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STATE OF MISSOURI
Mel Carnahan, Governor • David A. Shorr, Director
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102-0176

November 10, 1993

Mr. David Adler
FUSRAP St. Louis Site Manager
Former Sites Restoration Division
U.S. Department of Energy
Oak Ridge Operations, P.O. Box 2001
Oak Ridge, Tennessee 37831-8723

Dear Mr. Adler:

The MDNR (Missouri Department of Natural Resources) has reviewed the following documents for the FUSRAP (Formerly Utilized Sites Remedial Action Program) St. Louis Site, submitted under cover letter dated July 21, 1993 by the U.S. DOE (Department of Energy):

- Feasibility Study/Environmental Impact Statement for the St. Louis Site, July 1993
- Proposed Plan for the St. Louis Site, July 1993
- Site Suitability Study for the St. Louis Airport Site, July 1993
- Evaluation of Contaminated Sediment Transport in Coldwater Creek, July 1993
- Groundwater Flow and Transport Model for the Airport Area, July 1993
- Letter Report on the Risks Associated with Contaminated Sediments Present in Coldwater Creek, July 1993
- DOE Comment Response to the EPA May 19, 1993 Comments on the February 1993 Draft Feasibility Study and Proposed Plan for the DOE St. Louis FUSRAP Site
- DOE Comment Response to the MDNR May 20, 1993 Comments on the February 1993 Draft Feasibility Study and Proposed Plan for the DOE St. Louis FUSRAP Site

We appreciate the level of effort given to responding to our May 20, 1993 comments; however, the MDNR does not believe that these documents support the DOE's preferred remedial alternative of consolidation and capping at the SLAPS (St. Louis Airport Site). The MDNR position of record is that the hazardous waste landfill site suitability demonstration (10 CSR 25-7.264(2)(N)1.) and design standards (10 CSR 25-7.264(2)(N) and 40 CFR 264 Subpart N) contained in the Missouri Hazardous Waste Management Law and Regulations are relevant and appropriate to any disposal of FUSRAP wastes in Missouri. The DOE must show that the site will retard radionucleides and other hazardous constituents, above the regional aquifer, to a degree functionally equivalent to the site suitability demonstration. The shallow ground water at the SLAPS occurs within five to ten feet of the current ground surface. If the DOE shows that the

water is not interconnected to the regional aquifer directly beneath the proposed disposal area, along with appropriate contaminant retardation studies, then the site may be acceptable for the location of a disposal cell with liners that are functionally equivalent to the hazardous waste landfill liner and cover technology requirements. If these hydrogeologic and contaminant transport demonstrations cannot be made, then additional design features must be provided. We would like to discuss any draft proposals for a liner and cover system that DOE would propose.

The May 20, 1993 comment letter also expressed concern about the lack of progress on the proposed expansion of the HISS (Hazelwood Interim Storage Site). The DOE response did not address this concern. The MDNR will further address this issue in separate correspondence.

Following are specific comments. The numerical designations in the DOE response to the May 20, 1993 comment letter is utilized to reference that letter.

General Comments

1. The term "waste pile" is used in the revised documents to refer to FUSRAP disposal facilities in Missouri. A waste pile is considered a storage facility. Since the feasibility study does not evaluate temporary storage, the permanent facilities evaluated in the feasibility study are more accurately defined as "disposal facilities."

2. (May 20, 1993 Comment no. 3)

a. The first part of this comment emphasized the excessive use of institutional controls in the DOE preferred alternative. The MDNR disagrees with the DOE response that institutional controls are a "long-standing practice" to control the use of ground water. This is not true in Missouri. Also, the examples cited of other superfund remedial actions in Missouri are not analagous to the proposed FUSRAP cleanup alternative. Missouri Electric Works has a temporary cap and there is a plan to excavate and incinerate contaminated soils. The Conservation Chemical site is capped with a slurry/grout wall, but ground water is being removed and treated. The Wheeling Disposal site is doing a cap and monitor remedy, but there is no ground water contamination off-site. None of these sites will rely on long term off-site institutional controls.

Concerning "access restricted" soils, the DOE response takes a new position which places the responsibility of management of any unexcavated soils on the property owner. This is an unacceptable proposal for federal weapons production waste that have been placed on private property or other property not owned by the DOE. The MDNR believes that institutional controls for contaminated soil are only valid where the DOE owns the property. Where it is clearly demonstrated that no other option is feasible, the DOE must maintain responsibility for the contamination through easements, trust funds, or other option that is determined acceptable to all parties.

Other comments regarding the definition of "access restricted" are made below.

b. The remainder of the MDNR comment and the DOE response addresses the degree of long term protectiveness related to future use of ground water. Specific technical comments on the

basis for the DOE response will be made below under the Site Suitability Study. Additional comments regarding water quality standards are also made below.

3. (May 20, 1993 Comment no. 5) The MDNR disagrees with the conclusions in the DOE response drawn from Site Suitability Study regarding the unit 3 clays. Additional comments regarding the Site Suitability Study are listed below.

