

12/17/04-03600

**Capito, Bonnie P CIV NAVFAC Lant**

---

**From:** Louise.Palmer@CH2M.com  
**Sent:** Friday, December 17, 2004 12:10 PM  
**To:** Jackson, Rodger W CIV NAVFAC Lant  
**Cc:** JCULP@mbakercorp.com  
**Subject:** FW: Response to DENR Comments on the RFI Reports for SWMUs 43, 311, and360



Response to  
Comments.doc

Rodger, we sent these responses to the previous players (Rick Raines, Dan Hood, Steve Martin) to review before we were to issue them to Randy. I don't have record of any responses from them; it was probably during the transition phase for Dan and Rick. Could you check to see if you have any record of your responses? If not, I will forward to Bob Lowder also, and on his and your concurrence, we'll issue them to Randy.

Thanks,  
Louise

-----Original Message-----

**From:** Scott Moffett [mailto:SMOFFETT@mbakercorp.com]  
**Sent:** July 16, 2004 11:07 AM  
**To:** rainesrh@lejeune.usmc.mil; Daniel.R.Hood@navy.mil;  
steven.g.martin@navy.mil  
**Cc:** Palmer, Louise/CLT; James Culp; Rich Bonelli; Robert Sok  
**Subject:** Response to Comments on the RFI Reports for SWMUs 43, 311,  
and360

Steve, Daniel, Rick,

Attached are responses to NC DENR's comments on the above-referenced RFI reports. Please review and provide me with any comments that you might have by July 29, 2004 as we are planning to send these responses to NC DENR on July 30, 2004.

Let me know if you have any questions or require additional information.

Thanks - Scott

Scott K. Moffett, P.G.  
Senior Geologist  
Michael Baker Corporation  
Phone: (412) 269-6136  
EMAIL: smoffett@mbakercorp.com  
Fax: (412) 375-3996

**Comments on Draft SWMU 311 & SWMU 360 RCRA Facility Investigation Reports, MCB Camp Lejeune, NC, Submitted on March 24, 2004 by Randy McElveen, NC DENR Superfund Section.**

**General Comment**

The conclusions of the Reports appear to be appropriate based on the findings of the Requests for Information (RFIs) and Confirmatory Sampling Investigation (CSI) results discussed in the RCRA Solid Waste Management Units (SWMUs) 311 and 360 RCRA Facility Investigation Reports. The State agrees with the recommendations to complete a removal action for surface soil in the immediate area of SWMU 311 contaminated with lead and chromium above human health and ecological health risk concentrations. We also agree with the recommendations of the SWMU 360 Investigation Report to complete a corrective measures study (CMS) for soil and complete delineation of groundwater horizontally and vertically in the area of SWMU 360.

*Response: No Response is required for this comment.*

**Specific Comments SWMU 311**

1. Section 2 discusses the monitoring well results and Figures 2-1 and 3-2 show temporary monitoring wells located to the north, east, and south of SWMU 311. These monitoring well locations along with the associated cross section (Figures 3-3, 3-4, & 3-5) show the groundwater flow gradient moving to the west and the confining unit sloping to the west where there are no monitoring wells. Please provide a temporary monitoring well or Geoprobe sample to the west of SWMU 311 in order to assure that associated contaminants are not dispersing in groundwater.

*Response: SWMU 311 is the oil/water separator. Groundwater grab samples were collected from borings 311-SB06 and 311-SB/PZ07 (located southwest of the SWMU), 311-SB/PZ05 (located adjacent to the down-gradient side [west] of the SWMU), and 311-SB11 and 311-SB/PZ20 (located northwest of the SWMU). We believe that given the lack of detected contaminants in groundwater samples collected within the immediate vicinity of the SWMU and the location of the previously mentioned samples, additional sampling west of the SWMU is not warranted.*

**Specific Comments SWMU 360**

1. Sections 2.0, 3.0 and potentially other Sections of the Report reference Appendices A, B, C, D, E, and possible others which are not included in this Draft versions of the report. Please include appropriate appendices in the Investigation Report and include appropriate sheets, documents, data, etc. in each appendix as appropriate.

*Response: The appendices for each of the RFI reports were included on a compact disk in the front of the report to reduce the overall volume of the report. The appendices are in PDF format.*

2. A spelling error was noted in the fourth sentence of the last paragraph on page 4-8. "Mobile lab results indicated . . ."

