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November 13, 2009

Mr. Scott Bolton  
U. S. Army Transition Force  
P. O. Box 5022  
Fort McClellan, Alabama 36205

**RE: ADEM Review and Comments:** Army's Responses to ADEM Evaluations on *Draft Remedial Investigation Report: Bains Gap Road Ranges, Range 24, Parcel 80Q; Range 21, Parcel 77Q; Range 22, Parcel 78Q and Former Mortar Range, Parcel 109Q; Range 27, Parcel 85Q, Volumes I-IV*, dated June 2008  
Fort McClellan, Calhoun County, Alabama  
Facility I.D. No. AL4 210 020 562

Dear Mr. Bolton:

The Alabama Department of Environmental Management (ADEM or the Department) has reviewed the Army's Responses to ADEM Evaluations on the Draft Remedial Investigation (RI) Report: Bains Gap Road Ranges, Range 24, Parcel 80Q; Range 21, Parcel 77Q; Range 22, Parcel 78Q and Former Mortar Range, Parcel 109Q; Range 27, Parcel 85Q. ADEM evaluations are attached for your review and response. Please note that this evaluation addresses only outstanding issues. Issues that had been addressed in previous Comment-Response evaluations were not considered. The following specific comments are not included because the Army's responses are adequate and the comments have been resolved: 84, 87, 111, and 114.

If you have any questions or concerns regarding this matter please contact Ms. Kaneshia Townsend at 334-394-4356 or via email at [ktownsend@adem.state.al.us](mailto:ktownsend@adem.state.al.us).

Sincerely,

Stephen A. Cobb, Chief  
Governmental Hazardous Waste Branch  
Land Division

Enclosure

SAC/TPS/KLT/mal

cc: Mr. Robin Scott/MDA  
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**ATTACHMENT  
ADEM Evaluations**

***Army's Responses to ADEM Evaluations on the Draft Remedial Investigation Report, Bains Gap Road Ranges, Range 24 Upper, Parcel 80Q; Range 21, Parcel 77Q; Range 22, Parcel 78Q and Former Mortar Range, Parcel 109Q; and Range 27, Parcel 85Q  
Fort McClellan, Alabama***

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**Specific Comments**

**Comment 41:** Page 4-2, Section 4.1.1. Considering that EPA's current lead concentration in soil that represents a level below which the 95 percentile fetal blood lead concentration would not exceed 10 pg/dL for adult worker exposure is 780 mg/kg, please provide clarification on the differences between the industrial site specific screening levels (SSSL) of 880 mg/kg which is referenced in the Human Health and Ecological Screening Values and polynuclear aromatic hydrocarbon (PAH) Background Summary Report as EPA's default value and EPA's current published value. Also please clarify in the text how the recreational SSSL for lead, which is based on a youth, is protective of a child who may be recreating at a site with lead contamination.

**Response 41:** This comment addresses two separate issues. The first issue concerns the basis of the SSSL for lead in industrial soil. The basis for the reviewer's statement that the current EPA acceptable lead concentration in soil for the adult worker is 780 mg/kg is unclear. The current EPA (2004) Region 9 PRG for industrial soil is 800 mg/kg attributed to a recent analysis of NHANES III. The industrial soil PRG in the EPA (2002) PRG list was 750 mg/kg, attributed to the EPA adult blood lead model. The information provided by EPA in 2002 and 2004 is insufficient to permit further explanation of these computations. The SSSL for lead in industrial soil of 880 mg/kg is read directly from the graph in Figure 1 of the description of the adult blood lead model relating fetal blood lead concentration to the concentration of lead in soil for a heterogeneous population (EPA, 1996). From a practical perspective, there is no significant difference between these three values.

The second issue requests clarification how the SSSL for lead in recreational soil, based on a youth, is protective of a young child recreating on the site. Line 13 of page 4-2 of the RI report mentions the recreational site-use SSSL of 7,600 mg/kg for lead in soil. In fact, the SSSL, which is used only as a screening value, is 400 mg/kg. The value of 7,600 mg/kg is the cleanup level for lead in soil for recreational site use (please see Appendix J of the RI report).

As noted in the Installation-Wide Work Plan, no attempt was made to develop SSSLs for every plausible receptor; rather, site-use was categorized within a limited number of generalizations; e.g., residential, commercial/industrial or recreational, and SSSLs were computed for the most highly exposed receptor in each generalized site-use category. For example, the resident was the only receptor considered under residential site use, the groundskeeper was the only receptor considered under commercial/industrial site use, and the recreational

site user (a youth living nearby) was the only receptor considered under recreational site use. This approach does not mean that no other receptors are plausible. For example, grandchildren may visit a residential site and stay for the summer. Several kinds of workers (other than the groundskeeper), customers and delivery personnel would visit commercial/industrial sites. And adults and children (as well as a youth) might visit a recreational site. Nonetheless, the single receptors chosen for evaluation for each of these scenarios (resident, groundskeeper and youthful recreational site user, respectively) were judged and approved to represent the upper bound on exposure, generally because their exposure frequency is expected to be greater than that for other potential receptors. An SSSL that is sufficiently protective for the most highly exposed individual is also protective for less highly exposed individuals.

**References:**

U.S. Environmental Protection Agency (EPA), 2004, *Region 9 PRG Table*, San Francisco, California, October.

U.S. Environmental Protection Agency (EPA), 2002, *Region 9 PRGs Table*, San Francisco, California, October.

U.S. Environmental Protection Agency (EPA), 1996, *Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil*, Technical Review Workgroup for Lead, December.

**ADEM**

**Evaluation:** Response is adequate and comment is resolved.

**Response to  
Evaluation:**

As agreed during the October 2007 meeting with ADEM, the SSSL for lead in industrial soil will be revised to 800 mg/kg.

