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U S NAVY RESPONSE TO AGENCY COMMENTS TO DRAFT STUDY AREA SCREENING EVALUATION FOR CODDINGTON COVE RUBBLE FILL AREA SITE 4 NS NEWPORT RI
10/14/2011
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October 14, 2011

Project Number 112G02300

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Reference: CLEAN Contract No. N62470-08-D-1001
Contract Task Order No. WE48

Subject: Transmittal of Response to Comments, Draft Study Area Screening Evaluation
Coddington Cove Rubble Fill Area, Site 04
Naval Station Newport, Newport RI

Dear Ms. Lombardo, Ms. Crump, Mr. Munney:

On behalf of Ms. Maritza Montegross, U.S. Navy NAVFAC, I am providing to you enclosed a response to your comments on the Draft Study Area Screening Evaluation (SASE) report for the site referenced above. Comments were received from USEPA dated June 10, 2011 and July 13, 2011, from RIDEM dated June 13, 2011, and from USFWS dated June 11, 2011.

At the Newport RPM meeting on July 20, 2011, Navy and regulators discussed the risk assessment approach taken in the Draft Coddington Cove Rubble Fill Area SASE report. The merits of taking Navy's qualitative approach versus EPA's quantitative approach were discussed. EPA stated that they could not make a decision on further action at the site using Navy's approach to the human health risk assessment section. Based on these discussions, the Navy agreed to conduct a baseline human health risk assessment (BHHRA) for the Coddington Cove Rubble Fill Area site. Section 6 containing the BHHRA will be submitted to the regulators as an addendum to the Draft SASE report. The Navy plans to make this submittal on November 11, 2011.

Navy conducted a habitat walkover on October 6, 2011 with an EPA wetland specialist contractor and RIDEM. The purpose of the walkover was to evaluate the habitat quality. On October 14, 2011, Navy submitted to the team for review a draft of the wetland functions & values assessment. Upon receipt of comments, a draft memorandum will be submitted summarizing the findings of the walkover. A conference call between Navy and regulators will be conducted to discuss further steps with regard to the ecological risk assessment at the site. During that call, a path forward for finalization of the SASE and BHHRA will be determined.

If you have any questions regarding this material, please do not hesitate to contact me.

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Very truly yours,

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File G02300-3.2 (w/o encl.) File G02300-8.0 (w/encl.)

NAVY RESPONSES TO
U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
COMMENTS DATED JUNE 10, 2011
DRAFT STUDY AREA SCREENING EVALUATION
SITE 04 - CODDINGTON COVE RUBBLE FILL AREA
NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND
APRIL 2011

Navy responses to the U.S. Environmental Protection Agency (EPA) comments on the Draft, Study Area Screening Evaluation (SASE), Coddington Cove Rubble Fill (CCRF) Area (April 2010) are presented below. The EPA comments are presented first (in italics) followed by Navy's responses.

General Comments

Comment 1: *The human health screening benchmarks for surface water and sediment were based on the RSL for groundwater and soil but were 10 times higher. EPA does not allow the adjustment of the RSLs for groundwater and soil to be used for surface water and sediment. The same RSLs for groundwater and soil should be utilized for surface water and sediment.*

Response: Navy disagrees with this comment. The RSLs for groundwater and soil assume that a surface water resource may be used as a domestic water supply source and that a receptor's exposure to sediments would be as frequent and as intense as that assumed for soils under a residential land use scenario. Neither of these assumptions is correct for the surface waters/sediments within the study area.

Comment 2: *The text (section 6.1.1 and 6.2.2) indicates that if risk were calculated for Aroclor 1260 and PAHs, the cancer risk would not exceed the acceptable risk range. This position ignores the additive nature of risk assessment. Risk should be calculated for these chemicals for the appropriate human receptors, to demonstrate that the cumulative HIs for the same target organ effects do not exceed the acceptable level of 1. In addition, while it has been demonstrated that concentrations for some chemicals (e.g., several metals) are consistent with background concentrations, all chemicals that exceed the RSLs should be included so that the cumulative HIs reflect all appropriate chemical exposures.*

Response: The risk assessment approach taken in the Coddington Cove Rubble Fill Area SASE report was discussed at the July 20, 2011 Newport RPM meeting. The merits of taking Navy's qualitative approach versus EPA's quantitative approach were discussed. EPA stated that they could not make a decision on further action at the site using Navy's approach to the human health risk assessment section. Navy and EPA agreed to conduct a baseline human health risk assessment for the Coddington Cove Rubble Fill Area site. The baseline human health risk assessment (BHHRA) will be incorporated into the Draft Final SASE report and will guide Navy and regulators in future risk management decisions.

Comment 3: *The text indicates that some of the exceedances of RSLs for groundwater and wetland sediment do not merit further evaluation because concentrations of these chemicals in site soil are consistent with background concentrations in soil. Given that the factors that influence the fate and transport of chemicals in groundwater and sediment are different from those in soil, the background comparison for soil is not a sufficient justification for removing groundwater and sediment chemicals from further evaluation.*

Response: Navy disagrees with this comment. Soils associated with the rubble fill are the "source media" at this site. Any significant site-related contamination in the transport/receiving media (groundwater, surface water, and sediments) should reflect that detected in the source media (soils).

Per Navy policy, chemicals detected at concentrations at/below background will not be selected as chemicals of potential concern (COPCs) in the BHHRA. However, for purposes of completeness, the BHHRA will include a table(s) that compare risk estimates for all chemicals exceeding toxicity screening

levels (regardless of whether or not they are above/below background) to risk estimates developed for the COPCs only.

Comment 4: *The soil and groundwater PALs in the Section 4 tables should be consistent with the RSLs. EPA does not accept adjusting RSLs to be used as PALs. The only exception is when it is not feasible to measure such low levels from the lab. That would need justification from the lab and would only apply to those chemicals identified by the lab.*

Response: The comment notes that the PALs in the Section 4 tables are not consistent with the EPA RSL values. EPA's non-carcinogenic RSLs correspond to a Hazard Quotient (HQ) of 1. Typically for risk-screening or selection of COPCs, non-carcinogen values are adjusted downward by a factor of 10 (RSLx0.1) to correspond to a more conservative HQ of 0.1. This adjustment is performed to account for the additive effects on target organs the potential cumulative effects of several chemicals affecting the same target organ or producing the same adverse non-carcinogenic effect. This has been the practice for past Navy CLEAN projects under CERCLA. It is noted that the RSLs have been adjusted in Tables 4-1 and 4-2, but not in the tables imbedded in the text of Section 4. The imbedded tables will be revised to reflect the practice of adjusting non-carcinogen RSL values to correspond to HQ = 0.1.

Comment 5: *For ecological risk purposes, it is the position of EPA that frequency of detection should not be used in situations where there are fewer than 20 samples, because the threshold of 5% detection cannot be used with validity with smaller data sets.*

Response: The frequency of detection was used in the Step 3a refinement to determine whether it was necessary to retain the chemical for further evaluation in the BERA. Typically it was used with other factors to determine whether the chemical could be eliminated from further evaluation. Also, the threshold of 5% is just a suggested value in the human health risk assessment guidance document. The Navy's guidance for conducting ecological risk assessments allows the use of detection frequency for determining whether a chemical can be eliminated from further evaluation in Step 3a, but does not specify a certain percentage.

Comment 6: *The SASE contains multiple erroneous references to Appendix C when indicating the location of boring and field log sheets; however, this information is contained in Appendix B.*

Response: Comment noted, the document will be checked for erroneous Appendix references.

Specific Comments

Comment 1*: Page 4-1, §4.1: In the first paragraph, please correct the analytical methods listed for metals: the list should include both 7470A (aqueous) and 7471B (solids).*

Response: Comment noted. The requested change will be made to the document.

Comment 2: *Page 4-2, §4.1: Please correct the typo in the first paragraph: the referenced method should be 8015B(M).*

Response: Comment noted, the requested change will be made to the document.

Comment 3: *Page 4-13, §4.2.4: For consistency and to facilitate comparisons, please report the PAL concentrations in the table on this page in units of micrograms per kilogram (µg/Kg). The PAL column is labeled as µg/Kg but the values listed are milligrams per kilogram.*

Response: Comment noted. The requested change will be made to the document.

Comment 4: *Page 6-4, §6.1.1: At the end of the first paragraph, the text refers to Appendix F in regards to the comparison of site data to background. The background comparisons are in Appendix G, not Appendix F.*

Response: Comment noted. The requested change will be made to the document.

Comment 5: *Page 6-5, §6.1.2 and Table 6-1: Provide rationale for the use of the dilution and attenuation factor (DAF) of 20.*

Response: A default DAF of 20 is recommended in the EPA SSL guidance for most sites of a modest size. It is also the Default DAF value in the EPA's RSL calculator. Thus, it is considered both appropriate and conservative for a screening-level evaluation of a site.

