

N60508.AR.000989  
NAS WHITING FIELD  
5090.3a

LETTER REGARDING FINAL RESPONSE TO COMMENTS FOR THE REMEDIAL  
INVESTIGATION REPORT FOR SITE 14 NAS WHITING FIELD FL  
5/16/1999  
HARDING LAWSON ASSOCIATES

**Harding Lawson Associates**

2534-2014

May 16, 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 14, Short Term Sanitary Landfill  
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 revised 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**

A handwritten signature in cursive script, appearing to read 'Rao Angara', is written over the printed name.  
Rao Angara  
Principal Project 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, TtNUS (1 copy)  
Mr. G. Walker, TtNUS (1 copy)  
Mr. P. Ottinger, TtNUS (1 copy)  
Mr. J. Holland, NASWF (1 copy)  
Mr. E. Blomberg, HLA (1 copy)  
File

9

**Final Response to Review Comments  
For Remedial Investigation Report  
Site 14, Short Term Sanitary Landfill**

**Florida Department of Environmental Protection**

1. As we have previously discussed for other sites at NAS Whiting Field, please insure that the soil, surface water and ground water are evaluated with respect to the surface and ground water (Table 1) and the soil (Table 2) values in Chapter 62-785, F.A.C. Please note that the evaluation for soil should be the lower of either the appropriate Direct Exposure (I or II) scenario or the leachability level. Please modify the various tables to reflect this change. Please reevaluate the existing COPC, risk evaluation, etc., as necessary to also reflect this change. Finally, the outdated Soil Cleanup Goals Memorandum from Mr. John Ruddell and the memorandum from Ms. Ligia Mora-Applegate dated April 5, 1995 should not be used and the references to them should be removed. This comment applies directly to Table 5-8, 5-10, and 5-14 in Chapter 5, in Table 6-1, 6-2 and 6-3 in Chapter 6 and to other appropriate tables in subsequent chapters.

**Response:** As recommended by the reviewer, all data will be compared against the criteria specified in Chapter 62-785, F.A.C. Tables 5-8, 5-10, 5-14, 6-1, 6-2, 6-3, and all other relevant tables will be updated as necessary.

2. Table 5-14, footnotes: in Table 5-14, page 5-40, a statement is made within the context of footnote 7 regarding "a number of enforceable and nonenforceable State of Florida Regulations". This statement is misleading in that it implies that some ground water guidance concentrations and Secondary standards are "nonenforceable" when in fact they are enforceable within the scope of a cleanup program such as the present program at NAS Whiting Field. In 1997, the Florida Legislature adopted Chapter 97-277, Laws of Florida, which mandated that the Department should apply State Water Quality Standards within the context of risk-based corrective-action principles for Brownfield Sites. Please refer to Chapter 97-277, Section 5 (1)(g)1, in which it states that this should be accomplished "...based on minimum criteria in Department Rule...(and which)...shall consider lifetime cancer risk of 1.0E-6...(and) the naturally occurring background concentrations or nuisance, organoleptic, and aesthetic considerations." The water and soil TCLs in Tables 1 and 2 of Chapter 62-785, F.A.C. were developed according to that mandate and subsequently incorporated and adopted. Although the TCLs in the rule follow legislative mandate for Brownfield Sites only, they are representative of default contaminant levels of soil and water which the Department considers applicable to all cleanup programs. Based on this, I respectfully suggest that the statement regarding nonenforceability is inappropriate.

**Response:** References to "nonenforcable" regulations will be removed from the footnote.

3. Table 5-8: although it should be corrected as a result of comment 1, above, the Florida Cleanup Goals for vanadium are significantly different from what is shown. Please insure that all Florida Cleanup Goals are checked for accuracy. Please note also that

**Final Response to Review Comments  
For Remedial Investigation Report  
Site 14, Short Term Sanitary Landfill**

vanadium in Table 6-1 should be a chemical of potential concern because the correct screening value is 15 mg/kg (from Table 1, Chapter 62-785, F.A.C) and five of the six samples exceeded this value. Please review and correct all subsequent tables.

