

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahfood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

August 17, 1998

Ms. Sharon Cotner, Project Manager
Formerly Utilized Sites Remedial Action Project
Department of the Army
St. Louis District, Corps of Engineers
9170 Latty Avenue
Hazelwood, MO 63134

RE: Groundwater Characterization Report of Baseline 1997 Data, St. Louis Airport Site
(SLAPS), May 1998

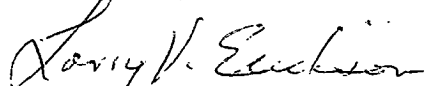
Dear Ms. Cotner:

The departmental staff have reviewed the above referenced document and wish to provide you with the enclosed comments. Ms. Mimi Garstang of the Division of Geology and Land Survey (DGLS) or Jim Harris of my staff will be happy to discuss these comments with either you or your staff.

If you have any questions, or need further information, you may contact Jim Harris at (573) 526-2736.

Sincerely,

HAZARDOUS WASTE PROGRAM



Larry V. Erickson, DOE Unit Chief
Federal Facilities Section

LE:jhg

Enclosure

c: Mimi Garstang, DGLS

**Ground Water Characterization Report of Baseline 1997 Data,
St. Louis Airport Site (SLAPS), May 1998**

General comments:

1. Certain conclusions have been drawn in this report with very limited supporting data. As the work identified in the Sampling and Analysis Plan is completed, additional data will be generated to answer outstanding questions and make conclusions.
2. Many of the wells that have been sampled are already plugged or are soon to be considered for plugging. The Department has asked numerous times, that as much data as possible be collected from these wells before they are abandoned. This does not seem to be happening. More effort needs to be directed toward these wells and a plan for replacement needs to be developed quickly.
3. Tritium analysis was done on a different set of wells than that defined in the Abbreviated Plan for Providing Baseline Sampling and Data Collection for Surface Water and Groundwater at the St. Louis Airport site and the Hazelwood Interim Storage Site. Much time and effort was spent in the selection of the wells requested in the referenced document. The analysis on the wells listed on page nine (9) of the September 1997 abbreviated plan should be revisited and the analysis completed. The units for tritium analysis are pCi/l instead of tritium units. Can a conversion factor be provided? More of the water age analysis are done in TU.
4. Static water level data was not provided with the data package. This data was collected and needs to be distributed with potentiometric maps developed within the various units beneath the site and is essential to understanding contaminant movement.
5. It is evident from the recent sampling efforts that radionuclide contamination is present in wells on site and off site. Also, it is evident that organics are present in wells both on site and off site. Sampling in September 1997 has documented off-site movement of contaminants.
6. The significance of the qualifiers and reporting columns on the data sheets need to be further explained.
7. Background radionuclide concentrations are not defined for groundwater. They need to be established.
8. Isoconcentration maps should be developed for the radionuclides and the organics present.

9. Dichloromethane is present in numerous samples. Is there an explanation for this?
10. The detection limits for protactinium and actinium are 200 pCi/l instead of the 50 pCi/l promised in the sampling plan. From the numbers reported, they seem to be present. Their presence should be included in risk evaluations.
11. For the first time in the collection of data at SLAPS, downward gradients are evident over most of the site. This is significant information in understanding groundwater movement and contaminant migration. It also supports a need for a continuous, consistent, long-term monitoring plan for the site. Also, the data shows downward gradients where the 3M unit is present. That relationship needs to be understood.
12. Weir discharges, precipitation data, Coldwater Creek gauging data and groundwater gradients need to be compared as the data collection process progresses.
13. All reports that involve or reference geologic conditions and interpret geologic data that impacts human health, safety and welfare must include a title page properly endorsed by a geologist registered in Missouri.

Specific Comments:

1. Page 3
The hydraulic conduction of the 3T and 3B units are not considered to be low. The Site Suitability Report of February 1994 shows moderate hydraulic conductivities for these units. Only two tests exist for the 3M unit, the results were highly variable (one 10^{-5} and one 10^{-8}). Drawing conclusions about the permeability of these units (especially the 3M) should be delayed until more data is collected or statements should be qualified. Discussions of 3M unit being a known barrier to downward water migration are not yet proven. The tritium analysis is only relative to the age of the water in the last 50 years (not geologic time).
2. Page 5
The discussion about hydraulic gradients appears to be comparing vertical and horizontal gradients without clarification. The direction of these gradients should be clarified. The uncertainty of both the vertical and horizontal gradients at the site are justification to continue to collect Static Water Level (SWL) data on at least a quarterly basis for the next year or two.
3. Page 8
Data from well B53W12D should not yet be discounted as anomalous. A second round of sampling will assist in evaluating this information. This well is screened in shale which could justify the significantly different geochemistry.

4. Page 9
Dichloromethane was found in several deep wells. The well of the most significance being well M10-25D that contained 610 ppb dichloromethane. Resampling should determine if this is truly present or not. If this contaminant is at depth the understanding of contaminant movement may need reevaluation.

1992 groundwater sampling data showed high radium concentrations in one well. If further sampling events indicate radium, thorium, protactinium, or actinium are present they should be considered as PCOCs.
5. Page 12
The presence of uranium in well B53W06S at 75.4 ug/l is significant. The source of this uranium must be determined. The source of TCE in well B53W17S must also be determined.
6. Page 13
Before the 1997 Baseline sampling event the available data was reported as yearly averages. (See Tables 4-3, 4-4, 4-5, 4-6). Consistent data for specific sampling events needs to be evaluated long term. It is difficult to feel confident comparing yearly averages to the September 1997 sampling event. Future data reporting should not be averaged.
7. Page 16
The state shares the concerns that are expressed by the COE about certain data that was never transmitted by DOE contractors. Achieving specific detection limits is critical to the value of the sampling and analysis done at the site. Knowing whether samples are filtered or not and how lab qualifications should be interpreted are also important. The state has previously requested that tritium analysis be done on all wells. Archived samples could be used for such analysis.
8. Page 17
Conclusion #6 states that vertical gradients exist across the site that are independent of the thickness of stratigraphic units. This also appears to be independent of the presence or absence of the 3M unit. It is vitally important to continue to collect and review static water level information for the site consistently over time and try to fully understand the hydraulic gradients.
9. Page 18
At this point in time I do not agree with the strong statement that water above and below the 3M unit have "negligible hydraulic communication." However, the collection of data proposed in the Sampling and Analysis Plan will help to make such a determination. This report states there is rapid recharge to the upper groundwater. DGLS agrees we have the data to support that statement. We do not have sufficient data to support conclusions about the lower groundwater, but we are in the process of collecting additional data.

10. Figures 3-1, 3-2, and 3-3
It is indicated (in the notes) that the sampling information is provided by Bechtel in September 1995. That appears to be incorrect as the intent was to use September 1997 data.
11. Figure 3-4
A comparison should be made to correlate actual groundwater sampling with chemical composition to see if they complement one another and if not, why.
12. Figure 3-8
There appears to be an indication of mixing of groundwater in well B53W04S. The well log does not show any 3M unit present. The potential for mixing in wells where 3M unit is absent versus where it is thickest should be evaluated further as additional data becomes available.
13. Monitoring Well M10-25D has some unusual reporting results and SQL's (which are undefined). It appears that there is a high level of Dichloromethane in the well and other analytical numbers are being affected by the one analyte. We would like to see the well resampled immediately and possible dilution of the sample allows for better analytical results.