Jacobs

Downtown Environmental Assessment Project

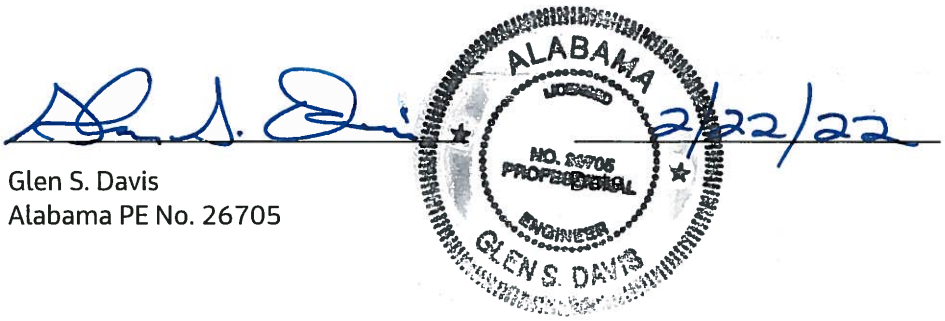
2021 Remedial Action Progress Report

February 2022

Alabama Department of Environmental Management
by the Downtown Environmental Alliance

PE Certification

This 2021 Remedial Action Progress Report was prepared under the supervision of a Professional Engineer licensed by the Alabama Board of Licensure for Professional Engineers and Land Surveyors.



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Contents

Tables

Figures

Appendixes

Acronyms and Abbreviations

µg/L	micrograms per liter
ADEM	Alabama Department of Environmental Management
bgs	below ground surface
COG	Community Outreach Group
DCE	dichloroethene
DEA	Downtown Environmental Alliance
DEAP	Downtown Environmental Assessment Project
COPC	chemical of potential concern
EC	environmental covenant
EI	environmental investigation
EJI	Equal Justice Initiative
EPA	U.S. Environmental Protection Agency
FYR	Five-Year Review
GIS	geographic information system
IC	institutional control
ICP	Institutional Controls Plan
MCL	maximum contaminant level
NPL	National Priorities List
PCE	tetrachloroethene
RAPR	Remedial Action Progress Report
RAR	Remedial Action Report
RSL	regional screening level
TCE	trichloroethene
USGS	U.S. Geological Survey
VI	vapor intrusion
VIMS	vapor intrusion monitoring system
VISL	vapor intrusion screening level

1. Executive Summary

This Remedial Action Progress Report (RAPR) is being submitted to the Alabama Department of Environmental Management (ADEM) by the Downtown Environmental Alliance (DEA) to summarize activities related to the remedial actions conducted in 2021 for the Downtown Environmental Assessment Project (DEAP), in accordance with the *Institutional Controls Plan* (ICP) (CH2M[1], 2019a) and the Remedial Action Report (RAR) (CH2M, 2019b). The remedial actions selected for the DEAP include institutional controls (ICs), Five-Year Reviews (FYRs), and monitoring of groundwater and ICs, in accordance with the ADEM-approved ICP.

This RAPR is the second of three annual progress reports that will be prepared for the DEAP. After 3 years, the progress reports may transition to FYR Reports when the groundwater monitoring frequency is reevaluated, and the revised monitoring frequency is reviewed and approved by ADEM.

The DEAP site (formerly known as the Capitol City Plume site) has been the subject of numerous investigations conducted by ADEM, the U.S. Environmental Protection Agency (EPA), U.S. Geological Survey (USGS), and the DEA and their respective contractors for sampling of soil, groundwater, sewer water, soil vapor, and tree cores. Details of the historical investigations conducted at the DEAP are provided in the *Recommendation to De-propose from the National Priorities List (NPL) – Downtown Environmental Assessment Project (formerly the Capital City Plume)* (CH2M, 2020). The text of this document is included as Appendix A to this report. Figure 1 presents the DEAP investigation area boundary.

Based on historical investigations, two PCE plumes in groundwater, one emanating from the area of the RSA Energy Plant and one originating in the area of MW-12S, were identified at the DEAP. No residual PCE contamination was identified in unsaturated soil. Chemicals of potential concern (COPCs) for the DEAP were identified as PCE in groundwater and associated degradation products, namely trichloroethene (TCE), cis-1,2-dichloroethene (DCE), trans-1,2-DCE, and vinyl chloride. PCE and TCE were the only chemicals in groundwater that exceeded the lower of the maximum contaminant levels (MCLs) and EPA Regional Screening Level (RSLs). The lateral extent of PCE exceeding the MCL in groundwater terminated near Cypress Creek, where the influence of the Alabama River acts as a hydraulic barrier to impede further lateral migration. TCE did not exceed the MCL but was present in concentrations exceeding the RSL in isolated areas within the site.

PCE and TCE were also identified as exceeding vapor intrusion screening levels (VISLs). However, only PCE in soil vapor was identified as being related to the DEAP groundwater plume. Based on the previous investigation results, TCE in soil vapor is attributed to historical releases from other sources.

The results of the June 2021 annual groundwater sampling at the DEA site indicate that the groundwater PCE plume remains stable and the western boundary of the downgradient portion of the plume has been delineated at MW-14S. Therefore, the conceptual site model developed for the DEAP during the EI and the selected remedy documented in the ICP remains valid and is appropriate for use in evaluating conditions at this site.

[1] CH2M HILL Engineers, Inc. (CH2M) is now part of Jacobs Engineering Group Inc.

2. 2021 Groundwater Monitoring

2.1 Site Hydrogeology and Groundwater Gauging

The geology beneath the DEAP site consists of a thin soil layer on top of quaternary terrace deposits comprised of medium to coarse-grained sand, with interbedded clay and gravel lenses. Underlying these recent terrace deposits are Cretaceous sediments of the Eutaw, Gordo, and Coker formations. The Eutaw formation is an aquifer unit characterized by two thick layers of marine sands separated by a thin layer of marine clay (USGS, 1987). The terrace deposits and Eutaw formation comprise the shallow aquifer. The Gordo and Coker aquifers consist of an estimated 500 feet of interbedded clay, sand, and gravel above crystalline bedrock. The shallow aquifer is unconfined and 120 to 150 feet thick underneath the DEAP site, but a localized low-permeability zone may exist from approximately 35 to 50 feet below ground surface (bgs) (ADEM, 1995). Beneath the shallow aquifer, a low-permeability sandy clay unit effectively separates it from the underlying Gordo and Coker formations.

Water levels measured in the shallow and intermediate aquifer monitoring wells at the DEAP site in June 2021 range from approximately 24 to 57 feet bgs (Table 1). Groundwater generally flows west-northwest toward Cypress Creek and the Alabama River (Figure 2). These results are consistent with historical data.

2.2 Groundwater Sampling

On June 8 and 9, 2021, groundwater samples were collected from seven shallow aquifer monitoring wells. These samples were analyzed for PCE to assess the stability of the PCE groundwater plume. Groundwater sampling was conducted using the EPA Region 4 low-flow purge method. Specific conductance, pH, and turbidity measurements were allowed to stabilize for three consecutive readings while a steady water level was maintained prior to collecting the sample. The results of the June 2021 groundwater sampling are summarized in Table 2; the July 2016 and April 2020 PCE concentrations for wells sampled in June 2021 are provided for comparison. Final water quality parameters for each well sampled are provided in Table 3. The extent of PCE greater than the MCL in groundwater at the DEAP site is presented on Figure 3. Time series trend charts of PCE concentrations for monitoring wells with more than two data points available are provided on Figures 4 through 9. The data quality evaluation and analytical laboratory report are included in Appendix B. Field records are provided in Appendix C.

Consistent with the conceptual site model detailed in the EI Report (CH2M, 2017) and historical results, two primary PCE plumes are present at the DEAP site (Figure 3). One plume originates near MW-01S and the RSA Energy Plant. Another plume originates near MW-12S; this plume is not directly downgradient of the RSA Energy Plant and likely had other sources contributed from various industries in the area.

Except for MW-13S, PCE concentrations in groundwater at the site in June 2021 are similar to those reported in July 2016 and April 2020 (Table 2). MW-13S is the most downgradient well installed at the site and is adjacent to Cypress Creek. Results of hydraulic studies conducted in 2016 indicate that influence on groundwater from the Alabama River occurs as porewater exchange, the cycling of water between the river's surface and sediments below the river. Due to the large volume of flow in the Alabama River near Montgomery, porewater from the Alabama River acts as a hydraulic barrier that limits the migration of the PCE plume into the creek and dilutes concentrations of PCE at the downgradient edge.

The 2016 analytical data from MW-13S were used to evaluate potential exposure to surface water in Cypress Creek as part of the *Risk Assessment/Alternatives Analysis Report Downtown Environmental Assessment Project, Montgomery, Alabama* (CH2M, 2019c), with modeled results indicating that surface water concentrations that may result from the discharge of PCE in groundwater to Cypress Creek (based

on concentrations at MW-13S and a site-specific attenuation factor of 103) were 1.69 micrograms per liter [µg/L] which is well below the surface water criteria for the consumption of fish and water of 11 µg/L. Although actual concentrations of PCE have increased at MW-13S since 2016 (Figure 9), the modeled estimates of surface water concentrations in Cypress Creek that may result from the discharge of PCE in groundwater based on the June 2021 concentrations in MW-13S and the same attenuation factor indicate the Cypress Creek concentrations (2.83 µg/L) remain well below the surface water criteria of 11 µg/L.

In the well closest to the RSA Energy Plant, MW-01S, PCE concentrations have declined overall since monitoring began at this well in May 2000, and PCE was not detected in 2020 or 2021 (Figure 4). At MW-02S (Figure 5) and MW-12S (Figure 8), concentrations have been stable and declining over the past several sampling events, respectively. Concentrations at MW-08S have fluctuated since monitoring began in 2000 (Figure 7). Concentrations at MW-03S have fluctuated but remain well below historical maximums (Figure 6).

MW-14S was installed in October 2019 to better refine the lateral extent of the downgradient portion of the PCE plume. The PCE concentration at this well in June 2021 (5.05 µg/L) was similar to the April 2020 concentration (Table 2). These concentrations are just slightly greater than the MCL of 5 µg/L, indicating that MW-14S closely defines the western boundary of the downgradient portion of the plume.

Overall, the results of the June 2021 groundwater sampling indicate the PCE groundwater plume is generally stable, and the western boundary of the downgradient extent has been defined. Based on these data, the conceptual site model developed for the DEAP during the EI and the selected remedy documented in the ICP (CH2M, 2019a) remains valid and is appropriate for use in evaluating conditions at this site.

3. Site Inspections and Interviews

3.1 Inspections and Interviews

In August and September 2021, onsite inspections and interviews were conducted at 10 selected parcels in the DEAP area (Figure 10). Some properties were selected based on historical knowledge of the site, while others were selected at random. The onsite inspections focused on the following:

- Overall use of the property
- Presence/absence of private groundwater wells on the property
- Use of subsurface structures (i.e., basements)

Figure 10 shows the properties that were selected for inspection (highlighted in blue) and properties that were inspected based on ICs that have been recently placed on them (highlighted in purple). The property owners are summarized in the table inset on Figure 10. Photographs of property and structures were taken where access was granted and are included in Appendix D. Owner interviews were conducted if possible. Records of interviews and onsite inspections are included in Appendix E. The results of the interviews and inspections are summarized in the following subsections.

3.1.1 321 North Lawrence Street – Montgomery Area Council on Aging Vacant Lot

An onsite inspection and interview with the Chief Executive Officer (CEO) were conducted at the vacant lot on 321 North Lawrence Street (Figure 10, MAP ID #16, owned by the Montgomery Area Council on Aging [MACOA]) on September 2, 2021. According to Ms. Donna Marietta, CEO of MACOA, no private water wells are onsite. The property currently is vacant, consisting of a flat, primarily paved surface with no subsurface features other than a concrete slab foundation where a warehouse previously was at the site. Photographs taken at the site show the concrete slab foundation. According to Ms. Marietta, no additional construction is planned at this time and the future plans for the lot are to use it for additional parking for the MACOA facility.

3.1.2 205 Jefferson Street – Vacant Lot

An onsite inspection was conducted on August 30, 2021 at a vacant lot of the Episcopal Church along East Jefferson Street (Figure 10, MAP ID #66, owned by Joel Sanders and Randall Williams). The owner was not available for interview. No private water wells were noted onsite during the inspection, and no evidence of intrusive work was noted. Photographs taken at the site show it is vacant and consists of a flat, paved surface and some grassy areas.

3.1.3 301 Monroe Street – RSA Energy Plant

An onsite inspection and interview were conducted at the RSA Energy Plant at 301 Monroe Street (Figure 10, MAP ID #81, owned by the Employees Retirement and Teachers Retirement Systems of Alabama) on September 14, 2021. The interview was conducted with Mr. Brant Hill, an RSA real estate manager. According to Mr. Hill, no private water wells are onsite, and the plant is fully automated with no personnel working onsite (except for routine maintenance). The RSA Energy Plant building has a basement. No intrusive work has been completed on the property that would potentially encounter groundwater since the ICs for the DEAP were put in place. Photographs taken at the site show the aboveground and belowground building areas from the outside, and some of the interior plant processing areas.

3.1.4 401 North Hull Street – City Park

An onsite inspection and interview were conducted at the City Park at 401 North Hull Street (Figure 10, MAP ID #93, owned by the City of Montgomery) on September 2, 2021. The interview was conducted with Mr. Collier Neely, the executive director for the Landmarks Foundation, which manages the property. According to Mr. Neely, there are no private water wells at the site. The lot is a City-owned playground with no subsurface features and no current plans for additional construction. No evidence of previous intrusive work was noted. Photographs taken at the site show the playground facilities, grassy areas, and walkways.

3.1.5 315 North McDonough Street – Farmer's Market Cafe

An onsite inspection and owner interview were conducted at the Farmer's Market Cafe at 315 North McDonough Street (Figure 10, MAP ID #76, owned by Tucker Properties, LLC) on September 2, 2021. According to the owner, Mr. Nick Burbage, no private water wells are located on the property. No evidence of previous intrusive work other than the building were observed during the inspection, and the building does not appear to have a basement. Photographs taken at the site show the exterior of the building and the parking lot.

3.1.6 304 North Hull Street – Lucas Tavern

An onsite inspection and interview were conducted at Lucas Tavern at 304 North Hull Street (Figure 10, MAP ID #23, owned by the City of Montgomery) on September 2, 2021. The interview was conducted with Mr. Collier Neely, the executive director for the Landmarks Foundation, which manages the property. According to Mr. Neely, there are no private water wells located on the property. The building does not have a basement. No evidence of previous intrusive work in this lot was noted. Photographs taken at the site show the exterior of the building. Lucas Tavern is not currently occupied and is maintained as a building of historical significance in Old Alabama Town.

3.1.7 400 North Perry Street – Parking Area

An onsite inspection was conducted on August 30, 2021 at a parking area at 400 North Perry Street (Figure 10, MAP ID #73, owned by I Court Square Hotels, LLC). The owner was not available for interview. Based on observations during the inspection, the lot does not have any private water wells or buildings, and no evidence of previous intrusive work was noted. Construction materials were noted at the site. According to a letter from the City dated December 19, 2018, a vapor barrier will be used during future construction. Photographs taken at the site show the parking area, lack of buildings, and construction materials.

3.1.8 401 Madison Avenue – Brown Studio Architecture

An onsite inspection and interview were conducted at the Thompson Mansion at 401 Madison Avenue (Figure 10, MAP ID #37, owned by the City of Montgomery) on September 2, 2021. The building is currently rented to Brown Studio Architecture. The interview was conducted with Mr. Collier Neely, the executive director for the Landmarks Foundation, which manages the property. The property consists of an architectural office and grassy areas. According to Mr. Neely, there are no private water wells located on the property. The building has a crawl space. Photographs taken during the site inspection show the exterior of the building and the surrounding grassy areas.

3.1.9 418 Madison Avenue– Guardian Credit Union

An onsite inspection was conducted on August 30, 2021 at the Guardian Credit Union at 418 Madison Avenue (Figure 10, MAP ID #48, owned by Comala Credit Union, Inc). The owner was not available for interview. The property consists of a credit union and associated parking lot. Monitoring well MW-5I, owned and operated by the DEA, is located in the parking lot of the property; no other water wells were noted at the site. No evidence of intrusive work other than the credit union building was identified during the inspection. The credit union has a basement. Photographs taken during the site inspection show the exterior of the credit union and the parking lot.

3.1.10 Decatur Street – Old Alabama Town Historical Building

An onsite inspection and interview were conducted at the historical building on Decatur Street (Figure 10, MAP ID #91, owned by the City of Montgomery) on September 2, 2021. The interview was conducted with Mr. Collier Neely, the executive director for the Landmarks Foundation, which manages the property. According to Mr. Neely, there are no private water wells located on the property. The building does not have a basement and is only used for tours. No evidence of previous intrusive work in this lot was noted. Photographs taken at the site show the exterior of the building and the grassy area outside the building.

3.1.10.1 DEAP Historical Wells

During the interviews and inspections conducted in 2020, a historical bucket well onsite at the Ordeman House (220 North Hull Street) and a hand pump on nearby property (360 North Hull Street) were identified (Figure 11). Both were located on Old Alabama Town property, which is managed by the Landmarks Foundation and owned by the City of Montgomery. ADEM was notified of the discovery of the historical wells in an email dated September 1, 2020.

At the time of discovery, the historic bucket well at Ordeman House was covered with a wooden cover and a wire screen, preventing access to the water in the well. The well is also behind a locked gate to the property, further limiting public access. In late 2020/early 2021, the wooden cover was closed with wood screws, further inhibiting access to the well water. Photographs taken at the Ordeman House historic bucket well on September 2, 2021 show the closed well cover.

The hand pump well located at 360 North Hull Street was recently discovered to be a surface hand pump only, and not attached to any subsurface well structure. The hand pump was removed in spring 2021. An additional well was discovered to have historically been present and used for irrigation on this property; however, the well ceased to be used 15 to 20 years ago and has been covered in asphalt. Photographs taken at the site document the former location of the hand pump and the asphalt cover of the historical irrigation well.

The Ordeman House historical bucket well is on property managed by the Landmarks Foundation and owned by the City of Montgomery. Because of the historical significance of this well and its presence in a historic district, the DEA elected to preserve the well and added it to the IC inspections for the DEAP during the 2020 RAPR. The DEA will check to confirm that the protective measures preventing use of the bucket well at the Ordeman House (including chains, covers, screens, locks, etc.) remain in place during the inspections, thereby ensuring the potential exposure pathway for groundwater remains incomplete for current and future receptors. Because the hand pump was discovered to be a surface pump only, which has been removed, the DEA proposes to remove the hand pump well location from the IC inspections.

3.2 Additional Inspections and Interviews

3.2.1 608 North Court Street – Former Water Works Building

In August 2021, the DEA was notified that the Equal Justice Initiative (EJI) had purchased several parcels in the downtown area. One of these parcels was the former water works building, located at 608 North Court Street (Figure 10, MAP ID #1). The DEA prepared a notification letter for the EJI and their construction contractor (Bailey Harris Construction) to notify them about the DEAP and the ICs that would apply to these properties (i.e., no use of groundwater and the use of vapor barriers for any new construction). The DEA was subsequently contacted by Bailey Harris regarding a pit structure located in the former water works building.

During a site visit to view the pit structure in September 2021, it was observed that the pit is located just east of the building in a walled depression, approximately 9 feet below land surface. The pit structure is approximately 4 feet wide and 6 feet long and is constructed of brick with five pipes coming into the pit (some with trickling water). The pit is approximately 15 feet deep (approximately 24 feet below land surface) with a small amount of water flowing horizontally in the bottom of the pit. Photographs and inspection records regarding this structure are included in Appendix D and E, respectively.

While the pit is not intended to function as a groundwater well, there is potential for groundwater to infiltrate the pit when the groundwater table is shallow enough to intersect the bottom of the pit (about 24 feet below land surface). At nearby monitoring well MW-13S, depth-to-water measurements have ranged from 24.10 feet bgs in April 2020 to 30.09 feet bgs in July 2016. Groundwater infiltration into the pit could be considered a potential exposure point for contaminated groundwater. Therefore, the DEA is working with Bailey Harris to identify ways to eliminate the potential for groundwater exposure in the pit. Bailey Harris' current plans are to close the pit structure with a locking aluminum lid set in a concrete pad around the pit. The DEA will document the implementation of the closure plan with photographs and field notes in the next RAPR.

3.3 Inspection of City Ordinance Properties

A drive-by inspection of properties on the 300 block of Madison Avenue was conducted on September 1, 2021 to verify that properties in that area do not have residential use on the first floor, in accordance with City Ordinance 36-2019, enacted September 3, 2019. As documented in the photographs in Appendix D, the properties on the 300 block of Madison Avenue are commercial business. Two properties were noted as having "For Sale" signs: the Silver Spoon Caterers at 222 North McDonough Street, and the vacant lot adjacent to Gipson Tire Pros at 313 Madison Avenue.

An interview was conducted on September 1, 2021 with Mr. Richard Johnson, the owner of the property at 313 Madison Avenue. According to Mr. Johnson, no inquiries about purchasing the property had been received as of the interview date. Mr. Johnson provided an updated address for the DEA to mail information regarding the City Ordinance, and stated that he would pass the notification letter on to the realtor who is facilitating sale of 313 Madison Avenue. It was requested that Mr. Johnson notify the DEA if there is interest in purchasing the property so that the potential buyer can also be provided with information regarding the City Ordinance requirements. As of the end of December 2021, the property was still for sale.

3.4 Inspection of Environmental Covenant Properties

3.4.1 North Lawrence Street

A drive-by inspection was completed on September 1, 2021 to verify that the property at North Lawrence Street (Figure 10, MAP ID #15) continues to be used as a parking lot in accordance with the environmental covenant (EC) placed on the property on September 11, 2019. As documented in the photographs in Appendix D, the area remains a parking lot.

3.4.2 Washington Avenue Right-of-Way

A drive-by inspection was completed on September 1, 2021 to verify that the Washington Avenue right-of-way located approximately 154 feet from the northeast intersection of South Lawrence Street and Washington Avenue, near the VIMS, remains a sidewalk and public right-of-way in accordance with the EC placed on the property on September 11, 2019. As documented in the photographs in Appendix D, the area remains a public right-of-way.

3.4.3 317 North Decatur Street – McClendon Service Center

An EC was filed in 2020 by Mr. Joe McClendon for the McClendon Auto Repair property at 317 North Decatur Street. The covenant documents the potential presence of PCE in groundwater/soil vapor and TCE in soil vapor in the DEAP site, and permanently prohibits the use of, access of, interference with, and/or consumption of groundwater beneath the property without prior written approval from ADEM. A drive-by inspection of the property was completed on September 1, 2021. The property is still owned and operated by Mr. Joe McClendon, and is still operated as a vehicle repair and maintenance shop.