Comment 6: *Page 6-10, §6.6: The text states that neither manganese nor vanadium "would be selected as COPCs if the wetland sediment screening level presented in Table 6-6 were used to estimate risks in a quantitative HHRA." This is not accurate. These metals should be considered COPC in an HHRA in order to evaluate cumulative risk across all exposure pathways and for all appropriate chemicals. They may not present unacceptable risk by themselves but would add to the cumulative HI.*

Response: As noted in response to general comment 2, Section 6 will be revised to include a baseline human health risk assessment for the Coddington Cove Rubble Fill Area site. The BHHRA will be incorporated into the Draft Final SASE report and will guide Navy and regulators in future risk management decisions.

Comment 7: *Page 7-16, §7.4.2: Acetone is noted as being a common laboratory contaminant. This should not be taken as a reason to remove it as a COPC unless laboratory blank information is available to suggest that it is a lab contaminant in this instance.*

Response: A review of the data validation memos associated with the samples collected in 2005 indicated that acetone was detected in the rinsate blank sample, and therefore results were qualified "EB". This suggests that results may be biased high. In addition, in Section 7.4.2, other factors were discussed for the removal of acetone as a COPC, which included the very conservative screening level and that VOCs are generally not very toxic to invertebrates. Therefore, Navy considers it appropriate to remove acetone as a COPC.

Comment 8: *Page 7-18, §7.4.2: This section eliminates numerous COPCs because they do not exceed the probable effects concentration (PEC). Taken collectively there are quite a few chemicals exceeding screening benchmarks, and there could be additive toxicity associated with multiple contaminants. Further evaluation of sediment is warranted due to the exceedance of screening benchmarks for pesticides, PCBs and numerous metals.*

Response: Although several chemicals have concentrations in sediment that exceed their screening levels, that fact that almost all detections are less than the PEC indicates that risks are unlikely to significant enough to warrant proceeding to a BERA. Based on the low concentrations, and the reasons stated in the ERA, it is unlikely that the sediment would be toxic to sediment invertebrates and it would be difficult to establish dose-response relationships at those low concentrations. Navy conducted a habitat walkover on October 6, 2011 with an EPA wetland specialist contractor and RIDEM. The purpose of the walkover was to evaluate the habitat quality and conduct a functional assessment. Navy will submit a memorandum in October summarizing the findings of the walkover. A conference call between Navy and regulators is anticipated to discuss further steps with regard to ecological risk assessment at the site.

Comment 9: *Page 7-24, §7.6.2: The argument for eliminating numerous COPCs in sediment is not convincing, since it is based only on a single line of evidence. A sediment in which multiple screening values are exceeded may be toxic even though none of the contaminants exceeds a PEC.*

Response: See Navy's response to EPA Comment No. 8.

Comment 10: *Table 4-1: Provide rationale for the screening level for acenaphthylene (340,000 µg/kg), benzo(g,h,i)perylene (170,000 µg /kg), and phenanthrene (170,000 µg /kg) in soil. There are no RSLs for these chemicals. Add the RSL (updated in May 2011) for thallium (0.78 mg/kg) to Table 4-1 and screen sample concentrations against this benchmark.*

Response: The value for pyrene has been used as a surrogate for benzo(g,h,i)perylene and phenanthrene. The value for acenaphthene has been used as a surrogate for acenaphthylene. These chemical values were used as surrogates because of similar chemical structure. The updated RSL for thallium will be included on Table 4-1 and Table 4-3, although it should be noted that there are no exceedances to report based on this update.

Comment 11: *Table 4-4: Provide support for the groundwater PAL listed for phenanthrene (110 µg /L) which does not have an RSL. Lead is missing from the dissolved metals list on page 2 of 2. Please review and correct.*

Response: The value for pyrene has been used as a surrogate for phenanthrene. This value was used as a surrogate because of similar chemical structures. Lead is not included in dissolved metals on Table 4-4 because it is a summary of detected parameters in groundwater samples and dissolved lead was not detected. Analytical results for dissolved lead in groundwater samples can be found in Appendix C.

Comment 12: *Table 6-1: Add definitions for the notes (superscripts) in the table. Site soil concentrations were compared with SSLs for the protection of groundwater. For chemicals for which no risk-based SSL is available in the RSL Tables (e.g., lead), the MCL-based SSL should be used as the screening tool, rather than leaving the value blank. As stated in Section 4.11 of the RSL Users Guide, "SSLs are either back-calculated from protective risk-based ground water concentrations or based on MCLs." Please use the MCL-based SSLs when risk-based SSLs are not available.*

Response: Navy agrees with the comment. The table footnotes will be checked to assure that all superscripts are defined. MCL-based SSLs will be added to the table.

Comment 13: *Table 6-5 and 6-6: Provide rationale for using the less conservative ORNL RSL for chromium III, rather than that for chromium VI. It may be helpful to refer to the narrative that was written for the Gould Island SAP in late 2008/early 2009.*

Response: There is no evidence that chromium VI would be present at the CCRF Site. Previous activities conducted at Gould Island consisted of electroplating operations and therefore analysis for chromium VI was considered appropriate. The decision to use chromium III criteria will be further discussed in the "Uncertainty Section" of the upcoming human health risk assessment.

Comment 14: *Table 6-5: No surface water benchmark is provided for lead. As noted on Page 6-3: "The SDWA action level of 15 µg/L is generally used as the screening level for lead in groundwater and surface water." For completeness, please add this value to Table 6-5.*

Response: Navy agrees with the comment. Table 6-5 will be revised as noted in the comment.

Comment 15: *Figure 1-2: Figure notes 3 and 4 state that the base plan was developed with the NAD 1927 horizontal datum but that the sample locations were surveyed using the NAD 1983 horizontal datum. Clarify how this impacts the spatial relationship between the site features and the sample locations. Add control points NGS NE 001 and Bishop 2 to this figure for reference.*

Response: During the site survey conducted by Louis Federici Associates the following site features were surveyed in addition to the sample locations: Navy housing southwest of the site, the playground and basketball court southwest of the site, the site fence located on the southwest, south, east and

northeast sides of the site, Coddington Highway, manholes located on the site, and the wetland embankment (this is still approximate, embankment shown on figure is interpolated between points surveyed). These features were updated on Figure 1-2 with the survey data that was collected using the same datum. A description of this update will be added to Note 3. Control points NGS NE 001 and Bishop 2 are located a significant distance from the site. Adding them to figure 1-2 would significantly alter the figure, therefore a note will be added to the figure clarifying the location of the control points.

NAVY RESPONSES TO
U.S. FISH AND WILDLIFE SERVICE (USFWS)
COMMENTS DATED JUNE 11, 2011
DRAFT STUDY AREA SCREENING EVALUATION
SITE 04 - CODDINGTON COVE RUBBLE FILL AREA
NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND
APRIL 2011

Navy responses to the U.S. Fish and Wildlife Service (USFWS) comments on the Draft, Study Area Screening Evaluation (SASE), Coddington Cove Rubble Fill (CCRF) Area (April 2010) are presented below. The USFWS comments are presented first (in italics) followed by Navy's responses.

General Comments

Comment 1: *Section 1.3.1: Historical disposal at the site is stated to have occurred from 1978 to 1982. It is unclear if the area filled with rubble, construction debris, and other material was initially wetland habitat, contiguous with wetland areas to the extent of the railroad right of way. Executive Order 11990 (1977) restricted destruction, loss or degradation of wetlands. Historical maps should be further investigated to determine if the Rubble Fill Area exists on historic wetlands.*

Response: Historical aerial photos from 1932, 1952, and 1962 were reviewed and compared to an aerial photo taken in 1997. There is no evidence to suggest that the wetland extended any further into the site than it currently does. Furthermore the 1962 photo seems to show the onsite wetland embankment in the same location as it exists today.

Comment 2: *Section 1.3.2/Figure 1-3: It appears that test pits or samples were not taken within 100' of the southern perimeter fence, east of the gate, in the PA or SASE. Please clarify.*

Response: Sample locations SB/MW02 and SB/MW05 were moved away from the fence at the direction of the Navy Public Works Department who informed TtNUS that there is a high pressure water line located along the fence line. Additionally aerial photos do not indicate that this area was part of the disposal area.