Comments on the Feasibility Study/Environmental Impact Statement

1. (May 20, 1993 FS/EIS Comment no. 1) MDNR agrees with the response to this comment; however, we still object to the language on page ES-2 and elsewhere that states "A contaminated area at the St. Louis site must be definitely attributed to MED/AEC uranium processing activities to be within the scope of remedial action." This language appears to be inconsistent with the Federal Facilities Agreement. "Reasonably attributed" instead of "definitely attributed" would be acceptable.

2. (page 2-69, Section 2.3) The first full paragraph states that the EPA's target carcinogenic risk is 1 in 10,000. MDNR believes this should be 1 in 1,000,000.

3. (May 20, 1993 FS/EIS Comment no. 4) The MDNR agrees that it is not practical to remediate the shallow ground water at the SLAPS area. This necessitates that the wastes be excavated and placed in a lined facility since the shallow ground water could be a recharge source for the aquifer.

4. (May 20, 1993 FS/EIS Comment nos. 8, 16, and 35, and page A-22 of revised FS/EIS) The MDNR reiterates its position that the EPA ground water classification does not supercede the MWQS (Missouri Water Quality Standards). We agree that the shallow ground water at the SLAPS does not meet the definition of an aquifer in the MWQS, based on quantity and not quality considerations. However, the aquifer beneath the site, which is the same ground water body, is a potential drinking water source, and the MWQS apply at the point that sufficient ground water is available as defined in the MWQS. The degree of interconnection is a significant issue addressed in comments on the Site Suitability Study.

The application of the State Water Quality Standards must be applied in this context. For water that only moves through the shallow zone and discharges to Coldwater Creek, the MWQS apply at the point that the stream becomes classified, which is 5.5 miles upstream from its mouth. The Missouri Drinking Water Regulations and the Safe Drinking Water Act are applicable at the point that the ground water meets the definition of an aquifer.

The MDNR disagrees with the third aspect of the response to Comment no. 35. Since the shallow ground water is interconnected to the aquifer, it is defined as "waters of the state."

5. (May 20, 1993 Comment no. 12) The fourth bullet in the response states that "no areas have been identified based on history..." referring to organic and non-radioactive inorganic constituents. Has DOE conclusively evaluated the industrial processes, metal constituents, and potential chemical useage? We believe that the metal constituents are reasonably correlated to the

original wastes. The MDNR requests that this information be made part of the formal documentation.

6. (May 20, 1993 Comment no. 14) The MDNR believes that a more definitive statement should be made than first sentence in the third paragraph of Section 2.3.3 (page 2-97 of revised FS). Upgradient source of ground water contamination will become extremely important if contamination of the aquifer at SLAPS is determined. If a definitive statement cannot be made, additional ground water monitoring is needed to determine the full rate and extent of contamination at the SLAPS.

7. (May 20, 1993 Comment no. 15) Although not used as a basis for remediation the reference to the cancer rate still needs to be clarified. If the reference remains in the FS/EIS, it should be stated that the risk posed by the St. Louis Site along with the multitude of other risks as well as other factors altogether cause the one in three cancer rate.

8. (May 20, 1993 Comment no. 17) The majority of this comment and response was further addressed in Comment no. 5 above. However, the MDNR would like to address the last sentence in the response that states "no contamination of a potential drinking water source is occurring." The monitoring of the aquifer at the SLAPS should be a continuous activity, regardless of the timing of the remedial action for the St. Louis Site.

9. (May 20, 1993 Comment no. 18) The MDNR disagrees with the conclusion of the Site Suitability Study on the unit 3 clays. More comments are contained below under the that section.

10. (May 20, 1993 Comment no. 22) Response is inadequate in that it does not address the need for legally binding agreements, between MDNR (or EPA) and DOE, and between DOE and the property owner. We believe that the DOE should do a true risk and cost analysis of using institutional controls and incorporate this into the decision making framework.

11. (May 20, 193 Comment no. 23) Further comment on this issue is contained in comments on the Site Suitability Study.

12. (May 20, 1993 Comment nos. 31, 33 and 34) See other comments regarding institutional controls at comments 2 and 10 above.

13.a. (May 20, 1993 Comment no. 39) This comment pertains to whether the Missouri Hazardous Waste Law and Regulations are an ARAR. The DOE response does not sufficiently justify why this Law and Regulation are not relevant and appropriate. We agree that the FUSRAP St. Louis Site wastes as a whole do not meet the definition of solid or hazardous waste according to 40 CFR Part 261; therefore, the Missouri Hazardous Waste Law and Regulations are not applicable. However, several samples had previously failed the EP Toxicity Test for lead, isolated samples failed the TCLP Test for selenium and lead, and barium, lead, selenium, and chromium are prevalent in the wastes based on total metals analyses. Organic constituents are also found at low levels. The wastes are sufficiently similar to hazardous waste in non-radiological

and radionucleide constituents to necessitate a declaration that the disposal requirements in the Missouri Hazardous Waste Law and Regulations are relevant and appropriate.

b. (page 2-69, Section 2.3) The MDNR disagrees with the revised language which states that RCRA is not relevant and appropriate. The Missouri Hazardous Waste Law and Regulations and the RCRA regulations incorporated therein by reference should be relevant and appropriate. The Baseline Risk Assessement shows carcinogenic risk for chemical contaminants of greater than 1 in 1,000,000 for current receptors and 1 in 10,000 for future receptors. Although not in a current aquifer used for drinking water, concentrations of metals exceed drinking water levels in ground water which is in connection with an aquifer protected for drinking water uses under the Missouri Water Quality Standards. This information all leads to the conclusion that reliance on predictive models alone is unacceptable. A facility that is designed with an appropriate liner and cover system is necessary.