*Response: The typographical error will be corrected as part of the final submission.*

3. The third paragraph on page 4-13 references subsurface soil sample 260-TW01-01 and SWMU 30. I expect this should be 360-TW01-01 and SWMU 360.

*Response: You are correct. This text error will be corrected as part of the final submission.*

4. Based on these studies I think it would also be appropriate to complete a corrective measures study (CMS) for the solvent contaminated groundwater in the area of SWMU 360 as well as for the soil.

*Response: We believe that a CMS may be premature at this time because the groundwater plume has not been defined horizontally in the downgradient direction, or vertically. The form of remedial action may differ depending on the results of the additional investigation. Therefore, we recommend waiting until the plume is delineated to conduct a CMS and eventually select a remedial option.*

**Comments on Draft SWMU 43 RCRA Facility Investigation Report, MCB Camp Lejeune, NC, Submitted on March 30, 2004 by Randy McElveen, NC DENR Superfund Section.**

**General Comment**

The conclusions of the Reports are generally appropriate based on the findings of the Requests for Information (RFIs) and Confirmatory Sampling Investigation (CSI) results discussed in the RCRA Solid Waste Management Unit (SWMU) 43 RCRA Facility Investigation Reports. The State agrees with the recommendations to complete additional delineation of the DDT and Alpha and Gamma Chlordane in surface and subsurface soils. It is also appropriate to complete additional and extensive groundwater sampling in the area of the SWMU to confirm the heptachlor epoxide contaminants in groundwater. The State also highly recommends the corrective measures study (CMS) for surface soil at the SWMU.

The State does not recommend additional Baseline Ecological Risk Assessment work at this time. It is more appropriate to evaluate the extent of the contamination away from the facility that could potentially pose a risk to terrestrial flora and fauna and upper tropic level receptors from 4,4 DDD and daughter products, and dieldrin, alpha and gamma-chlordane and chromium. The contamination at SWMU 43 appears to be limited to the facility area and is a small area of contamination. If the contaminants have not moved into the surrounding wooded areas the State sees no reason to complete an expensive study of ecological receptors that are not impacted.

It is recommended that the CMS study be completed and implemented as soon as possible, thus limiting the future impacts from the site to groundwater and the surrounding ecology.

*Response: Although we agree with the State's logic not to conduct a Baseline Ecological Risk Assessment at SWMU 43, we do not agree that now is the time to conduct a CMS. A CMS will eventually be required at this SWMU; however, the extent of the pesticide contamination should be fully understood as part of the remedy selection.*

**Specific Comments**

1. The word Work is misspelled in the last sentence of the first paragraph on page 1-4.

*Response: The typographical error will be corrected as part of the final submission.*

2. The last paragraph on page 7-35 recommends a Baseline Ecological Risk Assessment (BERA) for impacts to Terrestrial flora and fauna and upper tropic level receptor from SWMU contamination. As noted above, the State would like to recommend that we complete the additional soil and groundwater delineation and CMS study and an economic cost analysis to determine whether it is appropriate to complete a BERA at the site. After the surface soil is removed or treated ecological and human health risks will no longer exist.

*Response: Agreed. However, the new soil and groundwater data collected at the SWMU should be incorporated into the existing Risk Assessments and re-evaluated to get an updated evaluation of risks to human and ecological receptors.*

3. The lines of evidence for the presence of pesticides in groundwater as listed on page 8-2 is subjective and inappropriate at this point in the investigation. In fact it is very common to see heptachlor epoxide, alpha and gamma chlordane in groundwater at low concentrations that cannot be detected by soil analytical methods in subsurface soil. The turbidity of the

groundwater samples being less than 10 NTUs supports this position. The Soil to Groundwater Concentrations (STGC) are present in surface soil and should be taken as a real potential for impact to groundwater. These contaminants are much more mobile in groundwater and leach more readily than DDT and its daughter products.

As you know, when surface soil contamination is removed or treated, it is very common for the associated groundwater contaminants to decrease significantly over a short period of time. This is especially true for pesticides and other less mobile contaminants.

