DEPARTMENT OF THE NAVY
NORTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
10 INDUSTRIAL HIGHWAY
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IN REPLY REFER TO

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JUL 24 1997

Mr. Jeffrey Gratz, Project Manager
U.S. Environmental Protection Agency
18th Floor, East
290 Broadway
New York, New York 10007-1866

Subj: Response to EPA and NJDEP Comments on the Navy's draft Remedial Investigation Addendum Report (February 1997) Naval Weapons Station Earle, Colts Neck, NJ

Dear Mr. Gratz:

Responses to your letter of May 7, 1997 and the NJDEP letter of June 3, 1997 are attached. Our contractor has been directed to revise the report to incorporate these changes.

Your cooperation regarding finalization of the R.I. Addendum is appreciated. The Navy will continue to make every effort to proceed in a timely manner. If you have any questions, please call me at (610) 595-0567 Ext. 157.

Sincerely,

John P. Kolicius
Remedial Project Manager
By direction of the
Commanding Officer

Copy to:
Bob Marcolina, NJDEP
Greg Goepfert, Naval Weapons Station Earle
Russ Turner, Brown & Root Environmental

REPLY TO
EPA Comments on the Navy's *Remedial Investigation Addendum Report*
(February, 1997)

General Comments:

1 The results of Chapter 11 (the 3 Ware creek marsh samples) must be integrated into a discussion of Sites 6 and 17. The text states that the results are "presented and discussed in Sections 5.0 and 9.0. This is not the case. There is no discussion anywhere in the text.

Response: Concur. Data from these samples are presented on Tables 5-23 through 5-26 and 9-29 through 9-31. Results of these samples are discussed in relation to specific contaminants and their potential risks in Sections 5.8.2 and 9.8.1. Additional discussion of background sampling data will be incorporated into the text.

2 The samples mentioned in Chapter 11 are not "background" samples, but are samples that are farther away from known sources. Sites 6 and 17 should be shown on one map and discussed together (with the samples from Chapter 11 and the 3 samples taken previously as part of the Ware Creek Watershed Assessment). A large map should show the sample location and results from both sites. The goal of this sampling event was not only to delineate the extent of contamination, but also to identify a concentration gradient, if possible. The manner in which the data are presented do not enable us to make this determination.

Response: Concur. A map showing both sites 6 & 17 (sample locations and results) will be included in a discussion combining discussion of "background" results and the contribution from sites 6 and 17 (and other probable Navy and non-Navy sources) on the salt marsh.

3 Another goal of this assessment was to determine whether the watershed is being impacted by contamination from the Waterfront Sites, not just one specific Site. The Navy has not provided information to support statements that "potential risks to organisms from exposure via the food chain" are unlikely and that "the maintenance of receptors populations in the marsh does not appear to be compromised . . ." (page 9-75). When all contaminants from the entire watershed are considered this may not be the case. Receptors will use the entire marsh area, and thus the entire watershed should be considered. HQs significantly greater than one were calculated for certain contaminants. Based on all the available information, the Navy should make supportable recommendations as to whether a further, focused ecological risk assessment is necessary. Results must be evaluated on a watershed basis to address the possible cumulative impacts of contaminants from many different sources. It should be noted that the sampling activities conducted thus far are simply supportive of a screening-level ERA.

Response: It is acknowledged that some ecological receptors will use most if not all of the marsh area. The goals of the "background" study were to investigate extent of contamination (and general health) in the marsh further downgradient from Sites 6 and 17 (the major potential contaminant sources on Navy property), as well as from upstream Navy-related sources in the watershed and non-Navy-related sources. The sampling program reflects these objectives. Impacts to the entire watershed that the marsh is located in were considered in the ecological risk assessment. The marsh area includes non-Navy property and non-Navy contaminant sources on the southwestern and western sections of the marsh. The rationale for the conclusions of the study

are addressed in responses to Page-specific comments 5-69, paragraph 1 and 5-70, paragraph 3, as well as discussed in the text.

