UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7
11201 Renner Boulevard
Lenexa, Kansas 66219

JUN 06 2014

Paul Rosasco, P.E.
Engineering Management Support, Inc.
7720 West Jefferson Avenue, Suite 406
Lakewood, Colorado 80235

Dear Mr. Rosasco:

RE: Work Plan for Removal Action Preconstruction Work, West Lake Landfill Superfund Site, May 16, 2014

The U.S. Environmental Protection Agency has reviewed the subject document, received May 19, 2014, and provides the following comments:

1. Section 2.1, page 3: The deliverables identifying the areas to receive excavated waste from the barrier construction must be accompanied by written statement or agreement from the St. Louis Airport Authority that such activities are permissible under the negative easement the Airport holds over the Site. Furthermore, if the Respondents intend to propose any parts of the Site that are subject to solid waste permits issued by the Missouri Department of Natural Resources as additional areas for placement of excavated waste, the deliverables identifying these areas must be accompanied by written approval from MDNR to use those areas for this purpose.

2. Section 2.1, page 3: Due to differential settlement and uncertainties in waste placement activities, some radiation screening of excavated waste above the "April 6, 1975 surface" referenced here will be required during construction. This should be addressed in the design documents for the barrier installation.

3. Section 2.2, page 4: Paragraph 30.b of the Order requires that Respondents "[c]lear all obstructive vegetation and surface obstacles which would be impediments to the installation of an isolation barrier, or utilization of the proposed storage/staging areas." The EPA agrees with the phased vegetation and surface obstacle clearing approach proposed in the draft Work Plan, and that until the location and design of the isolation barrier have been determined, it is prudent to proceed only with the clearing and relocation activities necessary to support the installation of the litter control barrier and the air monitoring and sampling stations and associated access pathways. If the EPA determines that additional activities in furtherance of this work objective become feasible, it may require that Respondents amend this component of the Work Plan to address such work.

4. Section 2.3, page 6: The St. Louis Airport Authority's comments on and/or approval of the included Bird Hazard Monitoring and Mitigation Plan for Ongoing Landfill Work should be included.

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5. Section 2.4, Figure 3 and Table 1: If sampling for volatile organic compounds (VOCs) related to the barrier construction will only be conducted at four of the 13 locations, the four stations must be A5, A7, A8 and A11 that surround Area 1, not the four proposed here. If the Respondents wish to obtain wider geographic coverage of VOC emissions across the site, more stations must be equipped to sample for VOCs.

6. Section 6.1, page 10-11: While this section lists the Bird Hazard Monitoring and Mitigation Plan for Ongoing Landfill Work (bullet 2), the Air Monitoring, Sampling and QA/QC Plan (bullet 3) and the litter control plan (bullet 5) as technical deliverables to be submitted in the future, these documents are actually incorporated into the subject document. This section must clarify the relationship between the documents provided in this work plan and the future deliverables described here. In addition, the EPA requires that one hard copy and one electronic copy of the deliverables in this section be provided.

7. Section 6.2, page 11: The EPA agrees that submittal of the monthly progress reports required under the preconstruction Order by electronic means satisfies the requirements of Paragraph 34(a) of the Order.

Bird Hazard Monitoring and Mitigation Plan for Ongoing Landfill Work (Appendix A)

1. General: This Appendix appears to present the deliverable required in paragraph 30(c) of the Order, rather than a work plan for generating this deliverable. This combination of a work plan with a deliverable called for in the work plan is confusing. This must be clarified in the subject document, and Respondents should separate the work plan and deliverable. In addition, the Respondents must include with the deliverable documentation that demonstrates approval of the Bird Hazard Monitoring and Mitigation Plan by the St. Louis Airport Authority.

Air Monitoring, Sampling and QA/QC Plan (Appendix B)

1. Signatures, page 2 of 28 in QA/QC Plan.

    a. Currently only signature spaces are provided for Auxier & Associates, Inc. and Engineering Management Support, Inc., the preparers of the QAPP. It is not clear why there will be no signature by the facility. The QA Office strongly recommends they also sign the document.

    b. EPA approval is required, so spaces need to be provided for signatures and the QAPP will need to be submitted with all appropriate signatures when it is ready for final approval.

