UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

April 9, 2014

To: Adam Loney, CRA

From: Leslie Patterson, EPA

Re: Comments on *Operable Unit Two (OU2) Remedial Investigation/Feasibility Study (RI/FS) Work Plan*, dated January 2014
South Dayton Dump & Landfill Superfund Site, Moraine, OH

The U.S. Environmental Protection Agency (EPA), in consultation with the Ohio Environmental Protection Agency, has completed its review of the *Operable Unit Two (OU2) Remedial Investigation/Feasibility Study (RI/FS) Work Plan* (Workplan), dated January 2014. This document was submitted in accordance with the Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study, docket V-W-'06-C-852 (ASAOC).

EPA disapproves the Workplan as submitted, and requires the Responsible Parties to amend the document in accordance with the attached comments. A revised Workplan must be submitted within 15 calendar days of your receipt of this letter as specified in Paragraph 44 of the ASAOC. All of the enclosed comments must be addressed. In accordance with Paragraph 42 of the ASAOC, if all comments are not adequately addressed within 21 days, EPA may exercise its right to modify the document and provide the revised document to you for implementation or to direct you to make specified modifications to the document.

If you believe that any changes are necessary other than those directed by EPA's enclosed comments, those changes must be discussed with and approved by EPA prior to re-submittal of the document. Those discussions may be memorialized in a progress report or other communication to EPA. In addition, all changes made to the document, other than those made specifically at the direction of EPA, must be specified in writing to EPA upon re-submittal of the document.

If you have any questions concerning this matter, or would like to discuss the attached comments in detail, please contact me at (312) 886-4904.

Comments on *Operable Unit Two (OU2) Remedial Investigation/Feasibility Study (RI/FS) Work Plan*, dated January 2014

Text

Section 1.1, Site Background, p. 1

1. Add a brief description of the geology and hydrogeology of the site.

Section 2.1, Quarry Pond Parcels, p. 10

2. ¶1: Add discussions regarding surface water data and radiation screening, consistent with other historical sampling events presented in this section.

3. ¶3, 5th bullet: Add "or less" after "3 feet deep."

Section 2.2, Overview of OU2 Jim City and Ron Barnett Parcels History and Fill Material Information

4. P. 12, last partial ¶ - p. 14, first partial ¶: Although the discussion is somewhat non-linear, it appears to boil down to:

   1) There is elevated TCE in the soil vapor at GP-09-09;
   2) The groundwater at nearby BH24-13 and BH25-13 have TCE concentrations below the VISL for industrial indoor air;
   3) Therefore, groundwater isn't causing the high TCE at GP-09-09;
   4) By process of elimination, the GP-09-09 TCE is probably due to localized soil contamination.

   In order to conclude #3, you must have some reason to believe that there are not unidentified preferential pathways from other areas of high groundwater TCE, but this is not discussed. If there is a reasonable certainty that this is the case, then one might conclude #4. Clarify the basis for the conclusions being made in this section.

There is a similar situation with respect to Building 24 and GP-09-09. The conclusion that the source of elevated sub-slab TCE at Building 24 is different from the source of the high TCE at GP-09-09 does not consider the possibility of preferential pathways between GP-09-09 and Building 24. If the possibility of preferential pathways has been eliminated, discuss the basis for that.

5. If the source area for the VI at Building 24 has not been identified, it would seem to be necessary that the RI adequately characterize it. It could impact future potential exposures if additional buildings are constructed.

6. P. 13, ¶1, sentence 2: Replace the word "incomplete" with "potentially complete" because it is not an incomplete exposure pathway if mitigation was warranted.

7. P. 13, ¶1, sentences 4 & second to last: In the previous paragraph, samples results are discussed in comparison to screening criteria based on EPA RSLs, but here, ODH screening criteria are used. It is unclear whether the application of different screening

levels is intentional. Explain the rationale or apply the minimum of all appropriate criteria.

8. P. 13, ¶2, sentence 1: Provide references to reports/figures/tables showing the groundwater samples and associated results.

9. P. 14, first partial ¶: Explain why the data gaps with respect to the source of the TCE in GP-09-09 and the source of the vapor intrusion at Building 24 are not included on the list of data gaps on page 14. Include a method to further evaluate potential VI pathways in the event that proposed soil samples indicate a possible source.

Section 5.2, OU2 Parcels Soil and Fill Investigation, p. 28

10. 2nd bullet: change "soil samples" to "soil and/or fill/waste samples".

11. It is unnecessary to compare fill/waste to background soil because any contaminants in site-related fill/waste are attributed to the site, not to background. In addition, a background reference area should have the same physical, chemical, geological, and biological characteristics as the site being investigated, but fill/waste at the site would be dissimilar to offsite background soil locations that could not have received contamination from the site.