*Response: The lines of evidence will be removed as part of the final submission.*

**Comments on the Human Health Risk Assessment portions of the Draft SWMU 360 RCRA Facility Investigation Report, MCB Camp Lejeune, Submitted on April 27, 2004 by David Lilley, NC DENR.**

1. Page 6-6, last sentence: Region 4 does not mention using industrial PRGs as screening criteria for subsurface soil when considering an industrial scenario. The Region 4 guidance states: "Industrial screening values should be used for comparison to the subsurface soils data only for construction work scenarios". Please correct.

*Response: The text will be revised accordingly as part of the final submission.*

2. Appendix L, Table 2.2a: A few mistakes were found in a spot check of the Screening Toxicity Values in this table. The value for carbon disulfide should be 1.2E+05 ug/kg, not 7.2E+05 ug/kg, and the value for toluene should be 2.2E+05 ug/kg, not 5.2E+05 ug/kg. Although the final outcome is the same, all of the screening toxicity values in the screening tables should be checked for accuracy.

*Response: The screening values for carbon disulfide and toluene will be corrected as noted in the comment. Additionally, all screening tables will be reviewed for accuracy.*

3. Appendix L, Table 2.3a: Please define "North Carolina Water Quality Criteria". Is this the same as the 2L?

*Response: The phrase "North Carolina Water Quality Criteria" refers to the 2L standards. This reference will be corrected on all applicable tables.*

4. Appendix L, Table 5.1: IRIS provides an oral RfD for acetophenone of 1E-01 mg/kg-day. Please use this value.

*Response: The oral RfD for acetophenone will be revised to be 1E-01 mg/kg-day.*

5. Appendix L, Tables 5.1 and 6.1: On page 6-30, it is pointed out that DENR recommended using the experimentally-derived oral absorption efficiencies obtained from Oak Ridge National Laboratory. This recommendation predates information in Exhibit 4-1 in the latest version of RAGS Part E (2003). In the future, please use the oral absorption efficiencies presented in RAGS Part E.

*Response: The risk assessment did use oral absorption efficiencies found in Exhibit 4-1, RAGS Part E. These values were updated at the time the risk assessment was completed. However, the text incorrectly referenced the experimentally derived oral absorption efficiencies from Oak Ridge National Laboratory. The text and any applicable tables/appendices will be corrected to reference RAGS Part E for the oral absorption efficiencies.*

6. Appendix L, Table 5.2: Where did the RfC for tetrachloroethene come from? There must be a typo, a RfC of 4.0E-12 mg/m<sup>3</sup> would not yield an inhalation RfD of 1.7E-01 mg/kg-day. Please correct.

*Response: The RfC for tetrachloroethene will be corrected.*

7. Appendix L, Table 7.1.1 RME: The dermal intake for arsenic could not be reproduced using the equation and information found in Table 4.1.1. According to Appendix K, an ABS value of 0.03 was used, not the default value of 0.001% as claimed on this table. In addition to listing the default values, footnote 1 should refer the reader to Appendix K.

*Response: The footnotes on the applicable Section 4 tables state that ABS values from RAGS Part E were used, if available. Otherwise, default values of 0.01 and 0.001 were used. The ABS value for arsenic presented in RAGS Part E is 0.03, and this is the value that was used in the CDI calculation. Footnote (1) was not changed to reference Appendix K in this risk assessment. However, the footnote will be revised to reference the appendix containing risk assessment calculations in future risk assessments completed for Camp Lejeune.*

8. Appendix K: For organics, the derivation of DAD for water contact must include the calculation of  $DA_{event}$ , as described on page 3-4 of the 2003 version of RAGS Part E. Please incorporate this into the risk assessment.

*Response: The calculation of  $DA_{event}$  for the derivation of the DAD for contact with groundwater for the future adult and child resident will be incorporated into the risk assessment.*

9. Page 6-15, second paragraph: While I agree with the logic of eliminating the trespasser from the current exposure scenario, there is the potential for the fence to be breached or removed in the future, making the exposure pathway complete. However, since no chemicals were retained as surface soil COPCs, the risks posed by the potentially complete future exposure pathway were determined to be acceptable. Please change the wording in the second paragraph to reflect this.

*Response: The text of the second paragraph will be revised to state that because there were no COPCs retained for surface soil, risks posed by the potentially complete future exposure pathway for the trespasser receptors were determined to be acceptable.*

10. Page 6-28, PEF equation: The constant 556 does not appear in the cited reference. Where did it come from?

*Response: The constant 556 appears in the denominator of the  $PEF_{SC}$  equation found on page 5-12 of the Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, 2002).*

11. Page 6-28: A road length of 172 m and a road width of 15.24 m equals a road area of 2,621  $m^2$ , not 29,555 $m^2$ . Please correct.

