2020 Remedial Investigation & Interim Response Action Groundwater Monitoring Annual Report

Tennessee Valley Authority
Allen Fossil Plant
Memphis, Tennessee

Stantec

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May 3, 2021

SIGN-OFF SHEET

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1.0 INTRODUCTION

The Tennessee Valley Authority (TVA) developed this Remedial Investigation (RI) and Interim Response Action (IRA) Groundwater Monitoring Annual Report for the East Ash Disposal Area (EADA) at TVA's Allen Fossil Plant (ALF) in Memphis, Tennessee (**Figure 1**). The purpose of this report is to document groundwater data collected at ALF around the EADA during 2020. The report presents groundwater analytical and elevational data, documents current conditions, and evaluates groundwater trends since 2017 when the RI began. Groundwater monitoring supports TVA's ongoing progress to address environmental conditions at ALF, which includes removal of CCR and remediation of groundwater at the EADA.

All work was completed in accordance with the 2020 RI and IRA Action Groundwater Monitoring Plan (GWMP). In 2020 groundwater samples were collected and analyzed from 56 monitoring wells on a quarterly basis. The well network includes RI ALF-series wells surrounding the EADA, pre-design performance monitoring wells (PMWs) in the north and south impacted EADA areas, and five Allen Combined Cycle Plant (ACC Plant) wells as summarized in the table below:

EADA Well Locations	Monitoring Well IDs
North Side of East Ash Disposal Area	
P-4	P-4; P-4S
ALF-203	ALF-203; ALF-203B; ALF-203A
PMW-02	PMW-02A; PMW-02B; PMW-02C
PMW-04	PMW-04A; PMW-04B; PMW-04C
PMW-07	PMW-07A; PMW-07B; PMW-07C
ALF-204	ALF-204; ALF-204B; ALF-204A
ALF-205	ALF-205; ALF-205B; ALF-205A
ALF-206	ALF-206
East Side of East Ash Disposal Area	
ALF-213	ALF-213; ALF-213B; ALF-213A
ALF-217	ALF-217; ALF-217B; ALF-217A
South Side of East Ash Disposal Area	
ALF-212	ALF-212; ALF-212A
ALF-215	ALF-215
ALF-202	ALF-202; ALF-202B; ALF-202A
PMW-10	PMW-10A; PMW-10B; PMW-10C
PMW-11	PMW-11A; PMW-11B; PMW-11C
PMW-14	PMW-14A; PMW-14B; PMW-14C
ALF-201	ALF-201; ALF-201B; ALF-201A
ALF-214	ALF-214; ALF-214B; ALF-214A
ALF-210	ALF-210; ALF-210B; ALF-210A
ACC Plant	ALF-216; ACC-1A; ACC-3A; ACC-5A; ACC-5B
Total No. of Wells	**56**

2.0 GROUNDWATER FLOW DIRECTION AND GRADIENTS

At the beginning of every 2020 quarterly groundwater sampling event, water levels in the 56 monitoring wells in the EADA well network (and the two existing pilot extraction wells [EWs]) and wells located in the vicinity of the West Ash Disposal Area (WADA) were manually measured in relation to a surveyed reference point (i.e., top of well casing) using an electronic water level indicator. Groundwater elevations over the same time period for wells that were inaccessible or wells with inconsistent manual readings were obtained from TVA's i-Site system. Groundwater elevations from these monitoring wells and an elevation of McKellar Lake obtained from the automated McKellar Lake gauging station via TVA's i-Site system (see **Table 1**) were used to evaluate groundwater flow and hydraulic gradients within the shallow, intermediate, and deep intervals of the Alluvial aquifer.

2.1 ALLUVIAL AQUIFER HYDROGRAPHS

Hydrographs covering a period of 15 months were created from the TVA automated pressure transducer dataset, and are included in **Appendix A**. The hydrographs indicate that certain EADA shallow monitoring wells that are screened in the blue clay zone, composed of silty clay and interbedded very fine-grained sand up to 27 feet (ft) in thickness within the shallow Alluvial aquifer, respond differently to changes in Lake McKellar surface water levels than other wells screened in the sandy intervals of Alluvial aquifer. For example, the ALF-202 monitoring well hydrograph (Figure 8 in **Appendix A**) indicates a very subdued response to surface water elevation changes, whereas the groundwater elevation of other nested wells at this location (ALF-202A and ALF-202B; Figure 9 and Figure 10 in **Appendix A**) have amplitudes that closely track the McKellar Lake surface water elevation fluctuations. This same differential response can be observed in other blue clay zone wells such as the ALF-212 series (Figure 24 and Figure 25), ALF-217 series (Figure 34, Figure 35, and Figure 36), and in all the PMW wells in both the north and south areas (Figure 41 through Figure 58 in **Appendix A**).

The hydrographs also include the elevation of the EADA stilling pond and it is readily apparent that this surface water is well above the elevation of groundwater and is not affected by fluctuations in groundwater elevations.

2.2 BLUE CLAY ZONE OF THE SHALLOW ALLUVIAL AQUIFER

As discussed in the May 31, 2019 Updated Remedial Investigation Report (RIR), shallow wells screened above and within the blue clay zone exhibit groundwater elevations that are mounded when compared with shallow wells screened in sandy intervals beneath the blue clay zone. Thus, wells screened above and/or within the blue clay zone are mapped separately.

Typically, the highest groundwater elevations in the blue clay zone wells north of the EADA were observed at wells EW-N02 and PMW-07A. For each quarterly gauging event, the horizontal hydraulic gradient within the northern blue clay zone was estimated using three-point solutions for groundwater elevation data from representative monitoring wells (one set includes wells EW-N02

[an extraction well installed in this north area as part of the Interim Remedial Action or IRA system], PMW-02A, and PMW-04A, and the other set includes wells EW-N02, PMW-02A and PMW-07A). Separate three-point solutions were used to represent the partially radial flow directions. Results are summarized in **Table 2**, and the magnitude and direction of the gradient vectors for each 2020 quarterly event are plotted in **Figures 2a** through **2d**. The horizontal groundwater flow direction between EW-N02, PMW-02A, and PMW-04A was consistently to the west or west-southwest toward well ALF-203. The horizontal groundwater flow direction between EW-N02, PMW-02A and PMW-07A was consistently to the north-northwest and toward McKellar Lake. These flow directions are consistent with 2018 and 2019 groundwater elevation data (**Table 3a**).

Typically, the highest groundwater elevations in blue clay zone wells south and east of the EADA Area were observed at ALF-217 and PMW-14A. For each quarterly gauging event, the horizontal hydraulic gradient of the blue clay zone south of the EADA was estimated using a three-point solution for groundwater elevation data from representative monitoring wells ALF-202, ALF-212 and ALF-215. Results are summarized in **Table 2**, and the magnitude and direction of the gradient vector for each 2020 quarterly event are plotted in **Figures 2a** through **2d**. The horizontal groundwater flow direction between these wells varied from southwest, south, and to south-southeast, but ultimately was always away from the EADA. These flow directions are consistent with 2018 and 2019 groundwater elevation data (**Table 3a**).

2.3 SANDY ZONE OF THE SHALLOW ALLUVIAL AQUIFER

The horizontal hydraulic gradient within the sandy zone of the shallow Alluvial aquifer was estimated using a three-point solution for groundwater elevation data from representative monitoring wells ALF-201, ALF-204 and ALF-213 that cover a representative geographic area. The results are summarized in **Table 2**, and the magnitude and direction of the gradient vector for each 2020 quarterly event are plotted in **Figures 3a** through **3d**. The horizontal groundwater flow direction within the sandy zone of the shallow Alluvial aquifer varied significantly depending on surface water levels in McKellar Lake. High lake levels (e.g., 205.88 ft elevation [February 2020] and 208.22 ft elevation [May 2020] resulted in groundwater flow to the south-southeast. Lower lake levels (e.g., 184.87 ft elevation [September 2020]) resulted in groundwater flow to the north-northeast toward McKellar Lake. The McKellar Lake surface water level of 190.67 ft elevation in December 2020 resulted in a nearly indiscernible south-southeast groundwater flow gradient toward the EADA (0.0003 ft/ft) that essentially represents static groundwater flow conditions under the EADA. These groundwater flow directions (in addition to those cited below for the intermediate and deep Alluvial aquifer) are consistent with 2017, 2018 and 2019 groundwater elevation data. These data indicate that when the McKellar Lake surface water elevation is below ~190 feet elevation, groundwater flow is toward the lake and when the McKellar Lake level is above ~190 ft elevation, groundwater flow is towards the EADA (**Table 3b**).

2.4 INTERMEDIATE ALLUVIAL AQUIFER

The horizontal hydraulic gradient within the intermediate Alluvial aquifer was estimated using a three-point solution for groundwater elevation data from representative wells ALF-202B, ALF-204B, and ALF-205B that cover a representative geographic area. The results are summarized in **Table**

2, and the magnitude and direction of the gradient vector for each 2020 quarterly event are plotted in **Figures 4a** through **4d.** Similar to the groundwater flow in the sandy zone of the shallow Alluvial aquifer, the horizontal groundwater flow direction in the intermediate Alluvial aquifer varied significantly depending on surface water levels in McKellar Lake. High lake levels in February and May 2020 resulted in groundwater flow to the south to south-southwest. Lower lake levels in September 2020 resulted in groundwater flow to the north toward McKellar Lake. The McKellar Lake surface water level in December 2020 resulted in a nearly indiscernible southward groundwater flow gradient toward the EADA (0.0006 ft/ft) that essentially represents static groundwater flow conditions.

2.5 DEEP ALLUVIAL AQUIFER

The horizontal hydraulic gradient within the deep Alluvial aquifer was estimated using a three-point solution for groundwater elevation data from representative wells ALF-202A, ALF-204A and ALF-205A that cover a representative geographic area. The results are summarized in **Table 2**, and the magnitude and direction of the gradient vector for each 2020 quarterly event are plotted in **Figures 5a** through **5d.** Similar to the groundwater flow in the sandy zone of the shallow Alluvial aquifer and the intermediate Alluvial aquifer, the horizontal groundwater flow direction in the deep Alluvial aquifer varied significantly depending on surface water levels in McKellar Lake. High lake levels in February and May 2020 resulted in groundwater flow to the south. Lower lake levels in September 2020 resulted in groundwater flow to the north toward McKellar Lake. The McKellar Lake surface water level in December 2020 resulted in a nearly indiscernible southward groundwater flow gradient toward the EADA (0.0006 ft/ft) that essentially represents static groundwater flow conditions.

2.6 ALLUVIAL AQUIFER VERTICAL GRADIENTS

The vertical gradients within the Alluvial aquifer were estimated from quarterly groundwater elevation data acquired from September 2017 to December 2020 from the blue clay zone and sandy zone wells of the shallow Alluvial aquifer and the intermediate and deep monitoring wells at 21 co-located well locations (see **Table 3a** and **Table 3b**). In **Table 3a**, data from the blue clay zone wells in the shallow Alluvial aquifer were compared to data from intermediate and deep Alluvial aquifer wells. In **Table 3b**, data from the sandy zone wells in the shallow Alluvial aquifer were compared to data from intermediate and deep Alluvial aquifer wells. Average vertical gradients reported between the shallow and intermediate Alluvial aquifer well pairs were designated as "S-I," between the shallow and deep well pairs as "S-D," and between the intermediate and deep well pairs as "I-D."

Figure 6a, **Figure 6c,** and **Figure 6e** display the average vertical gradients estimated for each co-located S-I, S-D and I-D well pair at the EADA and WADA after incorporating the December 2020 gauging event into the full 2017-2020 data set. A negative hydraulic gradient indicates a downward groundwater flow potential, whereas a positive gradient indicates an upward groundwater flow potential. The average vertical gradients between the sandy zone shallow wells and co-located intermediate wells at the EADA range from 0.021 ft/ft to -0.029 ft/ft (**Figure 6a**); six of 11 wells (55%) show upward or neutral average vertical gradients. Gradients between the sandy

zone shallow wells and co-located deep wells at the EADA range from 0.015 ft/ft to -0.016 ft/ft (**Figure 6c**); half of 12 wells (50%) show upward or neutral average vertical gradients. Gradients between the intermediate wells and co-located deep wells at the EADA range from 0.007 ft/ft to -0.003 ft/ft (**Figure 6e**); 16 of 19 wells (84%) show upward or neutral average vertical gradients. As indicated on **Table 3a** and **Table 3b**, the positive, negative, or neutral gradients at individual monitoring well nested locations have remained consistent since monitoring began in 2017.

Figure 6b, **Figure 6d,** and **Figure 6f** display the vertical gradients estimated for each co-located S-I, S-D and I-D well pair at the EADA and WADA using *only* the December 2020 gauging event data. In December 2020, the gradients between the sandy zone shallow wells and co-located intermediate wells at the EADA range from 0.025 ft/ft to -0.030 ft/ft (**Figure 6b**). Gradients between the sandy zone shallow wells and co-located deep wells at the EADA range from 0.018 ft/ft to -0.003 ft/ft (**Figure 6d**). Gradients between the intermediate wells and co-located deep wells at the EADA range from 0.007 ft/ft to -0.002 ft/ft (**Figure 6f**).

3.0 GROUNDWATER ANALYTICAL RESULTS – ALLUVIAL AQUIFER

3.1 FIELD PARAMETERS

During each groundwater sampling round, the monitoring wells were purged and sampled using dedicated groundwater sampling pumps (see **Appendix B** for the groundwater sampling forms for each quarterly event). Low-flow sampling protocol was used to collect field parameter data using a flow-through cell prior to the collection of the groundwater samples. Parameters measured in the field included turbidity (in nephelometric turbidity units [NTUs]), pH (in standard units [SU]), temperature, conductivity, dissolved oxygen (DO), and oxidation-reduction potential (ORP).

The full data set of the field parameters from each 2020 quarterly event is provided in **Tables 4a** through **4d**.

3.2 LABORATORY ANALYTICAL DATA

TVA collected groundwater samples after the groundwater field parameters had stabilized, per the criteria in TVA TI ENV-TI-05.80.42. Samples were collected in laboratory-supplied containers and delivered to the analytical laboratory daily. Groundwater samples were analyzed for the same suite of analytical parameters used during the RI. The analytical suite included the following:

1. CCR-related constituents listed in 40 CFR 257, Appendices III and IV.
2. Five metals listed in Appendix I of TN Rule 0400-11-01-.04 (copper, nickel, silver, vanadium, and zinc).
3. Major cations/anions (magnesium, potassium, sodium, carbonate, and bicarbonate).

Laboratory analytical testing was conducted by Pace Analytical Services, LLC, Minneapolis, MN, and data validation was performed by Environmental Standards, Inc., Valley Forge, PA. Laboratory analytical reports and data validation reports for this sampling event were submitted electronically via a file transfer portal. TDEC has approved a 20% data validation for the 2020 groundwater sampling program. A summary of the analytical results for the 2020 groundwater sampling events is provided in **Table 5a** through **Table 5d;** sample analytical results that exceed Groundwater Protection Standards [GWPS], which are composed of Maximum Contaminant Levels (MCL) or Regional Screening Levels (RSL), are shaded yellow. In addition, **Table 6** provides the groundwater analytical data for EADA monitoring wells since November 2016.

To evaluate the distribution of arsenic, fluoride, lead, pH, and boron in groundwater, **Figure 7a** through **Figure 7e** were prepared to illustrate the Alluvial aquifer monitoring well sampling network near the EADA and the respective constituent concentrations in groundwater. Concentrations exceeding GWPS in the analytical results summary boxes are color coded in yellow (blue colored values indicate concentrations below the GWPS); the respective well symbols are color coded in yellow if the most recent sampling event (December 2020) for these constituents indicated an

exceedance of a GWPS. In addition, the distribution of pH values is illustrated in **Figure 7d** with pH values above 8.0 SU colored coded in yellow to indicate concentrations above this screening level. Groundwater analytical data trend graphs for arsenic, boron, fluoride, and lead in representative nested monitoring wells in the north (ALF-203 and ALF-204 locations), east (ALF-217 location), south (ALF-202 and ALF-212 locations), and upgradient (ACC-5 location) areas are included in **Appendix C**.

3.2.1 Arsenic

North Area

Figure 7a depicts the locations at the EADA where arsenic was detected in groundwater in 2020; concentrations above the GWPS (10 µg/L) are highlighted yellow. The highest arsenic concentrations detected in 2020 on the north side of the EADA continued to be in shallow Alluvial aquifer wells ALF-203 (2,250 µg/L in May), PMW-02A (3,450 µg/L in February), and PMW-04A (3,030 µg/L in September); however, these concentrations are consistent with the range of maximum concentrations observed in these wells between 2017-2019 (3,050-4,140 µg/L) (**Table 6**). This area of consistently high arsenic concentrations has been specifically targeted in the proposed IRA with the installation of extraction wells, particularly wells EW-N01 and EW-N04.

Arsenic concentrations in shallow Alluvial aquifer well ALF-203 were above the GWPS in all four rounds in 2020 (**Table 5a** through **Table 5d**) as they were throughout 2019 (**Table 6**). An interesting pattern of fluctuating arsenic concentrations has been observed for intermediate well ALF-203B; in 2019 and 2020, concentrations were below the GWPS in the February and May sampling events, but above the GWPS in September and December. This fluctuation correlates with the direction of groundwater flow, which in February and May 2020 was from McKellar Lake southward toward the EADA (**Figure 4a** and **Figure 4b**) and in September 2020 was northward from the EADA toward McKellar Lake (**Figure 4c**) with the groundwater flow in December 2020 essentially static (**Figure 4d**).

Nearby shallow Alluvial aquifer wells PMW-02A and PMW-04A, and their intermediate Alluvial aquifer counterparts PWM-02B and PMW-04B, had arsenic exceedances throughout all the 2019 and 2020 sampling events, although there appears to be slightly higher concentrations detected in the intermediate wells in 2020 as compared to 2019 (**Table 6**).

Father to the east, there were consistent arsenic concentrations exceeding the GWPS in shallow Alluvial aquifer well PMW-07A throughout 2019 and 2020 (**Table 6**). Although there were GWPS exceedances in intermediate Alluvial aquifer well PMW-07B throughout 2019, concentrations were below the GWPS in the February and May 2020 sampling events (**Table 5a** and **Table 5b**), but above the GWPS in September and December 2020 (**Table 5c** and **Table 5d**) at very similar concentrations as detected in 2019, perhaps as a result of the same groundwater flow effect noted above for intermediate well ALF-203B. Scrutinizing the arsenic concentrations in these wells in the north area indicate that the finer-grained lithologies of the shallow Alluvial aquifer are not as easily affected by McKellar Lake surface water elevation changes as the much coarser-grained and more permeable lithologies composing the intermediate Alluvial aquifer.

The arsenic concentrations exceeding the GWPS in shallow ALF-204 well farthest to the east has have been notably stable throughout 2019 and 2020 and arsenic concentrations in the intermediate well ALF-204B remain well below the GWPS with no indication of an upward trend (**Table 6**).

There were no GWPS exceedances of arsenic in any deep Alluvial aquifer well in the north area of the EADA in 2020 (**Table 5a** through **Table 5d**).

South Area

As depicted in **Figure 7a**, the highest arsenic concentrations detected in 2020 on the south side of the EADA continued to be in shallow Alluvial aquifer well ALF-202 (463 µg/L in December 2020), which was above the range of concentrations observed in this well between 2017-2019 (176-426 µg/L) (**Table 6**). The arsenic concentrations in this shallow Alluvial aquifer well throughout 2020 appear to be elevated as compared to the 2019 results; however, arsenic concentrations in the intermediate Alluvial aquifer well ALF-202B remain below the GWPS. This area of consistently high arsenic concentrations has been specifically targeted in the proposed IRA with the installation of extraction wells, particularly wells EW-S03 and EW-S04.

Nearby shallow Alluvial aquifer well PMW-10A and its intermediate Alluvial aquifer counterpart PWM-10B had arsenic exceedances throughout 2019 and 2020, although there appears to be slightly higher concentrations detected in the intermediate well PMW-10B in 2020 as compared to 2019 (**Table 6**). This area of arsenic concentrations has been specifically targeted in the proposed IRA with the installation of extraction wells, particularly EW-S01 and EW-S02.

Nearby shallow Alluvial aquifer wells PMW-11A and PMW-14A and their intermediate Alluvial aquifer counterparts PWM-11B and PMW-14B had consistent arsenic exceedances throughout 2019 and 2020 with no discernable upward trend (**Table 6**).

The seasonable fluctuations in intermediate Alluvial aquifer well concentrations observed in the north area (February-May versus September-December) are not evident in the south area, probably because the area is beyond the influence of McKellar Lake.

There were no GWPS exceedances of arsenic in any deep Alluvial aquifer well in the south area of the EADA in 2020 (**Table 5a** through **Table 5d**).

East Area

As depicted in **Figure 7a**, the arsenic concentrations exceeding the GWPS in Alluvial aquifer well ALF-212 was consistent throughout 2019 and 2020 and arsenic concentrations in the deep Alluvial aquifer well ALF-212A remain well below the GWPS with no indication of an upward trend (**Table 6**).

Nearby shallow Alluvial aquifer well ALF-217 and its intermediate Alluvial aquifer counterpart ALF-217B had consistent arsenic exceedances throughout 2019 and 2020 with no discernable upward trend (**Table 6**).

In shallow Alluvial aquifer well ALF-213, concentrations were below the GWPS in the February and May 2020 sampling events (**Table 5a** and **Table 5b**) but above the GWPS in September and December 2020 (**Table 5c** and **Table 5d**) at very similar concentrations as detected in 2019, which also had concentrations below the GWPS in the February and May 2019 sampling events but above the GWPS in September 2019. This suggests that the McKellar Lake effect as described above in the north area may extend as far south as the ALF-213 location but here, that effect is observed in the shallow Alluvial aquifer well. No upward or fluctuating trend in arsenic concentrations has been noted for the intermediate Alluvial aquifer well ALF-213B, which remains well below the GWPS.

There were no GWPS exceedances of arsenic in any deep Alluvial aquifer well in the east area of the EADA in 2020 (**Table 5a** through **Table 5d**).

3.2.2 Fluoride

North Area

Figure 7b depicts the locations at the EADA where fluoride was detected in groundwater in 2020; concentrations above its GWPS (4 mg/L) are highlighted yellow. The same four shallow Alluvial aquifer wells (ALF-203, PMW-02A, PMW-04A, and PMW-07A) with sporadic fluoride exceedances in 2019 had exceedances in 2020 (**Table 5a** through **Table 5d**) although the 2020 exceedances only occurred during the February and December 2020 sampling events as compared to all four sampling events in 2019 (**Table 6**). Fluoride concentrations in these wells were only marginally above the GWPS and no upward trend is evident. Fluoride concentrations in all intermediate and deep Alluvial aquifer wells are consistent, stable, and well below the GWPS (**Table 5a** through **Table 5d**).

South Area

As depicted in **Figure 7b**, the only well with a GWPS exceedance for fluoride in the south area in 2020 was shallow Alluvial aquifer well PMW-10A in February and December 2020 (**Table 5a** and **Table 5d**) as compared to exceedances in four sampling events in 2019 (**Table 6**). Notably, there were no exceedances in fluoride concentrations in any other well in the south area in 2020 whereas multiple GWPS exceedances were detected in 2019 in Alluvial aquifer wells ALF-202 and PMW-11A (**Table 6**). Fluoride concentrations in all intermediate and deep Alluvial aquifer wells are consistent, stable, and well below the GWPS (**Table 5a** through **Table 5d**).

East Area

As depicted in **Figure 7b**, there were no GWPS exceedances for fluoride in the east area in 2020 in any of three Alluvial aquifer well locations (ALF-212, ALF-217, and ALF-213), consistent with the lack of exceedances in 2018-2019 (**Table 5a** through **Table 5d; Table 6**).

3.2.3 Lead

North Area

Figure 7c shows the locations at the EADA where lead was detected in groundwater in 2020; concentrations above its GWPS (15 µg/L) are highlighted in yellow. The only monitoring well with a GWPS exceedance for lead in the north area in 2020 was shallow Alluvial aquifer well ALF-203 (**Table 5a** through **Table 5d**) at concentrations consistent with 2019 concentrations (**Table 6**). Unlike 2019 when there were RSL exceedances for lead in shallow Alluvial aquifer PMW-02A, the concentrations of lead in this well throughout 2020 were below the RSL. Lead concentrations in all other wells were below the RSL with non-detects in nearly of the intermediate and deep Alluvial aquifer wells (**Table 5a** through **Table 5d**).

South Area

As depicted in **Figure 7c**, there were no RSL exceedances for lead in the south area in 2020 in any Alluvial aquifer well location, consistent with the lack of exceedances in 2018-2019 (**Table 5a** through **Table 5d; Table 6**).

East Area

As depicted in **Figure 7c**, there were no RSL exceedances for lead in the east area in 2020 in any of three Alluvial aquifer well locations (ALF-212, ALF-217, and ALF-213), consistent with the lack of exceedances in 2018-2019 (**Table 5a** through **Table 5d; Table 6**).

3.2.4 pH

North Area

Figure 7d depicts the pH values at the EADA in groundwater in 2020; values with an elevated pH above 8.0 SU are highlighted yellow. The same three shallow Alluvial aquifer wells (ALF-203, PMW-02A, and PMW-07A) with consistently elevated pH values in the north area in 2020 had elevated values in 2019 (**Table 6**). All other shallow Alluvial aquifer wells had normal pH with no indication of upward trends in the intermediate or deep Alluvial aquifer wells (**Table 5a** through **Table 5d**).

South Area

As depicted in **Figure 7d**, there were no elevated pH measurements in the south area in 2020 in any Alluvial aquifer well location, consistent with the lack of elevated pH in 2018-2019 (**Table 5a** through **Table 5d; Table 6**).

East Area

As depicted in **Figure 7d**, there were no elevated pH measurements in the east area in 2020 in any of three Alluvial aquifer well locations (ALF-212, ALF-217, and ALF-213), consistent with the lack of elevated pH in 2018-2019 (**Table 5a** through **Table 5d; Table 6**).

3.2.5 Boron

Figure 7e depicts boron concentrations at the EADA based on 2020 data (**Table 5a** through **Table 5d**). A GWPS has not been established for boron. The highest concentrations of boron are coincident with the highest concentrations of arsenic in both the north area (ALF-203, PMW-02, PMW-04, and PMW-07) and south area (ALF-202, PMW-10, PMW-11, and PMW-14) of the EADA.

