John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

US EPA RECORDS CENTER REGION 5
481491

Electronic Mail

October 7, 2014

RE: Troy Well Field Unknown Source Remediation Reports
Remedial Response
Miami County
555001353

Ms. Shari Kolak
Remedial Project Manager
U.S. EPA, Region 5
77 W. Jackson
Chicago, IL 60604

Subject: Ohio EPA Review: Draft Remedial Investigation Report, East Troy Contaminated Aquifer Site

Dear Ms. Kolak:

On behalf of U.S. EPA, SulTRAC submitted a Remedial Investigation Report (RI) dated August 15, 2014 to U.S. EPA and Ohio EPA for the East Troy Contaminated Aquifer Site (ETCA) in Troy, Ohio, Miami County. SulTRAC conducted a remedial investigation at ETCA from December 2009 to May 2014. Two phases of investigation were conducted. Phase I initially consisted of limited ground water sampling and was followed by a more significant investigation including monitoring well installation, vapor intrusion (VI) monitoring, soil, ground water, surface water, sediment, indoor air (IA) and sub-slab (SS) vapor sampling. Phase II consisted of vapor, soil and ground water sampling, followed by high resolution site characterization (HRSC) sampling activities and additional soil, sediment and ground water sampling.

The following are Ohio EPA's questions and comments for the RI.

Possible data gaps:

1. Ohio EPA has concerns that further information is needed to be collected at the First Presbyterian Church as access issues have hindered the ability to collect samples to delineate the source and to sample for VI: In the RI, the origin of the residential area plume is concluded to be near Walnut Street, near the location of a former dry cleaning facility. However, because of access issues, no sampling was conducted on the First Presbyterian Church property, located on Walnut Street, which is potentially located over the source area. In order to gather

additional information to delineate the source and choose a remedy, additional sampling must be conducted on the church property.

In 2006 there was limited VI sampling performed at the church, one SS sample was collected, which had 500 ppb tetrachloroethene (PCE) and one IA sample was collected, which had 2.0 ppb PCE. Access for IA and SS sampling was denied thereafter. Though the concentration of PCE in IA was not above commercial/industrial standards, the result may not be temporally representative and commercial/industrial standards may not be appropriate. During a site walk over July 02, 2013 Ohio EPA noted a classroom with small desks and chairs and numerous pack-and-plays, therefore it may be appropriate to compare IA samples to residential standards.

Because soil contamination may be present beneath the First Presbyterian Church, the risk assessment may underestimate the extent of contamination and degree of future exposure to soils for both the soil-direct contact and soil to IA pathways. Additional sampling is recommended.

Ohio EPA would like to discuss with U.S. EPA how to gather this data and what the options are for gaining access.

2. Section 4.2.7.1 discusses a second potential source of contamination in the Residential Plume, a former dry cleaner at 423 East Main Street. However, there is no clear evidence that supports this as a source. The text states, "*levels of PCE were highest on Union Street between Canal and Franklin Streets, decreased north of Franklin and then increased again between Franklin and East Main.*" Please provide more information as to why it is believed this is a second source area. If it is determined to be a second source area, then additional characterization to aid in identifying a remedy should be considered.

3. Ohio EPA has concerns that the VI risks have not been fully delineated. Of particular concern is that the Draft Risk Assessment (p. 4-8) concludes that the risk and hazard associated with the VI pathway are 1E-06 and <1 for the entire upgradient area of the East Water Street Plume based on only two samples:

    a. Building-specific indoor air concentrations should not be used to represent plume-wide risks and hazards associated with vapor intrusion: According to the Draft Risk Assessment (p. 2-18 and Tables 3.2.1 and 3.2.2), it appears that risks and hazards associated with vapor intrusion to current and future commercial/industrial receptors in the entire upgradient area of the East Water Street Plume are based on indoor air concentrations from properties 43 and 44; however, each property was sampled only once in April 2014. Similarly, it appears that risks and hazards associated with VI to current and future residential receptors in the entire upgradient area of the Residential Area Plume are based on IA concentrations from

properties 1, 33, 34, 41, and 45. With the exception of property 1, each property was sampled only once between 2012 and 2013. (Table 3.2.2 indicates that 9 samples were considered in the exposure point concentration determination; however, Figure 4-17 indicates that only 7 indoor air samples were collected between the 5 properties.)

Direct IA data are considered building-specific and may not be representative of IA concentrations elsewhere (e.g. a home with a dirt basement vs. a slab). Although the Uncertainty Assessment notes that a moderate level of uncertainty is associated with risks and hazards in the upgradient plume areas, because IA concentrations may be variable, Ohio EPA recommends not using building-specific IA concentrations to estimate risk and hazard in the upgradient plume areas.

Rather, because the HHRA must somehow quantify the VI pathway and representative IA data are not available for each building at the site, Ohio EPA recommends using the VISL Calculator to conservatively evaluate the ground water to IA pathway for further risk management decisions and to guide further sampling efforts.

Ohio EPA recommends further sampling to evaluate VI above the two plumes.

b. For both plumes, it appears that the data collected during the 2006 removal action were not considered in the Human Health Risk Assessment (HHRA) (for example, St. Patrick School is located in the upgradient area of the East Water Street Plume and required a mitigation system, but was not included in the HHRA) – please explain.

