January 12, 2012. We interpret the phrase “if unacceptable risk is identified at a site” to refer to a discrete area at which a particular risk assessment was conducted. The Navy therefore disagrees with a site-wide approach, as described by RIDEM, for remedy implementation and ARAR evaluation for soil and groundwater. Please see Response to Comment 4.

It has been resolved that groundwater treatment alternative(s) in addition to MNA will be included in the Draft Final FS. The efficacy of MNA can be determined during performance monitoring. There will be uncertainty with the effectiveness of any remedial alternative developed in the FS. If it is determined that the remedial alternative is not performing in accordance with the established metric (e.g., decline in COC concentrations over period), then another response would be considered (this is the approach for any remedial alternative). The recent Tank Farm 4 FS developed MNA based on similar limited data, and the Tank Farm Proposed Plan (public review ended in July) proposed the MNA alternative. Please see Response to Comment 14.

Comment 20

p. 5-2, Section 5.1.2, Alternative G-2, MNA and LUCs. “The 2011 SASE Addendum groundwater data coverage is limited. Some monitoring wells installed in 1996 have been misplaced (e.g., paved over) or damaged. Therefore,

additional monitoring wells would be installed in the overburden material for shallow groundwater monitoring at the site-specific upgradient areas, Central Shipyard Area, and Former Building 234 Area. For the purpose of this FS, it is assumed that installation of new monitoring wells would consist of three new wells at upgradient areas, two new wells at Central Shipyard Area, and three new wells at Former Building 234 Area. A site investigation including a hydrogeologic evaluation and sampling and analysis of groundwater would be required to determine the applicability of natural attenuation. The hydrogeologic investigation would be used to further determine the location and concentration of contaminants, contaminants movement pathways, and evaluation of natural attenuation. Evaluation of natural attenuation processes may require a detailed understanding of the site geochemistry including pH, DO, ORP, carbon dioxide, nitrate, sulfate, iron, etc., especially where biodegradation processes are involved. Evaluation of natural attenuation usually involves not only the determination of what processes of natural attenuation are occurring, but also the estimation of what the results of these processes will be in the future.”

As explained in this paragraph, the applicability of natural attenuation at the Site is currently unknown. An evaluation of the potential for MNA as a proposed remedy is required, including installation of additional monitoring wells, multiple rounds of sampling, a hydrogeologic investigation, etc. Therefore, MNA does not seem, based on the current dearth of data, to be an acceptable alternative going forward for this Site unless data resulting from an MNA investigation conducted prior to the Proposed Plan/ROD shows that natural attention is indeed occurring at this Site.

Draft Response (April 2013): See Response to Comment 14.

RIDEM Follow-Up Response (July 2013)

See responses to comments #4 and #14.

Revised Response (September 2013): Navy disagrees that investigation is required prior to the Proposed Plan/ROD in order to implement an MNA alternative. The efficacy of MNA can be evaluated during its implementation (baseline sampling and performance monitoring will continually add to the temporal dataset). The Navy will include groundwater treatment alternative(s) in addition to MNA will be included in the Draft Final FS. The efficacy of MNA can be determined during performance monitoring. There will be uncertainty with the effectiveness of any remedial alternative developed in the FS. If it is determined that the remedial alternative is not performing in accordance with the established metric (e.g., decline in COC concentrations over period), then another response would be considered (this is the approach for any remedial alternative). The recent Tank Farm 4 FS developed MNA based on similar limited data, and the Tank Farm Proposed Plan (public review ended in July) proposed the MNA alternative. Please see Response to Comment 14

Comment 21

p. 5-4, Section 5.1.2, Alternative G-2 – MNA and LUCs; 1st-3rd paragraphs. These paragraphs discuss the locations and numbers of monitoring wells to be sampled for the MNA analysis. Please ensure that all monitoring wells from all sub-areas of the Site where ARARs were exceeded are included in the MNA program. If a monitoring location with previous exceedances was paved over or damaged, please install a new monitoring well in this location for future Site sampling.

Draft Response (April 2013): Navy disagrees. New monitoring wells will be installed at locations to meet the data quality objectives for implementation of a groundwater alternative such as MNA or an active treatment technology (including baseline sampling, effectiveness of remedy implementation [e.g., injection radius], and performance monitoring). Existing monitoring wells will be utilized similarly if they meet data quality objectives. Note that current monitoring wells with ARAR exceedances already are included in the sub-areas to be addressed for unacceptable risk from groundwater (North Waterfront, Central Shipyard, and Former Building 234 Area). The FS is a conceptual design—data quality objectives and the exact components of any remedy will be determined by the Project Team during the remedial design stage.

Comment 22

p. 5-4, Section 5.1.2, Alternative G-2 – MNA and LUCs; 4th paragraph. “Sampling frequency would be quarterly for the first year, semi-annual for the next two years, and annual thereafter.” Please revise the sampling frequency to quarterly for the first two years. After this, the frequency may be reduced to semi-annually or annually based on a review of the sampling results and agreement by all parties.