2. § 4.1 Pre-Construction Baseline Monitoring, page 11 in QA/QC Plan.

    a. There several discrepancies in the description of the sampling design which need to be addressed as follows:

        i. Page 11 and Table 4-4 in the QA/QC Plan say there will be five stations for VOCs but § 2.4 in the Work Plan states VOCs will only be collected at four stations. Which is correct?

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ii. Table 1 in the Work Plan and Table 4-4 in the QA/QC Plan seem to identify a total of 14 monitoring stations whereas § 2.4 of the Work Plan and Figure 3 only show 13. Which is correct?

iii. Table 1 in the Work Plan indicates radon gas only for the four stations that include VOCs whereas § 2.4 on page 7 in the Work Plan says all 13 stations will include radon gas and Table 4-1 in the QA/QC Plan lists five stations for VOCs and radon gas for all stations.

b. It is clear that VOCs are being included at the request of the EPA. However, the QA/QC Plan does not describe how it was/will be decided which subset of the stations will include VOCs.

c. The QA/QC Plan states "Commercial radon kits may be used for supplemental measurements inside adjacent buildings to the extent needed."(See also Table 1). However, no additional information is provided regarding these measurements including:

i. How and by whom it will be decided if they are needed and to what extent including the numbers and locations for the radon kits.

ii. How the resulting information will be used and for what decision(s).

3. § 5.3.1 Precision, page 23. There will be one field duplicate collected per monthly event for Gross Alpha/Beta and VOCs but no information is provided on how the results of these field duplicates will be evaluated and what action might be taken if they are not acceptable.

4. § 5.4 Record Keeping, page 24 in QA/QC Plan. The retention time and location for project records and reports needs to be identified.

5. § 6.2 Data Verification, Validation and Reports, page 26 in QA/QC Plan. This section states "Field operations will be fully documented, reviewed and audited." The review and auditing of field operations needs to be addressed including the frequency, who will be responsible for conducting them, how corrective actions will be documented and who will be responsible for the corrective actions.

6. Format. Because the document was not prepared in accordance with the EPA's QAPP requirements, R-5, the following was missing and no equivalent information could be found:

a. Distribution List.

b. Inspection/Acceptance Requirements for Supplies and Consumables.

c. Data Acquisition Requirements for Non-direct Measurements.

7. § 4. Project Team Organization, page 8 in Work Plan. Because they appear on the organization chart found in Figure 5, it would be helpful to briefly summarize any project responsibilities for the EPA and MDNR.

8. § 4.4 Sample Analyses, page 17 in QA/QC Plan. Although the monitoring equipment to be used for the sample collection is clearly defined, if SOPs or other written procedures will be followed during the use of this equipment it would be useful to include a reference to these written procedures here.

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9. § 4.4 Sample Analyses, page 17 in QA/QC Plan. The EPA method for analysis of the Radiello samplers must be included here.

10. § 4.4.2 Data Management, page 18 in QA/QC Plan.

    a. The document states Level IV data reports will be provided but not in what context (e.g., CLP, lab defined, Superfund data review, etc.).

    b. Once the data are reported by the laboratory, will there be any data handling equipment and procedures used to process, compile, and analyze the data (e.g., required computer hardware and software)? (Note: § 4.1 on page 11 in the QA/QC Plan does refer to incorporating data into a database.)

11. § 5.2 Air Sampling and Monitoring Equipment, page 22 in QA/QC Plan. In addition to covering the calibration and maintenance of field equipment, the calibration and maintenance of laboratory equipment and instruments should also be addressed even if simply through reference to the laboratory's procedures.

12. § 5.3 Laboratory Procedures, page 23 in QA/QC Plan.

    a. When addressing quality control, the procedures used to calculate any associated QC statistics (e.g., RPD, RSD, %R, etc.) should be referenced.

    b. The needed laboratory turnaround time should be noted, especially if it is critical to the project's schedule.

13. § 5.3.2 Accuracy, page 23 in QA/QC Plan. Although it can be assumed the control limits to be applied to laboratory spikes and blanks can be found in the method and/or the laboratory procedures, a reference here would be useful.