4. The following potential issues were noted in the evaluation of the Hobart and Spinnaker buildings regarding VI. Ohio EPA recommends further sampling (soil sampling as well as IA, SS vapor, and/or exterior soil gas) to address these issues:

   a. The IA pathway was not evaluated in the buildings. The Draft Risk Assessment (p. 1-16) states that VI sampling was not performed inside the Hobart and Spinnaker buildings because the buildings are large and house active operations. These issues should not preclude further sampling.

   b. The soil to IA pathway was not quantified where VOC contamination associated with potential source areas is still present in soil. It is recognized that there is a large amount of uncertainty associated with modeling volatilization from soil to indoor air (U.S. EPA's J&E Model) and

therefore further sampling is recommended to characterize volatilization from both soil and ground water.

c. Soil contamination may be present beneath the buildings. The risk assessment may therefore underestimate the extent of contamination and degree of future exposure to soils – both for the soil-direct contact and soil to IA pathways.

Ground water comments:

5. Sections 2.1.4, section 4.1.1 and 5.5.2 suggests that transport of PCE from the dry cleaner facility through the sewer lines could have contributed to ground water contamination. However, section 5.5.2 states that RI data suggests that the primary mechanism of transport was diffusion. Please provide additional information that supports this statement.

6. Section 4.2.6.4 discusses the HRSC results. Several times the text refers to figures which show "breaks in the plume" even though ground water data indicates that the plume is continuous in those areas. Please revise figures to indicate the plume is continuous, or add additional ground water data in to the model to represent actual contaminant conditions.

7. It appears that there may be a typo in section 4.2.7.2 (p.4-21) in the last paragraph. The paragraph discusses trichloroethene (TCE) detections around Spinnaker; however the second sentence references PCE detection. Please clarify whether this is correct.

8. Does enough data exist to provide information regarding concentration trends and plume migration over time, especially from the pre-RI OEPA, Troy and KC wells? This could help to assess changes in the plume over time and evaluate seasonality and plume migration.

Ground water figure comments:

9. At least one figure should include all wells installed and/or sampled during the RI phase to make it easier for the reviewer to reference them.

10. Figure 2-2 includes white and purple circles in the inset, which do not appear to be located in the legend or in the larger figure. Please include these icons and their description in the legend.

11. Figure 3.7 should include wells with corresponding water levels used to create the potentiometric map.

12. Figures 4-1 through 4-4 show soil sampling results for areas of concern. Please include delineation of soils above the protection of ground water soil screening levels on these figures.

13. Please include sampling dates on relevant figures. For example, figure 4-5 shows baseline ground water sampling results but does not include sampling dates.

14. Figures 4-5 through 4-9 show ground water sampling results. Please clarify if contaminants of concern were detected at sampling locations where a well name is noted, but no ground water quality results are included.

15. Please include figures that separate contaminants of concern (COCs) by contaminant (i.e., one for PCE, one for TCE, one for *cis*-1,2-dichloroethene, etc.) and delineate the plume(s) with a smaller concentration contour interval.

16. Please provide maps of the indicator parameters sampled and their values (i.e., dissolved oxygen, oxidation reduction potential). This would help to better understand the geochemical conditions throughout the aquifer.

HHRA comments:

17. The extent of private well use appears to be unknown. The RI (p. 2-25) states that only 2 private wells were identified in a door-to-door survey of the residential area. However, the Draft Risk Assessment (p. 2-32) states that only 3 residents answered the survey of 50 homes. Therefore, the non-potable use pathway should not be discounted. Although the city of Troy prohibits the use of private wells for potable uses, the survey revealed that private wells exist; therefore, this pathway should also not be discounted.

18. The 95% upper contaminate levels (UCLs) for COC concentrations in ground water may not be calculated appropriately and 95% UCLs as ground water exposure point concentrations may underestimate localized exposures. U.S. EPA's OSWER Directive 9283.1-42 recommends using data from the latest two rounds of sampling only when temporal issues like seasonality are not a site issue; however, it is not clear that this has been demonstrated. While using the maximum concentration of a particular contaminant in ground water in a single well to represent exposure to that contaminant across an entire plume area (in this case, multiple city blocks) may be overly conservative, the maximum concentration may still be representative of exposure in a particular area – potentially an area where a well is installed or volatilization to IA occurs. It would be helpful if the Uncertainty Assessment clarified that using 95% UCLs as exposure point concentrations may underestimate localized exposures (e.g. on a residential basis).

19. Potential errors were noted in the site conceptual model (Figure 1-3). It appears that the soil to IA pathway is missing. Also, according to footnote h, subsurface soil may be excavated, mixed with surface soil, and placed at the surface under future land use conditions; therefore, fugitive emissions and volatilization to ambient air should be a pathway for subsurface soil, just as it is for surface soil.

Screening Level Ecological Risk Assessment comments:

20. It is not clear which wells were considered to be near the Great Miami River in Table 3-5. Please specify.

21. Could ground water exceed surface water standards in the future? Currently future migration of ground water contamination is not discussed in the SLERA. According to the HHRA (p. 4-8), upgradient ground water contamination is expected to migrate to the downgradient areas of each plume. While ground water at the site currently meets Ohio's surface water standards, it's not clear that they will continue to meet in the future.

Should you have any questions in this regard, please contact me at (937) 285-6456.

Sincerely,

Madelyn Smith

Madelyn Smith
Site Coordinator
Division of Environmental Response and Revitalization

ec: Allison Reed, DDAGW, SWDO
Erin LeGalley, DERR, CO

MS/bp