**Response:** All Florida Cleanup Goals will be checked for accuracy and the tables will be revised accordingly. Vanadium will be added as a chemical of concern as requested.

4. Please include Figure 6-1, Site 14 Complete Exposure Pathways for Human Receptors.

**Response:** Figure 6-1 will be included in the final report.

5. Figure 6-4: please correct the USEPA Risk Range (it does not include acceptance by FDEP).

**Response:** Figure 6-4 will be revised as recommended.

6. Section 6.8, Summary of HHRA for Site 14: the statement that, "It is likely that naturally occurring arsenic contributes to the FDEP target risk level exceedance" is misleading in that this has not actually been shown to be the case. Substituting the word "possible" for the word "likely" is more accurate..

**Response:** As suggested by the reviewer, the statement will be revised to read as, "*It is possible that naturally occurring arsenic contributes to the FDEP target risk level exceedance*".

7. Section 9.1, Conclusions: please revise according to the information developed based on using the correct Florida TCLs. Please reconsider the recommendations, if necessary.

**Response:** Chapter 9 will be revised based on changes made to the RI report.

**Final Response to Review Comments  
For Remedial Investigation Report  
Site 14, Short Term Sanitary Landfill**

**U.S. Environmental Protection Agency**

**General Comments**

1. The hydrogeologic characterization is very detailed and provides some understanding of conditions across the site. However, a data gap exists concerning the horizontal extent of contamination in a downgradient (SE) direction from the site. This deficiency should be addressed.

**Response:** The extent of groundwater contamination will be addressed in the Site 40 investigation, the basewide groundwater investigation.

**Specific Comments**

2. **Page 1-1, Section 1.2 Paragraph 5.** Although the site description is adequate for describing current conditions, it provides only a minimal description from an historic site description perspective. Site description information from the 1985 Initial Assessment Study should be incorporated into the Draft RI Report.

**Response:** Additional site description will not be added to the RI as this information is present in the GIR which was prepared to reduce the volume and redundancy of information in Whiting Field reports.

3. **Page 5-1, Section 5.1 Paragraph 6.** The Draft RI Report states, "Site 14 monitoring well boring logs are presented in Appendix E of this report." However, this is not an accurate description of what appears in Appendix E. According to the Table of Contents, Appendix E contains Human Health Risk Data. An Appendix should be assembled to present monitoring well and soil boring logs, and the Table of Contents should be modified accordingly.

**Response:** An Appendix will be created for the boring logs in the Final RI.

4. **Page 5-10, Section 5.2 Figure 5-2.** Review of Figure 5-2 indicates that two additional deep monitoring wells should be installed in a downgradient (SE) direction from Site 14. Well location WHF-14-1 is of no value in assessing possible groundwater contamination in a downgradient direction offsite from Site 14. Well location WHF-14-2 is only of marginal value when determining extent of contamination in a crossgradient direction to Site 14. The addition of a third and fourth monitoring well would narrow the data gap which presently exists.

**Response:** These data gaps will be addressed in the Site 40 Basewide Groundwater investigation.

**Response A:** *This comment was discussed during the April 1999 partnering meeting and additional monitoring wells will be installed at Site 14 during the Site 40 RI.*

**Final Response to Review Comments  
For Remedial Investigation Report  
Site 14, Short Term Sanitary Landfill**

5. **Page 5-22, Section 5.5 Table 5-7 and Table 5-8.** The justification for averaging the values of the samples and their duplicates for the initial screening should be explained.

**Response:** The method of averaging the sample and its duplicate is a common practice and has been agreed to by the NAS Whiting Field partnering team. An explanation is provided in the footnotes.

## **Human Health and Ecological Risk Assessments**

### **General Comments**

6. Discussion in the Human Health Risk Assessment section refers consistently to the risk calculations, exposure variables, and toxicity profiles that are presented in Appendix C. This information is actually presented in Appendix E. All references to Appendix C for exposure parameters, information on the toxicity of human health contaminants of potential concern (HHCCP), and risk calculation data should be changed accordingly.

