

N00174.AR.001016  
NSWC INDIAN HEAD  
5090.3a

REVISED RESPONSE TO COMMENTS ON DRAFT REMEDIAL INVESTIGATION REPORT  
SITE 28 NSWC INDIAN HEAD MD  
6/10/2004  
CH2MHILL

## Revised Site 28 Draft Remedial Investigation Report Response to Comments

TO: Jeff Morris/EFACHES  
Shawn Jorgensen/NDWIH

COPIES: Joe Rail/EFACHES  
Anne Estabrook/CH2M HILL  
Margaret Kasim/CH2M HILL

FROM: Adrian Hanley/CH2M HILL

DATE: June 10, 2004

Below are the comments that were submitted from the Navy, and additional comments received from Shawn Jorgensen on Monday June 7. CH2M HILL's responses are in the cells below the comment written in italics.

### Comments from Heidi Morgan at NDWIH

Comment 1:	Page IV: Second paragraph, first sentence – please change “exposed so” to “exposed to”.
<i>Response:</i>	<i>The sentence will be changed to read “The human health risk assessment determined that unacceptable risk was present for future adults, children, lifetime residents, and construction workers exposed to soil and groundwater.”</i>
Comment 2:	Page 1-1: Section 1.1, last paragraph, last sentence, “the data” or “these data”?
<i>Response:</i>	<i>The sentence will be changed to read “These in situ groundwater (direct-push) data were presented at the July Indian Head Installation Restoration Team meeting.”</i>
Comment 3:	Page 1-3: First complete paragraph – please explain that the Mattawoman Creek, Potomac River and the Chicamuxen Creek bound Stump Neck.
<i>Response:</i>	<i>The sentence will be changed to read “The Stump Neck Annex comprises approximately 1,000 acres and is bounded by the Mattawoman Creek, the Potomac River, and the Chicamuxen Creek.”</i>
Comment 4:	Page 1-4: Section 1.4, - the IAS Report was final in 1983

<i>Response:</i>	<i>The sentence will be changed to read "In 1983, Naval Energy and Environment Support Activity (NEESA) conducted an Initial Assessment Study (IAS) to evaluate sites at the NDWIH and to determine if a potential threat to human health or the environment existed."</i>
Comment 5:	Page 1-5: Please reference the Mattawoman Creek Study.
<i>Response:</i>	<i>The Mattawoman Creek Study has been referenced, as suggested, in the reference subsection of Section 1 and it is cited after the sentence that mentions it on page 1-5. The sentence now reads "TetraTech NUS's study of Mattawoman Creek included use of the Rapid Sediment Screening technology developed by Space and Naval Warfare Systems Command (SPAWARS) (TTNUS, 2004)."</i>
Comment 6:	Page 1-6: The reference needs more detail.
<i>Response:</i>	<i>The reference has been changed to read: "Public Works of the Navy, "Potable Well Inventory and Well Number Changes." Record dated some time between 1932 and 1966."</i>
Comment 7:	Page 2-1: Section 2.1.2, do you mean (Figure 2-1) not (Figure 1-2)?
<i>Response:</i>	<i>The reference to Figure 1-2 in Section 2.1.2 is correct. No change will be made.</i>
Comment 8:	Page 2-2: Section 2.4.1, first sentence – is it necessary to include "and its IR site" in the first sentence of this section?
<i>Response:</i>	<i>The text "and its IR site" will be deleted from the first sentence in this section. The sentence will be revised to read "The facility is in the Atlantic Coastal Plain physiographic province."</i>
Comment 9:	Page 2-2: Same section, last paragraph on page – I don't believe the Site Inspection included Site 28. This reference is not listed as a previous investigation in Section 1.
<i>Response:</i>	<i>The site inspection is for NDWIH, not Site 28. The adjacent section (Section 2.4.2) addresses Site 28.</i>
Comment 10:	Page 2-3: Section 2.4.2, first paragraph – why was the geologic information obtained from only 5 monitoring well soil boring locations and not 7?
<i>Response:</i>	<i>One of the locations was only for a Shelby tube sample and the other was abandoned as it was only one foot deep. Thus, only five of the seven locations were used for lithologic description. To clarify this point, the following sentences will be added "Seven soil borings were advanced; however, only five monitoring wells were constructed. One soil boring was abandoned after drilling to a depth of one foot because groundwater was encountered at one foot bgs. The other soil boring was used for collection of a Shelby tube sample for hydraulic conductivity testing and not for lithologic description."</i>