4.0 GROUNDWATER ANALYTICAL RESULTS – MEMPHIS AQUIFER

The ACC production wells installed in the Memphis aquifer are not in use, but the wells are pumped for 30 minutes on a quarterly basis for maintenance purposes (and are sampled annually for permit renewal). To develop background thresholds values (BTVs) for the Memphis aquifer, TVA has commenced the collection of groundwater samples from Production Well No. 1 (depicted as Well#1 on **Figure 1**) on a quarterly basis beginning in September 2020. The groundwater samples are analyzed for the same suite of analytical parameters used for the Alluvial aquifer monitoring well sampling (see Section 3.2 above). Once a sufficient analytical data set is established, BTVs will be estimated using standard statistical methods and the quarterly groundwater sampling will transition into an annual sampling.

In 2020, Production Well No. 1 was sampled on September 10, 2020 and December 8, 2020. The analytical results are included in **Table 5c**, **Table 5d,** and **Table 6**; there were no comparison criteria exceedances for any constituent, indicating that the Memphis aquifer remains unaffected by impacts to the overlying Alluvial aquifer.

5.0 BACKGROUND STATISTICAL ANALYSES REVIEW

For the Alluvial aquifer, background threshold values (BTVs) were first established in 2019, based on data starting in 2017 from representative background wells. For this report, BTVs were revisited using data through 2020 to confirm similar BTVs for CCR constituents and other parameters.

5.1 STATISTICAL METHODS

Using groundwater data from the five ALF background wells (ALF 216, ACC-1A, ACC-3A, ACC-5A, and ACC-5B), a statistical evaluation was completed and the site-specific BTVs for the Alluvial aquifer were updated for this report. The evaluation included the Federal CCR Rule Appendix III and Appendix IV constituents, TDEC Appendix I Metals, and additional water quality criteria.

The methods used to develop these background values are described in detail in **Appendix D.**

1. Validated analytical data were compiled from sampling events that took place between September 2017 and December 2020 from the following five wells: ALF 216, ACC-1A, ACC-3A, ACC-5A, and ACC-5B. These wells are hydraulically upgradient of any regulated coal combustion residual (CCR) units and do not exhibit constituents at concentrations typically associated with CCR-impacted groundwater (e.g., sulfate).

2. For each constituent, data from all five wells were pooled and screened for outliers.

3. The pooled baseline data (with identified outliers excluded, if applicable) were analyzed to determine whether they could be fit to a known statistical model. This was achieved by applying a series of mathematical transformations to the data and then testing the transformed data for normality. For datasets that were normal or could be normalized using a mathematical transformation, the best- fitting model for that dataset is identified in the 'Distribution' column in **Table 7**. The remaining datasets, for which no suitable normalizing distribution was identified, are identified in the 'Distribution' column of **Table 7** as non-parametric.

4. Per the methods described in the USEPA document: "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. Unified Guidance" (Unified Guidance – USEPA, 2009), upper tolerance limits (UTLs) were generated using either parametric methods (for data that fit a known distribution) or non-parametric methods (if no suitable distribution was identified). When all data for a CCR constituent were non-detect, the UTL was set to the highest reported detection limit. For pH, a lower tolerance limit (LTL) was also estimated to create a tolerance interval.

5.2 BACKGROUND THRESHOLD VALUES UPDATE

The updated BTVs are summarized in **Table 7** and are reflected in the **Table 5a-d** and **Table 6** analytical results tables. A comparison of the BTVs generated using data through 2020 to those previously generated using data through 2019 is also provided in **Table 7**. The updated BTVs were

generally similar to those reported in the 2019 annual report, with most values within ± %20 of the previously reported value (**Table 7**).

6.0 SUMMARY

The groundwater sampling data conducted at the TVA ALF EADA well network in 2020 has indicated the following:

- The EADA monitoring well hydrographs indicate that certain shallow monitoring wells that are screened in the blue clay zone have a noticeable subdued response to Lake McKellar surface water level fluctuations as compared to other wells screened in the sandy intervals of Alluvial aquifer. This is consistent with the groundwater elevation data for the north and south areas of the EADA that indicates the blue clay zone is comparatively hydraulically isolated from the other Alluvial aquifer intervals.

- The EADA monitoring well hydrographs indicate that the elevation of the EADA stilling pond is well above the elevation of EADA groundwater and is not affected by fluctuations in groundwater elevations.

- The horizontal groundwater flow direction in the blue clay zone in the north area of the EADA was consistently to the west or west-southwest toward well ALF-203 or toward McKellar Lake. The horizontal groundwater flow direction in the blue clay zone in the south area of the EADA varied from southwest, south, and to south-southeast, but ultimately was always away from the EADA. These flow directions are consistent with 2018 and 2019 groundwater elevation data.

- The groundwater flow directions in the sandy zone of the shallow Alluvial aquifer and in the intermediate and deep Alluvial aquifer are consistent with 2017, 2018 and 2019 groundwater elevation data. These data indicate that when the McKellar Lake surface water elevation is below ~190 feet elevation, groundwater flow is toward the lake and when the McKellar Lake level is above ~190 ft elevation, groundwater flow is towards the EADA.

- The average vertical gradients between the sandy zone shallow wells and co-located intermediate indicate that six of 11 wells (55%) of the wells show upward or neutral average vertical gradients. Gradients between the sandy zone shallow wells and co-located deep wells at the EADA indicate that half of 12 wells (50%) show upward or neutral average vertical gradients. Gradients between the intermediate wells and co-located deep wells at the EADA indicate that 16 of 19 wells (84%) show upward or neutral average vertical gradients. The positive, negative, or neutral gradient trends at individual monitoring well nested locations at the EADA have remained consistent since monitoring began in 2017.

- Arsenic continues to be the focus at ALF with elevated concentrations in groundwater in areas north and south of the EADA. The highest concentrations continue to be observed in the north area, in the blue clay zone interval of the Alluvial aquifer. The horizontal and vertical extent of the most impacted areas have not changed since monitoring began in 2017.

- Concentrations of fluoride were observed sporadically in four wells in the north area and in one well in the south area. All wells with elevated fluoride also exhibited elevated

concentrations of arsenic. The fluoride concentrations were just above the GWPS of 4 mg/L and were found in the shallow wells only.

- Elevated concentrations of lead were observed in one shallow well in the north area. This well also exhibited elevated concentrations of arsenic.
- There were no GWPS exceedances for arsenic, fluoride or lead in any deep Alluvial aquifer well at the EADA in 2020.
- Trend graphs incorporating the 2020 groundwater analytical data indicate stable constituent concentrations consistent with 2017-2019 date, with the highest concentrations in the shallow interval of the Alluvial aquifer.
- BTVs for groundwater in the Alluvial aquifer were updated using data through 2020. A comparison of the updated BTVs to those generated using data through 2019 indicated generally similar values for all constituents.
- Groundwater sampling of the Memphis aquifer indicates that groundwater continues to be high quality without evidence of CCR impact related to groundwater in the overlying Alluvial aquifer.

7.0 SCHEDULE UPDATE

In 2021, groundwater sampling will be conducted quarterly. TVA will keep TDEC informed of schedule changes and will provide TDEC with a 10-day notice of upcoming groundwater sampling events. At the time of this writing, the 2021 schedule of groundwater sampling is anticipated to be as follows:

1. February 22 – March 5
2. May 10-28
3. September 6-17
4. December 6-17

The estimated turnaround time (TAT) for groundwater sampling analyses is 28 days and the estimated TAT for data validation is two weeks.

5. After the first three sampling events, technical memoranda will be provided to TDEC within eight weeks after TVA receives the analytical data.

6. The Annual Report presenting the results of all four monitoring events will be provided to TDEC within 12 weeks after TVA receives the analytical data for the last sampling event.

TABLES

Table 1
Monitoring Well Groundwater Elevation Data (May 2017-December 2020)
TVA Allen Fossil Plant, Memphis, Tennessee

Well ID	TOC Elevation	Depth to Groundwater (ft)												
		5/30/2017	9/20/2017	10/16/2017	11/13/2017	12/26/2018	4/9/2019	6/18/2019	9/10/2019	12/10/2019	2/10/2020	5/11/2020	8/31/2020	12/7/2020
EADA and WADA Monitoring Wells														
ALF-201	222.21	21.06	34.65	36.72	33.33	NG	15.52	16.64	28.46	23.56	20.03	16.72	31.62	32.72
ALF-201B	222.65	-	35.99	37.69	34.06	NG	16.64	15.85	29.75	24.35	21.11	17.12	32.99	33.63
ALF-201A	222.47	-	35.73	37.43	33.76	NG	16.32	16.33	29.45	24.06	20.81	17.55	32.71	33.35
ALF-202	220.18	12.88	15.56	16.35	15.60	NG	8.31	11.58	16.03	14.75	11.59	12.06	18.13	19.87
ALF-202B	220.75	-	34.79	35.65	32.01	NG	15.56	15.48	28.33	23.81	19.78	16.67	31.21	31.77
ALF-202A	220.25	-	34.17	35.05	31.38	NG	14.95	14.84	27.73	22.22	19.18	16.08	30.86	31.19
ALF-203	222.39	15.44	32.70	33.16	29.25	NG	11.94	11.14	28.65	18.79	17.03	14.03	32.04	30.84
ALF-203B	222.30	-	40.54	37.84	31.23	NG	13.63	11.87	*	19.29	17.92	15.25	36.08	32.48
ALF-203A	222.34	-	40.59	37.88	30.25	NG	13.67	11.80	*	19.33	18.00	15.27	36.09	32.49
ALF-204	218.58	15.62	37.94	33.59	25.74	NG	9.93	7.90	28.51	15.20	14.08	11.52	32.82	28.58
ALF-204B	218.70	-	38.03	33.56	25.79	NG	10.01	7.97	28.62	15.26	14.11	11.89	32.92	28.64
ALF-204A	218.76	-	37.95	33.62	25.74	NG	9.93	7.90	28.52	15.22	14.06	11.54	32.85	28.58
ALF-205	221.62	17.37	40.46	37.89	30.19	NG	14.06	12.25	32.12	19.40	18.11	15.63	36.34	32.57
ALF-205B	221.31	-	40.80	36.27	28.59	NG	12.98	11.06	31.17	18.27	17.02	14.49	35.48	31.34
ALF-205A	221.14	-	40.44	35.99	28.25	NG	12.62	10.70	30.81	17.94	16.70	14.18	35.13	30.98
ALF-206	226.02	21.65	45.33	41.03	33.50	NG	17.91	16.11	35.73	23.28	21.96	19.39	40.00	36.10
ALF-207	231.61	25.61	47.60	49.50	40.98	31.83	21.78	20.31	40.02	28.98	26.78	24.81	44.39	41.81
ALF-207B	232.67	-	-	-	-	-	-	-	-	29.48	27.81	24.97	46.02	42.72
ALF-207A	232.04	-	49.14	49.27	40.62	32.27	22.32	20.80	40.74	28.79	27.17	24.35	45.40	42.03
ALF-208	230.97	24.56	48.39	48.72	38.41	30.78	21.07	19.08	NG	26.71	25.78	23.11	45.32	40.70
ALF-208B	231.62	-	-	-	-	-	-	-	-	28.22	26.79	24.95	45.16	41.62
ALF-208A	231.27	-	48.54	48.67	39.91	31.40	21.47	19.06	NG	27.93	26.37	23.50	44.75	41.24
ALF-209	208.52	-	25.93	26.15	16.75	8.35	Flooded	Flooded	NG	4.46	3.59	NG	22.57	18.32
ALF-209A	210.58	-	28.22	28.33	19.27	10.63	Flooded	Flooded	NG	7.10	5.80	NG	24.41	20.54
ALF-210	219.78	16.38	33.12	35.48	30.83	NG	10.46	10.81	26.03	19.41	15.78	12.33	29.73	30.53
ALF-210B	221.09	-	-	-	-	-	-	-	-	20.19	16.85	13.58	31.17	31.26
ALF-210A	220.46	-	33.62	35.91	30.88	NG	11.04	11.62	27.53	19.58	16.24	12.92	30.51	30.63
ALF-212	239.70	33.49	35.50	35.94	35.14	NG	28.74	32.04	35.92	34.84	31.94	32.82	*	38.89
ALF-212A	239.65	-	54.42	54.63	50.47	NG	34.30	34.01	47.57	41.29	38.50	35.49	50.78	50.69
ALF-213	240.40	38.36	57.11	55.54	49.70	NG	33.64	32.75	49.11	39.99	NG	35.09	53.74	50.94
ALF-213B	241.18	-	-	-	-	NG	34.20	33.27	49.81	40.51	NG	35.66	53.42	51.50
ALF-213A	241.16	-	-	-	-	NG	34.12	33.19	49.74	40.45	NG	35.59	53.41	51.55
ALF-214	221.29	-	33.76	36.13	32.30	NG	13.52	13.71	27.48	21.96	18.46	15.16	30.81	31.80
ALF-214B	221.17	-	33.89	36.15	32.40	NG	13.76	13.74	27.57	21.90	18.49	15.20	30.92	31.76
ALF-214A	221.28	-	34.06	36.34	32.35	23.86	13.88	13.84	27.70	22.03	18.63	16.34	31.06	31.88
ALF-215	216.36	-	13.57	14.27	13.95	NG	6.58	9.79	12.91	*	9.11	10.02	14.69	16.35
ALF-216	217.16	-	29.30	31.23	29.32	NG	11.89	12.24	23.29	20.19	16.11	13.08	26.12	28.28
ALF-217	240.97	-	-	-	-	NG	25.19	27.42	30.27	29.16	NG	27.46	31.89	32.37
ALF-217B	240.82	-	-	-	-	NG	34.57	33.64	48.96	41.18	NG	35.88	52.41	51.40
ALF-217A	240.90	-	-	-	-	NG	34.47	34.01	49.05	41.25	NG	35.98	52.51	51.50
ALF-218	221.51	-	-	-	-	-	-	-	-	18.75	17.06	13.85	34.86	31.66
ALF-218B	221.71	-	-	-	-	-	-	-	-	19.10	17.22	14.06	34.86	31.87
ALF-218A	221.69	-	-	-	-	-	-	-	-	19.92	17.16	14.03	34.74	31.81
ALF-219	238.14	-	-	-	-	-	-	-	-	37.94	32.38	*	45.06	48.01
ALF-219B	238.14	-	-	-	-	-	-	-	-	36.51	33.51	30.52	50.16	48.31
ALF-219A	237.72	-	-	-	-	-	-	-	-	36.81	33.08	30.07	49.82	47.89
P-2	232.62	26.67	49.27	50.80	40.90	32.84	22.88	21.11	NG	29.04	27.71	24.75	46.21	42.61
P-3	233.29	27.62	50.71	50.41	41.29	33.57	24.50	21.99	NG	29.62	28.49	25.77	47.22	43.28
P-4	221.20	15.89	40.50	38.94	30.42	NG	13.74	11.85	32.48	19.40	18.20	15.54	36.74	32.92
P-4S	215.89	-	34.40	32.83	24.81	NG	NA	5.41	26.54	12.86	11.84	9.23	30.78	26.65

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Table 1
Monitoring Well Groundwater Elevation Data (May 2017-December 2020)
TVA Allen Fossil Plant, Memphis, Tennessee

Well ID	TOC Elevation	Depth to Groundwater (ft)												
		5/30/2017	9/20/2017	10/16/2017	11/13/2017	12/26/2018	4/9/2019	6/18/2019	9/10/2019	12/10/2019	2/10/2020	5/11/2020	8/31/2020	12/7/2020
ACC Wells														
ACC-1A	214.82	-	27.39	29.26	26.87	NG	9.59	9.98	21.18	17.96	13.96	10.86	24.31	25.91
ACC-3A	219.10	-	30.62	33.46	30.96	NG	11.13	11.88	24.20	20.55	16.20	13.04	27.65	29.78
ACC-5A	220.33	-	32.42	34.78	32.03	NG	13.60	13.93	26.31	22.04	18.26	15.13	29.47	31.05
ACC-5B	220.33	-	32.62	34.78	32.12	NG	13.75	14.10	26.38	22.19	18.36	15.24	*	31.12
EADA IRA Wells														
EW-N02	220.28	-	-	-	-	12.07	7.59	7.60	NG	13.48	11.67	*	19.96	21.93
EW-S03	220.76	-	-	-	-	11.87	8.66	11.79	NG	15.17	12.00	12.15	18.70	20.49
PMW-02A	220.12	-	-	-	-	NG	7.99	7.72	19.33	14.44	12.89	10.81	*	26.70
PMW-02B	219.90	-	-	-	-	NG	10.80	9.01	29.74	16.47	15.29	12.70	*	29.93
PMW-02C	219.98	-	-	-	-	NG	11.50	9.04	29.89	16.49	15.32	12.74	34.21	29.99
PMW-04A	220.87	-	-	-	-	NG	9.04	8.75	22.80	15.57	13.77	11.27	25.52	26.45
PMW-04B	220.99	-	-	-	-	NG	12.19	10.32	30.65	17.79	16.52	13.92	34.94	31.04
PMW-04C	220.90	-	-	-	-	NG	12.06	10.19	30.55	17.64	16.39	13.75	34.88	30.92
PMW-07A	219.02	-	-	-	-	NG	6.44	6.20	16.65	12.03	10.09	8.37	18.39	20.33
PMW-07B	219.03	-	-	-	-	NG	10.18	8.18	29.02	15.55	14.44	11.86	33.35	29.04
PMW-07C	219.07	-	-	-	-	NG	10.17	8.16	29.07	15.92	13.39	11.86	33.42	29.05
PMW-10A	222.26	-	-	-	-	NG	10.20	13.22	18.05	16.76	13.54	13.48	20.41	22.64
PMW-10B	222.34	-	-	-	-	NG	17.03	16.97	29.84	24.33	21.28	18.74	32.94	33.33
PMW-10C	222.31	-	-	-	-	NG	17.01	16.94	29.85	24.31	21.27	18.03	32.95	33.30
PMW-11A	218.11	-	-	-	-	NG	7.44	10.65	14.67	13.48	10.48	10.09	16.82	18.94
PMW-11B	217.97	-	-	-	-	NG	12.74	12.73	25.36	20.08	16.97	13.85	28.42	28.93
PMW-11C	218.00	-	-	-	-	NG	12.75	12.72	25.44	20.06	16.99	13.85	28.51	28.95
PMW-14A	240.34	-	-	-	-	NG	27.49	30.74	35.29	33.99	30.84	31.32	37.45	39.09
PMW-14B	240.47	-	-	-	-	NG	35.13	35.00	48.31	42.36	39.40	36.38	51.22	51.42
PMW-14C	240.45	-	-	-	-	NG	35.11	34.95	48.08	42.32	39.36	36.32	51.21	51.44
McKellar Lake														

Table 1
Monitoring Well Groundwater Elevation Data (May 2017-December 2020)
TVA Allen Fossil Plant, Memphis, Tennessee

Well ID	TOC Elevation	Groundwater Elevation (NGVD 29)												
		5/30/2017	9/20/2017	10/16/2017	11/13/2017	12/26/2018	4/9/2019	6/18/2019	9/10/2019	12/10/2019	2/10/2020	5/11/2020	8/31/2020	12/7/2020
EADA and WADA Monitoring Wells														
ALF-201	222.21	201.15	187.56	185.49	188.88	198.80	206.69	205.57	193.75	198.65	202.18	205.49	190.59	189.49
ALF-201B	222.65	-	186.66	184.96	188.59	198.07	206.01	206.80	192.90	198.30	201.54	205.53	189.66	189.02
ALF-201A	222.47	-	186.74	185.04	188.71	198.30	206.15	206.14	193.02	198.41	201.66	204.92	189.76	189.12
ALF-202	220.18	207.30	204.62	203.83	204.58	207.82	211.87	208.60	204.15	205.43	208.59	208.12	202.05	200.31
ALF-202B	220.75	-	185.96	185.10	188.74	197.41	205.19	205.27	192.42	196.94	200.97	204.08	189.54	188.98
ALF-202A	220.25	-	186.08	185.20	188.87	197.56	205.30	205.41	192.52	198.03	201.07	204.17	189.39	189.06
ALF-203	222.39	206.95	189.69	189.23	193.14	203.20	210.45	211.25	193.74	203.60	205.36	208.36	190.35	191.55
ALF-203B	222.30	-	181.76	184.46	191.07	201.60	208.67	210.43	190.16*	203.01	204.38	207.05	186.22	189.82
ALF-203A	222.34	-	181.75	184.46	192.09	201.66	208.67	210.54	190.17*	203.01	204.34	207.07	186.25	189.85
ALF-204	218.58	202.96	180.64	184.99	192.84	201.78	208.65	210.68	190.07	203.38	204.50	207.06	185.76	190.00
ALF-204B	218.70	-	180.67	185.14	192.91	201.85	208.69	210.73	190.08	203.44	204.59	206.81	185.78	190.06
ALF-204A	218.76	-	180.81	185.14	193.02	201.89	208.83	210.86	190.24	203.54	204.70	207.22	185.91	190.18
ALF-205	221.62	204.25	181.16	183.73	191.43	200.60	207.56	209.37	189.50	202.22	203.51	205.99	185.28	189.05
ALF-205B	221.31	-	180.51	185.04	192.72	201.50	208.33	210.25	190.14	203.04	204.29	206.82	185.83	189.97
ALF-205A	221.14	-	180.70	185.15	192.89	201.68	208.52	210.44	190.33	203.20	204.44	206.96	186.01	190.16
ALF-206	226.02	204.37	180.69	184.99	192.52	201.22	208.11	209.91	190.29	202.74	204.06	206.63	186.02	189.92
ALF-207	231.61	206.00	184.01	182.11	190.63	199.78	209.83	211.30	191.59	202.63	204.83	206.80	187.22	189.80
ALF-207B	232.67	-	-	-	-	-	-	-	-	203.19	204.86	207.70	186.65	189.95
ALF-207A	232.04	-	182.90	182.77	191.42	199.77	209.72	211.24	191.30	203.25	204.87	207.69	186.64	190.01
ALF-208	230.97	206.41	182.58	182.25	192.56	200.19	209.90	211.89	NA	204.26	205.19	207.86	185.65	190.27
ALF-208B	231.62	-	-	-	-	-	-	-	-	203.40	204.83	206.67	186.46	190.00
ALF-208A	231.27	-	182.73	182.60	191.36	199.87	209.80	212.21	NA	203.34	204.90	207.77	186.52	190.03
ALF-209	208.52	-	182.59	182.37	191.77	200.17	Flooded	Flooded	NA	204.06	204.93	Flooded	185.95	190.20
ALF-209A	210.58	-	182.36	182.25	191.31	199.95	Flooded	Flooded	NA	203.48	204.78	Flooded	186.17	190.04
ALF-210	219.78	203.40	186.66	184.30	188.95	200.14	209.32	208.97	193.75	200.37	204.00	207.45	190.05	189.25
ALF-210B	221.09	-	-	-	-	-	-	-	-	200.90	204.24	207.51	189.92	189.83
ALF-210A	220.46	-	186.84	184.55	189.58	200.72	209.42	208.84	192.93	200.88	204.22	207.54	189.95	189.83
ALF-212	239.70	206.21	204.20	203.76	204.56	206.66	210.96	207.66	203.78	204.86	207.76	206.88	201.70*	200.81
ALF-212A	239.65	-	185.23	185.02	189.18	197.84	205.35	205.64	192.08	198.36	201.15	204.16	188.87	188.96
ALF-213	240.40	202.04	183.29	184.86	190.70	199.09	206.76	207.65	191.29	200.41	201.80	205.31	186.66	189.46
ALF-213B	241.18	-	-	-	-	199.49	206.98	207.91	191.37	200.67	201.69	205.52	187.76	189.68
ALF-213A	241.16	-	-	-	-	199.93	207.04	207.97	191.42	200.71	202.29	205.57	187.75	189.61
ALF-214	221.29	-	187.53	185.16	188.99	199.51	207.77	207.58	193.81	199.33	202.83	206.13	190.48	189.49
ALF-214B	221.17	-	187.28	185.02	188.77	199.11	207.41	207.43	193.60	199.27	202.68	205.97	190.25	189.41
ALF-214A	221.28	-	187.22	184.94	188.93	197.42	207.40	207.44	193.58	199.25	202.65	204.94	190.22	189.40
ALF-215	216.36	-	202.79	202.09	202.41	205.66	209.78	206.57	203.45	204.00*	207.25	206.34	201.67	200.01
ALF-216	217.16	-	187.86	185.93	187.84	196.76	205.27	204.92	193.87	196.97	201.05	204.08	191.04	188.88
ALF-217	240.97	-	-	-	-	213.66	215.78	213.55	210.70	211.81	212.93	213.51	209.08	208.60
ALF-217B	240.82	-	-	-	-	197.98	206.25	207.18	191.86	199.64	198.61	204.94	188.41	189.42
ALF-217A	240.90	-	-	-	-	198.63	206.43	206.89	191.85	199.65	201.08	204.92	188.39	189.40
ALF-218	221.51	-	-	-	-	-	-	-	-	202.76	204.45	207.66	186.65	189.85
ALF-218B	221.71	-	-	-	-	-	-	-	-	202.61	204.49	207.65	186.85	189.84
ALF-218A	221.69	-	-	-	-	-	-	-	-	201.77	204.53	207.66	186.95	189.88
ALF-219	238.14	-	-	-	-	-	-	-	-	200.20	205.76	209.65	193.08	190.13
ALF-219B	238.14	-	-	-	-	-	-	-	-	201.63	204.63	207.62	187.98	189.83
ALF-219A	237.72	-	-	-	-	-	-	-	-	200.91	204.64	207.65	187.90	189.83
P-2	232.62	205.95	183.35	181.82	191.72	199.78	209.74	211.51	NA	203.58	204.91	207.87	186.41	190.01
P-3	233.29	205.67	182.58	182.88	192.00	199.72	208.79	211.30	NA	203.67	204.80	207.52	186.07	190.01
P-4	221.20	205.31	180.70	182.26	190.78	200.31	207.46	209.35	188.72	201.80	203.00	205.66	184.46	188.28
P-4S	215.89		181.49	183.06	191.08	201.30	NA	210.48	189.35	203.03	204.05	206.66	185.11	189.24

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Table 1
Monitoring Well Groundwater Elevation Data (May 2017-December 2020)
TVA Allen Fossil Plant, Memphis, Tennessee