12. According to Figure 1.0 in the initial draft of the Streamlined RI/FS for OU1 (CRA, 2011), the depth to fill in the area in which all of the proposed soil borings in Jim City and Ron Barnett parcels are located is at least 15 feet, which is the maximum proposed depth of the borings. This means that relatively few native soil samples will be collected, which indicates that background comparisons will play a minor role in evaluating soils/fill/waste at OU2.

13. EPA comments on the DQO Table 3.1 requires that exposure units be redefined. When determining sampling program within each exposure unit, clarify how you determined the number and location of samples. If a subset of locations is to be sampled below a certain depth (e.g. 15 feet) will be collected clarify how the locations will be selected.

Section 5.3, Soil Vapor Monitoring, p. 29, ¶4

14. Sentence 2: Replace the word "incomplete" with "potentially complete" because it is not an incomplete exposure pathway if mitigation was warranted.

15. There are potential future VI exposure pathways in OU2 if new buildings are built. The work plan should summarize how these pathways will be evaluated.

Section 5.4, Quarry Pond Investigation, p. 30, ¶3

16. Modify the first sentence to read, "The investigation of the Quarry Pond will include surface water and sediment sampling to **determine extent and magnitude of contamination, and** identify direct contact risks and risks to potential ecological receptors as outlined below" (addition in bold).

17. First bullet: Modify the second sentence to read, "…conducted by Ohio EPA, Ohio DNR

and the **Attorney General's Office-Bureau of Criminal Investigation**'s office..." (change in bold).

Section 5.6 - GMR Investigation, p. 32 – 34

18. Provide the rationale for collecting two rounds of sediment and surface water sampling, and discuss how the two sets of data will be used in the risk assessment. Will the data be averaged from the two sampling events? Will the worst-case scenario be used at each point? Is a seasonal effect being investigated?

19. In the event that an acceptable location for upgradient background sediment samples cannot be determined, CRA can refer to Ohio EPA's Sediment Reference Values (SRVs), which can be found in Table 2 of *Ohio Specific Sediment Reference Values*, (Attachment H to Chapter 3, "Guidance for Conducting Ecological Risk Assessments") Ohio EPA, DERR-00-RR-031, February 2003. http://www.epa.state.oh.us/derr/rules/RR-031.pdf.

Section 5.7, Groundwater Investigation, p. 34

20. Groundwater contamination below 675 feet ASL needs to be investigated to determine whether it is site-related and if so, to determine its extent. It is not clear that the groundwater sampling that would be triggered by soil/fill sampling in the unsaturated zone, and Phase 1B/2A OU1 work, will be sufficient to answer these questions. Either provide an explanation of this, or have a provision in the workplan to investigate any other areas where site-related groundwater contamination may be located.

21. Sentence 3: Recommend striking "with significantly elevated contaminant concentrations or", unless this means something different from "of potentially unacceptable risks", in which case the former needs to be defined.

Section 6, Background Comparisons

22. Specify which constituents will be included for background comparisons; typically these are metals but the parameters should be defined in the text to clearly indicate the background chemicals of concern.

23. The purpose and methods for attributing contamination to an off-Site source (e.g., chlorinated VOCs) may be different that those for making comparisons to background (i.e., naturally-occurring or widespread, ubiquitous anthropogenic contaminants). Include a discussion of these considerations.

24. The aim in selecting background locations (presented on Figure 3.5) is to select areas where there has been little industrial impact, such as parks or cemeteries. The Carillon Park location and the cemetery east of Dunbar High School are probably good locations. The other two are adjacent to or downstream from the site, and may have some contamination. Those two locations should only be considered if they can be shown to have no history of industrial use or dumping, so include a description of and discussion of the histories of these areas.

25. Point-based comparisons to background, and the concept of rejecting a sample that exceeds the 95th background percentile because no adjacent sample is that high, are not

discussed in EPA guidance. Additionally, group-based comparisons are commonly incorporated into risk assessments, but this not proposed in this RIFS work plan. Clarify the how the group-based comparisons and point-based comparisons will be used in the RIFS (also see Comment #30 below).

26. Section 6.3, first bullet: Background ground water samples are mentioned, but they weren't mentioned in Section 6.1, and the figures do not indicate their locations. Clarify whether background groundwater samples will be taken, and if so, the locations and rationale.

27. The planned depth of the background soil samples is unclear. Generally, Site soils from the surface and near-surface are compared to background soil samples from the same depth, soil horizon, and soil type. The outline for the soil/fill investigation states that soil/fill samples will be taken from 0-2 feet and 2-15 feet. Clarify whether the intention to also compare samples taken from 2-15 ft. bgs to background concentrations.

