

N60508.AR.000983
NAS WHITING FIELD
5090.3a

LETTER REGARDING COMMENTS FOR THE REMEDIAL INVESTIGATION REPORT FOR
SITE 11 NAS WHITING FIELD FL
4/12/1999
HARDING LAWSON ASSOCIATES

Harding Lawson Associates

03.01.11.0002

1D 00148

2534-2012

April 12, 1999

Mr. Craig Benedikt
Remedial Project Manager
Federal Facilities Branch
USEPA Region IV
61 Forsyth Street
Atlanta, Georgia 30303

**Subject: Final Response to Comments for the Remedial Investigation Report
Site 11, Southeast Open Disposal Area (B)
Naval Air Station Whiting Field, Milton, Florida
Contract No. N62467-89D-0317/116**

Dear Craig:

On behalf of Southern Division Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), Harding Lawson Associates is pleased to submit the revised response to comments for your review and comments. Copies of the response to comments have also been forwarded to the Naval Air Station Whiting Field Partnering team.

If you have any questions please call me at (850) 656-1293.

Sincerely,

HARDING LAWSON ASSOCIATES


Rao Angara
Task Order Manager

enclosure

cc: Ms. L. Martin, SDIV (1 copy)
Ms. A. Twitty, CH2M Hill (1 copy)
Mr. J. Cason, FDEP (1 copy)
Mr. T. Conrad, BEI (1 copy)
Mr. T. Hansen, TiNUS (1 copy)
Mr. P. Ottinger, TiNUS (1 copy)
Mr. J. Holland, NASWF (1 copy)
File

**Final Response to Review Comments for
Remedial Investigation Report
Site 11, Southeast Open Disposal Area (B)
NAS Whiting Field, Milton, Florida**

Florida Department of Environmental Protection

1. The report utilizes the 1996 Soil Cleanup Goals. As we have previously discussed, the Navy should also compare the analytical results to the Chapter 62-785, F. A. C. Soil Cleanup Target Levels. This may be done as an appendix or supplement to the document if you desire or these values may be utilized in the existing tables. In either case, cleanup or other management decisions should be based on the information derived from the newer values. In some cases, such as vanadium, the SCTLs are lower than previously, in other cases, such as beryllium, the values have increased. In other cases, there are values which were not present previously, such as copper and TRPH. In all cases, the newer SCTLs should be used for investigations at NAS Whiting Field. Following this, the conclusions and recommendations should be revised, if necessary.

Response: SCTLs will be incorporated in the Final RI

2. Please present figures which indicate the locations where soil and groundwater exceeds cleanup target levels.

Response: Figures will be revised to include exceedances of cleanup target levels.

3. Based on data presented in the report, risks are predicted for future residents due primarily to arsenic and benzo(a)pyrene in surface soil. In the conclusions, page 9-2, it states that remediation of surface soil would not substantially reduce exposure from arsenic. While the arsenic concentrations observed in surface soil at the site may indeed be an expression of the natural background, the results of excavation and construction or other reasons, it may also be a result of the activities carried out by the Navy at this site. Please address this possibility.

Response: The conclusion will be revised to indicate a Feasibility Study will be prepared to address risks associated with the exposure to arsenic and benzo(a)pyrene in surface soil.

4. I agree that a focused feasibility study be conducted to address the risk to a future resident or others (such as an industrial or recreational scenario) from surface soil. Based on our recent conversations, I also understand that the Navy will address the ground water contamination, including evaluation of soil leaching, at this site in connection with the Site 40 basewide ground water assessment. If so, this should be clearly stated in the focused feasibility study.

Response: As recommended by the reviewer, the feasibility study will identify the need for groundwater to be addressed under the Site 40 Basewide Groundwater Assessment.

**Final Response to Review Comments for
Remedial Investigation Report
Site 11, Southeast Open Disposal Area (B)
NAS Whiting Field, Milton, Florida**

U.S. Environmental Protection Agency

SPECIFIC COMMENTS

1. **Page 3-2, Section 3.2, Second Paragraph.** This section states that a total of 31 soil gas samples were collected, referring the reader to Figure 3-1. However, Figure 3-1 identifies 48 soil gas sample locations. While all soil gas locations may not have provided adequate soil gas results, Figure 3-1 should be modified to distinguish which of the 48 locations correspond to the 31 sample locations referred to in Section 3.2.

