



September 23, 2019

Ms. Shelly Billingsley
City of Kenosha
625 52nd Street, Room 305
Kenosha, WI 53140

Subject: Review of Remedial Design Report (Groundwater)
Chrysler Kenosha Main Plt
5555 30th Avenue, Kenosha WI
DNR BRRTS Activity #: 02-30-000327, FID # 230004500

Dear Ms. Billingsley:

On July 25, 2019, Lanette Altenbach of AECOM submitted the Remedial Design Report (Groundwater) for the site identified above. A copy of the Technical Specifications and Plans that will be made available to potential remediation contractors was also provided. The Report states that a contractor will be hired by AECOM to plan and implement an in-situ treatment process to reduce concentrations of chlorinated volatile organic compounds (CVOCs) in groundwater. AECOM will install and monitor a network of monitoring wells and piezometers to determine the effectiveness of the treatment and will provide written documentation of remedial actions conducted at this site. The activities outlined in the Plan are generally consistent with the chosen remedial strategy identified in AECOM's 2015 Remedial Action Options Report (RAOR) and approved by the Department of Natural Resources (DNR). However, the DNR will require some modifications to the Plan before it will be eligible for funding through the Ready for Reuse program. These are summarized below:

- 1) The Report must discuss how the need to operate the groundwater extraction systems will be assessed after the in-situ treatment is conducted, and under what conditions the systems will be turned off (or turned back on again).
- 2) The Report must explain how the groundwater contaminant plume limits depicted on the figures were generated and identify the data they are based on.
- 3) A reduction of contaminant mass by 90% cannot be used as the goal of a successful remediation treatment as this may not be needed to obtain case closure. A successful groundwater remediation will produce a contaminant plume that is decreasing in degree and extent and is not migrating outside the boundaries of the site when the groundwater extraction systems are not operating. This would satisfy the requirements of Wis. Admin. Code § NR 726.05(6)(a)6 and is consistent with the goal proposed in the DNR approved RAOR.

Kenosha may take any additional steps to improve this site beyond the minimum needed to obtain case closure. However, the DNR will not approve of Ready for Reuse funding for these additional actions.

- 4) The Report must state that upon choosing a contractor, AECOM will present a treatment plan for the DNR to review. A treatment plan must be approved by the DNR if the costs to implement it are to be reimbursed through the Ready for Reuse Program. It will be the responsibility of AECOM to demonstrate why the prescribed treatment is being selected to reduce groundwater contamination.

- 5) The Site Investigation Report (AECOM, February 2015) identified five apparent source areas for CVOC groundwater contamination. These areas must be identified on appropriate Report figures to ensure that they will be specifically targeted for treatment. It is unclear as to whether the in-situ treatment strategy will need to be applied to the entirety of the Treatment Area 1, or if targeting specific portions within this area would produce the needed results. An efficient and targeted treatment regimen in this area would be preferred by the DNR over one designed to target the entire area. As noted above, a proposed treatment regimen will need to be presented to the DNR for review and approval. This proposal will need to justify that the scope of the treatment is required to obtain the remediation goals.
- 6) The DNR requests that additional wells and piezometers be proposed to ensure that the monitoring network will define the limits of groundwater contamination and track plume behavior over time. The monitoring well and piezometer network should be expanded to encircle the groundwater plume limits of Area 1 depicted on Figure 10 of the Report. The monitoring well network must also ensure that all areas where groundwater contamination has been identified will be assessed during future sampling events. At a minimum, this would require that monitoring wells be installed within Area 2, Area 3, and areas of the site with groundwater contamination that exist outside of defined treatment Areas. The installation of additional piezometer(s) should be proposed in Area 4. Depicting the location of proposed monitoring wells and the location of piezometers on separate maps, in relation to the plume limits detected on the shallow or deeper portion of the aquifer, would be useful in demonstrating that the proposed network would be adequate to assess the groundwater plume.

The majority of the recommended wells will be installed within or around identified groundwater plumes. Proposed wells MW-69R, MW-70R, MW-71R, and PZ-69R are not positioned in these locations. The purpose of these wells should be explained in the Report.

Additional monitoring wells and piezometers may need to be installed after the in-situ treatment is conducted if it becomes apparent that more sampling points are needed to determine the effectiveness of the groundwater remediation.

- 7) The DNR agrees that a pre-remedial groundwater sampling event to assess baseline VOC concentrations should be conducted. Groundwater sampling for VOC analysis should be conducted at all on-site monitoring wells and piezometers on a quarterly basis after the in-situ treatment has been completed to determine its effectiveness and assess whether continued monitoring is needed. This sampling approach may be modified (by changing the number of wells sampled, contaminants tested for, rate of sample collection, etc.) with DNR approval as dictated by sample results.
- 8) The DNR does not agree that the entire list of analytes listed on Table 1 of the Report must be collected from all on-site wells to assess initial groundwater conditions prior to treatment. Non-VOC analytical data should be collected during the baseline sampling event only if needed to supplement existing data collected during the site investigation or pilot tests for planning a treatment strategy. A list of specific sampling locations and analytes based on the treatment plan and existing groundwater analytical data should be proposed as part of the future in-situ treatment plan.