Comment 3: *Table 4-1: It is unclear why diesel range organics (DRO) and gasoline range organics (GRO) were not analyzed for in soil boring SB06 at all depths since RIDEM did not conduct TPH analysis for this location. Please clarify.*

Response: Soil samples collected at SB06 from the 0-1, 4-6, 12-14 and 14-16 foot intervals were submitted to the laboratory for analysis of GRO and DRO. Table 4-1, referenced above, provides results for the surface soil sample (0-1 foot). Results for the three subsurface soil samples are not presented on Table 4-3 because TPH was non-detect in these samples. Analytical results for every parameter that was analyzed can be found in Appendix C of the Draft SASE Report.

Comment 4: *Section 2.4.2: We are aware that a Sampling and Analysis Plan (SAP) was generated and approved prior to sampling. We did not see the SAP but assume that sediment sampling was conducted in accordance with the SAP, in regards to sampling depth (0-6"). It is noted that Sed 03 was sampled at 6-12" versus all other samples being sampled at 0-6", based on media restrictions. Table 4-5, shows higher levels of contamination in Sed 03 than other locations. This may be based on relative location in the wetland, drainage patterns or a reflection of contamination at depth deeper than 0-6" throughout that portion of the wetland. We suggest that this issue be further investigated.*

Response: Elevated levels of PAHs were detected in SD03 more frequently than other sediment samples. The Navy will assess this situation and consider further investigation.

As noted on the Sample Log Sheet in Appendix B5, the samples was collected in a deep within the phragmites stand. Sediment was not encountered until 6 inches because there was a thick (6 inch) layer of decomposing phragmites at the surface. Note that the samples collected in 2004, noted as CCRF-SS-01 through CCRF-SS-06 were collected within the wetland from 0 to 1 foot. They were initially categorized as surface soil, which is why they were collected from 0 to 1 foot. Most of these samples also had higher levels of contamination. This combined with the fact that the 0 to 6 inch samples had lower levels of contamination, indicates that the contamination in the top 6 inches appears to be lower than the contamination at 6 to 12 inches. Because the biotic zone for sediment invertebrates is usually within the top 6 inches (or shallower), this would tend to cause lower risks to sediment invertebrate than what is predicted from the data.

Comment 5: *Section 4.2.1: It is noted that Stissing Silt Loam soils are assumed to have made up the majority of the site prior to fill operations and only make up a small portion of the site now. Stissing Silt Loam soils are classified as hydric soils associated with wetlands by the USDA NRCS in RI. This further supports the probability that the Rubble Fill Area exists on former wetland acreage and restoration or mitigation for wetland loss may be appropriate. Further discussions concerning this issue are necessary.*

Response: While the fill area may exist on former wetland acreage, this investigation was conducted to investigate potential contamination that may cause risk to human health or the environment. A discussion regarding restoration or mitigation of the wetland due to Executive Order 11990 is not appropriate for this report.

Comment 6: *Section 4.2.4/Table 4-2: RI may have PAH ecological screening benchmarks, in addition to their TPH direct exposure criteria (DEC), similar to MA:*

(http://www.mass.gov/dep/cleanup/laws/tphbat.pdf). I was not able to find them on the RIDEM Site - RIDEM should be able to clarify this. If so, these should also be used for comparison to detected PAH concentrations. The summary table for sediment PAH exceedances and PALs is incorrect. Correct PAL levels to correspond to Table 4-5.

Response: The PALs presented in the PAH summary table in section 4.2.4 are incorrect and will be corrected. Section 11.2 of Worksheet #11 of the Final SAP lists the ecological screening criteria for sediment and does not include RI DEC criteria. An electronic copy of the SAP can be provided upon request.

Comment 7: *Table 4.5: Please include the total PAH TEC (1610 ppb) as an ecological screening benchmark. Please clarify what the Total PAHs ECO HALFND represents.*

Response: As stated above, ecological screening criteria was agreed upon during development of the SAP (WS#11, section 11.2). Total PAHs ECO HALFND represents the sum of total PAHs that were detected, plus the sum half of the detection limit values for PAHs that were not detected; total PAHs ECO represents the sum of only the PAHs that were detected.

Comment 8*: Section 7.2.4: For the record, bobwhite quail are not exclusively herbivorous birds. A large portion of their diet can be comprised of insects, especially in young birds. However, since robins are being modeled as insectivorous birds and uptake into earthworms is a conservative scenario then risk to these bird groups is reasonably covered.*

Amphibians and reptiles may also be at risk in the wetlands and should be evaluated for exposure to sediments and surface water for as many COCs as possible, dependent on available TRV literature.

Response: The Navy agrees that bobwhite quail are not exclusively herbivorous birds just as robins are not exclusively insectivorous birds. They are being modeled as surrogate for those types or receptors, to be conservative.

The Navy does not agree that it is necessary to evaluate risks specifically to amphibians and reptiles at the site from contaminants in the sediment and surface water. There is generally a lack of toxicity data for herptiles, especially reptiles. Therefore, common ERA practice has been to not evaluate risks to those receptor groups. Furthermore, the Navy does not believe that the site provides significant habitat for many amphibians and reptiles because the site consists of a very low quality phragmites wetland. Navy conducted a habitat walkover on October 6, 2011 with an EPA wetland specialist contractor and RIDEM. The purpose of the walkover was to evaluate the habitat quality and conduct a functional assessment. Navy will submit a memorandum in October summarizing the findings of the walkover. A conference call between Navy and regulators is anticipated to discuss further steps with regard to ecological risk assessment at the site.

Comment 9: *Section 7.3.1: Note that TRVs and ecological evaluations are presented in Appendix F not Appendix E, throughout the text.*

Response: The reference to Appendix E will be changed to Appendix F.

Comment 10**:** *Section 7.4.2: Locations SD-03 and SD-05 have numerous TEC exceeded. Cumulative impacts from numerous COCs above threshold criteria may trigger toxic impacts and should be considered for further evaluation. Additionally, as stated previously, sediments in the 6-12" horizon may be harboring elevated contamination, which could be an exposure risk to amphibians, turtles and burrowing mammals, and should be evaluated.*

Conservative and average food chain modeling inputs/outputs and interpretations appear to be reasonable.

Response: The sediment sample from SD-03 does have concentrations of several chemicals that exceed their respective TEC, however, as noted above, the sample was collected from 6 to 12 inches because sediment was not present from 0 to 6 inches. The top six inches consisted of a mat of decomposing phragmites so there is uncertainty in whether sediment invertebrates would be exposed to contaminants in the sediment because they are typically found in the surficial (i.e., 0 to 6 inch) layer. Also, with the exception of PAHs and lead, none of the other chemicals detected at SD-05 exceeded the TEC and concentrations of lead and total PAHs were much lower than the PEC. For these reasons, although there may be some slight potential risks to sediment invertebrates, the Navy does not believe risks are great enough that further evaluation in a BERA is warranted. Please see the Navy's response to FWS Comment No. 8 regarding evaluating risk to amphibians and reptiles. Regarding potential risks to burrowing mammals, the Navy does not believe that burrowing mammals would be present at the site because of the rubble material (concrete slabs and asphalt material) buried at the site and the proximity of the groundwater level to the surface at the site.

Comment 11: *Section 8.1: We are interested to discuss groundwater depths, fill depths and wetland boundary implications further.*

Response: Comment noted. Further discussion on these topics listed above can be scheduled at a future date.

NAVY RESPONSES TO
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM)
COMMENTS DATED JUNE 13, 2011
DRAFT STUDY AREA SCREENING EVALUATION
SITE 04 - CODDINGTON COVE RUBBLE FILL AREA
NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND
APRIL 2011

Navy responses to the Rhode Island Department of Environmental Management (RIDEM) comments on the Draft, Study Area Screening Evaluation (SASE), Coddington Cove Rubble Fill (CCRF) Area (April 2010) are presented below. The RIDEM comments are presented first (in italics) followed by Navy's responses.

General Comments:

Comment 1: *Page E-2, Section E.2, Investigation & Analysis; 5th bullet.*

> *"Sediment and surface water samples were collected from "six" locations in the onsite wetland and stream."*

Sediment samples were collected from "seven" locations Please revise the above sentence in the SASE.

Response: The sentence will be revised to say "Six co-located surface water and sediment samples were collected in the onsite wetland and stream; additionally, a seventh sediment sample was collected from the onsite wetland where no surface water was present."

Comment 2: *Pages E-3 & E-4, Executive Summary; Heading: Please correct the numbering for the last two section headings. "Possibility of Risk from Contaminants" should be E.4 and "Conclusions and Recommendations" should be E.5.*

Response: Comment noted, the change will be made.

Comment 3: *Page 2-12, Section 2.4, Surface Water/Sediment Investigation; 1st sentence.*

> *"Seven sediment and six surface water samples were collected from the onsite wetland area and stream, as presented on Figure 1-2."*

Please add labels SW06 and SW07 next to SD06 and SD07 on Figure 1-2 to show these locations of surface water samples.

Response: Comment noted, the change will be made.

