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NAS WHITING FIELD
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LETTER AND COMMENTS FROM U S EPA REGION IV REGARDING REVIEW OF
REMEDIAL INVESTIGATION/FEASIBILITY STUDY GENERAL INFORMATION REPORT NAS
WHITING FIELD FL
9/18/1997
U S EPA REGION IV



UNITED STATES ENVIRONMENTAL PROTECTION
REGION 4
ATLANTA FEDERAL CENTER
100 ALABAMA STREET, S.W.
ATLANTA, GEORGIA 30303-3104

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September 18, 1997

4WD-FFB

Ms. Linda Martin
Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
2155 Eagle Drive
North Charleston, South Carolina 29419-9010

SUBJ: RI/FS GIR for NAS Whiting Field

Dear Ms. Martin:

The United States Environmental Protection Agency (EPA) has received and reviewed the Remedial Investigation and Feasibility Study (RI/FS) General Information Report for NAS Whiting Field. Enclosed please find EPA's comments based on this review.

If you should have any questions or comments, please feel free to contact me at (404)562-8555.

Sincerely yours,

Craig A. Benedikt
Senior Remedial Project Manager
Federal Facilities Branch

Enclosure

cc: Jim Cason, FDEP

GENERAL COMMENTS

The following general comments were generated during review of the General Information Report.

1. It is recommended that double-sided copy be considered in the future to reduce the volume of the report.
2. For future consideration, it is recommended that not every page be labeled with the word "Draft" in order to facilitate revisions to the document. In this manner, only those pages which require revision will have to be replaced in the document. As it stands now the whole document will have to be reproduced in order to issue a final version.
3. It is stated throughout the General Information Report that twenty-nine sites require investigation. However, review of tables and figures in the document show only twenty-eight sites (Site Nos. 1 through 18, 29 through 33, and 35 through 39) except for Table 1-2, which did contain Site No. 34 (Former Base Laundry). If Site No. 34 is supposed to be part of this investigation, then it needs to be incorporated throughout the document. If it is not part of the investigation then, it should not be mentioned in the document at all and it should be stated that there are only twenty-eight sites. The document needs to be revised accordingly.
4. The ecological risk assessment (ERA) methodology provided with the General Information Report is intended to provide information on the individual ERA, that will be performed for all sites at NAS Whiting Field. However, parts of the methodology are too general, that important information regarding methods are not included. Because of the very general presentation, it is difficult to evaluate the proposed methods. The ERA methodology should include sufficient detail to provide a clear understanding of the proposed approach.
5. Inhalation and dermal exposure pathways are considered to be insignificant exposure routes and are not discussed in detail. However, inhalation and dermal absorption may be important exposure routes when assessing the total risk from certain chemicals to ground-dwelling species. Greater attention should be given to the risks from these routes.
6. The proposed lethal reference toxicity values (RTVs) are one-fifth of the lowest reported lethal dose to 50 percent of test population (LD_{50}) for the species most closely related to the receptor. LD_{50} values should be used only when no-observed-effect-level (NOEL) or lowest-observed-effect-level (LOEL) values for a specific chemical are not available. The data hierarchy for deriving screening ecotoxicity values that is followed by Region IV is presented in *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final* (U.S.EPA, Environmental Response Team, Edison, NJ, June 1997).

7. No guidance is provided on how receptors of concern will be selected for use in exposure models. The General Information Report should include this guidance.
8. There is no indication that once the risk from individual sites is evaluated, the overall risk at NAS Whiting Field will be addressed. This is necessary because the home range of many higher organisms may include more than one contaminated site. This discrepancy should be addressed.
9. References are made throughout the text to documents that are not listed in the reference list. As a result, some statements made in the General Information Report could not be verified against the appropriate references.
10. References are made throughout the text to incorrect appendices. The General Information Report needs to reference the correct appendices in the text. Some examples have been included in the specific comments section of this report.

SPECIFIC COMMENTS

The following specific comments were generated during review of the General Information Report.