4. Environmental Covenant Management

Each year, the DEA sends out letters to the downtown property owners to notify them of the ICs placed on downtown properties and to promote the use of ECs. The notification letters are discussed in more detail in Section 6 of this report. No new ECs were filed in 2021.

5. Review of City Building Permits and Records

In 2021, the City of Montgomery issued 46 building permits for projects in the DEAP site boundary. Permits issued included certificates of occupancy, change of occupancy, commercial grading and alteration/renovation permits, commercial and residential demolition permits, and signage permits. Each of the projects was identified as being in the DEAP boundary (Figure 1) using the City geographic information system (GIS) system, which has a system to flag permits within the site boundary. The City Engineering Department reviews new construction, and Jacobs reviews flagged permits to determine if the project might result in potential exposure to groundwater. None of the projects had potential exposure to groundwater, and no applications to drill wells in the DEAP boundary and no new construction that required a vapor barrier were submitted to the City Building Department in 2021.

6. IC Notification Letters

The 2021 annual IC notification letters (approximately 50 letters) were mailed out to owners of properties within the DEA site boundary the week of November 8, 2021. An example of the notification letters is included in Appendix F (note that the bullet regarding the 300 block of Madison is included only in letters to the property owners on that block). The property owners were identified using the updated property database provided by Montgomery County on October 7, 2021.

Feedback on the 2020 annual IC notification letters was received in January 2021 from one property owner. Telephone logs of the feedback received are included in Appendix G.

7. Community Involvement and Outreach

7.1 Community Outreach Group

The DEA facilitates a Community Outreach Group (COG) of interested citizens who live, work, or own property in downtown Montgomery. The COG provides a link between the DEA and the community, and helps to keep the downtown community informed about project activities. No meetings of the COG were held in 2021; periodic updates about project status were provided to COG members and stakeholders via email. Future conference calls and/or meetings will be conducted as needed.

7.2 Project Website

The website for the DEAP can be accessed at: www.capitalcityplume.org. The website is a source of project-related information available to the public, including but not limited to DEAP site background, remedial actions conducted and in place, EC opportunities, links to project reports, and project contact information. The website is updated periodically as new information of potential interest to the community becomes available. In 2021, a total of 1,014 website visits occurred and no requests for information were received. Also in 2021, a general due diligence letter was added to the website to provide land owners and potential purchasers with information related to construction in the DEAP boundary. The website will continue to be updated as new information becomes available.

8. Conclusion and Recommendations

The results of the June 2021 annual groundwater sampling at the DEA site indicate that the groundwater PCE plume remains stable and the western boundary of the downgradient portion of the plume has been delineated at MW-14S. Therefore, the conceptual site model developed for the DEAP during the EI and the selected remedy documented in the ICP remains valid and is appropriate for use in evaluating conditions at this site.

Random inspections and interviews conducted at 11 properties in August and September 2021 did not identify any properties with first floor residential use within 100 feet of the plume. In addition, one of the two historical wells identified during the 2020 site inspections was discovered to be a surface hand pump only, with no connection to groundwater. The hand pump has since been removed. The remaining historical bucket well that is connected to groundwater remains behind a locked gate and has a screwed-down cover preventing access to groundwater in the well. Due to its presence in a historic district, the well is preserved and will continue to be included in the inspections to ensure the protective measures barring their use (gates, locks, screens, etc.) remain in place.

Drive-by inspections of City Ordinance and EC properties on the 300 block of Madison Avenue, North Lawrence Street, and the Washington Avenue right-of-way near the VIMS indicated the use of these properties is in accordance with the relevant ordinance and ECs. Inquiries from one property owner was received after the 2020 IC notification letters were sent. There have been no changes in land use within the DEAP site boundary, and no new ECs were filed in 2021.

It is recommended that the groundwater sampling, site inspection, and IC notification activities be continued annually for at least 1 more year. After that time, the DEA may request a change to performing groundwater sampling, site inspections, and IC notifications every 5 years if groundwater concentrations remain stable or decreasing. The City of Montgomery will continue to monitor activities (building permits, new construction, well permits, etc.) through the Building Department and Engineering Department to identify projects with potential exposure to groundwater, applications to drill wells within the DEAP boundary, and new construction requiring a vapor barrier.

9. References

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Tables

Table 1. Groundwater Elevations - June 7, 2021

2021 Progress Report, DEAP, Montgomery, Alabama

Well	TOC Elevation	DTW	Groundwater Elevation
Shallow Interval Wells			
MW-01S	189.37	35.90	153.47
MW-02S	188.59	37.51	151.08
MW-03S	206.18	53.46	152.72
MW-08S	173.46	34.55	138.91
MW-09S	213.41	52.26	161.15
MW-10S	212.67	54.08	158.59
MW-12S	157.58	24.38	133.20
MW-13S	158.90	28.89	130.01
MW-14S	158.38	28.40	129.98
Intermediate Interval Wells			
MW-01I	190.00	37.15	152.85
MW-05I	210.98	55.15	155.83
MW-07I	179.76	32.48	147.28
MW-07S	179.65	32.54	147.11
MW-08I	173.42	34.45	138.97
MW-12I	157.82	23.96	133.86

Notes:

Elevation reported in feet above mean sea level.

DEAP = Downtown Environmental Assessment Project

DTW = depth to water in feet below TOC

TOC = top of casing in feet above mean sea level

Table 2. Groundwater Sampling Results

2021 Progress Report, DEAP, Montgomery, Alabama

Station ID	Date Sampled	June 2021 PCE Concentrations	April 2020 PCE Concentration	July 2016 PCE Concentration
Shallow Interval Wells				
MW-01S	6/8/2021	1 U	1 U	1.56
MW-02S	6/9/2021	**41.4**	**45.6 J**	**34.1**
MW-03S	6/8/2021	**21.6**	**33.1 J**	**6.27**
MW-08S	6/9/2021	**45.2**	**80.7 J**	**78.4**
MW-12S	6/8/2021	**20.3**	**30.7 J**	**58.9**
MW-13S	6/9/2021	**292**	**209**	**174**
MW-14S	6/8/2021	**5.05**	**5.78 J**	N/A

Notes:

Concentrations presented in micrograms per liter (µg/L).

The highest of the native and field duplicate concentration is presented for MW-03S.

Bold text indicates concentration exceeds the MCL (5 µg/L).

PCE = tetrachloroethene

MCL = U.S. Environmental Protection Agency Maximum Contaminant Level

DEAP = Downtown Environmental Assessment Project

J = estimated concentration due to laboratory control sample recovery slightly above control limits; the result may be

U = analyte was not detected

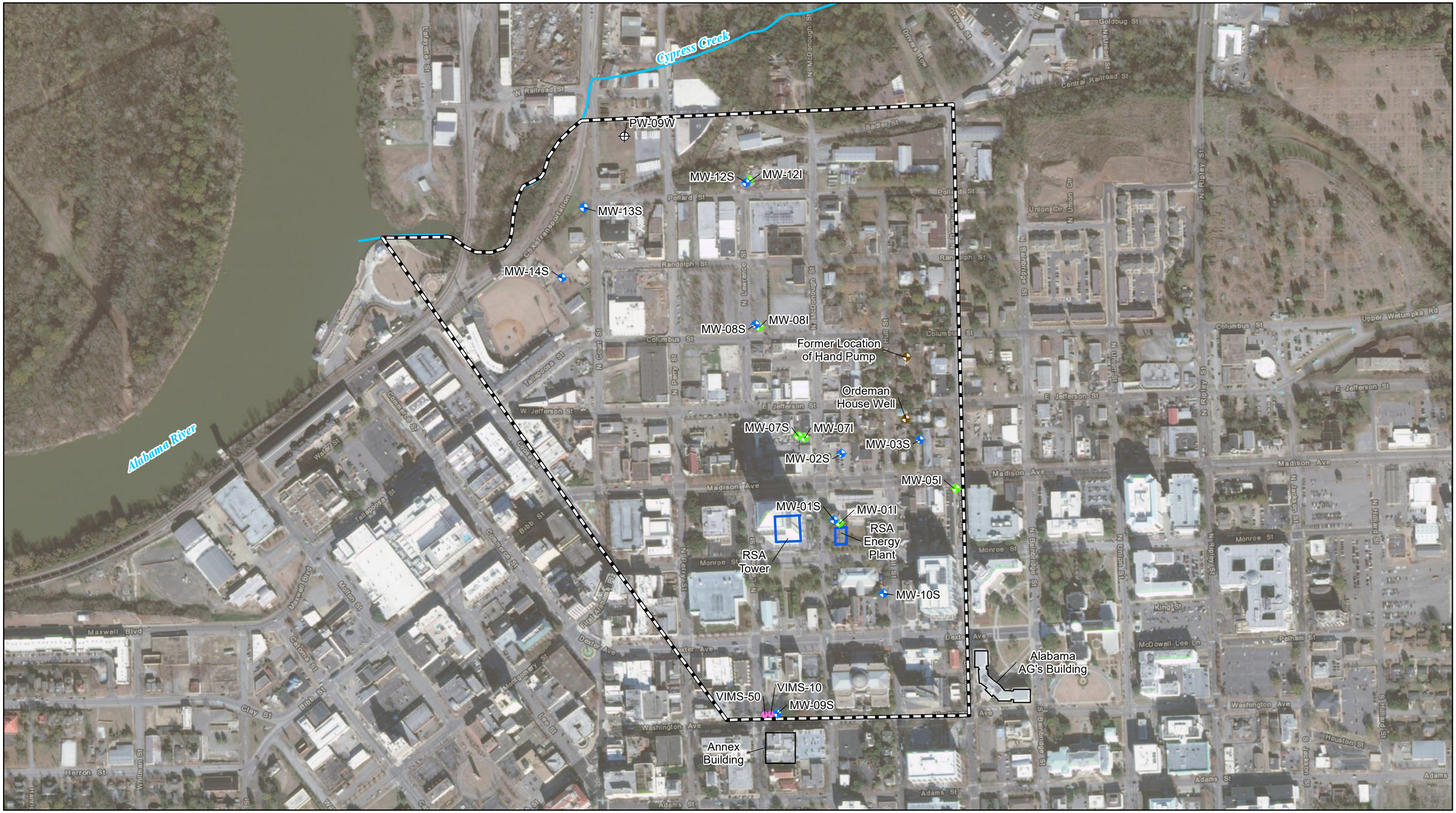
Table 3. Field Parameter Data

2021 Progress Report, DEAP, Montgomery, Alabama

Station	Date Collected	pH (standard unit)	Conductivity (µS/cm)	Temperature (°C)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
MW-01S	6/8/2021	5.22	191	23.85	5.08	204	0.83
MW-02S	6/9/2021	5.09	231	24.28	4.88	213.7	3.76
MW-03S	6/8/2021	5.29	196	21.76	4.08	193.3	0.95
MW-08S	6/8/2021	4.85	221	25.51	4.52	226.5	0.63
MW-12S	6/8/2021	5.27	181	24.25	4.02	181.6	9.50
MW-13S	6/9/2021	5.21	195	22.34	4.04	198.9	0.85
MW-14S	6/8/2021	5.32	198	22.05	3.86	166.5	0.91

Notes:
µS/cm = microsiemens per centimeter
°C = degrees Celsius
mg/L = milligrams per liter
mV = millivolts
NTU = nephelometric turbidity units
DEAP = Downtown Environmental Assessment Project

Figures



LEGEND

- Shallow Monitoring Well
- Intermediate Monitoring Well
- Historical Well
- Former City Water Supply Well
- VIMS
- RSA Building
- Site Boundary

Notes:
1. AG - Attorney General
2. RSA - Retirement Systems of Alabama
3. VIMS - Vapor Intrusion Monitoring System

N

0 250 500
Feet

FIGURE 1
Site Map
2021 Remedial Action Progress Report
Downtown Environmental Assessment Project
Montgomery, AL

ch2m

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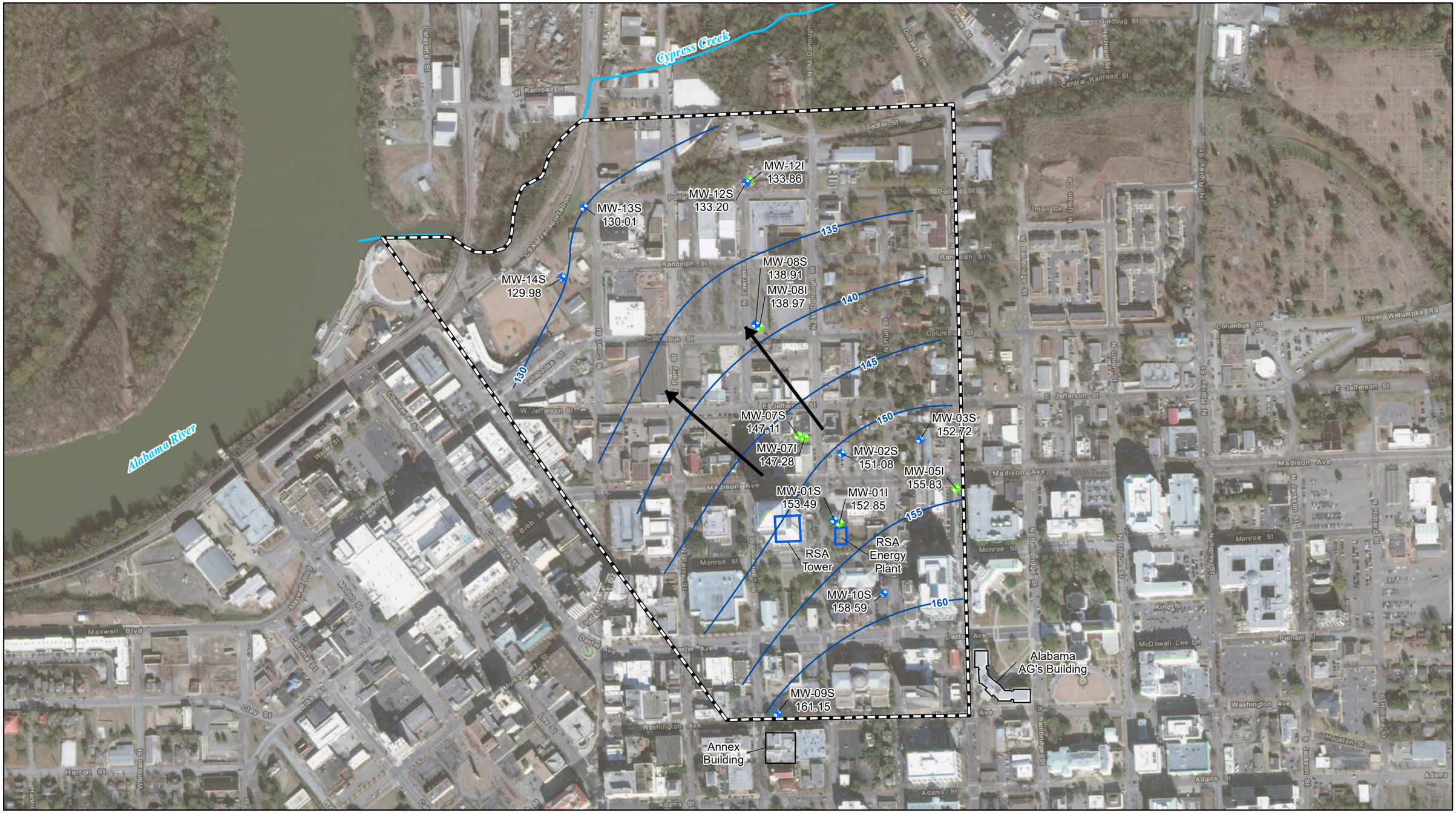


LEGEND

- Shallow Monitoring Well
- Intermediate Monitoring Well
- Shallow Potentiometric Contour
- Generalized Groundwater Flow Direction
- RSA Building
- Site Boundary

Notes:

1. AG - Attorney General
2. RSA - Retirement Systems of Alabama
3. Intermediate wells not used in contouring. MW-7S is considered an intermediate monitoring well due to depth of screen similar to other intermediate monitoring wells.
4. Groundwater elevations presented in feet above mean sea level.
5. Reach of Cypress Creek is presented as Reach 4, as defined in Baseline Biological Monitoring Results for the Cypress Creek Aquatic Ecosystem Restoration Feasibility Study (CH2M, 2012).

N

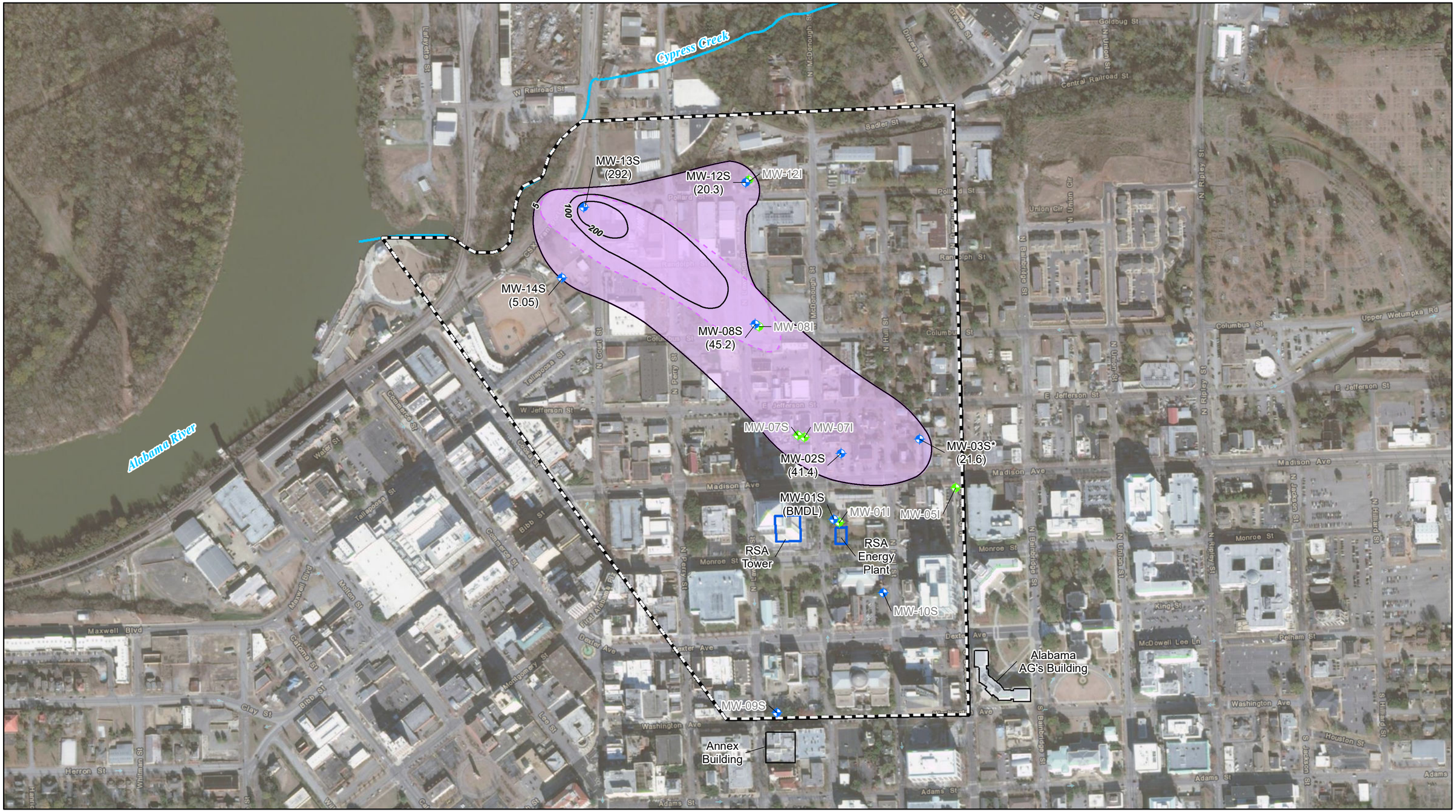
0 250 500

Feet

FIGURE 2
June 2021 Shallow Potentiometric Surface
2021 Remedial Action Progress Report
Downtown Environmental Assessment Project
Montgomery, AL

ch2m.

\\Dc1vs01\gisproj\M\MontgomeryDEAP\MapFiles\2021_RAP\Fig2_June_2021_Shallow_Potentiometric_Surface.mxd AESPEJO 2/14/2022



LEGEND

- Shallow Monitoring Well
- Intermediate Monitoring Well
- Isoconcentration Contour for PCE in µg/L
- Approximate Extent of PCE > 5 µg/L
- RSA Building
- Site Boundary

Notes:
1. AG = Attorney General
2. BMDL = below method detection limit
3. J = concentration is estimated
4. PCE = tetrachloroethene
5. RSA = Retirement Systems of Alabama
6. µg/L = micrograms per liter
7. * = field duplicate sample location, highest result presented
8. (34.1) = PCE concentration in groundwater in µg/L
9. Well IDs in gray were not sampled.