Draft Response (April 2013): The Navy disagrees. Navy believes this assumed sampling approach (i.e., frequency) for the proposed MNA remedy will meet the objectives of determining the efficacy of MNA as well as monitoring overall progress. However, Navy notes the FS is a conceptual design—data quality objectives and the exact components of any remedy will be determined by the Project Team during the remedial design stage.

RIDEM Follow-Up Response (July 2013)

Please revise the sampling frequency as requested in the above comment to be consistent with other sites at Naval Station Newport. For example, sampling for MNA will be conducted quarterly for the first two years at Tank Farms 4 & 5. A minimum of two years of quarterly data is necessary to demonstrate seasonal trends.

Revised Response (September 2013): The sampling frequency for Alternative G-2 will be revised to quarterly for the first 2 years and assumed annually thereafter.

Comment 23

Tables 2-1 through 2-3, Potential ARARs and TBCs. Please include the following sections of RIDEM's Remediation Regulations as ARARs for this Site:

Chemical-specific

3.00 – Definitions, 8.01 – Remedial Objectives, 8.02 – Soil Objectives, 8.03 – Groundwater Objectives, 8.06 – Background Concentrations for Soil, 8.07 – Upper Concentration Limits, 8.11 – Remedial Objective Approvals, and 12.0 – Special Requirements for Managing Arsenic in Soil.

Action-specific

3.00 - Definitions, 8.08 – Points of Compliance, 8.09 – Institutional Controls, 8.10 – Compliance Sampling, 8.11 – Remedial Objective Approvals, and 11.00 – Remedial Action.

Draft Response (April 2013): Navy disagrees. The portions of the Remediation Regulations already cited are sufficient to address the contaminants at the site. Please note that the regulations cited were also used for FSs completed for Site 8 and others at NAVSTA Newport.

RIDEM Follow-Up Response (July 2013)

State regulations should be considered ARARs and all applicable ARARs should be retained until the remedy is selected in the Proposed Plan. Alternatively, the Navy should provide justification for exclusion for each of the potential ARARs listed above. Please explain why the ARARs above should not be included for this Site.

Revised Response (September 2013): Navy disagrees with adding the requested sections/subsections of the Remediation Regulations. Navy included the appropriate ARAR citations in the Draft FS, as amended by these Final RTCs (e.g., GA Leachability Criteria will be evaluated in the Draft Final FS), sufficiently to address the CERCLA COCs and remedial alternatives evaluated in the FS. Regulations in their entirety are not the de facto ARARs in an FS; rather, specific non-administrative portions that specifically address a situation associated with an onsite remedial alternative are considered/included. Note that the regulations cited also were used recently for FSs completed for Site 8 and Tank Farm 4.

Comment 24

Appendix B, Section 2.0. Please provide additional text and/or a flow chart in this section to present the overall process used to derive the PRGs for soil and groundwater. (For example, discuss that risk-based concentrations were first calculated, and then compared to ARARs, background concentrations, etc.) Currently, this process is not transparent in either the Appendix or in the main text of the FS (Section 2.4). For instance, there is a subsection discussing background concentrations, but the text does not explicitly describe how background was used in deriving the PRGs.

Please include additional text discussing the basis of the selected target cancer risk and hazard index (which appear from the PRG tables to be 10^{-6} and 1, respectively). Additionally, Tables 11 and 12 indicate that soil PRGs were developed for compounds that are not identified as COCs, because soil concentrations were found to exceed RIDEM DECs; the inclusion of these compounds in PRG development should be explained in the text. Also, please ensure that all parameters used in risk-based PRG equations are defined (such as target cancer risk and target hazard index) and that the equations and parameters presented in the text are consistent with those used in the corresponding PRG calculation tables in Attachments A and C.

Draft Response (April 2013): The text, tables, and Appendix will be revised to incorporate the requested information / corrections.

Comment 25

Appendix B, Table 13. The RIDEM Residential DEC for chromium in this table is based on total chromium. However, hexavalent chromium was used as the basis for soil PRG development in the FS. Please change the chromium DEC in this table to 390 mg/kg, based on hexavalent chromium.

Draft Response (April 2013): The value in Appendix B will be changed to 390 mg/kg. Note this value (390 mg/kg) was correctly used in the soil PRG selection tables for both the PCB Removal Area (Table 2-4) and the Former Building 234 Area (Table 2-5).

Comment 26

Appendix D1, Cost Estimate for Alternative S-3: Soil Excavation and Off-Site Disposal. Approximately half of the capital costs (~\$570,000) in the estimate are for overhead, G&A, indirect, profit, or contingency costs. Please confirm that the prices do not duplicate any of the indirect costs. For example, \$5,500 per day for a drilling subcontractor seems an exorbitant enough cost to include contractor overhead, profit, and other indirect costs.

Draft Response (April 2013): The cost estimate(s) will be reviewed for accuracy and consistency in the Draft Final FS.