



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

MAR 18 2016

REPLY TO THE ATTENTION OF:
LU-9J

Jason Smith
Corporate Environmental Director
Tecumseh Products Company
2700 W. Wood Street
Paris, TN 38242

Re: *Corrective Measures Proposal, Appendix E Potential Source Evaluation and Soil Investigation Workplan*
Tecumseh Products Company, 100 East Patterson, Tecumseh, Michigan 49286
EPA ID#: MID005049440
AOC RCRA-05-2010-0012

Dear Mr. Smith:

Thank you for your submittal of the *Appendix E, Potential Source Evaluation and Soil Investigation Workplan*, as part of the *Corrective Measures Proposal (CMP)*, submitted to EPA and dated January 31, 2016. As you know, EPA and Tecumseh Products Company (TPC) met in December 2015, to outline expectations for work to be performed under the CMP. The meeting was held following EPA's issuance of a Notice of Violation to TPC, dated October 1, 2015 for TPC's failure to, among other things, characterize and define the nature and extent of contamination at and from the former TPC property. Based on discussions we had with TPC following that meeting, EPA identified concerns regarding the investigation and the related interpretation of risk. The work proposed in Appendix E was intended to address EPA's concerns regarding soil investigation, and EPA is providing here comments to TPC's proposal.

Workplan Comments

I have shared with you that EPA has hired a subcontractor to assist with the evaluation of the CMP. Attached, please find the contractor's comments with respect to the additional on-site soil sampling activities proposed by TPC in Appendix E of the CMP. EPA concurs with the contractor's comments. It is necessary for TPC to complete all additional scope of work necessary to address the comments identified in the attachment, in addition to the work proposed in Appendix E by TPC. This work is necessary to complete our review of the proposed cleanup plan identified in the CMP and assess TPC's interpretations regarding risk.

In addition to the comments provided by the contractor, EPA is identifying the following specific sampling activities needed to support conclusions and interpretations made regarding soils characterization in the CMP. Please include the following work in your sampling efforts:

- Install a soil boring between NS-5 and NS-6, where PID readings were not measured, and analyze the zone(s) of highest impacts throughout the vadose zone for purposes of evaluating the effectiveness of the SVE system beyond the immediate radius of influence of the SVE wells and confirming that the extent of soil impacts has been delineated.
- Install a soil boring at NS-8 and analyze the zone(s) of highest impacts throughout the vadose zone to evaluate the effectiveness of the SVE system and the expansion of the system to the west and confirm that the extent of soil impacts has been delineated.
- Install a soil boring at NS-11 and analyze the zone(s) of highest impacts (previously at 12') throughout the vadose zone to confirm that the extent of soil impacts has been delineated. [Note, TPCs proposed sampling at PSG 4 is expected to be used for design of the SVE system that is confirmed to be necessary in this area, and sampling at PSG 3 may be used to determine if the system is expanded to this area].
- Install a soil boring between NS-12 and MIP-34, and analyze the zone(s) of highest impacts (previously at 2-4' and through 16') throughout the vadose zone to confirm that the extent of soil impacts has been delineated. [Note, TPCs proposed sampling at PSG 4 is expected to be used for design of the SVE system that is confirmed to be necessary in this area. Also note it is expected that the vadose zone is impacted at NS-19, MW-32S and NS-20 at levels above non-residential screening criteria for inhalation, based on prior field screening data and lack of analyses from impacted vadose zone soils. Concentrations in vadose zone soils at NS-19, MW-32S and NS-20 are anticipated to be similar to those at MIP-40, given the similar concentrations in soil near the water surface].
- Analyze a soil sample from MIP-11 at 2-4' to evaluate VOCs in shallow impermeable soil. [EPA notes indoor air samples from this area previously exceeded non-residential screening criteria, suggesting potential exceedances in the soil].
- Install a soil boring near the sewer inlet at SG-17, where 1,1,1-TCA has been detected in soil gas but no groundwater impacts have been detected in this area.
- Install a soil boring at the sewer inlet at the former hazardous waste drum storage area northwest of Building "R", and analyze the zone(s) of highest impacts in order to evaluate the results of the prior PSG survey that was truncated near this area.
- Install a soil boring at the sewer inlet east of Building "V", and analyze the zone(s) of highest impacts throughout the vadose zone to evaluate VOCs. A subsurface feature appears to be located between the sewer inlet and the TCE source, area based on an aerial survey. [EPA notes indoor air samples from this area previously exceeded non-residential screening criteria, suggesting potential exceedances in the soil. EPA also notes prior exceedances of the indoor air criteria for non-residential properties at PSG 6 and PSG 7, suggesting potential exceedances in the soil that have not been identified for purposes of identifying the required institutional/engineering controls based on soils data alone, for these PSG areas].
- Install a soil boring south of Building "L", and analyze the zone(s) of highest impacts throughout the vadose zone to evaluate VOCs. A subsurface feature appears to be located between the sewer inlet and the PCE source, area based on an aerial survey.
- Install at least four soil borings in the TCE source area between MIP-19, MIP-23, MIP-49, and MIP-50 to evaluate the need for remediation of vadose zone soils in this apparent source area, similar to the work completed for the PCE area.