**Response:** References to Appendix C will be changed to Appendix E.

7. It is discussed in chapter 7 that risks are calculated for terrestrial wildlife using Hazard Quotients (HQs) and Hazard Indices (HIs). The text explains that HQs less than one would result in no adverse ecological effects and HIs greater than one would result in possible adverse ecological effects and warrant further discussion. However, it is not discussed how an HI or HQ equal to one would be addressed. This scenario should be addressed in the risk characterization section of the text.

**Response:** The text will be changed to clarify the finding of risk based on an HQ or HI greater than or equal to 1. The last sentence of the first paragraph in section 7.6.1 will be replaced with the following: *When an HI is greater than or equal to 1, a discussion..... 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.*

8. An editorial review of the document is necessary. Throughout Chapter 7, tables in Appendix F are referred to as Appendix E tables. Appendix E contains human health data while Appendix F contains ecological data. The Appendix E references in chapter 7 should be changed to reference Appendix F.

**Response:** References to Appendix E will be changed to reference Appendix F.

- 8a. Many of the tables in Appendix F cite documents that do not appear in the reference section of this document. In order to check these references, a full citation is needed. Full citations should be included in the reference section or a separate reference section for each appendix

**Final Response to Review Comments  
For Remedial Investigation Report  
Site 14, Short Term Sanitary Landfill**

should be provided.

**Response:** References will be included in Appendix F of the final RI.

**Specific Comments**

9. **Table 5-7.** The table presents a summary of the analytical results of the surface soil investigation at Site 14. However, a comparison of the information presented in Table 5-7 with Table 6-1 indicate that Table 5-7 does not contain the concentrations for zinc, which were detected during sampling activities. The table should be corrected accordingly.

**Response:** Table 5-7 will be revised to include the detections of zinc.

10. **Table 5-11.** The table presents a summary of the analytical results of the groundwater investigation at Site 14. The table does not contain the units for the concentrations of inorganic constituents detected in the samples. In order to clearly present the data, the table should include the appropriate units.

**Response:** Units for inorganics will be added to Table 5-11.

11. **Figure 6-1.** The text of Section Six indicates that the conceptual site model for Site 14 is presented in Figure 6-1. However, the document does not contain this information. A conceptual site model should be developed which evaluates the potential exposure pathways for each of the receptors at Site 14.

**Response:** Figure 6-1, the conceptual site model, will be added to the Final RI.

12. **Section 6.8, Page 6-27.** The text of the section states that it has been determined that the HHCP detected in surface soil, subsurface soil, and groundwater are not likely to pose unacceptable risks to the receptors evaluated. However, no HHCP were identified in the subsurface soil at Site 14, therefore, no evaluation was performed. The text should be corrected to avoid unnecessary confusion.

**Response:** The text will be revised to indicate that HHCP were not detected in subsurface soil.

13. **Figure 7-2, Page 7-6.** Figure 7-2 shows the contaminant pathway model for Site 14 ecological receptors. Shading of the boxes indicates exposure pathways that are quantitatively evaluated for receptors in Site 14. Nonshaded boxes indicate insignificant exposure pathways. The soil-to-food-to-ingestion pathway for terrestrial invertebrates is not shaded meaning it is not considered to be a significant exposure pathway. The possibility of exposure of terrestrial invertebrates to contaminants via ingestion of contaminated food is highly likely since terrestrial invertebrates ingest food which is in direct contact with potentially contaminated soil. Page 7-7 discusses ingestion of food items by terrestrial invertebrates as a complete exposure pathway. It would be appropriate to shade the box in

**Final Response to Review Comments  
For Remedial Investigation Report  
Site 14, Short Term Sanitary Landfill**

Figure 7-2 to indicate that ingestion of food items by terrestrial invertebrates is a complete exposure pathway.

