"Shawn Muenks" <shawn.muenks@dnr.mo.gov >

08/07/2007 07:59 AM

To Daniel Wall
cc "Aaron Schmidt"
bcc
Subject Re: West Lake OU-2

1 attachment

2007 08-03 ROD Letter & Comments.pdf

Dan,

The letter covers OU-1 and OU-2. Please use the same statement for both RODs. Attached is a copy of the signed letter and comments that was sent to you by mail on Friday. We will be working on the state input to the Consent Decree for Cheryle this week. Let me know if you have any questions.

Shawn Muenks, Environmental Engineer
Hazardous Waste Program, Federal Facilities Section
Missouri Department of Natural Resources
PO Box 176, Jefferson City, MO 65102-0176
(573)751-3107
e-mail: shawn.muenks@dnr.mo.gov

Wall.Daniel@epamail.epa.gov

08/06/2007 02:08 PM

To shawn.muenks@dnr.mo.gov
cc
Subject West Lake OU-2

Shawn -

Will DNR's letter cover OU-2 as well? Will there be another "statement" for OU-2, or do we just state that MDNR concurs with the remedy?

Still working on this stuff. Thanks.

Dan

STATE OF MISSOURI
Matt Blunt, Governor • Doyle Childers, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

AUG 3 2007

Mr. Dan Wall
Project Manager
U.S. Environmental Protection Agency, Region VII
901 N. 5th Street
Kansas City, KS 66101

RE: Record of Decision for Operable Units 1 and 2 for the West Lake Landfill

Dear Mr. Wall:

The Missouri Department of Natural Resources appreciates the opportunity to offer its position on the Record of Decision (ROD) for Operable Units 1 and 2 (OU-1 and OU-2) of the West Lake Landfill, located in Bridgeton, Missouri. The department has reviewed the selected remedy for each OU and has weighed the human health concerns for this site, along with reviewing the Responsiveness Summary for OU-1 of this site.

Before commenting on the RODs, please let me take this opportunity to thank the U.S. Environmental Protection Agency for including the department in the review of the RODs for this site. I look forward to continuing this relationship into the remedial design/remedial action, and the implementation of the long-term operation and maintenance phases of the project.

The department offers its position on the selected remedies for the West Lake Landfill, to be included in the RODs, as follows:

> "The Missouri Department of Natural Resources has reviewed the Record of Decision for Operable Unit 1 and Operable Unit 2 (OU-1 and OU-2) of the West Lake Landfill. Generally speaking, everyone would want all sites remediated to levels that provide unencumbered use. The department's goal of remediation to unencumbered use aligns with the National Contingency Plan's objective. For West Lake Landfill, however, the department accepts remediation that provides containment and isolation of contaminants from human receptors and the environment as the most reasonable option given the circumstances, as defined in the selected remedies for OU-1 and OU-2. The department recognizes the hazards associated with excavation into a former solid waste landfill, and has determined that the risks associated with this option to on-site workers and nearby citizens, outweigh the risks of containment in place.
>
> The department also recognizes the need for long-term care and monitoring for containment in place and insists that a robust and durable stewardship plan be implemented to address this aspect. In order to achieve this, the state has applicable standards, which are relevant and appropriate for
>
> - closure and long-term care of all portions of the site,
> - monitoring and control of gas generated in the waste deposits
> - monitoring of groundwater , and
> - continued removal of leachate from the formerly active sanitary landfill.

The department must remain a partner in the development of the remedial design, stewardship plan, and implementation of these aspects for this site to ensure that the selected remedy remains protective of human health and the environment into the future. To reiterate, the department would support actions that move the site closer to unencumbered use (recognizing the site is a landfill), should future events occur that would change the current administrative process."

In addition, the department offers the attached comments/suggestions for the RODs, to help ensure the durability and longevity of the selected remedies. The decision to leave radioactive materials in place at the West Lake Landfill presents many challenges in order to be protective for the long-term. The components of the selected remedies must be implemented and carried out for as long as there is risk from exposure to harmful contaminants at the site. The nature of the contamination must also be carefully monitored and mechanisms need to be in place and ready to be enacted if the conditions on the site begin to change. The department is willing to assist in any way necessary to ensure that the remedy remains functional and that contamination remains isolated and contained on the site.

