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STATE OF MISSOURI xxxxxxxxxxxxGovernor • Stephen M. Mahfood, Director
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF THE DIRECTOR
P.O. Box 176 Jefferson City, MO 65102-0176

OCT 27 2000

Ms. Sharon Cotner
FUSRAP Program Manager
United States Army Corp of Engineers
8945 Latty Avenue
Berkeley, MO 63134

Re: Comments on The Feasibility Study and Proposed Plan for the North County Site

Dear Ms. Cotner:

Overall, the Feasibility Study and Proposed Plan (FS/PP) for the North County Site was thorough in describing what each alternative would entail and what the preferred alternative would be. The Department has been pleased with the cleanup of the St. Louis Formerly Utilized Sites Remedial Action Project (FUSRAP) being conducted under the Engineering Evaluation/Cost Analysis (EE/CA) documents.

The FS/PP document has been reviewed and a list of comments is provided on the enclosures. The preliminary comments meeting, which was conducted on September 13, 2000, covered many of these issues with the United States Army Corp of Engineers (USACE). Some of these issues were resolved verbally; however, written affirmation is pending. Those issues deemed to be critical by Missouri Department of Natural Resources (DNR) are listed below.

1. The proposed cleanup levels for all sites should meet the 5pCi/g/15pCi/g for Radium and Thorium and 50 pCi/g for Uranium criteria. Although this criteria would achieve the USACE's preferred unrestricted release level, DNR is unwilling to consider the cleanup to meet residential standards without appropriate restrictions. The restrictions must ensure the land surface (top 6 inches) is maintained with clean soil or soil which meets the surface criteria. Other controls must be put in place for monitoring the properties for potential radon emissions and to ensure the restrictions are upheld.
2. Institutional Controls need to be declared within the Record of Decision (ROD), including the specifics regarding actions, funding and authority.
3. Cleanup criteria for the chemical constituents must meet the 10^{-6} residential future use scenario.

4. A commitment to provide long term monitoring of the groundwater is needed in the FS/PP and ROD. Also, DNR plans to pursue a Natural Resource Injury Assessment for the sites.
5. DNR has stated in the past that on-site material can not be used as backfill material unless it can be demonstrated the material is not contaminated in excess of the 10^{-6} risk range for unrestricted future use.

Also enclosed are detailed descriptions of the above and several other technical comments dealing with specific issues of the FS/PP. Included with this enclosure are the comments related to the Applicable or Relevant and Appropriate Requirements (ARAR) list. Although most of the technical comments were discussed at the preliminary comments meeting held on September 13, 2000, a written response is needed.

To reiterate, the major concerns of DNR are the remediation goals cleanup criteria, groundwater monitoring, and institutional controls. I consider these serious concerns which, if not resolved, will lead to a call for dispute resolution. I anticipate and appreciate the appropriate revisions and response to these issues in a timely manner. Thank you for your ongoing willingness to work through our concerns. If you have any questions regarding this letter, please contact Mr. Bob Geller of my staff at (573) 751-3907.