Response: Table 5-6 provides a list of the 31 sample locations sampled during the soil gas survey. Samples were collected from locations with the sample ID numbers 9 through 20, 23 through 34, 37 through 41, and 43 through 48.

- 1a. The text should contain the information provided in the response for clarification.*

Response: Text provided in the above response will be added to Section 3.2

2. **Page 3-2, Section 3.2, Third Paragraph.** This paragraph indicates that a "common problem" utilizing the organic vapor analyzer (OVA) was probe flame-out due to high humidity or high CO₂/low oxygen. In this case, a landfill gas analyzer was to be used to measure methane and CO₂ levels. However, Table 5-6 of the Final Draft RI Report provides no results of methane and CO₂ measurements from soil gas locations. Clarification should be provided as to whether the landfill gas analyzer was utilized. If so, the data should be summarized in the report.

Response: Clarification on the use of the landfill gas analyzer will be included in the final RI.

3. **Page 3-5, Section 3.3, Second Paragraph.** This paragraph states, "The remaining eight Phase IIB surface soil samples (11S00601 through 11S01301) were collected on a ten-foot-radius around Phase IIA soil sample 11S00401." Apparently, these eight additional samples were to delineate lead contamination. This description is confirmed in Figure 3-2. However, sample 11S00401 is marked as a Phase IIB sample location on Figure 3-2. Additionally, according to Table 5-8 (Page 5-27), sample 11S00401 only contained lead at 40.3 mg/kg, which is comparable to sample 11S00301. It appears, based on the data presented in Table 5-8, that the delineation of lead should have focused on Phase IIA sample 11-SSL-02, which had a lead concentration of 2,230 mg/kg (several orders of magnitude higher than other samples). Section 5.5 also refers to the surface soil

**Final Response to Review Comments for
Remedial Investigation Report
Site 11, Southeast Open Disposal Area (B)
NAS Whiting Field, Milton, Florida**

delineation around sample 11S00401. This discrepancy should be clarified and modifications to the text and figure made accordingly.

Response: Field notes indicate the collection of the subject samples to be around 11S00401. The samples may have been collected at the wrong location. The Navy recommends collection of delineation samples adjacent to sample location 11-SSL-02.

4. **Page 3-5, Section 3.4.1, First Paragraph.** This paragraph states that lithologic data was recorded during monitoring well installation and entered into field logbooks. However, Appendix G includes only lithologic descriptions; no field log notes were provided. It is recommended that either field log notes be included in the report or soil boring/monitoring logs be provided for all soil boring and monitoring well locations.

Response: All lithologic data collected and entered in the field logbooks is presented on the monitoring well construction logs in Appendix G.

5. **Page 3-6, Section 3.4.2, Fourth Paragraph.** This paragraph indicates that physical descriptions for the test pits were recorded in field log notes. However, no field log notes are provided. It is recommended that either field log notes describing the test pit investigation activities be included in the report or test pit logs be provided.

Response: In general, lithologic description for test pitting operations is not presented in an RI report. However, a copy of the log book with test pit information is attached to the Response to Comments.

- 5a. *When the RI is finalized, a copy of the log book with the test pit information should be appended to the report.*

Response: *Test pit information from the log book will be provided in an appendix.*

6. **Page 4-7, Table 4-2.** The control limit cited for pyrene is "< 36." This appears to be inaccurate. Control limits are typically cited as a range. This number should be verified.

Response: The control limit of "< 36" is accurate. Any value greater than 36 meets the acceptance criteria.

7. **Page 4-8, Section 4.2.2, First Paragraph.** This paragraph states that since the percent recovery exceeded the target range, "some analytical results may be biased low." However a review of the data tables found in Section 5 does not indicate any "L" qualifiers which are typically used to qualify biased low data. This discrepancy requires correction or clarification.