- Analyze a surface soil sample in the right of way east of Maumee and B-83, due to prior storm water discharges and the potential for off-site soil impacts.

EPA will evaluate the data developed from these activities to assess TPC's interpretations regarding soil concentrations, cleanup proposals, and related risks described in the CMP.

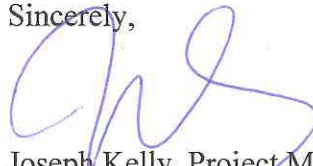
It has come to EPA's attention that MDEQ has requested slight modifications to the GSI workplan. EPA is also requesting a modification to include analysis of 1,4-Dioxane, in addition to VOCs, from the proposed pore water samples to be collected as part of the ongoing GSI investigation. This comment was raised by a concerned citizen, and EPA agrees with the citizen that further evaluation of 1,4-Dioxane is needed. From information TPC has recently collected, the single original exceedance for 1,4-Dioxane in groundwater at SS-6 in 2009 was collected upgradient from the plumes of heaviest groundwater contamination at the passive soil gas source. Therefore, it is necessary to evaluate this contaminant through further sampling within and at the leading edge of the plume.

We are also aware that TPC is planning to conduct groundwater monitoring in the next few weeks. TPC must collect samples for analysis of 1,4-Dioxane, in addition to VOCs, from downgradient monitoring wells, including MW-20s, MW-21, MW-31, and MW40S, MW-40D, and MW-42D during this upcoming groundwater sampling event. Also, as I previously informed Graham, EPA does not concur with any proposal to reduce sampling frequency of wells within the monitoring network, or eliminate locations from the monitoring network, as TPC has elected during the past quarters of sampling. EPA discussed with TPC that monitoring in all wells and soil gas locations should continue until a plan for installation of properly placed wells has been approved by EPA. TPC must continue to sample under the approved monitoring plan until there is agreement on the proposed monitoring well installations in the CMP, to be evaluated following the collection of additional HRSC data.

EPA will provide comments separately on the HRSC groundwater investigation work that has been proposed.

EPA's will continue to evaluate the remainder of the CMP and provide feedback as needed. Please contact me at your earliest convenience if you have concerns or questions related to TPC's efforts to comply with the Administrative Order on Consent (AOC RCRA-05-2010-0012).

Sincerely,



Joseph Kelly, Project Manager
Remediation and Reuse Branch

cc: Graham Crockford, Stacy Metz, TRC Environmental Corporation (TPC Project Manager)
Douglas McClure, Conlin, McKenney & Philbrick, PC
Tecumseh District Library – Public Repository

bcc: Susan Perdomo, ORC C-14J
Joseph Kelly, LCD LU-9J
Michael Beedle, LCD LU-9J



March 18, 2016

Mr. Joseph C. Kelly
U.S. Environmental Protection Agency, Region 5
77 West Jackson Blvd. (LU-9J)
Chicago, IL 60604-3590