1. **Page 1-6, Section 1.0, Figure 1-2.** The legend contains a symbol for ground elevation contours; however, ground elevation contours are not shown on the figure. The figure needs to be revised to include ground elevation contours.
2. **Page 1-7, Section 1.1.** The potential for no further action needs to be included in the options for a site based on the results of the RI.
3. **Page 1-21, Section 1.4.6.1, Fourth Paragraph.** The discharge values for Clear Creek should be added to the text, if available.
4. **Page 1-32, Section 1.5, Fourth Paragraph.** Please verify the date of Geraghty & Miller's preparation of a plan of action for the verification study. The text states that preparation occurred in June 1994.
5. **Page 2-8, Section 2.1.4, Second and Third Paragraphs.** Change the word **control** to **assurance** in the title of EPA Region IV's SOP.
6. **Page 2-10, Section 2.1.5, Third Paragraph.** Stating that cuttings and drilling fluids were disposed of properly is too vague. It should be stated that cuttings and drilling fluids were disposed of according to the IDW plan and then reference the plan.
7. **Page 2-10, Section 2.1.5, Third Paragraph.** The text states that monitoring wells were developed by pumping until the "produced water" was sand-free, relatively clean and the pH, specific conductance, and temperature of the "produced water" had stabilized. Although this practice is in accordance with EPA SOPQAM (1991), the 1996 EPA EISOPQAM requires monitoring wells to be developed until the column of water in the monitoring well is free of visible sediment, and the pH, temperature, turbidity and specific conductivity have stabilized. Monitoring wells which were installed after May 1996 should follow the 1996 guidance which includes developing a monitoring well until the turbidity has stabilized.
8. **Page 2-11, Section 2.1.5.1, First Paragraph.** The text states that a 1-foot bentonite clay, in pellet form, or fine sand was placed in the annular space above the sand pack, was hydrated using potable water, and was allowed sufficient time to hydrate (minimum of two hours). However, the EISOPQAM recommends that the bentonite seal should be placed above the filter pack at a minimum of two feet vertical thickness and the hydration time for the bentonite pellets should be a minimum of eight hours or the manufacturer's recommended hydration time, whichever is greater. This deviation from the EISOPQAM

should be justified.

9. **Page 2-13, Section 2.1.5.2, First Paragraph.** The text states that sufficient time (minimum of two hours) was allowed for the bentonite to hydrate. However, the EISOPQAM recommends that the hydration time for the bentonite pellets should be a minimum of eight hours or the manufacturer's recommended hydration time, whichever is greater. This deviation from the EISOPQAM should be justified.
10. **Pages 2-13 and 2-14, Section 2.1.5.2, General.** There are discrepancies in the text concerning well construction for the intermediate, deep, and "deep deep" monitoring wells. The paragraph concerning single-cased monitoring well construction states that the filter pack will be "brought up to a level approximately 2 feet above the well screen." However, the last paragraph in the section states that double-cased and single-cased monitoring wells construction included a filter pack brought up to a level approximately 3 feet above the well screen. In addition, this paragraph discusses the filter pack and bentonite-cement grout, but does not mention the bentonite clay seal. Figures 2-1 and 2-2, typical monitoring well construction diagrams for single- and double-cased wells, show a bentonite clay seal. These discrepancies should be revised accordingly.
11. **Page 2-22, Section 2.2, Second Paragraph.** The word **chronograph** should be replaced with **chromatograph**.
12. **Page 2-28, Section 2.3, First Paragraph.** The term **corrective measures** should be changed to **remedial alternatives**. Corrective measures denotes work is being conducted under RCRA rather than CERCLA.
13. **Page 2-37, Section 2.4.1.2, Second Paragraph.** The text states that "The ERA only evaluated exposure pathways where: (1) contaminant exposures are the highest and most likely to occur and (2) where adequate data pertaining to the receptors, contaminant exposures, and toxicity for completion of risk analyses are available." No definition of adequate data is provided. Exposure pathways that appear to present risk cannot be eliminated from the ERA if data specific to the situation are not readily available. Data from related species and similar chemicals can be used, and logical assumptions can be made. At a minimum, risk that cannot be quantified must be addressed qualitatively. The ERA must address all potential exposure pathways.
14. **Page 2-37, Section 2.4.1.2, Third Paragraph.** The text states that "The ERA assumed that fur, feathers, or chitinous exoskeleton limit the transfer of contamination across the dermis; therefore, exposures related to dermal contact are not evaluated." Although fur and other external coverings will reduce exposure to contaminants, they do not completely eliminate exposure. A portion of the skin is not covered (foot pads, ears, nose, etc.), and soil and water will reach the skin surface under any external covering. Therefore, dermal exposure must be included as an exposure pathway. EPA Region IV personnel can advise

on the percentage of skin surface that should be assumed in assessing ecological risk for particular receptors.