**Final Response to Review Comments for
Remedial Investigation Report
Site 11, Southeast Open Disposal Area (B)
NAS Whiting Field, Milton, Florida**

Response: The last sentence of the subject paragraph states an acceptable level of accuracy was achieved. In the judgement of the data validator, the 'L' qualifier was not required.

8. **Page 5-1, Section 5.0.** This section contains subsections describing the geologic and hydrogeologic assessments. However, these sections do not describe the underlying geologic or hydrogeologic zones encountered at the site. This information should be provided to correlate the data collected to specific geologic and hydrogeologic units.

Response: In an effort to streamline the RI report, discussion of specific geologic and hydrogeologic units is presented in the NAS Whiting Field General Information Report. Also, the basewide groundwater investigation (Site 40) will address these issues.

9. **Page 5-1, Section 5.2.** This section describes the direction of groundwater flow based on water level readings found in various monitoring wells at this, and other sites in the area. Table 5-1 summarizes the water level readings, while Figures 5-1 and 5-2 depict the groundwater flow direction for the sand and gravel (shallow) unit. Monitoring well WHF-11-2 is not depicted on either figure, nor is there any figure depicting the flow direction in the deeper hydrogeologic zone below the clay layer. The current figures should be modified to include WHF-11-2 and additional figures depicting groundwater flow in the deeper unit should be developed.

Response: The addition of monitoring well WHF-11-2 to Figures 5-1 and 5-2 would not affect the potentiometric surface maps of the water table as this well is screened in the deeper hydrogeologic zone. However, the assessment of the deeper hydrogeologic zones (including monitoring well WHF-11-2) will be included in the basewide groundwater investigation (Site 40). However, the location of monitoring well WHF-11-2 will be presented on the referenced figures.

- 9a. *Will the response be restated to "the well will be added"?*

Response: *Monitoring well WHF-11-2 will be added to Figures 5-1 and 5-2.*

10. **Page 5-1, Section 5.2, Second Paragraph.** This paragraph, which describes the groundwater flow direction in the shallow and deeper hydrogeologic zones, refers to Figure 5-1, which depicts the flow direction. However, according to Figure 5-1, groundwater data from wells WHF-11-1S and WHF-11-1 were not used in the calculations. The legend in Figure 5-1 indicates that WHF-11-1S was not included, presumably as a result of a "perched" groundwater layer. This section should clearly indicate the different hydrogeologic zones and clarify why some wells were not used in these calculations.

**Final Response to Review Comments for
Remedial Investigation Report
Site 11, Southeast Open Disposal Area (B)
NAS Whiting Field, Milton, Florida**

Response: These concerns will be addressed in the basewide groundwater investigation (Site 40).

- 10a. *The response does not address the comment. Is the text going to be revised to clarify why some wells were not used?*

Response: Clarification will be provided in the final RI.

11. **Page 5-12, Table 5-2.** The June 1994 average horizontal gradient, based on the six horizontal gradients provided, should be 0.0028, not 0.0029 as cited. The table should be modified accordingly.

Response: The average horizontal gradient will be changed to 0.0028.

12. **Page 5-16, Table 5-2.** The November 1996 horizontal gradient cited for well WHF-11-2 is 0.014. This value appears to be erroneous based on a comparison to other values obtained for that and similar wells. Additionally, this value does not figure into the average hydraulic gradient calculation. This number should be verified, and the table modified accordingly.

Response: The water level values were verified and appear to be anomalous. The table will be modified to indicate the horizontal gradient of 0.014 for well WHF-11-2 is an anomalous reading and was not included in the average gradient calculation.

13. **Page 5-20, Section 5.4, Second Paragraph.** The first sentence states that 31 of "148" proposed soil gas locations were sampled. However, according to Figure 3-1, this number should be "48". The text should be modified accordingly.

Response: Please see response to Specific Comment No. 1.

14. **Page 5-35, Table 5-12.** The EPA Region III screening criteria listed for the aroclor compounds is "0.32." This is inaccurate since it is in units of mg/kg. Since all of the results are cited in ug/kg, the corresponding EPA Region III screening value is 320 ug/kg. It is recommended that all screening values be converted to the appropriate units as cited for the soil data. Furthermore, all screening values should be verified to ensure the appropriate conversions are being used.