<p>Comment 11</p>	<p>Page 2-4: First paragraph – well 16a is currently used for drinking water.</p>
<p><i>Response:</i></p>	<p><i>The sentence “This well currently is not used for drinking water; however, as part of Military Construction (MILCON) Project P 160, due to begin in 2004, it will be.” will be changed to read “This well is currently used for drinking water.”</i></p>
<p>Comment 12:</p>	<p>Page 2-5: Fourth paragraph – the pressurized hydrant system draws it’s water from the Potomac River.</p>
<p><i>Response:</i></p>	<p><i>This sentence will be changed to read “Possible anthropogenic sources of the Swale 4 water included losses from lines associated with Well 14 or leakage from a pressurized hydrant system that draws its water from the Potomac River.”.</i></p>
<p>Comment 13:</p>	<p>Figure 2-2: Are samples IS28MW16, IS28MW23, IS28MW42 supposed to be MM not MW?</p>
<p><i>Response:</i></p>	<p><i>Samples IS28MW16, IS28MW23, and IS28MW42 should be IS28MM16, IS28MM23, and IS28MM42. Therefore, the nomenclature for these samples will be changed from “MW” to “MM” on Figure 2-2.</i></p>
<p>Comment 14:</p>	<p>Figure 2-3: Same comment as Figure 2-2.</p>
<p><i>Response:</i></p>	<p><i>Please see the response from Figure 2-2. The text will now refer to the station IDs to maintain consistency.</i></p>
<p>Comment 15:</p>	<p>Page 3-1: Section 3.1, second paragraph, last sentence – this sentence does not seem correct to me.</p>
<p><i>Response:</i></p>	<p><i>The back pack mounted GPS units that “point and shoot” a location generally are only accurate to a few feet. The sentence will be changed to read “All other sample locations were determined using a “backpack” style GPS locator, which usually is accurate to several feet.”</i></p>
<p>Comment 16:</p>	<p>Page 3-1: Section 3.2.1, first sentence, “Zone A comprises <u>of</u> the”.</p>
<p><i>Response:</i></p>	<p><i>To avoid confusion, the sentence will be changed to read “Zone A comprises the area between the north and south fence lines, the area outside of the fence line to the north, and shoreline to the east, as shown on Figure 1-3.”</i></p>
<p>Comment 17:</p>	<p>Page 3-3: Table – was the sample ID changed to GW just for the use in this table?</p>
<p><i>Response:</i> <i>Section/Tables changed?</i></p>	<p><i>The letters ‘GW’ are used for sample IDs and the letters ‘MM’ are used for site IDs. In this table, all of the GWs will be changed to MMs, since these tables are referring to locations and not samples. Please also note that in the table on the previous page (Page 3-2), similar changes will occur. The SSs will be changed either to MMs or SOs.</i></p>
<p>Comment 18:</p>	<p>Page 3-4: First paragraph – where are the GW11 and GW20 samples referred to in this section located on Figure 2-1?</p>

<i>Response:</i>	<i>GW is used for sample IDs and MM is used for site IDs. This is explained between the parenthesis directly above the table on the preceding page (Page 3-3). The stations IS28MM11 and IS28MM20 can both be found on Figure 2-1. The sentence will be changed to read "The in-situ groundwater samples taken from stations IS28MM11, IS28MM20, IS28MM23, IS28MM27, and IS28MM28 were collected using a slide hammer to reach the desired depth and a 1-in. schedule 80 polyvinyl chloride (PVC) screen placed in the borehole." for consistency.</i>
<b>Comment 19:</b>	Page 3-5: First paragraph – Site 28 was reported as the "Original Burning Ground" not Burning Ground.
<i>Response:</i>	<i>The sentence will be changed to read "Zone B is reported as the "Original Burning Ground" in the IAS and as the "Shoreline Burning Cage" by Dolph (2001)."</i>
<b>Comment 20:</b>	Table 3-3: Well 3 has a very high turbidity value.
<i>Response:</i>	<i>Monitoring Well 3 had very slow recharge rates, as noted in the footnote of the table. Since the turbidity value was taken before the pump had to be removed it is probably a higher turbidity value than the groundwater that is typically in the well.</i>
<b>Comment 21:</b>	Page 4-4: Section 4.3.2 Explosives – I have a map that shows a burning cage located south of where the old zinc recovery furnace was located.
<i>Response:</i>	<i>SO32 and SO37 were inland of the burning cage. There is a possible connection. The sentence will be changed to read "Only two sample locations (IS28SO32 and IS28SO37), which are inland of a burning cage located south of the zinc recovery furnace, contained any explosive detects in Zone B."</i>
<b>Comment 22:</b>	Page 4-4: Section 4.3.3 Metal, first paragraph, last sentence – Please correct the end of this sentence. It was mentioned earlier in this section that Background data are presented in Appendix E.
<i>Response:</i>	<i>The Appendix E reference will be removed.</i>
<b>Comment 23:</b>	Page 4-5: Second paragraph – is Camden a new metal (just discovered)? I think it should be cadmium.
<i>Response:</i>	<i>This is a typo- it will be changed to Cadmium.</i>
<b>Comment 24:</b>	Page 4-5: The last sentence of this paragraph (second paragraph) is difficult to follow.
<i>Response:</i>	<i>The sentence will be reworded to read: "Most of the sample locations in Zone B did not contain detectable concentrations of cadmium."</i>
<b>Comment 25:</b>	Page 4-5: Sixth paragraph, fifth sentence – do you mean nickel not mercury?