15. **Page 2-37, Section 2.4.1.2, Third Paragraph**. The text states that "Exposures related to inhalation are also not evaluated because this pathway is generally considered an insignificant route of exposure...." Inhalation of contaminants associated with airborne soil particles may be a significant route of exposure to ground dwelling and burrowing animals. Therefore, inhalation exposure must be included as an exposure pathway.
16. **Page 2-37, Section 2.4.1.2, Fourth Paragraph**. The text states that "Potential contaminant exposures for reptiles and amphibians exist at NAS Whiting Field, but these exposures are not evaluated in the ERA due to a lack of available data relating contaminant exposure to adverse responses for amphibians and reptiles." The risks to reptiles and amphibians must be addressed, especially considering the gopher tortoise, a Florida species of special concern, was observed during the biological field investigation. If no quantitative data are available, the risks to reptiles and amphibians may be addressed qualitatively in the Uncertainties Section of the ERA.
17. **Page 2-38, Section 2.4.1.2, First Partial Paragraph**. The text states that "Ingestion of contaminated sediment pathway is not evaluated because information on the amount of sediment ingested by aquatic organisms and associated contaminant toxicity is generally not available." For some aquatic species, ingestion of contaminated sediment may be the most significant exposure pathway for specific contaminants. Therefore, this exposure pathway must be addressed in the ERA.
18. **Page 2-38, Section 2.4.1.2, Second Paragraph**. The text states that the exposure routes evaluated for wildlife include ingestion of soil, sediment, surface water, and food items. Exposure of terrestrial and wetland wildlife to groundwater as it discharges to the surface water is not addressed. This exposure pathway must be addressed in the ERA.
19. **Page 2-38, Section 2.4.1.3, Third Paragraph**. The text states that "Examples of endpoints that may be used in an ERA for NAS Whiting Field are provided in Table 2-3." Table 2-3 is a table of selected inorganic analytes from the Appendix IX groundwater monitoring list, and includes Chemical Abstract Service (CAS) numbers, common names, and EPA analytical method numbers. It does not include endpoints. No table containing endpoints was found in Section 2. The text and/or Table 2-3 should be corrected.
20. **Page 2-38, Section 2.4.1.3, Fourth Paragraph**. The text states that "Survival and maintenance of aquatic plants and fish populations is the assessment endpoint selected for aquatic life." This assessment endpoint is too general, and should be accompanied by a goal that can be stated in quantifiable terms.

21. **Page 2-40, Section 2.4.1.3, First Partial Paragraph.** The text states that "...biological toxicity testing of sediment, using surrogate species such as *Hyaella azteca* or *Chironomos tentans*, is used as a measurement endpoint...." No information on the biological toxicity testing of sediment associated with NAS Whiting Field is presented in this General Information Report. However, information on the biological toxicity testing of soil is presented. If sediment toxicity testing has been or will be performed, details of the experimental results should be included in the General Information Report. If these tests will not be performed, the reference to biological toxicity testing of sediment should be removed from the text.
22. **Page 2-40, Section 2.4.1.3, First Paragraph 1.** The text states that "The assessment endpoint for terrestrial plants and soil invertebrates is the survival, growth and reproduction of terrestrial plant and invertebrate communities." This assessment endpoint is too general, and should be accompanied by a goal that can be stated in quantifiable terms.
23. **Page 2-40, Section 2.4.1.3, Third Paragraph.** The text states that "The assessment endpoint for terrestrial and wetland wildlife is the maintenance of wildlife populations and communities within the habitats present at the NAS Whiting Field sites....a direct measurement of this assessment endpoint is not possible." This assessment endpoint is too general, and should be accompanied by a goal that can be stated in quantifiable terms.
24. **Page 2-40, Section 2.4.1.3, Third Paragraph.** The text states that a description of the habitats at NAS Whiting Field is presented in Paragraph 2.1.6.1. Paragraph 2.1.6.1 does not exist; Section 2.1 deals with the exploration and sampling program. Habitat descriptions are presented in Section 3.4.1. The text should be corrected.
25. **Page 2-41, Section 2.4.2, First Paragraph.** The text states that "Analytes are not considered in the selection of ECPCs [ecological contaminants of potential concern] if the concentration detected in the environmental samples is within 5 to 10 times the concentrations in associated trip blanks or method blanks." This is a reference to the standard practice of eliminating chemicals from consideration because they appear to result from laboratory contamination. The statement should be rephrased to include the words "laboratory contaminant" or "laboratory contamination", so that this step in the data validation process is clearly understood.
26. **Pages 2-41 through 2-43, Section 2.4.2, and Figure 2-3.** This section describes the data validation and selection process for ecological contaminants of concern. However, the distinction between steps in data validation (not illustrated in the figure) and the selection of contaminants of potential concern is not clear. The stepwise selection process is not presented in the same order in the text and Figure 2-3. The text should be modified so that the criteria used to eliminate data as invalid and to select contaminants of concern are better differentiated. Also, either the text or figure should be modified so that the order of the steps in the selection process is consistent.