Response: The screening criteria for aroclor compounds will be changed as suggested and all other screening values will be checked for appropriate units.

15. **Page 5-48, Table 5-16.** The values cited for the column "Federal MCLs" is confusing. The column header indicates Federal MCLs, while the footnote to this column (Footnote

**Final Response to Review Comments for
Remedial Investigation Report
Site 11, Southeast Open Disposal Area (B)
NAS Whiting Field, Milton, Florida**

5) indicates that the lesser of the EPA Region III risk base concentration (RBCs) for tap water or the Florida Groundwater Guidance Concentration is to be used. It is not clear which is being applied. For instance, the benzene value listed (5 ug/l) is the MCL for that contaminant; however, the EPA Region III RBC for tap water for benzene is 0.36 ug/l, based on the October 1997 RBC tables. In this case, the lower value was not cited. Similar circumstances apply to other chemicals as well. Clarification as to which value is being utilized in this column should be provided in the report.

Response: The Federal MCL column will be changed to reflect the MCLs identified in the USEPA Drinking Water Regulations and Health Advisories tables.

16. **Page 5-48, Table 5-16.** The value cited for aluminum (200 ug/l) can not be verified. The source of this value should be provided.

Response: No Federal MCL for aluminum is available and the value of 200 ug/l will be changed to "NA" (not applicable).

- 16a. *The response does not address the fact that there is a secondary MCL for Aluminum.*

Response: The 200 ug/l value for Aluminum, as stated in comment 16a, will be identified as a Secondary MCL. Appropriate reference will be added to the Table.

17. **Page 8-11, Section 8.2.3, Eighth Paragraph.** This paragraph should discuss the potential, or lack thereof, for groundwater discharge to surface water bodies downgradient of the site

Response: It appears this comment is addressed on Page 8-12, second paragraph, which identifies Big Coldwater Creek as a point of groundwater discharge for groundwater at Site 11.

18. **Page 9-3, Section 9.1.** Both the human health and ecological risk assessment (ERA) conclusions should be qualified. It does not appear, based on data presented in the report, that the surficial lead contamination near 11-SL-02 has been fully delineated unless the reference to sample location 11S00401 in Comment No. 6 actually is sample number 11-SL-02). A clarification should be provided.

Response: As stated in response to comment number 3, contamination around 11-SL-02 has not been delineated. The Navy recommends collection of delineation sample at this location.

**Final Response to Review Comments for
Remedial Investigation Report
Site 11, Southeast Open Disposal Area (B)
NAS Whiting Field, Milton, Florida**

USEPA RISK REVIEW COMMENTS

GENERAL COMMENTS

1. Chapter seven discusses how risks are calculated for terrestrial wildlife using HQs and His. A discussion is provided about how HQs less than one will result in no adverse ecological effects and how His greater than one will result in possible adverse ecological effects and warrant further discussion. However, there is no discussion on how an HI or HQ equal to one will be addressed. This scenario should be addressed in the risk characterization section of the text.

Response: The risk characterization will be expanded to include a discussion on how an HI or HQ equal to one will be addressed. In general, if the HI is greater than or equal to one, the ecological significance of the HQs comprising the HI will be discussed. Although adverse effects to individual birds and mammals are possible at HI values of one, the likelihood of population-level effects to terrestrial wildlife populations, which was selected as the assessment endpoint for the ERA, are considered negligible.

2. When sublethal and lethal hazard indices (His) were calculated for each receptor using reasonable maximum exposure (RME) point concentrations, the His for each receptor were greater than one (except for the cotton mouse). When sublethal His were calculated using central tendencies (CTs), the His for each receptor were again greater than one (except for the cotton mouse). When sublethal His were recalculated excluding sample location 11-SL-02 values, His for each receptor were still greater than or equal to one (except for the cotton mouse). His for the short-tailed shrew and the eastern meadowlark were both equal to one but were determined to be insignificant because each of the hazard quotient (HQ) values that were summed to calculate the His were less than one. The purpose of calculating an HI is to predict the cumulative risks to a receptor from of the combined contaminants. Ruling an HI insignificant because it is composed of HQs that are each less than one defeats the purpose of calculating an HI. Based on the results of this ERA, there is a possibility of adverse effects to reproduction and growth of small mammals and birds inside *and* outside the immediate area of sample area 11-SL-02. The risk to small mammals and birds with His greater than or equal to one as well as higher trophic level receptors with His greater than or equal to one need further risk evaluation and assessment in the PRG development process.

