

## Kelly, Joseph

---

**From:** Kelly, Joseph  
**Sent:** Monday, August 10, 2015 8:39 AM  
**To:** 'Crockford, Graham'; Perdomo, Susan; Beedle, Michael  
**Cc:** Metz, Stacy; Jason Smith (jason.smith@tecumseh.com); McClure, Douglas G.; Sundar, Bhooma; Petrovski, David; Canar, John  
**Subject:** RE: AOC RCRA-05-2010-0012 - Notice of Document Uploaded - 2Q15 Progress Report  
**Categories:** EZ Record - Shared

Graham,

EPA has completed a review of the July 15, 2015 Progress Report for the former Tecumseh Products Company site in Tecumseh, Michigan. Based on the results of the work recently completed, and the information in the quarterly report, EPA remains concerned with the extent of contamination, the position of monitoring locations relative to heaviest contamination, and the resulting ability to accurately monitor the potential for exposure with certainty. With respect to the quarterly report, EPA has the following comments:

- In the report, TRC indicates that development of a correlation between MIP and groundwater chemistry data, along with 3-D visualization is ongoing but will not be completed by the July 31, 2015 deadline for the Supplemental Groundwater Environmental Indicator Report. EPA is also conducting a 3-D visualization from the data TPC has collected in connection with our trend test analysis, and we will provide this assessment in response to the Supplemental Groundwater EI Report. EPA notes the data from MIP/HRSC confirmation sampling provided on June 22, 2015 indicate that highest groundwater concentrations in the southeast (B-81 and B-100) and northeast (MIP-57) are positioned *adjacent* to areas displaying the highest measured MIP results, and are also in areas where there are no permanent monitoring wells. As a result, and as expressed on numerous occasions in the past, EPA remains concerned that the monitoring network does not provide an accurate evaluation of potential contamination and anticipates TPC will address this deficiency.
- TRC indicates that attempts were made to assess vapor intrusion concerns at residential properties north of the site following the May 2014 meeting, by either: 1) installing sub-slab depressurization systems; or, 2) conducting indoor air sampling to demonstrate that no exceedances were present. EPA notes that the data from the HRSC testing indicates that TCE in groundwater at B-76 exceeds the screening criteria for vapor intrusion, and the results from one-time indoor air sampling events cannot be used to demonstrate that the vapor intrusion pathway is incomplete for these areas, given EPA's requirements for multiple lines of evidence with respect to the vapor intrusion pathway. TPC should proceed with efforts to install vapor mitigation systems at residential properties in this area to eliminate potential exposures.
- TRC notes that sub-slab sampling results at the commercial property in the southeast indicate exceedances of the non-residential screening criteria, and proposes the development of a site-specific attenuation factor to address the impact. EPA requires the collection of co-located subslab samples along with indoor samples within the commercial building, given that soil gas concentrations at location SG-02 and SG-22 far exceed the soil gas and subslab screening criteria. Site specific attenuation factors could be developed from first round of indoor sampling data, based on which, the need for further vapor intrusion assessment for the building will be determined.
- TRC mentions that vertical profiling results from HRSC sampling will be used to further evaluate vapor intrusion at downgradient residential properties. EPA agrees that further vapor intrusion assessment is required at a number of properties, specifically noting the areas in the north near SG-10 and SG-11, east

where contaminant concentrations have increased over time, and southeast where the groundwater plume remains undefined relative to the screening criteria for the vapor intrusion pathway.