As we are progressing toward development of the remedial design, it is important to keep in mind the amount of time that the institutional and engineering controls will need to be in place and function according to the design specifications, in order for them to remain protective of human health into the future. The department must be a partner in reviewing all decision documents and design plans, prior to finalization, to ensure that they meet the substantive current state regulations and standards, as well as meeting the stewardship aspects of protectiveness and longevity demands.

We understand that the EPA will now finalize the RODs and start work on the remedial design/remedial action phase. We look forward to continued partnering with your office on the long-term stewardship aspects for the West Lake Landfill. If you have any questions or need clarification on any of the comments submitted, please contact Mr. Larry Erickson of my staff at (573) 751-3907. Direct any written inquiries to Mr. Erickson or myself at P.O. Box 176, Jefferson City, Missouri 65102-0176.

Sincerely,

DEPARTMENT OF NATURAL RESOURCES

Doyle Childers
Director

DC:smd

Enclosure

c: Daniel R. Schuette, Director, Division of Environmental Quality
Robert Geller, Director, Hazardous Waste Program
Larry Erickson, Chief, Federal Facilities Section

MISSOURI DEPARTMENT OF NATURAL RESOURCES
Detailed Comments on the Record of Decision
For the
West Lake Landfill

GENERAL COMMENTS

Missouri Environmental Covenants Act (MECA)

Senate Bill No. 54, MECA, was signed into effect by the Governor of Missouri. Please incorporate this into both RODs as the instrument for establishing environmental covenants. MECA should also be added to the Applicable or Relevant and Appropriate Requirements sections in each ROD along with a description.

Earth City Levee District

The Earth City Levee District maintains the Earth City Levee, which protects the West Lake Landfill from a 500-year flood. According TO the district's website, routine annual inspections of the levee are performed by the U.S. Army Corps of Engineers. Please include details in both RODs on the maintenance of the levee system, assessment of performance, and how the contingency plan for failure will be implemented. How the design of the levee compares to the U.S. Army Corps of Engineers specifications would also be noteworthy. The department wants to see the levee system included as a component of the selected remedy for both RODs. Additionally, the department would like to see the mean sea level elevations of the top of levee construction stated within the RODs, in comparison with elevations of a 500-year flood. This information was provided in the Responsiveness Summary for OU-1 as follows:

> "*The 1,891-acre Levee District is protected on three sides with the main levee running 2.6 miles along the eastern bank of the Missouri River. The levee system is designed to exceed the 500-year flood level and ranges from 462.03 ft/msl (feet above mean sea level) at the south end to 459.34 ft/msl at the north end. The 500-year flood elevation at these locations is 459.03 ft/msl and 452.15 ft/msl, respectively. Assuming a 500-year flood, the Missouri River would be 3 to 7 feet below the top of the Earth City levee. Four major floods have occurred since the levee was completed in 1972, including the record level flood of August 1993 when the Missouri River crested at 14.6 feet above flood stage and remained above flood level for about 110 days. The flood control system functioned successfully in each case*."

MDNR comments on the Proposed Plan

As previously discussed with EPA by telephone, please include direct responses to the department's comments on the Proposed Plan in the Responsiveness Summary for OU-1. In particular, please include an estimate in the OU-1 ROD of the number of years needed to reduce toxicity below levels of health concern. Furthermore, plans for carrying the remedy beyond the 30-year scope should be provided for risk management purposes. This information should be included in the OU-1 ROD to address long-term protectiveness at the site. It is suggested that, at a minimum, an explanation should be provided in the text of the OU-1 ROD, similar to the following, which was noted in the Feasibility Study report for OU-1:

> *"… a 30 year period of performance was used in the development of the present worth analysis. As wastes will remain onsite beyond 30 years and considering the longevity of radioactive materials, monitoring and maintenance activities will likely be required beyond the 30 year period used for preparation of the cost estimates. The use of a 30 year period for the present worth analysis of the cost of alternatives is not intended to imply or otherwise provide a basis to limit future site maintenance and monitoring activities to a duration of 30 years. The need for and scope of continued monitoring and maintenance both within and beyond 30 years will be subject to ongoing evaluation as part of the Five Year Review process for the Site."*

5-Year Reviews
There are numerous mentions within both RODs of periodic reviews. In order to have consistency throughout the documents, please use the term "5-Year Review as prescribed by the CERCLA process," wherever appropriate.