Response: See the response to General Comment #1. Based on the results of the ERA, it is possible that adverse effects to reproduction and growth of individual small mammals and birds inside and outside the immediate area of sampling location 11-SL-02 may occur; however, the assessment endpoint chosen for the ERA focuses on population-level impacts, not impacts to individual species. As previously stated in Section 7.6.1, the number of affected individuals in a population presumably increases with increasing HQ or HI values; therefore, the likelihood of population-level effects occurring is generally expected to

**Final Response to Review Comments for
Remedial Investigation Report
Site 11, Southeast Open Disposal Area (B)
NAS Whiting Field, Milton, Florida**

decrease with lower HQ or HI values.

3. The surface soil assessment description within Section 3 of the RI does not appear to be consistent with the data that are used in the ecological risk assessment. The numbers of samples and the suite of analytes are not consistent between these two sections. For example, Section 3.3, pages 3-2 and 3-5 state that in Phase IIB 5 of the 13 surface soil sample locations were selected for TCL VOCs, SVOCs, pesticides, PCBs, TAL inorganics, and TPH analysis to support the risk assessment; while the remaining eight surface soil samples were only analyzed for lead.

Table 7-2 within the ecological risk assessment indicates that 10 samples were analyzed for TCL VOCs, SVOCs, pesticides, PCBs, TAL inorganics, while 18 were analyzed for lead. Were five of these samples from Phase IIB and the other five from another phase of the RI? Appendix C presents data from sampling that occurred in August 1992, October 1992, and January 1996. It does not appear that the October 1992 data were used in the ecological risk assessment. Appendix C appears to present surface soil data from 22 sampling locations. All recent validated sampling data should have been used in the ecological risk assessment. The inconsistencies of sample numbers, sample locations, and analysis need to be clarified.

Response: The 10 samples that were analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and TAL inorganics include five samples collected during the August 1992 Phase IIA investigation (sample locations 11-SL-01 through 11-SL-05) and five samples collected during the January 1996 Phase IIB investigation (sample locations 11S00101 through 11S00501). The 18 samples analyzed for lead include the aforementioned 10 samples in addition to 8 samples collected during the January 1996 Phase IIB investigation (11S00601 through 11S01301), which were analyzed for lead only. The October 1992 soil data presented in Appendix C were not used as part of the surface soil data set because these data are from subsurface soil sampling locations. All recent validated surface soil data was used to evaluate ecological risks at Site 11.

4. Site diagrams presented in the RI Report show a drainage feature labeled "Y" Ditch. The ditch is shown to be hydraulically down gradient from Site 11, but it is not clear if surface drainage flows toward the "Y" Ditch. Sampling of surface water and sediment does not appear to have been collected from the ditch. The lack of surface water and sediment data for the "Y" Ditch is a potential data gap in the characterization of potential contamination at Site 11. Surface flow drainage should be discussed in the text. In addition, the rationale for not collecting sediment and surface water samples should be presented in the text. Additional sampling may be necessary.

Response: As discussed in the Site Characterization (Section 7.1), off-site migration of site-related constituents to the Y-ditch is unlikely because the topography of Site 11 gently slopes toward the east-northeast. It is expected that any runoff from the site would migrate in a

**Final Response to Review Comments for
Remedial Investigation Report
Site 11, Southeast Open Disposal Area (B)
NAS Whiting Field, Milton, Florida**

northeasterly direction toward Big Coldwater Creek, which is located approximately 1.7 miles from Site 11.

