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October 13, 2017

Ms. Samantha Downing
Governmental Hazardous Waste Branch, Land Division
Alabama Department of Environmental Management
1400 Coliseum Boulevard
Montgomery, AL 36110-2059

Subject: Supplemental Environmental Investigation Report – Downtown Environmental Assessment Project

Dear Ms. Downing:

On behalf of the Downtown Environmental Alliance (DEA), we offer the following responses to the Alabama Department of Environmental Management's (ADEM) comments, dated July 27, 2017, on the Supplemental Environmental Investigation (EI) Report:

- ***ADEM Comment #1 - Section 5.1:*** *According to this section, soils at the Retirement Systems of Alabama (RSA) Energy Plant were identified as impacted during construction activities in 1993. Please detail any plans to identify additional historical release points or potential ongoing sources other than the impacted soils identified at the RSA Energy Plant in the revised report.*

  Response: The DEA does not believe that additional investigation is needed for the following reasons:

  - The DEA's purpose is to evaluate and address risks posed by the groundwater contamination at the site, not to further assess the potential for or identify additional sources. Available historical documents and soil and groundwater data related to potential sources were reviewed and assessed. The result of the evaluation indicated that there is not a need to collect additional soil samples because historical data indicated no residual mass is present. This assessment is documented in the Technical Work Plan (TWP) and subsequent presentations to ADEM. The scope of work outlined in the TWP was approved by ADEM, and sufficient monitoring points exist to fulfill the DEA's purpose of identifying potential exposure points and impacts to human health and the environment.
  - As described in the ADEM-approved TWP within Section 1.1 Definition of the DEAP, the text states, "*Based on the discovery of PCE at PW-9W and the RSA Energy Plant, the Downtown Environmental Assessment Project (DEAP) includes the area* ***where PCE was discovered during the construction of the RSA Energy Plant*** *and groundwater surrounding and downgradient from that area. It does not include all urban contaminants from various sources throughout Montgomery…*"
  - As indicated in Section 5.1 of the Supplemental EI Report, there are no continuing sources in soil because all soil contamination at the RSA Energy Plant was excavated. No other releases related to operations at the RSA Energy Plant have been documented and tetrachloroethene (PCE) is not used at the RSA Energy Plant.

- The latest analytical data presented in the Supplemental EI Report show decreasing or stable concentrations within the sampled wells with three or more data points, which indicates that an ongoing source is not present.
- Based on the DEA's review of existing data, there does not appear to be any ongoing sources for PCE contamination within the site boundary.

Overall, the DEA has volunteered to take a proactive approach to assessing the residual contamination associated with PCE discovered during construction of the RSA Energy Plant, which is a benefit to residents and business owners of the downtown Montgomery area. Based on the results obtained during the recent field activities and a review of the historical data, the DEA believes it has a good understanding of the nature and extent of this residual contamination, and plans to continue its efforts to evaluate the potential human health risks associated with PCE discovered during construction of the RSA Energy Plant. Considering the above factors, there are no plans to conduct additional investigation of soil or to attempt to identify other potential sources, and no additional data are needed to complete the Risk Assessment/Alternatives Analysis Report.

- ***ADEM Comment #2 - Table 3-1:*** *According to the January 2016 work plan, monitoring well TMPZ-1 was to be installed so that the well's screened interval would intersect the groundwater table. From Table 3-1, TMPZ-1 was installed to a total depth of 48 feet below ground surface (bgs) with a screened interval from 37.5 feet bgs to 47 feet bgs. The soil boring logs located in Appendix A of this report document the depth to groundwater at the time of drilling as 28 feet bgs. Please provide reasoning in the revised report for not installing monitoring well TMPZ-1 as indicated in the January 2016 work plan.*

  Response: The following text will be added to Section 3.1 of the revised Supplemental EI Report: "Per the Technical Work Plan (CH2M, 2016b), TMPZ-1 was to be installed as a water table piezometer (i.e., average water level within the screened interval) to support the Cypress Creek hydraulic study. However, during the drilling activities for TMPZ-1, intervals of silt and clay interlayered with sandy layers were noted from near surface to 29 feet below ground surface (bgs). TMPZ-1 was installed to 47 feet bgs to target a screened interval (37.5 to 47 feet bgs) below the observed clay layers and within the producing aquifer. Stabilized groundwater levels measured following completion of TMPZ-1 were above the screened interval, but based on the results of the hydraulic study discussed in Section 4.3, groundwater at TMPZ-1 is in direct communication with surface water in Cypress Creek. Therefore, TMPZ-1 serves its intended purpose to provide data to evaluate the interaction between groundwater and the reach of Cypress Creek adjacent to the DEAP site."