Well ID	TOC Elevation	Groundwater Elevation (NGVD 29)												
		5/30/2017	9/20/2017	10/16/2017	11/13/2017	12/26/2018	4/9/2019	6/18/2019	9/10/2019	12/10/2019	2/10/2020	5/11/2020	8/31/2020	12/7/2020
ACC Wells														
ACC-1A	214.82	-	187.43	185.56	187.95	196.95	205.23	204.84	193.64	196.86	200.86	203.96	190.51	188.91
ACC-3A	219.10	-	188.48	185.64	188.14	198.71	207.97	207.22	194.90	198.55	202.90	206.06	191.45	189.32
ACC-5A	220.33	-	187.91	185.55	188.30	198.07	206.73	206.40	194.02	198.29	202.07	205.20	190.86	189.28
ACC-5B	220.33	-	187.71	185.55	188.21	198.29	206.58	206.23	193.95	198.14	201.97	205.09	190.28*	189.21
EADA IRA Wells														
EW-N02	220.28	-	-	-	-	208.21	212.69	212.68	202.15	206.80	208.61	210.68*	200.32	198.35
EW-S03	220.76	-	-	-	-	208.89	212.10	208.97	204.53	205.59	208.76	208.61	202.06	200.27
PMW-02A	220.12	-	-	-	-	206.38	212.13	212.40	200.79	205.68	207.23	209.31	193.78*	193.42
PMW-02B	219.90	-	-	-	-	201.94	209.10	210.89	190.16	203.43	204.61	207.20	184.88*	189.97
PMW-02C	219.98	-	-	-	-	202.04	208.48	210.94	190.09	203.49	204.66	207.24	185.77	189.99
PMW-04A	220.87	-	-	-	-	205.95	211.83	212.12	198.07	205.30	207.10	209.60	195.35	194.42
PMW-04B	220.99	-	-	-	-	202.01	208.80	210.67	190.34	203.20	204.47	207.07	186.05	189.95
PMW-04C	220.90	-	-	-	-	202.0	208.84	210.71	190.35	203.26	204.51	207.15	186.02	189.98
PMW-07A	219.02	-	-	-	-	208.15	212.58	212.82	202.37	206.99	208.93	210.65	200.63	198.69
PMW-07B	219.03	-	-	-	-	201.97	208.85	210.85	190.01	203.48	204.59	207.17	185.68	189.99
PMW-07C	219.07	-	-	-	-	202.18	208.90	210.91	190.00	203.15	205.68	207.21	185.65	190.02
PMW-10A	222.26	-	-	-	-	208.56	212.06	209.04	204.21	205.50	208.72	208.78	201.85	199.62
PMW-10B	222.34	-	-	-	-	197.85	205.31	205.37	192.50	198.01	201.06	203.60	189.40	189.01
PMW-10C	222.31	-	-	-	-	197.85	205.30	205.37	192.46	198.00	201.04	204.28	189.36	189.01
PMW-11A	218.11	-	-	-	-	206.73	210.67	207.46	203.44	204.63	207.63	208.02	201.29	199.17
PMW-11B	217.97	-	-	-	-	197.86	205.23	205.24	192.61	197.89	201.00	204.12	189.55	189.04
PMW-11C	218.00	-	-	-	-	197.69	205.25	205.28	192.56	197.94	201.01	204.15	189.49	189.05
PMW-14A	240.34	-	-	-	-	209.26	212.85	209.60	205.05	206.35	209.50	209.02	202.89	201.25
PMW-14B	240.47	-	-	-	-	197.87	205.34	205.47	192.16	198.11	201.07	204.09	189.25	189.05
PMW-14C	240.45	-	-	-	-	197.92	205.34	205.50	192.37	198.13	201.09	204.13	189.24	189.01
McKellar Lake		206.90	178.65	186.14	194.73	203.55	209.89	212.53	189.58	205.25	205.88	208.22	184.87	190.67

NOTES:

TOC - Top of Casing - Water level measurement reference point
ft - Feet
NAVD29 - North American Vertical Datum of 1929
- Well was not yet installed.
Flooded - Well was surrounded or covered by floodwaters so no water level measurement was obtained.
NA - Well was inaccessible so no water level measurement was obtained.
* - iSite groundwater elevation data was used instead of manual water level measurment based on review of data. iSite provides a calculated groundwater elevation but not a water level gauging measurement.
NG - Not gauged; when available, iSite groundwater elevation was used in the absence of manual measurements.
Depth to water measurements for ALF-207 and ALF-207A on 9/10/2019 were collected by TVA.
McKellar Lake elevation values listed for June, September, and October 2017 gauging events were estimated from the USGS Mississippi River gauging station at Memphis. All subsequent gauging events are based on TVA's auto

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Table 2
Alluvial Aquifer Horizontal Hydraulic Gradients (September 2017-December 2020)
TVA Allen Fossil Plant
Memphis, Tennessee

Blue Clay Zone of the Shallow Alluvial Aquifer (South)						
	Groundwater Elevation (ft NAVD29)			Calculated Vector Components		
Gauging Date	ALF-202	ALF-212	ALF-215	Direction (degrees azimuth)	Direction (16-wind)	Magnitude (ft/ft)
9/20/2017	204.62	204.20	202.79	175.5	South	0.0044
10/16/2017	203.83	203.76	202.09	180.4	South	0.0042
11/13/2017	204.58	204.56	202.41	181.2	South	0.0052
12/26/2018*	207.82	206.66	205.66	168.0	South-Southeast	0.0054
4/9/2019	211.87	210.96	209.78	170.5	South	0.0052
6/18/2019	208.60	207.66	206.57	169.8	South	0.0050
9/10/2019	204.15	203.78	203.45	168.3	South-Southeast	0.0017
12/10/2019	205.43	204.86	204.00*	170.6	South	0.0033
2/10/2020	208.59	207.76	207.25	176.7	South	0.011
5/11/2020	208.12	206.88	206.34	173.5	South	0.0098
8/31/2020	202.05	201.70*	201.67	159.4	South-Southeast	0.0010
12/7/2020	200.31	200.81	200.01	219.8	Southwest	0.0009
					Average	**0.0047**

Blue Clay Zone of the Shallow Alluvial Aquifer (North Well-Triplet 1)						
	Groundwater Elevation (ft NAVD29)			Calculated Vector Components		
Gauging Date	PMW-02A	PMW-04A	EW-N02	Direction (degrees azimuth)	Direction (16-wind)	Magnitude (ft/ft)
12/26/2018*	206.38	205.95	208.21	250.7	West-Southwest	0.060
4/9/2019	212.13	211.83	212.69	246.8	West-Southwest	0.023
6/18/2019	212.40	212.12	212.68	243.3	West-Southwest	0.016
9/10/2019	200.79	198.07	202.15	239.8	West-Southwest	0.12
12/10/2019	205.68	205.30	206.80	249.2	West-Southwest	0.040
2/10/2020	207.23	207.10	208.61	253.4	West-Southwest	0.039
5/11/2020	209.31	209.60	210.68*	263.0	West	0.027
8/31/2020	193.78*	195.35	200.32	264.3	West	0.120
12/7/2020	193.42	194.42	198.35	262.6	West	0.10
					Average	**0.0602**

Blue Clay Zone of the Shallow Alluvial Aquifer (North Well-Triplet 2)						
	Groundwater Elevation (ft NAVD29)			Calculated Vector Components		
Gauging Date	EW-N02	PMW-02A	PMW-07A	Direction (degrees azimuth)	Direction (16-wind)	Magnitude (ft/ft)
12/26/2018*	208.21	206.38	208.15	341.3	North-Northwest	0.019
4/9/2019	212.69	212.13	212.58	346.9	North	0.0059
6/18/2019	212.68	212.40	212.82	321.6	Northwest	0.0027
9/10/2019	202.15	200.79	202.37	334.5	North-Northwest	0.013
12/10/2019	206.80	205.68	206.99	334.2	North-Northwest	0.011
2/10/2020	208.61	207.23	208.93	331.9	North-Northwest	0.013
5/11/2020	210.68*	209.31	210.65	340.9	North-Northwest	0.014
8/31/2020	200.32	193.78*	200.63	338.6	North-Northwest	0.066
12/7/2020	198.35	193.42	198.69	337.8	North-Northwest	0.049
					Average	**0.0216**

Table 2
Alluvial Aquifer Horizontal Hydraulic Gradients (September 2017-December 2020)
TVA Allen Fossil Plant
Memphis, Tennessee

Sandy Zone of the Shallow Alluvial Aquifer						
	Groundwater Elevation (ft NAVD29)			Calculated Vector Components		
Gauging Date	ALF-201	ALF-204	ALF-213	Direction (degrees azimuth)	Direction (16-wind)	Magnitude (ft/ft)
5/30/2017	201.15	202.96	202.04	188.6	South	0.0010
9/20/2017	187.56	180.64	183.29	16.3	North-Northeast	0.0036
10/16/2017	185.49	184.99	184.86	53.8	Northeast	0.0003
11/13/2017	188.88	192.84	190.70	186.7	South	0.0021
12/26/2018*	198.80	201.78	199.09	168.0	South-Southeast	0.0019
4/9/2019	206.69	208.65	206.76	165.2	South-Southeast	0.0013
6/18/2019	205.57	210.68	207.65	183.5	South	0.0028
9/10/2019	193.75	190.07	191.29	19.7	North-Northeast	0.0019
12/10/2019	198.65	203.38	200.41	181.5	South	0.0026
2/10/2020	202.18	204.50	201.80	158.1	South-Southeast	0.0017
5/11/2020	205.49	207.06	205.31	159.8	South-Southeast	0.0011
8/31/2020	190.59	185.76	186.66	28.8	North-Northeast	0.0025
12/7/2020	189.49	190.00	189.46	161.8	South-Southeast	0.0003
					Average	**0.0018**

Intermediate Alluvial Aquifer						
	Groundwater Elevation (ft NAVD29)			Calculated Vector Components		
Gauging Date	ALF-202B	ALF-204B	ALF-205B	Direction (degrees azimuth)	Direction (16-wind)	Magnitude (ft/ft)
9/20/2017	185.96	180.67	180.51	16.9	North-Northeast	0.0029
10/16/2017	185.10	185.14	185.04	93.7	East	0.0001
11/13/2017	188.74	192.91	192.72	187.0	South	0.0022
12/26/2018*	197.41	201.85	201.50	182.4	South	0.0023
4/9/2019	205.19	208.69	208.33	179.0	South	0.0018
6/18/2019	205.27	210.73	210.25	181.1	South	0.0028
9/10/2019	192.42	190.08	190.14	9.7	North	0.0012
12/10/2019	196.94	203.44	203.04	184.8	South	0.0034
2/10/2020	200.97	204.59	204.29	181.8	South	0.0019
5/11/2020	204.08	206.81	206.82	193.5	South-Southwest	0.0015
8/31/2020	189.54	185.78	185.83	11.3	North-Northeast	0.0020
12/7/2020	188.98	190.06	189.97	181.7	South	0.0006
					Average	**0.0019**

Deep Alluvial Aquifer						
	Groundwater Elevation (ft NAVD29)			Calculated Vector Components		
Gauging Date	ALF-202A	ALF-204A	ALF-205A	Direction (degrees azimuth)	Direction (16-wind)	Magnitude (ft/ft)
9/20/2017	186.08	180.81	180.70	16.1	North-Northeast	0.0029
10/16/2017	185.20	185.14	185.15	347.9	North-Northwest	0.0000
11/13/2017	188.87	193.02	192.89	188.8	South	0.0022
12/26/2018*	197.56	201.89	201.68	186.2	South	0.0023
4/9/2019	205.30	208.83	208.52	180.2	South	0.0018
6/18/2019	205.41	210.86	210.44	181.9	South	0.0028
9/10/2019	192.52	190.24	190.33	7.6	North	0.0012
12/10/2019	198.03	203.54	203.20	184.2	South	0.0029
2/10/2020	201.07	204.70	204.44	182.7	South	0.0019
5/11/2020	204.17	207.22	206.96	180.6	South	0.0016
8/31/2020	189.39	185.91	186.01	9.1	North	0.0019
12/7/2020	189.06	190.18	190.16	190.7	South	0.0006
					Average	**0.0018**

Notes

NAVD29 - National Geodetic Vertical Datum of 1929
degrees azimuth - Direction measured in degrees from north (positive values indicate direction measured clockwise from north)
16-wind - Direction specified using the eight principal directions and the eight half directions with 22.5 degrees separating each.
ft/ft - Feet per foot
* Groundwater elevations shown were based on automated pressure transducer values based on review of manual gauging data or because manual gauging data was not availal

Table 3a
Alluvial Aquifer Vertical Hydraulic Gradients in Co-Located Monitoring Wells: Blue Clay Zone (Shallow), Intermediate, Deep (Sept. 2017-December 2020)
TVA Allen Fossil Plant
Memphis, Tennessee

Co-Located Well Group	Gauging Date	Blue Clay Zone of Shallow Well Details			Intermediate Well Details			Deep Well Details			Delta H (ft)			Submerged			Calculation Point (ft NAVD29)			Vertical Gradient (ft/ft)			Average Vertical Gradient (ft/ft)		
		TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	S-I	S-D	I-D	S	I	D	S	I	D	S-I	S-D	I-D	S-I	S-D	I-D
ALF-202 ALF-202B ALF-202A	9/20/2017	196.8	175.6	204.62	136.7	126.7	185.96	80.2	70.2	186.08	-18.66	-18.54	0.12	TRUE	TRUE	TRUE	186.2	131.7	75.2	-0.342	-0.167	0.002	-0.192	-0.093	0.003
	10/16/2017			203.83			185.1			185.2	-18.73	-18.63	0.10	TRUE	TRUE	TRUE	186.2	131.7	75.2	-0.344	-0.168	0.002			
	11/13/2017			204.58			188.74			188.87	-15.84	-15.71	0.13	TRUE	TRUE	TRUE	186.2	131.7	75.2	-0.291	-0.142	0.002			
	12/26/2018			207.82			197.41			197.56	-10.41	-10.26	0.15	TRUE	TRUE	TRUE	186.2	131.7	75.2	-0.191	-0.092	0.003			
	4/9/2019			211.87			205.19			205.3	-6.68	-6.57	0.11	TRUE	TRUE	TRUE	186.2	131.7	75.2	-0.123	-0.059	0.002			
	4/15/2019			211.94			205.15			205.26	-6.79	-6.68	0.11	TRUE	TRUE	TRUE	186.2	131.7	75.2	-0.125	-0.060	0.002			
	6/18/2019			208.6			205.27			205.41	-3.33	-3.19	0.14	TRUE	TRUE	TRUE	186.2	131.7	75.2	-0.061	-0.029	0.002			
	9/10/2019			204.15			192.42			192.52	-11.73	-11.63	0.10	TRUE	TRUE	TRUE	186.2	131.7	75.2	-0.215	-0.105	0.002			
	12/10/2019			205.43			196.94			198.03	-8.49	-7.40	1.09	TRUE	TRUE	TRUE	186.2	131.7	75.2	-0.156	-0.067	0.019			
	2/10/2020			208.59			200.97			201.07	-7.62	-7.52	0.10	TRUE	TRUE	TRUE	186.2	131.7	75.2	-0.140	-0.068	0.002			
	5/11/2020			208.12			204.08			204.17	-4.04	-3.95	0.09	TRUE	TRUE	TRUE	186.2	131.7	75.2	-0.074	-0.036	0.002			
	8/31/2020			202.05			189.54			189.39	-12.51	-12.66	-0.15	TRUE	TRUE	TRUE	186.20	131.70	75.20	-0.230	-0.114	-0.003			
	12/7/2020			200.31			188.98			189.06	-11.33	-11.25	0.08	TRUE	TRUE	TRUE	186.20	131.70	75.20	-0.208	-0.101	0.001			
ALF-203 ALF-203B ALF-203A	9/20/2017	189.3	168.3	189.69	138.4	128.4	181.76	110	100	181.75	-7.93	-7.94	-0.01	TRUE	TRUE	TRUE	178.8	133.4	105	-0.175	-0.108	0.000	-0.056	-0.033	0.003
	10/16/2017			189.23			184.46			184.46	-4.77	-4.77	0.00	FALSE	TRUE	TRUE	178.77	133.4	105	-0.105	-0.065	0.000			
	11/13/2017			193.14			191.07			192.09	-2.07	-1.05	1.02	TRUE	TRUE	TRUE	178.8	133.4	105	-0.046	-0.014	0.036			
	12/26/2018			203.2			201.6			201.66	-1.60	-1.54	0.06	TRUE	TRUE	TRUE	178.8	133.4	105	-0.035	-0.021	0.002			
	4/9/2019			210.45			208.67			208.67	-1.78	-1.78	0.00	TRUE	TRUE	TRUE	178.8	133.4	105	-0.039	-0.024	0.000			
	4/15/2019			210.23			208.58			208.59	-1.65	-1.64	0.01	TRUE	TRUE	TRUE	178.8	133.4	105	-0.036	-0.022	0.000			
	6/18/2019			211.25			210.43			210.54	-0.82	-0.71	0.11	TRUE	TRUE	TRUE	178.8	133.4	105	-0.018	-0.010	0.004			
	9/10/2019			193.74			190.16			190.17	-3.58	-3.57	0.01	TRUE	TRUE	TRUE	178.8	133.4	105	-0.079	-0.048	0.000			
	12/10/2019			203.6			203.01			203.01	-0.59	-0.59	0.00	TRUE	TRUE	TRUE	178.8	133.4	105	-0.013	-0.008	0.000			
	2/10/2020			205.36			204.38			204.34	-0.98	-1.02	-0.04	TRUE	TRUE	TRUE	178.8	133.4	105	-0.022	-0.014	-0.001			
	5/11/2020			208.36			207.05			207.07	-1.31	-1.29	0.02	TRUE	TRUE	TRUE	178.8	133.4	105	-0.029	-0.017	0.001			
	8/31/2020			190.35			186.22			186.25	-4.13	-4.10	0.03	TRUE	TRUE	TRUE	178.8	133.4	105	-0.091	-0.056	0.001			
	12/7/2020			191.55			189.82			189.85	-1.73	-1.70	0.03	TRUE	TRUE	TRUE	178.8	133.4	105	-0.038	-0.023	0.001			
ALF-212 ALF-212A	9/20/2017	187.9	171.9	204.2	-	-	-	80.3	70.3	185.23	NA	-18.97	NA	TRUE	NA	TRUE	179.9	NA	75.3	NA	-0.181	NA	-	-0.094	-
	10/16/2017			203.76			-			185.02	NA	-18.74	NA	TRUE	NA	TRUE	179.9	NA	75.3	NA	-0.179	NA			
	11/13/2017			204.56			-			189.18	NA	-15.38	NA	TRUE	NA	TRUE	179.9	NA	75.3	NA	-0.147	NA			
	12/26/2018			206.66			-			197.84	NA	-8.82	NA	TRUE	NA	TRUE	179.9	NA	75.3	NA	-0.084	NA			
	4/9/2019			210.96			-			205.35	NA	-5.61	NA	TRUE	NA	TRUE	179.9	NA	75.3	NA	-0.054	NA			
	4/15/2019			211.3			-			205.35	NA	-5.95	NA	TRUE	NA	TRUE	179.9	NA	75.3	NA	-0.057	NA			
	6/18/2019			207.66			-			205.64	NA	-2.02	NA	TRUE	NA	TRUE	179.9	NA	75.3	NA	-0.019	NA			
	9/10/2019			203.78			-			192.08	NA	-11.70	NA	TRUE	NA	TRUE	179.9	NA	75.3	NA	-0.112	NA			
	12/10/2019			204.86			-			198.36	NA	-6.50	NA	TRUE	NA	TRUE	179.9	NA	75.3	NA	-0.062	NA			
	2/10/2020			207.76			-			201.15	NA	-6.61	NA	TRUE	NA	TRUE	179.9	NA	75.3	NA	-0.063	NA			
	5/11/2020			206.88			-			204.16	NA	-2.72	NA	TRUE	NA	TRUE	179.9	NA	75.3	NA	-0.026	NA			
	8/31/2020			201.7			-			188.87	NA	-12.83	NA	TRUE	NA	TRUE	179.90	NA	75.30	NA	-0.123	NA			
	12/7/2020			200.81			-			188.96	NA	-11.85	NA	TRUE	NA	TRUE	179.90	NA	75.30	NA	-0.113	NA			
ALF-217 ALF-217B ALF-217A	12/26/2018	191.6	169.6	213.66	119.5	109.5	197.98	58.6	48.6	198.63	-15.68	-15.03	0.65	TRUE	TRUE	TRUE	180.6	114.5	53.6	-0.237	-0.118	0.011	-0.204	-0.104	0.005
	4/9/2019			215.78			206.25			206.43	-9.53	-9.35	0.18	TRUE	TRUE	TRUE	180.6	114.5	53.6	-0.144	-0.074	0.003			
	4/15/2019			215.83			206.24			206.25	-9.59	-9.58	0.01	TRUE	TRUE	TRUE	180.6	114.5	53.6	-0.145	-0.075	0.000			
	6/18/2019			213.55			207.18			206.89	-6.37	-6.66	-0.29	TRUE	TRUE	TRUE	180.6	114.5	53.6	-0.096	-0.052	-0.005			
	9/10/2019			210.7			191.86			191.85	-18.84	-18.85	-0.01	TRUE	TRUE	TRUE	180.6	114.5	53.6	-0.285	-0.148	0.000			
	12/10/2019			211.81			199.64			199.65	-12.17	-12.16	0.01	TRUE	TRUE	TRUE	180.6	114.5	53.6	-0.184	-0.096	0.000			
	2/10/2020			212.93			198.61			201.08	-14.32	-11.85	2.47	TRUE	TRUE	TRUE	180.6	114.5	53.6	-0.217	-0.093	0.041			
	5/11/2020			213.51			204.94			204.92	-8.57	-8.59	-0.02	TRUE	TRUE	TRUE	180.6	114.5	53.6	-0.130	-0.068	0.000			
	8/31/2020			209.08			188.41			188.39	-20.67	-20.69	-0.02	TRUE	TRUE	TRUE	180.6	114.5	53.6	-0.313	-0.163	0.000			
	12/7/2020			208.6			189.42			189.4	-19.18	-19.20	-0.02	TRUE	TRUE	TRUE	180.6	114.5	53.6	-0.290	-0.151	0.000			

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Table 3a
Alluvial Aquifer Vertical Hydraulic Gradients in Co-Located Monitoring Wells: Blue Clay Zone (Shallow), Intermediate, Deep (Sept. 2017-December 2020)
TVA Allen Fossil Plant
Memphis, Tennessee