The effectiveness of the groundwater treatment will be demonstrated through decreasing concentrations of VOCs. Additional analytes should mainly be collected if needed to determine why a treatment strategy is not producing the expected results. If specific data is needed to assess groundwater chemistry to optimize an ongoing treatment process it should be proposed as part of the treatment plan. Additional groundwater analysis can be proposed as a change to an approved sampling schedule if it later becomes apparent that additional data is needed to assess how the treatment has affected groundwater chemistry.

- 9) At a minimum, the annual groundwater monitoring report must provide the information required by Wis. Admin. Code § NR 724.17(3m) and must discuss whether:
- o the groundwater monitoring well network is adequate to assess the effectiveness of groundwater treatment when considering groundwater flow direction, groundwater flow velocity, and the degree and extent of contamination measured in the wells;
 - o additional monitoring wells or piezometers are needed to assess groundwater;
 - o in-situ treatment has been effective at reducing contaminant mass;
 - o additional remedial actions are needed to treat sources of groundwater contamination;
 - o groundwater contamination is migrating offsite;
 - o the groundwater extraction systems must operate;
 - o changes to the groundwater sampling plan (number of wells, sampling frequency, analytes tested for, etc.) should be made.

If it becomes immediately apparent that changes to the monitoring plan are needed they should be proposed immediately and not delayed until the regularly scheduled annual report. The DNR may also request changes to the monitoring plan after it reviews sample data.

The Report must state that groundwater analytical results (laboratory reports and updated data tables) will be provided to the DNR within 10 days of receiving laboratory data to ensure compliance with the requirements of Wis. Admin. Code § NR 724.17(3m).

Other Progress reports must be provided to the DNR as proposed in part 6.0 of the Report. The Report must state the reports will meet the minimum requirements for documenting completion of a remedial action as outlined in Wis. Admin. Code § NR 724.15.

An updated Remedial Design Report (Groundwater) that addresses the above items must be provided for review and approval before any action that will be funded by the Ready for Reuse program is taken at this site. The DNR has also reviewed the Technical Specification and Plans document. As it mainly pertains to an agreement between AECOM and their future contractors the DNR will not comment on the contents of the document or provide approval, other than Remedial Design Report (Groundwater) which is attached to the Technical Specifications.

The DNR also makes the following recommendations regarding the groundwater investigation at this site.

- 1) Analytical data collected from monitoring wells and piezometers should not be depicted on the same figures or assessed together. Contouring contaminant concentrations of sample data collected from shallow and deep wells separately is needed to demonstrate the initial extent of contamination within different portions of the aquifer, plan a treatment strategy, demonstrate how the remedial action has changed the extent of contamination, and whether the well and piezometer network is adequate to define the extent of the contaminant plume. Unless it can be demonstrated that there is no significant difference between groundwater contamination at the top and bottom of the shallow aquifer, separate figures must be provided depicting contaminant concentrations measured at monitoring wells and piezometers separately.
- 2) Case closure will be dependent on demonstrating that the degree and extent of all groundwater contaminants (such as metals, polycyclic aromatic hydrocarbons, petroleum VOCs, etc.) has been defined. Sampling the existing and proposed wells for these other contaminants should be considered if existing data cannot demonstrate that no further investigation is needed to define the extent of this contamination. This sampling would not be eligible for Ready for Reuse reimbursement.
- 3) It is unclear how it was determined that CVOC contamination is not present in the underlying clay on top of which the piezometers are screened or that the vertical extent of CVOC contamination has been

defined. This will need to be demonstrated to ensure that the site investigation is complete, and that additional remedial actions will not be needed to address contamination at these depths. Additional investigation needed to assess the vertical extent of contamination would not be eligible for Ready for Reuse reimbursement.

- 4) The potential for vapor intrusion to affect neighborhood buildings will need to be reassessed once the extent of CVOC contamination at this site has been confirmed through post-treatment monitoring. The vapor assessment should be conducted as outlined in DNR guidance document RR-800, "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin". Information obtained during earlier vapor sampling events can be referenced as part of this assessment but should not be relied upon solely to determine the need to investigate the risk posed by vapor intrusion.

We appreciate your efforts to protect the environment at this site. Please contact me, the DNR project manager, at (262) 574-2166, or by email at paul.grittner@wisconsin.gov if you have any questions regarding this review.

Sincerely,



Paul Grittner
Hydrogeologist
Remediation & Redevelopment Program

cc: Lanette Altenbach, AECOM, 11425 West Lake Park Drive, Milwaukee, WI 53224 (electronic)
Gena Larson, DNR (electronic)