

April 2, 2012

**TECHNICAL REVIEW OF THE
SAMPLING AND ANALYSIS PLAN
AND
FUNDAMENTAL QUALITY ASSURANCE PROJECT PLAN
DATED FEBRUARY 2012**

The following comments have been generated based on a technical review of the Sampling and Analysis Plan and Fundamental Quality Assurance Project Plan, dated February 2012 (SAP/QAPP) for the Van Buren Township Landfill Site located in Van Buren Township, Michigan.

As detailed in the Performance Based Corrective Action Agreement (Agreement), an investigation should be performed to identify the nature and extent of any releases of hazardous waste and/or hazardous constituents at or from the site. It is unclear how collection of soil and groundwater samples from seven locations will allow this objective to be met. It is acknowledged that the SAP/QAPP identifies the proposed scope of work as an initial effort designed to confirm potential releases, determine the size of the landfill site and characterize the wide range in types of suspected (and potentially unknown) wastes disposed. However, several data gaps were identified and the following information was not presented in the SAP and QAPP: 1) disposal locations and practices; 2) the geology and hydrogeology of the site; 3) groundwater uses in the area; and, 4) whether contamination is migrating offsite. Therefore, a more extensive multi-media sampling effort is likely warranted to address these numerous data gaps. The data resulting from the proposed initial scope of work should help in formulating subsequent investigations. Specific concerns are discussed in the following comments.

COMMENTS

1. According to the SAP/QAPP, seven areas of interest have been identified at the site, and are the focus of the proposed investigation. Based on review of the Phase I Environmental Site Assessment (ESA) dated February 13, 2007, it appears that disposal of materials/wastes at the site was wide-spread, and the potential for migration of contamination from disposal areas is unknown. Further, several areas of disposal in addition to the seven areas of interest were identified in review of the Phase I ESA (including 1,500 to 1,800 gallons of sludge generated from treatment of crankcase oils potentially disposed on a daily basis at unspecified locations; seeping leachate along Michigan Avenue; incinerator waste in a peripheral ditch along the north side of the site; processed and unprocessed incinerator waste disposed in an unlined trench east of the entrance road; incinerator residue and domestic waste deposited into trench water on the far northwest corner of the site; etc.), and it is unclear whether these areas/sources were considered in development of the SAP. Based on these apparent data gaps, additional sampling will likely be necessary (at this time or as part of a subsequent investigation) to allow for a site-wide characterization that identifies the nature and extent of potential releases of hazardous waste and/or hazardous constituents at or from the site in accordance with the Agreement.

In addition, the SAP/QAPP includes several statements regarding the preliminary nature of the investigation and the potential need for additional data. However, triggers for these additional investigation components, beyond general statements regarding data review and proposals for new data collection activities (e.g., first paragraph of Section 2.1, Soil Boring and Monitoring Well Installation; first paragraph of Section 2.2, Test Pit Activities) are not included. Revise the SAP/QAPP to include specific criteria (e.g., “if/then” statements) that will trigger the need for additional investigation.

2. Based on review of the types of wastes disposed at the site as documented in the SAP/QAPP and Phase I ESA, it appears that a full suite of laboratory analyses are warranted to fully determine the nature of contamination at the site. At a minimum, the following analyses appear warranted in addition to those proposed:

- Dioxins/furans in soil samples to address incinerator waste and waste burning activities;
- Pesticides/herbicides in soil and groundwater samples given the unknown nature of materials disposed at the site.

Revise the SAP/QAPP to propose the aforementioned analyses or clarify why they are not necessary.

3. As discussed briefly in Section 2.1, the SAP/QAPP indicates that shallow monitoring wells will be screened to straddle the water table and that additional deeper wells may be proposed and installed based on the conditions encountered in the field (i.e., visual, olfactory, screening with a photoionization detector [PID]). It is also indicated that these wells will be sampled quarterly to evaluate seasonality. However, little additional detail is provided regarding groundwater characterization.

It is unclear how the groundwater component of the conceptual site model will be completed in the absence of additional data. It is also unclear how the potential for migration, both laterally and vertically, will be evaluated should data resulting from the initial characterization activities indicate potential groundwater impacts. The installation of additional shallow and deep monitoring wells during a subsequent effort may be necessary to characterize the lateral and vertical extent of potential contamination and to evaluate vertical hydraulic gradients.

4. The SAP/QAPP discusses in several sections the use of a PID for screening of soils prior to sample collection. However, it is unclear how the screening will be performed and how the screening results will be used (e.g., to bias the sample collection interval). Revise the SAP to clarify the PID screening process and use of the results.
5. The SAP/QAPP proposes the installation and development of groundwater monitoring wells in several sections. However, monitoring well installation and development protocols are not provided. Revise the SAP/QAPP to include detailed monitoring well installation and development protocols.