*Response: The surface area of contaminated road segment ( $A_R$ ) will be corrected.*

12. Page 6-28: Since construction activities normally run 8 hours a day,  $T = 250 \text{ days} \times 8 \text{ hours/day} \times 3,600 \text{ seconds/hour} = 7,200,000 \text{ seconds}$ . Please correct.

*Response: The total time over which construction occurs ( $T$ ) will be corrected.*

13. Page 6-28: During construction activities, dump trucks and vehicles carrying construction materials would need to access the site and would not always be able to stay on existing streets and asphalt parking lots. Access by one car and one truck per day is an unrealistically low estimate of vehicle activity during construction. In the example given in the cited

reference, 30 vehicles/day was used as an estimate on a 5 acre site. The number of vehicles/day estimated on this site should be much closer to EPA's example than the numbers used in this risk assessment. Please correct.

*Response: The number of vehicles per day estimated for this SWMU will be increased to 30 vehicles per day, as provided in Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, 2002).*

14. Page 6-28: In the cited reference, EPA also provides guidance for PEF adjustment due to "Wind Erosion and Other Construction Activities". These calculations should be added to this risk assessment.

*Response: The guidance in Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, 2002) provides calculations for PEF adjustments for off-site residents based on "Wind Erosion and Other Construction Activities" (pages 5-14 through 5-17 of USEPA, 2002). These calculations were not added to the HHRA based on the following rationale. As stated on page E-29 of Appendix E (USEPA, 2002), the off-site resident receptor refers to a receptor who does not live on the site. The major assumption is that the relevant exposure point is at the site boundary. For example, the dispersion factor  $Q/C_{off}$  is calculated for the concentration at the site boundary in the direction of the prevailing wind. This HHRA considers future residential development on the site itself, which would include receptors potentially residing at the center of the site. The future on-site residents included in this HHRA evaluation would reside on-site after construction activities were completed and thus, only be exposed to fugitive dust emissions from wind erosion. The other aspects of this HHRA (i.e., exposure parameters, exposure point concentration, evaluation of site groundwater as drinking water) are conservative and omitting the PEF adjustments for off-site residents is not expected to significantly underestimate risk.*

**Comments on the Ecological Risk Assessment portions of the Draft SWMU 360 RCRA Facility Investigation Report, MCB Camp Lejeune, Submitted on April 27, 2004 by David Lilley, NC DENR.**

1. Page 7-13: The mistake in the 2002 NCDENR SLERA guidance that recommends the use of one half the maximum SQL as a proxy concentration for non-detects was pointed out and corrected in my June 18, 2003 comments on the Draft Master Project Plans for the RCRA projects. When comparing non-detects to screening values, the maximum detection limit should be used as the proxy concentration. Please correct.

Please note: The 2002 NCDENR SLERA guidance has been updated and is available at <http://www.wastenotnc.org/SFHOME/SLERA.HTM>.

*Response: The error will be corrected. Maximum detection limits will be used as the proxy concentration when comparing non-detects to screening values.*

2. Table 7-5: The elimination of COPCs based on low frequency of detection (< 5%) is based on outdated human health guidance and should not be used in ecological risk assessments in the future.

*Response: The elimination of COPCs based on low frequency of detection (<5%) will be removed from the ecological risk assessment.*

**Comments on the Human Health Risk Assessment portions of the Draft SWMU 311 RCRA Facility Investigation Report, MCB Camp Lejeune, Submitted on May 12, 2004 by David Lilley, NC DENR.**

1. Appendix I, Table 2.5: The NC Groundwater Quality Standards (2L) should be added for ethylbenzene, total xylenes, arsenic, barium, chromium, and lead.

*Response:* A RAGS Part D Section 2 table (specifically, Table 2.6) containing the NC Groundwater Quality Standards was created for Appendix I of this report but was inadvertently left out of the submittal. Table 2.6 will be added to Appendix I.

2. Appendix I, Table 7.2.2 RME: Footnote 1 should refer the reader to Appendix H for the ABS value.

*Response:* Footnote (1) was not changed to reference Appendix H in this risk assessment. However, the footnote will be revised to reference the appendix containing risk assessment calculations in future risk assessments completed for Camp Lejeune.