Some significantly elevated HQ values were calculated in the ecological risk screening process, as discussed in the text. However, the exceedences were confined to a limited number of samples and contaminants and were subject to other mitigating circumstances, as discussed in the text (and also discussed in response to page-specific comment 5-69, paragraph 1). Additional text will be added, where necessary, to support the conclusions of the assessment. The data do not appear to indicate that a further, more focused ecological risk assessment is necessary.

It is acknowledged that the sampling activities conducted thus far support only a screening-level ERA. The data appear to be adequate to support the conclusions of the report and the absence of the need for additional study.

4 Although the photographs are very helpful, an additional schematic figure that identifies the various tributaries and drainage and surface water runoff pathways and direction of flow, along with sample locations would aide in interpreting the conditions in the Waterfront Area.

Response: Surface water drainage pathways will be supplied on a map or maps, where available.

5 In several instances, the text states that the "risk range" is $1x10^{-4}$ to $1x10^{-6}$. The range is actually 10^{-4} to 10^{-6}. This change causes some risks to fall within the acceptable range rather than outside it (see groundwater risk at Site 3 and Site 17; check others) .

Response: The text will be changed to reflect that 10^{-4} to 10^{-6} is the acceptable risk range and the risks will be re-checked and changed if they fall within the acceptable risk range.

6 In Tables 4-1 & 4-2 (Site 3), 6-1 & 6-2 (Site 12), and 9-1 & 9-2 (Site 17) "Occurrence and Distribution of Inorganics/Organics in Surface Soils," inorganics are compared to two times background and screened against the upper tolerance limit (UTL). A definition of the UTL should be provided. In many instances this number is incredibly high and cannot possibly be used as a benchmark level.

Response: Concur. In cases where the UTL calculated is unrealistic (such as the lead comparison at Site 12), alternate benchmark criteria may be used in the remedial action decision making process. For instance, the text for Site 12 will be revised to note that the appropriate guideline for lead in soil is 400 ppm (OSWER directive 9355.4-12) or 600 ppm (NJDEP Non-Residential Direct Contact Soil Cleanup Criteria) and that the alternative benchmark guideline will be considered in the remedial decision making (FS) process.

The UTL is the concentration that is estimated to contain a designated portion (95%) of all possible sample measurements. The UTL is based on the estimated distribution type (normal or lognormal) the Student's T-test value (based on the number of sample measurements), and the associated mean and standard deviation. The 95% UTL used in this report is constructed with a coverage of 50%, i.e., the UTL may contain more than 95% of the population or less than 95% of the population, with equal probability. When very few samples are in the background data set, the t-value will be large and the UCL may be unrealistic. This could also happen for some types of lognormal distributions.

7 It is not clear whether background data represent site background or NJ State-wide background. Clarify in the text.

Response: Concur. Text will be revised to discuss how background data is defined (background data represents site-related background, not background for the state of New Jersey) and the relevance to the site will be discussed.

Page-specific Comments

Page	Comment
4-53	¶1: The text states that "less conservative screening levels were available for cadmium, lead, and mercury and concentrations of these metals did not exceed those screening levels." The definition of less conservative screening levels should be provided. Why were they used in this situation? Explain in the text.

Response: Concur. Text will be modified on page 4-53 to describe the use of less conservative screening thresholds in the RI. The discussion of the less conservative sediment screening levels used in the RI is provided on page 2-115 of the RI report. Briefly, the most conservative (and appropriate) sediment screening thresholds were initially used in the calculation of hazard quotients in the RI (e.g., ER-L values from NOAA). Also, the maximum detected contaminant concentrations were screened against these conservative thresholds to derive hazard quotients, exacerbating the conservatism in the assessment. Therefore, hazard quotients were also calculated using less conservative thresholds (e.g., ER-M values from NOAA), to reduce the uncertainties and generate a "risk range" when the maximum exceeded the most conservative threshold. Since the range between the ER-L and ER-M, for example, is defined as the concentration range in which adverse effects may "rarely to occasionally" occur, ascribing risk to a maximum concentration that exceeds the ER-L but is less than the ER-M may be misleading. Since the ecological risk assessment methods used in the RI were essentially the same as those used in the RI Addendum assessment, they were not discussed in detail in the RI Addendum, as mentioned in the text.