**RE: Contract #EP-W-12-032, TO 5534
Review of Appendix C and Appendix E of the Resource Conservation and
Recovery Act (RCRA) Corrective Measures Proposal, Former Tecumseh
Products Company Site, Tecumseh, Michigan, dated January, 2016**

Dear Mr. Kelly:

Toeroek, Associates, Inc. (Toeroek) is pleased to present our revised technical review of Appendix C and Appendix E of the Resource Conservation and Recovery Act (RCRA) Corrective Measures Proposal (CMP), Former Tecumseh Products Company Site, Tecumseh, Michigan. Per your request, Toeroek conducted a detailed technical review of the Appendix C and E of the CMP to assess its technical adequacy and conclusions regarding historical and current environmental conditions on and around the facility. This revised version of our technical review comments incorporates the comments you submitted earlier today. This deliverable was reviewed as part of our quality assurance program as indicated in the REPA 5, Zone 2, Quality Management Plan for Region 5.

Please note that the PCE soil source investigation described in Appendix C and the recommended and proposed additional soil sampling included in both Appendices C and E are focused on delineating the extent of soils above the soil saturation limit (SSL) for PCE. Toeroek notes that this approach is likely flawed given the consideration that PCE contaminated soils at levels below the SSL could continue to be an on-going source of contamination to groundwater or a vapor intrusion issue. Toeroek recommends that this issue be raised as part of the review of the CMP as a whole, but notes it herein in case EPA wishes to raise this potential issue now as it relates to this specific PCE soil source investigation.

This revised version of the deliverable includes changes based on the comments we received from you on March 18, 2016 via email. Please note that Toeroek briefly evaluated the description of the proposed changes to the soil vapor extraction (SVE) system in the main text of the CMP as part of the revision made to Specific Comment 7. Based on this assessment, we revised Specific Comment 7 to reflect the discrepancy between the proposal for SVE as part of the final recommended corrective measure in the main text and the discussion of shutting down the SVE system in Appendix E.

We look forward to discussing our review with you in the near future. In the meantime, please contact the Task Order (TO) Project Manager, Mr. Brad Martin, directly at 312-212-0934 should you have any questions.

Sincerely,



Craig Kish
REPA 5 Zone 2 Program Manager

cc: A. Wojtas, EPA Region 5
T. Mathieson, EPA Region 5
Toeroek Project File

**APPENDIX C AND APPENDIX E OF THE
RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
CORRECTIVE MEASURES PROPOSAL
FORMER TECUMSEH PRODUCTS COMPANY SITE, TECUMSEH, MICHIGAN**

I. General Comments

General Comment 1: Appendix C, Documentation of PCE Source Area Investigation, and Appendix E, Potential Source Evaluation and Soil Investigation Workplan, of the Corrective Measures Proposal (CMP) recommend and propose additional soil investigation activities to support selection of appropriate corrective measures; however, the proposed investigation activities do not appear adequate to address the data gaps and assess the corrective measures proposed in the CMP. The lack of sufficient detail regarding the nature and extent of contamination directly impacts the contaminant fate and transport discussion, refinement of a conceptual site model (CSM), interpretation of the baseline human health and ecological risk assessment results, and development of cleanup levels in the CMP. This information is necessary to provide risk managers with the necessary information to make informed decisions regarding the level of risk presented by the site and appropriate types(s) of corrective measures. As a result, the objective of the CMP process is not being met. Specific examples of apparent data gaps are presented below.