Comment 4: *Page 4-3, Section 4.2.1, Surface Soil Sample Results; 3rd paragraph.*

> *"PALs for soil consisted of USEPA Regional Screening Levels (RSLs) (2010). In addition, results were compared to RIDEM Residential DEC and RIDEM leachability criteria for discussion purposes only."*

Pursuant to the FFA and CERCLA, RIDEM's Residential DEC and leachability criteria should be considered PALs when more stringent than USEPA's. Please remove "for discussion purposes only" from this sentence as well as in the other sections of this document.

Response: Comment noted. The text "for discussion purposes only" will be removed from the indicated section.

Comment 5: *Page 4-5, Section 4.2.1, Metals; 2nd paragraph.*

> *"For the purposes of this comparison it was assumed that before fill was placed at the site most of the soil was also Stissing Silt Loam (Se)."*

The RI GIS soil map shows areas on or adjacent to the site containing soil types NP, UD, Ur and PmA. Therefore, please revise this section of the report to include all soil types in this assessment.

Response: This section of the report was written for the purpose of comparing onsite metals concentrations in soils to background values as reported in the Basewide Background Study (TtNUS 2008). The background investigation did not include NP, UD or Ur soils because these soils are typically associated with cut and fill areas that have been manipulated for development (see section 3.2.2 of Draft SASE report). Pm soils were not discussed in Section 3 because soil RIGIS soil maps do not show this soil occurring on the Site. Pm soils are located in the general vicinity of the site and it is reasonable to assume that at one time they may have been present at the site, the Navy will include a review of background data for Pm soils in comparison to site soils and include it in this section.

Comment 6: *Page 4-13, Section 4.2.4, PAHs; Table: The PALs listed in this table are presented in mg/kg not ug/kg that is shown in the top heading. Please convert the PALs in this table to µg/kg.*

Response: Comment noted, the correction will be made.

Comment 7: *Page 6-1, Section 6.0, Evaluation of the Potential for Human Health Risk; whole section: When the maximum concentration exceeds the acceptable risk range this demonstrates an unacceptable risk at the site. Please remove any proposal in this and other sections of this SASE to remove COPCs based upon average concentrations.*

Response: COPCs discussed in the Section 6 narrative were selected based on a comparison of maximum detected concentrations to the screening levels presented on page 6-1, 6-2, and 6-3, and with consideration of background concentrations. The Section 6 narrative did occasionally reference an average concentration as a point of comparison or for purposes of evaluating risk to lead (as required by current EPA risk assessment guidance). The Navy respectfully disagrees with the statement that:

> *"When the maximum concentration exceeds the acceptable risk range this demonstrates an unacceptable risk at the site."*

Per current EPA risk assessment guidance, the exposure point concentration evaluated in a HHRA is typically the 95 % upper confidence limit on the arithmetic mean.

As discussed at the July 20, 2011 Newport RPM meeting, Section 6 will be revised to include a baseline human health risk assessment for the Coddington Cove Rubble Fill Area site. The BHHRA will be incorporated into the Draft Final SASE report and will guide Navy and regulators in future risk management decisions.

Comment 8: *Page 6-3, Section 6.0, Evaluation of the Potential for Human Health Risk; Bullet.*

> *"Comparison to RIDEM criteria is done to satisfy a RIDEM request. Because the investigation is being conducted under CERCLA, the USEPA criteria described above take precedence over these state criteria."*

Pursuant to the FFA and CERCLA, the USEPA and RIDEM criteria are equally applicable. The most stringent of the USEPA and RIDEM Criteria should be used in this SASE. Please rewrite the sentence above to clarify this.

Response: The SASE investigation serves to determine if a site should progress to the next stage, a RI/FS. This determination is based on the screening of contaminant concentrations against EPA criteria. Once a determination has been made that the site should progress to the next stage, RIDEM criteria will be considered ARARs. Regardless of the policy issue, the Section 6 text and tables did consider RIDEM criteria in the evaluation presented.

Comment 9: *Page 6-3, Section 6.1, Qualitative Risk Evaluation of Surface Soils; 1st sentence.*

> *"For purposes of this risk evaluation, surface soil samples are defined as any sample where the "top depth" of the sampled interval is less than or equal to 1 ft bgs."*

Please be advised that according to the RIDEM's Remediation Regulations for industrial and commercial use the surface soil depth should be 0-2 feet. Failure to collect samples from this zone will preclude the placement of an ELUR for industrial and commercial use in the future.

Response: Comment noted. However, the definition of surface soils as 0 to 1 foot bgs versus 0 to 2 foot bgs does not impact the evaluation presented in Section 6. The same criteria and protocol were used to evaluate both surface and shallow subsurface soils.

Comment 10: *Page 6-4, Section 6.1.1, Exceedances of Direct Contact Risk Standard and Criteria; 1st paragraph: RIDEM does not concur with the background comparison in this report. Please refer to Comment 5 mentioned above. Please be advised that RIDEM, to date, has not accepted the "Base wide Background Study Report".*

Response: Per Navy policy, chemicals detected at concentrations at/below background will not be selected as chemicals of potential concern (COPCs) in the baseline human health risk assessment (BHHRA). However, for purposes of completeness, the BHHRA will include a table(s) that compare risk estimates for all chemicals exceeding toxicity screening levels (regardless of whether or not they are above/below background) to risk estimates developed for the COPCs only.

Comment 11: *Page 6-5, Section 6.1.1, Exceedances of Direct Contact Risk Standard and Criteria; last paragraph: It is not clear whether the evaluation for carcinogenic PAHs is based upon cumulative or individual contaminants. Please be advised that this SASE must evaluate cumulative and individual contaminant risk from all contaminants at the site. Please provide in the response to comments written clarification that individual and cumulative effects are being properly applied to this SASE.*

Response: The carcinogenic PAHs are evaluated as a group of COPCs (expressed in terms of benzo(a)pyrene equivalents). The risks stated on page 6-5 are for the carcinogenic PAHs in total.

As discussed in response to comment 7, Section 6 will be revised to include a baseline human health risk assessment for the Coddington Cove Rubble Fill Area site.

Comment 12: *Page 6-6, Section 6.2, Qualitative Risk Evaluation of Unsaturated Shallow Subsurface Soils; 1st sentence.*

> *"For purposes of this risk evaluation, unsaturated, shallow subsurface soil samples are defined as any sample where the "top depth" of the sampled interval is greater than or equal to 1 ft bgs but less than 10 ft bgs."*

Please be advised that under RIDEM's Remediation Regulations, the Residential Direct Exposure Criteria and Leachability Criteria apply to soils from the ground surface to the water table. Please add the appropriate language to the SASE.

Response: The Section 6 narrative will be updated to note that the water table is at approximately 10 bgs. Therefore, unsaturated soils are defined as those that are in the 0 to 10 foot bgs interval.

Comment 13: *Page 6-11, Section 6.7, Summary; 1st sentence.*

> *"Table 6-7 presents a summary of the constituents detected during the SASE that exceeded the unadjusted USEPA RSLs, which should be considered the primary comparison criteria."*

Please refer to Comments 4, 7, 8, and 11 mentioned above.

Response: As discussed in response to comment 7, Section 6 will be revised to include a baseline human health risk assessment for the Coddington Cove Rubble Fill Area site.

Comment 14: *Page 6-11, Section 6.7, Summary; 2nd paragraph: As noted in the comments above, there are a number of concerns with the background comparison including not evaluating all soil types and unacceptable high background values. Please remove any and all statements in this SASE that propose to eliminate exceedances of RSL due to the back ground study.*

Response: Per Navy policy, chemicals detected at concentrations at/below background will not be selected as COPCs in the BHHRA. However, for purposes of completeness, the BHHRA will include a table(s) that compare risk estimates for all chemicals exceeding toxicity screening levels (regardless of whether or not they are above/below background) to risk estimates developed for the COPCs only.

Comment 15: *Page 6-11, Section 6.7, Summary; whole section: As noted in the above comments, cumulative and individual contaminants are applicable to the maximum concentrations. In addition, exceedances of maximums represent unacceptable risk at the site. Please revise the summary section in this SASE to reflect these requirements.*

Response: As discussed in response to comment 7, Section 6 will be revised to include a baseline human health risk assessment for the Coddington Cove Rubble Fill Area site.