Sincerely,

DEPARTMENT OF NATURAL RESOURCES

per Steve Mahfood
Director

SM:lev

Enclosures

c: EPA Region VII
FUSRAP Oversight Committee

CRITICAL ISSUES

Cleanup Criteria

1. DNR asserts "Proposed Remediation Goals for Unrestricted Use" values for chemicals should be based upon a 10-6 risk range. The values provided within the F.S. are considerably higher than the draft issued in December 1999 and values used at other sites.
2. We disagree with raising the surface criteria concentration for Th-230 from 5pCi/g to 14pCi/g. Our reasons are listed below:
   a. The impact will be a reduction in surface remediated of approximately 20 acres.
   b. The modification conflicts with the St. Louis Task Force Resolution.
   c. The modification conflicts with US EPA directives.
   d. USACE has not provided a risk assessment demonstrating the impact of the modification.
3. Several descriptions of selected Alternative 5 are put forth in the Proposed Plan. Text on pages 22 and 25 describes use of institutional controls for soils under roads, railroads, and bridges **with** cleanups performed to supplemental standards (using the 100 mrem/yr criteria for public exposure). However, text on page 24 states "while the preferred alternative is to excavate under roads, bridges, and railroads to the supplemental limit such that the dose is less than the 100 mrem/yr limit for members of the general public, the option to use institutional controls at all roads, bridges, and railroad locations is included." **The first describes institutional controls and supplemental standards as a single action while the latter implies they are independent alternatives.** Assuming the first is USACE's intent, MDNR recommends the following modification to the quoted passage: *Institutional controls shall be maintained on all properties not remediated to free release criteria (roads, bridges, & railroads) due to accessibility. However, a supplemental standard (using a 100mrem/yr criteria for public exposure) shall be used to determine if such properties should be made accessible for remedial action under the FUSRAP project.*
4. MDNR builds upon the previous comment by stating, *should the determination be made that soils under a portion of a road, bridge, or railroad must be remediated because it exceeds supplemental standards, the removal action for that portion of the property should be performed to unrestricted use criteria. The same will be true for portions of these properties that have concentrations below supplemental standards, but have become accessible through activities such as infrastructure construction or repair.* This will eliminate potential risks and expense of having to "re-remediate" portions of property, as they become accessible. Please consider inclusion of such a statement within the Proposed Plan.

Groundwater Contamination

1. The Proposed Plan states, on page 11, "there are no FUSRAP related COC's in groundwater." USACE groundwater monitoring data identifies FUSRAP COC's do exist with concentrations directly under the site in magnitudes of order greater than in surrounding wells. MDNR recommends:

a. The Feasibility Study and Proposed Plan recognize FUSRAP related COC's in groundwater.
b. USACE should use information such as potential yield and groundwater usage in stating their opinion on the appropriateness of remediation or monitoring.

2. MDNR does not agree that no long term monitoring is needed beyond remediation activities. MDNR recommends that monitoring of groundwater continue at a minimum in order to:
   - Verify the removal action's protectiveness (i.e. Excavation of the soil is beneficial as a source removal rather than to act as a mobilizer)
   - Verify that there is no communication between the upper and lower hydrostratigraphic zones (HZ-A and HZ-B respectively).
3. The remedial action objective does not include groundwater as a media. (See page ES-25 of FS).

Institutional Controls

1. The proposed acceptable risk level is $1x10^{-4}$. DNR asserts that an appropriate risk level for unrestricted use is $1x10^{-6}$. Although DNR does not recommend a lower criteria for radiological contaminants, if the proposed risk level is accepted, it should not be represented as free release.
2. Using the varying cleanup levels in the upper 6 inches versus subsequent layers, there is no mention of how the 6-inch cover would be maintained. DNR recommends there be monitoring and/or notification to current and future property owners.
3. It is proposed that monitoring will be performed only until remediation activities are complete. However, DNR asserts that monitoring should be continued to provide values for 5-year assessments in order to determine the protectiveness of the remedy.
4. Additional controls must be put in place for the monitoring of Radon emmissions.

Use of St. Louis FUSRAP Soil as Backfill

1. Text within the Proposed Plan, page 17, reads "Soils above cleanup criteria would not be used as backfill." MDNR prefers this passage to be modified to reflect practices currently performed at the North County properties. They are described below:
   1) Soils from St. Louis FUSRAP properties will be used as **permanent** construction backfill only if they have contaminant concentrations at background values or less. Even then, they should only be used on properties that are part of the St. Louis FUSRAP project.
   2) Soils from the St. Louis FUSRAP properties having contaminant concentrations between background and cleanup criteria can be used as **temporary** construction fill. However, they shall only be used on St. Louis FUSRAP properties with removal to be performed within the scope of the FUSRAP project.