14. § 5.4 Record Keeping, page 24 in QA/QC Plan. When addressing records and documentation, the following should be included:

    a. The process and responsibilities for ensuring that the most current approved version of the QAPP (or QA/QC Plan in this case) is available.

    b. The level of detail of the field sampling analysis narrative, if applicable, needed to completely describe difficulties encountered.

15. § 5.4.1.1 Sampling Field Data Sheets, page 25 in QA/QC Plan. It would be helpful to attach an example of a sampling field data sheet if possible.

16. § 6.3 Corrective Actions, page 27 in QA/QC Plan. Who will be responsible for the corrective actions described here should be noted or a reference provided as to where this information is/can be found (e.g., the lab manual for analytical corrective actions).

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17. § 6.4 Completion of Review, page 27 in QA/QC Plan. Corrective action can include eliminating the questionable data from consideration. Please note that simply eliminating a data point(s) is not recommended. Should the decision be made to eliminate a data point(s), this would need to be documented with the rationale for doing so clearly defined.

Health and Safety Plan (Appendix C)

1. The EPA did not see anything about an emergency action plan. This would provide guidance to anyone on-site about what to do in case of an emergency such as warning signals to evacuate, sheltering, assembly locations etc. The method to request emergency medical services should be included and clearly outlined. Have the local emergency service providers, including hospital been contacted and notified about the operations and potential contamination and not just been listed in the HASP?

2. Discussion about confined space entries and trench work was indicated in the document. These are extremely high risk jobs. The EPA did not see any mention about rescue activities for either of these. If local emergency services are used for confined space rescues they need to be an integral part of the training process at the site.

3. Trench work requires the use of trench boxes and specifically designed shoring for the trench with adequate exits.

4. Specific programs that may be used need to be attached to the HASP even when the standard work practices are listed in the HASP. These would include respiratory protection, confined space entry, trenching operations and operation of lift vehicles.

5. Any specialized training or licenses of workers should be maintained as part of the site documentation about the qualifications of the workers.

Radiation Safety Plan for Site Preparation and Subsurface Investigation Activities (Appendix D)

1. General: Characterization of the radiologically-impacted material (RIM) in OU-1 as technologically-enhanced naturally occurring radiological material (TENORM) is potentially problematic and inconsistent with previous descriptions of the material at the site. This Plan must be revised to remove references to TENORM.

2. Section 5.1: The EPA anticipates that dust control and suppression will need to be aggressively managed during the project due to the proximity of numerous air monitors with low alpha particle detection limits. Respondents must be prepared to fully implement these engineering controls in real time to respond to changing site conditions.

3. Section 5.4: This section refers to the gamma cone penetrometer rig, which the EPA does not believe is planned for use during the work required under the Order. This reference should be removed, and the Plan checked for other unintentional references.

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Additional EPA Comments

Section 1. Introduction

1. This section provides background on the team that prepared the preconstruction work plan and provides the scope of the document, which is based directly on the requirements of the ASAOC. The ASAOC requires that the preconstruction work plan include or address the following:

- Identify all potential and proposed areas on the site to be used for the staging, management and relocation of excavated wastes associated with the construction of an isolation barrier
- Clear all obstructive vegetation and surface obstacles that would be impediments to the installation of an isolation barrier or utilization of the proposed storage/staging areas
- Develop a bird hazard mitigation and monitoring plan for ongoing landfill work
- Develop an air monitoring and sampling plan to obtain background data and assess potential exposures in the community and demonstrate the effectiveness of any implemented control technologies
- Install a mesh barrier inside the fenced area along St. Charles Rock Road to minimize and capture windblown solid waste during excavation activities
- We have no comments or questions on the content in Section 1 at this time.

Section 2. Description of the Work to be Performed

Section 2.1 – Identification of Waste Staging, Management and Relocation Area

2. The language in this section (e.g., reference to a shallow excavation) suggests that one of the isolation barrier options has been selected. Per the meeting at the Bridgeton Landfill on April 15, 2014, three distinct options were discussed. Although the relative merits of the three options were examined and discussed during that meeting, we are not aware that any one isolation barrier design option was selected.