6. Section 2.2, Test Pit Activities, of the SAP/QAPP lacks sufficient detail regarding the test pit procedures. The following are examples of information that should be provided in the SAP/QAPP to facilitate evaluation and implementation of the activities by the field team:

- The proposed size of the test pits (lateral and vertical);
- Criteria for potential test pit expansion based on observations during the initial excavations, and the size of step-out excavations;
- How the potentially hazardous waste encountered during excavation will be “temporarily staged” so as to minimize potential for cross-contamination (i.e., standard operating procedure for staging);
- How it will be determined whether additional sampling or characterization activities are necessary (i.e., “if/then” statements); and,
- How results of the test pit activities will be used.

In addition, it is unclear why soil samples will not be collected from the test pits which presumably serve as sources of contamination. It appears that collection of soil samples from these areas will assist in determining the nature and extent of contamination as well as contaminant migration potential at the site. Revise the SAP/QAPP to provide the information specified above. In addition, clarify why collection of soil samples from the test pits is included as only a potential supplemental activity.

7. Section 3.3, Groundwater Sampling, provides details associated with groundwater sample collection. It is noted that the proposed procedures are inconsistent with EPA’s 1996 Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures (low flow guidance). For example, the SAP/QAPP proposes the collection of volatile organic compound (VOC) samples using a peristaltic pump. Use of vacuum-based sample collection equipment can cause degassing which may result in altered pH and alkalinity data, as well as the loss of VOCs, and is discouraged. Revise Section 3.3 to include the use of equipment appropriate for the collection of VOC samples (e.g., bladder pump) and to otherwise match the procedures identified in EPA’s low-flow guidance.

It is also noted that this section does not specify the depth(s) of the intake for the groundwater sample collection device. While it is understood that the depth to groundwater is uncertain, revise the SAP/QAPP to specify the procedure that will be followed to determine the depth of the sample intake.

In addition, it is noted that Section 3.3 indicates that each groundwater monitoring well will be developed prior to the first sample collection event. However, no specification regarding the minimum time between well development and sampling is provided. It is recommended that the monitoring wells be sampled a week or more following development to allow for equilibration and collection of representative groundwater samples.

8. Section 3.7, Spoils/Investigative Derived Waste Management (Page 8) states that following completion of the investigations and receipt of laboratory results, the soil cuttings and fluid will be characterized for off-site disposal. It is not clear if sample from the investigative derived waste (IDW) containers will be sampled and analyzed for waste characterization or if waste will be characterized based on the project sample results.

Revise the SAP/QAPP to clarify this. If samples will be collected directly from the IDW, revise the SAP/QAPP to indicate what parameters the samples will be analyzed for and to indicate what procedures will be used to sample the IDW.

9. Section 6.0, Reporting, indicates that data resulting from the proposed activities will be compared to Michigan Department of Environmental Quality Operational Memorandum No. 1 tables (Part 201 Criteria). In addition to these criteria, ensure that the data are compared to EPA's Maximum Contaminant Levels (MCLs) and Regional Screening Levels (RSLs). Also, ensure that the laboratory reporting limits are capable of meeting all screening criteria. Finally, ensure that the report includes an assessment of all data and recommendations for follow-on activities, as necessary.
10. The SAP/QAPP does not provide the level of detail as required by EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5), dated March 2011. For example:
 - The SAP/QAPP does not provide sufficient rationale for the sampling design. It should be explained why the number of samples to be collected, the depths at which they are collected, the proposed analyses are sufficient to meet project goals. [QA/R-5 Section 3.3.1]
 - The SAP/QAPP does not specify the acceptance criteria for field and laboratory quality control samples. [QA/R-5 Section 3.3.5]
 - The SAP/QAPP does not discuss any assessments that will occur or what types of reports will be submitted to management. [QA/R-5 Section 3.4]
 - The SAP/QAPP does discuss in detail how data will be reconciled with the project objectives. Methods to analyze the data and determine if there are possible outliers or anomalies with the data should be specified. [QA/R-5 Section 3.5.3]

While it is noted that the QAPP/SAP is not intended to meet all QA/R-5 requirements, revise the SAP/QAPP to briefly address each component and substantially meet QA/R-5 requirements.

11. An analytical laboratory is not specified. Therefore laboratory specific information is not provided (e.g., standard operating procedures, laboratory specific method detection and reporting limits). This information is necessary to ensure that the resulting data are suitable to support future evaluations. Revise the SAP/QAPP to specify the laboratory that will be used and to provide all related laboratory specific information.
12. Table 2.2, Summary of Sampling and Analysis Program, does not include trip blanks for water samples. A trip blank should be included in each cooler containing water samples for VOC analysis. Revise the table to include trip blanks.