DEPARTMENT OF THE ARMY
ST. LOUIS DISTRICT, CORPS OF ENGINEERS
8945 LATTY AVENUE
BERKELEY, MISSOURI 63134

REPLY TO
ATTENTION OF:

September 20, 2002

Formerly Utilized Sites Remedial Action Program

Subject: Response to Comments on the Annual Environmental Data and Analysis Report for CY01

Ms. Jill Groboski
Federal Facilities Section
Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102-0176

Dear Ms. Groboski:

The U.S. Army Corps of Engineers (USACE) received your comments on the subject document dated August 23, 2002. As some of your inquiries are relative to the Executive Summary, please note that the summary will not have a detailed evaluation. The detailed evaluation will be found most often within the body of the document. For some citations, the details may actually be attributed to another document.

Comment 1: Page ES-5, 1st paragraph.

- Please clarify the statement "...and background concentration expected to be established in future North County Feasibility Study."
  1) Shouldn't the background concentration already have been established?
  2) If you have not established any background concentrations for the North County Sites, then what has been used to compare contaminant levels found at the North County Sites?

Response 1: You understand the statement correctly, "background concentrations [are] expected to be established in the North County Feasibility Study [FS]." 1) Background values to be established in the FS will be based on the limited data available. As background data is strongest when the greatest amount of material is included, USACE was not satisfied with the sporadically collected data from wells that were not properly placed from the time prior to USACE involvement. Data collection is ongoing. 2) The data are being compared to background values and various regulatory limits. Background values to support the FS and the environmental monitoring program are currently being revised to include as much data as available.

Comment 2: Page ES-5, 2nd paragraph.

- It states that there are increased levels of Ra-226 and Th-230 in the wells at the southern and western edges of the site. What actions have been taken to ensure that these levels will not continue to increase in the future?

Response 2: The statement actually reads, "Radiological contaminants are generally present in HZ-A ground water at very low to non-detect levels, with the exception of some slightly elevated levels of radium-226 and thorium-230..." This does not state that the two radionuclides are increasing. It indicates that radium-226 and thorium-230 are present above non-detect levels. The action being taken to ensure these levels will not increase is source-term removal being conducted at the St. Louis Airport Site (SLAPS).

Comment 3: Page ES-6, 1st paragraph.

- Please explain how the conclusion was made that TCE and 1, 2-DCE are not MED/AEC contaminants.

Response 3: TCE is not known to have been used in any FUSRAP-related activities conducted at SLAPS. TCE and its byproducts (i.e., 1, 2 – DCE) are not expected to be in the environment impacted by the residues because it was not used in the uranium processing steps. In addition, the TCE distribution pattern at the site and lack of significant concentrations of degradation products are not consistent with FUSRAP origin. The USACE will continue to monitor the ground water for TCE if TCE is co-located with FUSRAP contaminants of concern (COCs). Excavation water will not be released from the site with hazardous waste (including TCE) above regulated levels, which TCLP identifies as 0.5 mg/L for TCE.

Comment 4: Page ES-6, 2nd paragraph.

- How was the conclusion drawn that the elevated levels of arsenic, iron, manganese, total dissolved solids were due to natural occurrences?
- What is causing the elevated thorium levels in the wells screened in the lower levels?

Response 4: The evidence supporting the conclusion that elevated concentrations of these contaminants in the deepest hydrostratigraphic zone above rock (HZ-C) are unrelated to FUSRAP-related activities is generally based on the lack of correlation between the concentrations detected in shallow and deep ground-water at SLAPS. Arsenic data indicate that concentrations present in shallowest hydrostratigraphic zone (HZ-A) wells at SLAPS are generally below the maximum contaminant level (MCL). In contrast, the HZ-C wells consistently show arsenic levels above the MCL. Manganese was reportedly present in the ores in only trace amounts and was not identified above criteria in soils at either SLAPS or the Hazelwood Interim Storage Site (HISS). The concentrations of iron and totally dissolved solids (TDS) in SLAPS deep ground water are also elevated in the upgradient well (B53W01D) as well as site wells. Additionally, the limited hydraulic connection between the HZ-A unit and deep aquifer (the protected hydrostratigraphic zone, HZ-E) precludes introduction

into the deep aquifer as FUSRAP-related COCs. As noted in the response to a later comment (GSRAD comment #1), a comparison of the levels of arsenic, iron, and manganese in a deep and shallow well pair at HISS supports this conclusion.

Thorium levels slightly exceeded background and the levels detected were J-qualified, indicating that the values were only estimated values and below the quantification limit. When the range of uncertainty associated with these values are considered, these levels are within the range of natural variation.

Comment 5: Table 3-4: Results from Third Quarter CY01.