**Response:** The box for food ingestion in Figure 7-2 will be shaded to indicate that ingestion of food items by terrestrial invertebrates is a complete exposure pathway.

14. **Section 7.2.3, Identification of Endpoints, Page 7-7.** Three hypotheses were developed to gauge potential risks associated with exposure to Site 14 surface soil. The hypotheses, however, are phrased in the form of questions which does not fit the definition of a hypothesis. Hypotheses are predictions or estimations of possible results of a study or experiment. Either the term "hypotheses" should not be used in this section or they should be changed from questions to statements that fit the definition of the term hypothesis.

**Response:** The three "hypotheses" will be revised from questions to statements.

15. **Table 7-1, Page 7-8.** Table 7-1 shows the endpoints selected for the ecological risk assessment. In Section 7.2.3, the assessment endpoints are defined as representing the ecological component to be protected. However, in Table 7-1 the assessment endpoints for terrestrial plants and terrestrial invertebrates are stated as being a reduction in the biomass of terrestrial plants used as forage material and a reduction in the abundance of earthworms used as forage material, respectively. Reductions in forage material are not ecological components to be protected. The assessment endpoints in Table 7-1 are not consistent with the definition of an assessment endpoint provided in section 7.2.3. This inconsistency should be corrected.

**Response:** The assessment endpoints will be revised to indicate that terrestrial plants and invertebrates will be the components to be protected not the reduction of biomass and earthworms.

- 15a. Also, the terrestrial invertebrate assessment endpoint presented in Table 7-1 is more specific than the measurement endpoint and the decision point. The assessment endpoint specifies "earthworms" while the measurement endpoint and the decision point specify "terrestrial invertebrates". This inconsistency should be corrected.

**Response:** The assessment endpoint will be revised to "terrestrial invertebrates to be consistent with the measurement endpoint and decision endpoint.

16. **Section 7.3, Hazard Assessment and Selection of ECPCs, Page 7-10.** The third paragraph on Page 7-10 states that the site-specific background investigation 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 background data are provided in the NAS Whiting Field GIR and will not be

**Final Response to Review Comments  
For Remedial Investigation Report  
Site 14, Short Term Sanitary Landfill**

added to the RI report. The GIR was created to reduce the presentation of redundant information in the RI reports and therefore reduce the volume of subsequent reports.

17. **Section 7.4.2, Terrestrial Wildlife, Page 7-14.** The second paragraph in Section 7.4.2 refers the reader to in the General Information Report (GIR) prepared by ABB-ES in 1998 for the potential dietary exposure (PDE) calculations methodology. It would be helpful for pertinent excerpts of these methodologies to be provided in an appendix to this report.

**Response:** See response to Comment 16.

18. **Table 7-3, Page 7-15.** 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 (e.g.,  $T_p$  for primary prey item tissue concentration and  $T_s$  for secondary prey item tissue concentration) 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 secondary prey item.

- 18a. The rationale provided in the ERA for not calculating bird tissue concentrations is the lack of avian bioaccumulation factors (BAFs). Since contaminant concentrations in birds as a secondary prey items were not calculated, it should be stated in section 7.4 how PDEs for the red fox and red-tailed hawk were calculated without the avian BAFs.

**Response:** The following uncertainty will be added to Section 7.7. The PDEs for the red fox and red-tailed hawk assume no exposure from small birds as prey items due to a lack of avian BAFs. Birds make-up a small portion of the red fox and red-tailed hawk diet, and for this evaluation it is assumed that small birds would not provide a source of contaminant exposure. In addition, the risks predicted (i.e. the HQs and HIs) for the red fox and red-tailed hawk are so low that it is unlikely that including avian BAFs (if they were available) would alter the findings of the ERA.

19. **Section 7.4.2, Terrestrial Wildlife, Page 7-16.** The first bullet at the top of page 7-16 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 other ecological receptors are provided in this section. The home range of the short-tailed shrew should be provided in the first bullet.

