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March 29, 2011

Brooks Evens  
U.S. Army Corps of Engineers, Louisville District  
Environmental Engineering Section,  
Rm. 921  
600 Dr. Martin Luther King Jr. Place  
Louisville, KY 40202

Subject: Errata Notification  
Former Lockbourne Air Force Base

Dear Mr. Evens:

CH2M HILL is sending you this notification regarding errata to the final *Former Lockbourne Air Force Base Landfill Remedial Investigation Report* (RI) (CH2M HILL, May 2010). These changes were identified during development of the Focused Feasibility Study (CH2M HILL, April 2011), which included further review of constituents of potential concern (COPCs) used in the human health risk assessment, specifically methylene chloride detections in groundwater and constituents for which there were no regional screening levels.

The attached file describes the changes to be made and the locations in the text where those changes occur. This document should be inserted at the front of the RI (CH2M HILL, May 2010). The inclusion of the errata at the beginning of the document will serve as notification of the changes; no pages will need to be replaced or removed from the original report.

If you have any questions, please contact Rob Frank at (937) 220-2911.

Sincerely,

CH2M HILL

A handwritten signature in black ink, appearing to read "Robert H. Frank, II".

Robert H. Frank, II CHMM  
Project Manager

Attachment



# Former Lockbourne Air Force Base Landfill Remedial Investigation Report Errata

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Several corrections are being made to the final *Former Lockbourne Air Force Base Landfill Remedial Investigation Report* (RI) (CH2M HILL, May 2010). The development of the Focused Feasibility Study (CH2M HILL, March 2011) included further review of constituents of potential concern (COPCs) used in the human health risk assessment, specifically methylene chloride detections in groundwater and constituents for which there were no regional screening levels.

**1 Replace the last paragraph on page ii of the Executive Summary with the following:**

For groundwater exposure scenarios that exceed risk target goals (that is, future construction workers and offsite residents), risks are driven primarily by PAHs and dioxins, and to a lesser extent by metals, a VOC, and phthalates. Methylene chloride, the one VOC, was identified as a risk driver in AOC 1 UWBZ groundwater (ELCR =  $1.1 \times 10^{-5}$ ). However, data associated with this chemical have been determined to be associated with laboratory blank contamination. Therefore, methylene chloride is not considered a risk driver in groundwater. Lead concentrations in AOC 1 UWBZ groundwater would exceed the criterion for BLL in future children exposed to offsite groundwater.

**2 Replace the first bullet on page 6-11 in Section 6.3.3 with the following:**

**AOC 1, Surface Soil (0 to 1 foot bgs)** – Ten PAHs [benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k)fluoranthene; chrysene; dibenzo(a,h)anthracene; fluoranthene; indeno(1,2,3-cd)pyrene; naphthalene; and pyrene], three PCBs (PBC 1242, PCB 1248, and PCB 1260), dioxins/furans (which will be quantified as TCDD TEQ), one SVOC (dibenzofuran), and three inorganics (lead, silver, and thallium) exceeded the screening criteria and were identified as COPCs (Appendix C, Table 2.1). Although there is no RSL for carbazole, it was retained as a COPC to provide conservatism in the risk assessment because it was detected in surface soil. Seven inorganics (aluminum, arsenic, cobalt, iron, manganese, nickel, and vanadium) exceeded the RSLs; however, the concentrations of these inorganics were less than background concentrations, and they were eliminated as COPCs.

**3 Replace the second bullet on page 6-12 in Section 6.3.3 with the following:**

**AOC 2, Indoor Air (Vapor Intrusion from Total Soil)** – Two VOCs (trans-1,3-dichloropropene and methylene chloride) and one PAH (naphthalene) exceeded the screening criteria and were identified as COPCs (Appendix C, Table 2.5). Although there are no RSLs for acenaphthene, dibenzofuran, methylnaphthalene, or pyrene; they were retained as COPCs to provide conservatism in the risk assessment because they were detected in soil.