5. Discussion in the Human Health Risk Assessment refers consistently to the risk calculations and the exposure variables that are presented in Appendix C. The information is actually presented in Appendix E. All references to Appendix C for exposure parameter and risk calculation data should be changed accordingly.

Response: The text will be revised accordingly.

SPECIFIC COMMENTS

1. **Section 5.5 Page 5-33.** The discussion of the lead concentrations refers to the "USEPA Region III RBC of 400 mg/kg." EPA does not currently have a Region III RBC for lead. The correct source of the screening value should be presented in the text.

Response: The correct source of the screening value will be presented in the text.

2. **Section 6.5.2, Page 6-20.** The text states that inhalation and ingestion of groundwater while showering was evaluated for the future residential scenario. The text does not provide a rationale for not evaluating the dermal exposure pathway for this scenario. An evaluation of the dermal pathway should be presented in the text, or the rationale for not evaluating pathway should be presented. In addition, the exposure parameters used in the calculation presented in Appendix E indicate that the ingestion of tap water was evaluated, not incidental ingestion while showering. The text should be modified .

Response: An explanation for not evaluating the dermal pathway will be presented in the text. The text will be modified to reflect the reviewer's comment concerning ingestion of tap water.

3. **Table 7-1, P. 7-7.** The assessment endpoints for terrestrial plants are stated as a "Reduction in the biomass of terrestrial plants used as forage material," and "Survival and growth of plant communities." One of these endpoints is a positive endpoint (survival of communities) while the other is a negative endpoint (reduction in biomass). These two endpoints are essentially the same with one being phrased negatively and the other phrased positively. One of these endpoints should be omitted from Table 7-1.

The assessment endpoints for terrestrial invertebrates are stated as a "Reduction in the abundance of earthworms used as forage material," and "Survival and growth of terrestrial invertebrate communities." Again, one of these endpoints is a positive endpoint (survival of communities) while the other is a negative endpoint (reduction in abundance). These

**Final Response to Review Comments for
Remedial Investigation Report
Site 11, Southeast Open Disposal Area (B)
NAS Whiting Field, Milton, Florida**

endpoints should be combined and both phrased either positively or negatively.

Response: The endpoints for terrestrial plants and soil invertebrates will be revised so that they are "positively" phrased.

4. **Section 7.3, P. 7-10.** The second paragraph on page 7-10 states that the site-specific background study used to establish background screening values for Site 11 consists of nine surface soil samples (BKG-SL-02, BKG-SL-06, BKG-SL-07, BKG-SL-08, BKS00101, BKS00201, BKS00301, BKS00401, and BKS00501) and one duplicate sample (BKS00201D). However, the analytical data for these background samples is not included with the rest of the soil sample analytical data in Appendix C. These data should be provided.

Response: The surface soil background data for Site 11 are included as part of the General Information Report (HLA, 1998).

5. **Section 7.4.2, Terrestrial Wildlife, p. 7-15.** The second bullet at the bottom of page 7-15 provides a discussion of the short-tailed shrew as a wildlife receptor. The home range of the short-tailed shrew is not provided in this discussion although the home ranges for the other ecological receptors are provided in this section. The home range of the short-tailed shrew should be provided in the second bullet.

Response: The home range of short-tailed shrew will be added to the second bullet.

6. **Table 7-3, p. 7-16.** This table provides the equations used to calculate the potential dietary exposures for wildlife receptors. The variable "TN" is given three different definitions in Table 7-3. They are as follows, 1) the tissue concentration in food item N, 2) the secondary prey item concentration, and 3) the primary prey item concentration. Clarification in Table 7-3 would be beneficial.

Response: The variable T_N will be modified so that T_{N1} refers to the tissue concentration of the primary prey item, T_{N2} refers to the tissue concentration of the secondary prey item, and T_N refers to the tissue concentration of either the primary or the secondary prey item.