N

0 250 500
Feet

FIGURE 3
PCE Groundwater Results - June 2021
2021 Remedial Action Progress Report
Downtown Environmental Assessment Project
Montgomery, AL

ch2m

\\dc1vs01\GISProj\M\MontgomeryDEAP\MapFiles\2021_RAP\Fig3_June_2021_PCE_GW_Results.mxd AESPEJO 1/5/2022

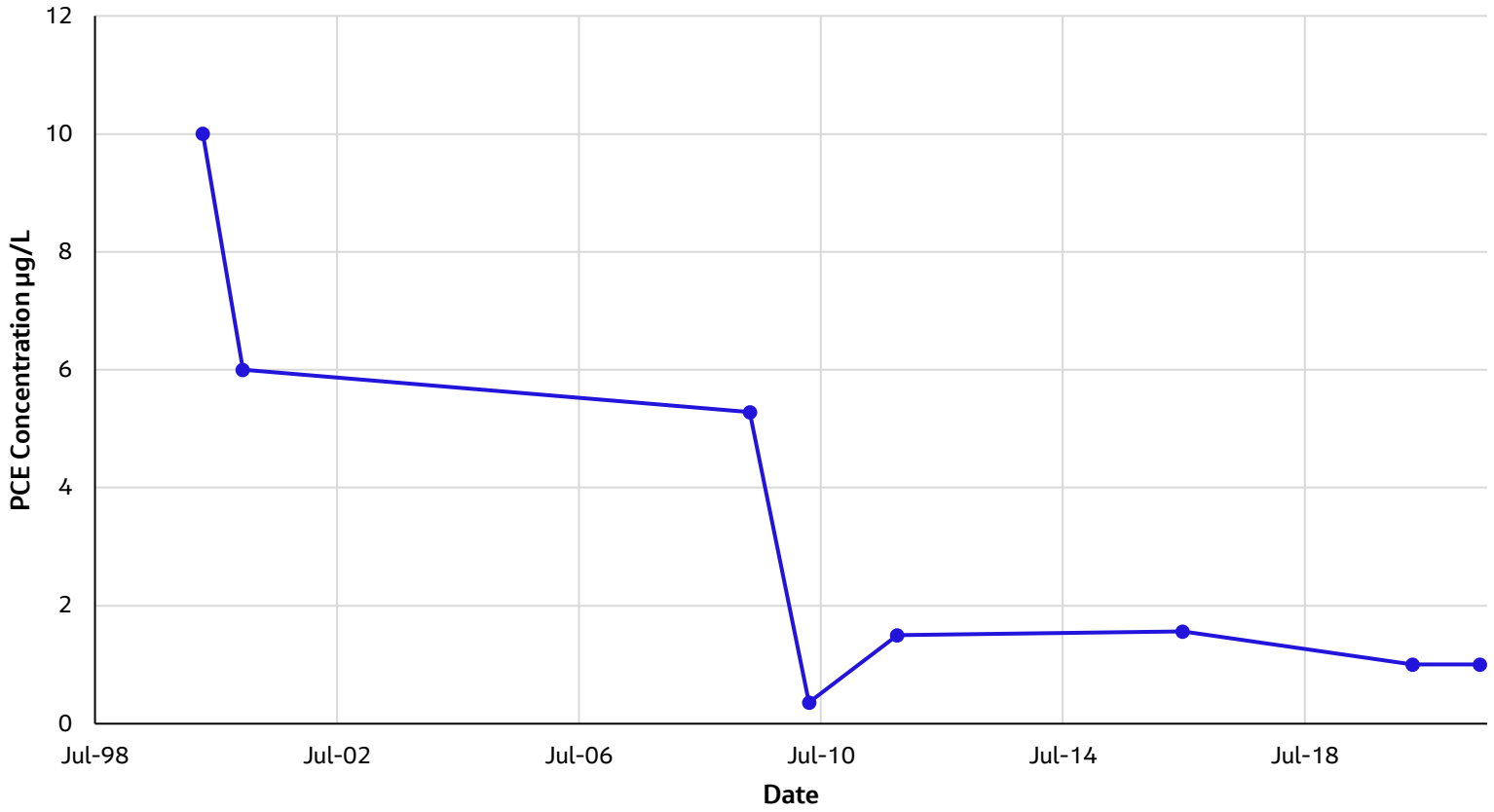


Figure 4
PCE Concentrations in MW-01S
2021 Remedial Action Progress Report
Downtown Environmental Assessment Project

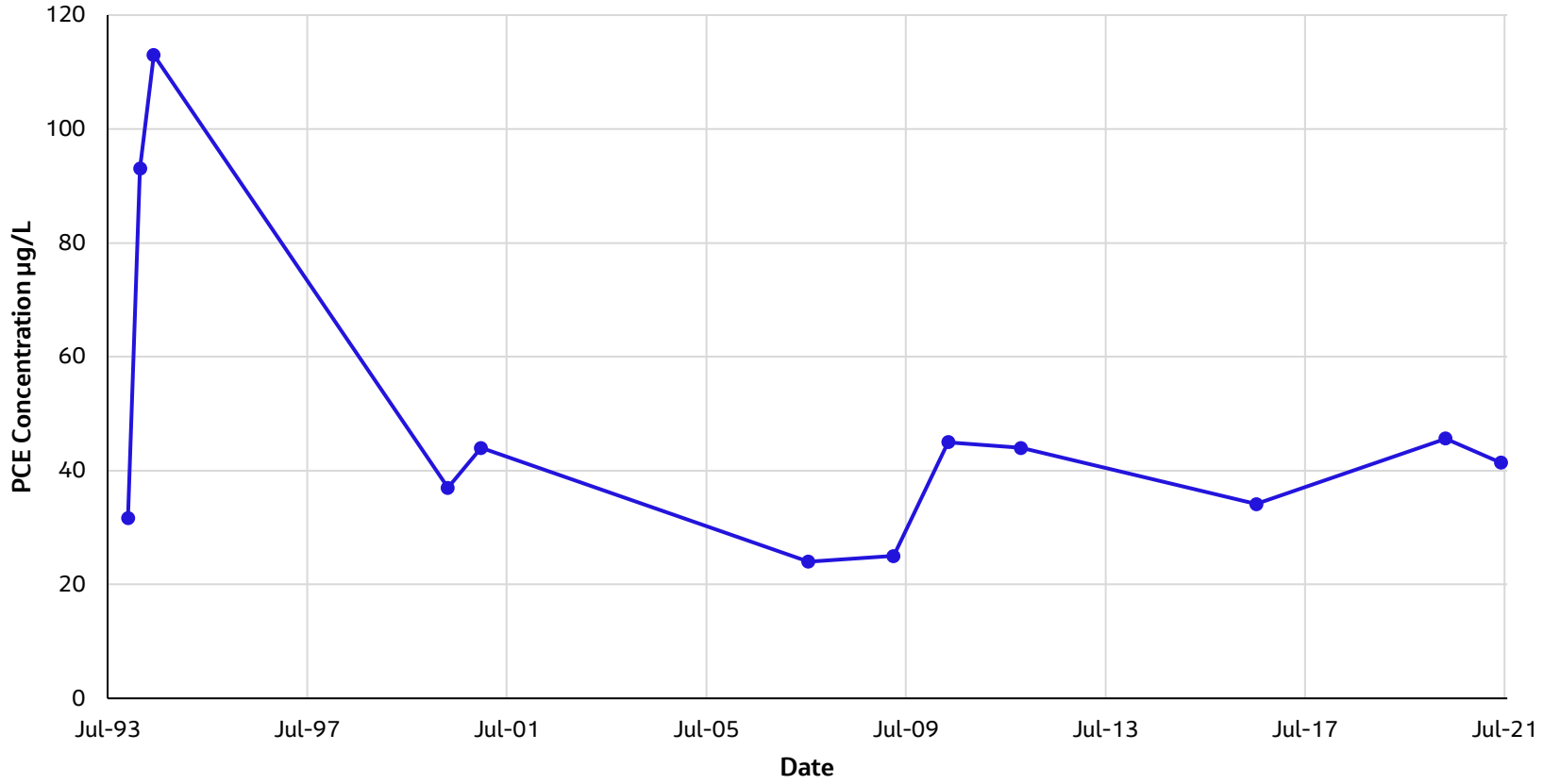


Figure 5
PCE Concentrations in MW-02S
2021 Remedial Action Progress Report
Downtown Environmental Assessment Project

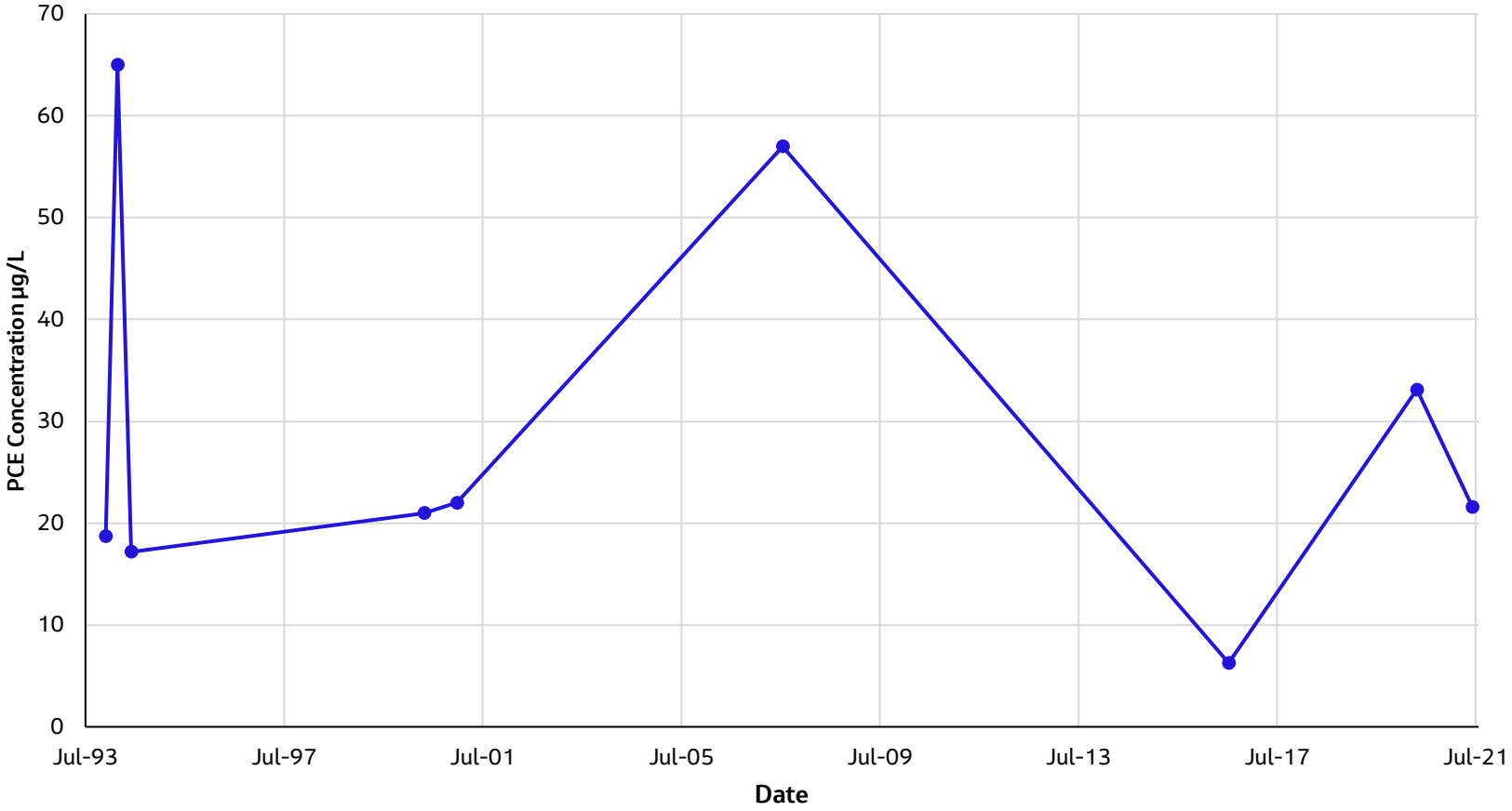


Figure 6
PCE Concentrations in MW-03S
2021 Remedial Action Progress Report
Downtown Environmental Assessment Project

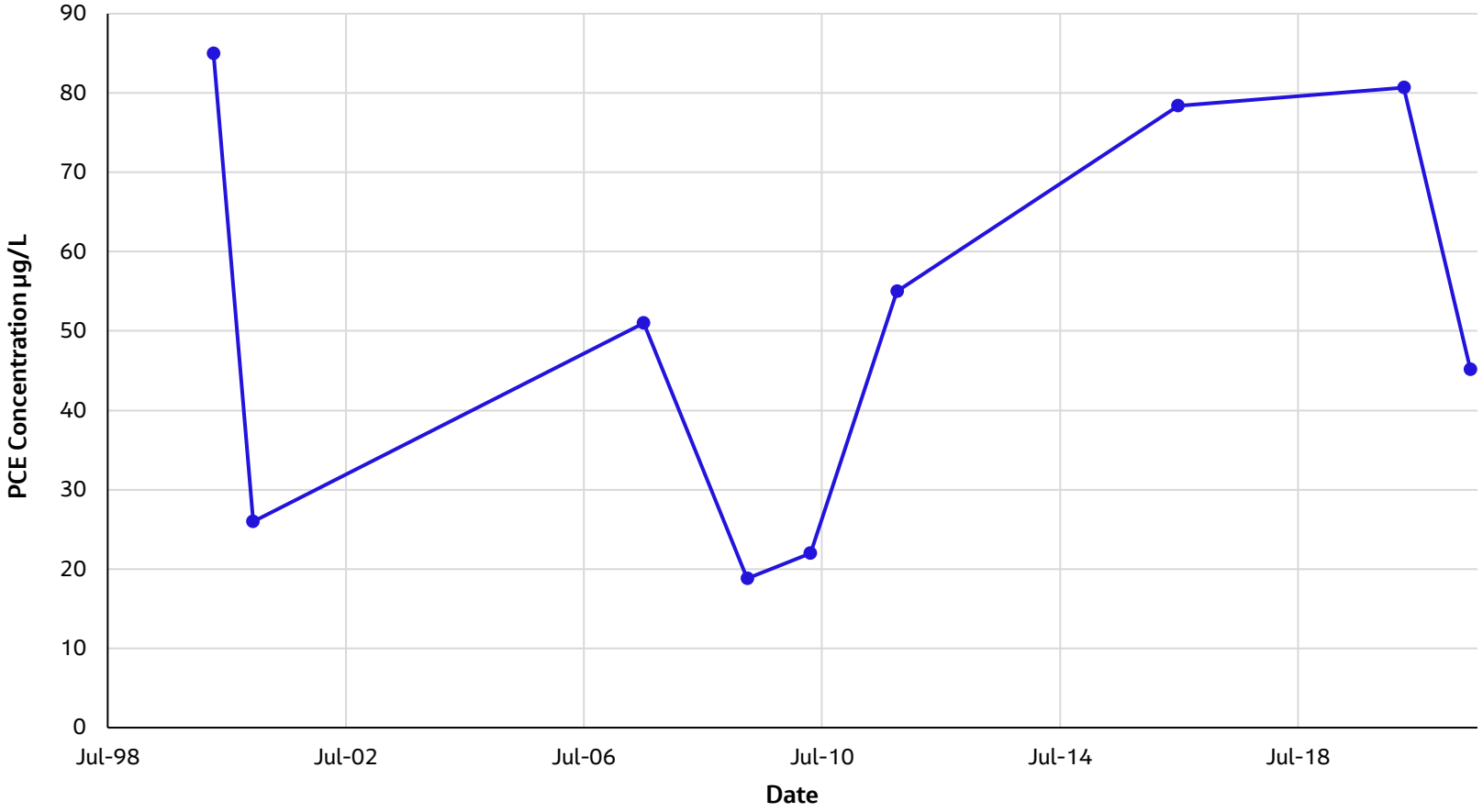


Figure 7
PCE Concentrations in MW-08S
2021 Remedial Action Progress Report
Downtown Environmental Assessment Project

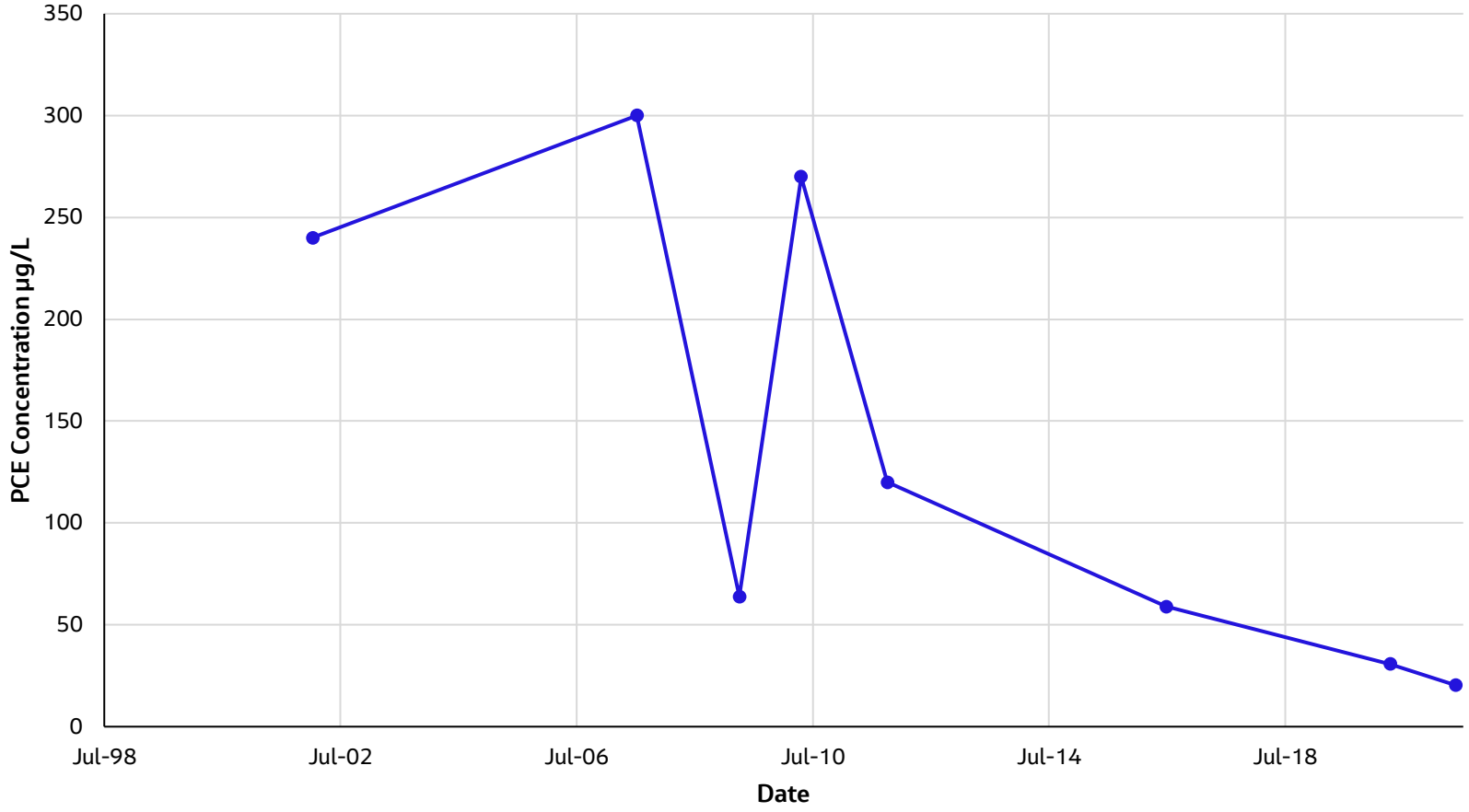


Figure 8
PCE Concentrations in MW-12S
2021 Remedial Action Progress Report
Downtown Environmental Assessment Project

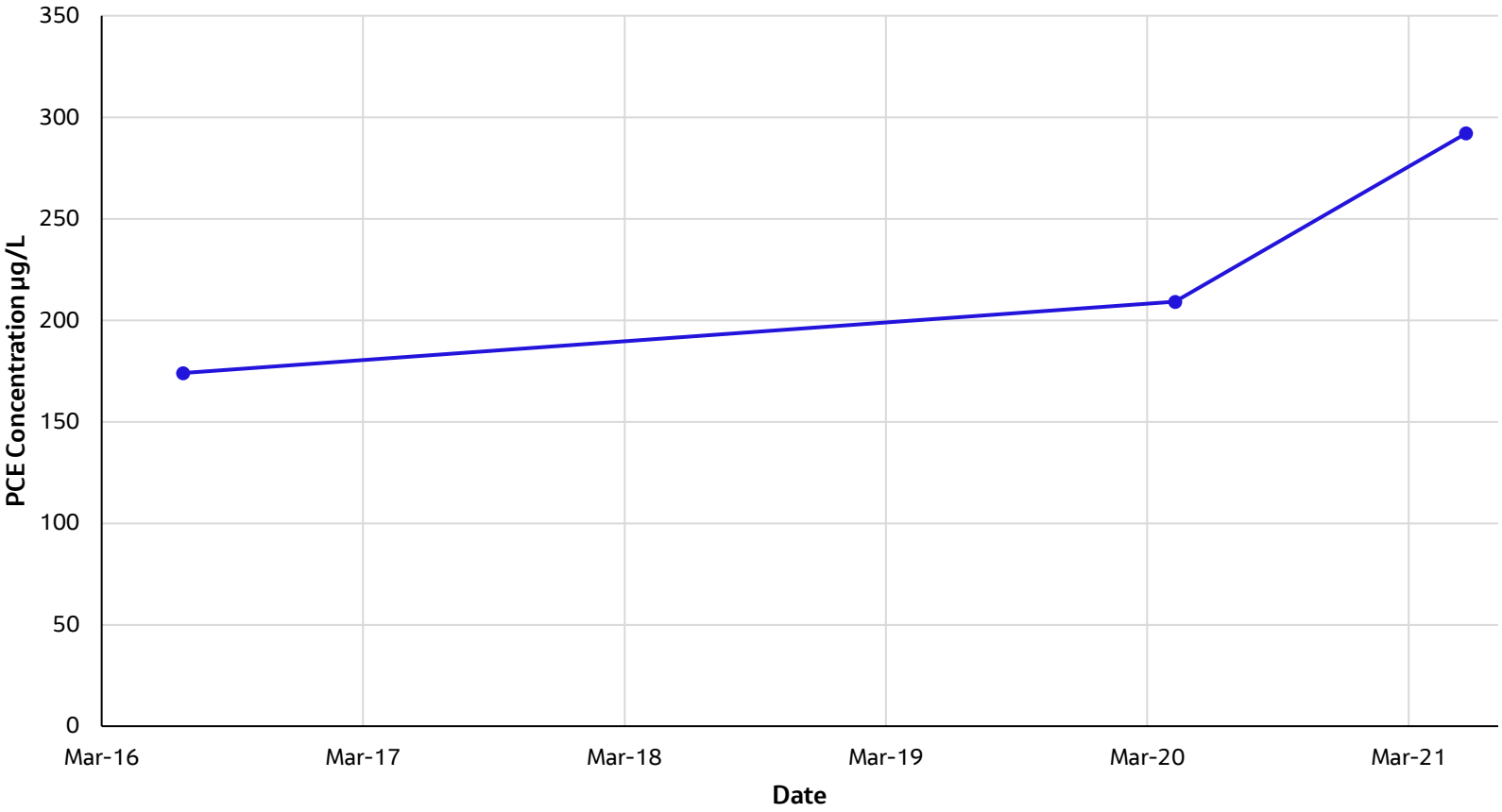
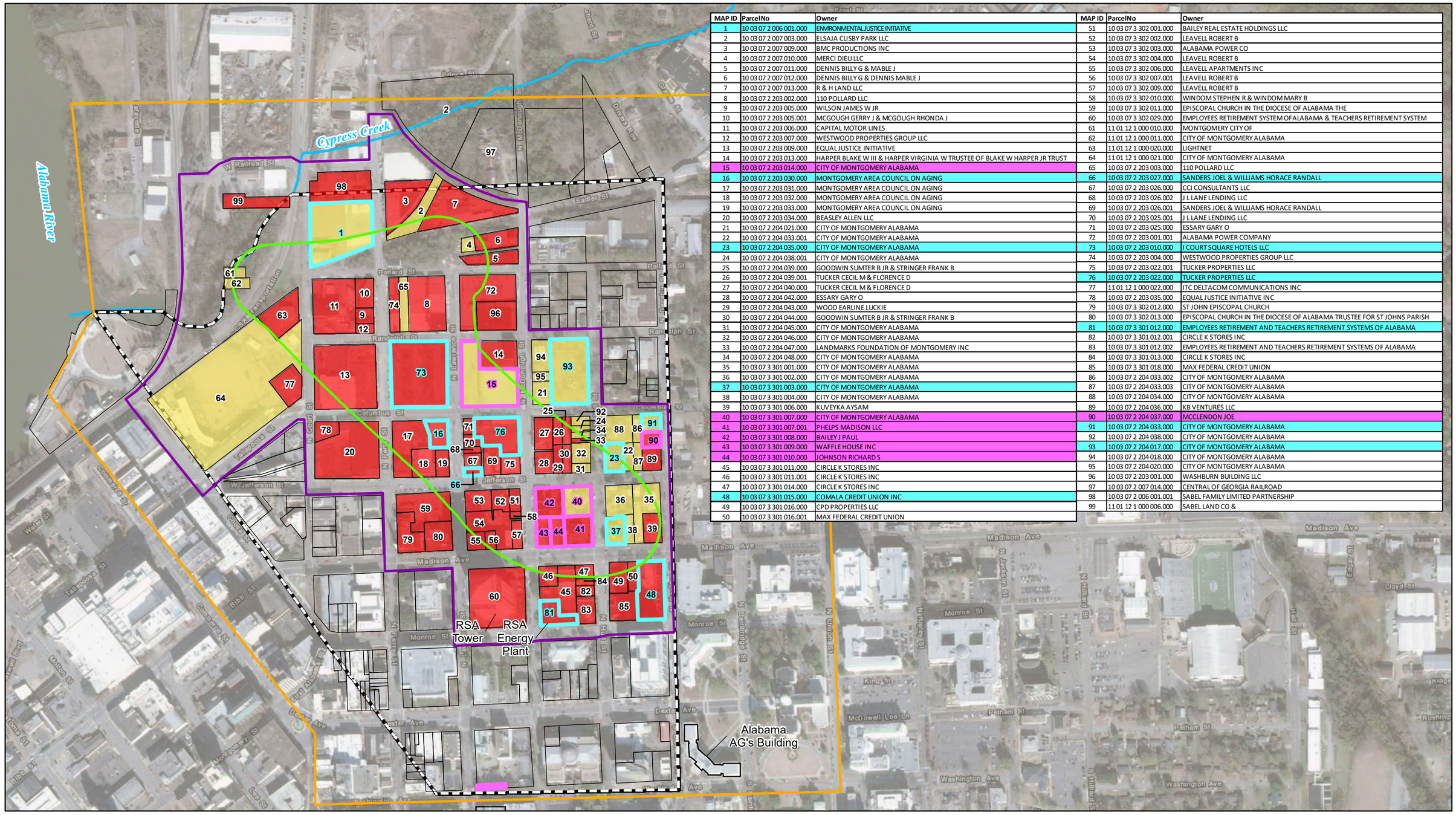


