



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7**

11201 Renner Boulevard
Lenexa, Kansas 66219

Mr. Brian Power
Area Environmental Manager
Republic Services, Inc.
13570 St. Charles Rock Road
Bridgeton, Missouri 63044

Re: EPA Comments on the Core Sampling (Phase II) Work Plan, November 15, 2013

Dear Mr. Power:

The U.S. Environmental Protection Agency in consultation with the Missouri Department of Natural Resources has reviewed the subject document and provides the following comments:

1. Section 1.1.1 – Site Conditions (first paragraph): The definition of radiologically-impacted material (RIM) described by the referenced 5 picocuries per gram (pCi/g) above background level should indicate that this level is for radium or thorium isotopes (with the exception of Thorium-230 and Thorium-232 which are combined), and that the RIM threshold for uranium is 50 pCi/g plus background as defined in the Supplemental Feasibility Study.
2. Section 1.2 – Goals of the Investigation: The bulleted list of goals for the Core Sampling investigation should also include a bullet stating, “Waste characterization for disposal.” Sufficient sampling will need to be conducted during the Phase II coring investigation in order to characterize the waste for proper disposal during trenching activities.
3. Section 4.1– Overview of Technique (second paragraph): This section should state the Auxier Procedure 3.3, as referenced here, is included in Appendix B to this work plan (per Section 4.8.1).
4. Section 4.1– Overview of Technique (second paragraph): If methods other than sonic drilling are used, please explain how differences in bore diameters and collection techniques will be accounted for. One of the goals of the Phase II coring investigation is to determine type of waste/subsurface material which will be encountered during trenching (i.e. rock, municipal solid waste, construction and demolition waste, etc.). A sufficient diameter core will be needed to accomplish this.



5. Section 4.3.1 – Boring Technique (fifth and sixth paragraphs): The terms “fluid” and “liquid” which are used to describe the water to be used during sonic drilling should be replaced with the term “potable water” for clarity. (See also Section 5.1.2.3 on waste/water management.)
6. Section 4.3.2 – Other Techniques: If there is a possibility that some cores would be collected by a geoprobe instead of a sonic drilling rig, this work plan must describe the conditions that define when “...this technique can be used successfully...” and demonstrate that the core material retrieved by the geoprobe and the sonic drilling rig would be equivalent. (See comment 3 above for other drilling methods in Section 4.1.)
7. Section 4.4 –Boring Locations: Develop selection criteria for the number of bore hole locations for Phase II, pending approval by the EPA. Emphasis should be based on the goals listed in Section 1.2, pertaining to waste characterization, along with barrier wall placement, and verification of non-RIM areas south of the barrier wall.
8. Section 4.6 – Equipment Preparation and Safety Training: This section mentions a Phase II Health and Safety Plan (HASP), but this document was not provided to the EPA or MDNR. While the EPA and MDNR do not approve HASPs, this document must be provided with the final work plan, including descriptions of any air monitoring. Analytical data from air monitoring conducted for the purpose of worker protection (e.g., on-site worker air filters) will be made available to the EPA and MDNR.

In addition, due to the coring of landfill material in areas where the GCPT logs indicated elevated gamma counts, a perimeter air monitoring program for the Phase II coring activities must be implemented. This air monitoring program must be in place and operational prior to beginning coring work. **This program should be structured as described in the enclosure, and results provided to the EPA and MDNR as they are collected.** Perimeter locations should be selected to be protective of the closest residential areas. The revised Phase II Work Plan must fully describe this air monitoring program.

9. Section 4.6 – Equipment Preparation and Safety Training (paragraph 2, last sentence): Describe what type of dust suppression will be used if dust is generated. Rework paragraph to include precautions that dust will not be generated (check 1st work plan for language).
10. Section 4.7 – Borehole Sampling (first paragraph): Planned locations for the core samples must not be unilaterally skipped; the EPA must be consulted to determine how to proceed. By building the road network to grades that could accommodate the gamma cone penetrometer (GCPT) vehicle, it is expected that the sonic drill rig will be able access all GCPT points. Any offset must be agreed upon by all parties to determine the best alternate location. Additionally, in the second paragraph, a brief discussion is needed on prevention of cross-contamination between boring locations and reference to the appropriate decontamination procedures, if necessary.
11. Section 4.8.1– Borehole Gamma Logging: The work plan must address how data from the one inch NaI gamma probe will be correlated with the results of the GCPT instrument and the data from the remedial investigation, as those logs were collected using different instruments. This will allow direct comparison of the new gamma log data with existing gamma log data.