¶3: The text should refer to Figure 4-1, not 3-1.

Response: Concur. The text will be changed to reference Figure 4-1.

4-55 Table 4-25: Table E-3 is referred to but is not included in the document. The text should state what these "sediment benchmarks" are.

Response: Concur. The footnote that references Table E-3 should reference Table 2-26, and will be changed accordingly. All similar footnotes in the ecological risk assessment screening tables will be changed to reference the correct screening threshold tables presented in Section 2.6.3. These tables present all of the surface water and sediment threshold values used in the assessment along with their sources and rationale for use. Site-specific thresholds were

calculated when possible. Discussion of the derivation of these thresholds is also presented in Section 2.6.3.

4-56 ¶2: The text states that "concentrations do not appear to be significant enough to pose potential ecological risks for several reasons discussed above." These reasons are not presented. Why do these levels not present a risk?

Response: Concur. Sediment benchmarks and associated toxicity data for aluminum, beryllium, cobalt, and vanadium are scarce, making interpretation of their potential risks difficult. Nonetheless, as stated in the text, the maximum detected concentration of beryllium (0.47 mg/kg) was less than the background concentration of that inorganic from 1995 RI background sampling (0.57) mg/kg). The maximum detected concentration of cobalt was comparable to the concentration in the upgradient sample. One of two detected concentrations in the marsh of aluminum and vanadium were higher in the upgradient sample. Yet aluminum is a ubiquitous metal, and is one of the most common elements in the earth's crust (Goyer, 1986), Also, vanadium is not generally considered to be highly toxic in the environment (Mailman, 1980). The marsh sediments are essentially moist soils. Common background soil concentrations of aluminum and vanadium in northeast U.S. soils range from 10,000 to 20,000 and 20 to 30 mg/kg, respectively (Shacklette and Boerngen, 1984). The maximum concentration of aluminum in marsh sediments (wet soils) was less than these values and the maximum concentration of vanadium was comparable to these values. This information will be added to the text.

5-5 Section 5.5.1.1: What are the background samples being referred to?

Response: The samples used as background will be more clearly identified in the text and table. The six background samples for sediment referred to are BGSD01, BGSD02, BGSD04, (three background sediment samples from the 1st RI), and BGSD05, BGSD06, and BGSD07 (three background sediment samples from the Addendum RI).

5-6 Table 5-1: A footnote should be included which states the samples used for background.

Response: Concur. A footnote will be added to table 5-1 to identify background samples, and text in section 5.5.1 will be added to define and discuss background samples .

5-49 Section 5.7.2: The conclusion section should be more than just a restatement summary of the risk tables. There should be a discussion of the results. For example, were elevated levels of arsenic (the risk driver) found in all of the wells? Also, see general comment #4 regarding the acceptable risk range.

Response: Concur. Conclusions will be restated to include a discussion of the risk assessment results. General comment #5 will be taken into account.

5-56 Section 5.8.1: This appears to be the risk discussion for both sites 6 and 17. This should be made clear in the text headings. We suggest that the chapters for these sites be combined, at least for the ecological discussion to address the overall watershed concerns that have been raised

previously. A large scale map showing sample locations, stream drainage, etc. for sites 6 and 17, *together*, should be provided.

Response: Concur. The ecological results and discussion sections will be combined for Sites 6 and 17.

5-59 ¶1: Sample 17SW/SD07 is not shown on Figure 9-1 as stated in the text. It should be shown.

Response: Location 17SW07/17SD07 will be shown on the new map combining sites 6 and 17.