Section 7.0 Baseline Risk Assessment and Ecological Risk Assessment

28. P. 43, ¶3, sentence 2: Indicate that the most recent RSLs available at the time of human health risk assessment preparation will be used. Add text indicating that soil gas and groundwater data will be screened using the most recent USEPA VISLs.

29. The workplan proposes to provide details about the approach to the ERA in a memorandum summarizing the methods and results of the SLERA. To minimize revision of the SLERA, EPA recommends that you submit an interim deliverable summarizing the problem formulation and presenting methods and values to be used in the ecological effects evaluation. The problem formulation would describe the environmental setting and contaminants known or suspected to exist at the site and the maximum concentrations present (for each medium); contaminant fate and transport mechanisms that might exist at the site; the mechanisms of ecotoxicity associated with contaminants and likely categories of receptors that could be affected; the complete exposure pathways that might exist at the site from contaminant sources to receptors that could be affected; and screening ecotoxicity values equivalent to chronic NOAELs based on conservative assumptions. The ecological effects evaluation proposal would present the basis for values, methods and assumptions that will be used in the evaluation.

30. P. 45, Risk Characterization: It is stated that a risk assessment will be performed on the background data, and that the results of the background risk assessment will be used to qualify the risk estimates for the COPCs identified in the site media. It is unclear how this use of background data is related to the background comparisons described in Section 6. Provide clarification and additional detail regarding how the evaluation of background data will be used in the RIFS.

Figures

31. Figure 3.2: If it doesn't make the figure too cluttered, revise the figure to depict the locations where waste has been identified in the Quarry Pond. Otherwise, put that into a new figure.

32. According to Figure 3.3, an upgradient floodplain soil sample location and one of the site samples are in virtually the same location (northeast corner of the figure, upstream from the bridge). Confirm whether this was intended, and if so, justify why this approach will yield reliable background values to compare to Site-related values. If not, revise the figure.

33. According to Figure 3.4, background locations are next to site samples (just upstream from the bridge). Confirm whether this was intended, and if so, justify why this approach will yield reliable background values to compare to Site-related values. If not, revise the figure.

Tables

DQO Table 3.1 (Fill)

34. Step 2.iv.b, Phase 2: The size and location of each exposure unit (EU) should be consistent with property ownership boundaries, and current and reasonably forseeable future activities and land uses. Redefine the exposure units based on the following guidelines, and provide the reasoning behind your EU designations.

    1) The residential property should be its own EU.
    2) An industrial/commercial property in which workers are exposed to the entire property may be best considered as one EU, unless it is reasonably forseeable that the property will be subdivided in the future.
    3) An industrial/commercial or recreational property in which occupants do not traverse the entire property should have multiple EUs based on the use differential.
    4) A recreational property can be treated as one exposure unit when there are no preferential areas of use.

35. Step 6.iii: The DQO step states that specifying grey areas is N/A because comparing individual concentrations against reference conditions does not employ statistical testing. However, the work plan discussion (Section 6) states that both group-based comparisons and individual comparisons will be performed. Therefore, the "gray region" must be identified for the group-based comparisons. Revise the DQO to match the work plan text.

36. Step 6.iv.a: For the reasons given in the previous comment, decision error limits must be set for the group-based comparisons with background reference conditions.

37. Step 7: Redefining the EUs requires that the overall grid approach be replaced by a separate approach for each exposure unit. When designing these approaches, take into consideration the geophysical data that have been collected for this area of the site, none of which have been investigated with test pits or trenches. Include some sampling locations biased towards investigating the geophysical anomalies.

38. Step 7: ProUCL is software designed to statistically evaluate data but does not proscribe or ensure that a sampling design is adequate for an area. The minimum of eight samples is only to ensure that the statistical analyses will be above the minimum threshold for

mathematically validity. The DQO and work plan must describe why the revised soil/fill sampling plan is adequate to sufficiently characterize each EU, and how that adequacy will be evaluated once the degree of heterogeneity of landfilled materials on these parcels is known.

DQO Tables 3.1, 3.4, 3.5, and 3.6

39. Data quality objectives (DQOs) are not clear as to which ecological screening levels (ESLs) and which ecological receptors are being evaluated. If not defined here, include a SLERA workplan to present them (see Comment #29 above).

DQO Table 3.2, (Groundwater)

40. Step 7 states that one groundwater sample will be collected from the bottom of any boring where groundwater is encountered using a temporary well screen. This activity is missing from the text of the work plan, and should be included in the groundwater investigation section.