<i>Response:</i>	<i>The text will be changed to read nickel, not mercury.</i>
<i>Comment 26:</i>	Page 4-7: Section 4.5.1, second paragraph, last sentence – this sentence is hard to follow.
<i>Response:</i>	<i>The sentence will be reworded to read: "Six Mattawoman Creek sediment samples were analyzed for SVOCs. Five samples contained concentrations ranging from 28 to 160 ug/kg."</i>
<i>Comment 27:</i>	Page 6-2: Section 6.3.1, first paragraph, - I think the tense of the word data is incorrectly used in this paragraph.
<i>Response:</i>	<i>The sentence will be changed to read: " Only analytical results that were fully validated were used in the human health risk assessment."</i>
<i>Comment 28:</i>	Page 6.6.2.6, third paragraph – is EPC exposure point concentration? Please list in Abbreviations and Acronyms section if it is.
<i>Response:</i>	<i>EPC is an abbreviation for exposure point concentration, and will be added to the list of acronyms.</i>
<i>Comment 29:</i>	Page 8-1: Section 8.1, second paragraph, first sentence – "construction workers exposed to not so soil".
<i>Response:</i>	<i>The sentence will be changed to read "The human health risk assessment determined that unacceptable risk was present for future adults, children, lifetime residents, and construction workers exposed to soil and groundwater."</i>

not done  
start

**Comments from Jeff Morris Navy RPM EFACHES**

<i>Comment 1:</i>	Page III: Site Background – Delete the last 3 sentences of the 1 <sup>st</sup> paragraph. This level of detail is unnecessary for an Executive Summary.
<i>Response:</i>	<i>These sentences will be removed from the paragraph.</i>
<i>Comment 2:</i>	Page III: Conclusions and Recommendations – The number of samples was most probably inadequate to determine "trends" – the wrong term for use here. Trend means change over time whereas here the intent is apparently to describe the extent of contaminants at the site. The reference to Section 6 seems inappropriate and should probably be to Section 4, Nature and Extent of Contamination. If the intention is to describe the risk at the site, then Sections 6 and 7 would be appropriate references, but the previous wording would require change to refer to risk.
<i>Response:</i>	<i>This sentence will be reworded to read: "The number of samples taken was adequate to determine the extent of contamination at the site, discussed in Section 4."</i>