2. Addressing the above comment will also resolve MDNR's concerns regarding USACE's Beneficial Use Alternatives list provided in the Feasibility Study. The list includes the option of using FUSRAP material as construction fill for the St. Louis Airport expansion. While such a practice is not specifically described within Preferred Alternative 5, we could not find anywhere within the FS or PP where it is excluded. MDNR **will not** support the use of St. Louis FUSRAP soils as construction fill on projects unrelated to the St. Louis FUSRAP sites.

GENERAL COMMENTS

Site History

1. Page 4 PP:
   - In other sections of the report mention is made of the "sands from Hiroshima and Nagasaki". Similar mention is needed in this section.
2. Figure 5 of the Proposed Plan depicts portions of "North Ditch" as being remediated that have not yet been addressed. This is specifically sections A through I of the ditch, as depicted on the plans prepared by Radian, and the previously existing sedimentation trap. The latter also contains temporary construction fill consisting of soils removed from Vicinity Property 38. Please revise Figure 5 and similar documentation within the Feasibility Study to show removal actions are still planned for these areas.

Costs

1. Appendix C FS:
   - With only a 30% increase in cost between alternative 6 (clean up everywhere) vs. alternative 5 (clean up everywhere except for roads, bridges, and railroads), a there should be a total cost/benefit analysis before alternative 6 is completely disregarded.

Health Risk and Dose Assessment

1. Page 9 PP
   - Summary of Site Risks, notes that a supplemental risk assessment was performed and included in the FS "...because...portions of the site have been or are being cleaned up, ..." MDNR objects to using this data as part of the Baseline Risk Assessment. Conceivably, the recent and planned cleanup would only address highly contaminated areas and lower the overall risk, which would not reflect the nearly 50 years of exposure and off-site release of materials. Is this how the Corps applied the supplemental data?

2. Page 10 PP
   - The first paragraph describes the construction worker scenario as best representing the current conditions. However, the scenario only assumes the

worker to be at the site for one year. Removal operations have taken longer than one year. Since cleanup of this site has been in progress for several years and with several years to come, the scenario needs to be revised to reflect the time.

3. Page 11 PP
   - **Ecological Risk**, as stated the process only used a screening technique and did not provide a characterization assessment. MDNR cannot concur with the conclusions reached and does not rule out future environmental injury assessments. MDNR's director is the Natural Resources Trustee for the state and as such has authority to determine impact for the contamination.

4. Page 13 PP
   - The last sentence of the first paragraph on the right hand side makes an inappropriate and unfounded conclusion. Cleanup to 10(-6) should be attempted, while recognizing background levels (i.e. Cleanup goals would be X plus background).

5. Page 18 PP
   - Containment, 3 feet of clean soil would need to be low permeable material (10(-7) in order to meet radon barrier requirements.

6. Page 18, Alternative 2
   - The requirements for the cap have to address radon barrier and should include water infiltration barrier. This would require at least 3 feet of impermeable soil (clay) and possibly a synthetic layer.

7. Page 29 PP, Table 2
   - The second objective should have a statement to the effect that the cleanup of the soils and sediments are also being performed to assure protection to groundwater and surface water.

8. Alternative 5, PP, Cleanup Levels
   - The PP needs more detail as to what the limiting dose will be for working under roads and railroads. Also, more specifics as what the scenario is being used is. For example, is it construction worker at 2000 hours on-site per year, or the utility worker for 80 hours on-site per year?

8. FS, Appendix D, pg. D-12
   - FS uses an External Gamma Shielding Factor of 0.4 (60% reduction inexternal dose for someone inside the home) whereas the default value of RESRAD is 0.7 (30% reduction). An explanation as to why 0.4 is used instead of the default value because a dose increase from 19 mrem/yr (0.4 shielding factor) to 33 mrem/yr (0.7 shielding factor).