Also as agreed during the October 2007 meeting with ADEM, a young child recreational site user is included as a new receptor. The assumptions and equations for developing the SSSLs for this receptor, as well as cleanup levels for lead, are documented in Appendix J.

**ADEM**

**Evaluation:** On December 11-12, 2008, the Army hosted a meeting with ADEM, USEPA, U.S. Fish and Wildlife Services and their respective contractors. During that meeting, ADEM suggested a cleanup level of 2,144 mg/kg for a young child recreational site user (0-6 years old) was appropriate for a lead cleanup level, where as the Army developed a cleanup level of 8,623 mg/kg for this potential receptor. The Army stated that the youth receptor (7-17 year old) was the more conservative approach for the trespasser scenario than the child receptor due to the potential time/opportunity for exposure. It was noted that neither of these values would actually be used as cleanup levels since ecological risk-based

remedial goals will be much lower and will drive the cleanup. Therefore, the comment is resolved.

**Final Response:** During the aforementioned meeting, the question was then raised whether the young child recreational site user scenario was required at all since the youth recreational site user (7-17 years old) was determined by the BCT years ago to be the upper bound on risk for recreational exposures. The group agreed that the young child recreational site user scenario could be excluded from the document provided that the risk assessment was revised to state that the youth recreational site user (7-17 years old) was the upper bound on risk and, as such, any conclusions reached regarding the youth recreational site user would also be applicable to the young child. Young child exposures are assessed under the more conservative residential scenario.

**Evaluation of**

**Final Response:** ADEM agrees that at the December 11-12 meeting, the human risk-based cleanup level discussion was set aside since ecological risk-based remedial goals would drive the cleanup at the site. However, ADEM does not agree that the youth recreational site user represents the upper bound on risk and that any conclusions regarding the youth recreational site user would also be applicable to the child recreational user.

ADEM is in the process of updating ARBCA to clarify that for the recreational site use scenario, both the child (0-6 years old) and the youth (7-17 years old) receptors should both be evaluated and the more conservative value would be used as the cleanup level. The update will also clarify that for the unrestricted use scenario, the child, youth and adult receptors should all be evaluated and the more conservative value would be used as the cleanup level.

**Comment 96:** **Page 6-6 to 6-7, Section 6.1.1.3. Considering that young children are more susceptible to lead exposure, please clarify in the text how the recreational exposure scenario is protective of young children who may be recreating with their parents. The recreational exposure scenario assumes that the recreational user is a 7- to 16-year old.**

**Response 96:** Please see response to Specific Comment 41. The main point of that response is that the recreational site user would be the more heavily exposed receptor. This is based on the assumption that the exposure frequency of a youth is expected to be somewhat greater than that of an adult with adult responsibilities including job, home, and child care.

**ADEM**

**Evaluation:** Response is adequate and comment is resolved.

**Response to**

**Evaluation:** As agreed during the October 2007 meeting with ADEM, a young child recreational site user is included as a new receptor. The assumptions and equations for developing the SSSLs for this receptor, as well as cleanup levels for lead, are documented in Appendix J.

**ADEM**

**Evaluation:** On December 11-12, 2008, the Army hosted a meeting with ADEM, USEPA, U.S. Fish and Wildlife Services and their respective contractors. During that meeting, ADEM suggested a cleanup level of 2,144 mg/kg for a young child recreational site user (0-6 years old) was appropriate for a lead cleanup level, where as the Army developed a cleanup level of 8,623 mg/kg for this potential receptor. The Army stated that the youth receptor (7-17 year old) was the more conservative approach for the trespasser scenario than the child receptor due to the potential time/opportunity for exposure. It was noted that neither of these values would actually be used as cleanup levels since ecological risk-based remedial goals will be much lower and will drive the cleanup. Therefore, the comment is resolved.

**Final Response:** Please see response to evaluation for Comment 41 above.

**Evaluation of**

**Final Response:** *Please see the Evaluation of the Response to Evaluation of Comment 41 above.*

**Comment 112:** **Page 6-25, Section 6.2.1.4. The use of 1.49 as the target HI is not appropriate for calculating SSSLs. For each route of exposure, the site-wide HI must be less than or equal to 1.0. Furthermore, the use of 1.49 is inconsistent with the target HI presented in the SSSL Report of 1.00 E+00. Please revise the risk assessment for all ranges accordingly.**

**Response 112:** A target HI of 1, not 1.49, was used to calculate SSSLs. However, a target HI of 1.49 was used to calculate cleanup levels from the SSSLs because the cumulative HI for a given mechanism of toxicity (with target organ or target tissue as a surrogate for mechanism of toxicity), rounded to one significant figure, would not exceed the threshold of 1. Nonetheless, as requested by the reviewer, a target organ HI of 1 will be used to revise the calculated cleanup levels.

**ADEM**

**Evaluation:** Response is adequate and comment is resolved. Please revise the text accordingly.

**Response to**

**Evaluation:** A target HI of 0.1, not 1.49, was used to calculate SSSLs. Please see Response to Evaluation of Specific Comment 111 regarding calculating RGOs instead of cleanup levels.

**ADEM**

**Evaluation:** Please see response to Comment 111. The SSSL for noncancer compounds should be calculated based on a HI of 1.0 (not 1.49). Please revise for accuracy to the second significant digit for the HI values.

**Final Response:** Agreed.

Mr. Scott Bolton  
*November 13, 2009*

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**Evaluation of**

**Final Response:** ADEM notes that the previous response states that a value of 1 will be used, which has been used to reflect a numerical value of 1.49 in the text. Please use a target Hazard Index (HI) of 1.0 for cleanup levels or Remedial Goal Objectives (RGOs).