**Response:** The home range for the short-tailed shrew will be included as suggested. The first sentence in this paragraph will be revised as follows; "... , and brush, and has a home range of approximately 1 acre".

**Final Response to Review Comments  
For Remedial Investigation Report  
Site 14, Short Term Sanitary Landfill**

- 19a. The fourth bullet at the bottom of page 7-16 provides a discussion of the red-tailed hawk as a wildlife receptor. The home range of the red-tailed hawk is not provided in this discussion although the home ranges for other ecological receptors are provided in this section. The home range of the red-tailed hawk should be provided in the fourth bullet.

**Response:** The home range for the red-tailed hawk will be included as suggested. The first sentence of this paragraph will be revised as follows; "... on small mammals, and has a home range of approximately 800 acres".

20. **Table 7-2.** Chrysene was selected as one of the ECPCs in Table 7-2. However, detected concentrations of chrysene are not presented in the sampling data within Appendix C. Data for chrysene should be provided in Appendix C.

**Response:** Analytical results for chrysene will be added to Appendix C.

21. **Table 7-5, Page 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 with invertebrates comprising as much as 63% of the deer mouse's diet, 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.

- 21a. The food ingestion rate (FIR) for the red-tailed hawk was calculated using the bird equation based on body weight from the Wildlife Exposure Factors Handbook (USEPA, 1993). An FIR of 0.133 kg/day for the red-tailed hawk is presented in table 7-5; however, when calculated using the EPA bird equation and the body weight provided in Table 7-5, an FIR of 0.059 kg/day results. This calculation should be reevaluated and checked for accuracy.

**Response:** The food ingestion rates were re-calculated for the eastern meadowlark and red-tailed hawk. The FIR for the eastern meadowlark is correct. However, the FIR for the red-tailed hawk was calculated incorrectly, the correct FIR for the red-tailed hawk should be 0.059 kg/day. The ERA will be revised as required.

**Final Response to Review Comments  
For Remedial Investigation Report  
Site 14, Short Term Sanitary Landfill**

22. **Section 7.6.2, Terrestrial Plants.** This section asserts that the sparse vegetation in the landfill area is "likely the result of physical disturbance to the surface caused by landfill-related activities, rather than direct contact with ECPCs in surface soil." This explanation for the sparse vegetation does not seem valid since landfill operations ceased in early 1979. The explanation of physical stress to vegetation should include clay content and soil compaction data.

**Response:** *The text reference to sparse vegetation at Site 14 is incorrect. The text will be revised to indicate that the site is covered with many volunteer pine trees and small shrubs.*

23. **Appendix C.** Soil sample analytical data for Site 14 are provided in Appendix C. Data for soil samples 14SS0101 and 14SS0202 are shown in Appendix C but these sample locations are not clearly mentioned in the sampling discussion in Section 7.3 of the text. The purpose and relevance of these sampling locations needs to be addressed in the text.

**Response:** The sixth paragraph in section 7.3 contains a discussion of samples 14SS0101 and 14SS0202. An additional sentence will be added to this discussion, indicating that there is subsurface data available for these locations. However, these data were not included in the ERA because no exposure pathway to subsurface soils exists for ecological receptors, as these data were collected at depths between 5 and 12 feet below the ground surface.

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

- The terrestrial invertebrate BAFs for polynuclear aromatic hydrocarbons (PAHs) are referenced as being 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, since a value is not provided in Beyer, 1990. However, the individual value for chrysene presented in Beyer would be preferable. 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.

- It is not possible to 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. Provide more information on the calculation of the mammal BAFs and re-confirm the calculated mammal BAFs.

**Final Response to Review Comments  
For Remedial Investigation Report  
Site 14, Short Term Sanitary Landfill**

**Response:** The average ingestion rate for lactating and non-lactating cows is 12 kg feed/day (dry weight). As noted in footnote [e] in Table F-1, this value was converted to a wet weight prior to calculation of a BAF. This ingestion rate for lactating and non-lactating cows will be included in footnote [e], in Table F-1. The mammal BAFs for chrysene and bis(2-ethylhexyl)phthalate, calculated using this equation are 7.5E-01 and 1.9E-01, respectively.