Groundwater Contamination

1. Page 11 PP
   - MDNR disagrees with the statements regarding TCE in the **Ground Water** paragraph. It has been documented that barrels and other materials brought to the site were cleaned with the TCE solvent. At a minimum, TCE should be included as a COC with monitoring.

2. Page 18 PP
   - Groundwater monitoring whether under Alternative 2 or others will be required. During the first five years, the monitoring will be twice annually in order to assess protectiveness of the remedy.

3. Page 19, Alternative 4
   - DNR will require groundwater monitoring in the five-year reviews in order to evaluate remedy protectiveness. A detailed description of what the institutional controls are, how they are implemented and enforced and other engineering control requirements is needed.

Cleanup Criteria

1. Page 12 PP
   - The fourth paragraph on the right side describes supplemental standards. How are these developed and applied?

2. Page 13 PP, **Derivation of remediation goals and cleanup levels**
   - The reference made to 10 CFR 40, Appendix A, Criterion 6(6) has been ruled inappropriate by EPA. MDNR also disagrees with the NRC application to the FUSRAP sites.

3. Page 14 PP
   - The last sentence in the first paragraph on the left-hand side is not applicable, see comment 10.

4. Page 19 PP, "Treatment"
   - Would the plants be harvested? If so, how would the plant be disposed of, recognizing that the material would be radioactive and possibly hazardous (heavy metal contamination).

5. Page 25 PP
   - DNR is unaware of any substantial characterization sampling performed under roads, bridges or railroad right-of-ways. How will areas be identified that fall outside of the proposed supplemental standards for these areas? Also, see comment # 3 under Institutional Controls.

6. Coldwater Creek Cleanup Criteria
   - How is the mean water line defined?

7. What are the ALARA goals and under what kind of circumstance would they be applied?

8. Page 2-57 FS
   - On this page it states "most of the metals appear to be confined to surface soils." What documentation/data is available that supports this observation?

8. Page 31, PP, Table 4
   - Uranium is listed as a metal at the PRG level of 640 mg/kg. This level is higher than the radionuclide cleanup level of 50 pCi/g that converts to 75 mg/kg. Why was uranium included in the chart this way? We recommend it either be omitted or the radionuclide level be used and noted.

9. pg. ES-7, FS, , 1st paragraph
   - It is stated, "The characterization data indicate that non-radiological contaminants related to uranium manufacturing and processing at SLDS are present. However, these chemicals would be addressed by remediating the radionuclides at the North County Site because the FUSRAP-related chemicals are generally co-located with the radionuclides." It is not clear in the PP if there will be sampling for all chemicals and radionuclides for final verification of the remedy.

10. TCE, Region IX Screening
    - Since the background concentration for TCE is 0.0 mg/kg, then this should be carried forward. However, in the FS TCE is not carried forward, instead it is screened against the Region IX levels and it drops out. Using RAGS, this chemical should be carried forward and be considered as a PCOC. However, it gets screened against the Region IX Industrial levels (6.1 mg/kg) and it subsequently gets screened out.

11. FS, Table 2-1, mention of old oil dump
    - It states that the oil dump was located in area of the larger AM-10 (Figure 2-8). On Figure 2-9, it can be seen that this area corresponds to IA-3. IA-3 is bounded by IA-1, IA-2, IA-5, and IA-12. The following details where detects of TCE were located and the corresponding concentration found in the area.
      - Attachment 6-surface soils, (page 7 of 14), IA-3, 1 of 3 detects, with 0.005 mg/kg.
      - Attachment 6-surface soils, (page 14 of 14), SLAPS, 1 of 11 detects, with 0.005 mg/kg.
      - Attachment 7-subsurface soils (page 2 of 13), IA-1, 1 of 2 detects, with 0.0066 mg/kg.
      - Attachment 7-subsurface soils (page 3 of 13), IA-2, 2 of 6 detects, with max of 0.058 mg/kg.