  It should be noted that TMPZ-1 functions as intended. The diurnal variations noted in the TMPZ-1 water levels are consistent with those noted in the Cypress Creek and Alabama River gauges. The study concluded that TMPZ-1 and Cypress Creek are hydraulically connected to the Alabama River. As installed, the well meets the objectives defined in the TWP.

- ***ADEM Comment #3 - Table 3-1:*** *Construction details for all monitoring wells and the temporary piezometer TMPZ-1 were provided in Table 3-1 of the report; however, public well PW-09W and the commercial bus washing station well details were not provided. It is recommended that the well construction details for PW-09W and the commercial bus washing station well be obtained in order to compare to nearby monitoring wells. This information is relevant to the forthcoming risk assessment as the location and continued use of the bus washing station well makes it a point of exposure for inhalation, dermal contact and possible ingestion pathways for current and future use by a commercial worker. Furthermore, there is the potential for this well to be a conduit for vertical contaminant migration by inducing a downward hydraulic gradient when pumped. Please provide*

the well construction details for the public well PW-09W and the commercial bus washing station well in the revised report.

Response: Based on comments from ADEM during the development of the TWP, attempts have been made to obtain well completion details for both wells, PW-09W and the bus-washing station. The available well completion details for PW-09W are included in Appendix A of this revised report. In addition, PW-09W is scheduled to be abandoned in accordance with notice submitted to ADEM on April 28, 2016. The Montgomery Water Works and Sanitary Sewer (MWWSSB) began procurement for abandonment of the well in May 2017. Ms. Samantha Downing was contacted on August 18, 2017, by the DEA Technical Committee to discuss the pending abandonment and prior notification to ADEM. Ms. Downing indicated that abandonment of the well could proceed as previously authorized.

Well completion details for the bus washing station well are not available. However, based on discussions with Capital Trailways representatives, a hoist was required to replace the pump at this well and the amount of riser pulled was estimated at 100 feet; this depth is below the identified plume (based on vertical delineation).

To assess the potential risk to current and future workers who may contact water from the bus-washing well, two samples have been collected from both the aboveground tank where the well water is stored for use in bus washing and at the bus wash-station where workers are in direct contact with pumped well water when washing buses. These data will be included in the revised Supplemental EI Report, and will be incorporated into the upcoming Risk Assessment/Alternatives Analysis Report.

- ***ADEM Comment #4 - Table 4-1:*** *A comparison of the Alabama River and Cypress Creek surface elevations to groundwater elevations in the monitor wells indicates that both surface water features are gaining streams that are in direct communication with the groundwater and are located hydraulically downgradient of the contaminant plume. Due to the groundwater gradient and the contaminant concentrations in TMPZ-1, Cypress Creek and the Alabama River appear to be potential points of exposure to contaminated groundwater. Please provide further information to determine the potential impacts to surface water.*

  Response: Per the approved TWP, the intent of the hydraulic study was to evaluate the potential for groundwater within the contaminant plume to impact surface water in Cypress Creek. It was concluded that Cypress Creek could not be classified as either a gaining or losing stream, but instead is largely comprised of Alabama River water that has backwashed through the downstream culvert and/or infiltrated through pore spaces in the subsurface. Since the results of the hydraulic study do indicate there is potential for groundwater to discharge to surface water at times, the impacts on the Alabama River and Cypress Creek will be evaluated in the Risk Assessment/Alternatives Analysis Report following the Risk Management-2 (RM-2) evaluation process provided in ADEM's 2017 *Alabama Risk Based Corrective Action* guidance. The results of the hydraulic study also indicate that the surface water in Cypress Creek within the study area and pore water between the surface water bodies and TMPZ-1 is essentially derived from Alabama River water based on the following:

  - Synchronous diurnal water level fluctuations were recorded in TMPZ-1 and Cypress Creek relative to the U.S. Geological Survey Alabama River gauge.
  - Water level elevations in the creek and river are nearly equal; differences are attributed to the distance between and elevations of measuring points.
  - The creek study area is immediately adjacent to and hydraulically connected to the river via an open culvert.