3. Page 6-13, first paragraph: While I agree with the logic of using the surface soil data set consisting of only those surface soil samples collected outside the fence for the current exposure scenario, there is the potential for the fence to be breached or removed in the future, making the soil inside the fence available to trespassers. The future trespasser exposure to surface soil inside the fence should be quantitatively evaluated in this risk assessment.

*Response:* It is agreed that a future trespasser could be exposed to surface soil inside the fence should the fence be breached or removed. However, as noted in Section 6.5.3.3, there were no unacceptable risks or health hazards calculated for the future adult and child residents from exposure to site surface soil. Furthermore, although lead was retained as a surface soil COPC (maximum of 1,110 mg/kg) for SWMU 311, a removal action for the soil in the area of this maximum concentration was recommended. All other lead concentrations were less than the USEPA's action level for lead of 400 mg/kg in residential soil. Since there were no unacceptable risks or health hazards calculated for the future residents from exposure to surface soil, it can be concluded that there would be no unacceptable risks or health hazards for the future adult or adolescent trespasser. Therefore, quantitative evaluation of future trespasser potential exposure to surface soil inside the fence will not be included in this HHRA. Rather, the rationale for not including a quantitative evaluation will be added to Section 6.5.3.2 of the text.

4. Page 6-30, PEF equation: The constant 556 does not appear in the cited reference. Where did it come from?

*Response:* The constant 556 appears in the denominator of the  $PEF_{sc}$  equation on page 5-12 of Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, 2002).

5. Page 6-30: A road length of 100 m and a road width of 15.24 m equals a road area of 1,524 m<sup>2</sup>, not 10,121.5 m<sup>2</sup>. Please correct.

*Response:* The surface area of contaminated road segment ( $A_R$ ) will be corrected.

6. Page 6-30: Since construction activities normally run 8 hours a day,  $T = 250 \text{ days} \times 8 \text{ hours/day} \times 3,600 \text{ seconds/hour} = 7,200,000 \text{ seconds}$ . Please correct.

*Response: The total time over which construction occurs (T) will be corrected.*

7. Page 6-30: During construction activities, dump trucks and vehicles carrying construction materials would need to access the site and would not always be able to stay on existing streets and asphalt parking lots. Access by one car and one truck per day is an unrealistically low estimate of vehicle activity during construction. In the example given in the cited reference, 30 vehicles/day was used as an estimate on a 5 acre site. The number of vehicles/day estimated on this site should be closer to EPA's example than the numbers used in this risk assessment. Please correct.

*Response: The number of vehicles per day estimated for this site will be increased to 15 vehicles per day. Given the size and industrial setting of the site, 15 vehicles per day represents a reasonable amount of vehicle activity between two vehicles per day and 30 vehicles per day, as provided in Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, 2002).*

8. Page 6-30: In the cited reference, EPA also provides guidance for PEF adjustment due to "Wind Erosion and Other Construction Activities". These calculations should be added to this risk assessment.

*Response: The guidance in Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, 2002) provides calculations for PEF adjustments for off-site residents based on "Wind Erosion and Other Construction Activities" (pages 5-14 through 5-17 of USEPA, 2002). These calculations were not added to the HHRA based on the following rationale. As stated on page E-29 of Appendix E (USEPA, 2002), the off-site resident receptor refers to a receptor that does not live on the site. The major assumption is that the relevant exposure point is at the site boundary. For example, the dispersion factor  $Q/C_{\text{off}}$  is calculated for the concentration at the site boundary in the direction of the prevailing wind. This HHRA considers future residential development on the site itself, which would include receptors potentially residing at the center of the site. The future on-site residents included in this HHRA evaluation would reside on-site after construction activities were completed and thus, only be exposed to fugitive dust emissions from wind erosion. It should also be noted that the other aspects of this HHRA (i.e., exposure parameters, exposure point concentration, evaluation of site groundwater as drinking water) are very conservative and omitting the PEF adjustments for off-site residents is not expected to significantly underestimate risk.*

**Comments on the Ecological Risk Assessment portions of the Draft SWMU 311 RCRA Facility Investigation Report, MCB Camp Lejeune, Submitted on May 12, 2004 by David Lilley, NC DENR.**

1. Page 7-14: The mistake in the 2002 NCDENR SLERA guidance that recommends the use of one half the maximum SQL as a proxy concentration for non-detects was pointed out and corrected in my June 18, 2003 comments on the Draft Master Project Plans for the RCRA projects. When comparing non-detects to screening values, the maximum detection limit should be used as the proxy concentration. Please correct.