¶2: We appreciate the discussion of why the "BG" samples were taken where they were. However, this is the last we hear about them. A discussion of the results is necessary as well.

Response: A discussion of the results of background sampling will be included in the text

5-60 ¶1: The individual results must be presented and discussed, preferably with a discussion of the results of sites 6/17.

Response: Concur. The individual background results are presented in Tables 5-23 through 5-26. Note that the background column in the tables are data from BGSW/SD07 (i.e., individual results), as mentioned in the text. The individual results of all background surface water and sediment samples are presented in Appendix Tables A-d and A-g, respectively. Additional discussion of each background sample will be incorporated into the text.

¶3: Briefly state why metals found in Site 6 surface waters during the 1995 RI "were not found to pose significant risks..." According to the text (p.5-58, ¶1), "several metals in surface water exceeded ecological screening values and were determined to potentially pose risk to ecological receptors."

Response: Concur. The text will be revised as necessary to correct this apparent inconsistency and explain why certain metals were not considered to be of concern.

5-61 Table 5-23 footnotes: Where is Table E-1?

Response: Concur. The footnote that references Table E-1 should reference Table 2-24, and will be changed accordingly. All similar footnotes in the ecological risk assessment screening tables will be changed to reference the correct screening threshold tables presented in Section 2.6.3.

5-64 ¶2: The discussion should include the results of the 1995 RI.

Response: Concur. The results of the 1996 RI are integrated into the text on Pages 5-58, 5-60, and 5-63. However, the results of the RI will also be discussed on Page 64, which is the Summary and Conclusions section.

5-69 ¶1: The text states that elevated concentrations of inorganics were collected "in only a few samples relatively far from the landfill." (We note that only a few samples were taken; the statement is misleading.) The text goes on to state that these elevated concentrations most likely

indicate "hot spots and do not stem from landfill-related releases" (also see page 9-75). On page 5-35, however, the text states that "the highest levels of inorganic and organic contaminants were primarily detected in sediment samples nearest the site . . ." These statements suggest that, rather than hot spots, the elevated concentrations identified as being relatively far from the landfill may be depositional areas. As previously noted, contaminants may be transported through landfill seeps and groundwater discharge, which could account for the lack of a pattern of contamination identified. This may also account for the elevated concentrations in SW06 (Site 6) which appear to be an anomaly.

The conclusion that "additive impacts on the watershed and cumulative effects . . . are also unlikely . . ." and "concentrations of bioaccumulatable contaminants were also relatively low," has not been supported by sufficient data. The reader has not been presented a detailed discussion of the other samples (Site 17, "background", and "reference" samples) that would further characterize the watershed.

The text states that contaminants in samples collected upstream from the marsh "were low" and therefore impacts to the marsh from upstream sources is negligible. The results have neither been presented or discussed. Further, how do these results compare with the watershed samples collected during the 1995 RI?

As stated elsewhere in the text, several contaminant concentration levels were well above their respective screening criteria; yet, in this paragraph, the conclusion is made that the endpoint of maintaining the receptor population "does not appear to be compromised," and "additional ecological study is unwarranted." The text should clarify as to how this conclusion was made.

Response: Two watershed samples (WSSW/SD21and WSSW/SD22), collected as part of 1995 RI sampling activities were not used in the RI Addendum assessment. The results from these samples will be discussed in the revised text.

A total of twelve sediment samples were collected at Sites 6 and 17. Twelve surface water samples were to be collected, but only 6 sample locations could be found with water to sample, despite the wet weather that month and year. Significantly elevated contaminant concentrations were detected only in one surface water sample and in one sediment sample for each landfill. This supports the statement on Page 5-69 that "Elevated concentrations of some inorganics were present (in 1 of 6 surface water samples; 2 of 12 sediment samples), but were confined to only a few samples collected relatively far from the landfill". The EPA comment states that the sporadic elevated concentrations of a few contaminants detected in the furthest samples from the landfills may have occurred via landfill seep and groundwater discharge. However, the 1993 SI, the 1996 RI, and the RI Addendum Work Plan (which were all approved by EPA) concluded that groundwater contaminant concentrations at Sites 6 and 17 were low, and that impacts to the marsh via groundwater discharge were unlikely.