Comment 3:	Page IV: 2 <sup>nd</sup> paragraph – Change “so soil” to “to soil”.
Response:	<i>The sentence will be changed to read “The human health risk assessment determined that unacceptable risk was present for future adults, children, lifetime residents, and construction workers exposed to soil and groundwater.”.</i>
Comment 4:	Page IV: 3 <sup>rd</sup> paragraph – Include sediment along with soil as the media of concern. The last sentence should be omitted, as it is not appropriate for the executive summary.
Response:	<i>The sentence will be changed to read “The recommendation for Site 28 is to proceed to the feasibility study stage.” The last sentence will be omitted.</i>
Comment 5:	Page 2-4: Site 28 Hydrogeology, 3 <sup>rd</sup> paragraph – Rather than use the term “time constraints” it might be better to clarify and emphasize the very low permeability result. This way it doesn’t sound as if pressure to meet a deadline instead of the low permeability was the reason for not fully conforming with the ASTM.
Response:	<i>The sentence will be reworded to read “The conductivity test method used, ASTM D5084, typically requires four consecutive tests on a sample. The extremely low conductivity of sample ISMM07-0605 would have required an unreasonably long period of time for four tests. Consequently the hydraulic analysis of this sample terminated after one conductivity test.”</i>
Comment 6:	Page 3-1: Section 3.2.1 – The former burning cage was located in Zone B.
Response:	<i>There are two burning cages. The former burning cage was a used to burn scrap such as wooden crates, it was just south of observation well number 14. The shoreline burning cage (as in the original burning ground) is in Zone B. This is somewhat confusing. To avoid confusion, two sentences will be reworded to read “The former zinc recovery furnace and the former burning cage are in Zone A (Figure 2-1). The former burning cage, used to burn scraps such as wooden crates, was just south of observation well number 14.”.</i>
Comment 7:	Page 4-1: Section 4.1, 4 <sup>th</sup> paragraph – Aren’t the Background Soil Investigation Report and BIR different documents?
Response:	<i>Upon researching this issue, there was originally a “Background Investigation Report” that included groundwater. This was published in 1997. This is where the confusion originated. The “Background Soil Investigation Report” was prepared by TTNUS, October 2002. This acronym will be changed to BSIR. A “BSIR” in parenthesis will be added after the Background Soil Investigation Report the first time it appears in the text to avoid confusion.</i>
Comment 8:	Page 4-7: 2 <sup>nd</sup> paragraph – It appears that “highest” is missing from the 4 <sup>th</sup> sentence (i.e. The highest subsurface sample...)

Response:	<i>The sentence will be changed to read "The highest subsurface sample concentration was actually seen in the background upgradient sample IS28SB34-0103."</i>
Comment 9:	Page 4-7: Section 4.5.1, 2 <sup>nd</sup> paragraph – The 2 <sup>nd</sup> sentence says that Swale 4 daylights when it should be the groundwater that daylights in to Swale 4.
Response:	<i>The sentence will be changed to read "The sample collected from the groundwater that daylights into Swale 4 and the sample from the confluence of Swales 1, 2, and 3 contain several low-level concentrations of 1,2-dichloroethene, acetone, methyl-tert-butyl ether, and cis-1,2-dichloroethene."</i>
Comment 10:	Page 4-7: Same paragraph – The last sentence needs to be reworded.
Response:	<i>The paragraph has been reworded for clarity.</i>
Comment 11:	Page 4-8: 1 <sup>st</sup> paragraph – Change "SVOCs where" to "SVOCs were"
Response:	<i>The paragraph has been reworded for clarity.</i>
Comment 12:	Page 4-8: Section 4.5.2 – See previous comment on Swale 4.
Response:	<i>The sentence will be reworded to read "Explosives were detected only in one swale sample (IS28SD02-0503) taken from the groundwater daylighting into Swale 4."</i>
Comment 13:	Page 4-8: The chemical names should not be capitalized.
Response:	<i>2-Amino-4,6-dinitrotoluene, nitroglycerine, mercury, and iron will not be capitalized.</i>
Comment 14:	Page 4-8: Section 4.5.3, 1 <sup>st</sup> paragraph – Mercury should not be capitalized.
Response:	<i>Mercury and iron will not be capitalized.</i>
Comment 15:	Page 4-8: Section 4.5.3, 2 <sup>nd</sup> paragraph, 4 <sup>th</sup> sentence – There is a word (e.g. "are") between "risk mostly".
Response:	<i>This sentence will be reworded to read "The primary risk drivers for ecological risk are mostly located in the swales and along the immediate shoreline of Site 28."</i>
Comment 16:	Page 4-8: 7 <sup>th</sup> sentence – Delete the first incidence of "are".
Response:	<i>The sentence will be reworded to read "Further offshore from the site, the ecological risk drivers for sediment are silver and mercury."</i>