14. (May 20, 1993 Comment no. 40) See other comments regarding ARAR's.

15. We believe that the DOE needs to address the concern that a slurry wall will cause head to build up and cause vertical migration of contaminants. At this point, we believe that complete excavation of the SLAPS and construction of a lined facility will offer more protection than consolidation and capping with a slurry wall.

16.a. The cost analysis in Appendix B should include the cost estimate under alternative 4 and 5 for a facility with a liner and cover system that the meets the requirements for a hazardous waste landfill.

b. Alternative 3 would be more realistic if it includes the additional future cost of remediating ground water which may be necessary because contamination will migrate sooner as compared to the on-site disposal alternative in 4 and 5. It also should include the cost of not containing the material in the event that recovery is economically beneficial prior to the end of the facility life.

c. Alternatives 3 and 4 grossly underestimate the cost of institutional controls. This may be because the DOE is not taking responsibility for any contamination left in place beyond establishment of initial deed restrictions. Over the long term, significant administrative and field costs will be incurred.

17. We understand that the EPA is planning to promulgate cleanup requirements for radionucleides that may apply to the FUSRAP St. Louis Site. Also, the cleanup criteria proposed for this site has not been accepted at some other sites. Has the DOE done soil volume estimates for a more stringent cleanup standard scenario?

Comments on the Proposed Plan

1. The preferred alternative is unacceptable to MDNR. All comments on the Feasibility Study/Environmental Impact Statement apply to the alternative selection by the DOE.

2. (May 20, 1993 Comment no.3) MDNR requests that DOE regularly report the status of the "FUSRAP system-wide effort" as it relates to treatment feasibility at the St. Louis Site.

3. (May 20, 1993 Comment no. 4) What steps is the DOE taking to acquire the SLAPS site so that it can be used for the DOE preferred alternative.

4. Please refer to the memorandum (attached) from Mimi Garstang to Dave Bedan dated August 18, 1993

Comments on the Site Suitability Study

1. Please refer to the comments in the memorandum (attached) from Mimi Garstang to Dave Bedan dated August 12, 1993.

2. (May 20, 1993 Comment no. 4) The response to this comment on earthquake provisions references compliance with 40 CFR 258.14. This RCRA Subtitle D regulation requires design for earthquake if the facility is in a zone designated in USGS Report 82-1033, "Probabilistic Estimates of Maximum Acceleration and Velocity in Rock in the Contiguous United Sates." This report designates zones that have an expected earthquake exceeding 0.10g in rock with a return frequency of 250 years.

What is the design acceleration for a disposal facility at the SLAPS?

3. What form of uranium and radium were used to determine the distribution coefficient of borehole samples as compared with the actual form of radionucleides on the FUSRAP St. Louis site?

4. The MDNR believes that the full vertical and horizontal extent of potential contaminant transport should be modelled. This information will be used to determine if a lined facility is acceptable for location at the site.

5. Our understanding of the MULTIMED or other models is that they use a retardation coefficient calculated using the distribution coefficient and soil characteristics assuming breakthrough of fifty percent of the maximum solute concentration. This does not relate to a maximum contaminant level or other water quality standard. The DOE should address this aspect of modelling. The hazardous waste landfill site location standard in the Missouri Hazardous Waste Management Regulations must be applied looking for the first predicted breakrhrough of detectable metal and radioactive contaminants.

Comments on the Evaluation of Contaminated Sediment Transport in Coldwater Creek

1. Please refer to comments in the memorandum (attached) from Neil Elfrink to Mimi Garstang dated August 12, 1993.

Comments on the Groundwater Flow and Transport Model for the Airport Area

1. Please refer to comments in the memorandum (attached) from Mimi Garstang to Dave Bedan dated August 19, 1993.

Thank you for the opportunity to comment on these documents. We reserve the right to make further comments on these documents in draft form or during the public review period. We request that a response to all individual comments be provided with an indication of any changes that are made or these documents. Please contact me if you wish to discuss any of these comments.

Sincerely,

Daniel M. Tschirgi

Daniel M. Tschirgi, P.E.
Environmental Engineer
Federal Facilities Section

c: Mr. Dan Wall, EPA Region VII
Mr. Daryl Roberts, MDOH

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STATE OF MISSOURI
FACSIMILE TRANSMITTAL SHEET

DATE 11-10-93

TO	FROM
Dave Adler, DOE	Dan Tschirgi
FAX NUMBER 615-576-0456	FAX NUMBER 314-751-7869

RE

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