Comment 16: *Page 6-11, Section 6.7, Summary; 3rd paragraph: This section of the SASE states that the maximum PAHs may pose an unacceptable EPA risk, however the average concentration does not. Be advised that this is not an acceptable risk according to RIDEM's Remediation Regulations. Please provide a table in the response to comments similar to Table 6-7 in this SASE "Summary of Human Health Risk Screening" comparing site exceedances to RIDEM's Direct Exposure Criteria to clarify the findings relative to RIDEM regulatory thresholds (For each carcinogenic substance does not exceed a 1 X 10^{-6} excess lifetime cancer risk level and the cumulative excess lifetime cancer risk posed by the Contaminated-Site does not exceed 1 X 10^{-5}; and for each non-carcinogenic substance does not exceed a Hazard Index of 1 and the cumulative Hazard Index posed by the Contaminated-Site does not exceed 1 for any target organ for each carcinogenic).*

Response: As discussed in response to comment 7, Section 6 will be revised to include a baseline human health risk assessment for the Coddington Cove Rubble Fill Area site.

Comment 17: *Page 7-4, Section 7.3.1, Ecological Effects Evaluation; Tables 7-2 & 7-3: Tables of this nature typically provide the values for all of the screening benchmarks for each contaminant and endpoint and the selected benchmarks, which is the more stringent, are listed. Please provide in the response to comments a table with all of the screening benchmarks and note in the table whether the screening benchmarks in this table represents the lowest overall screening benchmark for each contaminant and endpoint.*

Response: Selected screening values should not necessarily be the lowest screening values that are available. Rather, they should be the most appropriate values that are available, based on criteria such as technical defensibility, robustness of data set used to derive the values, regional preferences, etc. The Navy believes that the selected values are conservative and appropriate for screening the list of contaminants at this site.

Comment 18: *Page 7-4, Section 7.3.1, Ecological Effects Evaluation; Tables 7-2 & 7-3: Please update the text in this section of the SASE and provide in the response to comments whether the cumulative or individual exposure routes were compared to the ORNL study. Please provide in this SASE and in the response to comments a table with the NOAEL and LOAEL from the various studies and provide justification for the particular study employed.*

Response: Tables 7-2 and 7-3 present the screening values for soil and sediment respectively. Section 7.3.2 describes how the food chain modeling was conducted. It is not clear what ORNL study is being referred to in the comment. Appendix E presents the NOAELs and LOAELs that were used in the food chain model.

Comment 19: *Page 7-12, Section 7.4 Tier 2, Step 3A: COPC Refinement; whole section: This section of the SASE proposes to eliminate a number of COPCs due to frequency and/or magnitude. To support the Navy's position and in order for the project team to evaluate overall contaminant distribution at this site, please create and provide in the response to comments a series of figures similar to Figure 4-1 for the various endpoints.*

Response: The Navy does not believe it is necessary to prepare contaminant distribution figures for every chemical discussed in Step 3a, especially if the chemical was only detected in a few samples. However, the Navy will prepare contaminant distribution figures for antimony, copper, iron, manganese, lead, selenium, silver, and zinc to aid in the Step 3a discussion for plants and invertebrates.

Comment 20: *Page 7-14, Section 7.4.1, Terrestrial Plants; 1st paragraph: Since exceedances of screening criteria which were observed at approximately one third of the sampling locations, it would seem prudent to retain these VOCs at this junction of the CERCLA process.*

Response: The text states that the VOCs were only detected in about one-third of the samples, not that they exceeded screening values in one-third of the samples. The text states that the VOCs initially selected as COPCs do not have screening values, but most of the concentrations were less than the screening levels for the other VOCs that did have screening levels. Based on the rationale provided in the text, the Navy does not believe that it is necessary to keep VOCs as COPCs past Step 3a.

Comment 21: *Page 7-14, Section 7.4.1, Terrestrial Plants; 1st paragraph: This section of the SASE notes that certain VOCs which did not have specific screening values were eliminated if they were detected at concentrations below most of the other screening values. Typically what has been done at other sites at NETC, is a comparison to similar VOC compounds and if that is not possible, then the most conservative screening value is employed. Please modify this section and all other sections of the SASE that evaluate the endpoints.*

Response: Please indicate at which other sites at NETC this procedure was used to evaluate impacts to plants from VOCs in soil. Please see the Navy's response to RIDEM Comment No. 20.

Comment 22: *Page 7-14, Section 7.4.1, Terrestrial Plants; 2nd paragraph: This section of the SASE proposes eliminating a number of SVOCs due to a comparison to a 1988 study and/or use of benzo (a) pyrene value as a surrogate. The 1988 study employs an EC_{50} and the benzo (a) pyrene value of 30,000 ppm is significantly higher than the majority of the other PAHs in this same study which have values in the hundreds. It would seem prudent to select a value in line with the majority of the PAHs in this study which would have a value in the hundreds. Please modify this SASE accordingly.*

Response: There are not a lot of toxicity data available to evaluate risks to plants from PAHs so the Navy reviewed and presented the data that were available in the Step 3a refinement. The 30,000 ug/kg value for from Mitchell et al. (1998) was cited in Table 3.1 in the June 2007 EPA Eco SSL document for PAHs. Table 3.1 lists toxicity data from the same study for other plants, but the 30,000 ug/kg EC50 value for anthracene was the lowest value in that table. All of the other values, including one based off a mixture of PAHs were much greater than 30,000 ug/kg. The lowest Canadian Soil Quality Guideline for soil contact was 2,500 ug/kg for anthracene. The soil contact CCME values are based on the lower of

plant or invertebrate toxicity data to protect both receptor groups. The anthracene value was based on toxicity data for invertebrates. The only plant toxicity data for anthracene in the CCME SQG document was the same 30,000 ug/kg EC50 value for anthracene from Mitchell et al. (1998). The CCME values of 100 ug/kg and 600 ug/kg listed in Table 7-2 are provisional values and not based on plant data. Therefore, based on the available toxicity data, and the fact that the site is heavily vegetated, the Navy does not believe that plants are being impacted by the concentrations of PAHs in the soil at the site. Note that a few corrections need to be made to Table 7-2 as follows: 1) the naphthalene value for plants should be 600 ug/kg and the reference changed to CCME; 2) the reference for the phenanthrene plant value should be CCME; 3) the pyrene value for plants should be 100 ug/kg; and, 4) the avian benzo(b)fluoranthene value should be 6200 ug/kg and the reference should be CCME**.**

Comment 23: *Page 7-15, Section 7.4.1, Terrestrial Plants; 1st paragraph: This section of the SASE proposes eliminating iron based upon lack of knowledge of the pH at the site, perceived limited bioavailability, and the fact that while the site did exceed the average background concentration, it did not exceed the one highest value in the background study; therefore, the iron concentrations at the site should be considered indicative of background. Lack of information and presumptions are not sufficient to eliminate a contaminant of concern. In regards to the background study, the site was a known dump which would be consistent with the fact that the iron concentration is higher than background. Please remove the proposal in this SASE to remove iron as a COPC.*

Response: The Navy does not believe that it is necessary to retain iron as a COPC past Step 3a for the following reasons:

1) The Eco SSL document for iron states that "In well aerated soils between pH 5 and 8, the iron demand of plants is higher than the amount available and under these soil conditions, iron is not expected to be toxic to plants." Although pH data are not available, the soil pH is likely to be in this range based on the pH at other sites at Newport (NUSC and Tank Farm 4).
2) The maximum site concentration is less than the maximum background concentration so although the site was a known dump site, it does not appear that significant amounts of iron are present at the site above background.

Comment 24: *Page 7-15, Section 7.4.1, Terrestrial Plants; 2nd paragraph: This SASE notes that all samples except one had manganese concentrations greater than the ecological screening values and as such there is no clear source for the manganese found at the site as well as the vegetation density at the site were used to support removal of manganese as a COPC. The site was a known dump and manganese has been detected above screening criteria throughout the site in surface and subsurface soils please retain manganese as a COPC in this SASE.*

Response: The Navy agrees that the elevated manganese concentrations found at the site may be related to site activities. However, the Navy does not agree that the levels of manganese at the site warrant retaining manganese as a COPC past Step 3a for risks to plants, especially when based on the site photographs and the aerial photographs, the site is heavily vegetated. Navy conducted a habitat walkover on October 6, 2011 with an EPA wetland specialist contractor and RIDEM. The purpose of the walkover was to evaluate the habitat quality and conduct a functional assessment. Navy will submit a memorandum in October summarizing the findings of the walkover. A conference call between Navy and regulators is anticipated to discuss further steps with regard to ecological risk assessment at the site.