- Appendix E, Attachment 1, Detailed Soil Evaluation, under the subheading, PCE Source Area, proposes three additional soil borings to define the lateral extent of soils above the soil saturation limit (SSL) for tetrachloroethene (PCE); however, the proposed soil boring locations do not include samples north of boring B-128 or directly south of boring B-127. As such, it does not appear that the proposed sampling will delineate the extent of SSL PCE exceedances in the PCE Source Area.
- Appendix E, Attachment 1, under the subheading, Evaluate Effectiveness of Current SVE Treatment System, proposes two additional soil borings to evaluate the current soil conditions in this area and verify whether the existing soil vapor extraction (SVE) system is necessary; however, additional soil borings appear needed to assess this entire SVE system and potentially impacted soils in this area because of the approximate 600-foot lateral extent of the existing SVE system piping network and the SVE system area of influence.
- Appendix E, Attachment 1, under the subheading, PSG Survey Area 1, indicates that the exceedance of trichloroethene (TCE) above the Volatile Soil Inhalation (VSI) criterion at NS-15 (2-4') is bounded to the east by NS-05 and GP-06; however, no soil data are available for approximately 250 feet east of NS-15. As the two proposed soil borings in this area do not address this data gap, an additional soil boring appears necessary east of NS-15 to assess the TCE VSI exceedance in this area.
- Appendix E, Attachment 1, under the subheading, PSG Survey Area 3, indicates that soil data are not available east and west of GP-15; however, no additional soil borings are proposed to address this apparent data gap. While this section notes that passive soil gas (PSG) and membrane interface probe (MIP) data are available, it appears two additional soil borings are necessary (one to the east and one to the west) to confirm the screening level data (PSG and MIP).
- Appendix E, Attachment 1, under the subheading, PSG Survey Area 5, indicates that no further investigation of this area is recommended; however, given that this single soil exceedance at NS-17 is not laterally well defined in any direction, borings near this area appear appropriate. In particular it is noted that to the west, even MIP data are not available.
- Appendix E, Attachment 1, under the subheadings, PSG Survey Area 6, and, PSG Survey Area 7 indicate that no further investigation of these areas is recommended; however, given the lack of

soil data in the southern portion of PSG Survey Area 6, and having no soil sample data at all for PSG Survey Area 7, relying solely on PSG and MIP screening data appears to be a data gap. As such, it appears additional soil borings are necessary to confirm the screening level data in the southern portion of PSG Survey Area 6 and PSG Survey Area 7.

- Appendix E, Attachment 1, under the subheading, PSG Survey Area 8, indicates that no further investigation of this area is recommended; however, given the reliance on only screening level data (PSG and MIP) to make this determination, soil borings near this area appear appropriate.
- Appendix E, Attachment 1, under the subheading, MIP-20, indicates that no further investigation of this area is recommended; however, given the reliance on only screening level data (MIP) to make this determination, soil borings near this area appear appropriate.

Revise Appendix C and E of the CMP to propose additional soil borings to address these data gaps.

General Comment 2: Appendix C and E do not discuss a statistical assessment of the existing data or proposed data points to demonstrate that based on overall areal expanse and the range of concentrations detected, a statistically valid number of analytical data of sufficient quality for decision making purposes is available or will be available upon completion of the additional proposed investigative activities. Such determinations are outlined in SW-846. Because screening level data does not represent a reproducible data point, it appears the proposed investigations should demonstrate that a statistically valid data set will be available upon completion of the investigation to adequately perform a risk assessment and remedy selection. Revise Appendix C and E to address this issue.

General Comment 3: Appendix E proposes to complete additional soil borings as part of investigation activities; however, Appendix E does not provide a basis for the lateral distribution/spacing of these borings. For example, under subheading, Determine the Extent of TCE in Permeable Soils for Potential SVE Treatment, six soil borings are proposed; however, a rationale for the soil boring placement and spacing is not discussed. As such, it is not clear whether the location and spacing of the soil borings is appropriate. Revise Appendix E to provide the basis for the lateral distribution and spacing of all proposed soil borings.

General Comment 4: The proposed additional soil investigation activities (soil borings) presented in Appendix E do not include a discussion of step-out soil boring locations if soil sample data indicate an exceedance of the applicable criteria. Also, decision criteria associated with completing step-out samples are not discussed in Appendix E. As such, it is not clear whether the proposed investigation will adequately delineate the extent of PCE and TCE impacts to soil. Revise Appendix E to provide a rationale and decision criteria for completing step-out sampling as part of the proposed investigation approach.

II. Specific Comments

Specific Comment 1: Appendix C, Heading - Background, Page 2. The second bullet on this page indicates that TRC recommended an additional vertical profile sample location be completed approximately 50 feet downgradient of the PCE source area; however, the rationale for this location 50 feet downgradient is not provided. As such, it is not clear what the basis is for the location and why the vertical profile sample locations would not be within the PCE source area. Revise this section to provide a rationale for the additional vertical profile sample location approximately 50 feet downgradient of the PCE source area.

