

Rev 10/16

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Bob Holden, Governor • Stephen M. Mahfood, Director

DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102-0176

September 20, 2001

Ms. Sharon Cotner, Project Manager
United States Army Corps of Engineers
8945 Latty Avenue
Berkeley, MO 63134

RE: Regulator Review Draft of the St. Louis North County Vicinity Properties Status Report.

Dear Ms. Cotner:

We appreciate receiving the U. S. Army Corps of Engineers (USACE) draft version of the St. Louis North County Vicinity Properties Status Report. Our review finds major issues with the lack of application of the Multi-Agency Radiation Site Survey and Investigation Manual (MARSSIM). Also, it is not appropriate to base the analysis of the North County Vicinity Properties on the proposed Record of Decision (ROD) criteria. Instead, the analysis should be based on the criteria in the Engineering Evaluation/Cost Analysis for the North County Sites. The department's major comments are provided below.

Major comments by department staff:

- 1. This office understood and agreed that USACE should use a statistically based sampling and property assessment methodology, such as MARSSIM, to assess if "no further action" is appropriate.** The report suggests all assessments were based on data previously obtained by the Department of Energy (DOE) or its contractors. Gaps may exist in the DOE data! Documentation related to the properties slated for "no further action" includes a disclaimer from Oak Ridge Institute of Science and Education pointing to the potential for thorium exceeding cleanup criteria to be present on the site but not accounted for. For example, see page 16 of the Draft Verification Survey of Frost and Hazelwood Avenue Properties. It describes the use of field instrumentation (walkovers, near surface scans, and downhole scans) to select sampling events as being unable to account for this radionuclide. If USACE has conducted MARSSIM based sampling events on these properties, please modify the report to identify such an assessment.

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2. At this time, the currently used criterion of 5/15/50 must be used in the assessment of Sum of Ratios (SOR) values rather than the proposed ROD criteria. Otherwise, consider waiting until after the North County ROD is signed prior to releasing this document. Also, please provide clarification as to whether SOR values were computed for all sampling locations or ones just outside of remedial action boundaries. On page 8, the St. Louis North County Vicinity Report states conclusions regarding suitability for "...remediation was conducted in accordance with DOE guidelines, have no surface or subsurface samples with SORs greater than unity when compared to the proposed ROD criteria..." Our understanding of this statement is: 1) samples related to DOE remedial actions were compared to DOE guidelines, and; 2) all results from DOE investigations outside of the remedial action boundaries had SOR values computed and compared to the proposed ROD criteria. Please let us know if we misinterpreted this statement or if additional information regarding the assessments is available.

A more detailed comment list from our staff, plus comments from the Missouri Department of Health and Senior Services, are attached to this letter. Please note the inclusion of the Missouri Department of Health and Senior Services' comments, as an attachment, is NOT to suggest we feel their letter holds less significance than any of the department's concerns. They are included as an attachment because we did not want to risk quoting them incorrectly while trying to incorporate their concerns into our document.

Although we have no objection to USACE using a dose assessment of the properties as a checkpoint, we do not recognize a dose assessment as the appropriate, or in this case applicable, measure of achieving the cleanup goal. Also, how will the report address institutional controls? If you have any questions, please contact Mr. Eric Gilstrap of my staff at (314) 877-3250. Thank you for your attention to this matter.

Sincerely,

HAZARDOUS WASTE PROGRAM



Larry Erickson, P.E., DOE Unit Chief

LE:dd

c: Mr. Gary McNutt, Missouri Department of Health and Senior Services
Mr. Dan Wall, United States Environmental Protection Agency

Attachments: Missouri Department of Natural Resources comment list.
Missouri Department of Health and Senior Services correspondence with comments.

MISSOURI DEPARTMENT OF NATURAL RESOURCES COMMENT LIST

General Comments

1. There were several instances where it was stated, "One of these samples exceeds unity due to using the minimum detection analysis (MDA) for U-238. If a value of 1/2 MDA is used in the equation, the SOR falls below unity. . . " Please explain the reasoning behind the use of the MDA.

Specific Comments

1. Attachment 5-VP-19, page 1, Data Representativeness and Completeness
 - ☐ Does the USACE plan to take more samples from Coldwater Creek, in the area of the drainage ditch? If not, how can it be concluded that the data set for VP-19 is representative and complete?
2. Attachment 6-VP-20
 - ☐ Explain how it was determined, with the limited set of data obtained, that no further action was required. There were only two samples depicted in Figure 6. Additionally, in Table 6A there were only three samples shown and in Table 6B only four samples shown and one composite. Is this all of the data the USACE is using to determine that the data is "representative and complete?" If it is not, please provide the state with the rest of the data. If it is, please explain further what the reasoning is behind the decision that the data is representative and complete.
3. Attachment 7-VP-21
 - ☐ It was noted there were several samples in the verification data set which exceeded both the DOE and proposed ROD cleanup criterion. Please explain how VP-21 was classified as a property where no further action is required.
4. Attachment 10-VP-24
 - ☐ It was stated there were several areas of elevated contamination found during verification sampling. Were these areas remediated or will they be remediated in the future?
5. Attachment 11-VP-26, Data Representativeness and Completeness, 1st paragraph
 - ☐ It is not stated which comparison criteria the samples were compared against.
6. Attachment 12, VP-27
 - ☐ It does not appear there is enough data to claim no further action is required. (See specific comment #2)