SECTION SPECIFIC COMMENTS
OU-1 RECORD OF DECISION

1. **Section 2.0 Site History and Enforcement Activities**. This section could use greater detail of the enforcement activities that have been carried out.

2. **Section 2.0 Site History and Enforcement Activities, 4th Paragraph of the Section**. At the end of the last paragraph of this section, please indicate that the Remedial Investigation and Feasibility Study (RI/FS) being referenced are for Operable Unit 1.

3. **Section 5.1 Surface Conditions, 6th Paragraph of the Section**. In the second sentence of this paragraph, suggest replacing the word "surface" with "top elevation." Also include in this paragraph, any annual inspections performed on the levee by the U.S. Army Corps of Engineers, or other entity.

4. **Section 5.2 Subsurface Conditions, 9th Paragraph of the Section**. The second sentence of this paragraph states, "the inferred direction of groundwater flow beneath Area 1 is to the south toward the active landfill." Also in this paragraph it is stated, "The regional direction of groundwater flow is in a generally northerly direction within the Missouri River alluvial valley, parallel or sub-parallel to the river alignment."

   The report is unclear why the regional groundwater flow direction (generally northerly) is used to determine potential receptors (i.e. registered and unregistered wells) of groundwater contamination, and not the local direction of groundwater flow (to the south) beneath Area 1. It is noted that few domestic wells are located in the vicinity of the site. A comment in the ROD for OU-1, explaining the preferential use of the regional vs. local groundwater flow, may clarify any questions pertaining to the use of the regional

groundwater flow direction and the process by which potential receptors (i.e. registered and unregistered wells) were chosen.

5. **Section 5.2 Subsurface Conditions, 9th Paragraph of the Section**. In this paragraph the second sentence reads, "Based on the water level data, the inferred direction of groundwater flow beneath Area 1 is to the south toward the active landfill." Please explain that the reason for the groundwater flow in this direction is due to the inward gradient from pumping and extraction of groundwater from the leachate collection wells.

6. **Section 5.2 Subsurface Conditions, 9th and 11th Paragraphs**. The last sentence of the ninth paragraph and the second to last sentence of the eleventh paragraph give different directions for the regional groundwater flow direction (one gives it as a northerly direction and the other gives it as northwest direction). Please change one or the other to be consistent.

7. **Section 5.3 Nature and Extent of Contamination, 2nd Paragraph of the Section**. The word "contamination" in the title of this section should be capitalized. The second paragraph states, "The high relative concentration of thorium resulted from ore processing designed to separate out uranium and radium, thus "depleting" the ores of uranium and radium, or "enriching" the residues in thorium. Over time, the radionuclides will return to their natural proportions (establish secular equilibrium)." Please consider using this statement instead "*Thorium is the primary contaminant found in this waste. Its' seemingly increased presence is the logical outcome after uranium and radium were extracted from the ore, leaving thorium as the primary contaminant*".

   The department offers the following reasons for the recommendation:
   - The term "enriching" ***might*** get misconstrued, due to its frequent association with concentrating isotopes needed for fission reactions. The original statement is clear enough that it shouldn't cause questions, but any potential misperception of having "enriched" material in the landfill should probably be avoided.
   - The statement "Over time, the radionuclides will return to their natural proportions (establish secular equilibrium)" might end up being more provoking than consoling. The readers that would be most interested in this fact could point out the length of time required to achieve this and will again remind us of the increased risk (IF exposure was to occur) as Thorium decays into its daughter products. If the reference to establishing secular equilibrium is retained, please give an estimate of the time needed to reach this state to eliminate any misconceptions of how long it will take for this to occur.

8. **Section 5.3.3 Radiological Occurances on the Buffer Zone/Crossroads Properties, 1st Paragraph**. The word "occurances" in the title should be spelled "occurrences". The second to last sentence of this paragraph reads, "The area has subsequently been revegetated by natural process and no evidence of subsequent erosion or other failures have been identified." Suggest replacing the second "subsequent" with the word "additional."

9. **Section 5.3.3 Radiological Occurances on the Buffer Zone/Crossroads Properties, Last Paragraph of the Section**. The last sentence of this paragraph talks about additional soil sampling for radionuclides. Please describe what type of sampling will be performed, such as surface scan for radon flux or actual soil samples collected and sent to a laboratory.