Figure 9
PCE Concentrations in MW-13S
2021 Remedial Action Progress Report
Downtown Environmental Assessment Project



MAP ID	ParcelNo	Owner	MAP ID	ParcelNo	Owner
1	10 03 07 2 006 001.000	ENVIRONMENTAL JUSTICE INITIATIVE	51	10 03 07 3 302 001.000	BAILEY REAL ESTATE HOLDINGS LLC
2	10 03 07 2 007 003.000	ELSAJA CLISBY PARK LLC	52	10 03 07 3 302 002.000	LEAVELL ROBERT B
3	10 03 07 2 007 009.000	BMC PRODUCTIONS INC	53	10 03 07 3 302 003.000	ALABAMA POWER CO
4	10 03 07 2 007 010.000	MERCI DIEU LLC	54	10 03 07 3 302 004.000	LEAVELL ROBERT B
5	10 03 07 2 007 011.000	DENNIS BILLY G & MABLE J	55	10 03 07 3 302 006.000	LEAVELL APARTMENTS INC
6	10 03 07 2 007 012.000	DENNIS BILLY G & DENNIS MABLE J	56	10 03 07 3 302 007.001	LEAVELL ROBERT B
7	10 03 07 2 007 013.000	R & H LAND LLC	57	10 03 07 3 302 009.000	LEAVELL ROBERT B
8	10 03 07 2 203 002.000	110 POLLARD LLC	58	10 03 07 3 302 010.000	WINDOM STEPHEN R & WINDOM MARY B
9	10 03 07 2 203 005.000	WILSON JAMES W JR	59	10 03 07 3 302 011.000	EPISCOPAL CHURCH IN THE DIOCESE OF ALABAMA THE
10	10 03 07 2 203 005.001	MCGOUGH GERRY J & MCGOUGH RHONDA J	60	10 03 07 3 302 029.000	EMPLOYEES RETIREMENT SYSTEM OF ALABAMA & TEACHERS RETIREMENT SYSTEM
11	10 03 07 2 203 006.000	CAPITAL MOTOR LINES	61	11 01 12 1 000 010.000	MONTGOMERY CITY OF
12	10 03 07 2 203 007.000	WESTWOOD PROPERTIES GROUP LLC	62	11 01 12 1 000 011.000	CITY OF MONTGOMERY ALABAMA
13	10 03 07 2 203 009.000	EQUAL JUSTICE INITIATIVE	63	11 01 12 1 000 020.000	LIGHTNET
14	10 03 07 2 203 013.000	HARPER BLAKE W III & HARPER VIRGINIA W TRUSTEE OF BLAKE W HARPER JR TRUST	64	11 01 12 1 000 021.000	CITY OF MONTGOMERY ALABAMA
15	10 03 07 2 203 014.000	CITY OF MONTGOMERY ALABAMA	65	10 03 07 2 203 003.000	110 POLLARD LLC
16	10 03 07 2 203 030.000	MONTGOMERY AREA COUNCIL ON AGING	66	10 03 07 2 203 027.000	SANDERS JOEL & WILLIAMS HORACE RANDALL
17	10 03 07 2 203 031.000	MONTGOMERY AREA COUNCIL ON AGING	67	10 03 07 2 203 026.000	CCI CONSULTANTS LLC
18	10 03 07 2 203 032.000	MONTGOMERY AREA COUNCIL ON AGING	68	10 03 07 2 203 026.002	J L LANE LENDING LLC
19	10 03 07 2 203 033.000	MONTGOMERY AREA COUNCIL ON AGING	69	10 03 07 2 203 026.001	SANDERS JOEL & WILLIAMS HORACE RANDALL
20	10 03 07 2 203 034.000	BEASLEY ALLEN LLC	70	10 03 07 2 203 025.001	J L LANE LENDING LLC
21	10 03 07 2 204 021.000	CITY OF MONTGOMERY ALABAMA	71	10 03 07 2 203 025.000	ESSARY GARY O
22	10 03 07 2 204 033.001	CITY OF MONTGOMERY ALABAMA	72	10 03 07 2 203 001.001	ALABAMA POWER COMPANY
23	10 03 07 2 204 035.000	CITY OF MONTGOMERY ALABAMA	73	10 03 07 2 203 010.000	I COURT SQUARE HOTELS LLC
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25	10 03 07 2 204 039.000	GOODWIN SUMTER B JR & STRINGER FRANK B	75	10 03 07 2 203 022.001	TUCKER PROPERTIES LLC
26	10 03 07 2 204 039.001	TUCKER CECIL M & FLORENCE D	76	10 03 07 2 203 022.000	TUCKER PROPERTIES LLC
27	10 03 07 2 204 040.000	TUCKER CECIL M & FLORENCE D	77	11 01 12 1 000 022.000	ITC DELTACOM COMMUNICATIONS INC
28	10 03 07 2 204 042.000	ESSARY GARY O	78	10 03 07 2 203 035.000	EQUAL JUSTICE INITIATIVE INC
29	10 03 07 2 204 043.000	WOOD EARLINE LUCKIE	79	10 03 07 3 302 012.000	ST JOHN EPISCOPAL CHURCH
30	10 03 07 2 204 044.000	GOODWIN SUMTER B JR & STRINGER FRANK B	80	10 03 07 3 302 013.000	EPISCOPAL CHURCH IN THE DIOCESE OF ALABAMA TRUSTEE FOR ST JOHNS PARISH
31	10 03 07 2 204 045.000	CITY OF MONTGOMERY ALABAMA	81	10 03 07 3 301 012.000	EMPLOYEES RETIREMENT AND TEACHERS RETIREMENT SYSTEMS OF ALABAMA
32	10 03 07 2 204 046.000	CITY OF MONTGOMERY ALABAMA	82	10 03 07 3 301 012.001	CIRCLE K STORES INC
33	10 03 07 2 204 047.000	LANDMARKS FOUNDATION OF MONTGOMERY INC	83	10 03 07 3 301 012.002	EMPLOYEES RETIREMENT AND TEACHERS RETIREMENT SYSTEMS OF ALABAMA
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35	10 03 07 3 301 001.000	CITY OF MONTGOMERY ALABAMA	85	10 03 07 3 301 018.000	MAX FEDERAL CREDIT UNION
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38	10 03 07 3 301 004.000	CITY OF MONTGOMERY ALABAMA	88	10 03 07 2 204 034.000	CITY OF MONTGOMERY ALABAMA
39	10 03 07 3 301 006.000	KUVEYKA AYSAM	89	10 03 07 2 204 036.000	KB VENTURES LLC
40	10 03 07 3 301 007.000	CITY OF MONTGOMERY ALABAMA	90	10 03 07 2 204 037.000	MCCLENDON JOE
41	10 03 07 3 301 007.001	PHELPS MADISON LLC	91	10 03 07 2 204 033.000	CITY OF MONTGOMERY ALABAMA
42	10 03 07 3 301 008.000	BAILEY J PAUL	92	10 03 07 2 204 038.000	CITY OF MONTGOMERY ALABAMA
43	10 03 07 3 301 009.000	WAFFLE HOUSE INC	93	10 03 07 2 204 017.000	CITY OF MONTGOMERY ALABAMA
44	10 03 07 3 301 010.000	JOHNSON RICHARD S	94	10 03 07 2 204 018.000	CITY OF MONTGOMERY ALABAMA
45	10 03 07 3 301 011.000	CIRCLE K STORES INC	95	10 03 07 2 204 020.000	CITY OF MONTGOMERY ALABAMA
46	10 03 07 3 301 011.001	CIRCLE K STORES INC	96	10 03 07 2 203 001.000	WASHBURN BUILDING LLC
47	10 03 07 3 301 014.000	CIRCLE K STORES INC	97	10 03 07 2 007 014.000	CENTRAL OF GEORGIA RAILROAD
48	10 03 07 3 301 015.000	COMALA CREDIT UNION INC	98	10 03 07 2 006 001.001	SABEL FAMILY LIMITED PARTNERSHIP
49	10 03 07 3 301 016.000	CPD PROPERTIES LLC	99	11 01 12 1 000 006.000	SABEL LAND CO &
50	10 03 07 3 301 016.001	MAX FEDERAL CREDIT UNION			

LEGEND

- Site Boundary
- PCE Plume 100-foot Buffer
- Parcel Boundary
- Parcel Intersecting Plume and 100-ft Buffer
- DEA Owned Parcel Intersecting Plume and 100-ft Buffer
- Downtown Environmental Overlay (Dashed Options)
- Current Groundwater Well Drilling Ban Ordinance
- IC/EC Areas for Inspection
- Randomly Selected Properties for Inspection

Notes:
1. AG = Attorney General
2. RSA = Retirement Systems of Alabama

N

0 250 500
Feet

FIGURE 10
Parcels Inspected in 2021
2021 Remedial Action Progress Report
Downtown Environmental Assessment Project
Montgomery, AL

ch2m

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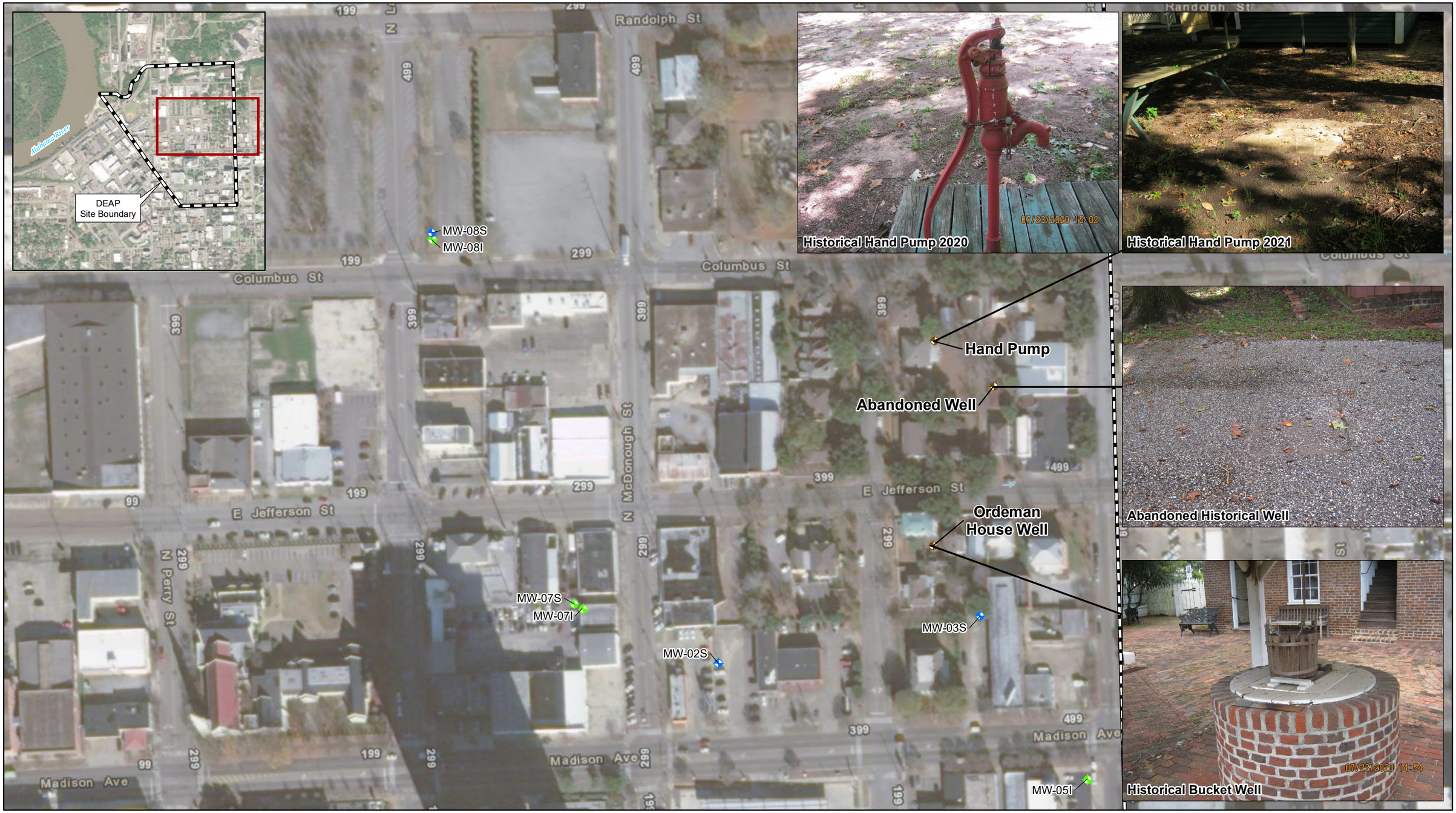

LEGEND

- Shallow Monitoring Well
- Intermediate Monitoring Well
- Historical Well
- Site Boundary

N

0 75 150

Feet

FIGURE 11
Historical Well Locations
2021 Remedial Action Progress Report
Downtown Environmental Assessment Project
Montgomery, AL

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Appendix A
De-Proposal Technical Memorandum (Text Only)

TECHNICAL MEMORANDUM

Recommendation to De-propose from the National Priorities List (NPL) – Downtown Environmental Assessment Project (formerly the Capital City Plume)

May 13, 2020

Introduction

With this Technical Memorandum (TM), the Downtown Environmental Alliance (DEA) is providing documentation to support the de-proposal of the Downtown Environmental Assessment Project (DEAP; formerly the Capital City Plume) from the NPL. The original proposal was published in the Federal Register on May 11, 2000 (30489-30495 Federal Register, Vol. 65, No. 92). This request is supported by the Alabama Department of Environmental Management (ADEM), which is overseeing the site cleanup pursuant to the final Settlement Agreement for Site Response, which was revised and signed in October 2019 (originally signed on September 30, 2015) by ADEM and the DEA. This settlement agreement, along with other past documents referenced in this letter, are included on CD as an attachment. The purpose of this TM is to provide the reader with a complete overview of the project and describe the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-equivalent process that was followed to support de-proposal of the DEAP.

Site History and Previous Remedial Action (Prior to DEA involvement; 1991-2011)

This section provides a brief description of the site history and remedial actions taken prior to the formation of the DEA. A more complete historical summary can be found in Section 2.1 of the final Technical Work Plan, which is included in Appendix A at the end of this TM.

- In 1991, tetrachloroethylene (PCE) was detected in former public water supply well PW-9W. The Montgomery Water Works and Sanitary Sewer Board of the City of Montgomery, Alabama (MWWSSB) closed the North Well Field (located north of the current plume footprint) wells in the early 1990s, eliminating the potential for consumption of potentially contaminated groundwater. The source of drinking water for the City of Montgomery (City) has since been supplied by surface water intakes from the Tallapoosa River (located several miles upstream of downtown Montgomery) or well fields southwest of Montgomery (located approximately 8 miles south of downtown Montgomery), and the western well field, which has been in existence for approximately 80 years. Based on groundwater flow and distance, these water sources are not within the plume nor threatened by the plume.

- PCE was also encountered during the construction of the Retirement Systems of Alabama (RSA) Energy Plant in 1993. An emergency removal action was conducted in 1993 by the contractors excavating at the RSA Energy Plant. The remedial action included the removal of contaminated soil and groundwater, and non-aqueous phase liquid. This action effectively eliminated the PCE source area at the RSA Energy Plant construction area (located one block east of the RSA Tower in downtown Montgomery) as supported by the significant decrease in PCE concentrations in Monitoring Well MW-1S (located adjacent to and downgradient of the RSA energy plant excavation) from greater than 607 ppb in 1993 to less than the MCL since 2010.

- In 1995, ADEM conducted a Preliminary Assessment of the soil and groundwater around the RSA Energy Plant. No specific sources of the PCE were identified; however, the report identified numerous historical drycleaners in the downtown area.

- In May 2000, the site was proposed by EPA for inclusion on the NPL because of the potential threat to the public water supply. This potential threat was based on the population potentially exposed to contaminated groundwater, based on EPA's Hazard Ranking System scoring of the site.

- Between 1999 and 2001, EPA contracted Black & Veatch to conduct a Remedial Investigation (RI) to evaluate the nature and extent of groundwater contamination because of the PCE discovered in downtown Montgomery groundwater. During this investigation, 16 permanent and 16 temporary wells were installed to monitor the vadose zone and the top and bottom of the uppermost aquifer, estimate hydraulic conductivity, and to evaluate the nature and extent of groundwater contamination. Sixty-six subsurface soil samples also were collected to characterize potential site source areas. The RI concluded that contaminants likely originated from multiple sources within the downtown Montgomery area and the groundwater exposure pathway to residents is incomplete.

- In October 2002, the City and EPA entered into an Administrative Order by Consent that called for the completion of the CERCLA activities associated with the project, including the completion of a Feasibility Study (FS), and selection of a final remedy for the project. In 2003, the City contracted Malcolm Pirnie to develop a FS for the project area. The FS evaluated potential remedial options. Institutional controls and groundwater monitoring were retained as remedial options for implementation.

- The City passed a groundwater ordinance on September 16, 2003 to prohibit well drilling in the downtown area. This action significantly reduces the potential for ingestion or dermal exposure pathways to groundwater for downtown employees and residents.

- In 2004, the Agency for Toxic Substances and Disease Registry (ATSDR) issued a Public Health Assessment Report for the site. ATSDR noted that because of the quick response by MWWSSB in removing the contaminated well from service and the dilution of any contaminants that may have been present due to blending in the Montgomery water supply system, the site represented "no apparent public health hazard."

- In September 2004, EPA drafted a Record of Decision (ROD) document for the Capital City Plume site. This draft ROD concluded that no CERCLA remedial action was necessary for the site and that monitoring would be conducted to verify that no unacceptable exposures to risks posed by the site would occur in the future. Also, a determination was made that no remedial action was necessary at the site due to previous actions conducted by the City and MWWSSB. The ROD was never finalized by EPA.

- In 2005 and 2006, the City developed a groundwater monitoring plan under EPA review. Using the available groundwater monitoring network (up to 14 wells), groundwater sampling was conducted in 2007, 2009, 2010, and 2011 by the City, U.S. Geological Survey (USGS), and EPA (2010 and 2011), in accordance with the conditions outlined in the draft ROD.

- In 2005 and 2011, the MWWSSB contracted a licensed well driller to decommission and abandon (i.e., permanently grout) the wells formerly associated with the North Well Field, thus completely eliminating the wells from future use. The MWWSSB retained Well PW-9W for future environmental monitoring purposes, until it was permanently abandoned in 2019.

- From 2008 to 2010, USGS and EPA conducted tree tissue, pore water, and groundwater surveys in the downtown Montgomery area as part of a technology assessment for the use of tree core data to assess groundwater quality. Chlorinated volatile organic compounds (VOCs) were detected in tree core samples collected from across the site, including four trees in the downgradient portion of the plume (three trees from near the Cypress Creek area and one tree near MW-12S). Detection of the chlorinated VOCs suggests phyto-uptake is occurring in the downgradient portion of the plume.
- In 2010, EPA and USGS sampled indoor air and collected soil vapor samples near the County Annex III and Attorney General (AG) buildings based on complaints of indoor air quality. Corrective measures were taken at both buildings to address the indoor air quality, including installation of a filtration system in the County Annex building and replacement of carpet in the subbasement of the AG building, which resolved the odor issues in these buildings. Neither of the indoor air issues at these two buildings were found to be related to the groundwater plume.
- In 2010, the City, in collaboration with EPA constructed a demonstration phytoremediation plot consisting of clonal cottonwood trees in the central area of the plume. This location was located within the footprint of the Capital City Plume and was intended to provide remediation of the PCE contaminated groundwater.

Proposed NPL Listing and Formation of the Downtown Environmental Alliance

In June 2012, the City developed a working group to complete the investigations needed to avoid final inclusion on the NPL. In November 2012, EPA sent a letter to the City of Montgomery requesting an Environmental Action Plan (EAP) to present the technical strategy for addressing the remaining environmental concerns related to potential contamination in the downtown portion of the City. The November 2012 letter also noted three main items of concern that should be addressed in such an EAP:

- Develop a strategy to evaluate the potential for soil vapor contamination within a 47-block area of downtown Montgomery.
- Further evaluate the presence of the soil vapor contamination previously identified in the vicinity of the County Annex III Building, at 101 South Lawrence Street.
- Further evaluate the need for additional environmental sampling in the vicinity of the current Alabama AG Building at 501 Dexter Avenue.