- The Alabama River acts as a hydraulic barrier between the leading edge of the PCE plumes and Cypress Creek, limiting the migration of the plumes into the creek and diluting concentrations of PCE at the downgradient edge.

Therefore, it is assumed that the surface water present in the study area at Cypress Creek is derived from Alabama River water, and the RM-2 calculations will be conducted to develop appropriate target levels for groundwater in TMPZ-1 using this assumption.

- ***ADEM Comment #5 - Table 4-2:*** *Please provide historical groundwater sampling data tables for the chemicals of concern in the revised report.*

  Response: Historical groundwater sampling data will be included in Appendix G of the revised Supplemental EI Report.

- ***ADEM Comment #6 – Figure ES-3:*** *The Department recommends that groundwater samples be collected from the former public supply well PW-09W, which was retained for environmental sampling. Including current sampling data from this location will aid in determining the vertical extent of the plume in the northern portion of this site. Please address in the revised report.*

  Response: Plans to abandon PW-09W have been under development since April 2016 when DEA notified ADEM that PW-09W would be abandoned. The MWWSSB began contracting for the well to be abandoned in May 2017. Because the overlap in time between the contract for abandonment and the letter from ADEM recommending sampling, DEA Technical Committee Members called Ms. Samantha Downing of ADEM on August 18, 2017, to discuss the pending abandonment, which is planned to proceed as authorized. The most recent samples from PW-09W indicate that PCE in June 2011, December 2013, and January 2014 was less than 0.5, 0.76, and 0.84 parts per billion, respectively. As documented in the Supplemental EI Report, the plume is shallow (does not exceed the maximum contaminant level in intermediate wells) and no pumping has occurred at PW-09W that would cause vertical migration. Therefore, additional sampling is not needed to delineate the plume. Historical analytical results from PW-09W will be included in the historical groundwater table in Appendix E of the Supplemental EI Report. Documentation of the abandonment will be included in the Risk Assessment/Alternatives Analysis Report.

- ***ADEM Comment #7 - Figure ES-3****: From the information provided in this report, it is the Department's understanding that the area surrounding well PW-09W is still impacted. The Department requests reasoning for not including groundwater in the vicinity of former public supply well PW-09W in the northernmost tetrachloroethene (PCE) plume boundary as depicted in Figure ES-3, Figure 4-2. and Figure 5-2. Please address in the revised report.*

  Response: As shown on Figure 5-2, available historical information confirms the conceptual site model that groundwater (and therefore plume migration) is flowing from the RSA Energy Plant toward the discharge area of Cypress Creek into the Alabama River. The 2003 sample results presented on Figure 5-2 and groundwater flow direction presented on Figure 4-1, which indicate that PCE in groundwater is not migrating toward PW-09W, were used to delineate the plume. As discussed in the response to Comment #6, no active pumping has been ongoing at PW-09W that would impact plume migration. In addition, recent groundwater sample results from PW-09W were below screening criteria. Therefore, the plume extent as drawn, is representative of the current data and should not be revised.

- ***ADEM Comment #8 - Figure 5-2:*** *This figure includes grab sample locations taken in 2003 to determine plume extent. Please include data from the 2003 grab samples in the revised report.*

  Response: The groundwater grab sample data used in evaluating plume extent in Figure 5-2 will be included in the historical groundwater sampling database to be added to Appendix G per Comment #5. A figure providing sample location IDs for the historical groundwater data also will be provided as part of Appendix G.

We look forward to receiving your review of these responses to comments. Upon receipt of your approval, a redline version of the revised Supplemental EI Report will be prepared and submitted to ADEM. Should you have any questions regarding this document, please contact JP Martin with CH2M at 334.215.9036, or j.p.martin@ch2m.com.

Sincerely,

Todd Strange
Mayor, City of Montgomery

cc: Downtown Alliance Members
Ashley Mastin/ADEM
J.P. Martin/CH2M
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