Please note: The 2002 NCDENR SLERA guidance has been updated and is available at <http://www.wastenotnc.org/SFHOME/SLERA.HTM>.

*Response: The error will be corrected. Maximum detection limits will be used as the proxy concentration when comparing non-detects to screening values.*

2. Tables 7-3 and 7-4: The NC DENR guidance mentioned in comment 1 provides screening values consistent with US EPA Region 4 screening values. Please use the values provided in the NC DENR guidance in this risk assessment.

*Response: Screening values provided in the NC DENR guidance will be used in the risk assessment.*

3. Page 7-26: The elimination of COPCs based on low frequency of detection (< 5%) is based on outdated human health guidance and should not be used in ecological risk assessments. Please correct.

*Response: The elimination of COPCs based on low frequency of detection (<5%) will be removed from the ecological risk assessment.*

**Comments on the Human Health Risk Assessment portions of the Draft SWMU 43 RCRA Facility Investigation Report, MCB Camp Lejeune, Submitted on May 20, 2004 by David Lilley, NC DENR.**

1. Appendix J, Table 2.5: The NC Groundwater Quality Standards (2L) should be added for heptachlor epoxide, alpha-chlordane, gamma-chlordane, arsenic, barium, chromium, lead, mercury, and selenium.

*Response: A RAGS Part D Section 2 table (specifically, Table 2.6) containing the NC Groundwater Quality Standards was created for Appendix J of this report but was inadvertently left out of the submittal. Table 2.6 will be added to Appendix J.*

2. Appendix J, Table 5.1: The reference doses provided by IRIS are chronic, not subchronic. Please correct.

*Response: Table 5.1 will be corrected to indicate that the reference doses from IRIS are chronic.*

3. On page 6-33, it is pointed out that DENR recommended using the experimentally-derived oral absorption efficiencies obtained from Oak Ridge National Laboratory. This recommendation predates information in Exhibit 4-1 in the latest version of RAGS Part E (2003). In the future, please use the oral absorption efficiencies presented in RAGS Part E.

*Response: The risk assessment did use oral absorption efficiencies found in Exhibit 4-1, RAGS Part E. These values were updated at the time the risk assessment was completed. However, the text incorrectly referenced the experimentally derived oral absorption efficiencies from Oak Ridge National Laboratory. The text and any applicable tables/appendices will be corrected to reference RAGS Part E for the oral absorption efficiencies.*

4. Page 6-12, third paragraph: While I agree with the logic of using the surface soil data set consisting of only those surface soil samples collected outside the fence for the current exposure scenario, there is the potential for the fence to be breached or removed in the future, making the soil inside the fence available to trespassers. The future trespasser exposure to surface soil inside the fence should be quantitatively evaluated in this risk assessment.

*Response: It is agreed that a future trespasser could be exposed to surface soil inside the fence should the fence be breached or removed. However, as noted in Section 6.5.3.3, there were no unacceptable risks or health hazards calculated for the future adult residents from exposure to site surface soil. Therefore, it can be concluded that there would be no unacceptable risks or health hazards for the future adult trespasser. There were no unacceptable risks calculated for the future child residents from exposure to site surface soil. The HI calculated for the future child resident from exposure to surface soil (1.6) did exceed USEPA's acceptable level of 1.0. However, noting that the values for adolescent trespasser exposure frequency, exposure duration, and body weight are considerably lower than those of the future adult resident, the HI calculated for the adolescent trespasser would also be less than that of the future adult resident, which was below the acceptable level of 1.0. Therefore, it can be concluded that there would be no unacceptable risks or health hazards for the future adolescent trespasser. Based on this rationale, the quantitative evaluation of future trespasser potential exposure to surface soil inside*

*the fence will not be included in this HHRA. Rather, the rationale for not including a quantitative evaluation will be added to Section 6.5.3.2 of the text.*

5. Page 6-31, PEF equation: The constant 556 does not appear in the cited reference. Where did it come from?

*Response: The constant 556 appears in the denominator of the  $PEF_{SC}$  equation on page 5-12 of Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, 2002).*

6. Page 6-31: A road length of 76 m and a road width of 15.24 m equals a road area of 1,158 m<sup>2</sup>, not 5,829.96 m<sup>2</sup>. Please correct.