An EAP to address the issues identified in EPA's November 12, 2012 letter was submitted to EPA in February 2013. Following review, EPA identified additional technical issues in a response letter dated September 19, 2013. The three additional technical issues identified by the EPA were as follows:

1. Identify and delineate any contaminant source areas in order to evaluate the feasibility of eliminating or controlling ongoing impacts by soil vapor and groundwater at the site.
2. Evaluate the nature and extent of contaminated groundwater and surface water in Cypress Creek in support of the objectives to restore groundwater to beneficial use within a reasonable timeframe at the site.
3. Provide an assessment of the pathways and quantitative risks posed by the site, including potential exposure to contaminated groundwater and soil vapor linked to previously identified source areas.

The EAP was developed to address these concerns using both scientifically defensible methodologies and industry-accepted practices and testing methods. The City resubmitted a draft EAP to EPA in December 2013. The document was subsequently finalized in March 2014, and EPA concurred with it in May 2014.

Following acceptance of the EAP, the City facilitated the formation of a group of voluntary participants to respond to the environmental issues and concerns described in the November 2012 letter from EPA to the City. This group is known as the Downtown Environmental Alliance. The DEA consists of the following members:

- City of Montgomery–Facilitator
- Alabama Department of Education
- Alabama Department of Transportation
- Alabama Department of Public Safety
- The Advertiser Company
- County of Montgomery
- MWWSSB

On September 30, 2015, the DEA was formalized by the signing of the Site Participation Agreement by its members. Also, the regulatory management of the DEAP was formally deferred from EPA to ADEM oversight through the execution of a Memorandum of Understanding signed by EPA and ADEM. Also, on September 30, 2015, the DEA and ADEM signed the original version of the Settlement Agreement for Site Response, which established the regulatory steps and documents to complete the CERCLA-equivalent remedial process for de-proposal to be achieved.

Community Involvement and Outreach Plan

In November 2015, the DEA submitted its Capital City Plume Community Involvement and Outreach Plan (CIOP) to ADEM for review. The purpose of this CIOP was to serve as a guide for providing meaningful community involvement for efforts related to the Capital City Plume project. The CIOP also provided guidance for the formation of the Community Outreach Group (COG), which is a group of concerned citizens who live or work in the downtown area that provides external review and insight into the DEAP activities and documents. The DEA routinely provides the COG with updates on major milestones with the project. The CIOP also provided guidance for the DEAP's website, which contains updates on the status of the DEAP and final documents for the public to review. ADEM submitted its concurrence letter for the plan in February 2016.

Technical Work Plan

In May 2016, The DEA finalized the Technical Work Plan (TWP), which included a summary and evaluation of all known historical environmental sampling data (groundwater, surface water, soil, soil vapor, and indoor air) in the downtown area to identify the additional field work recommended to evaluate the DEAP. Additional proposed work included installation of an additional monitoring well, collection of groundwater samples, collection of soil vapor samples, a hydraulic study of Cypress Creek and evaluation of a private commercial well, all following typical CERCLA investigation approaches.

The TWP also included a site-wide Sampling and Analysis Plan (SAP) that established the sampling methodology, laboratory methods, and field documentation requirements for the above-mentioned field work. The work elements described in the TWP were later reported in the Supplemental Environmental Investigation Report.

Supplemental Environmental Investigation Report

From summer 2016 to winter 2017, the DEA conducted the field activities associated with the Supplemental Environmental Investigation (EI), which were prescribed in the TWP and SAP. The final Supplemental EI Report was submitted to ADEM in October 2017 and concurrence was received in March 2018. The objectives of the EI (which is equivalent to a CERCLA Remedial Investigation Report)

were to collect sufficient data to support the refinement of the conceptual site model (CSM), including the following:

- Assess the nature and extent of PCE in groundwater.
- Evaluate the potential for groundwater to impact surface water in Cypress Creek.
- Evaluate the vapor intrusion potential at the County Annex III and Attorney General buildings.
- Identify concentrations of soil vapor at locations where shallow groundwater concentrations exceeded EPA residential vapor intrusion screening levels (VISLs).
- Provide sufficient data to evaluate potential exposure risk.

Based on the results of the EI phase of the project, PCE and trichloroethylene (TCE) were the only chemicals in groundwater that exceeded the lower of the maximum contaminant levels (MCLs) and EPA Regional Screening Levels (RSLs). The extent of the PCE in groundwater was delineated (horizontally and vertically) based on PCE concentrations exceeding the MCL of 5 micrograms per liter. TCE did not exceed the MCL, but was present in concentrations exceeding the RSL in isolated areas within the site. The lateral extent of PCE in groundwater ends near Cypress Creek, where the influence of the Alabama River acts as a hydraulic barrier to impede further lateral migration.

The preliminary screening evaluation resulted in the need to perform a risk assessment and alternatives analysis for the shallow groundwater and shallow soil vapor in accordance with ADEM and EPA guidance.

Risk Assessment/Alternatives Analysis Report

Based on the recommendations of the preliminary risk evaluation in the final Supplemental EI Report, the DEA prepared a combined risk assessment and alternatives analysis (i.e., equivalent of a Risk Assessment and Feasibility Study) document. The final Risk Assessment/Alternatives Analysis (RA/AA) Report was submitted to ADEM in February 2019, and ADEM concurrence was received in March 2019. The Human Health Risk Assessment (HHRA) was performed using Alabama Risk-Based Corrective Action (ARBCA) Guidance (which provides an approach and risk estimates similar to a Superfund HHRA under CERCLA) and consisted of the 4-step process identified for a Superfund HHRA.

- Step 1 - Screened maximum detected site concentrations in groundwater and soil vapor with conservative screening levels (RSLs and VISLs based on a target risk of 1 × 10-6 and target hazard quotient of 0.1) to identify chemicals of concern (COCs)[1].
- Step 2 - Developed a site-specific conceptual exposure model, identifying potential current/future receptors and potential exposure scenarios, and estimated intakes for potentially complete exposure pathways using EPA's standard exposure equations and exposure factor values.
- Step 3 - Identified toxicity values from EPA's hierarchy of toxicity value sources.
- Step 4 - Calculated risk estimates for COCs and compared risk estimates to acceptable risk levels (for ADEM, an excess lifetime cancer risk of 1 × 10-5 and hazard index of 1).

In addition, a Screening Level Ecological Risk Assessment was prepared.

The HHRA indicates that soil vapor concentrations exceed EPA's residential and/or commercial VISLs at only three locations, and that soil vapor at two of the locations was not related to the groundwater plume. Currently, there are no residences in the areas of the exceedances. The only area of a

[1] The term "chemical of concern" (COC) is used in this step in ARBCA, rather than the Superfund HHRA term "chemical of potential concern" (COPC).

commercial exceedance (unrelated to the groundwater plume) is an existing parking lot/city right-of-way; thus, there are no current receptors. Soil vapor samples collected at the building nearest the area of commercial exceedance were within acceptable limits.

The Alternatives Analysis followed the CERCLA-like decision-making process, where potential remedial alternatives were screened against the two CERCLA threshold criteria and the five balancing criteria. While several active remedial alternatives were considered (i.e., pump-and-treat, in situ chemical reduction, in situ chemical oxidation, air sparge/soil vapor extraction, and/or enhanced bioremediation), these alternatives were deemed not feasible based on their ability to be implemented, technical effectiveness, and safety considerations. Also, based on the fact that considerable active remediation has already occurred at the site (i.e., North Well Field Abandonment, 1993 Soil source Removal during RSA construction, phytoremediation project, and abandonment of privately-owned bus washing well), the Alternatives Analysis concluded that further active remediation was not warranted for the DEAP.

Four potential remedial alternatives were carried forward to the final evaluation:

- Alternative 1 - No Action
- Alternative 2 - Institutional Controls (ICs) with Five-Year Reviews (FYRs)
- Alternative 3 - ICs with FYRs and Monitoring
- Alternative 4 - ICs with FYRs and Monitored Natural Attenuation (MNA)

Based on the review of this evaluation, it was determined that Alternative 1 (No Action) would not meet the threshold criteria of being protective of human health and the environment or compliant with applicable, relevant, and appropriate requirements (ARARs). Of the three remaining alternatives, it was concluded that no additional protectiveness is gained from the increased costs associated with Alternative 4 (which includes MNA; also, the aerobic state of the aquifer will not support MNA), and although Alternative 2 (ICs with FYRs) is less expensive, it does not provide the monitoring data required to support the FYR evaluation and address when the remedy can be terminated. Areas of remaining potential risk can be managed using ICs with monitoring. Therefore, Alternative 3 (ICs with FYRs and Monitoring) was the recommended alternative.

Institutional Controls Plan

After ADEM concurrence was received for the RA/AA Report on March 8, 2019, the DEA prepared an Institutional Controls Plan (ICP), which is equivalent to a Proposed Plan/Record of Decision. The Final ICP was submitted to ADEM in July 2019. ADEM concurrence with the ICP was received in August 2019 and a final Determination Letter was received in September 2019, once the 45-day public comment period was completed with no public comments received. The purpose of the ICP was to provide the planning-level details of the ICs that would be required for the DEAP. The ICP describes the following activities to be completed for the remedy to be considered completely implemented:

- Install one additional monitoring well located along the western edge of the plume footprint.
- Amend the City's well drilling ordinance to (1) prohibit groundwater use within the downtown area, (2) prohibit first-floor residential use for one block where soil vapor is a potential future concern, and (3) require property owners to follow the International Building Code regarding the use of vapor barriers for new construction.
- Implement environmental covenants on the City-owned property in areas where soil vapor is a potential future concern.
- Provide and encourage the use of environmental covenants to downtown property owners.

- Send IC Notification Letters to downtown property owners on an annual basis to describe the restrictions for groundwater use, the use of vapor barriers, the availability of environmental covenants, and the restriction of first-floor residential use (where applicable).
- Conduct random, annual inspections of downtown properties and interviews with property owners to ensure the ICs are being implemented and maintained in accordance with the ICP.
- Conduct annual groundwater monitoring at seven effectiveness monitoring wells.
- Provide annual Remedial Action Progress Reports to ADEM.

Remedial Action Report

The Remedial Action Report (RAR), the final document required by the Settlement Agreement for Site Response for de-proposal of the DEAP, was submitted by the DEA to ADEM in November 2019 and concurrence was received by ADEM in November 2019. The purpose of the RAR was to document that the items described in the ICP were completed or ready to implement. The RAR was developed in general accordance with the Remedial Action Report: Documentation for Operable Unit Completion (OSWER 9355.0-39FS; EPA, June 1992). The RAR was submitted to EPA Region 4 in November 2019 as part of ADEM's original de-proposal package for the DEAP.

Remedial Actions at the DEA Site

Several remedial actions have been performed over the history of the Capital City Plume site:

- Soil excavation of the source area at the RSA Energy Plant in 1993
- Permanent abandonment of all public supply wells associated with the North Well Field, including the final public water supply well 9W, which was the driver for the initial listing of the site
- Installation of the phytoremediation plot in 2010 and ongoing maintenance of other trees in the downtown area
- Permanent closure of the last remaining private well (the Capital Trailways bus washing well) in 2019

Based on discussions during the March 10, 2020 site visit with EPA and ADEM, the DEA has reconsidered the active remedial alternatives that were considered in the AA portion of the RA/AA Report (i.e., pump-and-treat, in situ chemical reduction, in situ chemical oxidation, air sparge/soil vapor extraction, and/or enhanced bioremediation). The in situ chemical reduction, was not considered because the ability to sustain a reductive zone in the highly aerobic aquifer is unlikely. The use of air sparge was not considered further as the physical act of stripping PCE from the aquifer would increase the likelihood of PCE vapor migration (and potentially increase the likelihood of a complete vapor intrusion pathway) for the downtown area. Two remaining active remedial alternatives (pump- and-treat and expanded phytoremediation) were evaluated after discussions with EPA and ADEM for further consideration. In order to evaluate these two remedial options, the DEA reviewed applicable information for the two alternatives, and it was determined that the cost associated with a potential pump-and-treat option would be significantly greater than the cost associated with an expanded phytoremediation option. It was also considered that the pump-and-treat option would involve pumping contaminated groundwater to the surface, thus creating a potential pathway for exposure that does not currently exist. Furthermore, based on general knowledge of the hydrology of the area and these remediation alternatives, it is believed that neither pump-and-treat nor expanded phytoremediation technology are expected to speed up the remediation to less than MCLs within a substantially shorter timeframe.

Conclusion

The final selected remedy for the DEAP is ICs with groundwater monitoring (which is consistent with the original 2004 draft ROD prepared by EPA). Given the restrictions on groundwater use and that downtown groundwater is not needed for potable use, the DEA and ADEM understand the length of time it will take for restoration of the aquifer for drinking water standards. Additionally, there are no other foreseeable beneficial uses for this aquifer at this time. The DEAP will continue to be managed by the DEA under the regulatory authority of the Alabama Department of Environmental Management. ADEM will continue to be the lead agency responsible for regulatory oversight of the site. ADEM believes that Superfund involvement at this site is not warranted and in a letter to EPA dated November 13, 2019, requested that the site be de-proposed from the proposed NPL.

Appendix B
Data Quality Evaluation and Analytical Laboratory Report

APPENDIX B

Data Quality Evaluation

Quality Assurance/Quality Control and Data Validation

The purpose of the data quality evaluation (DQE) process is to assess the effect of the overall analytical process on the usability of the data. The two major categories of data evaluation are laboratory performance and matrix interferences. The evaluation of laboratory performance is a check for compliance with the method requirements; either the laboratory did, or did not, analyze the samples within the limits of the analytical method. The evaluation of matrix interferences is more subtle and involves the analysis of several areas of results including surrogate spike recoveries, matrix spike recoveries, and duplicate sample results.

Introduction

Groundwater samples were collected for the Downtown Environmental Assessment Project in Montgomery, Alabama on June 8 and 9, 2021 and submitted to Pace Analytical in Mount Juliet, Tennessee for volatile organic compounds (VOC) analysis by SW-846 Method 8260B. One VOC, tetrachloroethene (PCE) was requested and reported for these samples.

The numbers and types of samples collected are listed in Table B-1. Field quality control (QC) samples collected included a field duplicate (FD), a matrix spike/matrix spike duplicate (MS/MSD), a field blank (FB), an equipment rinsate blank (EB), and a trip blank (TB).

TABLE B-1 Analyses Totals by Method
DEAP Montgomery, Alabama

Analytical Method	Matrix	N	MS/ MSD	FD	EB	AB	TB	Total
VOC/SW8260B	Groundwater	7	1	1	1	1	1	13
VOC/SW8260B	IDW	1	--	--	--	--	--	1

Notes:
VOC = Volatile Organic Compounds
SW = SW-846 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, February 2007
N = native sample
MS/MSD = matrix spike/matrix spike duplicate
FD = field duplicate
EB = equipment blank
AB = ambient/field blank
TB = Trip blank (VOC only)

Before the analytical results were released by the laboratory, both the sample and QC data were carefully reviewed to verify sample identity, instrument calibration, detection limits, dilution factors, numerical computations, accuracy of transcriptions, and chemical interpretations. Additionally, the QC data were reduced and the resulting data were reviewed to ascertain whether they were within the laboratory-defined limits for accuracy and precision.

The hardcopy data packages were reviewed by the project chemist using the process outlined in the U.S. Environmental Protection Agency (EPA) guidance document, National Functional Guidelines for Organic

Data Review (EPA, 2017). EPA Level III deliverables were provided by the laboratory for this project. The areas of review included (when applicable to the method) holding time compliance, blank results, precision and accuracy, surrogate recoveries, initial and continuing calibrations, internal standards. Data review was completed for each of the laboratory reports and any non-conformance was documented. This data review and validation process is independent of the laboratory's checks and focuses on the usability of the data to support the project data interpretation and decision-making processes.

Data that were not within the acceptance limits were appended with a qualifying flag, which consists of a single or double-letter abbreviation that reflects a problem with the data. The following validation flags were applied as necessary:

- **U –** Undetected. The analyte/compound was analyzed for, but not detected above the method detection limit (MDL).
- **UJ –** Undetected, detection limit estimated. The analyte/compound was analyzed for and qualified as not detected. The detection limit is estimated due to a quality assurance (QA)/QC exceedance.
- **J –** Estimated. The analyte was positively identified above the method detection limit or qualified due to a QA/QC exceedance; the associated numerical value is considered an estimated concentration of the analyte in the sample.
- **R –** Rejected. The data are unusable, the analyte/compound may or may not be present.
- **B** – Estimated. The result was qualified to indicate possible contamination due to the presence of the analyte/compound in an associated laboratory and/or FB.

Once the data review and validation process was completed, the entire data set was reviewed for chemical compound frequencies of detection, dilution factors that might affect data usability, and patterns of target compound distribution. The data set also was evaluated to identify potential data limitations, uncertainties, or both, in the analytical results.

Holding Times

The VOC holding times for all samples were met in accordance with SW-846 requirements.

Potential Field Sampling and Laboratory Contamination

During the June 2021 sampling event, four types of blank samples were used to monitor potential contamination introduced during field sampling, sample handling, and shipping activities, as well as sample preparation and analysis in the laboratory.

- **Trip Blank (TB):** A sample of ASTM Type II water that is prepared in the laboratory before the sampling event. The water is stored in VOC sample containers and is not opened in the field, and travels back to the laboratory with the other samples for VOC analysis. This blank is used to monitor the potential for sample contamination during the sample container trip. One trip blank should be included in each sample cooler that contains samples for VOC analysis. One trip blank sample set was submitted to Pace Analytical for tetrachloroethene analysis by SW-846 Method 8260B.
- **Equipment Rinsate Blank (EB)**: A sample of the target-free water used for the final rinse during the equipment decontamination process. This blank sample is collected by rinsing the sampling equipment after decontamination and is analyzed for the same analytical parameters as the corresponding samples. This blank is used to monitor potential contamination caused by incomplete equipment decontamination. One equipment rinsate blank should be collected per sampling event, per type of sampling equipment. One equipment rinsate blank was submitted to Pace Analytical for tetrachloroethene analysis by SW-846 Method 8260B.

- **Field Blank or Ambient Blank (FB/AB)**: The FB/AB is an aliquot of the source water used for equipment decontamination. This blank monitors contamination that may be introduced from the water used for decontamination. One FB/AB should be collected from each source of decontamination water and be analyzed for the same parameters as the associated samples. One AB was submitted to Pace Analytical for tetrachloroethene analysis by SW-846 Method 8260B.
- **Laboratory Method Blank or Method Blank (MB):** A MB is ASTM Type II water that is treated as a sample in that it undergoes the same analytical process as the corresponding field samples. The MBs are used to monitor laboratory performance and contamination introduced during the analytical procedure. One MB was prepared and analyzed for every twenty samples, or per analytical batch, whichever was more frequent.

Field and laboratory blanks for the June groundwater sampling events were reported as not detected for tetrachloroethene.

General Data Qualifiers

As required by the EPA protocols, all compounds that were qualitatively identified at concentrations below their respective RLs but above the MDLs are appended with "J" qualifiers on the data summary tables to indicate that they are quantitative estimates. For this sample set, tetrachloroethene results were reported as not detected or above the RL, therefore no results were "J" qualified as estimated concentrations between the MDL and RL.

Instrument Calibration

All initial and continuing calibration results were reported within the method criteria for all target compounds.

Matrix Effects

Surrogate Spike Recovery and Internal Standard Response

Surrogate spike compounds were added to every sample, including field and laboratory blanks as well as field environmental samples and analyzed for VOCs. Surrogate spikes consist of organic compounds that are similar to the method targets in chemical composition and behavior in the analytical process, but that are not normally found in environmental samples.

Surrogate spike recoveries were used to monitor both laboratory performance and matrix interferences. Surrogate spike recoveries from field and laboratory blanks were used to evaluate laboratory performance because the blanks should represent an "ideal" sample matrix. Surrogate spike recoveries for the field samples were used to evaluate the potential for matrix interferences. According to the Functional Guidelines, data are qualified as estimated values when one or more VOC surrogate recoveries are outside of method acceptance limits.

Internal standard calibration involves the comparison of the instrument responses from the target compounds in the sample to the responses of specific standards added to the sample or sample extract prior to injection.

All surrogate recoveries and internal standards associated with the target compound for this project were within acceptance criteria.

Matrix Spike/Matrix Spike Duplicate Precision and Accuracy

The MS and MSD samples are aliquots of a native sample spiked with a known concentration of target compound(s) before sample preparation and analysis. MS/MSDs are used to document the bias and precision of a method in a given sample matrix. For the MS/MSD measurement, three aliquots of a single sample are analyzed; one native sample and two samples spiked with target compound(s). Matrix accuracy is evaluated from the spike recoveries, while precision is evaluated from a comparison of the concentrations of the MS and MSD.

MS/MSD evaluation is in conjunction with surrogate, internal standard, and laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results.

Groundwater monitoring well MW-08S was submitted to the laboratory for MS/MSD analysis during the June 2021 sampling event. The native concentration was greater than four times the spike amount masking the spike concentration. LCS recoveries were within criteria, therefore no data qualification was required.

One FD sample was collected and analyzed for tetrachloroethene to evaluate the precision of field sampling and the variability of the sample data. Groundwater monitoring well MW-3S was selected for FD analysis during the June 2021 sampling event. The native sample and FD sample results were compared and relative percent difference (RPD) precision criteria were met.

Precision, Accuracy, Representativeness, Completeness, and Comparability (PARCCs)

Precision–is defined as the agreement between duplicate results, and was estimated by comparing MS/MSD and native/FD sample results. MS/MSD, LCS/LCSD, and FD precision was reviewed and precision was met for all samples.

Accuracy– is a measure of the agreement between an experimental determination and the true value of the parameter measured. Accuracy of the data was verified through the review of surrogate, LCS/LCSD and MS/MSD results. Surrogate and MS/MSD recoveries provide a measure of the matrix effects on the analytical accuracy. The LCS/LCSD results demonstrate accuracy and precision of the method and the laboratory's ability to meet the method criteria. MS/MSD spike concentrations were masked due to the native concentration, however the LCS/LCSD accuracy criteria were met.

Representativeness–This criterion is a qualitative measure of the degree to which sample data accurately and precisely represent a characteristic environmental condition. Representativeness is a subjective parameter and is used to evaluate the effectiveness of the sampling plan design. Representativeness was demonstrated by providing full descriptions in the project scoping documents of the sampling techniques and the rationale used for selecting sampling locations.

Completeness–is defined as the percentage of measurements that are judged to be valid compared to the total number of measurements made. All analyses were performed within holding time requirements and within the QA/QC criteria with the exception of the exceedances noted above, resulting in 100% usable data for this sampling event.

Comparability–is another qualitative measure designed to express the confidence with which one data set may be compared to another. Factors that affect comparability are sample collection and handling techniques, sample matrix type, and analytical method. Comparability is limited by the other precision, accuracy, representativeness, completeness, and comparability (PARCC) parameters because data sets can be compared with confidence only when precision and accuracy are known. Data from this investigation

are comparable with other data collected at the site because only EPA methods were used to analyze the samples and EPA Level III QC data are available to support the quality of the data.