3. Although it is acknowledged that none of the isolation barrier options have been fully designed, no preliminary engineering drawings of the proposed excavation or possible excavation areas were provided. Seeing the potential proposed isolation barrier alignment(s) would reveal where the potential proposed area of excavation would be relative to the staging area(s) for the excavated material.

4. Assuming the excavation is a truncated pyramid with all side slopes of 3 horizontal units to 1 vertical; we calculated the length of the shallow excavation to range from approximately 550 to 1,000 ft. Based on the information and assumptions provided in the EMSI report, the calculated depth of the isolation barrier was approximately 120 to 140 ft. below the surface. This depth, although based on what were called preliminary dimensions in the EMSI report, exceeds the upper limit of the installed isolation barrier's maximum desired depth (80 ft.) that was discussed by Bridgeton Landfill's contractors at the April 15, 2014 meeting.

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5. In the report there is a discussion regarding the extent and limits of OU-1 relative to the waste placed in the North Quarry, and references are provided to an aerial photograph from April 6, 1975. A scanned, legible copy of this photograph should be included because of the importance of the presence of OU-1 waste materials relative to the North Quarry waste when contemplating excavation area(s) associated with the isolation barrier.

6. Specific locations and areas should be provided for the excavated waste material placement. Only broad references (e.g., "southeast corner of Area 1") are provided and do not provide sufficient detail to understand what is being proposed.

7. A reference to the "majority of waste to be relocated" was made related to the North Quarry's waste material, which potentially infers that materials associated with OU-1 would also be relocated during the excavation effort. This should be clarified. Furthermore, a conclusion is reached that waste materials placed after April 6, 1975 "do not contain or have the potential to contain RIM". The ASAOC states that in 1973, 8,700 tons of leached barium sulfate (i.e., the RIM) were mixed with 39,000 tons of soil and transported to the West Lake Landfill site. There is no indication of the specific time frames that the soil mixture was used as daily or intermediate cover at the landfill. Unless more detailed usage records of the RIM are available, it is unclear how the conclusion in the EMSI report (i.e., that no RIM was in use after April 6, 1975) could be reached.

8. Quality assured (QA) data associated with previous GCPT testing conducted at the site were not provided or discussed. These data should be included in any evaluation of proposed excavation areas to understand the proximity of planned excavation areas to those areas that have been tested for the presence of RIM.

9. The EMSI report suggests that, if the final volume of excavated material is greater than the estimated 50,000 to 95,000 bank cubic yards (bcy), that additional areas for placement of excavated waste material will need to be identified. It was not clear whether or not that additional area must be identified now (as part of the preconstruction work plan) or if this contingency area would need to be identified as part of the isolation barrier design. If the answer is in the former, then additional specificity needs to be provided.

10. No information was provided on how the excavated materials would be managed on site. For example: how would leachate be controlled? And how would the materials be placed (e.g., loose or compacted)? Addressing these and other questions are needed to understand whether the proposed areas, specifically identified, have the capacity to handle the anticipated volumes. The EMSI document suggests that potentially 'enhanced environmental controls' will be provided in the southeastern corner of Area 1, but no details were provided. It is not clear from the ASAOC whether that level of detail was required as part of the preconstruction work plan.

11. Because the preconstruction work plan should address the management of all excavated materials, a discussion should be provided regarding how any identified RIM (based on testing conducted during excavation) would be managed.

12. The EMSI report, in the last paragraph of Section 2.1, mentions that the development of maps and specific locations would be developed in the future. It is unclear why specifics and maps/drawings were not provided as part of this submittal package; particularly when the ASAOC appears to directly request this information as part of provision 30a.

Section 2.2 – Vegetation and Surface Obstacle Clearing

13. It is acknowledged that specific plans discussing the relocation of infrastructure components (e.g., landfill gas collection wells) may not be possible until the final isolation barrier design has been selected and completed. Therefore, it may not be possible to address the ASAOC provision 30b prior to developing the isolation barrier's design.

14. It is unknown how much woody overgrowth exists in the areas proposed to be disturbed. If woody overgrowth exists, will it be left in place?