**4 Add the following paragraph to the end of Section 6.7.1:**

As stated in Section 6.3.1, B-qualified data were included in the risk evaluation. The database for the site represents a compilation of several data subsets from different sampling events over time as well as different analytical laboratories. In the database, B-qualified data (including BJ-, JB-qualified data) were flagged as detects. For conservatism, considering the age of the data and potential differences in data validation procedures, B-qualified data were included in the

risk evaluation as detected data. In the case of AOC 1 UWBZ groundwater, inclusion of B-qualified data for methylene chloride resulted in an exceedance of the risk target of  $1 \times 10^{-5}$ . Methylene chloride was detected in one of 31 samples in the AOC 1 UWBZ groundwater data set, and this detected concentration was qualified with a JB, indicating the methylene chloride concentration in this sample was less than ten times the concentration detected in the blank sample. The concentration detected in samples LCK-GW06 and LCK-GWDUP1 was  $6 \mu\text{g/L}$ , while the concentration detected in the blank sample was  $4 \mu\text{g/L}$ . Based on this information, the risk assessment considers this sample blank contaminated and methylene chloride as nondetected in this sample. Therefore, methylene chloride is not a risk driver for AOC 1 UWBZ groundwater.

**5 Replace the last paragraph in Section 6.7.3 the following:**

Surrogate chemicals were used for detected constituents without screening levels and toxicity values, when available. The use of surrogate chemicals may underestimate or overestimate the potential risks or hazards. For instances where a surrogate chemical was not available (such as carbazole) or the surrogate chemical also had no screening level or toxicity values available, the detected constituent was identified as a COPC. However, risks and hazards could not be calculated for these constituents, and they were not carried forward in the risk assessment. Excluding these constituents from the evaluation may underestimate potential risks or hazards.

**6 Replace the last paragraph in Section 6.8 with the following:**

For groundwater exposure scenarios that exceed risk target goals (that is, future construction workers and offsite residents), risks are driven primarily by PAHs and dioxins, and to a lesser extent by metals, a VOC, and phthalates. Methylene chloride, the one VOC, was identified as a risk driver in AOC 1 UWBZ groundwater ( $\text{ELCR} = 1.1 \times 10^{-5}$ ). However, as discussed in Section 6.7.1, the data associated with this chemical have been determined to be associated with laboratory blank contamination. Therefore, methylene chloride is not considered a risk driver in groundwater. Lead concentrations in AOC 1 UWBZ groundwater would exceed the criterion for BLL in future children exposed to offsite groundwater.

**7 Replace the last paragraph in Section 8.3 with the following:**

For groundwater exposure scenarios that exceed risk target goals (that is, future construction workers and offsite residents), risks are driven primarily by PAHs and dioxins, and to a lesser extent by metals, a VOC, and phthalates. Methylene chloride, the one VOC, was identified as a risk driver in AOC 1 UWBZ groundwater ( $\text{ELCR} = 1.1 \times 10^{-5}$ ). However, as discussed in Section 6.7.1, the data associated with this chemical have been determined to be associated with laboratory blank contamination. Therefore, methylene chloride is not considered a risk driver in groundwater. Lead concentrations in AOC 1 UWBZ groundwater would exceed the criterion for BLL in future children exposed to offsite groundwater.

8 Replace the table on page ii in the Executive Summary, on page 6-34 in Section 6.8, and on page 8-6 in Section 8.3 with the following:

Exposure Scenarios that Exceed Risk Targets			
Exposure Area	Exposure Medium	Human Receptors	Risk Drivers
AOC 1	Surface soil	Current/future maintenance, trespasser/visitor	PAHs, PCBs
AOC 1	Total soil	Future construction worker	PAHs, PCBs, lead
AOC 1	UWBZ groundwater	Future construction worker and offsite residents	PAHs, phthalates, dioxins, metals (aluminum, arsenic, cadmium, cobalt, copper, iron, manganese, thallium, vanadium, and lead)
AOC 1	IDA groundwater	Future offsite residents	PAHs, phthalates, dioxins, metals (iron and manganese)
AOC 2	UWBZ groundwater	Future construction worker	PAHs, dioxins
Off-Landfill	IDA groundwater	Future offsite residents	PAHs, dioxins

AOC = area of concern  
 IDA = intermediate depth aquifer  
 PAH = polynuclear aromatic hydrocarbons  
 PCB = polychlorinated biphenyl  
 UWBZ = upper water-bearing zone