Comment 25: *Page 7-15, Section 7.4.1, Terrestrial Plants; 3rd paragraph: This SASE proposes eliminating selenium based upon the fact that it is only found in half of the samples above the soil screening criteria, the site is vegetated and the oxidation state, pH and other factors of the soil matrix which affect bioavailability is not known. Lack of knowledge concerning bioavailability factors, the presence of vegetation and the lack of knowledge concerning the oxidation state of the contaminant is not sufficient to justify removal as a COPC. The site was a known dump and the fact that selenium has been found throughout the site in surface and subsurface soils above screening criteria please retain selenium as a COPC in this SASE.*

Response: With the exception of one true surface soil sample (CRF-SB03), all of the selenium exceedences were in test pit samples collected from the 0 to 10 foot interval. The concentration in the sample from CRF-SB03 was 0.55 mg/kg, which just slightly exceeded the Eco SSL of 0.52 mg/kg. The selenium values from the test pit samples that were collected in 2004 appear somewhat suspect, though, because the selenium concentrations in those samples ranged from 1.2 to 2.8 mg/kg, while the maximum selenium concentrations in the surface and subsurface samples collected in 2010 were 0.55 mg/kg. Also, because the sample depth is listed as 0 to 10 feet, it is not likely that a significant portion of that sample was collected in the surficial interval. Therefore, because of the uncertainty in the results, and for the reasons presented in the report, the Navy does not agree that the levels of selenium at the site warrant retaining selenium as a COPC past Step 3a.

Comment 26: *Page 7-16, Section 7.4.1, Soil Invertebrates; 1st paragraph: Please refer to comment 25 mentioned above in regards to iron.*

Response: The Navy believes that the comment is actually referring to Comment No. 23. Nevertheless, the Navy does not believe that the levels of iron at the site warrant retaining iron as a COPC past Step 3a. The screening level of 200 mg/kg is overly conservative, and is much lower than even the minimum background concentration of 9,300 mg/kg. No other toxicity data are available for iron in soil because it is not a metal that is typically associated with having adverse impacts to invertebrates, especially at concentrations similar to background concentrations. The mean iron concentration at the site, 25,500 mg/kg is only slightly greater than the mean background concentration of 20,000 mg/kg, and is similar to the background concentrations for the eastern United States as presented in Attachment 1-4 of the Eco SSL guidance document.

Comment 27: *Page 7-17, Section 7.4.2, Sediment; 1st paragraph: This section of the SASE proposes eliminating benzaldehyde and carbazole due to their frequency of detection, and the lack of a PAL. Typically if a PAL is not available, surrogates are selected based upon the chemical structure. If this is not possible, the lower screening value is selected. Please perform this analysis and provide in the response to comments.*

Response: Those two chemicals were eliminated as COPCs because their concentrations were relatively low and toxicity data are not available to further evaluate risks from these chemicals. Benzaldehyde and carbazole are commonly detected in samples where PAHs are detected, but the lack of toxicity data specific to plants and soil invertebrates does not allow for further evaluation of risks to ecological receptors from those chemicals. Although it is not clear what lower screening level is being suggested in the comment, the Navy believes that by evaluating risks from the PAHs, which are detected at higher concentrations than benzaldehyde and carbazole, risks should be accounted for benzaldehyde and carbazole.

Comment 28: *Page 7-17, Section 7.4.2, Sediment; 2nd paragraph: The Navy proposes to use the impacts associated with PAHs to be based upon an evaluation of total PAHs. Screening values are available for individual PAHs. Please provide in the response to comments a performance evaluation for the individual PAHs and a cumulative risk screening for all PAHs.*

Response: The Navy agrees that screening levels are available for individual PAHs and they were used to initially select the chemicals as COPCs. However, it is common practice to evaluate risks from total PAHs, especially in the Step 3a refinement, because of the additive effects from PAHs. The Navy is not familiar with the term “performance evaluation” as it relates to ecological risk assessment.

Comment 29: *Page 7-17, Section 7.4.2, Sediment; 2nd paragraph: The report proposes eliminating all PAHs as COPCs due to the fact that while exceedances of TECs were observed, exceedances of PECs were not. PECs are not PRGs for the site. PRGs for contaminants can be below TECs, in between TECs and PECs or above PECs. Please remove the statement that PAHs will be removed from the COPCs list as exceedances of PECs were not observed and retain PAHs as COPCs for the site.*

Response: The Navy never suggested that the PECs are PRGs at the site. The Navy used the PECs as a line of evidence to determine whether chemicals need to be further evaluated in a BERA. The greatest PAH concentrations were in the samples collected from the wetland (CCRF-SS-03, CCRF-SS-04, and CRF-SD03). These samples are in hydric soils, where standing water was not present. In fact, the sample from CRF-SD03 was collected from 6 to 12 inches because no sediment was available in the top 6 inches, which is typically the biotic zone for sediment invertebrates. Therefore, there is uncertainty in whether the receptors are more likely to be terrestrial invertebrates versus sediment invertebrates. The Eco SSL PAHs for soil invertebrates is 18,000 mg/kg and 29,000 mg/kg, depending on the PAHs. All concentrations of the individual PAHs are much lower than these values. The only total PAH concentrations in an actual stream sample that exceeds the TEC were concentrations of 1,930 ug/kg at CRF-SD04 and 3,970 ug/kg at CRF-SD05. Because these concentrations are much lower than the PEC, the Navy does not believe that PAHs need to be retained for further evaluation in a BERA because it is not likely that a toxicity gradient would be developed, even if toxicity test were conducted.

Comment 30: *Page 7-17, Section 7.4.2, Sediment; 3rd paragraph: Please refer to Comment 29 mentioned above and apply it to pesticides.*

Response: Please see Navy's response to Comment 29. Also, as noted in the text, the low concentrations of the pesticides are indicative of typical pesticide applications, not a release from the site.

Comment 31: *Page 7-18, Section 7.4.2, Sediment; last 2 paragraphs: It is noted that a number of metals exceeded TECs while others exceeded both TECs and PECs. Despite the exceedances of PECs, the report proposes eliminating all of the metals as the majority of the wetlands samples were collected in the vegetated portion of the wetlands at a time when water was not present in these sections. The sediment ecological PALs apply to all of the wetlands samples independent of the status of the water present at the time of sampling. Therefore, please retain all of the cited metals in the report.*

Response: Although the Navy acknowledges that several of the metals were detected at concentrations that exceed their respective screening values, the TEC, and a few concentrations exceeded their respective PEC, or other higher effects screening level. However, because the habitat basically consists of a heavily vegetated low quality wetland, with little aquatic habitat, the Navy does not believe that the levels found in the sediment warrant proceeding to a BERA for the site. Navy conducted a habitat walkover on October 6, 2011 with an EPA wetland specialist contractor and RIDEM. The purpose of the walkover was to evaluate the habitat quality and conduct a functional assessment. Navy will submit a memorandum in October summarizing the findings of the walkover. A conference call between Navy and regulators is anticipated to discuss further steps with regard to ecological risk assessment at the site.

Comment 32: *Page 7-19, Section 7.4.2, Surface Water; 1st paragraph: This section of the SASE notes that the EPA screening value for the DDT pesticides is a residual value and is not a value protective of aquatic organisms. Please elaborate in more detail why this ORNL Secondary Chronic Value is used over the Screening Value and provide the page of the cited reference which supports the Navy's position in the response to comments.*

Response: The Ambient Water Quality Criteria Document for DDT (USEPA, October 1980) describes in detail the methods used to derive the WQC for DDT. The document can be found at http://water.epa.gov/scitech/swguidance/standards/upload/2001_10_12_criteria_ambientwqc_ddt80.pdf. Page B-4 of the document indicates that the acute value of 1.1 ug/L is based on acute toxicity data for aquatic organisms. The document further indicates on page B-6 that because the available data do not meet the minimum data base requirement set forth in the Guidelines, no Final Chronic Values can be determined for DDT. Finally, page B-10 of the document indicates that the chronic value of 0.001 ug/L is based on a residue value for wildlife protection. Page 29 of the ORNL Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota: 1996 Revision also discusses this.

Comment 33: *Page 7-19, Section 7.4.2, Surface Water; 3rd paragraph: This section of the SASE states that the final chronic values for PAHs should be used in lieu of the screening value. Please elaborate in*

more detail and provide the page of the cited reference which supports the Navy's position in the response to comments.

Response: The derivation of the final chronic values is presented in the USEPA, November 2003 document "Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: PAH Mixtures." Page 3-15 of that document describes the calculation of the FCV but it is designed to protect 95% of the tested species. There is no document that specifically indicates that these values should be used over the screening values presented in the BERA. However, they were used in the Step 3a refinement because they are the most recent USEPA values and are more current than the screening values.

Comment 34: *Pages 7-19/7-20, Section 7.4.2, Surface Water; 4th-6th paragraphs: This section of the SASE proposes eliminating aluminum, barium and iron as their concentrations in soil and sediments were similar to background values. A background study has not been conducted for sediments, and surface soil background would entail the evaluation of various soil types. Further, if SD-07, which is adjacent to the site, was considered upgradient, an evaluation of the data shows significantly higher concentrations of certain metals such as aluminum and iron in other samples collected at the site compared to SD-07. Please remove these statements from the report.*

This section of the SASE also states that the filtered samples are considered more representative of what is bioavailable and therefore the comparison should be to the filtered samples. Please be advised that while the criteria for certain metals are based upon filtered samples, the criteria for aluminum, barium and iron is based upon totals (non-filtered). Please remove this statement from the report and simply note that surface water samples exceed criteria for these metals.