15. It is unclear whether the stockpiled soil mentioned in paragraph 2, page 4 would be placed on top of the EVOH cap area of the North Quarry. The document states that erosion control fencing would be put into place. The typical practice for erosion control fencing includes staking the fencing at some interval (e.g., every 4 feet) to anchor it. If the erosion control fencing is to be staked into the ground surface, this would cause punctures in the EVOH liner (if the stockpile is to be located on top of the EVOH liner area), which could have an impact on landfill gas collection efficiency. Are there plans to place boots or other protective systems around any areas where the EVOH liner could be punctured?

16. A large amount of exposed infrastructure is present in the North Quarry. Although the total (final) excavation volume may not be known at this time, spoil placement on top of the North Quarry crown could make access difficult for one or more gas extraction wells. An approximation of the soil volume to be removed as described in paragraph 2 of page 4 would be helpful to understand the magnitude of potential soil stockpiling needed.

17. If RIM is detected on the surface, how thick would the proposed layer of rock/boulders be that would be placed on top of the given area? What would be the proposed extent of rock placement (e.g., would the additional rock be placed on top of the point of detection and extend to the adjacent transects?). What is the anticipated specification of the rock to be used?

Section 2.3 – Bird Hazard Monitoring and Mitigation Plan for Ongoing Landfill Work

18. The bird hazard mitigation plan provided in Appendix A of the EMSI report was developed for ongoing landfill work that involves limited waste disturbance. This level of detail is consistent with that required by the ASAOC.

Section 2.4 – Air Monitoring, Sampling and QA/QC Plan

19. It is stated that the EPA is developing off-site upwind and downwind sampling locations, and the ASAOC was cited as a reference for this statement. A review of the ASAOC did not reveal any statements that suggested the EPA was developing off-site upwind or downwind sampling locations. The reference or the statement should be corrected.

20. Would the presence of RIM impact the planned constructed location of the air monitoring stations?

21. It is not clear based on ASAOC item 30d what specifically must be monitored since it is only stated that the air monitoring must "... obtain background data and assess potential control technologies". Additional monitors to examine reduced sulfur compounds may be warranted if one of the goals is to

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evaluate migration and impacts from odors on the surrounding community. Reduced sulfur compounds could be a source of odors in addition to VOCs, which EMSI stated will be included in the sampling capability of the air monitoring stations.

22. In Table 1, which is the preliminary list of samplers for perimeter and on-site air monitoring and sampling, it is not clear which VOCs will be analyzed. It is also not clear what rationale was used to select the VOCs, and the objective of the sampling. Clarification is suggested.

Section 2.5 – Litter Control Barriers

23. It is not clear in the plan whether litter policing will occur once each day, twice each day, or at some other frequency. Clarification is suggested.

24. The possibility of other approaches to minimize litter (such as daily or alternate daily cover) was mentioned for use during non-working periods, but the EMSI report indicated that details of these approaches will be developed as part of the isolation barrier design. It is not clear from the ASAOC whether all details of litter control (inclusive of these additional measures) have to be finalized as part of the preconstruction work plan or not. Therefore, we cannot determine that the litter control plans meet all requirements of the ASAOC.

Section 3. Schedule for the Work

25. In Table 2, which is the proposed schedule for preconstruction activities, it appears that the specific identification of the waste staging, management and relocation area should be developed as part of the preconstruction work plan. The language in the schedule suggests that these items will be developed after approval of the preconstruction work plan.

Section 4. Project Team Organization

26. The entity conducting the excavation was not specified in the document. Therefore, it is presumed that the Bridgeton Landfill operator will be conducting the excavation, since the ASAOC states that the names and qualifications of contractors conducting the work should be provided.

27. Some of the contractors listed in the organizational chart (e.g., Eurofins Air Toxics) do not have specific roles identified in the report narrative. Section 26 of the ASAOC states that the names and qualifications of all contractors must be provided within 10 days of the ASAOC. We are unsure if this information was furnished previously to the EPA under separate cover.

Section 6. Reporting and Deliverables

Section 6.2. Monthly Progress Reports

28. As stated in 34a of the ASAOC, it should be clarified that the first monthly progress report will be submitted 14 days after the EPA's approval of the work plan.

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USACE Comments

1. Work Plan, Vegetation & Surface Obstacle Clearing, Section 2.2: "Background" not well defined in the document. Should either reference established background from past activities or discuss establishment of a reference area prior to scanning.