- There is an elevated Th-230 and gross alpha result from outfall HN01 of 78.39 and 104.2 pCi/L, respectively. These readings were not discussed in the discussion section for the third quarter. Please provide an explanation as to what action was taken to reduce the thorium level in the future.

Response 5: The USACE initiated erosion control measures to reduce sediment load and potential Th-230 concentrations, as part of best management practices.

Comments Received from GSRAD

Comment 1: Groundwater Monitoring HISS, paragraph 3, page ES-5.

- According to the text, elevated concentrations of arsenic, iron and manganese in the HZ-C groundwater zone are likely the result of natural conditions. No supporting evidence is provided to support this claim. Evidence supporting the theory that the elevated metals are likely the result of natural conditions should be provided in subsequent documents, which address the origin of elevated concentrations of arsenic, iron, and manganese in the HZ-C groundwater zone.

Response 1: The evidence for this claim is presented later in the document (Section 4.1.2.2). Plots of concentration versus time were constructed for the shallow-deep well pair HISS-05 and HISS-05D for arsenic, iron, and manganese. The data indicate that concentrations in the HZ-A well do not parallel trends in the HZ-C ground-water well. This suggests that the elevated concentrations of arsenic, iron, and manganese in HZ-C ground water are not the result of contaminant migration from the HZ-A ground water and supports the view that the source of these three contaminants is unrelated to FUSRAP-related activities at the site.

Comment 2: Groundwater Monitoring SLAPS, paragraph one, page ES-5.

- The description of hydrostratigraphic zone D (HZ-D) is Interbedded Pennsylvanian *rock* and shale. The Pennsylvanian unit that underlies portions of SLAPS is the Cherokee Group, which is composed of shale, sandstone and minor amounts of coal and limestone. The Pennsylvanian-age *rock* unit in this paragraph should be described in greater detail.

Response 2: The purpose of this report is to summarize the environmental monitoring data taken from various locations for different media at the St. Louis Sites. A brief discussion of the geologic setting is included in order to provide an understanding of contaminant migration and site hydrogeology. It is not intended to detail the geology of the area. The North County FS will provide a detailed discussion of this geologic unit/group.

Comment 3: Table 4-2, Analytes Exceeding MCLs or SMCLs in HZ-A Groundwater at HISS in CY 01 (Unfiltered Data). Page 4-6.

- There is a probable typographical error in the units column for manganese for stations HISS-20S, HW 21, and HW 22. The unit listed for these stations is pCi/L, which is usually the unit for radionuclides.

Response 3: Concur. The units for manganese should be listed as ug/L.

Comment 4: HZ-C Groundwater, paragraph one, page 4-8 and Figures 4-6 and 4-8.

- It is stated in this paragraph that HW23 is an upgradient well. However this well appears to be downgradient (based on groundwater flow from southwest to northwest) illustrated by the potentiomentric surface in Figures 4-7 and 4-9. If this well is not upgradient of the HISS site, as suggested in this paragraph, an explanation needs to be provided indicating how HW23 can be used to evaluate background conditions.

Response 4: Concur in part. This well is not totally upgradient; it is side-gradient. It is located a sufficient distance from the site such that it is not impacted by any FUSRAP-related activities. As such, this well is considered "upgradient." Other well positions that would be more upgradient from the present resolution are possibly contaminated in the HZ-A horizon. Further, the ground-water flow direction indicated by data collected before the Corps' involvement, which included the state's involvement, seemed to have a more northerly direction. The well was placed for two reasons: less surface contamination impact from the site and at the time it was thought to be upgradient of the site.

Comment 5: HU-B Groundwater SLDS, paragraph one, page 4-56.

- It is stated in the text that arsenic concentrations may be naturally occurring and according to Miller, 1974, (Water Resources St. Louis Area, Water Resources Report Number 30) elevated arsenic concentrations are typical for groundwater in the Mississippi River alluvial deposits. The GSP reviewed the sections concerning the Mississippi River alluvial deposits in the referenced document and did not find discussion of elevated levels of arsenic. In addition, no sampling for arsenic (surface water or groundwater) was performed in conjunction with this report. The GSP recommends that this reference be verified.

Response 5: Concur. The Miller, 1974 reference should have been made with respect to the elevated manganese and iron concentrations rather than the arsenic levels. The document will be changed to reflect this.

The USACE appreciates your comments. These comments will be taken into consideration when preparing the Annual Environmental Monitoring Data and Analysis Report for CY02. Should you have any comments or questions regarding this letter, please feel free to contact Dr. Greg Hempen at (314) 260-3939.

Sincerely,

Sharon Cotner

Sharon Cotner
FUSRAP Program Manager

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