Only arsenic, cadmium, iron, and manganese were slightly elevated in the groundwater samples 06GW03 and 06GW04 collected as part of the 1996 RI. Since these samples were collected from wells along the northern edge of Site 6, surface water and sediment samples north of the landfill would be expected to contain the contaminants from groundwater if discharge was occurring (in particular 06SW06, which was the sample with elevated surface water contaminant concentrations). However, arsenic was not elevated, cadmium was not detected, and manganese was only slightly elevated in 06SW06. Iron was significantly elevated, but was relatively high in all media throughout the marsh, suggesting high naturally-occurring conditions.

A similar absence of a correlation between groundwater and sediment contaminants exists at the sediment locations with elevated contaminant concentrations (one at each site) although sediment and soil samples collected directly adjacent to the sites in the RI had elevated concentrations of some metals and organics.

As stated in the text, the significantly elevated concentrations of contaminants occurred in one surface water sample (06SW06) and one sediment sample (06SD07) at Site 6, and in one sediment sample (17SD07) at Site 17. Each of these samples was collected furthest from their respective landfills, and concentrations were much lower in samples collected closer to the landfill in the same drainage's (small canals). Since water flow in the marsh is low and ephemeral, it is unlikely that contaminants would deposit only several hundred feet from the landfills, and unlikely that concentrations would be much higher several hundred feet from the potential contaminant sources than closer to the landfills. This supports the conclusion that significant migration of contaminants from the landfills to the marsh does not appear to be occurring.

For the reasons discussed above and also discussed in the text, additive impacts from Sites 6 and 17 do not appear to be significant since impacts from each individual landfill deep into the marsh do not appear to have occurred. Contaminant contributions from the tributary of the marsh (background samples BGSW/SD05 and BGSW/SD06) that originates on Navy property also appear to be minimal. The results of these samples are presented in site-specific screening tables. However, additional discussion of background samples will be added to the text.

The statement that concentrations of bioaccumulatable (and biomagnifiable) contaminants were also relatively low is supported by the data. In general these contaminants consist of lead, mercury, organochlorine pesticides, and PCBs (although a few other contaminants bioaccumulate to a lesser degree in some circumstances). *All* of these contaminants and contaminant classes were either not detected or did not exceed screening thresholds in Site 6 sediment samples. In Site 17 samples, all organochlorine pesticides and PCBs analyzed for were either not detected or did not exceed threshold values. Mercury was detected in only one of six sediment samples at Site 17, and the HQ value was relatively low (HQ = 2.1). Lead was detected in all six sediment samples at Site 17, but only the maximum detection exceeded the threshold, and the HQ was also relatively low (HQ = 2.7).

Elevated concentrations of only a few contaminants, mainly ubiquitous metals (e.g., aluminum, iron, vanadium), in one surface water and two sediment samples does not appear to indicate potential risks to populations of receptors in the marsh community. There was one elevated hit of lead in surface water in sample (06SW06), but it did not correlate with sediment lead concentrations at that sampling location and at sampling locations closer to the landfill. Lead was not detected in Site 6 groundwater. At the least, contaminants in those isolated samples do not appear to originate from Sites 6 and 17, the major potential contaminant sources on Navy property, or from upstream sources on Navy property.

5-70 ¶3: The statement that elevated concentrations of contaminants found near the toe of the landfill were not found further into the marsh is incorrect. 2 of the 6 sediment samples showed elevated concentrations. We conclude that the landfills probably have had a detrimental effect on sediment and surface water. A particular pattern is difficult to discern because of the complex drainage patterns in the marsh.