- TRC notes that supplemental investigation of the wetland area east of MW-31 is proposed to address MDEQ comments on the groundwater/surface water interface evaluation. MDEQ notified TRC by email on December 10, 2013 that additional information was needed for the GSI evaluation, and EPA informed TRC that the additional work should be coordinated with MDEQ, with the intent of completing that work during the HRSC work proposed for this area. EPA notified TRC on August 4, 2015 that current data should be discussed with MDEQ before a final scope of work for the supplemental GSI activities is proposed. EPA believes that the scope of work should address the entire GSI area between MW-22 and Blood Road, given the high concentration of TCE adjacent to the river at B-86, and lack of upgradient and downgradient monitoring locations, in addition to the increases in vinyl chloride concentration in groundwater at MW-22 which now exceeds the default GSI criteria that MDEQ identified as the applicable objective for discharges to wetlands. EPA will provide comments on the proposed scope of work.
- TRC notes that groundwater stability will be re-evaluated and reported in July 2015. EPA finds that the positions of permanent monitoring wells relative to the three dimensional distribution of contamination do not accurately monitor the apparent migration of the plumes, and so the stability demonstration will not be considered valid; a trend test evaluation will be completed by EPA for those few wells positioned spatially near the plumes in response to TRC's July 2015 submittal. EPA notes that according to the *Handbook of Groundwater Protection and Cleanup Policies for RCRA Corrective Action* (April 2004), for the Migration of Contaminated Groundwater Under Control environmental indicator, "a facility should be able to demonstrate that contaminant plumes throughout the facility are not continuing to "get larger" or continuing to negatively impact adjacent surface water bodies, and that the facility will monitor groundwater to verify whether the environmental indicator determination remains valid". A plume "getting larger" typically refers to groundwater contamination above levels of concern moving beyond a previously defined furthest three-dimensional extent of the contaminant plume. EPA finds that groundwater concentrations in many areas have increased over time, that the areal extent of the plumes have expanded, that trend tests for certain wells installed near the plumes show increasing concentrations, and that there are few permanent monitoring wells installed in areas to accurately monitor the plumes in three dimensions. EPA anticipates TPC will address this deficiency.
- TRC notes under the Response and Mitigation Measures section of the report that crawlspace sampling was previously performed at four residential properties east of the site. EPA notes the concentration of TCE in groundwater east of these homes at B-21 has increased from 30 ug/L in 2009, to 380 ug/L in MW-38S at present. EPA also notes that TRC reported in the October 15, 2014 Progress Report, "unusually high tetrachloroethene, 1,1,1-trichloroethane, and trichloroethene concentrations reported in July 2014 at soil gas sample point SG-03R", which were further evaluated by resampling. This residential area corresponds with the general area where high levels tetrachloroethene, 1,1,1-trichloroethane, and trichloroethene were recently identified nearby during MIP/HRSC sampling. Accordingly, TPC should complete additional periodic crawlspace air monitoring of these residences, or reassess the installation of soil vapor mitigation systems and associated appurtenances that were previously proposed, but not installed.
- TRC notes that a draft First Amendment to the Declaration of Restrictive Covenant (RC) was provided to EPA for review, and to date, EPA has not commented on the RC. As we have discussed with TPC's attorney, EPA and MDEQ find the original RC and the Amendment to be deficient because they are missing many of the elements required in MDEQ's boilerplate RC. MDEQ has suggested that modifications to the RC/Amendment be resubmitted to DEQ and EPA in a format that includes all of the required elements from the boilerplate RC for MDEQ's Part 111, rather than using "blanket" protections, so that any RC developed clearly outlines surveyed areas and associated restrictions or corrective

measures required due to potential exposures that may occur as a result of the potential re-use of the site. A new proposed version of the RC was recently submitted by email by TPC.