Co-Located Well Group	Gauging Date	Blue Clay Zone of Shallow Well Details			Intermediate Well Details			Deep Well Details			Delta H (ft)			Submerged			Calculation Point (ft NAVD29)			Vertical Gradient (ft/ft)			Average Vertical Gradient (ft/ft)		
		TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	S-I	S-D	I-D	S	I	D	S	I	D	S-I	S-D	I-D	S-I	S-D	I-D
PMW-02A PMW-02B PMW-02C	12/26/2018	201.1	180.1	206.38	171.5	161.5	201.94	100.7	90.7	202.04	-4.44	-4.34	0.10	TRUE	TRUE	TRUE	190.6	166.5	95.7	-0.184	-0.046	0.001	-0.184	-0.044	0.001
	4/9/2019			212.13			209.1			208.48	-3.03	-3.65	-0.62	TRUE	TRUE	TRUE	190.6	166.5	95.7	-0.126	-0.038	-0.009			
	4/15/2019			211.98			208.9			208.9	-3.08	-3.08	0.00	TRUE	TRUE	TRUE	190.6	166.5	95.7	-0.128	-0.032	0.000			
	6/18/2019			212.4			210.89			210.94	-1.51	-1.46	0.05	TRUE	TRUE	TRUE	190.6	166.5	95.7	-0.063	-0.015	0.001			
	9/10/2019			200.79			190.16			190.09	-10.63	-10.70	-0.07	FALSE	TRUE	TRUE	190.445	166.5	95.7	-0.444	-0.113	-0.001			
	12/10/2019			205.68			203.43			203.49	-2.25	-2.19	0.06	TRUE	TRUE	TRUE	190.6	166.5	95.7	-0.093	-0.023	0.001			
	2/10/2020			207.23			204.61			204.66	-2.62	-2.57	0.05	TRUE	TRUE	TRUE	190.6	166.5	95.7	-0.109	-0.027	0.001			
	5/11/2020			209.31			207.2			207.24	-2.11	-2.07	0.04	TRUE	TRUE	TRUE	190.6	166.5	95.7	-0.088	-0.022	0.001			
	8/31/2020			193.78			184.88			185.77	-8.90	-8.01	0.89	FALSE	TRUE	TRUE	186.94	166.50	95.70	-0.435	-0.088	0.013			
	12/7/2020			193.42			189.97			189.99	-3.45	-3.43	0.02	FALSE	TRUE	TRUE	186.76	166.50	95.70	-0.170	-0.038	0.000			
PMW-04A PMW-04B PMW-04C	12/26/2018	201.5	180.5	205.95	169	159	202.01	101.6	91.6	202	-3.94	-3.95	-0.01	TRUE	TRUE	TRUE	191	164	96.6	-0.146	-0.042	0.000	-0.168	-0.046	0.000
	4/9/2019			211.83			208.8			208.84	-3.03	-2.99	0.04	TRUE	TRUE	TRUE	191	164	96.6	-0.112	-0.032	0.001			
	4/15/2019			214.51			208.68			208.6	-5.83	-5.91	-0.08	TRUE	TRUE	TRUE	191	164	96.6	-0.216	-0.063	-0.001			
	6/18/2019			212.12			210.67			210.71	-1.45	-1.41	0.04	TRUE	TRUE	TRUE	191	164	96.6	-0.054	-0.015	0.001			
	9/10/2019			198.07			190.34			190.35	-7.73	-7.72	0.01	FALSE	TRUE	TRUE	189.285	164	96.6	-0.306	-0.083	0.000			
	12/10/2019			205.3			203.2			203.26	-2.10	-2.04	0.06	TRUE	TRUE	TRUE	191	164	96.6	-0.078	-0.022	0.001			
	2/10/2020			207.1			204.47			204.51	-2.63	-2.59	0.04	TRUE	TRUE	TRUE	191	164	96.6	-0.097	-0.027	0.001			
	5/11/2020			209.6			207.07			207.15	-2.53	-2.45	0.08	TRUE	TRUE	TRUE	191	164	96.6	-0.094	-0.026	0.001			
	8/31/2020			195.35			186.05			186.02	-9.30	-9.33	-0.03	FALSE	TRUE	TRUE	187.925	164	96.6	-0.389	-0.102	0.000			
	12/7/2020			194.42			189.95			189.98	-4.47	-4.44	0.03	FALSE	TRUE	TRUE	187.46	164	96.6	-0.191	-0.049	0.000			
PMW-07A PMW-07B PMW-07C	12/26/2018	200.1	190.1	208.15	169.6	159.6	201.97	106.6	96.6	202.18	-6.18	-5.97	0.21	TRUE	TRUE	TRUE	195.1	164.6	101.6	-0.203	-0.064	0.003	-0.207	-0.066	0.002
	4/9/2019			212.58			208.85			208.9	-3.73	-3.68	0.05	TRUE	TRUE	TRUE	195.1	164.6	101.6	-0.122	-0.039	0.001			
	4/15/2019			212.46			208.83			208.87	-3.63	-3.59	0.04	TRUE	TRUE	TRUE	195.1	164.6	101.6	-0.119	-0.038	0.001			
	6/18/2019			212.82			210.85			210.91	-1.97	-1.91	0.06	TRUE	TRUE	TRUE	195.1	164.6	101.6	-0.065	-0.020	0.001			
	9/10/2019			202.37			190.01			190	-12.36	-12.37	-0.01	TRUE	TRUE	TRUE	195.1	164.6	101.6	-0.405	-0.132	0.000			
	12/10/2019			206.99			203.48			203.15	-3.51	-3.84	-0.33	TRUE	TRUE	TRUE	195.1	164.6	101.6	-0.115	-0.041	-0.005			
	2/10/2020			208.93			204.59			205.68	-4.34	-3.25	1.09	TRUE	TRUE	TRUE	195.1	164.6	101.6	-0.142	-0.035	0.017			
	5/11/2020			210.65			207.17			207.21	-3.48	-3.44	0.04	TRUE	TRUE	TRUE	195.1	164.6	101.6	-0.114	-0.037	0.001			
	8/31/2020			200.63			185.68			185.65	-14.95	-14.98	-0.03	TRUE	TRUE	TRUE	195.10	164.60	101.60	-0.490	-0.160	0.000			
	12/7/2020			198.69			189.99			190.02	-8.70	-8.67	0.03	FALSE	TRUE	TRUE	194.40	164.60	101.60	-0.292	-0.093	0.000			
PMW-10A PMW-10B PMW-10C	12/26/2018	199.7	178.7	208.56	159.5	149.5	197.85	80.3	70.3	197.85	-10.71	-10.71	0.00	TRUE	TRUE	TRUE	189.2	154.5	75.3	-0.309	-0.094	0.000	-0.242	-0.072	0.002
	4/9/2019			212.06			205.31			205.3	-6.75	-6.76	-0.01	TRUE	TRUE	TRUE	189.2	154.5	75.3	-0.195	-0.059	0.000			
	4/15/2019			212.16			204.56			205.26	-7.60	-6.90	0.70	TRUE	TRUE	TRUE	189.2	154.5	75.3	-0.219	-0.061	0.009			
	6/18/2019			209.04			205.37			205.37	-3.67	-3.67	0.00	TRUE	TRUE	TRUE	189.2	154.5	75.3	-0.106	-0.032	0.000			
	9/10/2019			204.21			192.5			192.46	-11.71	-11.75	-0.04	TRUE	TRUE	TRUE	189.2	154.5	75.3	-0.337	-0.103	-0.001			
	12/10/2019			205.5			198.01			198	-7.49	-7.50	-0.01	TRUE	TRUE	TRUE	189.2	154.5	75.3	-0.216	-0.066	0.000			
	2/10/2020			208.72			201.06			201.04	-7.66	-7.68	-0.02	TRUE	TRUE	TRUE	189.2	154.5	75.3	-0.221	-0.067	0.000			
	5/11/2020			208.78			203.6			204.28	-5.18	-4.50	0.68	TRUE	TRUE	TRUE	189.2	154.5	75.3	-0.149	-0.040	0.009			
	8/31/2020			201.85			189.4			189.36	-12.45	-12.49	-0.04	TRUE	TRUE	TRUE	189.2	154.5	75.3	-0.359	-0.110	-0.001			
	12/7/2020			199.62			189.01			189.01	-10.61	-10.61	0.00	FALSE	TRUE	TRUE	189.16	154.5	75.3	-0.306	-0.093	0.000			
PMW-11A PMW-11B PMW-11C	12/26/2018	201.5	180.5	206.73	160.6	150.6	197.86	79	69	197.69	-8.87	-9.04	-0.17	TRUE	TRUE	TRUE	191	155.6	74	-0.251	-0.077	-0.002	-0.210	-0.063	0.000
	4/9/2019			210.67			205.23			205.25	-5.44	-5.42	0.02	TRUE	TRUE	TRUE	191	155.6	74	-0.154	-0.046	0.000			
	6/18/2019			207.46			205.24			205.28	-2.22	-2.18	0.04	TRUE	TRUE	TRUE	191	155.6	74	-0.063	-0.019	0.000			
	9/10/2019			203.44			192.61			192.56	-10.83	-10.88	-0.05	TRUE	TRUE	TRUE	191	155.6	74	-0.306	-0.093	-0.001			
	12/10/2019			204.63			197.89			197.94	-6.74	-6.69	0.05	TRUE	TRUE	TRUE	191	155.6	74	-0.190	-0.057	0.001			
	2/10/2020			207.63			201			201.01	-6.63	-6.62	0.01	TRUE	TRUE	TRUE	191	155.6	74	-0.187	-0.057	0.000			
	5/11/2020			208.02			204.12			204.15	-3.90	-3.87	0.03	TRUE	TRUE	TRUE	191	155.6	74	-0.110	-0.033	0.000			
	8/31/2020			201.29			189.55			189.49	-11.74	-11.80	-0.06	FALSE	TRUE	TRUE	190.90	155.60	74.00	-0.333	-0.101	-0.001			
	12/7/2020			199.17			189.04			189.05	-10.13	-10.12	0.01	FALSE	TRUE	TRUE	189.84	155.60	74.00	-0.296	-0.087	0.000			

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Table 3a
Alluvial Aquifer Vertical Hydraulic Gradients in Co-Located Monitoring Wells: Blue Clay Zone (Shallow), Intermediate, Deep (Sept. 2017-December 2020)
TVA Allen Fossil Plant
Memphis, Tennessee

Co-Located Well Group	Gauging Date	Blue Clay Zone of Shallow Well Details			Intermediate Well Details			Deep Well Details			Delta H (ft)			Submerged			Calculation Point (ft NAVD29)			Vertical Gradient (ft/ft)			Average Vertical Gradient (ft/ft)		
		TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	S-I	S-D	I-D	S	I	D	S	I	D	S-I	S-D	I-D	S-I	S-D	I-D
PMW-14A PMW-14B PMW-14C	12/26/2018	201.8	180.8	209.26	161	151	197.87	88.6	78.6	197.92	-11.39	-11.34	0.05	TRUE	TRUE	TRUE	191.3	156	83.6	-0.323	-0.105	0.001	-0.263	-0.086	0.000
	4/9/2019			212.85			205.34			205.34	-7.51	-7.51	0.00	TRUE	TRUE	TRUE	191.3	156	83.6	-0.213	-0.070	0.000			
	6/18/2019			209.6			205.47			205.5	-4.13	-4.10	0.03	TRUE	TRUE	TRUE	191.3	156	83.6	-0.117	-0.038	0.000			
	9/10/2019			205.05			192.16			192.37	-12.89	-12.68	0.21	TRUE	TRUE	TRUE	191.3	156	83.6	-0.365	-0.118	0.003			
	12/10/2019			206.35			198.11			198.13	-8.24	-8.22	0.02	TRUE	TRUE	TRUE	191.3	156	83.6	-0.233	-0.076	0.000			
	2/10/2020			209.5			201.07			201.09	-8.43	-8.41	0.02	TRUE	TRUE	TRUE	191.3	156	83.6	-0.239	-0.078	0.000			
	5/11/2020			209.02			204.09			204.13	-4.93	-4.89	0.04	TRUE	TRUE	TRUE	191.3	156	83.6	-0.140	-0.045	0.001			
	8/31/2020			202.89			189.25			189.24	-13.64	-13.65	-0.01	TRUE	TRUE	TRUE	191.3	156	83.6	-0.386	-0.127	0.000			
	12/7/2020			201.25			189.05			189.01	-12.20	-12.24	-0.04	FALSE	TRUE	TRUE	191.025	156	83.6	-0.348	-0.114	-0.001			

Notes:

Co-Located Well Group - Generalized name of wells completed in close proximity with different screened intervals.

TOS - Elevation of Top of Screen

BOS - Elevation of Bottom of Screen

GWE - Groundwater Elevation

ft - Feet

NAVD29 - North American Vertical Datum of 1929

S - Shallow Well

I - Intermediate Well

D - Deep Well

S-I - Comparison between Shallow and Intermediate Well

S-D - Comparison between Shallow and Deep Well

I-D - Comparison between Intermediate and Deep Well

Delta H - Difference in groundwater elevation between wells

Calculation Point - For submerged screens the calculation point is equal to the mid point elevation of the screen. For partially submerged wells the calculation point is mid point of the wetted screen interval.

Vertical Gradient - Calculated as Delta H / (Calculation Point for Shallower Well - Calculation Point for Deeper well)

ft/ft - Feet per

- Not applicat

Table 3b
Alluvial Aquifer Vertical Hydraulic Gradients in Co-Located Monitoring Wells: Sandy Zone (Shallow), Intermediate, Deep (September 2017-December 2020)
TVA Allen Fossil Plant
Memphis, Tennessee

Co-Located Well Group	Gauging Date	Sandy Zone of Shallow Well Details			Intermediate Well Details			Deep Well Details			Delta H (ft)			Submerged			Calculation Point (ft NAVD29)			Vertical Gradient (ft/ft)			Average Vertical Gradient (ft/ft)		
		TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	S-I	S-D	I-D	S	I	D	S	I	D	S-I	S-D	I-D	S-I	S-D	I-D
ALF-201 ALF-201B ALF-201A	10/16/2017	198.9	172.3	185.49	138.8	128.8	184.96	102.2	92.2	185.04	-0.53	-0.45	0.08	FALSE	TRUE	TRUE	178.90	133.8	97.2	-0.012	-0.006	0.002	-0.009	-0.005	0.000
	11/13/2017			188.88			188.59			188.71	-0.29	-0.17	0.12	FALSE	TRUE	TRUE	180.59	133.8	97.2	-0.006	-0.002	0.003			
	12/26/2018			198.8			198.07			198.3	-0.73	-0.50	0.23	FALSE	TRUE	TRUE	185.55	133.8	97.2	-0.014	-0.006	0.006			
	4/9/2019			206.69			206.01			206.15	-0.68	-0.54	0.14	TRUE	TRUE	TRUE	185.6	133.8	97.2	-0.013	-0.006	0.004			
	6/18/2019			205.57			206.8			206.14	1.23	0.57	-0.66	TRUE	TRUE	TRUE	185.6	133.8	97.2	0.024	0.006	-0.018			
	9/10/2019			193.75			192.9			193.02	-0.85	-0.73	0.12	FALSE	TRUE	TRUE	183.03	133.8	97.2	-0.017	-0.009	0.003			
	12/10/2019			198.65			198.3			198.41	-0.35	-0.24	0.11	FALSE	TRUE	TRUE	185.48	133.8	97.2	-0.007	-0.003	0.003			
	2/10/2020			202.18			201.54			201.66	-0.64	-0.52	0.12	TRUE	TRUE	TRUE	185.60	133.8	97.2	-0.012	-0.006	0.003			
	5/11/2020			205.49			205.53			204.92	0.04	-0.57	-0.61	TRUE	TRUE	TRUE	185.60	133.8	97.2	0.001	-0.006	-0.017			
	8/31/2020			190.59			189.66			189.76	-0.93	-0.83	0.10	FALSE	TRUE	TRUE	181.45	133.80	97.20	-0.020	-0.010	0.003			
	12/7/2020			189.49			189.02			189.12	-0.47	-0.37	0.10	FALSE	TRUE	TRUE	180.90	133.80	97.20	-0.010	-0.004	0.003			
ALF-204 ALF-204B ALF-204A	9/20/2017	169.6	159.4	180.64	135	125	180.67	108.5	98.5	180.81	0.03	0.17	0.14	TRUE	TRUE	TRUE	164.50	130.0	103.5	0.001	0.003	0.005	0.001	0.003	0.005
	10/16/2017			184.99			185.14			185.14	0.15	0.15	0.00	TRUE	TRUE	TRUE	164.50	130.0	103.5	0.004	0.002	0.000			
	11/13/2017			192.84			192.91			193.02	0.07	0.18	0.11	TRUE	TRUE	TRUE	164.50	130.0	103.5	0.002	0.003	0.004			
	12/26/2018			201.78			201.85			201.89	0.07	0.11	0.04	TRUE	TRUE	TRUE	164.50	130.0	103.5	0.002	0.002	0.002			
	4/9/2019			208.65			208.69			208.83	0.04	0.18	0.14	TRUE	TRUE	TRUE	164.50	130.0	103.5	0.001	0.003	0.005			
	4/15/2019			208.59			208.78			208.92	0.19	0.33	0.14	TRUE	TRUE	TRUE	164.50	130.0	103.5	0.006	0.005	0.005			
	6/18/2019			210.68			210.73			210.86	0.05	0.18	0.13	TRUE	TRUE	TRUE	164.50	130.0	103.5	0.001	0.003	0.005			
	9/10/2019			190.07			190.08			190.24	0.01	0.17	0.16	TRUE	TRUE	TRUE	164.50	130.0	103.5	0.000	0.003	0.006			
	12/10/2019			203.38			203.44			203.54	0.06	0.16	0.10	TRUE	TRUE	TRUE	164.50	130.0	103.5	0.002	0.003	0.004			
	2/10/2020			204.5			204.59			204.7	0.09	0.20	0.11	TRUE	TRUE	TRUE	164.50	130.0	103.5	0.003	0.003	0.004			
	5/11/2020			207.06			206.81			207.22	-0.25	0.16	0.41	TRUE	TRUE	TRUE	164.50	130.0	103.5	-0.007	0.003	0.015			
	8/31/2020			185.76			185.78			185.91	0.02	0.15	0.13	TRUE	TRUE	TRUE	164.5	130	103.5	0.001	0.002	0.005			
	12/7/2020			190			190.06			190.18	0.06	0.18	0.12	TRUE	TRUE	TRUE	164.5	130	103.5	0.002	0.003	0.005			
ALF-205 ALF-205B ALF-205A	9/20/2017	187.1	166.1	181.16	145.2	135.2	180.51	119.1	109.1	180.7	-0.65	-0.46	0.19	FALSE	TRUE	TRUE	173.63	140.2	114.1	-0.019	-0.008	0.007	0.021	0.015	0.007
	10/16/2017			183.73			185.04			185.15	1.31	1.42	0.11	FALSE	TRUE	TRUE	174.92	140.2	114.1	0.038	0.023	0.004			
	11/13/2017			191.43			192.72			192.89	1.29	1.46	0.17	TRUE	TRUE	TRUE	176.60	140.2	114.1	0.035	0.023	0.007			
	12/26/2018			200.6			201.5			201.68	0.90	1.08	0.18	TRUE	TRUE	TRUE	176.60	140.2	114.1	0.025	0.017	0.007			
	4/9/2019			207.56			208.33			208.52	0.77	0.96	0.19	TRUE	TRUE	TRUE	176.60	140.2	114.1	0.021	0.015	0.007			
	4/15/2019			207.62			208.41			208.59	0.79	0.97	0.18	TRUE	TRUE	TRUE	176.60	140.2	114.1	0.022	0.016	0.007			
	6/18/2019			209.37			210.25			210.44	0.88	1.07	0.19	TRUE	TRUE	TRUE	176.60	140.2	114.1	0.024	0.017	0.007			
	9/10/2019			189.5			190.14			190.33	0.64	0.83	0.19	TRUE	TRUE	TRUE	176.60	140.2	114.1	0.018	0.013	0.007			
	12/10/2019			202.22			203.04			203.2	0.82	0.98	0.16	TRUE	TRUE	TRUE	176.60	140.2	114.1	0.023	0.016	0.006			
	2/10/2020			203.51			204.29			204.44	0.78	0.93	0.15	TRUE	TRUE	TRUE	176.60	140.2	114.1	0.021	0.015	0.006			
	5/11/2020			205.99			206.82			206.96	0.83	0.97	0.14	TRUE	TRUE	TRUE	176.60	140.2	114.1	0.023	0.016	0.005			
	8/31/2020			185.28			185.83			186.01	0.55	0.73	0.18	FALSE	TRUE	TRUE	175.69	140.20	114.10	0.015	0.012	0.007			
	12/7/2020			189.05			189.97			190.16	0.92	1.11	0.19	TRUE	TRUE	TRUE	176.60	140.20	114.10	0.025	0.018	0.007			

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Table 3b
Alluvial Aquifer Vertical Hydraulic Gradients in Co-Located Monitoring Wells: Sandy Zone (Shallow), Intermediate, Deep (September 2017-December 2020)
TVA Allen Fossil Plant
Memphis, Tennessee

Co-Located Well Group	Gauging Date	Sandy Zone of Shallow Well Details			Intermediate Well Details			Deep Well Details			Delta H (ft)			Submerged			Calculation Point (ft NAVD29)			Vertical Gradient (ft/ft)			Average Vertical Gradient (ft/ft)		
		TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	S-I	S-D	I-D	S	I	D	S	I	D	S-I	S-D	I-D	S-I	S-D	I-D
ALF-207 ALF-207B ALF-207A	9/20/2017	202.9	171.5	184.01			-	111	101	182.9	NA	-1.11	NA	FALSE	NA	TRUE	177.76	NA	106.0	NA	-0.015	NA	0.004	0.002	0.001
	10/16/2017			182.11			-			182.77	NA	0.66	NA	FALSE	NA	TRUE	176.81	NA	106.0	NA	0.009	NA			
	11/13/2017			190.63			-			191.42	NA	0.79	NA	FALSE	NA	TRUE	181.07	NA	106.0	NA	0.011	NA			
	12/26/2018			199.78			-			199.77	NA	-0.01	NA	FALSE	NA	TRUE	185.64	NA	106	NA	0.000	NA			
	4/9/2019			209.83			-			209.72	NA	-0.11	NA	TRUE	NA	TRUE	187.20	NA	106.0	NA	-0.001	NA			
	4/15/2019			208.71			-			209.48	NA	0.77	NA	TRUE	NA	TRUE	187.20	NA	106.0	NA	0.009	NA			
	6/18/2019			211.3			-			211.24	NA	-0.06	NA	TRUE	NA	TRUE	187.20	NA	106.0	NA	-0.001	NA			
	9/10/2019			191.59			-			191.3	NA	-0.29	NA	FALSE	NA	TRUE	181.55	NA	106.00	NA	-0.004	NA			
	12/10/2019			202.63			203.19			203.25	0.56	0.62	0.06	FALSE	TRUE	TRUE	187.07	138.1	106.0	0.011	0.008	0.002			
	2/10/2020			204.83			204.86			204.87	0.03	0.04	0.01	TRUE	TRUE	TRUE	187.20	138.1	106.0	0.001	0.000	0.000			
	5/11/2020			206.8			207.7			207.69	0.90	0.89	-0.01	TRUE	TRUE	TRUE	187.20	138.1	106.0	0.018	0.011	0.000			
	8/31/2020			187.22			186.65			186.64	-0.57	-0.58	-0.01	FALSE	TRUE	TRUE	179.36	138.1	106	-0.014	-0.008	0.000			
	12/7/2020			189.8			189.95			190.01	0.15	0.21	0.06	FALSE	TRUE	TRUE	180.65	138.1	106	0.004	0.003	0.002			
ALF-208 ALF-208B ALF-208A	9/20/2017	202.2	175.3	182.58			-	96.8	86.8	182.73	NA	0.15	NA	FALSE	NA	TRUE	178.94	NA	91.8	NA	0.002	NA	-0.007	-0.001	0.005
	10/16/2017			182.25			-			182.6	NA	0.35	NA	FALSE	NA	TRUE	178.78	NA	91.8	NA	0.004	NA			
	11/13/2017			192.56			-			191.36	NA	-1.20	NA	FALSE	NA	TRUE	183.93	NA	91.8	NA	-0.013	NA			
	12/26/2018			200.19			-			199.87	NA	-0.32	NA	FALSE	NA	TRUE	187.75	NA	91.80	NA	-0.003	NA			
	4/9/2019			209.9			-			209.8	NA	-0.10	NA	TRUE	NA	TRUE	188.75	NA	91.8	NA	-0.001	NA			
	4/15/2019			209.68			-			209.56	NA	-0.12	NA	TRUE	NA	TRUE	188.75	NA	91.8	NA	-0.001	NA			
	6/18/2019			211.89			-			212.21	NA	0.32	NA	TRUE	NA	TRUE	188.75	NA	91.8	NA	0.003	NA			
	12/10/2019			204.26			203.4			203.34	-0.86	-0.92	-0.06	TRUE	TRUE	TRUE	188.75	137.8	91.8	-0.017	-0.009	-0.001			
	2/10/2020			205.19			204.83			204.9	-0.36	-0.29	0.07	TRUE	TRUE	TRUE	188.75	137.8	91.8	-0.007	-0.003	0.002			
	5/11/2020			207.86			206.67			207.77	-1.19	-0.09	1.10	TRUE	TRUE	TRUE	188.75	137.8	91.8	-0.023	-0.001	0.024			
	8/31/2020			185.65			186.46			186.52	0.81	0.87	0.06	FALSE	TRUE	TRUE	180.48	137.80	91.80	0.019	0.010	0.001			
	12/7/2020			190.27			190			190.03	-0.27	-0.24	0.03	FALSE	TRUE	TRUE	182.79	137.80	91.80	-0.006	-0.003	0.001			
ALF-209 ALF-209A	9/20/2017	193.9	172.8	182.59	-	-	-	92.3	82.3	182.36	NA	-0.23	NA	FALSE	NA	TRUE	177.70	NA	87.3	NA	-0.003	NA	-	-0.002	-
	10/16/2017			182.37			-			182.25	NA	-0.12	NA	FALSE	NA	TRUE	177.59	NA	87.3	NA	-0.001	NA			
	11/13/2017			191.77			-			191.31	NA	-0.46	NA	FALSE	NA	TRUE	182.29	NA	87.3	NA	-0.005	NA			
	12/26/2018			200.17			-			199.95	NA	-0.22	NA	TRUE	NA	TRUE	183.35	NA	87.3	NA	-0.002	NA			
	12/10/2019			204.06			-			203.48	NA	-0.58	NA	TRUE	NA	TRUE	183.35	NA	87.3	NA	-0.006	NA			
	2/10/2020			204.93			-			204.78	NA	-0.15	NA	TRUE	NA	TRUE	183.35	NA	87.3	NA	-0.002	NA			
	8/31/2020			185.95			-			186.17	NA	0.22	NA	FALSE	NA	TRUE	179.375	NA	87.3	NA	0.002	NA			
	12/7/2020			190.2			-			190.04	NA	-0.16	NA	FALSE	NA	TRUE	181.5	NA	87.3	NA	-0.002	NA			
ALF-210 ALF-210B ALF-210A	9/20/2017	192.6	171.7	186.66			-	100.5	90.5	186.84	NA	0.18	NA	FALSE	NA	TRUE	179.18	NA	95.5	NA	0.002	NA	0.006	0.002	0.000
	10/16/2017			184.3			-			184.55	NA	0.25	NA	FALSE	NA	TRUE	178.00	NA	95.5	NA	0.003	NA			
	11/13/2017			188.95			-			189.58	NA	0.63	NA	FALSE	NA	TRUE	180.33	NA	95.5	NA	0.007	NA			
	12/26/2018			200.14			-			200.72	NA	0.58	NA	TRUE	NA	TRUE	182.15	NA	95.5	NA	0.007	NA			
	4/9/2019			209.32			-			209.42	NA	0.10	NA	TRUE	NA	TRUE	182.15	NA	95.5	NA	0.001	NA			
	6/18/2019			208.97			-			208.84	NA	-0.13	NA	TRUE	NA	TRUE	182.15	NA	95.5	NA	-0.002	NA			
	9/10/2019			193.75			-			192.93	NA	-0.82	NA	TRUE	NA	TRUE	182.15	NA	95.5	NA	-0.009	NA			
	12/10/2019			200.37			200.9			200.88	0.53	0.51	-0.02	TRUE	TRUE	TRUE	182.15	136.6	95.5	0.012	0.006	0.000			
	2/10/2020			204			204.24			204.22	0.24	0.22	-0.02	TRUE	TRUE	TRUE	182.15	136.6	95.5	0.005	0.003	0.000			
	5/11/2020			207.45			207.51			207.54	0.06	0.09	0.03	TRUE	TRUE	TRUE	182.15	136.6	95.5	0.001	0.001	0.001			
	8/31/2020			190.05			189.92			189.95	-0.13	-0.10	0.03	FALSE	TRUE	TRUE	180.88	136.60	95.50	-0.003	-0.001	0.001			
	12/7/2020			189.25			189.83			189.83	0.58	0.58	0.00	FALSE	TRUE	TRUE	180.48	136.60	95.50	0.013	0.007	0.000			

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Table 3b
Alluvial Aquifer Vertical Hydraulic Gradients in Co-Located Monitoring Wells: Sandy Zone (Shallow), Intermediate, Deep (September 2017-December 2020)
TVA Allen Fossil Plant
Memphis, Tennessee