Summary and Conclusions

The conclusions of the DQE process include the following:

- The laboratory analyzed the samples for tetrachloroethene according to the EPA methods as requested by the project and demonstrated by the data deliverables provided.
- Field and laboratory blanks analyzed for this sampling event were reported as not detected for tetrachloroethene.
- Groundwater monitoring well MW-08S was submitted to the laboratory for MS/MSD analysis. The native concentration was greater than four times the spike amount masking the spike concentration. LCS recoveries were within criteria, therefore no data qualification was required.
- Groundwater monitoring well MW-3S was selected for FD analysis with precision criteria met for tetrachloroethene.
- The overall project objectives or PARCCs were met, and the data can be used in the project decision-making process as qualified by the DQE process.

Laboratory Report

ANALYTICAL REPORT

June 22, 2021

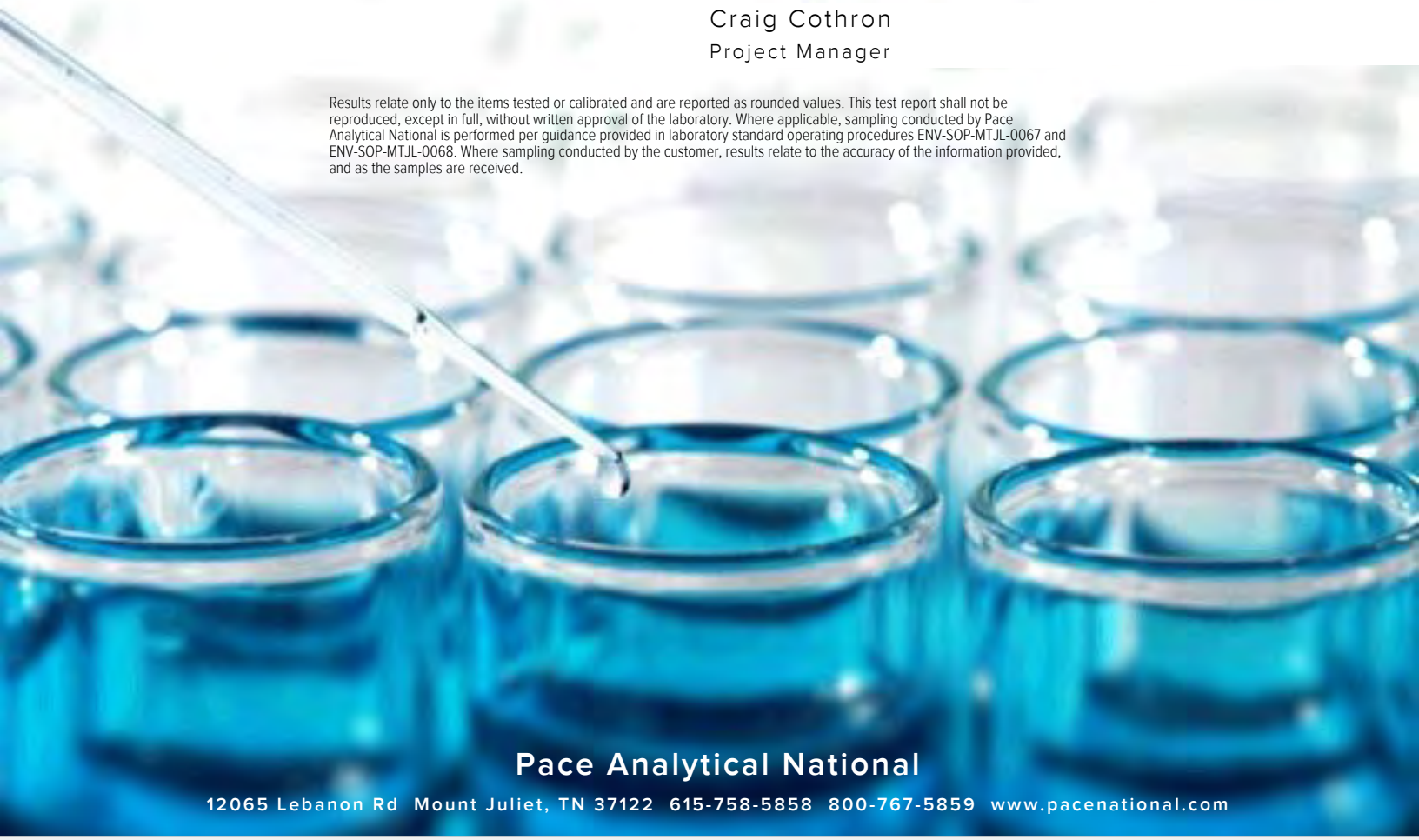
Jacobs - Montgomery, AL

Sample Delivery Group:	L1364797
Samples Received:	06/10/2021
Project Number:	
Description:	Montgomery DEAP

Report To: Ms. Kaye Walker
4121 Carmichael Rd, Suite 400
Montgomery, AL 36106

Entire Report Reviewed By:

Craig Cothron
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

MW-1S-0621 L1364797-01 GW

Collected by | Collected date/time 06/08/21 11:40 | Received date/time 06/10/21 12:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1691195	1	06/18/21 15:53	06/18/21 15:53	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1692316	1	06/21/21 16:23	06/21/21 16:23	BMB	Mt. Juliet, TN

MW-2S-0621 L1364797-02 GW

Collected by | Collected date/time 06/09/21 11:20 | Received date/time 06/10/21 12:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1691195	1	06/18/21 16:13	06/18/21 16:13	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1692316	1	06/21/21 16:45	06/21/21 16:45	BMB	Mt. Juliet, TN

MW-3S-0621 L1364797-03 GW

Collected by | Collected date/time 06/08/21 17:30 | Received date/time 06/10/21 12:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1691195	1	06/18/21 16:34	06/18/21 16:34	DWR	Mt. Juliet, TN

MW-8S-0621 L1364797-04 GW

Collected by | Collected date/time 06/09/21 13:20 | Received date/time 06/10/21 12:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1691195	1	06/18/21 16:54	06/18/21 16:54	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1692316	1	06/21/21 17:06	06/21/21 17:06	BMB	Mt. Juliet, TN

MW-12S-0621 L1364797-05 GW

Collected by | Collected date/time 06/08/21 14:10 | Received date/time 06/10/21 12:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1691195	1	06/18/21 17:14	06/18/21 17:14	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1692316	1	06/21/21 17:28	06/21/21 17:28	BMB	Mt. Juliet, TN

MW-13S-0621 L1364797-06 GW

Collected by | Collected date/time 06/09/21 14:40 | Received date/time 06/10/21 12:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1691195	1	06/18/21 17:35	06/18/21 17:35	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1692316	5	06/21/21 18:09	06/21/21 18:09	BMB	Mt. Juliet, TN

MW-14S-0621 L1364797-07 GW

Collected by | Collected date/time 06/08/21 09:55 | Received date/time 06/10/21 12:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1691195	1	06/18/21 17:55	06/18/21 17:55	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1692316	1	06/21/21 17:49	06/21/21 17:49	BMB	Mt. Juliet, TN

SAMPLE SUMMARY

MW-FD01-0621 L1364797-08 GW

Collected by	Collected date/time	Received date/time
	06/08/21 12:00	06/10/21 12:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1691314	1	06/18/21 15:46	06/18/21 15:46	BMB	Mt. Juliet, TN

AB-01-0621 L1364797-09 GW

Collected by	Collected date/time	Received date/time
	06/09/21 15:05	06/10/21 12:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1691314	1	06/18/21 16:05	06/18/21 16:05	BMB	Mt. Juliet, TN

EB-01-0621 L1364797-10 GW

Collected by	Collected date/time	Received date/time
	06/08/21 18:00	06/10/21 12:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1691314	1	06/18/21 16:24	06/18/21 16:24	BMB	Mt. Juliet, TN

TB-01-0621 L1364797-11 GW

Collected by	Collected date/time	Received date/time
	06/09/21 16:20	06/10/21 12:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1691314	1	06/18/21 15:08	06/18/21 15:08	BMB	Mt. Juliet, TN

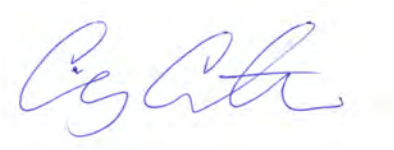
IDW-01-0621 L1364797-12 Waste

Collected by	Collected date/time	Received date/time
	06/09/21 15:40	06/10/21 12:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1688561	1	06/15/21 17:31	06/15/21 17:31	TDW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1689590	1	06/16/21 18:53	06/16/21 18:53	ACG	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Craig Cothron
Project Manager

Sample Delivery Group (SDG) Narrative

pH outside of method requirement.

Lab Sample ID	Project Sample ID	Method
L1364797-11	TB-01-0621	8260B

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Tetrachloroethene	U		0.300	1.00	1	06/18/2021 15:53	WG1691195
(S) Toluene-d8	*105*			*80.0-120*		*06/18/2021 15:53*	WG1691195
(S) Toluene-d8	*89.6*			*80.0-120*		*06/21/2021 16:23*	WG1692316
(S) 4-Bromofluorobenzene	*101*			*77.0-126*		*06/18/2021 15:53*	WG1691195
(S) 4-Bromofluorobenzene	*99.2*			*77.0-126*		*06/21/2021 16:23*	WG1692316
(S) 1,2-Dichloroethane-d4	*125*			*70.0-130*		*06/18/2021 15:53*	WG1691195
(S) 1,2-Dichloroethane-d4	*105*			*70.0-130*		*06/21/2021 16:23*	WG1692316

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Tetrachloroethene	41.4		0.300	1.00	1	06/18/2021 16:13	WG1691195
(S) Toluene-d8	*104*			*80.0-120*		*06/18/2021 16:13*	WG1691195
(S) Toluene-d8	*92.9*			*80.0-120*		*06/21/2021 16:45*	WG1692316
(S) 4-Bromofluorobenzene	*102*			*77.0-126*		*06/18/2021 16:13*	WG1691195
(S) 4-Bromofluorobenzene	*103*			*77.0-126*		*06/21/2021 16:45*	WG1692316
(S) 1,2-Dichloroethane-d4	*127*			*70.0-130*		*06/18/2021 16:13*	WG1691195
(S) 1,2-Dichloroethane-d4	*106*			*70.0-130*		*06/21/2021 16:45*	WG1692316

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Tetrachloroethene	17.6		0.300	1.00	1	06/18/2021 16:34	WG1691195
(S) Toluene-d8	*103*			*80.0-120*		*06/18/2021 16:34*	WG1691195
(S) 4-Bromofluorobenzene	*102*			*77.0-126*		*06/18/2021 16:34*	WG1691195
(S) 1,2-Dichloroethane-d4	*128*			*70.0-130*		*06/18/2021 16:34*	WG1691195

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Tetrachloroethene	45.2	V	0.300	1.00	1	06/18/2021 16:54	WG1691195
(S) Toluene-d8	*104*			*80.0-120*		*06/18/2021 16:54*	WG1691195
(S) Toluene-d8	*96.3*			*80.0-120*		*06/21/2021 17:06*	WG1692316
(S) 4-Bromofluorobenzene	*100*			*77.0-126*		*06/18/2021 16:54*	WG1691195
(S) 4-Bromofluorobenzene	*101*			*77.0-126*		*06/21/2021 17:06*	WG1692316
(S) 1,2-Dichloroethane-d4	*127*			*70.0-130*		*06/18/2021 16:54*	WG1691195
(S) 1,2-Dichloroethane-d4	*110*			*70.0-130*		*06/21/2021 17:06*	WG1692316

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Tetrachloroethene	20.3		0.300	1.00	1	06/18/2021 17:14	WG1691195
(S) Toluene-d8	*103*			*80.0-120*		*06/18/2021 17:14*	WG1691195
(S) Toluene-d8	*96.8*			*80.0-120*		*06/21/2021 17:28*	WG1692316
(S) 4-Bromofluorobenzene	*104*			*77.0-126*		*06/18/2021 17:14*	WG1691195
(S) 4-Bromofluorobenzene	*105*			*77.0-126*		*06/21/2021 17:28*	WG1692316
(S) 1,2-Dichloroethane-d4	*126*			*70.0-130*		*06/18/2021 17:14*	WG1691195
(S) 1,2-Dichloroethane-d4	*114*			*70.0-130*		*06/21/2021 17:28*	WG1692316

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Tetrachloroethene	292		1.50	5.00	5	06/21/2021 18:09	WG1692316
(S) Toluene-d8	*105*			*80.0-120*		*06/18/2021 17:35*	WG1691195
(S) Toluene-d8	*99.5*			*80.0-120*		*06/21/2021 18:09*	WG1692316
(S) 4-Bromofluorobenzene	*103*			*77.0-126*		*06/18/2021 17:35*	WG1691195
(S) 4-Bromofluorobenzene	*106*			*77.0-126*		*06/21/2021 18:09*	WG1692316
(S) 1,2-Dichloroethane-d4	*126*			*70.0-130*		*06/18/2021 17:35*	WG1691195
(S) 1,2-Dichloroethane-d4	*112*			*70.0-130*		*06/21/2021 18:09*	WG1692316

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Tetrachloroethene	5.05		0.300	1.00	1	06/18/2021 17:55	WG1691195
(S) Toluene-d8	*101*			*80.0-120*		*06/18/2021 17:55*	WG1691195
(S) Toluene-d8	*96.8*			*80.0-120*		*06/21/2021 17:49*	WG1692316
(S) 4-Bromofluorobenzene	*101*			*77.0-126*		*06/18/2021 17:55*	WG1691195
(S) 4-Bromofluorobenzene	*106*			*77.0-126*		*06/21/2021 17:49*	WG1692316
(S) 1,2-Dichloroethane-d4	*127*			*70.0-130*		*06/18/2021 17:55*	WG1691195
(S) 1,2-Dichloroethane-d4	*111*			*70.0-130*		*06/21/2021 17:49*	WG1692316

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Tetrachloroethene	21.6		0.300	1.00	1	06/18/2021 15:46	WG1691314
(S) Toluene-d8	*109*			*80.0-120*		*06/18/2021 15:46*	WG1691314
(S) 4-Bromofluorobenzene	*102*			*77.0-126*		*06/18/2021 15:46*	WG1691314
(S) 1,2-Dichloroethane-d4	*95.3*			*70.0-130*		*06/18/2021 15:46*	WG1691314

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Tetrachloroethene	U		0.300	1.00	1	06/18/2021 16:05	WG1691314
(S) Toluene-d8	*104*			*80.0-120*		*06/18/2021 16:05*	WG1691314
(S) 4-Bromofluorobenzene	*103*			*77.0-126*		*06/18/2021 16:05*	WG1691314
(S) 1,2-Dichloroethane-d4	*94.8*			*70.0-130*		*06/18/2021 16:05*	WG1691314

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Tetrachloroethene	U		0.300	1.00	1	06/18/2021 16:24	WG1691314
(S) Toluene-d8	*103*			*80.0-120*		*06/18/2021 16:24*	WG1691314
(S) 4-Bromofluorobenzene	*104*			*77.0-126*		*06/18/2021 16:24*	WG1691314
(S) 1,2-Dichloroethane-d4	*96.4*			*70.0-130*		*06/18/2021 16:24*	WG1691314

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Tetrachloroethene	U		0.300	1.00	1	06/18/2021 15:08	WG1691314
(S) Toluene-d8	*105*			*80.0-120*		*06/18/2021 15:08*	WG1691314
(S) 4-Bromofluorobenzene	*104*			*77.0-126*		*06/18/2021 15:08*	WG1691314
(S) 1,2-Dichloroethane-d4	*93.3*			*70.0-130*		*06/18/2021 15:08*	WG1691314

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP ZHE Extraction	-		6/15/2021 5:31:45 PM	WG1688561

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Tetrachloroethene	ND		0.0500	0.70	1	06/16/2021 18:53	WG1689590
(S) Toluene-d8	*98.4*		*80.0-120*			*06/16/2021 18:53*	WG1689590
(S) 4-Bromofluorobenzene	*98.6*		*77.0-126*			*06/16/2021 18:53*	WG1689590
(S) 1,2-Dichloroethane-d4	*99.0*		*70.0-130*			*06/16/2021 18:53*	WG1689590

Method Blank (MB)

(MB) R3668154-3 06/16/21 13:10

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Tetrachloroethene	U		0.0167	0.0500
(S) Toluene-d8	*99.2*			*80.0-120*
(S) 4-Bromofluorobenzene	*98.3*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*93.4*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3668154-1 06/16/21 12:09 • (LCSD) R3668154-2 06/16/21 12:29

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Tetrachloroethene	0.250	0.250	0.254	100	102	72.0-132			1.59	20
(S) Toluene-d8				*102*	*100*	*80.0-120*				
(S) 4-Bromofluorobenzene				*102*	*103*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*95.3*	*94.7*	*70.0-130*				

L1364797-12 Original Sample (OS) • Matrix Spike (MS)

(OS) L1364797-12 06/16/21 18:53 • (MS) R3668154-4 06/16/21 20:14

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Tetrachloroethene	0.250	ND	0.217	86.8	1	10.0-160	
(S) Toluene-d8				*96.6*		*80.0-120*	
(S) 4-Bromofluorobenzene				*99.6*		*77.0-126*	
(S) 1,2-Dichloroethane-d4				*94.6*		*70.0-130*	

L1364826-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1364826-01 06/16/21 19:13 • (MS) R3668154-6 06/16/21 20:34 • (MSD) R3668154-7 06/16/21 20:54

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Tetrachloroethene	0.250	ND	0.0982	0.0914	39.3	36.6	1	10.0-160			7.17	27
(S) Toluene-d8					*97.3*	*95.8*		*80.0-120*				
(S) 4-Bromofluorobenzene					*98.0*	*95.6*		*77.0-126*				
(S) 1,2-Dichloroethane-d4					*94.9*	*95.3*		*70.0-130*				

Method Blank (MB)

(MB) R3669628-3 06/18/21 11:30

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Tetrachloroethene	U		0.300	1.00
(S) Toluene-d8	*104*			*80.0-120*
(S) 4-Bromofluorobenzene	*102*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*124*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3669628-1 06/18/21 10:08

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Tetrachloroethene	5.00	4.41	88.2	72.0-132	
(S) Toluene-d8			*102*	*80.0-120*	
(S) 4-Bromofluorobenzene			*106*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*124*	*70.0-130*	

L1364797-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1364797-04 06/18/21 16:54 • (MS) R3669628-4 06/18/21 19:57 • (MSD) R3669628-5 06/18/21 20:17

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Tetrachloroethene	5.00	45.2	43.9	44.1	0.000	0.000	1	10.0-160	V	V	0.455	27
(S) Toluene-d8					*101*	*99.7*		*80.0-120*				
(S) 4-Bromofluorobenzene					*103*	*103*		*77.0-126*				
(S) 1,2-Dichloroethane-d4					*125*	*125*		*70.0-130*				

Method Blank (MB)

(MB) R3670054-2 06/18/21 14:49

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Tetrachloroethene	U		0.300	1.00
(S) Toluene-d8	*104*			*80.0-120*
(S) 4-Bromofluorobenzene	*103*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*90.1*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3670054-1 06/18/21 14:11

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Tetrachloroethene	5.00	5.14	103	72.0-132	
(S) Toluene-d8			*110*	*80.0-120*	
(S) 4-Bromofluorobenzene			*99.9*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*88.6*	*70.0-130*	

Method Blank (MB)

(MB) R3670028-2 06/21/21 11:24

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Tetrachloroethene	U		0.300	1.00
(S) Toluene-d8	*90.5*			*80.0-120*
(S) 4-Bromofluorobenzene	*105*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*107*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3670028-1 06/21/21 10:40

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Tetrachloroethene	5.00	4.65	93.0	72.0-132	
(S) Toluene-d8			*93.4*	*80.0-120*	
(S) 4-Bromofluorobenzene			*106*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*101*	*70.0-130*	

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

5016 1237 4630

1241

Pace Analytical
12065 Lebanon Rd.
Mount Juliet, TN 37122
615-758-5858

CHAIN OF CUSTODY RECORD

L1364797

Jacobs
4121 Carmichael Dr., Suite 400
Montgomery, AL 36106
(334) 215-9058
FAX (334) 273-7532

Project/Contact Information	
PO #	148024842
Project Name	Montgomery DEAP
Project Chemist/ Report Copy to	Kaye Walker/MGM
Company Name/Contact	Jacobs/Glen Davis/MGM

Requested Analysis: VOCs - PCE only SW8260B; TCLP VOCs - PCE Only SW1311

THIS AREA FOR LAB USE ONLY

Lab #	Pg	of
Lab PM	Custody Review	
Log In	LIMS Verification	
pH	Cust Seals Y N / Ice Y N	
QC Level 1 2 3 (3 underlined)		
Cooler Temperature		

Date	Time	Comp	Grab	Water	Soil	Air	Client Sample ID (9 Characters Max)	LAB QC	Total Number of Containers	VOCs - PCE only SW8260B (Preservative: HCl)	TCLP VOCs - PCE Only SW1311 (Preservative: N/A)	Alternate Description	Lab ID
6-8-21	1140		X	X			MW-1S-0621		3	X			-01
6-9-21	1120		X	X			MW-2S-0621		3	X			-02
6-8-21	1730	~~X~~	X	X			MW-3S-0621		3	X			-03
6-9-21	1320		X	X			MW-8S-0621	MS/MSD	9	X		MS/MSD	-04
6-8-21	1410		X	X			MW-12S-0621		3	X			-05
6-9-21	1440		X	X			MW-13S-0621		3	X			-06
6-8-21	0955		X	X			MW-14S-0621		3	X		~~MS/MSD~~	-07
6-8-21	1200		X	X			MW-FD01-0621		3	X			-08
6-9-21	1505		X	X			AB-01-0621		3	X			-09
6-8-21	1800	~~X~~	X	X			EB-01-0621		3	X			-10
6-9-21	1620		X	X			TB-01-0621		~~1~~ 2	X			-11
6-9-21	1540		X	X			IDW-01-0621		3	~~X~~	X		-12

Sampled By: Ethan Davies/Jacobs [signature]	Relinquished By: Ethan Davies/Jacobs [signature] 6/9/21 1700	1.4+0=1.4 H3 [illegible]
Received By	Relinquished By: [signature]	
Received By	Date/Time: 6/10/21 1245	

Special Instructions

Contact Project Chemist with ANY QC exceedance

EPA DQO Level III data package and 21 day TAT are required.