27. **Page 2-42, Section 2.4.2, Figure 2-3.** Figure 2-3 focuses on the selection process for contaminants of potential concern in surface water and sediment for wildlife and aquatic life. There are no entries that refer specifically to screening contaminants in groundwater or soil, and there are no references to plants and invertebrates. The figure should be modified to include all environmental media and all receptor groups that will be addressed in the ERA.
28. **Page 2-43, Section 2.4.2, First Paragraph.** The text states that contaminants of potential concern in surface soil will include all analytes that are not essential nutrients and are present at a maximum concentration of greater than twice the background concentration. This statement should be modified to include the facts that (1) this screening procedure is for inorganic compounds, and (2) the **average** background concentration is being used for the screen.
29. **Page 2-43, Section 2.4.2, Second Paragraph.** The text states that "The EPCs [exposure point concentrations] are used to represent the average and reasonable maximum average concentrations... The maximum EPC is equal to the lesser of the maximum detected concentration or the 95th percent upper confidence limit (UCL)". The text should be changed to read reasonable maximum concentrations; the word "average" should be removed since as defined, the reasonable maximum is not an averaged value.
30. **Page 2-44, Section 2.4.3, First Paragraph.** The text states that this section will discuss how contaminant exposures are, in general, estimated or measured for aquatic receptors, terrestrial plants, terrestrial soil invertebrates, and wildlife. However, there is no discussion of estimating contaminant exposures to terrestrial plants and soil invertebrates in this section. This information should be added to the text.
31. **Page 2-44, Section 2.4.3.2, Third Paragraph.** The text states that "Exposure routes usually include direct or indirect ingestion of soil, surface water, or sediment, and ingestion of contaminated food." Inhalation of contaminants on soil particles, dermal exposure to soil, surface water, and sediment, and exposure to groundwater where it impacts surface water, are not addressed. Either these exposure routes must be included in the assessment of risk, or their exclusion must be justified in the text for each site.
32. **Pages 2-45 through 2-47, Section 2.4.3.2, Table 2-4.** Table 2-4 contains the model for estimation of chemical exposures for representative wildlife species. The model only addresses exposure by ingestion, not by dermal or inhalation routes (Refer to Comment 28). Also, no "final" equation is presented for calculating total exposure from soil plus sediment/surface water. The model should be modified.
33. **Page 2-49, Section 2.4.4.1, Second Paragraph.** The text states that "The measures of adverse ecological effects for terrestrial wildlife, terrestrial plants, and soil invertebrates

- are discussed separately." However, the measures of adverse effects for plants and invertebrates are discussed together. Also, the transition from the discussion of wildlife to plants and invertebrates is not clear, leading to some confusion. The text should be modified.
34. **Page 2-49, Section 2.4.4.1, Second and Third Paragraphs.** The text states that lethal RTVs will be one-fifth of the lowest reported LD₅₀ for the species most closely related to the receptor. Region IV prefers that RTV values be derived from NOEL values. LD₅₀ values should be used only when NOEL or LOEL values for a specific chemical are not available. The data hierarchy for deriving screening ecotoxicity values that is followed by Region IV is presented in *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final* (U.S.EPA, Environmental Response Team, Edison, NJ, June 1997).
 35. **Page 2-49, Section 2.4.4.1, Third Paragraph .** The text states that "A sublethal RTV is also identified that represents a threshold dose for sublethal effects." No information is provided on how the sublethal reference toxicity values will be identified. The text should be modified.
 36. **Page 2-50, Section 2.4.4.3, Fifth Paragraph .** The text states that "Potential adverse effects associated with ECPCs in groundwater are available in the form of laboratory aquatic toxicity testing results for individual ECPCs." No information on the biological toxicity testing of groundwater associated with NAS Whiting Field is presented in this General Information Report. If groundwater toxicity testing has been or will be performed, details of the experimental results should be included in the General Information Report. If these tests will not be performed, the reference to biological toxicity testing of groundwater should be removed from the text.
 37. **Page 2-51, Section 2.4.5.1, Second Paragraph.** The text states that "When the estimated PDE [dietary exposure concentration] is less than the RTV (i.e., the HQ<1), it is assumed that chemical exposures would not be associated with adverse effects to receptors...and that no risks to wildlife populations are assumed." Hazard quotients (HQ) are associated with individual chemicals, not total risk. The text should be changed to read "...it is assumed that **exposure to individual chemicals** would not be associated with adverse effects...."
 38. **Page 2-51, Section 2.4.5.1, Second Paragraph.** The text states that "When the HQ or HI [Hazard Index] is greater than 1, an evaluation of the HQs comprising the HI is completed." The text should be changed to read "When the HI is greater than 1...." The discussion of the HQs and HI is correctly presented in Section 2.4.5.2, page 2-52.
 39. **Page 2-52, Section 2.4.5.2, First Paragraph.** The risk characterization of surface water/sediment for aquatic receptors lists several steps that are part of the selection