Co-Located Well Group	Gauging Date	Sandy Zone of Shallow Well Details			Intermediate Well Details			Deep Well Details			Delta H (ft)			Submerged			Calculation Point (ft NAVD29)			Vertical Gradient (ft/ft)			Average Vertical Gradient (ft/ft)		
		TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	S-I	S-D	I-D	S	I	D	S	I	D	S-I	S-D	I-D	S-I	S-D	I-D
ALF-213 ALF-213B ALF-213A	12/26/2018	169.4	159.2	199.09	129.8	119.8	199.49	88.8	78.8	199.93	0.40	0.84	0.44	TRUE	TRUE	TRUE	164.30	124.8	83.8	0.010	0.010	0.011	0.007	0.005	0.003
	4/9/2019			206.76			206.98			207.04	0.22	0.28	0.06	TRUE	TRUE	TRUE	164.30	124.8	83.8	0.006	0.003	0.001			
	4/15/2019			206.7			206.89			206.95	0.19	0.25	0.06	TRUE	TRUE	TRUE	164.30	124.8	83.8	0.005	0.003	0.001			
	6/18/2019			207.65			207.91			207.97	0.26	0.32	0.06	TRUE	TRUE	TRUE	164.30	124.8	83.8	0.007	0.004	0.001			
	9/10/2019			191.29			191.37			191.42	0.08	0.13	0.05	TRUE	TRUE	TRUE	164.30	124.8	83.8	0.002	0.002	0.001			
	12/10/2019			200.41			200.67			200.71	0.26	0.30	0.04	TRUE	TRUE	TRUE	164.30	124.8	83.8	0.007	0.004	0.001			
	2/10/2020			201.8			201.69			202.29	-0.11	0.49	0.60	TRUE	TRUE	TRUE	164.3	124.8	83.8	-0.003	0.006	0.015			
	5/11/2020			205.31			205.52			205.57	0.21	0.26	0.05	TRUE	TRUE	TRUE	164.30	124.8	83.8	0.005	0.003	0.001			
	8/31/2020			186.66			187.76			187.75	1.10	1.09	-0.01	TRUE	TRUE	TRUE	164.3	124.8	83.8	0.028	0.014	0.000			
	12/7/2020			189.46			189.68			189.61	0.22	0.15	-0.07	TRUE	TRUE	TRUE	164.3	124.8	83.8	0.006	0.002	-0.002			
ALF-214 ALF-214B ALF-214A	9/20/2017	186.8	166.8	187.53	138.3	128.3	187.28	98.7	88.7	187.22	-0.25	-0.31	-0.06	TRUE	TRUE	TRUE	176.80	133.3	93.7	-0.006	-0.004	-0.002	-0.005	-0.005	-0.006
	10/16/2017			185.16			185.02			184.94	-0.14	-0.22	-0.08	FALSE	TRUE	TRUE	175.98	133.3	93.7	-0.003	-0.003	-0.002			
	11/13/2017			188.99			188.77			188.93	-0.22	-0.06	0.16	TRUE	TRUE	TRUE	176.80	133.3	93.7	-0.005	-0.001	0.004			
	12/26/2018			199.51			199.11			197.42	-0.40	-2.09	-1.69	TRUE	TRUE	TRUE	176.80	133.3	93.7	-0.009	-0.03	-0.04			
	4/9/2019			207.77			207.41			207.4	-0.36	-0.37	-0.01	TRUE	TRUE	TRUE	176.80	133.3	93.7	-0.008	-0.004	0.000			
	6/18/2019			207.58			207.43			207.44	-0.15	-0.14	0.01	TRUE	TRUE	TRUE	176.80	133.3	93.7	-0.003	-0.002	0.000			
	9/10/2019			193.81			193.6			193.58	-0.21	-0.23	-0.02	TRUE	TRUE	TRUE	176.80	133.3	93.7	-0.005	-0.003	-0.001			
	12/10/2019			199.33			199.27			199.25	-0.06	-0.08	-0.02	TRUE	TRUE	TRUE	176.80	133.3	93.7	-0.001	-0.001	-0.001			
	2/10/2020			202.83			202.68			202.65	-0.15	-0.18	-0.03	TRUE	TRUE	TRUE	176.80	133.3	93.7	-0.003	-0.002	-0.001			
	5/11/2020			206.13			205.97			204.94	-0.16	-1.19	-1.03	TRUE	TRUE	TRUE	176.80	133.3	93.7	-0.004	-0.014	-0.026			
	8/31/2020			190.48			190.25			190.22	-0.23	-0.26	-0.03	TRUE	TRUE	TRUE	176.80	133.30	93.70	-0.005	-0.003	-0.001			
	12/7/2020			189.49			189.41			189.4	-0.08	-0.09	-0.01	TRUE	TRUE	TRUE	176.80	133.30	93.70	-0.002	-0.001	0.000			
ALF-218 ALF-218B ALF-218A	12/10/2019	192.8	172.2	202.76	142	132.2	202.61	87.7	77.9	201.77	-0.15	-0.99	-0.84	TRUE	TRUE	TRUE	182.50	137.1	82.8	-0.003	-0.010	-0.015	0.000	-0.001	-0.002
	2/10/2020			204.45			204.49			204.53	0.04	0.08	0.04	TRUE	TRUE	TRUE	182.50	137.1	82.8	0.001	0.001	0.001			
	5/11/2020			207.66			207.65			207.66	-0.01	0.00	0.01	TRUE	TRUE	TRUE	182.50	137.1	82.8	0.000	0.000	0.000			
	8/31/2020			186.65			186.85			186.95	0.20	0.30	0.10	FALSE	TRUE	TRUE	179.425	137.1	82.8	0.005	0.003	0.002			
	12/7/2020			189.85			189.84			189.88	-0.01	0.03	0.04	FALSE	TRUE	TRUE	181.025	137.1	82.8	0.000	0.000	0.001			
ALF-219 ALF-219B ALF-219A	12/10/2019	206.9	186.3	200.2	143.1	133.3	201.63	95.6	85.8	200.91	1.43	0.71	-0.72	FALSE	TRUE	TRUE	193.25	138.2	90.7	0.026	0.007	-0.015	-0.027	-0.016	-0.003
	2/10/2020			205.76			204.63			204.64	-1.13	-1.12	0.01	FALSE	TRUE	TRUE	196.03	138.2	90.7	-0.020	-0.011	0.000			
	5/11/2020			209.65			207.62			207.65	-2.03	-2.00	0.03	TRUE	TRUE	TRUE	196.60	138.2	90.7	-0.035	-0.019	0.001			
	8/31/2020			193.08			187.98			187.9	-5.10	-5.18	-0.08	FALSE	TRUE	TRUE	189.69	138.20	90.70	-0.099	-0.052	-0.002			
	12/7/2020			190.13			189.83			189.83	-0.30	-0.30	0.00	FALSE	TRUE	TRUE	188.22	138.20	90.70	-0.006	-0.003	0.000			
P-4S P-4	9/20/2017	186.2	166.2	181.49	149.5	139.4	180.7	-	-	-	-0.79	NA	NA	FALSE	TRUE	NA	173.85	144.5	NA	-0.027	NA	NA	-0.028	-	-
	10/16/2017			183.06			182.26			-	-0.80	NA	NA	FALSE	TRUE	NA	174.63	144.5	NA	-0.027	NA	NA			
	11/13/2017			191.08			190.78			-	-0.30	NA	NA	TRUE	TRUE	NA	176.20	144.5	NA	-0.009	NA	NA			
	12/26/2018			201.3			200.31			-	-0.99	NA	NA	TRUE	TRUE	NA	176.20	144.5	NA	-0.031	NA	NA			
	4/15/2019			208.31			207.26			-	-1.05	NA	NA	TRUE	TRUE	NA	176.20	144.5	NA	-0.033	NA	NA			
	6/18/2019			210.48			209.35			-	-1.13	NA	NA	TRUE	TRUE	NA	176.20	144.5	NA	-0.036	NA	NA			
	9/10/2019			189.35			188.72			-	-0.63	NA	NA	TRUE	TRUE	NA	176.2	144.45	NA	-0.020	NA	NA			
	12/10/2019			203.03			201.8			-	-1.23	NA	NA	TRUE	TRUE	NA	176.20	144.5	NA	-0.039	NA	NA			
	2/10/2020			204.05			203			-	-1.05	NA	NA	TRUE	TRUE	NA	176.20	144.5	NA	-0.033	NA	NA			
	5/11/2020			206.66			205.66			-	-1.00	NA	NA	TRUE	TRUE	NA	176.20	144.5	NA	-0.031	NA	NA			
	8/31/2020			185.11			184.46			-	-0.65	NA	NA	FALSE	TRUE	NA	175.655	144.45	NA	-0.021	NA	NA			
	12/7/2020			189.24			188.28			-	-0.96	NA	NA	TRUE	TRUE	NA	176.2	144.45	NA	-0.030	NA	NA			

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Table 3b
Alluvial Aquifer Vertical Hydraulic Gradients in Co-Located Monitoring Wells: Sandy Zone (Shallow), Intermediate, Deep (September 2017-December 2020)
TVA Allen Fossil Plant
Memphis, Tennessee

Co-Located Well Group	Gauging Date	Sandy Zone of Shallow Well Details			Intermediate Well Details			Deep Well Details			Delta H (ft)			Submerged			Calculation Point (ft NAVD29)			Vertical Gradient (ft/ft)			Average Vertical Gradient (ft/ft)		
		TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	TOS (ft NAVD29)	BOS (ft NAVD29)	GWE (ft NAVD29)	S-I	S-D	I-D	S	I	D	S	I	D	S-I	S-D	I-D	S-I	S-D	I-D
ACC-5B ACC-5A	9/20/2017	170.1	160.1	187.71	-	-	-	86.8	76.8	187.91	NA	0.20	NA	TRUE	NA	TRUE	165.10	NA	81.8	NA	0.002	NA	-	0.001	-
	10/16/2017			185.55			-			185.55	NA	0.00	NA	TRUE	NA	TRUE	165.10	NA	81.8	NA	0.000	NA			
	11/13/2017			188.21			-			188.3	NA	0.09	NA	TRUE	NA	TRUE	165.10	NA	81.8	NA	0.001	NA			
	12/26/2018			198.29			-			198.07	NA	-0.22	NA	TRUE	NA	TRUE	165.10	NA	81.8	NA	-0.003	NA			
	4/9/2019			206.58			-			206.73	NA	0.15	NA	TRUE	NA	TRUE	165.10	NA	81.8	NA	0.002	NA			
	6/18/2019			206.23			-			206.4	NA	0.17	NA	TRUE	NA	TRUE	165.10	NA	81.8	NA	0.002	NA			
	9/10/2019			193.95			-			194.02	NA	0.07	NA	TRUE	NA	TRUE	165.10	NA	81.8	NA	0.001	NA			
	12/10/2019			198.14			-			198.29	NA	0.15	NA	TRUE	NA	TRUE	165.10	NA	81.8	NA	0.002	NA			
	2/10/2020			201.97			-			202.07	NA	0.10	NA	TRUE	NA	TRUE	165.10	NA	81.8	NA	0.001	NA			
	5/11/2020			205.09			-			205.2	NA	0.11	NA	TRUE	NA	TRUE	165.10	NA	81.8	NA	0.001	NA			
	8/31/2020			190.28			-			190.86	NA	0.58	NA	TRUE	NA	TRUE	165.10	NA	81.80	NA	0.007	NA			
	12/7/2020			189.21			-			189.28	NA	0.07	NA	TRUE	NA	TRUE	165.10	NA	81.80	NA	0.001	NA			

Notes:

Co-Located Well Group - Generalized name of wells completed in close proximity with different screened intervals.
TOS - Elevation of Top of Screen
BOS - Elevation of Bottom of Screen
GWE - Groundwater Elevation
ft - Feet
NAVD29 - North American Vertical Datum of 1929
S - Shallow Well
I - Intermediate Well
S-I - Comparison between Shallow and Intermediate Well
S-D - Comparison between Shallow and Deep Well
I-D - Comparison between Intermediate and Deep Well
Delta H - Difference in groundwater elevation between wells
Calculation Point - For submerged screens the calculation point is equal to the mid point elevation of the screen. For partially submerged wells the calculation point is mid point of the wetted screen interval.
Vertical Gradient - Calculated as Delta H / (Calculation Point for Shallower Well - Calculation Point for Deeper well)
ft/ft - Feet per foot
- Not applicable or not available
The April 15, 2019 gauging was completed to supplement the April 9, 2019 DTW data set and was included herein to support gradient calculations.

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Table 4a
Groundwater Field Parameter Data (ALF and ACC Monitoring Wells) - February 2020
TVA Allen Fossil Plant
Memphis, Tennessee

Well ID	Screened Interval (ft btoc)	Pump Inlet Depth (ft btoc)	Date	Turbidity (NTU)	pH (SU)	Temperature (C)	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
ACC-1A	160.1 - 170.1	165.5	2/19/2020	1.13	6.75	16.4	549.8	0.33	-35.0
ACC-3A	120.4 - 130.4	126	2/19/2020	0.81	6.76	17.6	826	0.21	-51.0
ACC-5A	133.5 - 143.5	139	2/19/2020	0.90	6.59	18.3	614	0.42	-191
ACC-5B	50.2 - 60.2	55.5	2/19/2020	1.71	6.80	18.3	832	0.38	-52.0
ALF-201	23.3 - 49.9	49	2/24/2020	0.46	6.97	17.6	770	0.59	138.2
ALF-201A	120.3 - 130.3	126	2/25/2020	0.45	7.02	18.9	791	0.20	193.9
ALF-201B	83.9 - 93.9	89	2/25/2020	0.30	7.13	19.6	674	0.12	110.5
ALF-202	23.4 - 44.6	43	2/24/2020	3.28	7.61	18.1	557	0.10	75.7
ALF-202A	140.1 - 150.1	145.5	2/24/2020	0.88	6.87	7.8	513.9	0.15	37.2
ALF-202B	84.1 - 94.1	89.5	2/24/2020	0.20	6.75	18.0	525.4	0.19	79.2
ALF-203	33.1 - 54.1	52	2/26/2020	1.68	10.22	15.2	950	0.05	-186.3
ALF-203A	112.3 - 122.3	118	2/25/2020	3.62	6.68	16.3	311.1	0.34	25.5
ALF-203B	83.9 - 93.9	89	2/25/2020	3.88	6.87	14.9	423.7	0.35	25
ALF-204	49.0 - 59.2	49	2/25/2020	4.73	7.21	14.5	500	0.13	-160.3
ALF-204A	110.3 - 120.3	116	2/26/2020	2.22	6.62	14.1	427.6	0.36	75.7
ALF-204B	83.7 - 93.7	89	2/25/2020	2.88	6.72	14.9	265.6	0.30	34.1
ALF-205	34.5 - 55.5	54	2/26/2020	1.60	6.96	13.3	900	0.36	-66.8
ALF-205A	102.0 - 112.0	107	2/26/2020	2.14	6.89	15.3	335.9	0.34	49.9
ALF-205B	76.1 - 86.1	81.5	2/26/2020	1.65	6.94	15.3	266.8	0.11	170.7
ALF-206	54.0 - 64.2	54	2/25/2020	0.75	7.39	15.7	315	0.15	-181.3
ALF-210	27.2 - 48.1	47	2/24/2020	7.28	6.76	15.3	790	0.36	1.0
ALF-210A	120.0 - 130.0	125	2/18/2020	1.06	6.77	16.9	1288	0.63	18.7
ALF-210B	79.6 - 89.4	84.5	2/11/2020	1.67	6.91	17.2	794	0.31	-51.1
ALF-212	51.8 - 67.8	67	2/25/2020	0.57	7.12	17.9	572	0.16	-137.0
ALF-212A	159.4 - 169.4	165	2/26/2020	0.47	6.48	16.2	531.1	0.24	193.0
ALF-213	71.0 - 81.2	71	2/27/2020	0.49	6.75	16.5	387.2	0.38	136.6
ALF-213A	152.4 - 162.4	157.75	2/27/2020	0.92	6.79	16.5	325.9	1.00	93.6
ALF-213B	111.4 - 121.4	116.75	2/28/2020	1.26	6.90	16.3	727	0.18	102.5
ALF-214	34.5 - 54.5	45	2/19/2020	0.47	7.29	17.2	478.9	0.29	124.9
ALF-214A	122.6 - 132.6	130	2/19/2020	0.93	6.45	17.1	1170	0.26	2.1
ALF-214B	82.9 - 92.9	88	2/19/2020	1.32	6.83	17.8	872	0.13	-59.4
ALF-215	20.0 - 30.0	25	2/20/2020	0.96	7.23	14.7	328.3	0.68	200.9
ALF-216	39.6 - 59.6	50	2/18/2020	3.48	6.75	17.3	874	0.33	-79.1
ALF-217	49.4 - 71.4	60.75	2/28/2020	2.39	6.71	15.4	680	0.79	125.3
ALF-217A	182.4 - 192.4	187.75	2/28/2020	2.11	6.74	16.6	665	0.50	57.2
ALF-217B	121.4 - 131.4	126.75	2/28/2020	0.75	6.83	16.6	869	0.18	104.2
P4	71.7 - 81.8	77	2/19/2020	1.15	7.28	16.2	313.3	0.13	-50.3
P-4S	29.7 - 49.7	41	2/19/2020	0.44	7.19	16.5	388.5	0.18	4.4
PMW-02A	19.0 - 40.0	29	2/20/2020	15.4	10.37	16.4	979	0.06	-74.7
PMW-02B	48.4 - 58.4	54	2/20/2020	1.18	7.24	14.5	676	0.26	-101.9
PMW-02C	119.3 - 129.3	124	2/20/2020	0.54	7.09	15.4	370.7	0.15	-24.9
PMW-04A	19.3 - 40.3	29	2/21/2020	1.57	7.47	17.4	885	0.16	84.2
PMW-04B	52.0 - 62.0	57	2/21/2020	0.71	7.16	16.1	867	0.11	-115.5

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Table 4a
Groundwater Field Parameter Data (ALF and ACC Monitoring Wells) - February 2020
TVA Allen Fossil Plant
Memphis, Tennessee

Well ID	Screened Interval (ft btoc)	Pump Inlet Depth (ft btoc)	Date	Turbidity (NTU)	pH (SU)	Temperature (C)	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
PMW-04C	119.3 - 129.3	124	2/21/2020	0.41	6.91	15.9	379.5	0.19	-29.9
PMW-07A	18.9 - 28.9	24	2/24/2020	4.84	9.24	16.8	885	0.21	84.7
PMW-07B	49.5 - 59.5	55	2/24/2020	2.46	7.32	16.3	748	0.30	31.5
PMW-07C	112.5 - 122.5	117	2/25/2020	3.05	6.67	15.8	360.9	0.34	54.9
PMW-10A	22.6 - 43.6	32	2/21/2020	3.75	7.57	16.3	453.9	0.39	186.5
PMW-10B	62.9 - 72.9	68	2/21/2020	1.10	7.27	16.5	796	1.51	-64.2
PMW-10C	142.0 - 152.0	148	2/21/2020	1.86	7.14	17.8	421.9	0.35	-40.0
PMW-11A	16.6 - 37.6	27	2/20/2020	11.7	7.20	17.7	621.0	0.25	-83.2
PMW-11B	57.3 - 67.3	63	2/20/2020	1.03	6.99	18.3	636	0.28	-113.9
PMW-11C	139.0 - 149.0	144	2/20/2020	1.50	6.79	17.7	458.5	0.38	-71.6
PMW-14A	38.5 - 59.5	49	2/25/2020	0.44	7.06	17.7	687	0.29	35.0
PMW-14B	79.5 - 89.5	85	2/25/2020	0.61	7.03	17.2	669	0.10	-36.4
PMW-14C	151.9 - 161.9	156	2/25/2020	0.27	6.97	17.3	391.3	0.97	55.0

Notes:

Data reported reflects the last reading collected during purging.
C - Celsius
ft - Feet
ft btoc - Feet below top of casing
mg/L - Milligrams per liter
mV - Millivolts
NTUs - Nephelometric Turbidity Units
SU - Standard Units
µS/cm - Micro-siemens per centimeter

Table 4b
Groundwater Field Parameter Data (ALF and ACC Monitoring Wells) - May 2020
TVA Allen Fossil Plant
Memphis, Tennessee

Well ID	Screened Interval (ft btoc)	Pump Inlet Depth (ft btoc)	Date	Turbidity (NTU)	pH (SU)	Temperature (C)	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
ACC-1A	160.1 - 170.1	165.5	5/12/2020	0.48	6.49	17.3	614	0.17	-279.1
ACC-3A	120.4 - 130.4	126	5/12/2020	0.34	6.7	17.2	920	0.17	-233.1
ACC-5A	133.5 - 143.5	139	5/12/2020	0.87	6.56	18.4	665	0.2	-268.9
ACC-5B	50.2 - 60.2	55.5	5/12/2020	1.35	6.78	18.4	880	0.17	-272.4
ALF-201	23.3 - 49.9	49	5/13/2020	3.32	6.94	20.2	866	0.66	214.8
ALF-201A	120.3 - 130.3	126	5/13/2020	1.02	6.99	20.4	829	0.3	25.3
ALF-201B	83.9 - 93.9	89	5/13/2020	1.32	6.95	20.5	797	0.26	-46.7
ALF-202	23.4 - 44.6	43	5/19/2020	4.44	7.6	18.3	616	0.12	43.3
ALF-202A	140.1 - 150.1	145.5	5/19/2020	2.13	6.95	18.4	623	0.18	-43.4
ALF-202B	84.1 - 94.1	89.5	5/19/2020	3.44	6.97	18.4	617	0.25	-46.9
ALF-203	33.1 - 54.1	52	5/14/2020	2.24	9.89	19.7	972	0.25	80.8
ALF-203A	112.3 - 122.3	118	5/14/2020	0.77	6.85	18.4	393.5	0.17	-68.4
ALF-203B	83.9 - 93.9	89	5/14/2020	0.63	7.07	17.9	439.8	0.21	-38.3
ALF-204	49.0 - 59.2	49	5/19/2020	2.79	7.17	17	445.7	0.38	-219.6
ALF-204A	110.3 - 120.3	116	5/19/2020	0.49	7.03	16	357.6	0.21	-223.6
ALF-204B	83.7 - 93.7	89	5/19/2020	0.96	7.12	15.7	213.2	0.14	-243.1
ALF-205	34.5 - 55.5	54	5/18/2020	1.07	6.99	17.8	809	0.27	-262.7
ALF-205A	102.0 - 112.0	107	5/18/2020	0.63	6.86	16.2	295.8	0.21	-259.3
ALF-205B	76.1 - 86.1	81.5	5/18/2020	1.1	6.55	16.4	282.1	0.35	-157.9
ALF-206	54.0 - 64.2	54	5/19/2020	1.1	7.2	15.7	271.9	0.12	-209.4
ALF-210	27.2 - 48.1	47	5/12/2020	4.69	6.78	16.7	797	0.18	180.3
ALF-210A	120.0 - 130.0	125	5/12/2020	4.81	6.86	17.3	1269	0.15	-86.2
ALF-210B	79.6 - 89.4	84.5	5/12/2020	2.26	6.95	17.2	748	0.32	-100.3
ALF-212	51.8 - 67.8	67	5/13/2020	0.93	6.93	19.2	667	0.19	-267.8
ALF-212A	159.4 - 169.4	165	5/13/2020	0.63	6.52	20	649	0.14	-249.7
ALF-213	71.0 - 81.2	71	5/15/2020	0.7	6.98	17.6	396.1	0.26	-271
ALF-213A	152.4 - 162.4	157.75	5/15/2020	0.69	6.91	17.4	328.5	0.18	-272.7
ALF-213B	111.4 - 121.4	116.75	5/15/2020	1.07	6.94	18.4	763	0.32	-265.5
ALF-214	34.5 - 54.5	45	5/13/2020	1.91	7.16	18.2	538.3	0.27	1.7
ALF-214A	122.6 - 132.6	130	5/13/2020	1.66	6.42	18.2	1036	0.3	4.1
ALF-214B	82.9 - 92.9	88	5/13/2020	3.87	6.78	17.9	929	0.31	-65.6
ALF-215	20.0 - 30.0	25	5/13/2020	1.62	7.04	16.2	487	0.33	-255.8
ALF-216	39.6 - 59.6	50	5/12/2020	4.3	6.69	17.6	962	0.25	-286.8
ALF-217	49.4 - 71.4	60.75	5/14/2020	1.39	6.85	18.3	748	0.37	1.8
ALF-217A	182.4 - 192.4	187.75	5/14/2020	3.13	6.62	18.3	758	0.28	-57.7
ALF-217B	121.4 - 131.4	126.75	5/14/2020	1.12	6.75	18	1029	0.3	-75.4
P-4	71.7 - 81.8	77	5/18/2020	1.44	6.65	16.2	290.4	0.14	-10.3
P-4S	29.7 - 49.7	41	5/18/2020	4.41	6.98	14.1	414.7	0.27	103.5
PMW-02A	19.0 - 40.0	29	5/19/2020	5.67	10.8	17.4	840	0.22	-235.3
PMW-02B	48.4 - 58.4	54	5/19/2020	4.36	7.04	17.3	690	0.25	-55.8
PMW-02C	119.3 - 129.3	124	5/19/2020	3.14	6.72	16.6	378.6	0.26	5.1
PMW-04A	19.3 - 40.3	29	5/15/2020	2.22	7.37	18	989	0.19	42.1
PMW-04B	52.0 - 62.0	57	5/15/2020	2.25	7.02	17.4	896	0.23	-101.1

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Table 4b
Groundwater Field Parameter Data (ALF and ACC Monitoring Wells) - May 2020
TVA Allen Fossil Plant
Memphis, Tennessee

Well ID	Screened Interval (ft btoc)	Pump Inlet Depth (ft btoc)	Date	Turbidity (NTU)	pH (SU)	Temperature (C)	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
PMW-04C	119.3 - 129.3	124	5/15/2020	1.18	6.69	17.6	423.3	0.3	-2.4
PMW-07A	18.9 - 28.9	24	5/18/2020	1.26	9.59	18.1	1006	0.25	98.8
PMW-07B	49.5 - 59.5	55	5/18/2020	0.82	6.9	17.9	803	0.24	-58.9
PMW-07C	112.5 - 122.5	117	5/19/2020	2.34	6.83	16.7	425.1	0.27	-17.4
PMW-10A	22.6 - 43.6	32	5/13/2020	3.73	7.38	18.4	485.1	0.24	-259.8
PMW-10B	62.9 - 72.9	68	5/13/2020	3.19	7.04	18.9	851	0.08	-280.1
PMW-10C	142.0 - 152.0	148	5/13/2020	0.24	6.91	18.4	483.6	0.19	-287.5
PMW-11A	16.6 - 37.6	27	5/14/2020	5.82	6.97	19.8	701	0.15	-286.3
PMW-11B	57.3 - 67.3	63	5/14/2020	0.8	6.96	20	734	0.22	-239.7
PMW-11C	139.0 - 149.0	144	5/15/2020	0.98	6.84	20.3	497.9	0.14	-245.2
PMW-14A	38.5 - 59.5	49	5/14/2020	0.66	6.85	18.8	710	0.27	-117.2
PMW-14B	79.5 - 89.5	85	5/14/2020	1.61	6.81	18.5	739	0.1	-215.7
PMW-14C	151.9 - 161.9	156	5/14/2020	0.61	6.78	18.3	431.9	0.12	-229.3