Comment 17:	Page 4-9: Section 4.6.1 – This section discusses VOC contamination and concludes that it does not originate from Site 28. Assuming that the levels detected are too low to warrant any need to investigate the true source, this aspect should be stressed, not that they don't come from the site. If they are not that low, then a recommendation would be called for.
<i>Response:</i>	<i>The sentence that states "Because of the low detected concentrations VOCs will not be discussed further in this section" will be reworded to read "The VOC concentrations were too low to warrant any need to investigate the source, so they will not be discussed further in this section." The sentence that indicated VOCs may be coming from off-site was deleted.</i>
Comment 18:	Page 4-11 Section 4.7.3 – Does it make sense that the daylighting groundwater has much lower concentrations than the filtered groundwater?
<i>Response:</i>	<i>The following paragraph was added to the section: "Concentrations of certain metals are lower in the surface water samples from the swales. This may be due to geochemical changes associated with oxidation on contact with dissolved oxygen or to dilution from other water sources like leaking water lines. For example, the iron concentration in groundwater at IS28GW42-0503 (filtered) is 7,490 µg/L; the swale surface water concentration near this location is 6,600 µg/L. At the end of the swale, near its discharge, the iron concentration decreases to 63.6 µg/L. Concomitant with this is the presence of iron staining in the sediments of the swale. The concentration change, together with the iron staining, might indicate that the dissolved iron is oxidizing and precipitating out of solution. Other influences on surface water geochemistry include the availability of other anions more readily available in surface water than in groundwater that could, upon complexation, cause certain metals to precipitate out and others to go into solution."</i>
Comment 19:	Page 5-7 Section 5.2.2.5, 2 <sup>nd</sup> paragraph – The 3 <sup>rd</sup> sentence needs to be rewritten to make sense.
<i>Response:</i>	<i>The sentence will be reworded to read "Elemental mercury volatilizes into the atmosphere."</i>
Comment 20:	Page 8-1, Section 8.1, 2 <sup>nd</sup> paragraph – In the 1 <sup>st</sup> sentence, change "so" to "to".
<i>Response:</i>	<i>The sentence will be reworded to read "The human health risk assessment determined that unacceptable risk was present for future adults, children, lifetime residents, and construction workers exposed to soil and groundwater."</i>

*prob limit*

Comment 21:	Table, General – The shading is too dark, making it difficult to read the actual hits. It is unfortunate that the values that stand out are the non-detects. Either a much lighter shade should be used or another method of highlighting the results must be found.
<i>Response:</i>	<i>This is an effect of the photocopying. On the original copy, the shading is much lighter, and the detects stand out much better. The copies will be inspected before producing the draft final.</i>
Comment 22:	Table 4-1, Page 3 of 20 – The B qualifier indicates blank contamination – How would lab blanks become contaminated with metals?
<i>Response:</i>	<i>Metal contamination is common in all kinds of blanks, including lab blanks. Region III data validation guidelines apply for qualifying data if the concentration is not significantly above that attributable to blank contamination.</i>
Comment 23:	UJ and UL are not defined, nor do they appear in the table. Should/can they be deleted?
<i>Response:</i>	<i>Often, a small quantity of data is UJ or UL qualified. UL will be defined as “Not detected, biased low” and UJ will be defined as “Not detected, estimated”. It is necessary to heavily abbreviate the definitions because of character constraints in the footer. In addition, a glossary page with the EPA’s official definitions will be added before all tables in Section 4.</i>
Comment 24:	JB is not defined.
<i>Response:</i>	<i>Please see the response to the comment above. JB will be defined as ‘estimated, not detected above blank’.</i>

**Comments from Shawn Jorgensen at NDWIH**

Comment 1:	While trying to understand Heidi's comment #13 and your response concerning Figure 2-1, I became completely confused until I noticed a note on page 3-2. The note, which identifies what MM and SO mean, should be included on Figure 2-1 or in the text of Section 2.5.2 to help the reader understand what is being described with respect to sample locations, sites, or stations, as you call them in your response to Heidi's comment #13.
<i>Response:</i>	<i>See the amended response to Heidi Morgan’s Comment # 13. . The initial response was incorrect. A clarifying sentence describing the location IDs, site IDs, and sample IDs will be added to the figures.</i>

<p>Comment 2:</p>	<p>You mention in your response to Heidi's comment #13 sites IS28MM04-2628 and IS28MM07-0608. Intuitively, I believe that the first site (or should it be station) sample was from a depth of 26 to 28 feet, while the second was from a depth of 6 to 8 feet. However, there is nothing in the document in Section 2, where it is mentioned, that tells me this. I would suspect that the work plan for this effort describes the sample nomenclature, but it would be wise to include that in the RI so it can be a stand-alone document. Perhaps the sample nomenclature is described in Section 3 (I didn't review the whole document), but it should come before discussions of samples/sites/stations in Section 2.</p>
<p><i>Response:</i></p>	<p><i>A description of the station and sample Ids will also be added to the beginning of section 3.</i></p>