Specific Comment 2: Appendix C, Heading – Summary of Field Activities, Page 3. This section indicates that at 16 of the 18 soil borings, groundwater samples were collected; however, it is not clear

why groundwater samples were not collected from two of the soil borings (e.g., groundwater was not encountered). For clarity, revise this section to indicate why groundwater samples were not collected from two of the 18 soil borings.

Specific Comment 3: Appendix C, Heading – Summary of Field Activities, Page 3. This section discusses a soil sample near monitoring well MW-35i/d but does not identify this well on a site figure associated with Appendix C. Further, the boring number (B-68) is not identified for this soil sample location. In addition, this section does not document that this sample was collected at EPA's request based on high photoionization detector (PID) readings in the original B-68 in 2012 that were not evaluated. This should be noted for clarity of the rationale for completing this boring to only 5 feet below ground surface (bgs). Revise Appendix C to provide a figure showing MW-35i/d and boring B-68 or provide a reference to a figure in the CMP. Also, revise this section to note that the sample near MW-35i/d was collected at EPA's request based on high PID readings in the original B-68 in 2012 that were not evaluated.

Specific Comment 4: Appendix C, Heading – Results and Data Evaluation, Page 4. Under the subheading, Surface Soil Concentration near PCE Source Area, this section states, "Soil treatment or other corrective measures are not required for surface soils in the PCE source area." While it may be unlikely that soil treatment is required, some corrective measures may be required [e.g., institutional controls (ICs), land use controls (LUCs)] to address the exceedances of the drinking water protection criteria and groundwater-surface water interface protection. In addition, discussion of the necessity of specific corrective measures in this Appendix is not appropriate. A discussion of the appropriate corrective measures should be included in the main text of the CMP as part of the larger CPM evaluation of remedies. Revise this section to remove this sentence or include a more detailed discussion in the main text of the CMP.

Specific Comment 5: Appendix C, Heading – Sub-Surface Soil Concentrations Near PCE Source Area, Page 6. This section states that the target soil treatment area is outlined in Figure 3; however, the treatment area outline is not provided on Figure 3. For clarity, revise Figure 3 to provide the soil treatment area outline.

Specific Comment 6: Appendix E, Heading – Proposed Activities, Page 3. Under the subheading, Align Soil Investigation and Proposed Treatment with Expected Redevelopment, this section indicates that the scope of the investigation may be adjusted based on meetings with the prospective purchaser; however, this section does not indicate that revisions to the investigation scoping will be shared with EPA for review. Revise this section to indicate that a change in the scope of the investigation will be shared with EPA for review and results of sampling completed by the prospective purchaser will be provided to EPA and incorporated into revisions to the CMP as needed. It should be noted that all future potential use should be considered during the risk assessment and extent of contamination investigation to ensure that the CMP addresses all future potential issues for use of this property. This conversation should be tied to a current CSM.

Specific Comment 7: Appendix E, Attachment 1, Evaluate the Effectiveness of Current SVE System, Page 5. This section proposes two additional soil borings to evaluate the current soil conditions in this area and verify whether continued operation of the existing SVE is necessary; however, the basis for proposed shutting down of the SVE system is not clear and does not appear consistent with the main text of the CPM that proposes SVE as part of the recommended final correctives measures for the site. It appears that any evaluation of potentially shutting down the SVE system should include an assessment of rebound potential. In addition, it appears a more detailed analysis of the effectiveness of the SVE system

(e.g., mass removal rates) along with collection of additional sampling data should be completed prior to shutting the SVE system down. Further, this Appendix does not present decision criteria to determine whether the SVE system should be shut down. As such, this Appendix is proposing to shut down the SVE system based on little data, no criteria and is not consistent with the main text of the CMP. Revise this Appendix to be consistent with the main text of the CMP. If in the future, a SVE system shut-down is evaluated, this assessment should include a more detailed assessment of the SVE system, including a rebound assessment.