2. Work Plan, Vegetation & Surface Obstacle Clearing, Section 2.2: "Above background" can be a nebulous term. Suggest using more definitive action level such as instrument MDC, instrument critical level, instrument readings at levels above 95% UCL of established reference area, etc. Often background is taken as the average of background measurements, which can lead to situations where 50% of measurements are "above" background even though they are consistent with expected background readings.

3. Work Plan, Vegetation & Surface Obstacle Clearing, Section 2.2: To note, in past discussion it appears UMTRCA 5.0 pCi/g total thorium has been established as the "free release" criteria. As such even an "above background" measurement may still meet the release criteria.

4. Work Plan, Vegetation & Surface Obstacle Clearing, Section 2.2: Soil sampling requirements are not discussed. Will soil samples be collected? If so, there should be some discussion of sample frequency, bias sample identification, duplicate frequency, sample depth, etc.

5. Work Plan, Vegetation & Surface Obstacle Clearing, Section 2.2: Provide clarification regarding the purpose of placing a layer of rock over areas of elevated gamma. Is it an engineered control to prevent spread of contamination or to provide shielding for workers? If significant contamination is encountered that requires contamination control or shielding, it is recommended the work plan should include re-evaluation of the barrier location in order to avoid the impacted area rather than attempt to place a temporary barrier/shield.

6. Work Plan, Air Monitoring Sampling, and QA/QC, Section 2.4: Table 1 lists the collection frequency for alpha track detectors as semi-annual. Recommend deploying multiple sets of detectors, one set to be left for annual monitoring and one set to be switched out quarterly, rather then semi-annually, to coincide with the collection of TLD badges. Note – The air monitoring plan states alpha track etch detectors are to be exchanged quarterly. If in error, reconcile these two. Quarterly change out is preferable.

7. Work Plan, Air Monitoring Sampling, and QA/QC, Section 2.4: The reviewer is not familiar with the Inspect USA alpha track detectors, but with some alpha track vendors it is possible to purchase detectors with a thoron (i.e. radon 220) filter. Recommend deployment of both unfiltered and thoron filtered alpha track detectors. A significant difference in co-located filtered and unfiltered detectors would suggest thoron, though short lived, is a significant driver of total radon levels. This is important to ensure that reported radon-222 results are not biased high due to radon-220 contribution and to determine whether radon-220 and its decay products are present at levels that could cause it to become a constituent of concern.

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8. Air Monitoring, Sampling, and QA/QC Plan, Appendix B: General question regarding air monitoring and not necessarily a comment directly related to the preconstruction activities - is radon flux from the surface of the disposal areas conducted? UMTRCA has limits of 20 pCi/m^2/s. If surface flux monitoring is performed, it may be helpful to include a discussion of that activity as well.

9. Radiation Safety Plan Section 4.1, Appendix D: Are there locations where dose rates in excess of 2 mrem/hr exist? If so, is work planned in these areas? Recommend a map of radiologically restricted areas, if they exist, be included in the work plan.

10. Work Plan, Identification of Waste Staging, Management, & Relocation Areas, Section 2.1: Recommend the designers take a closer look at the bottom width of the proposed excavation to aid the excavation of the isolation barrier. Although the proposed bottom width of 45-feet would be just wide enough to accommodate an excavation machine wielding a clamshell, it may not be wide enough to allow support vehicles to pass behind the excavating machine. This configuration assumes the machine is orientated at a 90-degree angle to the excavation centerline and that the centerline is located at an edge of the proposed excavation. If the excavation must be made wider than 45-feet at the base, the excavated quantities will be larger and more disposal area may need to be identified.

11. Work Plan, Identification of Waste Staging, Management, & Relocation Areas, Section 2.1: The disposal area for any encountered RIM is not identified. The plan only states that RIM will be disposed of in an "approved manner". An area for disposal of RIM encountered in the excavation must be identified. Recommend including a figure outlining the areas designated for disposal.