Response: Disagree. The comment does not specify which two sediment samples or which contaminants

show elevated concentrations. As stated in the text, of the organics detected in all sediment samples near Site 6, only a few PAHs slightly exceeded site-specific sediment threshold values (all HQ values 1.6 or less), and only the maximum detected concentrations (i.e., one detection) of each of those organics exceeded the threshold used. Arsenic was the only metal that exceeded its threshold, but only the maximum (i.e., one sample) exceeded the threshold, and the HQ was low. Aluminum, beryllium, cobalt, thallium, and vanadium in sediments were retained as COCs since no suitable sediment thresholds were available. As stated in the text, of these metals, thallium was detected in only one sample (0.92 mg/kg), and the average concentrations of beryllium and cobalt were similar to background. Aluminum and iron were elevated in more than one sample, but are ubiquitous metals that are toxic only at extremely high concentrations. Only one detection of vanadium was significantly higher than background. Also, the significantly elevated concentrations of aluminum, iron, and vanadium were detected in only one of six samples. For these reasons, the conclusion that the "landfills have probably had a detrimental effect on sediment and surface water" is questionable, if EPA is referring to effects on sediment and surface water distant from the landfills. Samples were taken in drainage areas (i.e., small, shallow canals) that were determined to best reflect drainage from the landfill areas. These sampling locations were field verified by Region II BTAG during an October 1, 1996 site visit. At that time BTAG agreed that the sampling locations would be indicative of drainage patterns in the marsh.

6-31 Table 6-7: Why isn't lead a "contaminant of concern"? Elevated concentrations of lead was the main reason this area was investigated.

Response: Following the criteria used to select COPCs in the Addendum Report (Table 6-1) lead was not selected as a COPC from a statistical standpoint due to an unreasonably high UTL for lead in site 16 surface soils. However, remedial action decisions to deal with the elevated lead levels in surface soil will consider EPA and NJDEP guidelines for removal actions. The text (including section 6.8 - Evaluation Summary) will be revised to discuss these issues.

6-47 Why isn't lead mentioned? This should be the risk driver. This follow up investigation was not performed in a vacuum. Like the previous efforts at Site 19, the efforts of this investigation were to define the outer boundary of the contaminated area. Using the 1 surface soil sample outside the contaminated zone to perform a risk analysis is highly misleading. Risk *discussions* are necessary to put the data into some sort of context.

Response: Concur. Although lead was not a COPC because of the unrealistically high UTL for lead in site soils, lead risk and remediation of soils with elevated lead levels (delineated by RI efforts) will be addressed in this section. EPA and NJDEP guidelines supply the necessary comparison guidelines for remedial action discussions.

6-52 Section 6.8: See comment for page 6-47.

Response: Concur. Risk discussions will be added to the text to clarify the risk assessment results. Sample results from this investigation indicate minimal migration from the previously identified hot spot.

8-4 Section 8.2.3: Wells MW16-01 through MW16-06 are not shown in figure 8-1, as stated in the text.

Response: Wells 16MW01 through 16MW06 were identified on Fig. 8-1 as 16GW01 through 16GW06. The figure will be corrected. Identifiers for monitoring wells will be made consistent throughout this section.

8-120 Section 8.7.1.5: The discussion of the Lead Results should also address the exceedence of the Office of Water Action Level for lead and the soil level of 400 ppm.

Section 8.7.2: This section should include not just the results in written form, but an *analysis* of the results. For example, arsenic was found in elevated concentrations from only 1 monitoring well (MW16-06) and this was a turbid sample. The filtered sample did not detect arsenic. Very little arsenic was detected in soil and sediment (not above background conditions). On the other hand, the benzene concentrations in the northern portion of the site suggest a plume of contamination. The concentration of benzene in that plume are significantly elevated and would probably, by itself, show an elevated risk for future drinking water receptors.

Response: Concur. These discussions will be added as suggested. See response to page 6-31. A discussion of the risk results will also be added to the text.