10. **Section 5.3.4 Groundwater, 2nd Paragraph of the Section**. The second to last sentence of the second paragraph states that "Groundwater transport of contaminants to off-site areas do not appear to be a significant migration pathway under current conditions." Suggest backing up this statement with some discussion on how the leachate extraction wells are creating an inward gradient on the site, coupled with the relatively insoluble nature of thorium and other contaminants.

11. **Section 5.4.1 Airborne Transport, 1st Paragraph of the Section**. The first paragraph talks about radon emissions and the fact that it will increase with time and that the "remedy will address this pathway." Does the remedy address the radon issue directly, or will this be spelled out in the remedial design? Please clarify on how the radon issue will be addressed.

12. **Section 5.4.1 Airborne Transport, 2nd Paragraph of the Section**. The last sentence of the second paragraph states "Measurement of radon concentrations in the landfill gas collection system support the conclusion that this is not a significant pathway for radon migration." The landfill gas should continue to be monitored for radon. Please explain the measures that will be taken to perform ongoing monitoring of the landfill gas for radon. Also the word "for" in the referenced sentence is misspelled in the document.

13. **Section 5.4.4 Leaching to Groundwater and Groundwater Transport, 4th Paragraph of the Section**. In the fourth paragraph it states that "Benzene was detected in two OU-1 wells more than once at levels above the MCL…" Please list how many times was it detected above the MCL, along with the highest reading?

14. **Section 5.4.4 Leaching to Groundwater and Groundwater Transport, 6th Paragraph**. The RI mentions radionuclides have been detected in leachate seeps in the western side of Area 2, at levels below MCLs. Have radionuclides been detected in the leachate collection? Please state whether radionuclides have or have not been detected in the leachate and at what levels.

15. **Section 5.4.4 Leaching to Groundwater and Groundwater Transport, Last Paragraph**. The last paragraph talks about additional monitoring of the groundwater as part of the long-term monitoring program. Please elaborate that the groundwater will continue to be monitored as long as the radiological constituents remain at levels above unrestricted use and unrestricted exposure.

16. **Section 6.1 Land Use**. Replace the word "is" in the first sentence with "are."

17. **Section 6.2 Groundwater Use**. Are there any local restrictions on drilling wells in the area of the West Lake Landfill, such as city ordinances? If so, please include.

18. **Section 6.2 Groundwater Use, 1st Paragraph**. This paragraph states, "The major bedrock aquifers favorable for groundwater development lie *at great depth*." Suggest using mean sea level elevations to report the depths of the monitoring well installation depths compared to bedrock elevations and also name the aquifers that are favorable for groundwater development. (This comment is repeated for OU-2.)

19. **Section 7.1.4 Risk Characterization, 3rd Paragraph**. This paragraph states, "The calculated risks for certain potential future uses at Radiological Areas 1 and 2, as represented by the groundskeeper and a worker involved in outdoor storage, exceed the acceptable risk range." What were the numbers and how far did they exceed the range? Where these the only two outside the range?

20. **Section 9.0 Description of Remedial Alternatives**. In the list of components at the beginning of the section, please incorporate "groundwater monitoring" into the long-term monitoring and maintenance component.

21. **Section 9.1.4 Alternative L4**. Please include reference to the MDNR Solid Waste Regulations (10 CSR 80-3.010(17) and 10 CSR 80-4.010(17)) in this section similar to Alternative L5.

22. **Section 10.3 Long-Term Effectiveness and Permanence, 2nd Paragraph of the Section**. In the second sentence of the second paragraph please insert "and durable" after the word "robust". Also this section needs some discussion on how the groundwater monitoring will be used in the protection of human health and the environment.

23. **Section 10.5 Short-Term Effectiveness, Last Paragraph**. In the last paragraph it should be included that there is an added adverse impact to on-site workers for the excavating and consolidation alternative.

24. **Section 12.2.1 Groundwater Monitoring Objectives**. The purpose of the groundwater monitoring component is not only to set up a baseline and any trends, but also to determine when and if an impact has occurred. This should trigger some kind of response or action to control or mitigate the impact to groundwater. Please give some explanation of what the trigger for a response may be and what can be done to prevent migration off-site if an impact to groundwater is detected.