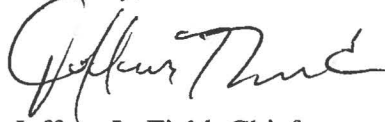
12. Section 4.8.2 – Soil Core Gamma Scanning: It is not clear why the data from the soil core gamma scanning would be averaged, how averaging would be done or how results from voids in the core recovery would be handled. This section should explain these issues. Define FSPM in the footnote as the Field Sampling Procedural Manual which was developed by New Jersey and is used as a reference by others. Explain why the FSPM is applicable.
13. Section 4.9 – Soil Sampling: Remaining material from the soil core should not be placed back into the borehole. The borehole should be abandoned, consistent with Phase I, and the remaining material should be containerized for characterization and proper disposal. Also, the language should be clarified to indicate that two randomly spaced samples from each boring will be collected along with samples from each elevated gamma reading (i.e., a boring with two elevated gamma readings would be sampled in a total of four locations). Clarify the number of radiologic samples collected when readings are found, as stated in Section 4.8.2.
14. Section 4.9 – Soil Sampling (second paragraph): Please clarify how the used PVC sleeve will be handled; will it be decontaminated or disposed of as waste? In addition, the EPA requests that Republic collect grab air samples from the head space of at least three boreholes and provide the sample results to the EPA and MDNR. The purpose is to use the open bore holes to sample the source gas in order to identify the appropriate non-radiological air sampling for the trenching operations. The source gas should be analyzed for aldehydes, ammonia, reduced sulfur compounds, SO_2 , VOCs, carboxylic acids, CO_2 , methane and O_2 . Please identify which boring locations will be used to collect source gas samples in the revised Phase II Work Plan for review and approval.
15. Section 4.10 – Sample Handling and Shipping (second paragraph): On the list of label identifiers, include a bullet for units (e.g., inches). The last bullet contains a discrepancy between centimeters and inches to denote sample depths.
16. Section 4.11– Sampling Processing (last paragraph): Clarify how the weight information will be used – to determine moisture content? If so, it should include both the wet weight and dry weight. Please cite the appropriate ASTM method.
17. Section 4.12 – This section should identify the specific radium, thorium and uranium isotopes to be analyzed, and must identify the actual analytical methods to be used. The language “...using industry standard methods *such as*...” is insufficiently specific. The analytical list and methods should be consistent with sampling performed during the Remedial Investigation.
18. Section 4.12.3 – Analytical methods: In order to meet EPA’s off-site disposal rule requirements, The receiving facility (e.g., Roxana, IL) will need a list of analytes before receiving the waste. An asbestos analysis should also be added. Conduct a complete set of isotopic elements and non-rad testing as was performed for the Remedial Investigation (RI). Include the chemical analysis for waste characterization and worker safety.

19. Section 4.7 – Borehole Sampling: Consider converting some of the borings to piezometers to collect groundwater information to assist in characterizing the site for construction (e.g., water management). Proper abandonment/replacement of monitoring well D-14 can be accomplished during this investigation.
20. Section 5 – Contamination Surveys and Decontamination Procedures (general comment): Clarify the term “Permitted area” used in this section. Does it refer to the radiation work permit (RWP)? Use abbreviations as appropriate using this language.
21. Section 5.1.1.3 – Permitted Area Exit Survey – Equipment: Specify that scanning will be conducted for alpha, beta, and gamma activity (not just beta) with 44-9 probe. Clarify they are looking for removable contamination.
22. Section 5.1.1.3 – Permitted Area Exit Survey – Equipment: Stay consistent with Phase I procedures regarding the frequency and sampling interval of wipe samples.
23. Section 5.1.1.4 – Final Release Survey – Equipment, Table 2. pg 20: Provide more description concerning the relationship of the information contained in each column (i.e., limit column versus meter reading column). Make a reference that values were calculated from Appendix D, Procedure 2.3. Clarify meter reading with typical readings.
24. Section 5.1.1.4 – Final Release Survey – Equipment, Table 2. pg 20: Reference the sources of information contained in Table 2.
25. Section 5.1.2.1 – Dry Decontamination: Change this language to read “going from one ‘boring location’ to another,” not “from one ‘permitted area’ to another ‘permitted area’”.
26. Section 5.1.2.1 – Dry Decontamination: Use of the verb “attempt” is not appropriate. If the Table 2 limit is exceeded, either decontaminate the equipment or take it out of service.
27. Section 6 –Reporting (paragraph 1): Clarify if separate reports will be written for Phase I and Phase II.
28. Section 6 – Reporting (paragraph 2): Include field data as an appendix (e.g., soil logs, soil screening, etc.). This appendix could be submitted in an electronic format.
29. Section 7 – Anticipated Project Schedule: The EPA expects that the PRPs will look for and take advantage of any opportunities to accelerate this schedule, including doing tasks in parallel where possible.
30. Appendices – Ensure all references are provided in the report. (e.g., quality assurance is referred to in Table 1. Analytical Methods/Quality Assurance Table, but a Quality Assurance Project Plan (QAPP) is not included).
31. Procedure 2.1, Section 3.2.2.7 – background: Include site-specific background response levels and location as a third column.

32. Procedure 3.3, general – Add a procedure to address non-radiological sampling.
33. Procedure 3.3, Section 4.3 – Update the procedure to indicate the sample is taken from the core itself, not from within the bore hole.
34. Procedure 3.3, Section 4.4.3 – Update to reflect sonic drilling. Be aware sonic drilling may produce heat which could result in VOCs. The sample may volatilize out.
35. Figure 3 – Proposed Investigation – Update the map to include the latest GCPT results/data.

Please provide a revised work plan incorporating these changes within ten (10) working days of your receipt of this letter. If you have any questions, please contact Dan Gravatt of my staff at (913) 551-7324.

Sincerely,



Jeffrey L. Field, Chief
Missouri/Kansas Remedial Branch
Director, Superfund Division

Enclosure

cc: Leanne Tippet-Mosby, MDNR
Jonathan Garoutte, MDHSS
Joseph Bindbeutel, Missouri Attorney General's Office