process for contaminants of concern. These steps were discussed in preceding sections of the text. The text should be revised so that this section only includes steps in risk characterization.

40. **Pages 2-53 through 2-87, Section 2.5, General.** Throughout Section 2.5, references are made in error to Appendix D. This section should refer to Appendix C instead of Appendix D.
41. **Page 2-54, Section 2.4.6, Table 2-5.** The consumption of contaminated prey is listed as a source of uncertainty, since the prey may be made ill or killed by the contaminants. It should be noted in the justification that the exposure model assumes that the prey are unaffected by the contaminants.
42. **Page 2-54, Section 2.4.6, Table 2-5.** Limited evaluation of dermal or inhalation exposure pathways is listed as a source of uncertainty. It is stated that these pathways are generally considered insignificant due to protective fur or feathers, and the low concentration of chemicals under natural atmospheric conditions. These exposure pathways may be significant for ground-dwelling animals and must be addressed in greater detail in the text.
43. **Page 2-62, Section 2.5.3.2, First Paragraph.** This section lists five scenarios for potentially exposed populations. Three of the five scenarios are site maintenance workers, occupational workers, and excavation workers. For clarification purposes, descriptions of these three groups should be included in this section.
44. **Page 2-64, Section 2.5.3.2, Bullet 2.** This bullet makes the following statement. "There are supply wells for each of the cities of Milton and Baker-Allen town, private irrigation wells, and residential private well within a 5-mile distance from the perimeter of NAS Whiting Field." It is unclear whether this sentence is intended to state that there are residential private wells (plural) or a (single) residential private well within the 5-mile radius. This sentence should be modified for clarification.
45. **Page 2-65, Section 2.5.3.3, Equation 11.** This equation represents the 95 percent upper confidence limit of the arithmetic mean concentration and is used in determining the exposure point concentration of a given contaminant. The legend that defines the variables in the equation contains a typographical error. The "bar" is missing from the top of the "x" term. The symbol in the legend should be modified for consistency with Equation 11.
46. **Page 2-66, Section 2.5.3.4, Second Paragraph.** This paragraph begins with a sentence that reads as follows: "The specific equations used to calculate intakes from the different exposure pathways and, where site specific exposure/intake information is not available, the default values are used in the risk calculation spreadsheets." As written, this is an incomplete sentence, and its meaning is unclear. A suggested revision is "Specific equations are used to calculate intakes from the different exposure pathways using site

specific data when possible. If site specific exposure/intake information is not available, established default values are used to calculate chemical intake.”