12. Work Plan, Identification of Waste Staging, Management, & Relocation Areas, Section 2.1: Excavation of a slurry trench is very messy. Slurry used to support the side walls of the excavated trench will splash from the trench, drip from the clamshell, and drip out of the dump trucks used to haul the excavated wastes to the previously identified disposal areas. The equipment will track the wet slurry around the site. Strongly recommend the designer consider building a concrete work surface on the bottom of initial excavation. This work surface would include guide-walls to control the vertical and horizontal alignment of the trench. The work surface will also include curbing to contain the slurry and prevent it from running off of the site. The inclusion of this concrete work surface will increase the proposed width and depth of the proposed excavation to aid the excavation of the isolation barrier.

13. Work Plan, Vegetation and Surface Obstacle Clearing, Section 2.2: The plan states that the process for clearing and vegetation management will follow the previously approved processes utilized for the 2013 fence construction and 2013 GCPT Investigation. Does this process include the removal of the root balls under trees that are felled as part of the vegetation control? Or is this type of "grubbing" unnecessary for this work? Recommend including the previously approved processes in an Appendix so all work plans associated with pre construction are inclusive in this document.

14. Work Plan, Litter Control Barriers, Section 2.5: The plan describes four dozer moveable litter control units that are each 20-feet wide lined with litter control netting. These will be located within 50-feet of the active excavation. Four of these moveable units will only provide protection for slightly more than an 80-foot wide active excavation face. Paragraph 2.1 of this plan describes the proposed excavation to aid the excavation of the isolation barrier to be "approximately 20 feet in depth, 45 feet across at the base and will have slopes of 3 horizontal to 1 vertical (3:1)". These

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dimensions describe an excavation that is 165-feet wide at the top. Four 20-foot wide, dozer moveable, litter control units may not be sufficient to capture all litter emanating from an excavation of this magnitude. The plan should include provision to mobilize additional litter control units if the original four are observed to be ineffective.

15. Work Plan, Litter Control Barriers, Section 2.5: Figure 4 in the work plan shows the location of a 900-foot long litter barrier located along St. Charles Rock Road. The plan should include provision to increase the length of this litter barrier, or erect another portion of it in an additional alignment, if this initially proposed 900-foot long barrier is observed to be significantly ineffective at capturing all windblown litter.

16. Work Plan, Identification of Waste Staging, Management, & Relocation Areas, Section 2.1: The 3rd paragraph references an appropriate unit. The plan should provide parameters and range of criteria that better identifies what would be considered an appropriate subsurface unit.

17. Work Plan, Identification of Waste Staging, Management, & Relocation Areas, Section 2.1: Paragraph 7 states, "if RIM is encountered, this waste will be disposed in an approved manner and not disposed in the relocation areas." The plan should outline what that "approved manner" will be.

18. Work Plan, Vegetation & Surface Obstacle Clearing, Sec. 2.2: Paragraph 4 references process utilized for 2013 fence construction and 2013 GCPT investigation will be used. Recommend that process be included as an appendix to this Work Plan so all documents are together in one document.

19. Work Plan, Vegetation & Surface Obstacle Clearing, Section 2.2: Paragraph 4 references that moisture may be added to the vegetation during brush hog and chipping operations if the natural moisture is insufficient to suppress dust. The plan should identify how you will determine that the natural moisture is insufficient to suppress dust.

20. Work Plan, Air Monitoring Sampling, and QA/QC, Section 2.4: Paragraph 4 states that the meteorological station will be placed on top of the landfill office if the roof condition is adequate. Please specify an alternate location in the event the roof is not adequate to hold the equipment.

21. Work Plan, Table 2, Schedule: Recommend that a more definitive schedule be provided for clearing of vegetation and surface obstacles. Example: Clearing of vegetation and surface obstacles will be completed within 30 days of approval of IB Design.

22. Bird Monitoring Plan, Appendix A, Paragraph 1: The Summary Report dated March 18, 2014, located in Appendix A, paragraph 1.0 of the Bird Hazard Monitoring and Mitigation Plan references two letters from the St. Louis Airport's Counsel that provided concepts and comments that were recommended to be put into the ongoing monitoring plan. The USACE has not been provided with those letters, so it cannot be verified if the recommended controls impact the limited clearing work to be completed during pre-construction activities. Please provide copies of those letters so verification can be performed.