Notes:

Data reported reflects the last reading collected during purging.
C - Celsius
ft - Feet
ft btoc - Feet below top of casing
mg/L - Milligrams per liter
mV - Millivolts
NTUs - Nephelometric Turbidity Units
SU - Standard Units
µS/cm - Micro-siemens per centimeter

Table 4c
Groundwater Field Parameter Data (ALF and ACC Monitoring Wells) - September 2020
TVA Allen Fossil Plant
Memphis, Tennessee

Well ID	Screened Interval (ft btoc)	Pump Inlet Depth (ft btoc)	Date	Turbidity (NTU)	pH (SU)	Temperature (C)	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
ACC-1A	160.1 - 170.1	165.5	9/2/2020	1.51	6.58	20.1	549	0.23	-95.4
ACC-3A	120.4 - 130.4	126	9/2/2020	1.24	7.20	19.2	802	0.42	-77.8
ACC-5A	133.5 - 143.5	139	9/2/2020	1.24	7.23	20.3	579	0.32	-71.3
ACC-5B	50.2 - 60.2	55.5	9/1/2020	3.67	7.30	20.4	871	0.43	-26.7
ALF-201	23.3 - 49.9	49	9/2/2020	0.73	6.75	22.5	1100	1.38	67.8
ALF-201A	120.3 - 130.3	126	9/3/2020	2.05	7.02	20.7	806	0.17	-92.5
ALF-201B	83.9 - 93.9	89	9/3/2020	1.54	6.82	20.8	747	0.23	-106.7
ALF-202	23.4 - 44.6	43	9/1/2020	0.56	7.36	19.6	610	0.19	-146.5
ALF-202A	140.1 - 150.1	145.5	9/8/2020	0.79	6.48	21.0	588	0.29	-97.1
ALF-202B	84.1 - 94.1	89.5	9/8/2020	1.65	6.73	19.8	573	0.13	-124.4
ALF-203	33.1 - 54.1	52	9/2/2020	1.41	9.97	22.6	1040	0.71	-21.3
ALF-203A	112.3 - 122.3	118	9/9/2020	0.71	6.59	20.8	339.2	0.39	-46.1
ALF-203B	83.9 - 93.9	89	9/10/2020	1.27	6.81	17.7	434.0	0.18	-101.3
ALF-204	49.0 - 59.2	49	9/3/2020	0.54	6.92	19.5	483	0.37	-103.4
ALF-204A	110.3 - 120.3	116	9/10/2020	1.83	6.87	16.8	418.6	0.18	-79.9
ALF-204B	83.7 - 93.7	89	9/10/2020	2.33	7.05	16.6	320.2	0.20	-73.1
ALF-205	34.5 - 55.5	54	9/3/2020	2.63	6.90	20.1	930	1.16	52.6
ALF-205A	102.0 - 112.0	107	9/9/2020	2.22	6.94	16.8	338.7	0.13	-99.6
ALF-205B	76.1 - 86.1	81.5	9/9/2020	2.61	7.09	17.1	338.3	0.15	-123.4
ALF-206	54.0 - 64.2	54	9/2/2020	0.76	7.37	16.8	363	0.25	-132.0
ALF-210	27.2 - 48.1	47	9/1/2020	22.9	6.63	21.1	770	0.28	19.2
ALF-210A	120.0 - 130.0	125	9/2/2020	3.71	6.99	19.5	1055	0.13	-95.0
ALF-210B	79.6 - 89.4	84.5	9/2/2020	3.76	6.91	19.2	842	0.26	-142
ALF-212	51.8 - 67.8	67	9/1/2020	1.15	6.88	20.6	680	0.28	-113.7
ALF-212A	159.4 - 169.4	165	9/3/2020	1.84	6.64	19.8	764	0.20	-86.6
ALF-213	71.0 - 81.2	71	9/3/2020	1.61	6.85	18.1	710	0.30	-113.2
ALF-213A	152.4 - 162.4	157.75	9/8/2020	1.63	6.76	17.9	332.5	0.15	-112.2
ALF-213B	111.4 - 121.4	116.75	9/8/2020	3.03	6.77	21.2	832	0.43	-103.3
ALF-214	34.5 - 54.5	45	9/2/2020	2.10	7.28	19.3	577	0.22	136.0
ALF-214A	122.6 - 132.6	130	9/2/2020	1.91	6.57	20.1	1046	0.23	-37.8
ALF-214B	82.9 - 92.9	88	9/2/2020	4.18	6.85	19.5	1085	0.10	-100.1
ALF-215	20.0 - 30.0	25	9/2/2020	2.76	6.87	19.7	456.8	0.31	12.6
ALF-216	39.6 - 59.6	50	9/1/2020	4.05	7.46	20.1	762	0.28	-109.2
ALF-217	49.4 - 71.4	60.75	9/9/2020	0.64	6.97	19.4	700	0.28	-106.9
ALF-217A	182.4 - 192.4	187.75	9/9/2020	0.86	6.54	19.0	778	0.20	-87.5
ALF-217B	121.4 - 131.4	126.75	9/9/2020	1.38	6.84	19.1	724	0.18	-107.1
P-4	71.7 - 81.8	77	9/9/2020	0.97	6.75	17.4	337.7	0.12	-100.4
P-4S	29.7 - 49.7	41	9/9/2020	1.84	6.92	18.9	526.4	0.13	-25.7
PMW-02A	19.0 - 40.0	29	9/9/2020	9.40	10.18	22.3	1107	0.47	-100.7
PMW-02B	48.4 - 58.4	54	9/9/2020	1.25	6.89	20.4	625	0.41	-98.2
PMW-02C	119.3 - 129.3	124	9/9/2020	0.84	6.75	17.9	329.2	0.22	-51.6
PMW-04A	19.3 - 40.3	29	9/10/2020	2.20	7.55	19.1	835	0.18	-13.9
PMW-04B	52.0 - 62.0	57	9/10/2020	2.01	6.90	18.4	804	0.17	-125.6

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Table 4c
Groundwater Field Parameter Data (ALF and ACC Monitoring Wells) - September 2020
TVA Allen Fossil Plant
Memphis, Tennessee

Well ID	Screened Interval (ft btoc)	Pump Inlet Depth (ft btoc)	Date	Turbidity (NTU)	pH (SU)	Temperature (C)	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
PMW-04C	119.3 - 129.3	124	9/10/2020	2.16	6.87	18.4	333.6	0.21	-60.5
PMW-07A	18.9 - 28.9	24	9/10/2020	2.59	9.50	20.0	946	0.18	-8.9
PMW-07B	49.5 - 59.5	55	9/10/2020	3.04	6.96	19.1	722	0.25	-106.6
PMW-07C	112.5 - 122.5	117	9/10/2020	1.23	7.03	17.6	331.3	0.11	-77.5
PMW-10A	22.6 - 43.6	32	9/3/2020	0.94	7.31	20.3	504.5	0.30	-100.9
PMW-10B	62.9 - 72.9	68	9/3/2020	2.28	6.99	20.8	829	0.46	-140.3
PMW-10C	142.0 - 152.0	148	9/3/2020	1.24	6.79	19.7	548.9	0.39	-102.3
PMW-11A	16.6 - 37.6	27	9/3/2020	0.97	7.08	21.0	677	0.42	-72.1
PMW-11B	57.3 - 67.3	63	9/3/2020	0.48	7.24	20.3	601	0.24	-107.7
PMW-11C	139.0 - 149.0	144	9/3/2020	1.85	7.32	20.5	601	0.42	-94.4
PMW-14A	38.5 - 59.5	49	9/3/2020	1.53	7.01	19.9	725	0.39	-127.8
PMW-14B	79.5 - 89.5	85	9/3/2020	2.64	6.95	18.7	747	0.12	-147.5
PMW-14C	151.9 - 161.9	156	9/3/2020	1.96	6.96	19.2	418.7	0.16	-110.1
Production Well #1	503.0 - 603.0	~170-190	9/10/2020	3.47	6.54	19.5	179.7	1.61	17.8

Notes:

Data reported reflects the last reading collected during purging.
C - Celsius
ft - Feet
ft btoc - Feet below top of casing
mg/L - Milligrams per liter
mV - Millivolts
NTUs - Nephelometric Turbidity Units
SU - Standard Units
µS/cm - Micro-siemens per centimeter
Production Well #1 is called PROD-1 on the groundwater sampling form and is a Memphis aquifer production well at the ACC Plant.

Table 4d
Groundwater Field Parameter Data (ALF and ACC Monitoring Wells) - December 2020
TVA Allen Fossil Plant
Memphis, Tennessee

Well ID	Screened Interval (ft btoc)	Pump Inlet Depth (ft btoc)	Date	Turbidity (NTU)	pH (SU)	Temperature (C)	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
ACC-1A	160.1 - 170.1	165.5	12/8/2020	2.46	6.74	18.1	614	0.42	-82.8
ACC-3A	120.4 - 130.4	126	12/8/2020	0.89	6.70	17.9	877	0.58	-73.9
ACC-5A	133.5 - 143.5	139	12/8/2020	0.96	6.65	19.1	624	0.32	-50.3
ACC-5B	50.2 - 60.2	55.5	12/8/2020	4.54	6.84	19.2	921	0.46	-63.2
ALF-201	23.3 - 49.9	49	12/9/2020	1.02	6.92	19.9	781	0.37	4.5
ALF-201A	120.3 - 130.3	126	12/9/2020	4.80	7.05	20.1	768	0.19	-94.4
ALF-201B	83.9 - 93.9	89	12/9/2020	2.49	6.99	20.2	704	0.15	-95.4
ALF-202	23.4 - 44.6	43	12/16/2020	0.65	7.82	17.8	566.8	0.08	-162.1
ALF-202A	140.1 - 150.1	145.5	12/16/2020	0.69	6.68	15.2	541.8	0.23	-55.9
ALF-202B	84.1 - 94.1	89.5	12/16/2020	0.87	7.07	17.5	622	0.04	-126.8
ALF-203	33.1 - 54.1	52	12/10/2020	0.90	10.53	18.4	1034	0.32	-146.7
ALF-203A	112.3 - 122.3	118	12/10/2020	2.44	6.56	18.1	393.1	0.31	-52.1
ALF-203B	83.9 - 93.9	89	12/10/2020	1.95	7.26	17.4	467.2	0.07	-130.8
ALF-204	49.0 - 59.2	49	12/16/2020	2.69	7.26	13.9	463.8	0.44	-105.3
ALF-204A	110.3 - 120.3	116	12/16/2020	4.23	7.16	14.3	428.3	0.26	-69.5
ALF-204B	83.7 - 93.7	89	12/16/2020	2.38	7.20	14.5	300.2	0.29	-39.6
ALF-205	34.5 - 55.5	54	12/15/2020	4.33	7.16	15.0	776	0.37	-33.5
ALF-205A	102.0 - 112.0	107	12/15/2020	2.12	6.94	15.2	326.9	0.50	18.3
ALF-205B	76.1 - 86.1	81.5	12/15/2020	3.34	7.32	15.4	292.5	0.22	-82.7
ALF-206	54.0 - 64.2	54	12/10/2020	1.12	7.40	16.3	325.4	0.37	-112.6
ALF-210	27.2 - 48.1	47	12/8/2020	45.1	6.83	17.6	707	0.86	-10.0
ALF-210A	120.0 - 130.0	125	12/8/2020	3.45	6.85	18.3	1094	0.20	-106.3
ALF-210B	79.6 - 89.4	84.5	12/8/2020	1.78	6.93	17.6	868	0.17	-137.2
ALF-212	51.8 - 67.8	67	12/9/2020	2.24	7.19	19.2	611	0.38	-122.7
ALF-212A	159.4 - 169.4	165	12/9/2020	1.19	6.92	18.2	657	0.34	-104.7
ALF-213	71.0 - 81.2	71	12/15/2020	3.24	7.18	15.7	520.3	0.21	-135.0
ALF-213A	152.4 - 162.4	157.75	12/15/2020	3.79	7.19	15.7	333.0	0.20	-105.7
ALF-213B	111.4 - 121.4	116.75	12/15/2020	3.55	7.11	15.5	752	0.26	-109.2
ALF-214	34.5 - 54.5	45	12/8/2020	0.79	6.90	19.2	768	0.21	86.6
ALF-214A	122.6 - 132.6	130	12/9/2020	2.53	6.42	18.3	1019	0.22	-75.8
ALF-214B	82.9 - 92.9	88	12/9/2020	2.06	6.75	18.1	1010	0.12	-108.1
ALF-215	20.0 - 30.0	25	12/9/2020	1.16	7.08	18.1	442.6	0.35	-64.9
ALF-216	39.6 - 59.6	50	12/8/2020	2.64	6.80	18.5	833	0.40	-96.4
ALF-217	49.4 - 71.4	60.75	12/9/2020	0.40	7.13	18.0	669	0.32	-119
ALF-217A	182.4 - 192.4	187.75	12/10/2020	1.62	6.57	17.0	764	0.12	-92.7
ALF-217B	121.4 - 131.4	126.75	12/10/2020	2.06	6.93	16.6	695	0.10	-117.7
P-4	71.7 - 81.8	77	12/15/2020	1.22	7.02	16.6	365.9	0.25	-76.7
P-4S	29.7 - 49.7	41	12/15/2020	0.89	6.93	18.2	641	0.39	57.4
PMW-02A	19.0 - 40.0	29	12/15/2020	2.69	8.00	15.0	802	0.28	-54.9
PMW-02B	48.4 - 58.4	54	12/15/2020	3.09	7.31	15.2	640	0.50	-99.2
PMW-02C	119.3 - 129.3	124	12/15/2020	2.65	7.24	15.1	322.4	0.07	-99.2
PMW-04A	19.3 - 40.3	29	12/14/2020	0.91	7.26	17.1	770	0.30	84.4
PMW-04B	52.0 - 62.0	57	12/14/2020	1.87	7.06	15.8	679	0.15	-139.2

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Table 4d
Groundwater Field Parameter Data (ALF and ACC Monitoring Wells) - December 2020
TVA Allen Fossil Plant
Memphis, Tennessee

Well ID	Screened Interval (ft btoc)	Pump Inlet Depth (ft btoc)	Date	Turbidity (NTU)	pH (SU)	Temperature (C)	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
PMW-04C	119.3 - 129.3	124	12/14/2020	0.99	7.01	15.6	381.2	0.14	-99.5
PMW-07A	18.9 - 28.9	24	12/16/2020	4.37	9.4	16.3	980	0.25	59.6
PMW-07B	49.5 - 59.5	55	12/16/2020	2.15	7.00	15.4	737	0.15	-102.4
PMW-07C	112.5 - 122.5	117	12/16/2020	2.99	7.07	15.4	331.1	0.09	-84.0
PMW-10A	22.6 - 43.6	32	12/9/2020	1.03	7.59	19.2	520.7	0.18	-122.5
PMW-10B	62.9 - 72.9	68	12/9/2020	2.08	7.18	18.4	789	0.26	-148.3
PMW-10C	142.0 - 152.0	148	12/9/2020	1.65	7.04	18.1	546.4	0.42	-107.1
PMW-11A	16.6 - 37.6	27	12/16/2020	2.96	7.19	18.7	695	0.23	-87.5
PMW-11B	57.3 - 67.3	63	12/16/2020	2.90	7.45	18.3	541.0	0.20	-127.7
PMW-11C	139.0 - 149.0	144	12/16/2020	2.12	7.17	18.0	557.6	0.29	-80.2
PMW-14A	38.5 - 59.5	49	12/10/2020	2.88	7.13	17.6	707	0.43	-96.3
PMW-14B	79.5 - 89.5	85	12/20/2020	4.90	7.11	17.4	717	0.19	-145.8
PMW-14C	151.9 - 161.9	156	12/10/2020	4.38	7.10	17.5	394.5	0.20	-107.3
Production Well #1	503.0 - 603.0	~170-190	12/8/2020	3.10	6.82	18.2	180.6	0.90	-36.9

Notes:

Data reported reflects the last reading collected during purging.
C - Celsius
ft - Feet
ft btoc - Feet below top of casing
mg/L - Milligrams per liter
mV - Millivolts
NTUs - Nephelometric Turbidity Units
SU - Standard Units
µS/cm - Micro-siemens per centimeter
Production Well #1 is called PROD-1 on the groundwater sampling form and is a Memphis aquifer production well at the ACC Plant

Table 5a
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - February 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	ACC1A	ACC3A	ACC5A	ACC5B	ALF201	ALF201A	ALF201B	ALF202	ALF202A	ALF202B	ALF203	ALF203A
		Sampling Date	19-Feb-20	19-Feb-20	19-Feb-20	19-Feb-20	24-Feb-20	25-Feb-20	25-Feb-20	24-Feb-20	24-Feb-20	24-Feb-20	26-Feb-20	25-Feb-20
		Depth (ft toc)	**165.5**	**126**	**139**	**55.5**	**49**	**126**	**89**	**43**	**145**	**89.5**	**52**	**118**
Speciated Arsenic (ug/L)	**GWPS**	**Background**												
Arsenic III	-	NC	1.35	0.213 J	1.48	0.254 J	0.100 U	0.368 J	2.21 J	7.25	0.533 J	1.98 J	1320	0.149 J
Arsenic V	-	NC	0.626	0.100 U	0.287 J	0.127 J	0.359 J	0.207 J	0.435 J	309	0.241 J	0.559 J	128	0.218 J
Dimethylarsinic	-	NC	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 UJ	0.125 UJ	0.125 U	0.125 UJ	0.125 UJ	5.00 U	0.125 U
Monomethylarsonic	-	NC	0.225 U	0.225 U	0.225 U	0.225 U	0.225 U	0.225 UJ	0.225 UJ	0.225 U	0.225 UJ	0.225 UJ	9.00 U	0.225 U
General Chemistry (mg/L)														
Alkalinity, Total as CaCO3	-	NC	308	404	244	453	357	272	216	93.5	215	207	208 J	103
Alkalinity, Bicarbonate (CaCO3)	-	540	308	404	244	453	357	272	216	93.5	215	207	2.0 U	103
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	119 J	2.0 U
Chloride	-	23	5.9	8.9	17.3	4.1	7.4 J	26.9	17.4	13.1 J	19.9	19.0	14.4	14.5
Fluoride	4	0.22	0.14	0.12	0.097	0.20	0.78	0.46 J	0.64 J	4.0	0.32 J	0.39 J	**5.4**	0.21 J
Sulfate	-	100	1.1 J	76.8 J	82.8 J	38.4 J	51.0 J	148	134	139 J	45.7	78.0	221	27.7
Total Dissolved Solids	-	610	306	534	404	526	474	530	470	368	318	343	374	172
pH (standard units)	-	6.3 - 7.4	6.9 J	6.9 J	6.7 J	6.8 J	7.2 J	7.4 J	7.2 J	7.5 J	7.1 J	7.4 J	9.8 J	6.6 J
Metals (ug/L)														
Antimony	6	2.5	0.077 U	0.077 U	0.077 U	0.077 U	0.11 J	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	1.7 J	0.077 U
Arsenic	10	6.1	2.1	0.35 J	1.9	0.40 J	0.44 J	0.39 J	2.7	**344**	0.69	2.7	**2230**	0.23 J
Barium	2000	1000	508	990	65.7	676	212	226	131	40.5	326	409	22.0	181
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.27 U	0.054 U
Boron	-	340	10.4	299	30.8	94.2	682	491	5180	5720	1290	2070	8540	273
Cadmium	5	0.4	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.076 J	0.030 U	0.030 U	1.9	0.030 U
Calcium	-	160000	65800	125000	75500	137000	112000	80900	70400	17100	59500	69800	6950	27500
Chromium	100	2.5	0.24 J	0.21 U	0.21 U	0.21 U	0.33 J	0.21 U	0.21 U	0.25 J	0.21 U	0.21 U	1.9 J	0.21 U
Cobalt	6 (a)	3.8	0.62	0.085 U	0.085 U	3.1	0.085 U	0.085 U	0.085 U	0.12 J	0.085 U	0.085 U	0.55 J	0.085 U
Copper	1300 (b)	1.0	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	3.1	2.6 U*	0.44 U*	0.43 U	60.1	0.43 U
Lead	15 (a)(b)	0.075	0.046 U	0.046 U	0.046 U	0.046 U	0.046 U	0.046 U	0.16 U*	0.70	0.046 U	0.091 U*	**50.3**	0.046 U
Lithium	40 (a)	20	1.3	6.6	2.5	16.1	14.6	4.9	17.7	4.9	3.6	4.7	0.88 J	1.9
Magnesium	-	47000	33800	40100	31300	34500	27000	22500	21600	3710	22400	19600	511	12000
Mercury	2	0.2	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U
Molybdenum	100 (a)	1.0	0.51	0.32 J	0.23 J	0.21 J	59.7	10.6	**335**	**279**	**188**	**146**	**371 J**	2.5
Nickel	100 (c)	11.0	1.3	0.15 U	0.15 U	5.0	1.2	0.18 J	0.27 J	0.94	0.15 U	0.15 J	6.9	0.15 U
Potassium	-	3500	2670	3280	2670	1980	1940	3400	4440	1780	2810	3000	961	1280
Selenium	50	2.5	0.14 U	0.14 U	0.14 U	0.14 U	2.0	0.14 U	0.14 U	0.38 J	0.14 U	0.14 U	7.2	0.14 U
Silver	-	2.0	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.38 U	0.077 U
Sodium	-	21000	10600	12400	13900	6410	17900	66200	45400	95300	21800	16400	213000	15000
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.24 U	0.047 U
Vanadium	-	1.5	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	2.3	0.27 U	0.27 U	21.1	0.27 U
Zinc	-	7.8	5.8	2.4 U	2.7 J	3.5 J	2.4 U	2.4 U	3.6 U*	2.4 U	2.4 U	2.4 U	12.0 U	2.4 U
Radium (pCi/L)														
Radium-226	-	NC	0.301+-0.393 U	0.978+-0.598	0.211+-0.414 U	0.258+-0.473 U	-0.0143+-0.390 U	0.565+-0.522 U	0.233+-0.324 U	-0.0330+-0.322 U	0.806+-0.488	0.268+-0.350 U	0.523+-0.586 U	0.000+-0.419 U
Radium-228	-	NC	0.391+-0.365 UJ	1.43+-0.592 J	0.576+-0.539 UJ	1.28+-0.580 J	2.05+-0.760	0.0183+-0.436 UJ	0.865+-0.503 UJ	-0.179+-0.328 U	0.649+-0.441 UJ	0.383+-0.444 UJ	0.0548+-0.282 U	0.401+-0.371 U
Total Radium	5	3.5	0.692+-0.536 UJ	2.41+-0.841 J	0.787+-0.680 UJ	1.54+-0.748 J	2.05+-0.854 J	0.583+-0.680 UJ	1.10+-0.598 UJ	0.000+-0.459 U	1.46+-0.658 J	0.651+-0.565 UJ	0.577+-0.650 U	0.401+-0.560 U

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Table 5a
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - February 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	ALF203B	ALF204	ALF204A	ALF204B	ALF205	ALF205A	ALF205B	ALF206	ALF210	ALF210-F	ALF210A	ALF210B
		Sampling Date	25-Feb-20	25-Feb-20	26-Feb-20	25-Feb-20	26-Feb-20	26-Feb-20	26-Feb-20	25-Feb-20	24-Feb-20	24-Feb-20	18-Feb-20	11-Feb-20
		Depth (ft toc)	**89**	**49**	**116**	**89**	**54**	**107**	**81.5**	**54**	**47**	**47**	**125**	**84.5**
Speciated Arsenic (ug/L)	**GWPS**	**Background**												
Arsenic III	-	NC	5.04	41.0	0.116 J	1.94	1.12 J	0.372 J	3.67 J	4.90	0.377 J	NA	0.413 J	NA
Arsenic V	-	NC	0.971	7.98	0.100 UJ	0.267 J	0.400 U	0.154 J	0.762 J	0.981	0.234 J	NA	0.100 U	NA
Dimethylarsinic	-	NC	0.125 U	0.125 U	0.125 UJ	0.125 U	0.500 U	0.125 UJ	0.125 UJ	0.125 U	0.125 U	NA	0.125 U	NA
Monomethylarsonic	-	NC	0.225 U	0.225 U	0.225 UJ	0.225 U	0.900 U	0.225 UJ	0.225 UJ	0.225 U	0.225 U	NA	0.225 U	NA
General Chemistry (mg/L)														
Alkalinity, Total as CaCO3	-	NC	179	206	190 J	97.2	358 J	122 J	102 J	115	434	NA	281	391
Alkalinity, Bicarbonate (CaCO3)	-	540	179	206	190 J	97.2	358 J	122 J	102 J	115	434	NA	281	391
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	NA	2.0 U	2.0 U
Chloride	-	23	10.4	12.4 J	14.9 J	7.9	15.2	16.4 J	10.4 J	10.6 J	1.2 J	NA	72.8	12.8 J
Fluoride	4	0.22	0.56 J	0.21	0.0065 U	0.31	1.3	0.22	0.23	0.40	0.28	NA	0.099	0.18
Sulfate	-	100	27.2	27.7 J	6.5	18.8	107	14.8	16.9	21.1 J	12.0 J	NA	259 J	1.1 J
Total Dissolved Solids	-	610	254	289	230	159	590	186	157	186	476	NA	818	446
pH (standard units)	-	6.3 - 7.4	7.1 J	7.0 J	7.0 J	6.7 J	7.2 J	6.8 J	6.9 J	7.0 J	6.8 J	NA	7.0 J	NA
Metals (ug/L)														
Antimony	6	2.5	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
Arsenic	10	6.1	6.3	**55.4**	0.18 J	2.6	1.7	0.48 J	5.1	5.6	0.95	0.52	0.52	2.3
Barium	2000	1000	128	276	359 J	184	195	303 J	202 J	202	315	316	112	599
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
Boron	-	340	1220	387	95.6	418	7310	68.1	82.2	75.7	74.7	75.0	2060	331
Cadmium	5	0.4	0.030 U	0.030 U	0.030 U	0.030 U	0.049 J	0.030 U	0.030 U	0.030 U	0.035 J	0.031 J	0.030 U	0.030 U
Calcium	-	160000	50100	58700	47100	28800	114000	32500	29600	31500	130000	134000	147000	108000
Chromium	100	2.5	0.21 U	0.32 J	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
Cobalt	6 (a)	3.8	0.085 U	0.14 J	0.085 U	0.085 U	1.4	0.085 U	0.085 U	0.085 U	2.3	2.4	0.085 U	0.14 J
Copper	1300 (b)	1.0	0.43 U	0.43 U	0.43 U	0.43 U	0.60 J	0.43 U	0.43 U	0.43 U	0.43 U	1.0 U*	0.43 U	0.43 U
Lead	15 (a)(b)	0.075	0.046 U	0.046 U	0.046 U	0.046 U	0.046 U	0.046 U	0.046 U	0.046 U	0.046 U	0.046 U	0.046 U	0.046 U
Lithium	40 (a)	20	7.0	4.6	3.0	2.7	18.4	3.5	3.5	3.7	19.3	19.6	8.0	14.4
Magnesium	-	47000	11600	15100	14900	6930	19500	11200	8420	7680	30900	31200	38400	27600
Mercury	2	0.2	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U
Molybdenum	100 (a)	1.0	98.9	14.9	2.3	55.4	89.1 J	0.91	0.94 U*	2.3	1.7	1.8	0.49 J	2.1
Nickel	100 (c)	11.0	5.0	0.26 J	0.15 U	0.23 J	5.4	0.15 U	0.17 U*	0.15 U	3.8	3.8	0.15 U	0.20 J
Potassium	-	3500	1440	3470	2590	1920	2940	2420	2690	2250	2580	2690	4630	3760
Selenium	50	2.5	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.32 J	0.22 J	0.14 U	0.14 U
Silver	-	2.0	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
Sodium	-	21000	20500	11900	15600	13000	70200	15600	12400	12400	3770	3880	70700	15400
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	0.27 U	1.0	0.27 U	0.27 U	0.51 J	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Zinc	-	7.8	2.4 U	2.4 U*	2.6 J	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
Radium (pCi/L)														
Radium-226	-	NC	0.208+-0.452 U	0.589+-0.602 U	0.235+-0.327 U	0.137+-0.425 U	0.153+-0.465 U	0.772+-0.460 J	0.296+-0.350 U	0.555+-0.587 U	0.854+-0.642	NA	0.529+-0.393	1.55+-0.645 U*
Radium-228	-	NC	0.586+-0.377 U	0.150+-0.256 U	0.323+-0.385 UJ	0.535+-0.416 U	0.369+-0.380 U	0.0384+-0.337 UJ	0.564+-0.397 UJ	0.107+-0.279 U	0.269+-0.371 U	NA	0.474+-0.405 UJ	0.513+-0.376 U
Total Radium	5	3.5	0.794+-0.589 U	0.739+-0.654 U	0.558+-0.505 UJ	0.672+-0.595 U	0.523+-0.601 U	0.810+-0.570 J	0.860+-0.529 UJ	0.661+-0.650 U	1.12+-0.742 J	NA	1.00+-0.564 J	2.06+-0.746 U*