File: MGM_DEAP_COC_June2021

Sample Receipt Checklist

COC Seal Present/Intact: _Y_ N	If Applicable		
COC Signed/Accurate: ✓Y N	VOA Zero Headspace: ✓Y N		
Bottles arrive intact: ✓Y N	Pres.Correct/Check: _Y_ N		
Correct bottles used: ✓Y N			
Sufficient volume sent: ✓Y N			

Appendix C
Field Records

Montgomery DEAP

Montgomery, AL

Event: June 2021 Groundwater Sampling Event

Personnel: E. Davies & T. Sheffield

Well	Date	Time	Depth to Product, ft	Depth to Water, ft	Product Thickness, ft	Total Well Depth, ft	Comments
MW-1S	6-7	1337	-	35.90	-	51.70	
MW-1I	6-7	1323	-	59.15	-	144.54	
MW-2S	6-7	1349	-	37.51	-	58.68	
MW-3S	6-7	1358	-	53.46	-	60.65	
MW-4S	6-7	1249	-	~~52.76~~	-	~~71.00~~	29.15 / 38.40
MW-4I	6-7	1315	-	30.45	-	127.10	
MW-5I	6-7	1406	-	55.15	-	162.10	
MW-7S	6-7	1449	-	32.54	-	98.18	
MW-7I	6-7	1426	-	32.48	-	130.66	
MW-8S	6-7	1510	-	34.55	-	52.40	
MW-8I	6-7	1505	-	34.45	-	121.32	
MW-9S	6-7	1249	-	52.26	-	72.00	
MW-10S	6-7-21	1255	-	54.08	-	~~73~~.40	
MW-12S	6-7	1528	-	24.26	-	41.95	
MW-12I	6-7	1535	-	23.96	-	105.72	
TMPZ-1/MW-13S	6-7	1547	-	28.89	-	~~47~~.84	
MW-14S	6-8	0824	-	28.40	-	49.80	

30.45 29.15

127.10 38.4

Montgomery Downtown Environmental Assessment Project
GROUNDWATER SAMPLING LOG

SITE NAME: Montgomery DEAP	SITE LOCATION: Downtown Montgomery, AL	PROJECT NUMBER: 666378.01.GW
WELL NO: MW-01S	SAMPLE ID: MW-01S-0621	DATE: 6/8/21

PURGING DATA

WELL DIAMETER (in): 2	TOTAL WELL DEPTH (ft): 51.70	STATIC DEPTH TO WATER (ft): 35.94	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY =

= (51.70 - 35.94) X = 2.5

PURGE METHOD: Bladder Pump	PURGE INITIATED AT: 1105	PURGE ENDED AT: 1145	TOTAL VOL. PURGED (gal): 2.1

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE (gpm)	DEPTH TO WATER (ft)	pH	TEMP. (°C)	SPECIFIC CONDUCTANCE (µmhos)	TURBIDITY (NTUs)	Dissolved Oxygen (mg/L)	Oxygen-Reduction Potential (mV)
1110		0.2		35.95	5.36	23.31	0.193	34.3	5.40	164.3
1115		0.3		35.95	4.99	22.99	0.193	9.51	5.22	196.2
1120		0.5		35.95	4.96	22.91	0.190	3.31	5.15	203.5
1125		0.7		35.95	5.01	23.17	0.189	1.79	5.14	205.1
1130		1.1		35.95	5.12	23.37	0.190	1.14	5.13	203.4
1135		1.3		35.95	5.18	23.63	0.190	1.03	5.09	203.2
1140		1.5		35.95	5.22	23.85	0.191	0.83	5.08	204.0

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: E. Davies / Jacobs	SAMPLER(S) SIGNATURE(S):
SAMPLING METHOD(S): Bladder pump	SAMPLING INITIATED AT: 1140
SAMPLING ENDED AT: 1143	
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N)
DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD
3	AG	40 mL	HCl	40mL x 3	5.22	VOCs (PCE)

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

Based on FL DEP-SOP-001/01: Form FD 2000-24

Montgomery Downtown Environmental Assessment Project
GROUNDWATER SAMPLING LOG

SITE NAME: Montgomery DEAP	SITE LOCATION: Downtown Montgomery, AL	PROJECT NUMBER: 666378.01.GW
WELL NO: MW-025	SAMPLE ID: MW-025-0621	DATE: 6/9/21

PURGING DATA

WELL DIAMETER (in): 2	TOTAL WELL DEPTH (ft): 58.68	STATIC DEPTH TO WATER (ft): 37.56	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY =

= (–) X = 3.38

PURGE METHOD: Low Flow	PURGE INITIATED AT: 1040	PURGE ENDED AT: 1123	TOTAL VOL. PURGED (gal): 2.1

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE (gpm)	DEPTH TO WATER (ft)	pH	TEMP. (°C)	SPECIFIC CONDUCTANCE (µmhos)	TURBIDITY (NTUs)	Dissolved Oxygen (mg/L)	Oxygen-Reduction Potential (mV)
1045		0.2		37.55	5.42	25.22	0.731	302	5.09	168.4
1050		0.35		37.56	5.06	24.36	0.224	81.4	4.82	203.4
1055		0.6		37.56	4.81	24.47	0.228	50.1	4.82	214.9
1100		0.8		37.56	4.86	24.49	0.234	33.1	4.86	216.0
1105		1.1		37.56	4.89	24.80	0.235	12.0	4.88	209.7
1110		1.3		37.56	5.16	24.42	0.232	6.63	4.87	207.1
1115		1.5		37.56	5.11	24.18	0.231	3.93	4.89	211.4
1120		1.7		37.56	5.09	24.28	0.231	3.76	4.88	213.7

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ethan Davies/Jacobs	SAMPLER(S) SIGNATURE(S):

SAMPLING METHOD(S): Bladder Pump	SAMPLING INITIATED AT: 1120	SAMPLING ENDED AT: 1124

FIELD DECONTAMINATION: (Y) N	FIELD-FILTERED: Y (N)	DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	
3	AG	40mL	HCl	40	5.09	VOCs (PCE)

REMARKS: DO written in pH for 3 readings

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

Based on FL DEP-SOP-001/01: Form FD 2000-24

Montgomery Downtown Environmental Assessment Project
GROUNDWATER SAMPLING LOG

SITE NAME: Montgomery DEAP	SITE LOCATION: Downtown Montgomery, AL	PROJECT NUMBER: 666378.01.GW
WELL NO: MW-03S	SAMPLE ID: MW-03S-0621	DATE: 6/8/21

PURGING DATA

WELL DIAMETER (in):	TOTAL WELL DEPTH (ft): 60.65	STATIC DEPTH TO WATER (ft): 53.45	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY =

= (60.65 – 53.45) x 0.16 = 1.1

PURGE METHOD: Bladder Pump	PURGE INITIATED AT: 1640	PURGE ENDED AT: 1740	TOTAL VOL. PURGED (gal): 1.6

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE (~~gpm~~) mL/min	DEPTH TO WATER (ft)	pH	TEMP. (°C)	SPECIFIC CONDUCTANCE (µmhos)	TURBIDITY (NTUs)	Dissolved Oxygen (mg/L)	Oxygen-Reduction Potential (mV)
1700	0.3		150	53.48	5.24	22.21	0.187	13.9	4.41	186.2
1705	0.4		150	53.48	5.22	21.92	0.189	7.16	4.36	187.4
1710		0.6	150	53.48	5.22	21.74	0.192	3.02	4.21	190.5
1715		0.8	150	53.50	5.24	21.69	0.194	1.79	4.15	190.7
1720		1.0	150	53.49	5.25	21.68	0.195	1.36	4.11	191.8
1725		1.1	150	53.49	5.27	21.72	0.196	1.06	4.08	193.1
1730		1.25	150	53.49	5.29	21.76	0.196	0.95	4.08	193.3

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ethan Davis/Jacobs	SAMPLER(S) SIGNATURE(S):	
SAMPLING METHOD(S): Bladder pump	SAMPLING INITIATED AT: 1730	SAMPLING ENDED AT: 1736
FIELD DECONTAMINATION: (Y) N	FIELD-FILTERED: Y (N)	DUPLICATE: (Y) N

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	
3	AG	40	HCl	40	5.29	VOCs (PCE only)

REMARKS: FD-01-0621 collected from MW-03S at time marked 1200

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

Based on FL DEP-SOP-001/01: Form FD 2000-24

Montgomery Downtown Environmental Assessment Project
GROUNDWATER SAMPLING LOG

SITE NAME: Montgomery DEAP	SITE LOCATION: Downtown Montgomery, AL	PROJECT NUMBER: 666378.01.GW
WELL NO: MW-8S	SAMPLE ID: MW-8S-0621	DATE: 6/9/21

PURGING DATA

WELL DIAMETER (in): 2	TOTAL WELL DEPTH (ft): 52.40	STATIC DEPTH TO WATER (ft): 34.60	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY =

=(–)X = 28

PURGE METHOD: Low Flow	PURGE INITIATED AT: 1250	PURGE ENDED AT: 1330	TOTAL VOL. PURGED (gal): 2.1

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE (gpm)	DEPTH TO WATER (ft)	pH	TEMP. (°C)	SPECIFIC CONDUCTANCE (µmhos)	TURBIDITY (NTUs)	Dissolved Oxygen (mg/L)	Oxygen-Reduction Potential (mV)
1255		0.2		34.55	4.96	26.60	0.228	36.1	4.69	198.5
1300		0.3		34.53	4.77	26.33	0.225	11.4	4.58	216.2
1305		0.5		34.53	4.80	26.07	0.224	6.61	4.56	219.2
1310		0.7		34.53	4.82	25.88	0.223	2.29	4.54	223.4
1315		1.0		34.53	4.83	25.57	0.221	1.08	4.52	226.1
1320		1.2		34.53	4.85	25.51	0.221	0.63	4.52	226.5

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ethan Davies/Jacobs	SAMPLER(S) SIGNATURE(S):	
SAMPLING METHOD(S): Bladder Pump	SAMPLING INITIATED AT: 1320	SAMPLING ENDED AT: 1330
FIELD DECONTAMINATION: (Y) N	FIELD-FILTERED: Y (N)	DUPLICATE: (Y) N MS/MSD

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	
3	AG	40mL	HCl	40e 9	4.85	VOCs (PCE)

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

Based on FL DEP-SOP-001/01: Form FD 2000-24

Montgomery Downtown Environmental Assessment Project
GROUNDWATER SAMPLING LOG

SITE NAME: Montgomery DEAP	SITE LOCATION: Downtown Montgomery, AL	PROJECT NUMBER: 666378.01.GW
WELL NO: MW-12S	SAMPLE ID: MW-12S-0621	DATE: 6/8/21

PURGING DATA

WELL DIAMETER (in): 2	TOTAL WELL DEPTH (ft): 41.95	STATIC DEPTH TO WATER (ft): 24.31	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY =

= (41.95 - 24.31) x 0.16 = 2.8

PURGE METHOD: Low Flow	PURGE INITIATED AT: 1337	PURGE ENDED AT: 1413	TOTAL VOL. PURGED (gal): 1.8

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE (gpm)	DEPTH TO WATER (ft)	pH	TEMP. (°C)	SPECIFIC CONDUCTANCE (µmhos)	TURBIDITY (NTUs)	Dissolved Oxygen (mg/L)	Oxygen-Reduction Potential (mV)
1345		0.2		24.38	5.22	25.34	0.185	214	4.53	148.3
1350		0.3		24.38	5.19	24.77	0.181	60.4	4.24	162.7
1355		0.5		24.38	5.20	24.68	0.181	33.5	4.09	169.1
1400		0.7		24.38	5.22	24.04	0.181	23.4	4.05	177.1
1405		0.8		24.38	5.24	24.24	0.181	15.9	4.01	177.7
1410		1.0		24.38	5.27	24.25	0.181	9.5	4.02	181.6

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ethan Davies/Jacobs	SAMPLER(S) SIGNATURE(S):	
SAMPLING METHOD(S): Bladder Pump	SAMPLING INITIATED AT: 1410	SAMPLING ENDED AT: 1413
FIELD DECONTAMINATION: (Y) N	FIELD-FILTERED: Y (N)	DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	
3	AG	40 mL	HCl	40	5.27	VOCs (PCE)

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

Based on FL DEP-SOP-001/01: Form FD 2000-24

Montgomery Downtown Environmental Assessment Project

GROUNDWATER SAMPLING LOG

SITE NAME: Montgomery DEAP	SITE LOCATION: Downtown Montgomery, AL	PROJECT NUMBER: 666378.01.GW
WELL NO: MW-13S	SAMPLE ID: MW-13S-0621	DATE: 6/9/21

PURGING DATA

WELL DIAMETER (in): 2	TOTAL WELL DEPTH (ft): 47.86	STATIC DEPTH TO WATER (ft): 28.88	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY =

=(–) X = 3.03

PURGE METHOD: Low Flow	PURGE INITIATED AT: 1412	PURGE ENDED AT: 1444	TOTAL VOL. PURGED (gal): 1.5

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE (gpm)	DEPTH TO WATER (ft)	pH	TEMP. (°C)	SPECIFIC CONDUCTANCE (µmhos)	TURBIDITY (NTUs)	Dissolved Oxygen (mg/L)	Oxygen-Reduction Potential (mV)
1420		0.2		28.89	5.30	23.17	0.197	124	4.32	187.7
1425		0.4		28.89	5.14	22.83	0.196	4.80	4.12	195.5
1430		0.6		28.89	5.18	22.81	0.196	2.52	4.09	195.1
1435		0.8		28.89	5.21	22.55	0.196	1.53	4.05	195.9
1440		1.0		28.89	5.21	22.34	0.195	0.85	4.04	198.9

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ethan Davis/Jacobs	SAMPLER(S) SIGNATURE(S):

SAMPLING METHOD(S): Bladder Pump	SAMPLING INITIATED AT: 1440	SAMPLING ENDED AT: 1444

FIELD DECONTAMINATION: (O) N	FIELD-FILTERED: Y (N)	DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	
3	AG	40 mL	HCl	40	5.21	VOCs (PCE)

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

Based on FL DEP-SOP-001/01: Form FD 2000-24

Montgomery Downtown Environmental Assessment Project
GROUNDWATER SAMPLING LOG

SITE NAME: Montgomery DEAP	SITE LOCATION: Downtown Montgomery, AL	PROJECT NUMBER: 666378.01.GW
WELL NO: MW-14S	SAMPLE ID: MW-14S-0621	DATE: 6-8-21

PURGING DATA

WELL DIAMETER (in): 2	TOTAL WELL DEPTH (ft): 49.80	STATIC DEPTH TO WATER (ft): 28.40	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY = 3.42

= (49.80 - ~~78~~ 28.40) X 0.16 = 3.42

PURGE METHOD: Low flow	PURGE INITIATED AT: 0919	PURGE ENDED AT: 0957	TOTAL VOL. PURGED (gal): 1.9

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE ~~(gpm)~~ mL/min	DEPTH TO WATER (ft)	pH	TEMP. (°C)	SPECIFIC CONDUCTANCE (µmhos)	TURBIDITY (NTUs)	Dissolved Oxygen (mg/L)	Oxygen-Reduction Potential (mV)
0925	0.1		150	28.41	5.89	22.65	0.226	65.7	4.29	69.9
0930	0.2		150	28.41	5.50	22.34	0.217	20.0	3.99	98.7
0935	0.4		150	28.41	5.36	22.16	0.203	5.62	3.88	137.1
0940	0.6		150	28.41	5.31	21.96	0.200	1.83	3.88	153.4
0945	0.75		150	28.41	5.28	21.93	0.199	1.13	3.88	157.2
0950	1.0		150	28.41	5.27	22.01	0.198	1.00	3.85	167.2
0955	1.2		150	28.41	5.32	22.05	0.198	0.91	3.86	166.5

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: E. Davies / Jacobs	SAMPLER(S) SIGNATURE(S):	
SAMPLING METHOD(S): Bladder pump	SAMPLING INITIATED AT: 0955	SAMPLING ENDED AT: 0957
FIELD DECONTAMINATION: (Y) N	FIELD-FILTERED: Y N	DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	
3	AG	40 mL	5mL HCl	40 x 3	5.32	VOCs (PCE only)

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

Based on FL DEP-SOP-001/01: Form FD 2000-24

Appendix D
Site Photographs

321 North Lawrence Street

321 North Lawrence Street

321 North Lawrence Street

205 Jefferson Street

205 Jefferson Street

301 Monroe Street

301 Monroe Street

301 Monroe Street

401 North Hull Street

401 North Hull Street

315 North McDonough Street

315 North McDonough Street

304 North Hull Street

304 North Hull Street

400 North Perry Street

400 North Perry Street

401 Madison Avenue

401 Madison Avenue

418 Madison Avenue

418 Madison Avenue

Decatur Street – Old Alabama Town Historical Building

Decatur Street – Old Alabama Town Historical Building

230 North Hull Street – Historical Bucket Well

230 North Hull Street – Historical Bucket Well

Historical Pump Well

608 North Court Street

608 North Court Street

608 North Court Street

608 North Court Street

300 Block Madison

300 Block Madison

300 Block Madison

300 Block Madison

300 Block Madison

300 Block Madison

North Lawrence Street (Parcel Number 10 03 07 2 203 014.000)

North Lawrence Street (Parcel Number 10 03 07 2 203 014.000)

Washington Avenue Right of Way

Washington Avenue Right of Way

317 North Decatur Street – McClendon Service Center

Appendix E
Site Inspection and Interview Records

Institutional Controls Annual Inspection Checklist

INSPECTION DATE:

INSPECTOR NAME:

INSPECTION ADDRESS: 205 E Jefferson St Montgomery AL

INSPECTOR CERTIFICATION

This is to certify that the 2021 annual institutional controls inspections on 8/30, 2021 was conducted by Glen Davis

Date:

If the answer to any of the following questions deviates from the prescribed land use restriction, please describe and explain on the attached comment sheet.

Land Use Restriction	Inspection
Site-wide Groundwater Use Restriction: Based on the Institutional Control Plan (ICP), there is a restriction on the use of shallow groundwater within the Downtown Environmental Assessment Project (DEAP) Land Use Restriction Areas. There is also a 2002 City ordinance that prohibits the installation of groundwater wells within a similar boundary and a 2019 amendment to the Ordinance prohibits the use of any existing well. Figure 3-1 of the ICP depicts the DEAP Land Use Restriction Areas.	1. Has intrusive work been completed on the subject property that would potentially encounter groundwater? Yes (No) Unknown 2. If yes, is there an operable groundwater well located on the subject property? Yes (No) Unknown 3. If yes, was the well installed prior to the 2002 City Ordinance banning well installations, and is documentation of installation available? Yes No Unknown 4. Provide the date that the property owner plans to decommission and abandon the well (See Interview Documentation). N/A 5. If new construction has been or is planned for the property, has or will a vapor barrier be/been used during the contruction of the first floor slab? Yes (No) Unknown

Institutional Controls Annual Inspection Checklist

INSPECTION DATE:

INSPECTOR NAME:

INSPECTION ADDRESS: 400 N Perry Street Montgomery AL 36104

INSPECTOR CERTIFICATION

This is to certify that the 2021 annual institutional controls inspections on 8/30, 2021 was conducted by Glen Davis

Date:

If the answer to any of the following questions deviates from the prescribed land use restriction, please describe and explain on the attached comment sheet.

Land Use Restriction	Inspection
Site-wide Groundwater Use Restriction: Based on the Institutional Control Plan (ICP), there is a restriction on the use of shallow groundwater within the Downtown Environmental Assessment Project (DEAP) Land Use Restriction Areas. There is also a 2002 City ordinance that prohibits the installation of groundwater wells within a similar boundary and a 2019 amendment to the Ordinance prohibits the use of any existing well. Figure 3-1 of the ICP depicts the DEAP Land Use Restriction Areas.	1. Has intrusive work been completed on the subject property that would potentially encounter groundwater? Yes (No) Unknown 2. If yes, is there an operable groundwater well located on the subject property? Yes (No) Unknown 3. If yes, was the well installed prior to the 2002 City Ordinance banning well installations, and is documentation of installation available? Yes (No) Unknown 4. Provide the date that the property owner plans to decommission and abandon the well (See Interview Documentation). N/A 5. If new construction has been or is planned for the property, has or will a vapor barrier be/been used during the contruction of the first floor slab? (Yes) No Unknown Via Letter from City dated 12/19/18

Institutional Controls Annual Inspection Checklist

INSPECTION DATE:

INSPECTOR NAME:

INSPECTION ADDRESS: 418 Madison Ave Montgomery AL 36104

INSPECTOR CERTIFICATION

This is to certify that the 2021 annual institutional controls inspections on 8/30, 2021 was conducted by Glen Davis

Date:

If the answer to any of the following questions deviates from the prescribed land use restriction, please describe and explain on the attached comment sheet.

Land Use Restriction	Inspection
Site-wide Groundwater Use Restriction: Based on the Institutional Control Plan (ICP), there is a restriction on the use of shallow groundwater within the Downtown Environmental Assessment Project (DEAP) Land Use Restriction Areas. There is also a 2002 City ordinance that prohibits the installation of groundwater wells within a similar boundary and a 2019 amendment to the Ordinance prohibits the use of any existing well. Figure 3-1 of the ICP depicts the DEAP Land Use Restriction Areas.	1. Has intrusive work been completed on the subject property that would potentially encounter groundwater? Yes (No) Unknown 2. If yes, is there an operable groundwater well located on the subject property? (Yes) (No) Unknown MW-5I owned/operated by DEA 3. If yes, was the well installed prior to the 2002 City Ordinance banning well installations, and is documentation of installation available? (Yes) No Unknown 4. Provide the date that the property owner plans to decommission and abandon the well (See Interview Documentation). N/A 5. If new construction has been or is planned for the property, has or will a vapor barrier be/been used during the contruction of the first floor slab? Yes (No) Unknown

INTERVIEW RECORD

Site Name: Montgomery Downtown Environmental Assessment Project		
Subject: Old Alabama Town Properties	Time: 9/2/21	Date: 9:00a
Type: _ Telephone _ Visit ~~_ Other~~ Location of Visit:		_ Incoming _ Outgoing ✓ In Person

Contact Made By:		
Name: Glen Davis	Title: Project Manager	Organization: Jacobs

Individual Contacted:		
Name: Collier Neely	Title: Ex. Director	Organization: Landmark

Telephone No: Fax No: E-Mail Address:	Street Address: City, State, Zip:

Summary of Conversation (Refer to Questions in Annual Inspection Checklist)

Orderman House (220 N. Hull St)
- Lock needed on Well Cover
- Collier to have lock or Screws installed

Hand-pump Well (360 N. Hull St)
- Never a well; only well head
- Removed 4 months ago

other well is asphalted over (No Pub Access)
- Once used for irrigation but ceased 15-20 years ago

Parcel #23 (304 N. Hull St)
- Lucus Tavern
- No wells
- Should have vapor barrier

Parcel #37 (401 Madison Ave)
- Thompson Mansion (Archetial Office)
- Should have Vapor Barrier

- No Wells
- MW-35 adjacent to Property

Parcel #91 (Decatur St)
- No wells
- Should have Vapor Barrier (5 years)

- Only for Tours
- No offices

Parcel #93 (401 N Hull St)
- City-owned Playground
- No Wells

Institutional Controls Annual Inspection Checklist

INSPECTION DATE:

INSPECTOR NAME:

INSPECTION ADDRESS: ~~360~~ 304 N. Hull St. Montgomery, AL

INSPECTOR CERTIFICATION

This is to certify that the 2021 annual institutional controls inspections on 9/2/, 2021 was conducted by GD

Date:

If the answer to any of the following questions deviates from the prescribed land use restriction, please describe and explain on the attached comment sheet.