23. Work Plan, Identification of Waste Staging, Management, & Relocation Areas, Section 2.1, Paragraph 4, Page 3: The third sentence indicates any excavated material that will be excavated below the April 6, 1975 surface will be given preference for relocation to the SE corner Area 1. Does this mean that North Quarry landfill material placed after April 6, 1975 will be given preference for

relocation in SE corner of Area 1 or material placed prior to April 6, 1975...which it is assumed would be the original Area 1 landfill prior to overlay of the North Quarry Material. If the latter, it appears the sequence of excavation may make this difficult since North Quarry Landfill material would be excavated first, followed by the Area 1 material. Please clarify.

24. Work Plan, Identification of Waste Staging, Management, & Relocation Areas, Section 2.1, Paragraph, Page 3: The fourth sentence discusses the potential for placement of excavated material on the North Quarry Landfill. The summary of the Air Monitoring Plan indicates anticipated construction activities may require relocation of the air monitoring stations. Are the current proposed air monitoring station locations suitable if material placement is required on the North Quarry Landfill?

25. Work Plan, Vegetation & Surface Obstacle Clearing, Sec. 2.2, Paragraph 4, Page 5: It appears that the precautions during clearing described in this paragraph will only be necessary if surface RIM is discovered in the gamma scans described in the previous two paragraphs. Although it may already be planned, it is recommended that any areas identified as containing RIM be cordoned off so there is a visual demarcation of areas to avoid or where extra precautions need to be taken. As this paragraph is currently written it is uncertain if there will be a visual demarcation or if it will simply be a Rad Tech guiding those performing the clearing.

26. Work Plan, Vegetation & Surface Obstacle Clearing, Sec. 2.2, Paragraph 4, Page 5: The last sentence suggests that clearing and addressing gamma areas above background will be the first step before other activities occur. It uses "installation of air monitoring equipment" as an example of activities that will occur after addressing the gamma areas. However, it appears part of the process of addressing the gamma involves clearing and potential ground disturbance. Does the air monitoring network need to be in-place prior to these activities or is a more localized air monitoring program planned?

27. Work Plan, Air Monitoring Sampling, and QA/QC, Sec. 2.4, Paragraph 2, Page 7: This paragraph indicates that air monitoring stations may need to be relocated due to availability or restrictions on the delivery of electric power to each location. The USACE has had good luck with the use of solar powered air monitoring stations under similar circumstances, so that may be an option to consider if it becomes an issue.

28. General, Odor Control: It was not indicated that a separate odor control plan was going to be developed for this site. However, odor control is discussed in association with the Bird Mitigation Plan. Since odor control appears to be a significant factor in mitigating bird issues, are the odor control measures to be implemented as part of the Bird Mitigation Plan considered sufficient to address odor issues affecting the public?

29. Work Plan, Vegetation & Surface Obstacle Clearing, Sec. 2.2, Paragraph 2: States that topsoil and grassy areas from OU-1 will be stockpiled near North Quarry Landfill crown area with silt fencing to prevent erosion. Please specify how potential blowing dust from that stockpile will be minimized.

30. Work Plan, Vegetation & Surface Obstacle Clearing, Sec. 2.2, Paragraph 4: States that the process for clearing and vegetation management will follow previously approved processes utilized for the 2013 GCPT investigation. This section includes some language verbatim from the 2013 GCPT work plan, but not all. To ensure there is no confusion as to what will be done and to prevent the need to

reference multiple work plans, it is recommended that the few paragraphs of the 2013 GCPT work plan that apply to the pre-construction work be incorporated into Section 2.2 of the pre-construction work plan.

31. Radiation Safety Plan, Appendix D: Personnel, tools, and equipment used for clearing areas of OU-1 that are impacted with surface RIM will require an equipment exit survey in accordance with section 5.3.5. The work plan should include a figure showing the existing survey area for pre-construction activities.

Please submit a revised document incorporating these changes within 14 days of your receipt of this letter. If you have any questions, you may contact me at (913) 551-7324.

Sincerely,

Daniel R. Gravatt, P.G.
Remedial Project Manager
Missouri-Kansas Remedial Branch
Superfund Division

cc: Mr. Shawn Muenks, Project Manager, Missouri Department of Natural Resources
Ms. Victoria Warren, Director, Hydrogeology and Superfund, Republic Services
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