*Response: The surface area of contaminated road segment ( $A_R$ ) will be corrected.*

7. Page 6-31: Since construction activities normally run 8 hours a day,  $T = 250 \text{ days} \times 8 \text{ hours/day} \times 3,600 \text{ seconds/hour} = 7,200,000 \text{ seconds}$ . Please correct.

*Response: The total time over which construction occurs ( $T$ ) will be corrected.*

8. Page 6-31: During construction activities, dump trucks and vehicles carrying construction materials would need to access the site and would not always be able to stay on existing streets and asphalt parking lots. Access by one car and one truck per day is an unrealistically low estimate of vehicle activity during construction. In the example given in the cited reference, 30 vehicles/day was used as an estimate on a 5 acre site. The number of vehicles/day estimated on this site should be somewhere between EPA's example and the number in this risk assessment. Please correct.

*Response: The number of vehicles per day estimated for this site will be increased to ten vehicles per day. Given the size and industrial setting of the site, ten vehicles per day represents a reasonable amount of vehicle activity between two vehicles per day and 30 vehicles per day, as provided in Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, 2002).*

9. Page 6-31: In the cited reference, EP A also provides guidance for PEF adjustment due to "Wind Erosion and Other Construction Activities." These calculations should be added to this risk assessment.

*Response: The guidance in Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, 2002) provides calculations for PEF adjustments for off-site residents based on "Wind Erosion and Other Construction Activities" (pages 5-14 through 5-17 of USEPA, 2002). These calculations were not added to the HHRA based on the following rationale. As stated on page E-29 of Appendix E (USEPA, 2002), the off-site resident receptor refers to a receptor who does not live on the site. The major assumption is that the relevant exposure point is at the site boundary. For example, the dispersion factor  $Q/C_{off}$  is calculated for the concentration at the site boundary in the direction of the prevailing wind. This HHRA considers future residential development on the site itself, which would include receptors potentially residing at the center of the site. The future on-site residents included in this HHRA*

*evaluation would reside on-site after construction activities were completed and thus, only be exposed to fugitive dust emissions from wind erosion. It should also be noted that the other aspects of this HHRA (i.e., exposure parameters, exposure point concentration, evaluation of site groundwater as drinking water) are very conservative and omitting the PEF adjustments for off-site residents is not expected to significantly underestimate risk.*

10. Appendix I: For organics, the derivation of DAD for water contact must include the calculation of  $DA_{event}$  as described on page 3-4 of the 2003 version of RAGS Part E. Please incorporate this into the risk assessment.

*Response: The calculation of  $DA_{event}$  for the derivation of the DAD for contact with groundwater for the future adult and child resident will be incorporated into the risk assessment.*

**Comments on the Ecological Risk Assessment portions of the Draft SWMU 43 RCRA Facility Investigation Report, MCB Camp Lejeune, Submitted on May 21, 2004 by David Lilley, NC DENR.**

1. Page 7-14: The mistake in the 2002 NCDENR SLERA guidance that recommends the use of one half the maximum SQL as a proxy concentration for non-detects was pointed out and corrected in my June 18, 2003, comments on the Draft Master Project Plans for the RCRA projects. When comparing nondetects to screening values, the maximum detection limit should be used as the proxy concentration. Please correct.

Please note: The 2002 NCDENR SLERA guidance has been updated and is available at <http://www.wastenotnc.org/SFHOME/SLERA.HTM>.

*Response: The error will be corrected. Maximum detection limits will be used as the proxy concentration when comparing non-detects to screening values.*

2. Tables 7-3 and 7-4: The NC DENR guidance mentioned in comment 1 provides screening values consistent with US EPA Region 4 screening values. Please use the values provided in this guidance in this risk assessment.

*Response: Screening values provided in the NC DENR guidance will be used in the risk assessment.*

3. Page 7-27: The elimination of COPCs based on low frequency of detection (<5%) is based on outdated human health guidance and should not be used in ecological risk assessments. Please correct.

*Response: The elimination of COPCs based on low frequency of detection (<5%) will be removed from the ecological risk assessment.*