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Table 5a
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - February 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	ALF212	ALF212A	ALF213	ALF213A	ALF213B	ALF214	ALF214A	ALF214B	ALF215	ALF216	ALF217	ALF217A
		Sampling Date	25-Feb-20	26-Feb-20	27-Feb-20	27-Feb-20	28-Feb-20	19-Feb-20	19-Feb-20	19-Feb-20	20-Feb-20	18-Feb-20	28-Feb-20	28-Feb-20
		Depth (ft toc)	**67**	**165**	**71**	**157.75**	**116.8**	**45**	**130**	**88**	**25**	**50**	**60.75**	**187.75**
Speciated Arsenic (ug/L)	**GWPS**	**Background**												
Arsenic III	-	NC	9.31	2.62 J	4.63	3.35	2.43	0.100 U	1.18	2.92	0.255 J	3.43	34.8	7.06
Arsenic V	-	NC	1.67	0.992 J	1.70	1.05	0.641	0.340 J	0.220 J	0.713	0.361 J	2.14	7.70	2.57
Dimethylarsinic	-	NC	0.125 U	0.125 UJ	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U
Monomethylarsonic	-	NC	0.225 U	0.225 UJ	0.225 U	0.225 U	0.225 U	0.225 U	0.225 U	0.225 U	0.225 U	0.225 U	0.225 U	0.225 U
General Chemistry (mg/L)														
Alkalinity, Total as CaCO3	-	NC	265	227 J	158	99.5	324	238	184	190	233	474	347	291
Alkalinity, Bicarbonate (CaCO3)	-	540	265	227 J	158	99.5	324	238	184	190	233	474	347	291
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Chloride	-	23	15.2 J	39.2 J	14.0 J	16.9 J	50.9 J	1.5 U*	39.6	30.8	1.0 U*	5.6	14.7 J	33.9 J
Fluoride	4	0.22	1.7	0.21	0.59	0.29	0.15	0.39	0.086	0.15	0.32	0.093	2.1	0.091
Sulfate	-	100	2.2 J	0.28 U	18.8	27.0	0.28 U	13.4 J	342 J	191 J	6.6	40.3 J	0.28 U	0.28 U
Total Dissolved Solids	-	610	340	312	238	180	432	267	778	520	247	518	404	376
pH (standard units)	-	6.3 - 7.4	6.8 J	7.1 J	7.2 J	7.0 J	7.0 J	7.1 J	6.6 J	6.7 J	7.4 J	7.0 J	7.1 J	7.0 J
Metals (ug/L)														
Antimony	6	2.5	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.20 J	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
Arsenic	10	6.1	**12.4**	3.8	5.9	4.6	3.1	0.33 J	1.2	3.7	0.73	5.9	**42.7**	9.2
Barium	2000	1000	196	375 J	309 J	298 J	497 J	114	24.9	115	207	637	228 J	412 J
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
Boron	-	340	2020	48.0	124	46.7	23.1	265	106	131	36.1	190	1370	20.3
Cadmium	5	0.4	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.066 J	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U
Calcium	-	160000	61300	63800	39200	25600 J	97600	69900	136000	95800	61100	136000	76900 J	83300 J
Chromium	100	2.5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.24 J	0.26 J
Cobalt	6 (a)	3.8	0.22 J	0.15 J	0.085 U	0.085 U	0.13 J	0.43 J	0.085 U	0.085 U	0.44 J	0.52	0.25 J	0.30 J
Copper	1300 (b)	1.0	1.2 U*	0.43 U	0.43 U	1.9	0.44 J	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Lead	15 (a)(b)	0.075	0.046 U	0.046 U	0.046 U	0.046 U	0.046 U	0.046 U	0.046 U	0.063 U*	0.046 U	0.046 U	0.046 U	0.046 U
Lithium	40 (a)	20	10.1	2.8	6.5	2.6	5.8	9.4	5.8	8.0	6.0	16.8	11.2	6.2
Magnesium	-	47000	15100	22000	11600	10900	27500	14000	44700	28700	19800	38700	18500	19500
Mercury	2	0.2	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U
Molybdenum	100 (a)	1.0	46.2	1.2 U*	3.0 J	1.2 J	1.0 J	2.3	0.34 J	0.24 J	2.5 J	0.22 J	23.5 J	1.2 J
Nickel	100 (c)	11.0	0.28 J	0.37 U*	0.15 J	0.15 U	0.46 J	3.5	0.15 U	0.15 U	1.8	0.27 U*	0.35 J	0.39 J
Potassium	-	3500	2280	2600	2890	2700	3350	1010	3220	2570	601	2750	4500	2030
Selenium	50	2.5	0.19 J	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.25 J	0.14 U	0.30 J	0.14 U
Silver	-	2.0	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
Sodium	-	21000	35800	12000	14100	13900	14200	7370	42400	34100	6000	7860	34400	10400
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	0.27 J	0.27 U	0.27 U	0.27 U	0.27 U	0.59 J	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Zinc	-	7.8	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.8 J
Radium (pCi/L)														
Radium-226	-	NC	0.600+-0.621 U	0.410+-0.348 U	0.230+-0.319 UJ	0.232+-0.303 UJ	0.263+-0.373 UJ	0.000+-0.256 U	0.000+-0.257 U	0.0490+-0.254 U	0.0615+-0.281 U	0.468+-0.476 U	-0.0519+-0.237 UJ	0.751+-0.523 J
Radium-228	-	NC	0.0788+-0.236 U	1.37+-0.608 J	0.465+-0.393 U	-0.0496+-0.487 U	0.574+-0.460 U	-0.218+-0.318 UJ	-0.339+-0.310 UJ	0.631+-0.442 UJ	0.243+-0.353 UJ	0.504+-0.373 UJ	0.0319+-0.490 U	-0.00512+-0.484 U
Total Radium	5	3.5	0.679+-0.664 U	1.78+-0.701 J	0.695+-0.506 UJ	0.232+-0.574 UJ	0.837+-0.592 UJ	0.000+-0.408 UJ	0.000+-0.403 UJ	0.680+-0.510 UJ	0.305+-0.451 UJ	0.972+-0.605 UJ	0.0319+-0.544 UJ	0.751+-0.713 J

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Table 5a
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - February 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	ALF217B	P4	P4S	PMW02A	PMW02A-F	PMW02B	PMW02C	PMW04A	PMW04B	PMW04C	PMW07A
		Sampling Date	28-Feb-20	19-Feb-20	19-Feb-20	20-Feb-20	20-Feb-20	20-Feb-20	20-Feb-20	21-Feb-20	21-Feb-20	21-Feb-20	24-Feb-20
		Depth (ft toc)	**126.8**	**77**	**41**	**29**	**29**	**54**	**124**	**29**	**57**	**124**	**24**
Speciated Arsenic (ug/L)	**GWPS**	**Background**											
Arsenic III	-	NC	9.24	1.95	1.43	352	NA	55.2	0.100 U	14.2 J	25.8	0.100 U	35.9
Arsenic V	-	NC	4.56	0.219 J	0.431 J	3240	NA	6.97	0.100 U	2470	7.34	0.100 U	1170
Dimethylarsinic	-	NC	0.125 U	0.125 U	0.125 U	5.00 U	NA	0.125 U	0.125 U	5.00 U	0.125 U	0.125 U	5.00 U
Monomethylarsonic	-	NC	0.225 U	0.225 U	0.225 U	9.00 U	NA	0.225 U	0.225 U	9.00 U	0.225 U	0.225 U	9.00 U
General Chemistry (mg/L)													
Alkalinity, Total as CaCO3	-	NC	349	95.8	128	185	NA	264	124	159	293	131	171
Alkalinity, Bicarbonate (CaCO3)	-	540	349	95.8	128	2.0 U	NA	264	124	159	293	131	47.7
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	142	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	124
Chloride	-	23	77.9 J	10.9	7.0	13.7	NA	14.6	14.7	16.2	20.3	15.8	14.8
Fluoride	4	0.22	0.14	0.35	0.64	**4.1**	NA	0.21	0.17	4.0	0.30	0.18	**4.6**
Sulfate	-	100	0.28 U	38.1 J	54.3 J	225	NA	41.7	27.5	219	102	30.3	223
Total Dissolved Solids	-	610	530	175	230	664	NA	374	202	572	529	215	601
pH (standard units)	-	6.3 - 7.4	6.8 J	7.3 J	7.3 J	10 J	NA	7.4 J	7.3 J	7.6 J	7.1 J	6.8 J	8.8 J
Metals (ug/L)													
Antimony	6	2.5	0.077 U	0.077 U	0.077 U	1.3	1.1	0.077 U	0.077 U	0.43 J	0.077 U	0.077 U	1.0
Arsenic	10	6.1	**13.4**	2.2	1.9	**3450**	**3600**	**70.5**	0.15 J	**2300**	**35.4**	0.14 U	**1270**
Barium	2000	1000	972 J	137	49.5	33.5	19.5	167	245	59.1	426	298	51.5
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.12 J	0.069 J	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
Boron	-	340	34.4	62.1	975	6570	6750	2420	139	6810	5820	112	15000
Cadmium	5	0.4	0.030 U	0.030 U	0.034 J	1.6	0.92	0.030 U	0.030 U	0.078 J	0.030 U	0.030 U	0.60
Calcium	-	160000	122000	34700	36000	4050	3880	72600	40100	49200	103000	43200	21200
Chromium	100	2.5	0.21 U	0.21 U	0.21 U	2.1	1.2	0.24 J	0.43 J	0.43 J	0.21 U	0.21 U	1.8
Cobalt	6 (a)	3.8	0.20 J	0.085 U	0.57	1.5	0.96	0.64	0.085 U	0.65	0.11 J	0.085 U	0.54
Copper	1300 (b)	1.0	0.43 U	0.43 U	1.9	27.5	19.6	0.43 U	0.43 U	9.8	0.43 U	0.43 U	19.6
Lead	15 (a)(b)	0.075	0.046 U	0.071 U*	0.10 U*	14.7	9.7	0.069 U*	0.046 U	0.24 U*	0.046 U	0.046 U	3.9
Lithium	40 (a)	20	4.7	2.9	1.7	0.88	0.61	10.1	2.5	8.7	14.2	2.9	2.5
Magnesium	-	47000	34700	8520	8770	161	78.6	18400	9530	11800	28000	10500	3290
Mercury	2	0.2	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U
Molybdenum	100 (a)	1.0	0.64 J	2.4	13.2	**341 J**	**290 J**	**115 J**	3.1 J	**747 J**	**242 J**	2.5 J	**693**
Nickel	100 (c)	11.0	0.71	0.17 J	2.4	11.8	10.2	0.50	0.15 U	14.6	0.18 J	0.15 U	5.4
Potassium	-	3500	3550	1810	2440	1210	1130	3890	1550	2810	2540	1720	2090
Selenium	50	2.5	0.14 U	0.14 U	0.14 U	2.7	2.6	0.14 J	0.14 U	0.95	0.14 U	0.14 U	2.2
Silver	-	2.0	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
Sodium	-	21000	12900	10300	29200	189000	208000	29900	13700	113000	16700	14200	186000
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.050 J	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	0.27 U	0.27 U	0.27 U	34.6	32.7	0.99 J	0.27 U	6.4	0.27 U	0.27 U	20.8
Zinc	-	7.8	2.4 U	2.4 U	2.4 U	7.2	4.8 J	23.0	2.8 J	4.0 J	2.4 U	2.4 U	4.7 J
Radium (pCi/L)													
Radium-226	-	NC	0.780+-0.453 J	0.260+-0.307 U	0.264+-0.275 U	-0.158+-0.581 U	NA	0.0685+-0.356 U	0.369+-0.419 U	0.0600+-0.274 U	0.257+-0.268 U	0.413+-0.479 U	0.117+-0.312 UJ
Radium-228	-	NC	0.687+-0.445 U	-0.232+-0.349 UJ	0.504+-0.413 UJ	-0.316+-0.749 UJ	NA	-0.0492+-0.418 UJ	0.0975+-0.440 UJ	0.456+-0.441 UJ	0.724+-0.446 UJ	0.672+-0.393 UJ	0.0499+-0.398 UJ
Total Radium	5	3.5	1.47+-0.635 J	0.260+-0.465 UJ	0.768+-0.496 UJ	0.000+-0.948 UJ	NA	0.0685+-0.549 UJ	0.467+-0.608 UJ	0.516+-0.519 UJ	0.981+-0.520 UJ	1.09+-0.620 UJ	0.167+-0.506 UJ

Table 5a
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - February 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	PMW07B	PMW07C	PMW10A	PMW10B	PMW10C	PMW11A	PMW11A-F	PMW11B	PMW11C	PMW14A	PMW14B
		Sampling Date	24-Feb-20	25-Feb-20	21-Feb-20	21-Feb-20	21-Feb-20	20-Feb-20	20-Feb-20	20-Feb-20	20-Feb-20	25-Feb-20	25-Feb-20
		Depth (ft toc)	**55**	**117**	**32**	**68**	**148**	**27**	**27**	**63**	**144**	**49**	**85**
Speciated Arsenic (ug/L)	**GWPS**	**Background**											
Arsenic III	-	NC	6.35	0.722	39.0	69.9	0.482 J	94.8	NA	18.6	0.601	70.2 J	40.0 J
Arsenic V	-	NC	1.32	0.100 U	177	7.56	0.100 U	64.5	NA	3.83	0.144 J	11.2 J	11.2 J
Dimethylarsinic	-	NC	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	NA	0.125 U	0.125 U	0.125 UJ	0.125 UJ
Monomethylarsonic	-	NC	0.225 U	0.225 U	0.225 U	0.225 U	0.225 U	0.225 U	NA	0.225 U	0.225 U	0.225 UJ	0.225 UJ
General Chemistry (mg/L)													
Alkalinity, Total as CaCO3	-	NC	289	150	78.0	438	166	234	NA	308	165	339 J	284
Alkalinity, Bicarbonate (CaCO3)	-	540	289	150	78.0	438	166	234	NA	308	165	339 J	284
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	NA	2.0 U	2.0 U	2.0 U	2.0 U
Chloride	-	23	15.7	14.9	13.0	11.0	16.9	10.6	NA	17.7	17.0	13.6	13.7
Fluoride	4	0.22	0.27	0.23 J	**5.0**	0.31	0.31	3.8	NA	1.1	0.51	1.4 J	0.15 J
Sulfate	-	100	76.0	11.6	132	0.38 J	42.5	83.5	NA	14.9	55.2	37.7	57.4
Total Dissolved Solids	-	610	445	205	327	515	265	432	NA	369	269	461	404
pH (standard units)	-	6.3 - 7.4	7.0 J	6.9 J	7.5 J	7.3 J	7.1 J	7.5 J	NA	7.2 J	7.3 J	7.0 J	7.0 J
Metals (ug/L)													
Antimony	6	2.5	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.13 J	0.077 U
Arsenic	10	6.1	8.6	0.88	**235**	**84.3**	0.67	**188**	**165**	**23.8**	1.4	**90.4**	**58.1**
Barium	2000	1000	186	252	71.3	181	205	117	86.5	398	129	138	835
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
Boron	-	340	3090	261	3670	637	1980	3800	3850	2780	2510	5410	1670
Cadmium	5	0.4	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.035 J	0.030 U
Calcium	-	160000	86500	38000	28100	117000	44400	36500	37200	71000	41600	66800	84400
Chromium	100	2.5	0.34 J	0.21 U	0.21 U	0.38 J	0.21 U	0.21 U	0.21 U	0.21 U	0.46 J	0.21 U	0.21 U
Cobalt	6 (a)	3.8	0.11 J	0.33 J	0.69	0.29 J	0.085 U	0.24 J	0.25 J	0.17 J	0.085 U	4.0	0.15 J
Copper	1300 (b)	1.0	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.58 J	0.43 U
Lead	15 (a)(b)	0.075	0.051 U*	0.046 U	0.046 U	0.27 U*	0.046 U	0.046 U	0.046 U	0.046 U	0.046 U	0.10 U*	0.046 U
Lithium	40 (a)	20	7.4	3.0	7.3	13.2	1.9	7.6	7.6	10.8	2.4	6.2	6.7
Magnesium	-	47000	20500	10600	6280	23400	16700	8540	8850	21200	14600	17500	25000
Mercury	2	0.2	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U
Molybdenum	100 (a)	1.0	**247**	11.6	**309 J**	4.4 J	**254 J**	**177 J**	**166 J**	86.5 J	**166 J**	55.4	2.1
Nickel	100 (c)	11.0	0.19 J	0.79	2.4	0.38 J	0.15 U	0.69	0.78	0.15 U	0.15 J	7.9	0.15 U
Potassium	-	3500	5600	1980	3360	5320	1970	2220	2380	4170	1980	1500	5070
Selenium	50	2.5	0.14 U	0.14 U	0.33 J	0.19 J	0.14 U	0.19 J	0.15 J	0.14 U	0.14 U	0.37 J	0.19 J
Silver	-	2.0	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
Sodium	-	21000	32800	15200	57100	19400	25900	98200	106000	25700	39100	61600	12500
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	0.67 J	0.27 U	0.87 J	0.27 U	0.27 U	0.67 J	0.62 J	0.27 U	0.27 U	1.2	0.27 U
Zinc	-	7.8	2.8 J	2.4 U	2.4 U	16.8	2.4 U	2.4 U	2.4 U	2.9 U*	2.4 U	2.4 U	2.4 U
Radium (pCi/L)													
Radium-226	-	NC	0.000+-0.446 UJ	1.06+-0.734	-0.0525+-0.240 U	0.162+-0.280 U	0.179+-0.423 U	-0.131+-0.363 U	NA	0.535+-0.419	0.250+-0.520 U	0.136+-0.326 U	0.180+-0.313 U
Radium-228	-	NC	-0.0386+-0.370 UJ	0.638+-0.411 U	0.326+-0.391 UJ	0.325+-0.371 UJ	0.279+-0.338 UJ	0.139+-0.491 UJ	NA	0.278+-0.417 UJ	0.473+-0.462 UJ	0.111+-0.436 UJ	0.590+-0.461 UJ
Total Radium	5	3.5	0.000+-0.579 UJ	1.70+-0.841 J	0.326+-0.459 UJ	0.487+-0.465 UJ	0.458+-0.541 UJ	0.139+-0.611 UJ	NA	0.813+-0.591 J	0.723+-0.696 UJ	0.247+-0.544 UJ	0.770+-0.557 UJ

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Table 5a
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - February 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	PMW14C
		Sampling Date	25-Feb-20
		Depth (ft toc)	**156**
Speciated Arsenic (ug/L)	**GWPS**	**Background**	
Arsenic III	-	NC	0.170 J
Arsenic V	-	NC	0.187 J
Dimethylarsinic	-	NC	0.125 UJ
Monomethylarsonic	-	NC	0.225 UJ
General Chemistry (mg/L)			
Alkalinity, Total as CaCO3	-	NC	148
Alkalinity, Bicarbonate (CaCO3)	-	540	148
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U
Chloride	-	23	19.3
Fluoride	4	0.22	0.21 J
Sulfate	-	100	35.6
Total Dissolved Solids	-	610	242
pH (standard units)	-	6.3 - 7.4	6.9 J
Metals (ug/L)			
Antimony	6	2.5	0.077 U
Arsenic	10	6.1	0.21 J
Barium	2000	1000	248
Beryllium	4	0.5	0.054 U
Boron	-	340	262
Cadmium	5	0.4	0.030 U
Calcium	-	160000	44500
Chromium	100	2.5	0.21 U
Cobalt	6 (a)	3.8	0.085 U
Copper	1300 (b)	1.0	0.43 U
Lead	15 (a)(b)	0.075	0.046 U
Lithium	40 (a)	20	3.0
Magnesium	-	47000	15400
Mercury	2	0.2	0.093 U
Molybdenum	100 (a)	1.0	7.3
Nickel	100 (c)	11.0	0.15 U
Potassium	-	3500	1900
Selenium	50	2.5	0.14 U
Silver	-	2.0	0.077 U
Sodium	-	21000	12100
Thallium	2	0.5	0.047 U
Vanadium	-	1.5	0.27 U
Zinc	-	7.8	3.2 U*
Radium (pCi/L)			
Radium-226	-	NC	0.376+-0.578 U
Radium-228	-	NC	0.369+-0.354 UJ
Total Radium	5	3.5	0.745+-0.678 UJ

Notes:

Well IDs are presented in the table without dashes (-) for data management purposes. Well IDs with dashes are equivalent to Well IDs withough dashes, i.e. ALF202 equals ALF-202.
GWPS - Groundwater Protection Standard
(a) No Maximum Contaminant Level (MCL) established. GWPS is based on Regional Screening Levels (RSLs) for certain metals recognized in the federal CCR Rule at 40 C.F.R. 257.95(h)(2) (see 83 Fed. Reg. 36435 (July 30, 2018)).
(b) No MCL established. GWPS is based on lead and copper Action Levels established in the federal Lead and Copper Rule at 40 C.F.R. 141.80(c)(1)(2) (see 56 Fed. Reg. 26548 (June 7, 1991)).
(c) GWPS is based on Tennessee MCL for Public Water Systems (see Title 69, Chapter 3, Part 1, TDEC Rule 0400-45-01-.06, February 17, 2019).
Dash (-) indicates no GWPS exists in the federal CCR Rule.
Background - site-specific background concentrations calculated as 95% Upper Tolerance Limits (UTLs) in accordance with USEPA Unified Guidance (see 2020 Background Analysis Report for Allen Fossil Plant, February 2021).
J - The result is estimated.
mg/L - milligrams per liter; ug/L - micrograms per liter; pCi/L - picocuries per liter
NA - Constituent was not analyzed.
NC - Background value was not calculated.
NR - Results for this constituent were not available at the time this table was published.
U - The analyte was not detected above the indicated reporting limit.
U* - The analyte was detected in an associated blank.
Sample analytical results that exceed the GWPS are shaded YELLOW.