Land Use Restriction	Inspection
Site-wide Groundwater Use Restriction: Based on the Institutional Control Plan (ICP), there is a restriction on the use of shallow groundwater within the Downtown Environmental Assessment Project (DEAP) Land Use Restriction Areas. There is also a 2002 City ordinance that prohibits the installation of groundwater wells within a similar boundary and a 2019 amendment to the Ordinance prohibits the use of any existing well. Figure 3-1 of the ICP depicts the DEAP Land Use Restriction Areas.	1. Has intrusive work been completed on the subject property that would potentially encounter groundwater? Yes (No) Unknown 2. If yes, is there an operable groundwater well located on the subject property? Yes (No) Unknown 3. If yes, was the well installed prior to the 2002 City Ordinance banning well installations, and is documentation of installation available? Yes No Unknown 4. Provide the date that the property owner plans to decommission and abandon the well (See Interview Documentation). _____ 5. If new construction has been or is planned for the property, has or will a vapor barrier be/been used during the contruction of the first floor slab? (Yes) No Unknown

Institutional Controls Annual Inspection Checklist

INSPECTION DATE:

INSPECTOR NAME:

INSPECTION ADDRESS: 315 N. McDonough St Montgomery AL

INSPECTOR CERTIFICATION

This is to certify that the 2021 annual institutional controls inspections on 9/2, 2021 was conducted by GD

Date:

If the answer to any of the following questions deviates from the prescribed land use restriction, please describe and explain on the attached comment sheet.

Land Use Restriction	Inspection
Site-wide Groundwater Use Restriction: Based on the Institutional Control Plan (ICP), there is a restriction on the use of shallow groundwater within the Downtown Environmental Assessment Project (DEAP) Land Use Restriction Areas. There is also a 2002 City ordinance that prohibits the installation of groundwater wells within a similar boundary and a 2019 amendment to the Ordinance prohibits the use of any existing well. Figure 3-1 of the ICP depicts the DEAP Land Use Restriction Areas.	1. Has intrusive work been completed on the subject property that would potentially encounter groundwater? Yes (No) Unknown 2. If yes, is there an operable groundwater well located on the subject property? Yes (No) Unknown 3. If yes, was the well installed prior to the 2002 City Ordinance banning well installations, and is documentation of installation available? Yes No Unknown 4. Provide the date that the property owner plans to decommission and abandon the well (See Interview Documentation). _____ 5. If new construction has been or is planned for the property, has or will a vapor barrier be/been used during the contruction of the first floor slab? Yes No (Unknown)

Institutional Controls Annual Inspection Checklist

INSPECTION DATE:

INSPECTOR NAME:

INSPECTION ADDRESS: 321 N. Lawrence St Montgomery AL

INSPECTOR CERTIFICATION

This is to certify that the 2021 annual institutional controls inspections on 9/2/, 2021 was conducted by GD

Date:

If the answer to any of the following questions deviates from the prescribed land use restriction, please describe and explain on the attached comment sheet.

Land Use Restriction	Inspection
Site-wide Groundwater Use Restriction: Based on the Institutional Control Plan (ICP), there is a restriction on the use of shallow groundwater within the Downtown Environmental Assessment Project (DEAP) Land Use Restriction Areas. There is also a 2002 City ordinance that prohibits the installation of groundwater wells within a similar boundary and a 2019 amendment to the Ordinance prohibits the use of any existing well. Figure 3-1 of the ICP depicts the DEAP Land Use Restriction Areas.	1. Has intrusive work been completed on the subject property that would potentially encounter groundwater? Yes (No) Unknown 2. If yes, is there an operable groundwater well located on the subject property? Yes (No) Unknown 3. If yes, was the well installed prior to the 2002 City Ordinance banning well installations, and is documentation of installation available? Yes No Unknown 4. Provide the date that the property owner plans to decommission and abandon the well (See Interview Documentation). _____ 5. If new construction has been or is planned for the property, has or will a vapor barrier be/been used during the contruction of the first floor slab? Yes No (Unknown) Building Recently Demolished

Institutional Controls Annual Inspection Checklist

INSPECTION DATE:

INSPECTOR NAME:

INSPECTION ADDRESS: 401 N Hull St
Montgomery AL

INSPECTOR CERTIFICATION

This is to certify that the 2021 annual institutional controls inspections on 9/2, 2021 was conducted by GD

Date:

If the answer to any of the following questions deviates from the prescribed land use restriction, please describe and explain on the attached comment sheet.

Land Use Restriction	Inspection
Site-wide Groundwater Use Restriction: Based on the Institutional Control Plan (ICP), there is a restriction on the use of shallow groundwater within the Downtown Environmental Assessment Project (DEAP) Land Use Restriction Areas. There is also a 2002 City ordinance that prohibits the installation of groundwater wells within a similar boundary and a 2019 amendment to the Ordinance prohibits the use of any existing well. Figure 3-1 of the ICP depicts the DEAP Land Use Restriction Areas.	1. Has intrusive work been completed on the subject property that would potentially encounter groundwater? Yes (No) Unknown 2. If yes, is there an operable groundwater well located on the subject property? Yes (No) Unknown 3. If yes, was the well installed prior to the 2002 City Ordinance banning well installations, and is documentation of installation available? Yes No Unknown 4. Provide the date that the property owner plans to decommission and abandon the well (See Interview Documentation). _____ 5. If new construction has been or is planned for the property, has or will a vapor barrier be/been used during the contruction of the first floor slab? Yes (No) Unknown

Institutional Controls Annual Inspection Checklist

INSPECTION DATE:

INSPECTOR NAME:

INSPECTION ADDRESS: 401 Madison Ave
Montgomery AL

INSPECTOR CERTIFICATION

This is to certify that the 2021 annual institutional controls inspections on 9/24, 2021 was conducted by GD

Date:

If the answer to any of the following questions deviates from the prescribed land use restriction, please describe and explain on the attached comment sheet.

Land Use Restriction	Inspection
Site-wide Groundwater Use Restriction: Based on the Institutional Control Plan (ICP), there is a restriction on the use of shallow groundwater within the Downtown Environmental Assessment Project (DEAP) Land Use Restriction Areas. There is also a 2002 City ordinance that prohibits the installation of groundwater wells within a similar boundary and a 2019 amendment to the Ordinance prohibits the use of any existing well. Figure 3-1 of the ICP depicts the DEAP Land Use Restriction Areas.	1. Has intrusive work been completed on the subject property that would potentially encounter groundwater? Yes (No) Unknown 2. If yes, is there an operable groundwater well located on the subject property? Yes (No) Unknown 3. If yes, was the well installed prior to the 2002 City Ordinance banning well installations, and is documentation of installation available? Yes No Unknown 4. Provide the date that the property owner plans to decommission and abandon the well (See Interview Documentation). _____ 5. If new construction has been or is planned for the property, has or will a vapor barrier be/been used during the contruction of the first floor slab? Yes No (Unknown) Building may have VB. but it has Crawl Space

Institutional Controls Annual Inspection Checklist

INSPECTION DATE:

INSPECTOR NAME:

INSPECTION ADDRESS: Decatur St Montgomery AL.

INSPECTOR CERTIFICATION

This is to certify that the 2021 annual institutional controls inspections on 9/24, 2021 was conducted by GD

Date:

If the answer to any of the following questions deviates from the prescribed land use restriction, please describe and explain on the attached comment sheet.

Land Use Restriction	Inspection
Site-wide Groundwater Use Restriction: Based on the Institutional Control Plan (ICP), there is a restriction on the use of shallow groundwater within the Downtown Environmental Assessment Project (DEAP) Land Use Restriction Areas. There is also a 2002 City ordinance that prohibits the installation of groundwater wells within a similar boundary and a 2019 amendment to the Ordinance prohibits the use of any existing well. Figure 3-1 of the ICP depicts the DEAP Land Use Restriction Areas.	1. Has intrusive work been completed on the subject property that would potentially encounter groundwater? Yes (No) Unknown 2. If yes, is there an operable groundwater well located on the subject property? Yes (No) Unknown 3. If yes, was the well installed prior to the 2002 City Ordinance banning well installations, and is documentation of installation available? Yes No Unknown 4. Provide the date that the property owner plans to decommission and abandon the well (See Interview Documentation). _____ 5. If new construction has been or is planned for the property, has or will a vapor barrier be/been used during the contruction of the first floor slab? (Yes) No Unknown

Institutional Controls Annual Inspection Checklist

INSPECTION DATE:

INSPECTOR NAME:

INSPECTION ADDRESS: 301 ~~218~~ Monroe Street Montgomery AL

INSPECTOR CERTIFICATION

This is to certify that the 2021 annual institutional controls inspections on 9/14, 2021 was conducted by GD

Date:

If the answer to any of the following questions deviates from the prescribed land use restriction, please describe and explain on the attached comment sheet.

Land Use Restriction	Inspection
Site-wide Groundwater Use Restriction: Based on the Institutional Control Plan (ICP), there is a restriction on the use of shallow groundwater within the Downtown Environmental Assessment Project (DEAP) Land Use Restriction Areas. There is also a 2002 City ordinance that prohibits the installation of groundwater wells within a similar boundary and a 2019 amendment to the Ordinance prohibits the use of any existing well. Figure 3-1 of the ICP depicts the DEAP Land Use Restriction Areas.	1. Has intrusive work been completed on the subject property that would potentially encounter groundwater? Yes (No) Unknown 2. If yes, is there an operable groundwater well located on the subject property? Yes (No) Unknown 3. If yes, was the well installed prior to the 2002 City Ordinance banning well installations, and is documentation of installation available? Yes No Unknown 4. Provide the date that the property owner plans to decommission and abandon the well (See Interview Documentation). _____ 5. If new construction has been or is planned for the property, has or will a vapor barrier be/been used during the contruction of the first floor slab? Yes No (Unknown)

INTERVIEW RECORD

Site Name: Montgomery Downtown Environmental Assessment Project		
Subject: MACOA Property	Time: 9/2/21	Date: 1:00
Type: _ Telephone _ Visit ~~_ Other~~ Location of Visit:	_ Incoming _ Outgoing ~~In-Person~~	

Contact Made By:

Name: Glen Davis	Title: Proj. Management	Organization: Jacobs

Individual Contacted:

Name: Donna Marietta	Title: CEO	Organization: MACOA
Telephone No: Fax No: E-Mail Address:	Street Address: 321 N. Laurence St City, State, Zip: Montgomery AL	

Summary of Conversation (Refer to Questions in Annual Inspection Checklist)

- No Private wells located on Property
- Old Slab of warehouse will be used for additional Parking
- No additional construction at this time

INTERVIEW RECORD

Site Name: Montgomery Downtown Environmental Assessment Project		
Subject: RSA Energy Plant	Time: 1:30pm	Date: 9/14/12
Type: _ Telephone ✓ Visit _ Other Location of Visit:	_ Incoming _ Outgoing ✓ In Person	
Contact Made By:		
Name: Glen Davis	Title: Project Manager	Organization: Jacobs
Individual Contacted:		
Name: Brant Hill	Title: RSA Real Estate	Organization: RSA
Telephone No: Fax No: E-Mail Address:	Street Address: 501 Monroe St City, State, Zip: Montgomery AL	

Summary of Conversation (Refer to Questions in Annual Inspection Checklist)

- No private wells on property
- Energy plant is fully automated with no personnel on site, except for alarms + maintenance
- Uknown if building has a vapor barrier

INTERVIEW RECORD

Site Name: Montgomery Downtown Environmental Assessment Project		
Subject: Farmer's Market Cafe	Time: ~~9~~ 12:00	Date: 9/2/2
Type: _ Telephone ✓ Visit _ Other Location of Visit:	_ Incoming _ Outgoing ✓ In Person	

Contact Made By:

Name: Glen Davis	Title: Proj Manager	Organization: Jacobs

Individual Contacted:

Name: Nick Burbage	Title: Owner	Organization: Farmers Market Cafe
Telephone No: Fax No: E-Mail Address:	Street Address: 315 N. McDonough St City, State, Zip: Montgomery AL	

Summary of Conversation (Refer to Questions in Annual Inspection Checklist)

- No private wells located on Property (that he knows of)
- Unsure if building was constructed with a Vapor Barrier (Building constructed in late 1950s).

Institutional Controls Annual Inspection Checklist

INSPECTION DATE:

INSPECTOR NAME:

INSPECTION ADDRESS: 608 N. Court St. Montgomery AL

INSPECTOR CERTIFICATION

This is to certify that the 2021 annual institutional controls inspections on 9/22, 2021 was conducted by GD

Date:

If the answer to any of the following questions deviates from the prescribed land use restriction, please describe and explain on the attached comment sheet.

Land Use Restriction	Inspection
Site-wide Groundwater Use Restriction: Based on the Institutional Control Plan (ICP), there is a restriction on the use of shallow groundwater within the Downtown Environmental Assessment Project (DEAP) Land Use Restriction Areas. There is also a 2002 City ordinance that prohibits the installation of groundwater wells within a similar boundary and a 2019 amendment to the Ordinance prohibits the use of any existing well. Figure 3-1 of the ICP depicts the DEAP Land Use Restriction Areas.	1. Has intrusive work been completed on the subject property that would potentially encounter groundwater? Yes No (Unknown) 2. If yes, is there an operable groundwater well located on the subject property? Yes No (Unknown) 3. If yes, was the well installed prior to the 2002 City Ordinance banning well installations, and is documentation of installation available? (Yes) No Unknown 4. Provide the date that the property owner plans to decommission and abandon the well (See Interview Documentation). _____ 5. If new construction has been or is planned for the property, has or will a vapor barrier be/been used during the contruction of the first floor slab? Yes No (Unknown)

INTERVIEW RECORD

Site Name: Montgomery Downtown Environmental Assessment Project		
Subject: Former Water Work Building	**Time:** 2pm	**Date:** 9/22/21
Type: _ Telephone ✓ Visit _ Other **Location of Visit:**	_ Incoming _ Outgoing ✓ In person	

Contact Made By:

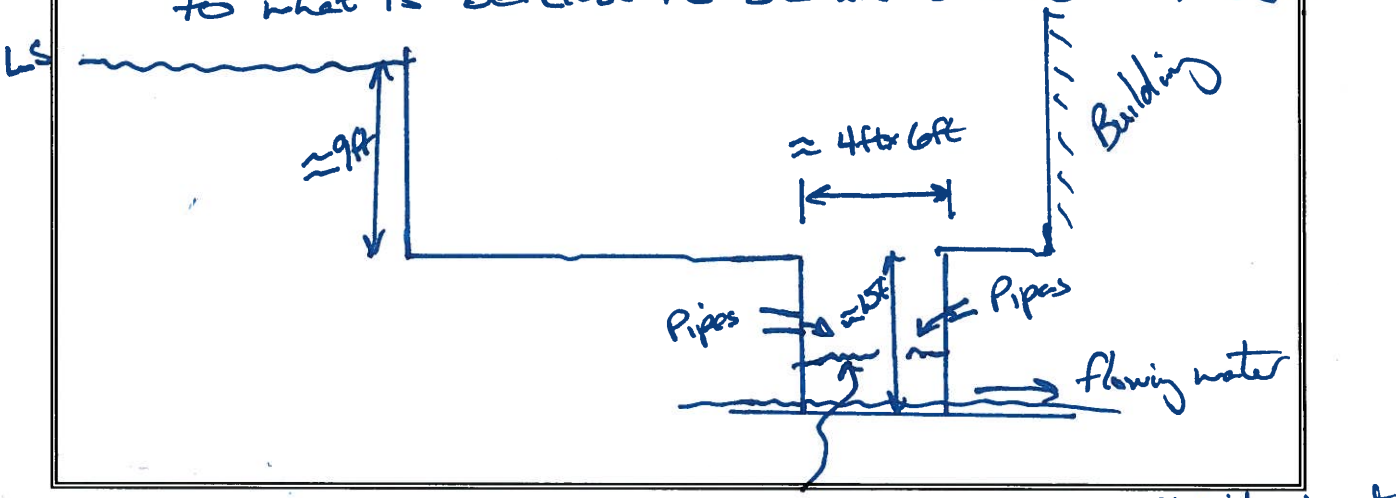
Name: Glen Davis	**Title:** Project Manager	**Organization:** Jacobs

Individual Contacted:

Name: Joe Burgans	**Title:** Construction Myer	**Organization:** Bailey Harris
Telephone No: **Fax No:** **E-Mail Address:**	**Street Address:** 608 N. Court Street **City, State, Zip:** Montgomery AL.	

Summary of Conversation (Refer to Questions in Annual Inspection Checklist)

- Pit is approximately 9ft below land surface in a walled enclosure. Pit is about 15ft to bottom (about 24 feet MSL).
- Five pipes run into the pit, all with small volume of water flowing into pit (Chlorine detected in 2-3 pipes). Water flows in pit horizontally to what is believed to be an outlet to River



INTERVIEW RECORD

Site Name: Montgomery Downtown Environmental Assessment Project			
Subject: Former Water Works Building		Time: 1pm	Date: 9/22/11
Type: _ Telephone ✓ Visit _ Other Location of Visit:		_ Incoming _ Outgoing ✓ In Person	
Contact Made By:			
Name: Glen Davis	Title: Proj Manager	Organization: Jacobs	
Individual Contacted:			
Name: Ken Gillum	Title: Former NW Employee	Organization: Capital Trailways	
Telephone No: Fax No: E-Mail Address:		Street Address: 608 N. Court St City, State, Zip: Montgomery AL	

Summary of Conversation (Refer to Questions in Annual Inspection Checklist)

- Reportly, the pit was used as a "Holding Well" for water pumped/skimed from the river & ultimately pumed back to the river via the outfall NW of the pit.
- Unknown what was done with the water while it was in the pit.

INTERVIEW RECORD

Site Name: Montgomery Downtown Environmental Assessment Project		
Subject: Potential Sale of 313 Madison Ave	Time: 9/1/21	Date: 3:30pm
Type: ✓ Telephone _ Visit _ Other Location of Visit:	_ Incoming	✓ Outgoing

Contact Made By:

Name: Glen Davis	Title: Proj. Manager	Organization: Jacobs

Individual Contacted:

Name: Richard Johnson	Title: Owner	Organization: Property 313 Madison
Telephone No: 334-202-5050 Fax No: E-Mail Address: kelseybirdwood.com	Street Address: 313 Madison Avenue City, State, Zip: Montgomery AL	

Summary of Conversation (Refer to Questions in Annual Inspection Checklist)

1) Has anyone inquired about purchasing the Parcel?
NO

2) Are you aware of the City Ordinance regarding First floor residential restrictions? No

3) Can we mail or email you a letter with information about these restrictions? - 508 County Downs Road Montgom AL. 36109

4) Please let us know if you get a potential buyer as we would like to send them a letter as well
   1) First-Floor Residential Restriction
   2) MW-2S located on property
   3) Vapor Barrier requirement

- He will pass the Notification letter to his Realator.

Appendix F
Environmental Covenants and Example Notification Letter

November XX, 2020

[[PARCEL OWNER NAME]]
[[MAILING ADDRESS]]
Montgomery, AL 36XXX

Subject: Institutional Controls Notification for [[PROPERTY ADDRESS or PARCEL ID?]]
– Downtown Environmental Assessment Project (DEAP)

Dear Property Owner:

On behalf of the Downtown Environmental Alliance[1], this notification letter is being sent to inform you of new City Ordinance 36-2019, Chapter 5, Article III, Section 5-483 of the Code of Ordinances for the City of Montgomery (hereafter referred to as the "Ordinance") that affects the aforementioned property. The new ordinance was prepared by the City of Montgomery in conjunction with the Alabama Department of Environmental Management (ADEM) in compliance with an *Institutional Controls Plan*, which is available for your review at www.capitalcityplume.org.

The new Ordinance was developed based on the results of the Capital City Plume investigation and evaluation. More information related to this project is located at www.capitalcityplume.org**.** Please note that although the Ordinance addresses groundwater use restrictions, it does not affect the City of Montgomery's drinking water**.** Montgomery drinking water comes from other water sources (i.e., the Tallapoosa River and/or well fields in West and South Montgomery) and is safe for you to drink.

The following information outlines how the Ordinance relates to your property:

- **Groundwater Use Restrictions:** Per Section 2 of the Ordinance, it is unlawful to dig any wells *or use any existing wells* on your property. If there is an existing well on your property, you are required to decommission and close it, in accordance with ADEM guidelines. (Guidelines for decommissioning a well are found in Appendix B at http://www.adem.state.al.us/programs/land/landforms/AEIRGInvestigation.pdf.)
- **Construction Requirements:** Per Section 3 of the Ordinance, any new foundations being installed on the property will require installation of a vapor barrier in accordance with the International Building Code and applicable Environmental Protection Agency vapor intrusion guidelines.
- **First Floor Residential Use Restriction (North 300 Block of Madison Avenue):** Section 4 of the Ordinance applies to a single city block bounded by Madison Avenue on the south, East Jefferson Street on the north, North Hull Street on the east and North McDonough Street on the west. Parcels within this block are prohibited from constructing or maintaining first-floor residences, schools, or daycare facilities.

[1] The Downtown Environmental Alliance consists of the City of Montgomery, Montgomery County Commission, Montgomery Advertiser, The Montgomery Water Works and Sanitary Sewer Board, the Alabama Law Enforcement Agency, the Alabama Department of Education, the Alabama Community College System, and the Alabama Department of Transportation.

We encourage you to review the information at www.capitalcityplume.org.

By receipt of this notification letter, your property is eligible for a voluntary environmental covenant. You are encouraged to place a voluntary environmental covenant on your property to provide notice of the Ordinance to subsequent property owners. By using this voluntary covenant, the normal ADEM administration fee will be waived. If you, as an eligible property owner, would like to explore this option, please review the information located at www.capitalcityplume.org.

To provide continuous notifications to current and new property owners, a similar letter will be mailed in the fourth quarter of each year. Any changes to these restrictions will be updated in these annual letters. Should you have any questions regarding this notification letter, please contact Glen S. Davis at 334-215-9016 or glendon.davis@jacobs.com.

Sincerely,

Glen S. Davis
Jacobs Engineering Group, Inc.
Consultant to the Downtown Environmental Alliance

c: Project File

Appendix G
Telephone Logs

CH2MHILL

TELEPHONE CONVERSATION RECORD

CALL TO Steve Hughs
Realtor for 433 Madison Avenue

CALL FROM Glen Davis

MESSAGE TAKEN BY N/A

SUBJECT IC Notification Letter

PHONE NO. 334-546-5739

DATE 1/6/21

TIME 3:30 ☐ AM ☑ PM

PROJECT NO. D3358600

- Inquired about the purpose of the letter
  - → No Private groundwater wells on this Property
  - → Acknowledged the vapor barrier requirement
- He will call back if he has any other questions.