8-124 Section 8.8: The text should state whether an FS should be performed or whether additional data is necessary. EPA believes that an FS for the product layer and soil contamination should be performed. Additional data is necessary to delineate the benzene plume in the northern section of the site. The text should review these issues.

Response: By agreement among Navy, EPA and NJDEP, free product capture is underway at Site 16. At the time of completion of the removal action, an FS of potential follow-up remedial activities will be planned.

The text will be revised to further emphasize that additional study may be indicated to delineate the benzene plume and the need for an FS regarding remaining free product and residual soils contamination to be performed after conclusion of the free product removal action.

9-1 ¶2: The text states that "geo-rectified digital imagery" was used to interpret the extent of the landfill. The probable boundaries of the landfill should be shown on Figure 9-1 or another appropriate figure.

Response: Concur. The approximate landfill borders for site 17 (and site 6) will be added to the revised map combining these two sites.

9-4 Section 9.3.1: Figure 9-1 does not show sample location 17SW07 as stated in the text.

Response: Concur. The sample location will be shown on a new map combining sites 6 and 17.

9-70 ¶3: State what samples were used for background and why. Was BGSD07 used? Why not?

Section 9.8.2: As stated in our comments for Section 5 (Site 6), the results should be discussed in coordination with Site 6 and all peripheral samples taken in the area ("background", "reference", and other site samples) to give a clear picture of the total impact of the watershed. Certainly, the

results are important to show impacts from individual sites, yet from a ecological standpoint, a picture of the health of the entire watershed is necessary.

Response: Comment noted. A description of the background samples that were used for the Site 17 assessment and the rationale that was used was presented in Section 5.8.1. Since the Site 6 and 17 sections will be combined, the background discussion will now encompass both sites.

9-74 Table 9-31: The table only shows the average concentration of the 2 background samples. A table with each of their results should be provided in the document. The table should be included with text that states why these samples were used as background and a description of the area in which these samples were taken.

Response: Comment noted. The results from both background samples are provided in Appendix Table A-g. As reflected on that table, the contaminant concentrations from those samples were similar. As mentioned in response to Page-specific comment 9-70, the rationale for use of these samples for background is provided in Section 5.8.1. The locations of background sampling sites are presented in Section 11. However, a more detailed description of the area in which these samples were taken will be included in the text.

10-22 Section 10.5.2.2: Cross-sections or fence diagrams showing contamination with depth should be displayed to give the reader a better idea of the extent of groundwater contamination. Cuts should be made both across the plume and lengthwise.

Response: An attempt to resolve this request to better depict the plume location will include additional plan-view figures depicting plume concentration by depth, similar to the two depths depicted in the draft report. In addition, cross sections showing contaminant concentration by sample depth will be provided.

11-3 Section 11.3.1: There is no presentation or discussion of results in Sections 5.0 or 9.0 as stated in the text. The results should be shown in the context of the entire watershed area along with previous "reference" and "background" samples. See our previous comments on this issue.

Response: The entire watershed (combined sites 7/16) and comparison to background will be discussed in a new section.

REPLY TO
NJDEP Comments on the Navy's *Remedial Investigation Addendum Report*
(February, 1997)

A discussion of the composition and leachability of the railroad bed ballast material will be included in Section 2.6.1 and Section 6.0 (Site 12).

References:

Goyer, R.A. 1986. Toxic Effects of Metals, pp. 582-635 In, *Casarett and Doull's Toxicology: The Basic Science of Poisons*. C.D. Klaassen, M.O. Amdur, and J. Doull, eds. Macmillan Publishing, NY.

Mailman, R.B. 1980. Heavy Metals, pp. 34-43 In, *Introduction to Environmental Toxicology*, F.E. Guthrie and J.J. Perry, eds. Elsevier Publishing, NY.

Shacklette, H.T. and J.G. Boerngen. 1984. Element Concentrations in Soil and Other Surficial Materials of the Conterminous United States. U.S. Geological Survey, Paper No. 1270.