- TRC notes that notices of off-site migration will be provided to additional properties downgradient in the northeast and southeast based on the HRSC samples. EPA agrees that this is needed, and understands these notices were subsequently submitted. Additionally, on numerous occasions, EPA has expressed that it requires groundwater monitoring within the identified areas of impact to ensure that concentrations within the plume do not continue to increase and cause future exposure concerns. EPA also notes these monitoring wells are needed before TPC demonstrate the Groundwater EI has been achieved.
- TRC notes that HRSC data will be used to evaluate whether additional residential properties should be evaluated for vapor intrusion, and how to more completely assess the GSI downgradient of the site. EPA agrees that further evaluation of residential properties is needed, and further evaluation of the GSI is required, including additional permanent monitoring that will be needed to ensure there is no further expansion of the plume. EPA noted by email on August 4, 2015 that the HRSC and MIP data should be presented to the MDEQ Office of Waste Management and Radiological Protection before developing a scope of work for the supplemental GSI sampling to address MDEQ's comments from 2013.
- TRC notes that SG-14R was removed from the sampling program in the second quarter of 2015 due to leaks in the surface seal. This location should be reinstalled to provide continuing monitoring of the potential exposures via soil gas. At present, it is unclear if the heavy groundwater contamination recently-identified at B-71, B-72, B-73, B-74, B-75, and B-76 has arrived at SG-14R, or whether contaminated soil gas may be detected in this area in the future as the plume continues to migrate. EPA requires the reinstallation of this soil gas point, in addition to the installation of a permanent groundwater monitoring well in this area to monitor the expansion of the plume. As a matter of practice, requests for modifications to the monitoring program such as the elimination of sampling points should be provided under separate cover to EPA, rather than in quarterly reports.
- TRC notes the persistence of TCE in soil gas at SG-02, and the relation of PCE at this location to the likely source area at B-100. EPA previously noted the presence of TCE, PCE, and 1,1,1-TCA in soil gas at SG-03R in July 2014. EPA also notes the presence of very high levels of TCE in groundwater at B-81, adjacent to SG-02. The TCE contamination in this area is undefined to the southeast, in the direction of contamination at B-86 and the residential areas downgradient. This area should be targeted for permanent well installation and additional vapor intrusion monitoring.
- TRC notes that concentrations of TCE in soil gas in residential areas north and northeast of the site are below the screening criteria at SG-10, SG-11, SG-12R, SG-13, SG-14R, SG-15, SG-16, SG-17, SG-18, and SG-19. However, EPA notes that TCE was recently found in groundwater above the screening criteria at B-76, near monitoring points SG-10 and SG-11, which must be addressed in continuing assessments and through long-term controls. Soil gas investigation may be expanded depending upon results from permanent monitoring wells that must be installed in this area to accurately evaluate the migration of TCE contamination in the groundwater from SB-MIP-57 to the vicinity of B-76

Based on the information provided, EPA remains concerned with the evaluation conducted and will continue to evaluate TPC's submittals. A response to proposed GSI work and the Supplemental Groundwater EI report will be provided under separate covers.

Thank you,



Joseph C. Kelly, P.G.  
Corrective Action Project Manager  
Remediation and Reuse Branch  
U.S. EPA Region 5  
77 W. Jackson Blvd. (LU-9J)  
Chicago, Illinois 60604  
ph: (312) 353-2111  
fax: (312) 886-6838

---

**From:** Crockford, Graham [mailto:GCrockford@trcsolutions.com]  
**Sent:** Wednesday, July 15, 2015 2:16 PM  
**To:** Kelly, Joseph; Perdomo, Susan; Beedle, Michael; Canar, John  
**Cc:** Metz, Stacy; Jason Smith (jason.smith@tecumseh.com); McClure, Douglas G.  
**Subject:** AOC RCRA-05-2010-0012 - Notice of Document Uploaded - 2Q15 Progress Report

Joe-

Per the Administrative Order on Consent (AOC RCRA-05-2010-0012) between Tecumseh Products Company (TPC) and the USEPA, the Seoncd Quarter 2015 Progress Report for the Tecumseh Products Company Facility in Tecumseh, Michigan will be uploaded to the USEPA's LOTUS QUICKr portal this afternoon. This progress report includes the second quarter 2015 PRB data tables (Appendix A), a tech memo summarizing the first and second quarter 2015 soil gas data (Appendix B), and a tech memo summarizing the first and second quarter 2015 groundwater data (Appendix C).

Additionally per your previous request we have uploaded the sample chemistry database for the site which has been updated to include all of the HRSC data collected between April 2015 and June 2015. Please forward this to John Canar.

Please let me know if you have any questions.

Regards,  
Graham

Graham Crockford  
Michigan ECR Practice Lead



1540 Eisenhower Place, Ann Arbor, MI 48108  
T: 734-585-7813 | F: 734.971.9022 | C: 734.904.3304

Follow us on [LinkedIn](#) or [Twitter](#) | [www.trcsolutions.com](http://www.trcsolutions.com)

*The information contained in, or files attached to, this email is intended only for the use of the individual or entity to whom it is addressed, and others who have been specifically authorized to receive it. This email and its attachments are privileged and confidential.*