47. **Page 2-70, Section 2.5.4, Fourth Paragraph.** The first sentence in this paragraph describes the reference dose as “an estimate of a daily human intake, including sensitive subpopulations, that is likely to be without appreciable risk of deleterious effects during a lifetime.” Because the sentence is defining derivation of noncancer toxicity values, it should be modified to read “without appreciable risk of deleterious noncarcinogenic effects.”
48. **Page 2-77, Section 2.5.5, First Paragraph.** The reference at the end of this paragraph says “(see Subsection 3.9.7).” However, there is no such subsection in this report. The paragraph should be modified to reference the appropriate subsection, which is most likely 2.5.6.
49. **Page 2-78, Section 2.5.5, First Paragraph.** The reference at the end of this paragraph says “(see Subsection 3.9.7).” However, there is no such subsection in this report. The paragraph should be modified to reference the appropriate subsection, which is most likely 2.5.6.
50. **Page 2-80, Section 2.5.5.1, Third Paragraph.** The first sentence in this paragraph references subsection 3.9.2. However, there is no such subsection in this report. The paragraph should be modified to reference the appropriate subsection, which is most likely 2.5.2.
51. **Page 2-81, Section 2.5.5.1, Fourth Paragraph.** This paragraph references Subsection 3.9.2. However, there is no such subsection in this report. The paragraph should be modified to reference the appropriate subsection, which is most likely 2.5.2.
52. **Page 3-29, Section 3.2.3, First Partial Paragraph.** The text states that upward flow was observed in six well clusters (at Sites 5, 6, 14, 15, and 16), and three well clusters (at Sites 5 and 15) exhibited a reversal of the vertical hydraulic gradient. However, a review of Table 3-6 also indicates a reversal of the vertical hydraulic gradient at monitoring well number WHF-3-7X (i.e. Site 3). This inconsistency should be revised.
53. **Page 3-29, Section 3.3, Second Paragraph.** The text states that “Laboratory analytical results are presented in Appendix F.” However, Appendix F contains the Toxicity Analysis of Soil Samples From NAS Whiting Field. Appendix E contains the Background Analytical Data. The text should be corrected.
54. **Page 3-30, Section 3.3.1, First Paragraph.** The text states that “Table 2-1 presents the associations between the soil types and RI sites.” However, Table 2-1 contains the Target Compound List (TCL) Analytes. It appears that Table 2-1 is incorrectly referred to in the

text. The text should be revised accordingly.

55. **Page 3-30, Section 3.3.1.1, Fourth Paragraph.** The text states that "Four of the eight background surface soil samples (BKS00201, BKS00301, BKS00401 and BKS00501) collected from the Troup loamy sand were recovered from areas subjected to recent (within the past year) controlled burning of planted pine tree areas (Table 3-8)." However, Table 3-8 does not include background surface soil sample BKS00301, but does include background surface soil sample BKS00101. This discrepancy should be revised accordingly.
56. **Page 3-48, Section 3.3.1.2, Fourth Paragraph.** The text states that "TOC [total organic carbon] concentrations in the Troup loamy sand samples, from the 10- to 12- foot (bls) depth interval, ranged from 246 to 2,240 mg/kg [milligrams per kilogram]." However, a review of Table 3-15 indicates that the TOC concentrations in the Troup loamy sand samples ranged from 323 to 2,240 mg/kg. This discrepancy should be revised accordingly.
57. **Page 3-81, Section 3.3.4, First Partial Paragraph.** The text states that "analytical results for the environmental and associated duplicate samples are presented in Appendix F." However, Appendix F contains the Toxicity Analysis of Soil Samples From NAS Whiting Field, Milton, Florida. Appendix E contains the Background Analytical Data. The text should be revised accordingly.
58. **Page 3-88, Section 3.4.1, Third Paragraph.** The text states that "Paragraphs 3.4.1.1 through 3.4.1.1 describes the characteristics of each habitat...." Habitats are described in paragraphs 3.4.1.1 through 3.4.1.4. The text should be corrected.
59. **Page 3-88, Section 3.4.1, Third Paragraph.** The text states that "Paragraphs 2.1.7.2 describes potential animal species...." Animal species are described in paragraph 3.4.2.1. The text should be corrected.
60. **Page 3-89, Section 3.4.1, First Paragraph.** Concerning water-containing depressions, the text states that "Therefore, only the risks associated with direct ingestion will be considered in this report." This information was not presented in the risk assessment methodology and is not needed in the discussion of the biological field investigation methods and results. This statement should be moved from the biological field investigation discussion to the ecological risk assessment methodology.