Response: The discussion of the background concentrations in soil and sediment was really a secondary line of evidence to support the fact that those metals did not need to be retained as COPCs. The primary line of evidence for aluminum and iron was the fact that their dissolved concentrations were less than criteria (see discussion below). Regarding barium, there is a lot of uncertainty in the screening level of 4 ug/L because it is based on data from one study. Therefore, the background discussion was given more weight. Based on the relatively similar concentrations of dissolved barium in the surface water samples, especially if it is assumed that SW-07 is upstream, it does not appear that barium is site-related.

The Navy agrees that the specific criteria for aluminum, barium, and iron are based on total results. However, in the USEPA, October 1993 document, "Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria", it is stated that "It is now the policy of the Office of Water that the use of dissolved metal to set and measure compliance with water quality standards is the recommended approach, because dissolved metal more closely approximates the bioavailable fraction of metal in the water column than does total recoverable metal. This conclusion regarding metals bioavailability is supported by a majority of the scientific community within and outside the Agency. One reason is that a primary mechanism for water column toxicity is adsorption at the gill surface which requires metals to be in the dissolved form." Therefore, the Navy believes that it is appropriate to use the dissolved concentrations of aluminum, barium, and iron to better evaluate risks to aquatic receptors. Also, even though the criteria for aluminum, barium, and iron, are based on total concentrations, the toxicity tests used to develop the criteria would have used dissolved concentrations.

Comment 35: *Page 7-20, Section 7.4.2, Surface Water; 3rd paragraph: This section of the SASE notes that while the total sample results for lead exceed criteria, the filtered samples do not. The report proposes eliminating lead as a COPC. The lead criteria require the concurrent measurement of hardness in the comparison to surface water criteria. Without hardness information, it is not possible to state whether the filtered value did or did not exceed criteria. Please remove the proposal to eliminate lead and simply note that the lead will be retained as it is not known whether it exceeds criteria.*

Response: Hardness can be calculated from the calcium and magnesium concentrations. Using the calcium (39 mg/L) and magnesium (10 mg/L) concentrations from sample CFR0SW04 (the sample with

the only detection of lead in the dissolved fraction), the hardness is about 139 mg/L, which is greater than the 100 mg/L used to calculate the screening level. The WQC for lead at this location would be about 3.6 ug/L (which is greater than the screening value which is based on a hardness of 100 mg/L), so the detected concentration of 0.23 ug/L is below that value. Therefore, lead is eliminated as a COPC. A discussion of this will be added to the text.

Comment 36: *Page 8-4, Section 8.3, Possibility of Risk from Contaminants; 1st paragraph: Please submit the table requested in Comment 16 mentioned above comparing site exceedances to RIDEM direct exposure criteria. Exceedances of RIDEM criteria will show an unacceptable risk associated with the site. Please revise this section accordingly.*

Response: As discussed in response to comment 7, Section 6 will be revised to include a baseline human health risk assessment for the Coddington Cove Rubble Fill Area site. Section 8 will be revised in the draft final SASE report to reflect the findings of the BHHRA**.**

Comment 37: *Page 8-4, Section 8.3, Possibility of Risk from Contaminants; 1st paragraph: Due to the risk associated with the exceedances of organics and when compared to RIDEM criteria, and observed exceedances of risk ranges, RIDEM does not concur with eliminating these contaminants as COPCs. Please retain these COPCs in this SASE.*

Response: As discussed in response to comment 7, Section 6 will be revised to include a baseline human health risk assessment for the Coddington Cove Rubble Fill Area site. Section 8 will be revised in the draft final SASE report to reflect the findings of the BHHRA**.**

Comment 38: *Page 8-4, Section 8.3, Possibility of Risk from Contaminants; 3rd paragraph: Due to exceedances of benchmarks and RIDEM criteria observed in soils, sediments, and surface water samples taken at the site for various metals and organics sited in the comments above, RIDEM does not concur with the elimination of these contaminants as COPCs. Please retain these COPCs in this SASE.*

Response: As discussed in response to comment 7, Section 6 will be revised to include a baseline human health risk assessment for the Coddington Cove Rubble Fill Area site. Section 8 will be revised in the draft final SASE report to reflect the findings of the BHHRA**.**

Comment 39: *Page 8-5, Section 8.5, Conclusions and Recommendations; whole section: Based upon the exceedances of benchmarks, USEPA screening criteria, and RIDEM criteria, RIDEM does not concur with the recommendation for No Further Action. Please eliminate this recommendation proposed in this SASE and proceed to the next step in the CERCLA process.*

Response: As discussed in response to comment 7, Section 6 will be revised to include a baseline human health risk assessment for the Coddington Cove Rubble Fill Area site. Section 8 will be revised in the draft final SASE report to reflect the findings of the BHHRA**.**

NAVY RESPONSES TO
U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
ADDITIONAL COMMENTS DATED JULY 13, 2011
DRAFT STUDY AREA SCREENING EVALUATION
SITE 04 - CODDINGTON COVE RUBBLE FILL AREA
NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND
APRIL 2011

Navy responses to the U.S. Environmental Protection Agency (EPA) additional comments on the Draft, Study Area Screening Evaluation (SASE), Coddington Cove Rubble Fill (CCRF) Area (April 2010) are presented below. The EPA comments are presented first (in italics) followed by Navy's responses.

GENERAL COMMENTS

General Comment 1:

Throughout the report, the Navy offers reasoning to dismiss contaminant data that exceeds the screening levels (e.g., background conditions, conservativeness of screening levels, land use, frequency/magnitude of exceedances, off-site sources). However, the purpose of the Study Area Screening Evaluation (SASE) is to eliminate from further consideration those sites that pose no significant threat or potential threat to human health and the environment and are available for unrestricted use. The SASE Report attempts to support a no further action decision by making risk management arguments that should rather be supported through a Baseline Risk Assessment under a Remedial Investigation. Contaminants clearly exceed screening levels and do represent a potential risk to receptors.

Response: The risk assessment approach taken in the Coddington Cove Rubble Fill Area SASE report was discussed at the July 20, 2011 Newport RPM meeting. The merits of taking Navy's qualitative approach versus EPA's quantitative approach were discussed. EPA stated that they could not make a decision on further action at the site using Navy's approach to the human health risk assessment section. Navy and EPA agreed to conduct a baseline human health risk assessment for the Coddington Cove Rubble Fill Area site. The BHHRA will be incorporated into the Draft Final SASE report and will guide Navy and regulators in future risk management decisions.

General Comment 2:

Throughout the report, the Navy indicates that the levels of metals in site soils and sediments are consistent with NAVSTA Newport background soil conditions and suggests that, based on this background analysis, these constituents do not need to be retained as COPCs. EPA disagrees with this approach. Background conditions cannot be used to eliminate COPCs. EPA's background guidance, "Role of Background in the CERCLA Cleanup Program," (April 26, 2002) indicates that background concentrations of contaminants found at the site "should be considered in the risk assessment and risk management." The guidance states:

- *"EPA cautioned that eliminating COPCs based on background (either because concentrations are below background levels or attributable to background sources) could result in the loss of important risk information for those potentially exposed, even though cleanup may or may not eliminate a source of risks caused by background levels."*
- *"Specifically, the COPCs with high background concentrations should be discussed in the risk characterization, and if data are available, the contribution of background to site concentrations should be distinguished."*
- *"When concentrations of naturally occurring elements at a site exceed risk-based screening levels, that information should be discussed qualitatively in the risk characterization."*

The SASE Report must be revised to be consistent with EPA guidance on the role of background in the CERCLA program.

In addition, the report text and Appendix G indicates that, for the purposes of the background comparison, "it was assumed that before fill was placed at the site most of the soil was also Stissing Silt Loam." Provide additional support for this assumption. Since much of the site is urban fill, a comparison of site data to undisturbed background soil conditions at the base does not seem appropriate.

Response: Per Navy policy, chemicals detected at concentrations at/below background will not be selected as chemicals of potential concern (COPCs) in the baseline human health risk assessment (BHHRA). However, for purposes of completeness, the BHHRA will include a table(s) that compare risk estimates for all chemicals exceeding toxicity screening levels (regardless of whether or not they are above/below background) to risk estimates developed for the COPCs only.