25. **Section 12.2.2 Institutional Controls**. Please include a description of engineering controls such as fences and locked gates to prevent access to the site.

26. **Section 12.2.2 Institutional Controls, 2nd Paragraph of the Section**. In the second paragraph, replace the word "should" in the phrase "any new or existing structures *should* be

assessed for methane…" with the word "will" or "shall". The department would also like to see an explanation of how this incident will be dealt with. Will there be a notification process to the PRPs and/or EPA?

27. **Section 12.2.2 Institutional Controls, 5th Paragraph of the Section**. In the fifth sentence of the fifth paragraph add the phrase "at this time" in the sentence "Though not a promulgated regulation *at this time*, MRBCA provides a useful format for implementing proprietary controls."

28. **Section 13.0 Statutory Determinations**. In the first sentence the word "utilize" is misspelled.

29. **Section 13.2 Compliance with Applicable or Relevant and Appropriate Requirements, <u>Missouri Solid Waste Rules for Sanitary Landfills</u>**. The fourth paragraph under this heading describes the gas monitoring requirements. Please include discussion about how radon will be monitored in the landfill gas.

30. **Section 13.2 Compliance with Applicable or Relevant and Appropriate Requirements, <u>Missouri Solid Waste Rules for Sanitary Landfills</u>**. In the fourth paragraph, last sentence please elaborate on what mechanisms will be used to detect gas at the landfill boundary (e.g. a gas monitoring well network installed according to MDNR Solid Waste Regulations, etc.).

OU-2 RECORD OF DECISION

1. **Declaration, <u>Statement of Basis and Purpose</u>**. Should the first "or" between the words "health" and "welfare" be replaced with an "and"?

2. **Declaration, <u>Description of the Selected Remedy</u>**. Please provide clearer definition on all portions of the landfill that this ROD pertains to (ex: Closed Demolition Landfill, Inactive Landfill, and/or Former Active Sanitary Landfill).

3. **Section 4.0 Scope and Role of the Response Action**. Please give a description of each bulleted item as was done in the OU-1 ROD.

4. **Section 5.1 Site Description**. Please include reference to the Earth City Levee as a physical feature similar to OU-1. Also provide information about the Earth City Levee District and their responsibilities to manage and maintain the levee system. Again, the department would like to see a contingency plan in place in the event of levee failure (i.e. proper authorities to contact, response actions, etc.).

5. **Section 5.1.3 Inactive Sanitary Landfill**. The second to last sentence states, "Data collected during the Remedial Investigation indicated that remedial action is warranted for the Inactive Sanitary Landfill." What "data" is presented and what are the hazardous constituents of this data? Please elaborate on what this data tells us.

6. **Section 5.2 Subsurface Conditions**. Please include the St. Louis Public Water Intake on the Missouri River downstream of West Lake Landfill and include the distance to the intake.

7. **Section 5.3 Nature and Extent of Contamination**. Suggest replacing the word "parameters" in the first sentence of the third paragraph with the word "constituents".

8. **Section 6.2 Groundwater Use, 1st Paragraph**. This paragraph states, "The major bedrock aquifers favorable for groundwater development lie *at great depth*." Suggest using mean sea level elevations to report the depths of the monitoring well installation depths compared to bedrock elevations and also name the aquifers that are favorable for groundwater development. (This comment is repeated for OU-1.)

9. **Section 10.2 Long-Term Effectiveness and Permanence, 2nd Paragraph of the Section**. In the second sentence, suggest adding the phrase "and durable" after the word "robust".

10. **Section 12.2 Description of the Selected Remedy, 2nd Paragraph of the Section**. The second last sentence of the second paragraph states, "Lateral migration of landfill gas will be evaluated and controlled as necessary." Suggest replacing the word "evaluated" with "investigated".

11. **Section 12.2 Description of the Selected Remedy**. The department would like to see a provision added that would monitor and eliminate VOCs from the landfill gas. This will help to minimize impacts on the ozone and particulate matter nonattainment areas.

12. Suggest including a section for "Gas Monitoring Objectives" after Section 12.2.1 Groundwater Monitoring Objectives. Because of the potential for migration of radon gas from OU-1 to OU-2, sampling for radon gas should also be a part of the remedy for OU-2.