DQO Table 3.4 (Surface water)

41. Step 7.i, Phase 1A: The description of the number of samples is confusing. A total of 22 samples over 2 events would seem to indicate that one event has 12 samples, and one has 10 samples, but two events of 10 samples is also mentioned, and the 12 samples have a different spacing than the 10 samples. Clarify the language here and in Section 5.6 of the text.

DQO Table 3.5 (Sediment)

42. Step 1,ii, Phase 1A-QP: Change the last sentence to read, "Further data are needed to assess **the magnitude and extent of QP sediment contamination, and** whether QP sediments pose potential risks to ecological and human health risks." (addition in bold).

43. Step 3.ii, Phase 1A-GMR and -QP: Provide a rationale for the abbreviated analyte list; historical data from the GMR and abutting land are very limited and so the basis for such an abbreviated analyte list is unclear.

44. Step 4, all substeps and phases: Add "or less" after "3 ft deep" when referring to areas targeted for sediment sampling locations.

45. Using industrial soil RSLs as a proxy for recreational RSLs does not account for early-life susceptibility to mutagens for the child receptor. State that you will use residential Soil RSLs as an inital screening step.

DQO Table 3.6 (Floodplain Soil)

46. Step 2.iv.a, Phase 2: Modify EU description to be consistent with EPA Comment #34 on Table 3.1.

Appendices

Appendix B

47. Compare groundwater results to VISLs.

Appx. C, Table C-1, Groundwater source, ingestion/dermal/inhalation of vapors exposure route

48. If you intend to indicate that groundwater exposure pathways are not complete for residents, site workers, and temporary workers on OU2 parcels (excluding Quarry Pond), temporary workers on offsite properties, and temporary workers on GMR/, explain why. (Recommend to discuss with EPA prior to resubmitting the workplan.)

Appx. C, Tables C-1 and C-2, Groundwater source, all sources, all exposure routes

49. If you intend to indicate that there are no potentially complete future exposure pathways for residents on OU1 or OU2 parcels (excluding the Quarry Pond), explain why. If you are excluding potential future residential exposures in OU1 parcels because you anticipate that the presumptive remedy that will include institutional controls, specify this. On OU2 parcels where a presumptive remedy will not be completed, explain the reason for not including residential pathways.

Appx. C, Table C-2, Groundwater source

50. All sources, ingestion/ dermal exposure routes: If you intend to indicate that soil exposure pathways are not complete for recreational users and temporary workers in the GMR/floodplain, explain why. (Recommend to discuss with EPA prior to resubmitting the workplan.)

51. Ingestion/dermal/ inhalation of vapors exposure route: If you intend to indicate that groundwater exposure pathways are not complete for site workers and temporary workers on OU2 parcels (excluding Quarry Pond), temporary workers on offsite properties, and temporary workers on GMR/floodplain, explain why. (Recommend to discuss with EPA prior to resubmitting the workplan.)

Appendix D

52. Add a table for VI screening levels (VISLs) in groundwater and soil, and integrate VISLs for groundwater throughout the report and appendices.

53. EPA RSL tables in which the hazard index is 0.1 are appropriate at this site because there are multiple contaminants. Update the screening levels accordingly.

Table D.1, Soil Screening Level

54. If screening levels are available from other sources for those chemicals that do not have EPA Eco-SSLs, present them. EPA recommends using the following ecological soil screening values, in order of priority:

    1) USEPA Ecological Soil Screening Levels (Eco-SSLs)
    2) USEPA Region 5 ESLs
    3) Other sources (such as other USEPA region soil screening values, Preliminary Remediation Goals for Ecological Endpoints [Efroymson et al. 1997], and/or from literature)

55. In addition to the ecological soil screening values provided for individual polynuclear aromatic hydrocarbon (PAH) and polychlorinated biphenyl (PCB) constituents, screening values also need to be provided for total low molecular weight (LMW), total high

molecular weight (HMW) PAHs, and for total PCBs, to evaluate the additive toxic effects.

Table D.4, Surface Water Screening Level

56. In addition to the surface water ecological screening values provided for individual PCB constituents, screening values need to be provided for total PCBs to evaluate the additive toxic effects.

Table D.5, Sediment Screening Level

57. Present the consensus-based TEC values (*Development and Evaluation of Consensus-based Sediment Quality Guidelines for Freshwater Ecosystems*, D.D. MacDonald, C.G. Ingersoll, and T.A. Berger, Arch. Environ. Contam. Toxicol. 39, 20-31 (2000)) in addition to the RCRA Ecological Screening Levels.

58. In addition to the sediment ecological screening values provided for individual PAH and PCB constituents, screening values also need to be provided for total LMW, total HMW PAHs, and for total PCBs to evaluate the additive toxic effects.

Table E.1

59. Include 40 CFR 264.1032 and 1033 as ARARs until specific technologies are chosen for evaluation in the FS.