September 17, 2001

Larry V. Erickson
Federal Facilities Section
Hazardous Waste Program
Division of Environmental Quality
Department of Natural Resources
P.O. Box 176
Jefferson City, Missouri 65102-0176

Dear Mr. Erickson:

Re: *St. Louis North County Vicinity Properties Status Report (August 2001).*

The Missouri Department of Health and Senior Services at the request of the Missouri Department of Natural Resources has reviewed the Vicinity Properties Status Report. The report was prepared by the U.S. Army Corps of Engineers (USACE) and evaluates the 30 vicinity properties around the St. Louis Airport Site (SLAPS) that were formerly remediated by the U.S. Department of Energy (DOE) prior to the 1997 work transfer to USACE. It is reassuring to see USACE review the properties previously addressed by DOE, it shows a strong commitment on USACE's part to effectively clean this site.

On the whole, USACE should consider using the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) to review these properties. There are a number of items that could be clarified by using MARSSIM. For instance, the number of soil samples and background samples needed for a site are easily calculated and defensible using MARSSIM. It also effectively deals with areas of elevated activity with a more sound approach than the hot spot multiplication factor previously used by DOE. Overall, it can give a non-biased statistical approach to determine if a property has been properly remediated.

Items that should be added to the report, in order to aid the data review, include the calculated values of the sum of ratios (SOR) in the appendix tables. The SOR should be calculated for each sample and included on the table, not just a footnote indicating when the SOR is greater than one. The samples should be identified as to whether they are surface soil samples or subsurface samples. Also, the upper 95% confidence limit should be included so that dose assessment information can be more easily checked. The Residual Radioactivity (RESRAD) computer code output should be included for at least one of the properties for both residential and industrial scenarios in order to verify doses and input parameters.

USACE should explain in more detail why they are using their background samples instead of the DOE background samples. The USACE background results for the four radionuclides in question are all slightly higher than the previous DOE background results. It should be explained if

the sample locations have changed in relation to the DOE background samples, and if not, why the USACE background samples aren't averaged with the DOE background samples.

Recommended changes for some of the RESRAD input parameters include the breathing rate, shielding factor, and review of the time-weighted soil ingestion rate. The breathing rate used by USACE is much lower than the U.S. Environmental Protection Agency (EPA) recommended value. Currently USACE is using 0.552 m³/hour (13.2 m³/day), EPA recommends an adult breathing rate of 0.833 m³/hour (20 m³/day). This higher breathing rate should be applied for both residential and industrial scenarios. Also, the use of a shielding factor of 0.4 needs to be explained. The shielding factor is the fraction of radiation that reaches an indoor occupant through the shielding of the occupant's floor. The default shielding factor is 0.7, or 30% of the radiation is blocked by the floor. USACE is using 0.4, or a 60% reduction in dose to an indoor occupant. USACE should explain the reasons for changing this default value. Another concern is the proper use of the soil ingestion rate. This value should be time-weighted as mentioned in the text, but if not properly calculated it may give units that are not equal to the required (mg/yr) input for RESRAD. If the time-weighted approach is used as in EPA risk assessment guidance, the resulting units become (mg-yr/kg-day), which would not be usable for the ingestion rate in RESRAD. Again, the RESRAD input data needs to be included in an appendix in order to clarify such questions.

There is a confusing statement on page 4 (3.3 Residual Dose Assessment) of the text that mentions that only three (3) of the 30 properties require further investigation. Yet, in the text of page 8 (4.0 Conclusion), and in Table 4.1 on page 9, it is mentioned that there are 19 properties that warrant further investigation. This should either be clarified or corrected. Also, some of the properties that are listed in Table 4.1 that are classified as "no further action" seem to have some sampling results that are high. For example, Vicinity Property #21 is listed as "no further action", yet in Attachment Table 7B, sample #12 has a Th-230 result of 77.8 pCi/g. Neither the text nor the table identifies this as a surface or subsurface soil sample. The limit for Th-230 in surface soils is 5 pCi/g and for subsurface soil the limit is 15 pCi/g. Either way, the sample surpasses the criteria, yet the text states that the property is within guidelines. It should be clearly stated what the release guidelines are.

We appreciate the opportunity to participate in this report review. If you have any questions, please contact Mr. Chuck Hooper of my staff at (573) 751-6102.

Sincerely,



Gary McNutt, Director
Section for Environmental Public Health

GWM/CAH/ssw

cc: Jill Groboski, MDNR

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Further Info?

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MDNR Comments (including MDOH Comments) on the Regulator Review Draft of the St. Louis North County Vicinity Properties Status Report

Author/Originator

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Company

MDNR

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9/20/2001

Recipient(s)

Sharon Cotner

Company (-ies)

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- ☐ Iowa

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