- Attachment 7-subsurface soils (page 5 of 13), IA-3, 6 of 11 detects, with max of 0.054 mg/kg.
- Attachment 7-subsurface soils (page 10 of 13), IA-9, 3 of 40 detects, with max of 0.006 mg/kg.
- Attachment 7-subsurface soils (page 12 of 13), SLAPS, 9 of 44 detects, with max of 0.058 mg/kg.

- Attachment 8 (page 4 of 5) shows the shallow groundwater of SLAPS with TCE concentrations detected in 24 of 85 samples with a maximum detect of 0.97 mg/L. The same Attachment 8 lists the HISS shallow groundwater (page 2 of 5) with TCE concentrations found in 7 of 41 samples with a maximum detect of 1.3 mg/L. It is unclear in the FS why there are no soil samples for TCE in the HISS area.
- It should be noted that the three highest concentrations of TCE were found in IA-2, IA-3 and the general area of SLAPS. This area corresponds to the area of the old oil dump. The groundwater samples in this area also show TCE contamination. Please explain how it is that TCE is "not FUSRAP-related"?

12. FS, Page 2-1
    - Lead is listed as a component of the uranium ore processing, but since tox data is unavailable or qualitative, it is screened out. However, soil samples at IA-3 has a maximum level of 1200 mg/kg. This is much higher than the Region IX PRG level of 40 mg/kg. The screening level for lead from the state of Missouri is 660 mg/kg for industrial use. Even though the lead is commingled with the radionuclides and should be cleaned up subsequently, will there be any verification sampling for lead when the remediation is complete?

ARARs

1. Page 9 PP, Scope and Role
    - What is the significance of January 1, 1998 for ARAR's?

2. Page 12 PP, ARAR's.
    - MDNR provided it's list of ARAR's to the Corps in the Fall of 1998. We were required to describe in detail why or how the law or regulation was applicable, relevant or appropriate. In similar fashion, the Corps is required to respond in detail why the offered law or regulation would not be considered an ARAR. To date, this information has not been provided. We request that evaluation.

Institutional Controls

1. Page 15 PP
    - The third, fourth and fifth paragraphs refer to Institutional Controls (IC). What are the IC's and how was the potential exposure to the general public arrived at if IC's are lost?

2. Page 18 PP, *Institutional Controls*
   - MDNR disagrees that no ICs are required. The remediation does not reflect exposure caused by erosional processes.

3. Page 22 and 23 PP
   - Alternatives 5 and 6 both note Institutional Controls (IC). Again, what is the IC's, how would they be implemented and enforced, if the areas become accessible who is responsible for excavation and disposal, and are engineering controls required?

4. Page 26 PP, upper right hand paragraph, last sentence
   - DNR is unaware of any "current" land-use restrictions for transportation/utility corridors that would be protective to workers or the public. Please describe.

5. Page 26, right side, third paragraph
   - Since there is residuals left on site at all properties, five-year reviews will be required in order to assure protectiveness of the remedy. Five-year reviews will need to include a groundwater-monitoring component.

Cataloging Form
{Technical/Project Managers fill in C through G, K through Q. RM completes other fields}

A. Document ID Number: Assigned by database 00-312 B. *Further Information Required?:* ☐

C. *Operable Unit (Choose One):*

USACE	☐
St. Louis Sites	☐
Downtown	☐
North County	☒
Madison Sites	☐
Inaccessible Areas	☐
PRP	☐
Oversight Committee	☐

D. *Site (Optional):*

SLDS VPs	☐
Mallinckrodt	☐
SLAPS	☐
SLAPS VPs	☐
CWC	☐
HISS	☐
Madison	☐

E. *Area (Optional):* _____

F. *Primary Document Type (Choose One):*

Site Management Records	☐	Remedial Action	☐
Removal Response	☐	Public Affairs/Community Relations	☐
Remedial Investigation	☐	Congressional Relations	☐
Feasibility Study	☒	Freedom of Information Act	☐
Record of Decision	☐	Real Estate	☐
Remedial Design	☐	Project Management	☐