7. **Table 7-5, p. 7-18.** This table describes the exposure parameters for representative wildlife species used as receptors in this remedial investigation. Many of the parameters are cited from the *Wildlife Exposure Factors Handbook* (USEPA, 1993); however, it is not consistently stated whether an average of the exposure parameter is calculated or if a certain study was selected. For example, it is not explained in Table 7-5 how the values in the column titled, "Assumed Diet for Terrestrial Exposure Assessment (% of diet)," were derived. The dietary composition data for the deer mouse (surrogate for the cotton mouse) provided in the handbook are seasonal percentages as high as 63% of the deer mouse's diet

**Final Response to Review Comments for
Remedial Investigation Report
Site 11, Southeast Open Disposal Area (B)
NAS Whiting Field, Milton, Florida**

but Table 7-5 states that invertebrates make up 10% of the deer mouse's diet. It should be clarified in Table 7-5 how the values in the dietary composition column were derived from the data provided in the handbook.

Response: The dietary composition data in Table 7-5 were derived based on average exposure parameters cited in the *Wildlife Exposure Factors Handbook* (USEPA, 1993). The table footnotes will be revised to clarify this distinction.

8. **Section 7.4.2, Terrestrial Wildlife, p. 7-19.** The second paragraph on page 7-19 discusses how the methodologies for the potential dietary exposure (PDE) calculations can be referred to in the General Information Report (GIR) prepared by ABB-ES in 1998. It would be helpful for pertinent excerpts of these methodologies to be provided in an appendix to this report.

Response: Pertinent excerpts of the PDE calculation methodology from the GIR will be included in Section 7.4.2.

9. **Section 7.6.1, Terrestrial Wildlife, p. 7-25.** The first sentence of the last paragraph on page 7-25 states that, "Sublethal risks to small mammals and birds are not predicted based on the revised RMEs for 4,4'-DDD, 4,4'-DDT, dieldrin, and lead." The very next sentence also discusses sublethal risks to small mammals and birds based on the revised RMEs but states that HIs were one. It appears as if the word "sublethal" should be changed to "lethal" in the first sentence.

Response: Based on the recalculated PDE values, sublethal risks are not predicted for small birds because the HI value for the meadowlark is less than one. The HI value for the shrew was equal to one, and all HQ values comprising the HI were less than one. As previously discussed in the response to General Comment #1, adverse effects to individual small mammals are possible at HI values of one. However, the assessment endpoint for terrestrial wildlife is adverse effects at the population level, not the individual species level. At HI values of one, it is assumed that population-level impacts to small mammals would be negligible.

10. **Section 9. P. 9-3.** When sublethal HIs were recalculated excluding sample location 11-SL-02 values, HIs for receptors, other than the cotton mouse, were one or greater. Therefore, risk to small mammals and birds is possible for the entire area of Site 11 but is greatest at sample location 11-SL-02. The ecological risk conclusion presented in Section 9 should be clarified to express this point.

Response: As discussed in the responses to General Comment #1 and Specific Comment #9, sublethal risks to individual small mammal species are possible; however the assessment endpoint for terrestrial wildlife is focused on population-level effects. At an HI value of one,

**Final Response to Review Comments for
Remedial Investigation Report
Site 11, Southeast Open Disposal Area (B)
NAS Whiting Field, Milton, Florida**

population-level impacts to small mammals are not anticipated.

- 11. Appendix C.** Soil sample analytical data for Site 11 is provided in Appendix C. Data for soil samples 11SS0101, 11SS0202, and 11SS0303 are shown in Appendix C but these sample locations are never mentioned in the sampling discussion in Section 7.3 of the text. The purpose and relevance of these sampling locations need to be addressed in the text.

Response: Samples 11SS0101, 11SS0202, and 11SS0303 are subsurface soil samples. The data from these samples is not included as part of the sampling discussion in Section 7.3 because ecological risks are evaluated for only surface soil, not subsurface soil.

- 12. Appendix F.** It is unclear as to why all of the tables in Appendix F are titled using the letter E and not F. Tables in Appendix E and Appendix F are titled using the letter E which can confuse the reader. This discrepancy should be clarified.

Response: The tables in Appendices E and F will be renamed so that the table numbers are consistent with the Appendices in which they appear.

- 13. Table E-1.** This table presents bioaccumulation factors (BAFs) for terrestrial invertebrates, terrestrial plants, mammals, and birds.