61. **Page 3-89, Section 3.4.1, Second Paragraph.** The text states that "Appendix F provides a matrix of plant species observed at all sites." Appendix F is the final report of the toxicity analysis of soil samples from NAS Whiting Field. No matrix of plant species was found in the General Information Report. The text should be corrected and/or the correct matrix table should be included.
62. **Pages 3-89 and 3-102, Section 3.4.1.1.** The text states that the planted pine areas at NAS Whiting Field are managed areas that are occasionally harvested, and have a generally similar open canopy structure and management-use. However, except for mention of controlling ground cover by periodic burning, no general information on the management of these area affect is presented. Management practices in the area can be expected to significantly affect the community structure. The text should be modified to include additional information such as management goals (i.e, recreation area, tree farming) the spacing of the trees, the age of the trees, the frequency of burning, whether pesticides or other chemicals are used as a management practice, and whether at harvest the trees are selectively cut or clearcut.
63. **Page 3-102, Section 3.4.1.1, First Partial Paragraph.** The text refers to Appendix F following a list of plant species associated with the planted pine flatwoods. Appendix F does not contain this information. The text should be corrected and/or referenced information should be included.
64. **Page 3-102, Section 3.4.1.2, Second Paragraph.** The text refers to Appendix G following a list of plant species associated with the maintained field. There is no Appendix G in this document. The text should be corrected and/or the referenced information should be included.
65. **Page 3-102, Section 3.4.1.3, Fourth Paragraph.** The text refers to Appendix E following a list of plant species associated with the old field community. Appendix E contains information on background analytical data. The text should be corrected and/or the referenced information should be included.
66. **Page 3-103, Section 3.4.1.4, First Partial Paragraph.** The text states that "Ingestion of contaminants in the water represents a potential exposure pathway that will be considered in the food-web model constructed for each site." Because this statement concerns only risk assessment methodology, it is inappropriate in the discussion of the biological field investigation methods and results. This statement should be moved from the biological field investigation discussion to the ERA methodology.
67. **Page 3-103, Sections 3.4.2 and 3.4.2.1.** These sections are too general and provide little information on plant and animal species associated with each habitat type at NAS Whiting Field. The plant species associated with each habitat type are mentioned in the preceding section, but are not discussed in this section. It is stated that wildlife species that use or

could use each site have been identified, but this information is not provided in this document. Lists of plant and wildlife species associated with each habitat type should be included in these sections.

68. **Page 3-104, Section 3.4.2.2, Second Paragraph.** The text states that burrows of the gopher tortoise were observed at Site 31E. No mention is made of the fact that a gopher tortoise was observed at Site 16 (Section 3.4.2, page 3-103). The sighting of a gopher tortoise at Site 16 should be noted in this section.
69. **Page 3-105, Section 3.4.3.2, Third and Fourth Paragraphs.** Section 3.4.3.2 is primarily concerned with summarizing the results of soil toxicity tests using earthworms and lettuce. As currently written, the paragraphs describing the use of bioconcentration and bioaccumulation data from the literature and the objectives of biological sampling appear to be irrelevant and only serve to confuse the discussion of the toxicity tests. The text should be modified.
70. **Page 3-106, Section 3.4.3.2, Second Paragraph.** The text states that the soil toxicity laboratory report is presented in Appendix B. The report is presented in Appendix F. The text should be corrected.
71. **Page 3-107, Section 3.4.3.2, First and Second Paragraphs.** In describing the results of the soil toxicity study, the text states that samples exhibited a significant deviation from the controls. It was not stated whether the deviation was positive (increased weight, increased germination) or negative. The text should be modified to include the direction of deviation.
72. **Page 4-2, Section 4.1.2, Fourth Paragraph.** The text states that "Surface water and sediment samples have been collected from a variety of locations (Plate 1) that represent both on- and off-station environments...." A copy of Plate 1 was not included in the General Information Report. The report should be revised accordingly.
73. **Page A-1, Appendix A, Second Paragraph.** The text states that "AIMD's [Aircraft Intermediate Maintenance Department's] support shops include: airframes, ... groundwater support system, ... and painting." Groundwater support system is not an AIMD support shop. This should either be the ground support system or the ground support equipment (GSE) shop. The text should be revised accordingly.
74. **Page E-1 through E-10, Appendix E, Tables E-1 and E-2.** There are discrepancies concerning the notes in these tables. First, Table E-1 (Surface Water Analytical Results) and Table E-2 (Sediment Analytical Results) contain a footnote, not shown in the tables, which states that quantitation limits listed for soil are based on wet weight. It does not appear that this footnote belongs in these tables. Second, the source for Table E-2 is stated as USEPA, 1993 which according to the reference section is the Wildlife Exposure

Factors Handbook. Third, in both tables the note for micrograms per liter (ug/l) is on separate lines (i.e. the "u" is on one line and "g/l=micrograms per liter" is on the following line. Finally, "J" is not defined in Table E-1 and "UJ" is not defined in Table E-2. The tables should be revised accordingly.