G. *Secondary Document Type (see back of form):* ~~Comments Received~~ Correspondence

H. *Bechtel Number:* — I. *SAIC Number:* —

J. *MARKS Number(Choose One):* FN: 1110-1-8100e ☐ FN: 1110-1-8100f ☐ FN: 1110-1-8100g ☐

K. *Subject:/Title:* MDNR Comments on the Regulatory Review Draft of the North County FS/PP

L. *Author:* Steve Mahfood M. *Author's Company:* MDNR

N. *Recipient(s):* Sharon Cotner O. *Recipient(s) Company:* PM-R

P. *Version (Choose One):* Draft ☐ Final ☒ Q. Date: 10/27/00

R. *Include in the ARF?* ☐ S. *Include in the AR?* ☐ T. *Filed as Confidential/Privileged?* ☐

U. *Document Format (Choose one):*

Paper	☒	Photographic	☐	Cartographic/Oversize	☐
Electronic	☐	Audio-visual	☐	Microform	☐

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Central Files	☒	Microfilm Vendor	☐	In ARF	☐
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X. *Associated with Document(s):* _____

Secondary Document Types

- ☐ Amendments to Record of Decision (ROD)
- ☐ Anomaly Review Board Documents (Management Plan, Correspondence, Standard Operating Procedures, Findings)
- ☐ Applicable or Relevant and Appropriate Requirements (ARAR) Determinations
- ☐ Archives Search Reports (ASR)
- ☐ Briefing Papers
- ☐ Chain of Custody Forms
- ☐ Community Relations Plan
- ☐ Correspondence
- ☐ Daily Operations Summary/Situation Reports
- ☐ Engineering Evaluation and Cost Analysis (EE/CA) Action Memo
- ☐ Engineering Evaluation and Cost Analysis (EE/CA) Approval Memorandum
- ☐ Engineering Evaluation and Cost Analysis (EE/CA)
- ☐ Explanation of Significant Differences
- ☐ Fact Sheets/Newsletters
- ☐ Feasibility Study (FS) Reports
- ☐ Federal, State, Local Tech. Records
- ☐ Final Approved Findings and Determinations
- ☐ Final Remedial Design Documents
- ☐ Freedom of Information (FOIA) Requests
- ☐ Freedom of Information (FOIA Responses)
- ☐ Health and Endangerment Assessments
- ☐ Interagency Agreements/Memoranda
- ☐ Interim Deliverables
- ☐ Inventory Project Report (INPR) Risk Assessment Code (RAC)
- ☐ Invoices/Contractor Payments/Cost Reports
- ☐ Land Grants/Deeds
- ☐ Mailing Lists
- ☐ News Clippings and Press Releases
- ☐ No Further Action Docs (NOFA)
- ☐ On-Scene Coordinator Reports
- ☐ Proposed Plans for Remedial Action
- ☐ Public Meeting Minutes/Transcripts
- ☐ Public Notices
- ☐ Public notices, Comments Received, Responses to the Comments
- ☐ Published Hearings
- ☐ Record of Decision (ROD)
- ☐ Reference Documents
- ☐ Remedial Action Documents
- ☐ Remedial Investigation (RI) Reports
- ☐ Removal Response Reports (Emergency Evacuation Orders)
- ☐ Rights of Entry Documents
- ☐ Sampling/Analysis Data and Plans
- ☐ Scopes of Work/Contractual Documents
- ☐ Site Descriptions and Chronologies
- ☐ Site Inspection Documents
- ☐ Site Photographs and Maps
- ☐ Testimonies
- ☐ Title Search Documents
- ☐ Work Logs
- ☐ Work Plans and Progress Reports
- ☐ Work Plans/Site Safety and Health Plans and Progress Reports
- ☐ Work Register and Logs