☞ The terrestrial invertebrate BAFs for PAHs are referenced as the average of values presented in Beyer 1990. It would be preferable to use the individual PAH BAFs presented in Beyer 1990 instead of an average. In cases where an individual value is not presented, then use of an average PAH BAF as a surrogate is appropriate. An average value would be appropriate as a surrogate for bis(2-ethylhexyl)phthalate, 2-methylnaphthalene, and acenaphthylene since values are not provided in Beyer, 1990. The footnote reference should be revised as appropriate.

Response: The individual PAH BAFs presented in Beyer 1990 will be used instead of the average values. In addition, the footnote reference will also be revised.

☞ The terrestrial plant BAFs for PAHs are derived by using the Travis and Arms equations; however, an average $\log K_{ow}$ value is used. The usefulness of averaging $\log K_{ow}$ values is questionable. Since K_{ow} values are chemical specific and can differ among PAH congeners, individual K_{ow} values should be used to derive BAFs.

**Final Response to Review Comments for
Remedial Investigation Report
Site 11, Southeast Open Disposal Area (B)
NAS Whiting Field, Milton, Florida**

Response: The terrestrial plant BAFs will be recalculated using the chemical-specific K_{ow} values.

- A terrestrial plant BAF is not calculated for lead. Footnote "t" states, "lead does not accumulate in plant tissue, therefore, a BAF of zero was assigned." The literature varies regarding lead accumulation in vascular plants. A BAF should be calculated for lead.

Response: A plant BAF for lead will be calculated based on the available literature.

- The reviewer could not confirm the mammal BAFs for semivolatiles using the cited Travis and Arms equation for biotransfer factors with conversion to BAFs. The average ingestion rate used for this calculation in the ERA was not provided. Please provide more information on the calculation of the mammal BAFs and re-confirm the calculated mammal BAFs.

Response: The average ingestion rate for lactating and non-lactating cows is 12 kg feed/day. All mammalian BAF values will be reviewed for potential errors.

- Table E-1 provides a plant BAF of 6.7E-03 for bis(2-ethylhexyl)phthalate. However, when recalculated using the equation in footnote [d], a plant BAF of 8.7E-3 was obtained. Please review this calculation and address this discrepancy.

Response: The calculation was reviewed, and a plant BAF of 8.7E-3 was obtained. The table will be revised to address this discrepancy.

14. **Table E-2.** Table E-2 presents ingestion toxicity information. The LOAEL column heading should not be under the lethal RTV heading. The LOAEL should be presented with sublethal RTVs. The column headings need to be verified to ensure that they reflect the data in the column and be revised as necessary.

Response: LOAEL values for mortality are available; therefore, it is appropriate to list these values under the "lethal RTV" heading. As described in Section 7.5.1 of the ERA, data used to select lethal RTVs includes NOAEL and LOAEL data, as well as LD_{50} values from the literature.

15. **Table E-3.** Table E-3 presents the reference toxicity values (RTVs) selected for the ERA. Table E-2 presents ingestion toxicity data for wildlife. Pyrene has a NOAEL of 75 mg/kg/BW/day, anthracene has a NOAEL of 1000 mg/kg/BW/day, and phenanthrene has a LOAEL of 120 mg/kg/BW/day presented on Table E-2; therefore, it is not clear why Table

**Final Response to Review Comments for
Remedial Investigation Report
Site 11, Southeast Open Disposal Area (B)
NAS Whiting Field, Milton, Florida**

E-3 presents a surrogate RTV of 10 mg/kg/BW/day for pyrene, anthracene and phenanthrene. The pyrene and anthracene NOAELs and the phenanthrene LOAEL should be used in this assessment instead of using a surrogate.

Response: The pyrene and anthracene NOAELs and the phenanthrene LOAEL values were not used as the selected RTVs because the effects measured in the laboratory tests were not related to the chosen sublethal assessment endpoints (i.e., growth and reproduction). The surrogate RTV of 10 mg/kg/BW/day for benzo(a)pyrene was selected as most relevant to the chosen assessment endpoint because reproductive effects were measured.