- Table F-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-03 was obtained. Please review this calculation and address this discrepancy.

**Response:** The calculation was reviewed, and the plant BAF should be 8.7E-03 rather than the value presented. The table will be revised accordingly.

- Table F-1 provides an invertebrate BAF of 7.6E-02 and a plant BAF of 7.6E-02 for chrysene. However, when recalculated using the calculations and conversions in footnotes [b] and [c], an invertebrate BAF of 3.5E-02 and a plant BAF of 3.9E-03 were obtained. Please review this calculation and address this discrepancy.

**Response:** The calculations were reviewed, and the invertebrate and plant BAF should be 3.5E-02 and 3.9E-03, respectively, rather than the value presented. The table will be revised accordingly.

29. Table F-2. Table F-2 presents ingestion toxicity information. The Lowest Observed Adverse Effect Level (LOAEL) column heading should not be under the lethal reference toxicity value (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 (i.e., mortality in 6% of the population); 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 literature.

30. **Table F-3.** Table F-3 presents the RTVs selected for the ERA. Table F-2 presents ingestion toxicity data for wildlife.

- Methylene chloride has a No Observed Adverse Effect Level (NOAEL) of 12.5 mg/kg/BW/day but the LOAEL value was used as the sublethal RTV in Table F-3. Chrysene has a LOAEL of 99 mg/kg/BW/day but surrogate lethal and sublethal RTVs of 12 and 10 mg/kg/BW/day, respectively, were used in Table F-3. The data hierarchy discussion in section 7.5.1 states that NOAEL values should be used as RTVs before LOAELs and that LOAEL should be used before surrogates. The methylene chloride NOAEL and the chrysene LOAEL should be used in this assessment.

**Final Response to Review Comments  
For Remedial Investigation Report  
Site 14, Short Term Sanitary Landfill**

**Response:** The methylene chloride NOAEL of 12.5 mg/kg/BW-day, presented in Table F-2 was not selected as the sublethal RTV based on effects identified in this study, as they are not consistent with the assessment endpoint selected for this evaluation. In addition, the adjusted LOAEL selected as the sublethal RTV is lower than the NOAEL, and is based on effects that are more consistent with the selected assessment endpoints. Toxicity information for chrysene was not readily available, and the one RTV that was located is based on effects that are not consistent with the endpoints selected for this evaluation, therefore the RTVs for benzo(a)pyrene were used as surrogates.

- A LOAEL of 2300 mg/kg/BW/day for manganese/small mammal was used as the RTV in Table F-3. The data hierarchy discussion in section 7.5.1 states that LOAEL values should be multiplied by 0.1 to obtain appropriate RTV values. Please review this calculation and address this discrepancy.

**Response:** The value of 2300 mg/kg/BW-day is a NOAEL for mortality, therefore the uncertainty factor was not applied. This value should not have been presented in the LOAEL column of Table F-2. The table will be revised accordingly.

- LOAELs of 96 mg/kg/BW/day for vanadium/small bird, and 6.2 mg/kg/BW/day for vanadium/small mammal were multiplied by 0.2 to obtain RTVs of 19.2 mg/kg/BW/day and 6.2 mg/kg/BW/day, respectively. The data hierarchy discussion in section 7.5.1 states that LOAEL values should be multiplied by 0.1 to obtain appropriate RTV values. Please review this calculation and address this discrepancy.

**Response:** The small bird and small mammal lethal RTVs for vanadium, based on a LOAEL of 96 mg/kg/BW-day and a LOAEL of 31 mg/kg/BW-day, respectively, were adjusted incorrectly. The correctly adjusted RTV are 9.6 mg/kg/BW-day and 3.1 mg/kg/BW-day for the small bird and small mammal, respectively. Table F-2 and F-3 will be revised accordingly.