During the development on the Basewide Background Study soil samples were collected from locations within the NAVSTA Newport that were thought to contain native soils. There were no samples collected of fill material during the Basewide Background Study. The RI GIS database indicates that the only native soils present on the site are Se (Stissing Silt Loam). In addition, Pm (Pittstown Silt Loam) is present in the vicinity of the site. In order to compare site conditions to background conditions a type(s) of native soil needed to be chosen. The Navy chose Stissing Silt Loam because it is currently found onsite and Pittstown Silt Loam because of its proximity to the site. The comparison of site conditions to background conditions was simply made to indicate to the reader that although fill was placed at the site, concentrations of some metals that were found to be greater than criteria are still below natural conditions encountered on the Base.

SPECIFIC COMMENTS

Comment 1: *Page 2-9, Section 2.3.2: The report indicates that "no monitoring wells achieved the optimum stabilization criteria" for turbidity during well development and "final turbidity levels did not go below 130 NTUs." The report goes on to provide turbidity data for the wells, showing that turbidity was elevated throughout well development. Explain how this turbidity issue may have impacted the groundwater analytical results.*

Response: The elevated turbidity levels during development did not impact the groundwater analytical results. As required by the SAP groundwater samples were collected no sooner than one week after development. Turbidity results in all but one groundwater sample were below 20 NTUs, and three of those were below 10 NTUs. Elevated turbidity levels are known to increase metals concentrations. For this reason one sample aliquot of groundwater from each well was analyzed for total metals, and a second sample aliquot was filtered in the field using a 45µm filter, and analyzed for dissolved metals. Results between the dissolved and total metals results were very similar (see Table 4-4).

Comment 2: *Page 4-9, Section 4.2.2, Metals: The text indicates that manganese did not exceed the RSLs. However, the table on page 4-8 shows that manganese did exceed the RSL in 1 sample. Correct, as appropriate, throughout the report.*

Response: The second paragraph of page 4-9 will be corrected to say "Beryllium, lead, and manganese were each detected in subsurface soil samples at levels greater than their DEC criteria. Beryllium and lead did not exceed their RSLs, while manganese exceeded its RSL of 1800 mg/kg by only 200 mg/kg."

Comment 3: *Page 5-8 – 5-9, Section 5.2.2, PAHs; Page 5-13, Section 5.3; and Page 8-5, Section 8.5: The text indicates that "PAHs in surface water are expected to be present as a result of roadway runoff carried through this wetland." Page 8-5 states, "contaminants in surface water and sediment are more likely to be a result of the location of the wetland and the source of the receiving waters as road runoff and storm drainage from the urban surroundings." On page 5-9, the text discusses the breakdown of asphalt at the likely source of PAHs at the site, stating that "large pieces of asphalt and concrete were observed in the fill layers during test pitting." The report also notes that "ash…might have been disposed*

of here and could be contributing to PAH levels." Therefore, PAHs in soils, sediment and surface water are likely attributable to the sources at the site.

Response: As is stated in Section 5.2.2 PAHs typically remain in soil even after they break down, and are only moved by mechanical transport. So while it is likely that PAH concentrations in soil can be attributed to the fill that was placed onsite, it is unlikely that this contamination migrated to sediment and surface water from these sources. The field team described the onsite stream as, in very poor condition. It was reportedly overgrown and large amounts of trash and debris (empty bottles, food wrappers etc.) were observed in the stream and along the immediate banks. It is likely that contamination found within the sediment and surface water at the site is associated with offsite urban runoff. Section 5 of the report was designed to discuss onsite potential contaminant sources and their fate and transport within the environment, the purpose is not to discuss potential sources of offsite contamination. Section 8.5 is simply concluding that the low amount of chemical contamination present in the site surface water and sediment is likely not site related, this is a valid conclusion based on concentrations of contaminants and proximity of the wetland/stream to developed urban areas.

Comment 4: *Page 5-12, Section 5.2.5: The text states, "The distribution of metals in site media suggests that their presence is largely not site related." EPA disagrees with this overarching conclusion. See General Comment 2 above regarding comparison of site date to background. In addition, maximum levels of chromium, lead and manganese in site soils and lead and vanadium in sediment are not consistent with background data sets. Further, this site was utilized as a disposal area and much of the soil sampled is not native soils, but rather urban fill material. Since a wide variety of metals-containing materials were likely disposed at the site, Navy cannot conclude that the presence of metals contamination is not site related.*

Response: The first full paragraph of Page 5-12 will be amended to state that metals contamination is very low onsite and that many metals that were detected at levels greater than criteria are actually below levels that are found in native soils that surround the site.

Comment 5: *Page 5-12, Section 5.2.5: The text states "only arsenic, iron and chromium were detected above screening criteria in surface soil." Iron is not reported in Section 4 as above screening criteria. However, lead exceeded the screening criteria in surface soils and should be discussed here.*

Response: Paragraph will be updated to state that aluminum, arsenic, chromium, cobalt, iron, lead, and manganese were detected above screening levels in surface soils.

Comment 6: *Page 6-4, Section 6.1.1: Chromium was also detected in surface soils at concentrations exceeding the RSLs. Add discussion of chromium results to this section.*

Response: Navy disagrees with this comment. As summarized in Table 6-1, the maximum detected chromium concentration (31.4 mg/kg) does not exceed either unadjusted or adjusted RSLs presented on the table for chromium (assuming chromium is present as trivalent chromium). Please also see discussion on page 4-5 (which does show a comparison of detected concentrations to screening levels for hexavalent chromium and also compares detected concentrations to background soil concentrations). Please note that there is no site-specific information indicating the hexavalent chromium should be present at this site. Please also be aware that the objective of the Section 4 text was to describe the analytical results for the 2010 field investigation. In contrast, the data evaluation presented in Section 6 considers both the 2004 and 2010 datasets, and did consider that chromium was most likely and most predominantly present in the environmental media as trivalent chromium.

Comment 7*: Page 6-5, Section 6.1.1: It is EPA policy to screen maximum detected concentrations against risk-based screening levels (RSLs) based on a target risk level of 1E-6 to screen for contaminants of potential concern (COPCs). The risks from those contaminants with maximum concentrations exceeding the RSLs would then need to be further quantitatively evaluated using site-specific exposure assumptions and default values if necessary, following standard risk assessment procedures. With respect to the discussion in the report on PAH risks, EPA does not accept a qualitative assessment as*

described in this section for benzo(a)pyrene, i.e., describing that the 95%UCL at 1,150 ug/kg is below the 10-4 risk level at 1,500 ug/kg, to assess and possibly screen out the contaminant. This qualitative assessment might show that the 95%UCL, which could be used for the risk assessment, would possibly result in an acceptable risk level below 10-4. However, it does not address the concern that when evaluating all the other contaminants, the cumulative risk could be unacceptable and it does not take into consideration site-specific exposure conditions. The main purpose of going through the proper risk assessment procedure is to ensure that site-specific conditions are evaluated and to present cumulative risks from all contaminants at the site. Risk management would then be used to determine whether the risks calculated for the site would trigger remedial action.

Response: See response to general comment 1. This section will be revised to include a BHHRA per discussion at the July 20, 2011 Newport RPM meeting.

Comment 8: *Page 6-6, Section 6.2.1: The text states that arsenic, beryllium, lead, and manganese were detected in subsurface soils at concentrations exceeding RSL or RIDEM DC criteria. However, Section 4, table on page 4-8, shows that chromium and iron also exceeded the screening criteria for subsurface soils.*

Response: Navy disagrees with this comment. The risk evaluation presented in Section 6 considered three different depth intervals: 1) surface soil (0 to 1 foot bgs), shallow subsurface (> 1 foot to 10 feet bgs), and saturated zone soils (> 10 feet bgs). In contrast, the data presentation in Section 4 was intended to provide a summary of the analytical results for the 2010 field investigation and, thus, simply presented surface (the 0 to 1 foot bgs interval) and all subsurface soils (> 1 foot bgs). The discussion presented in Section 6.2.1 considers data for *shallow* subsurface soils. The referenced iron exceedances of the unadjusted RSL are reported for the *deeper saturated* zone soils (See Section 6.3). Please also see Navy response to EPA Specific Comment No. 6 regarding chromium.

Comment 9: *Appendix G, Section 3.1: The text indicates that "Metals concentrations in Wetland Soil/Sediment were compared to SE surface soil background concentrations." EPA does not agree that background soil data can be compared with site sediment data for evaluation of background conditions.*

Response: Per Navy policy, chemicals detected at concentrations at/below background will not be selected as COPCs in the BHHRA. However, for purposes of completeness, the BHHRA will include a table(s) that compare risk estimates for all chemicals exceeding toxicity screening levels (regardless of whether or not they are above/below background) to risk estimates developed for the COPCs only.