Table 5b
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - May 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	ACC1A	ACC3A	ACC5A	ACC5B	ALF201	ALF201A	ALF201B	ALF202	ALF202A	ALF202B	ALF203	ALF203A	ALF203B
		Sampling Date	12-May-20	12-May-20	12-May-20	12-May-20	13-May-20	13-May-20	13-May-20	19-May-20	19-May-20	19-May-20	14-May-20	14-May-20	14-May-20
		Depth (ft toc)	**165.5**	**126**	**139**	**55.5**	**49**	**126**	**89**	**43**	**145.5**	**89.5**	**52**	**118**	**89**
General Chemistry (mg/L)	**GWPS**	**Background**													
Alkalinity, Total as CaCO3	-	NC	301	391	234	438	371	254	252	94.2	217	207	224	122	160
Alkalinity, Bicarbonate (CaCO3)	-	540	301	391	234	438	371	254	252	94.2	217	207	2.0 U	122	160
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	160	2.0 U	2.0 U
Chloride	-	23	4.7 J	8.2 J	15.6 J	2.3 J	4.6 J	17.1 J	14.4 J	11.2 J	14.6 J	11.7 J	11.8 J	13.7 J	8.0 J
Fluoride	4	0.22	0.12 J	0.097 J	0.082 J	0.16 J	0.61 J	0.33 J	0.54 J	2.2 J	0.20 J	0.20 J	3.9 J	0.11 J	0.35 J
Sulfate	-	100	0.53 J	78.8 J	64.7 J	20.7 J	39.7 J	103 J	87.4 J	106 J	34.3 J	43.1 J	169 J	19.4 J	15.8 J
Total Dissolved Solids	-	610	292	550	384	470	481	459	446	353	319	306	664	206	227
pH (standard units)	-	6.3 - 7.4	6.9 J	6.8 J	6.9 J	6.8 J	7.2 J	7.2 J	7.1 J	7.6 J	7.4 J	7.2 J	9.8 J	6.9 J	7.1 J
Metals (ug/L)															
Antimony	6	2.5	0.077 U	0.077 U	0.077 U	0.077 U	0.091 J	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	1.5	0.077 U	0.077 U
Arsenic	10	6.1	2.0	0.37 J	1.8	0.42 J	0.64	0.36 J	2.7	**374**	0.84	3.1	**2250**	0.21 J	5.8
Barium	2000	1000	481	1030	76.6	662	237	191	134	45.2	328	386	37.2	240	115
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.12 J	0.054 U	0.054 U
Boron	-	340	9.0 J	428	32.6	110	417	443	2980	6060	1410	1960	8140	272	818
Cadmium	5	0.4	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.038 J	0.054 U*	0.030 U	0.030 U	2.3	0.030 U	0.030 U
Calcium	-	160000	60200	123000	75200	133000	118000	67400	72100	18800	63000	71500	13400	34600	46400
Chromium	100	2.5	0.21 U	0.37 U*	0.52 U*	0.43 U*	0.48 U*	0.35 U*	0.21 U	0.54 U*	0.28 U*	0.70 U*	2.3	0.21 U	0.23 U*
Cobalt	6 (a)	3.8	0.56	0.085 U	0.085 U	2.9	0.13 J	0.085 U	0.085 U	0.10 J	0.085 U	0.085 U	0.70 J	0.085 U	0.085 U
Copper	1300 (b)	1.0	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	1.8	0.43 U	0.43 U	71.1	0.43 U	0.43 U
Lead	15 (a)(b)	0.075	0.046 U	0.046 U	0.046 U	0.077 J	0.046 U	0.046 U	0.046 U	0.47	0.069 J	0.046 U	**54.2**	0.046 U	0.046 U
Lithium	40 (a)	20	1.2	6.8	2.0	17.2	15.1	4.5	17.1	5.3	3.2	5.2	1.8	1.7	6.7
Magnesium	-	47000	33200	41700	33700	35800	31100	20000	24000	4120	24400	19200	1410	13100	10200
Mercury	2	0.2	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.075 U	0.075 U	0.075 U	0.093 U	0.093 U	0.093 U
Molybdenum	100 (a)	1.0	0.48 J	0.34 J	0.27 J	0.22 J	68.6	9.3	**292**	**246**	**180**	**134**	**393**	0.74	80.1
Nickel	100 (c)	11.0	1.2	0.23 J	0.25 J	5.3	1.2	0.18 J	0.20 J	1.0	0.18 J	0.21 J	9.4	0.15 U	0.17 J
Potassium	-	3500	2680	3420	2690	2270	1600	3050	4280	1850	2820	2930	1190	1420	1400
Selenium	50	2.5	0.14 U	0.14 U	0.14 U	0.14 U	3.3	0.14 U	0.14 U	0.33 J	0.14 U	0.14 U	6.7	0.14 U	0.14 U
Silver	-	2.0	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.15 J	0.077 U	0.077 U
Sodium	-	21000	10400	13100	13800	7330	14500	64400	39700	102000	20400	16000	203000	14800	17900
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	2.0	0.27 U	0.27 U	23.2	0.27 U	0.27 U
Zinc	-	7.8	11.2 U*	10.7 U*	3.0 U*	7.5 U*	2.7 U*	2.4 U	2.7 U*	5.2 U*	13.6 U*	4.1 U*	12.0 U	3.1 U*	2.8 U*
Radium (pCi/L)															
Radium-226	-	NC	0.682+-0.597 U	0.983+-0.767 U	-0.123+-0.379 U	0.133+-0.508 U	0.000+-0.435 U	0.134+-0.322 U	0.265+-0.551 U	0.531+-0.422 UJ	0.291+-0.534 U	0.552+-0.473 U	0.550+-0.574 U	0.831+-0.644 U	0.229+-0.446 U
Radium-228	-	NC	0.726+-0.414 U	1.48+-0.536	0.848+-0.442	1.32+-0.552	0.526+-0.427 U	0.657+-0.440 U	0.0496+-0.359 U	0.685+-0.449 UJ	0.822+-0.443 U*	1.06+-0.523 U*	0.0209+-0.533 U	1.25+-0.496	1.12+-0.510
Total Radium	5	3.5	1.41+-0.727 U	2.46+-0.936 J	0.848+-0.582 J	1.45+-0.750 J	0.526+-0.610 U	0.791+-0.545 U	0.315+-0.658 U	1.22+-0.616 UJ	1.11+-0.694 U*	1.61+-0.705 U*	0.571+-0.783 U	2.08+-0.813 J	1.35+-0.678 J

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Table 5b
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - May 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	ALF204	ALF204A	ALF204B	ALF205	ALF205A	ALF205B	ALF206	ALF210	ALF210A	ALF210B	ALF212	ALF212A	ALF213
		Sampling Date	19-May-20	19-May-20	19-May-20	18-May-20	18-May-20	18-May-20	19-May-20	12-May-20	12-May-20	12-May-20	13-May-20	13-May-20	15-May-20
		Depth (ft toc)	**49**	**116**	**89**	**54**	**107**	**81.5**	**54**	**47**	**125**	**84.5**	**67**	**165**	**71**
General Chemistry (mg/L)	**GWPS**	**Background**													
Alkalinity, Total as CaCO3	-	NC	196	176	81.0	397	119	128	128	409	280	337	308	226	146
Alkalinity, Bicarbonate (CaCO3)	-	540	196	176	81.0	397	119	128	128	409	280	337	308	226	146
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Chloride	-	23	11.3 J	12.9 J	8.9 J	11.3 J	13.6 J	10.6 J	8.9 J	0.58 J	64.0 J	14.4 J	13.6 J	42.9 J	11.8 J
Fluoride	4	0.22	0.15 J	0.15 J	0.25 J	0.97 J	0.14 J	0.17 J	0.28 J	0.24 J	0.094 J	0.21 J	1.3 J	0.21 J	0.46 J
Sulfate	-	100	24.0 J	4.4 J	15.6 J	76.8 J	12.3 J	7.3	12.0 J	8.5 J	207	0.42 UJ	1.6 J	0.42 UJ	9.1 J
Total Dissolved Solids	-	610	152	220	131	572	194	164	179	437	796	387	371	321	198
pH (standard units)	-	6.3 - 7.4	7.4 J	7.3 J	7.4 J	7.2 J	7.3 J	7.1 J	7.5 J	6.8 J	7.1 J	6.7 J	6.9 J	6.8 J	7.2 J
Metals (ug/L)															
Antimony	6	2.5	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.12 J	0.077 U	0.12 J	0.077 U	0.077 U	0.077 U
Arsenic	10	6.1	**53.3**	0.15 J	2.0	2.0	0.42 J	5.4	6.2	0.70	0.81	2.8	7.9	3.8	6.9
Barium	2000	1000	289 J	337 J	177 J	212	309	222	212 J	294	117	550	221	413	295
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
Boron	-	340	552	96.8	360	7380	64.8	74.8	71.8	79.0	1950	320	1770	53.1	130
Cadmium	5	0.4	0.030 U	0.030 U	0.030 U	0.12	0.030 U	0.030 U	0.030 U	0.10	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U
Calcium	-	160000	56500	38200	25800	127000	33400	36700	34200	120000	133000	96400	72300	68600	41300
Chromium	100	2.5	0.28 U*	0.98 U*	0.36 U*	0.32 U*	0.31 U*	0.53 U*	0.30 U*	0.25 U*	0.27 U*	0.28 U*	0.21 U	0.23 U*	0.21 U
Cobalt	6 (a)	3.8	0.085 U	0.085 U	0.085 U	1.8	0.18 J	0.085 U	0.085 U	0.95	0.11 J	0.12 J	0.24 J	0.16 J	0.085 U
Copper	1300 (b)	1.0	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	1.7	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Lead	15 (a)(b)	0.075	0.046 U	0.046 U	0.12	0.14	0.046 U	0.046 U	0.046 U	0.046 U	0.15	0.046 U	0.046 U	0.046 U	0.046 U
Lithium	40 (a)	20	5.8	3.1	2.8	19.3	3.1	3.6	4.4	18.9	7.4	13.1	11.6	2.9	6.5
Magnesium	-	47000	16800	14600	6700	21600	11400	9860	8770	32400	36600	25700	18400	25600	12000
Mercury	2	0.2	0.075 U	0.075 U	0.075 U	0.093 U	0.093 U	0.093 U	0.075 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U
Molybdenum	100 (a)	1.0	9.4	2.1	57.4	83.8	0.88	1.0	2.2	1.8	0.95	2.3	38.7	1.2	3.3
Nickel	100 (c)	11.0	0.29 J	0.44 J	0.30 J	6.2	0.15 U	0.20 J	0.15 U	8.2	0.35 J	0.24 J	0.32 J	0.40 J	0.15 U
Potassium	-	3500	3640 J	2440 J	1870 J	3120	2300	2750	2280 J	2370	4600	3630	2250	2780	2990
Selenium	50	2.5	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.64	0.14 U	0.14 U	0.20 J	0.14 U	0.14 U
Silver	-	2.0	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
Sodium	-	21000	11600	14700	12800	72800	15000	12400	13000	4260	63100	15400	38200	11700	14700
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	0.31 J	0.27 U	0.41 J	0.39 J	0.27 U	0.27 U	0.27 U	0.39 J	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Zinc	-	7.8	5.6 U*	4.1 U*	7.7 U*	3.4 U*	4.4 U*	2.8 U*	2.9 U*	15.0 U*	3.9 U*	5.8 U*	16.2 U*	4.4 U*	2.4 U
Radium (pCi/L)															
Radium-226	-	NC	0.148+-0.410 U	0.510+-0.477 U	0.0767+-0.451 U	0.413+-0.431 U	0.113+-0.349 U	0.552+-0.575 U	-0.0659+-0.342 U	0.339+-0.509 U	0.315+-0.494 U	0.514+-0.480 U	0.583+-0.539 U	0.490+-0.420 U	0.435+-0.495 U
Radium-228	-	NC	0.333+-0.387 U	0.477+-0.342 U	0.557+-0.422 U	0.412+-0.437 U	0.299+-0.366 U	0.282+-0.427 U	-0.0971+-0.280 U	0.220+-0.392 U	0.759+-0.475 U	0.780+-0.394	1.19+-0.524	0.523+-0.490 U	0.947+-0.536 U
Total Radium	5	3.5	0.481+-0.564 U	0.987+-0.587 U	0.634+-0.618 U	0.825+-0.614 U	0.412+-0.506 U	0.834+-0.716 U	0.000+-0.442 U	0.559+-0.642 U	1.07+-0.685 U	1.29+-0.621 J	1.77+-0.752 J	1.01+-0.645 U	1.38+-0.730 U

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Table 5b
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - May 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	ALF213A	ALF213B	ALF214	ALF214A	ALF214B	ALF215	ALF216	ALF217	ALF217A	ALF217B	P4	P4S	PMW02A
		Sampling Date	15-May-20	15-May-20	13-May-20	13-May-20	13-May-20	13-May-20	12-May-20	14-May-20	14-May-20	14-May-20	18-May-20	18-May-20	19-May-20
		Depth (ft toc)	**157.75**	**116.8**	**45**	**130**	**88**	**25**	**50**	**60.75**	**187.75**	**126.8**	**77**	**41**	**29**
General Chemistry (mg/L)	**GWPS**	**Background**													
Alkalinity, Total as CaCO3	-	NC	99.2	295	255	175	191	241	459	334	279	358	86.7	141	179
Alkalinity, Bicarbonate (CaCO3)	-	540	99.2	295	255	175	191	241	459	334	279	358	86.7	141	2.0 U
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	104
Chloride	-	23	13.9 J	43.1 J	1.0 J	41.7 J	27.2 J	0.99 J	4.8 J	12.4 J	34.1 J	71.3 J	6.1	5.8 J	11.9 J
Fluoride	4	0.22	0.22 J	0.13 J	0.32 J	0.079 J	0.11 J	0.28 J	0.077 J	1.7 J	0.13 J	0.21 J	0.26 J	0.48 J	3.4 J
Sulfate	-	100	20.3 J	0.42 UJ	9.7 J	215 J	174 J	12.5 J	33.3 J	0.42 U	0.42 UJ	0.42 UJ	16.9 J	36.4 J	219 J
Total Dissolved Solids	-	610	174	387	294	644	572	264	522	393	372	486	149	221	690
pH (standard units)	-	6.3 - 7.4	6.8 J	7.3 J	7.0 J	6.4 J	6.7 J	7.2 J	6.7 J	7.3 J	7.0 J	7.0 J	7.1 J	7.3 J	10.2 J
Metals (ug/L)															
Antimony	6	2.5	0.077 U	0.077 U	0.17 J	0.077 U	0.077 U	0.12 J	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	1.2 J
Arsenic	10	6.1	4.1	3.3	0.34 J	0.87	3.5	0.44 J	5.9	**42.9**	9.4	**14.3**	2.0	2.2	**2820 J**
Barium	2000	1000	293	482	123	30.2	132	210	612	224	445	1020	118 J	57.5 J	20.9 J
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.057 J	0.054 U	0.27 U
Boron	-	340	44.6	24.2	238	103	119	69.5	200	1320	18.0	35.9	35.9	728	7330
Cadmium	5	0.4	0.030 U	0.030 U	0.084	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.035 J	1.1
Calcium	-	160000	28400	98000	67700	105000	91900	66300	131000	84600	93300	132000	27400	40600	3440 J
Chromium	100	2.5	0.21 U	0.29 U*	0.31 U*	0.22 U*	0.21 U	0.21 U	0.30 U*	0.35 U*	0.27 U*	0.21 U	0.22 U*	0.68 U*	1.6 U*
Cobalt	6 (a)	3.8	0.085 U	0.10 J	0.29 J	0.085 U	0.085 U	0.46 J	0.74	0.25 J	0.20 J	0.22 J	0.085 U	0.76	1.0 J
Copper	1300 (b)	1.0	0.81 J	0.43 U	0.43 U	0.43 U	0.43 U	2.0	0.43 U	0.46 J	49.7	0.43 U	0.43 U	0.43 U	31.0
Lead	15 (a)(b)	0.075	0.046 U	0.046 U	0.046 U	0.046 U	0.046 U	0.078 U*	0.046 U	0.046 U	0.046 U	0.046 U	0.12	0.11	14.8
Lithium	40 (a)	20	2.9 U	5.9 J	9.4	4.7	8.3	5.9	16.8	11.5	7.0	5.0	2.7	1.9	1.1 J
Magnesium	-	47000	10600	26700	16400	40200	31100	20600	39400	19100	21700	36500	7270 J	10500 J	95.3
Mercury	2	0.2	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.075 U	0.075 U	0.075 U
Molybdenum	100 (a)	1.0	1.1	1.1	2.4	0.38 J	0.28 J	5.3	0.24 J	21.5	0.63	0.67	2.2	11.6	**353 J**
Nickel	100 (c)	11.0	0.15 U	0.51	3.7	0.15 U	0.23 J	3.9	0.53	0.38 J	0.34 J	0.80	0.27 J	2.5	10.1
Potassium	-	3500	2570	3440	990	2840	2610	618	2900	4490	2220	3950	1710 J	2420 J	962 J
Selenium	50	2.5	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.46 J	0.14 U	0.31 J	0.14 U	0.14 U	0.14 U	0.14 U	2.7
Silver	-	2.0	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.38 U
Sodium	-	21000	13300	14600	6820	37100	30900	5100	7810	37600	12500	14700	9730	26900	187000 J
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.24 U
Vanadium	-	1.5	0.27 U	0.27 U	0.68 J	0.27 U	0.27 U	0.56 J	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	33.3 J
Zinc	-	7.8	2.7 U*	3.0 U*	2.4 U*	3.0 U*	4.1 U*	7.0 U*	3.5 U*	2.4 U	2.4 U*	3.2 U*	3.2 U*	6.3 U*	12.0 U
Radium (pCi/L)															
Radium-226	-	NC	0.605+-0.636 U	0.244+-0.339 U	0.194+-0.336 U	0.218+-0.473 U	0.316+-0.412 U	0.337+-0.399 U	0.409+-0.405 U	0.626+-0.597 U	0.559+-0.521 U	0.780+-0.596 U	-0.135+-0.418 U	0.917+-0.742 U	0.630+-0.877 U
Radium-228	-	NC	0.565+-0.476 U	0.581+-0.435 U	0.475+-0.444 U	0.280+-0.451 U	0.330+-0.452 U	0.303+-0.332 U	1.67+-0.563	0.834+-0.435	0.914+-0.526 U	1.13+-0.476	0.931+-0.576 U	0.554+-0.436 U	1.05+-0.626 U
Total Radium	5	3.5	1.17+-0.794 U	0.825+-0.551 U	0.669+-0.557 U	0.498+-0.654 U	0.646+-0.612 U	0.640+-0.519 U	2.08+-0.694 J	1.46+-0.739 J	1.47+-0.740 U	1.91+-0.763 J	0.931+-0.712 U	1.47+-0.861 U	1.68+-1.08 U

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Table 5b
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - May 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	PMW02A-F	PMW02B	PMW02C	PMW04A	PMW04B	PMW04C	PMW07A	PMW07B	PMW07C	PMW10A	PMW10B	PMW10C	PMW11A
		Sampling Date	19-May-20	19-May-20	19-May-20	15-May-20	15-May-20	15-May-20	18-May-20	18-May-20	19-May-20	13-May-20	13-May-20	13-May-20	14-May-20
		Depth (ft toc)	**29**	**54**	**124**	**29**	**57**	**124**	**24**	**55**	**117**	**32**	**68**	**148**	**27**
General Chemistry (mg/L)	**GWPS**	**Background**													
Alkalinity, Total as CaCO3	-	NC	NA	283	125	252	291	134	218	297	153	71.2	407	168	239
Alkalinity, Bicarbonate (CaCO3)	-	540	NA	283	125	252	291	134	39.9	297	153	71.2	407	168	239
Alkalinity, Carbonate (CaCO3)	-	NC	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	179	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Chloride	-	23	NA	13.0 J	13.7 J	11.5 J	17.1 J	13.1 J	11.9 J	12.9 J	13.1 J	10.7 J	9.2 J	14.7 J	9.2 J
Fluoride	4	0.22	NA	0.16 J	0.16 J	2.4 J	0.15 J	0.13 J	3.6 J	0.18 J	0.18 J	3.4 J	0.22 J	0.27 J	1.5 J
Sulfate	-	100	NA	27.6 J	9.7 J	160 J	94.8 J	20.5 J	186 J	58.1 J	5.3 J	96.7 J	0.42 UJ	37.3 J	89.0 J
Total Dissolved Solids	-	610	NA	392	183	616	556	197	660	420	194	302	444	264	455
pH (standard units)	-	6.3 - 7.4	NA	7.3 J	7.3 J	7.7 J	7.7 J	7.0 J	9.4 J	7.0 J	7.3 J	7.3 J	6.9 J	6.6 J	7.4 J
Metals (ug/L)															
Antimony	6	2.5	1.3 J	0.077 U	0.077 U	0.29 J	0.077 U	0.077 U	0.97	0.077 U	0.077 U	0.077 U	0.12 J	0.077 U	0.077 U
Arsenic	10	6.1	**3170 J**	**46.8**	0.33 J	**1300**	**40.1**	0.14 U	**1300**	4.3	1.0	**311**	**109**	0.57	**166**
Barium	2000	1000	17.2	163	203	73.7	437	310	37.2 J	205 J	271	70.2	293	202	157
Beryllium	4	0.5	0.27 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
Boron	-	340	7290	2400	163	6680	6890	115	7270	2870	262	3630	429	1790	3470
Cadmium	5	0.4	0.54	0.030 U	0.030 U	0.041 J	0.030 U	0.030 U	0.20	0.030 U	0.030 U	0.030 U	0.081 U*	0.030 U	0.030 U
Calcium	-	160000	3870 J	79700	35900	66000	121000	47500	18300	83900	41500	27600	117000	44600	56300 J
Chromium	100	2.5	1.2 J	0.42 U*	0.21 U	0.30 U*	0.28 U*	0.21 U	0.75 U*	0.36 U*	0.27 U*	0.32 U*	0.25 U*	0.21 U	0.30 U*
Cobalt	6 (a)	3.8	0.92 J	0.18 J	0.085 U	0.61	0.089 J	0.085 U	0.41 J	0.085 U	0.30 J	0.47 J	0.49 J	0.085 U	0.33 J
Copper	1300 (b)	1.0	12.3	0.43 U	0.43 U	2.7	1.2	0.43 U	15.3	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Lead	15 (a)(b)	0.075	7.4	0.076 J	0.046 U	0.046 U	0.046 U	0.046 U	3.1	0.063 J	0.046 U	0.046 U	0.18 U*	0.046 U	0.046 U
Lithium	40 (a)	20	0.72 U	9.4	2.3	9.2	13.7	3.1	2.0	8.3	3.5	6.4	9.9	1.6	7.8
Magnesium	-	47000	47.2 J	18000	9730	14000	30400	10700	2130 J	22500 J	12200	5640	25500	15900	13900
Mercury	2	0.2	0.075 U	0.075 U	0.075 U	0.093 U	0.093 U	0.093 U	0.075 U	0.075 U	0.075 U	0.093 U	0.093 U	0.093 U	0.093 U
Molybdenum	100 (a)	1.0	**411 J**	33.9	2.6	**872**	**245**	2.6	**834**	**136**	12.8	**244**	9.0	**284**	**155**
Nickel	100 (c)	11.0	10.3	0.40 J	0.16 J	6.9	0.28 J	0.15 U	4.3	0.30 J	0.83	1.7	0.54	0.15 U	0.78
Potassium	-	3500	1060	4010	1420	3180	2830	1930	2050 J	5630 J	2240	3230	6170	2050	2420
Selenium	50	2.5	2.4 J	0.14 U	0.14 U	0.32 J	0.14 U	0.14 U	1.6	0.14 U	0.14 U	0.20 J	0.14 U	0.14 U	0.16 J
Silver	-	2.0	0.38 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
Sodium	-	21000	216000 J	32300	15800	140000	16300	14900	200000	31300	16800	64800	16700	25800	68700
Thallium	2	0.5	0.24 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	38.0 J	1.1	0.27 U	4.0	0.27 U	0.27 U	37.8	0.72 J	0.27 U	0.83 J	0.49 J	0.27 U	0.50 J
Zinc	-	7.8	12.0 U	25.0 U*	3.5 U*	2.9 U*	3.5 U*	2.4 U	4.3 U*	6.2 U*	3.3 U*	5.9 U*	9.5 U*	4.8 U*	3.0 U*
Radium (pCi/L)															
Radium-226	-	NC	NA	0.658+-0.553 UJ	0.962+-0.704 UJ	0.439+-0.500 U	0.219+-0.656 U	-0.224+-0.382 U	0.000+-0.313 U	0.129+-0.472 U	0.403+-0.410 UJ	-0.0681+-0.311 U	0.132+-0.449 U	0.185+-0.320 U	-0.0755+-0.345 U
Radium-228	-	NC	NA	0.373+-0.449 UJ	0.462+-0.419 UJ	0.463+-0.537 U	1.41+-0.619	0.495+-0.441 U	0.0196+-0.454 U	0.441+-0.364 U	0.888+-0.452 U*	0.272+-0.475 U	0.863+-0.552 U	0.828+-0.488 U	0.154+-0.422 U
Total Radium	5	3.5	NA	1.03+-0.712 UJ	1.42+-0.819 UJ	0.902+-0.734 U	1.63+-0.902 J	0.495+-0.583 U	0.0196+-0.551 U	0.570+-0.596 U	1.29+-0.610 U*	0.272+-0.568 U	0.995+-0.712 U	1.01+-0.584 U	0.154+-0.545 U

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Table 5b
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - May 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	PMW11A-F	PMW11B	PMW11C	PMW14A	PMW14B	PMW14C
		Sampling Date	14-May-20	14-May-20	14-May-20	14-May-20	14-May-20	14-May-20
		Depth (ft toc)	**27**	**63**	**144**	**49**	**85**	**156**
General Chemistry (mg/L)	**GWPS**	**Background**						
Alkalinity, Total as CaCO3	-	NC	NA	303	166	319	281	146
Alkalinity, Bicarbonate (CaCO3)	-	540	NA	303	166	319	281	146
Alkalinity, Carbonate (CaCO3)	-	NC	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Chloride	-	23	NA	13.0 J	14.6 J	11.8 J	11.0 J	14.4 J
Fluoride	4	0.22	NA	1.2 J	0.40 J	1.0 J	0.18 J	0.16 J
Sulfate	-	100	NA	29.5 J	45.2 J	19.7 J	42.8 J	25.5 J
Total Dissolved Solids	-	610	NA	413	282	443	381	236
pH (standard units)	-	6.3 - 7.4	NA	7.4 J	7.1 J	7.2 J	7.1 J	6.9 J
Metals (ug/L)								
Antimony	6	2.5	0.077 U	0.077 U	0.077 U	0.080 J	0.077 U	0.077 U
Arsenic	10	6.1	**168**	**25.6**	1.9	**83.7**	**51.8**	0.20 J
Barium	2000	1000	148	373	124	120	770	228
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
Boron	-	340	3270	2830	1620	6020	1870	230
Cadmium	5	0.4	0.030 U	0.030 U	0.030 U	0.055 J	0.030 U	0.030 U
Calcium	-	160000	63200 J	71200	39200	55800	76300	38600
Chromium	100	2.5	0.28 J	0.21 U	0.24 U*	0.39 U*	0.21 U	0.21 U
Cobalt	6 (a)	3.8	0.36 J	0.12 J	0.085 U	3.0	0.092 J	0.085 U
Copper	1300 (b)	1.0	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Lead	15 (a)(b)	0.075	0.046 U	0.046 U	0.046 U	0.12	0.046 U	0.046 U
Lithium	40 (a)	20	7.4	10.1	1.8	6.0	5.7	2.8
Magnesium	-	47000	14000	20800	15000	15400	22600	14700
Mercury	2	0.2	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U	0.093 U
Molybdenum	100 (a)	1.0	**164**	**119**	**199**	44.1	1.9	7.6
Nickel	100 (c)	11.0	0.91 U*	0.15 U	0.15 U	6.6	0.15 U	0.15 U
Potassium	-	3500	2550	3620	1780	1290	4480	1760
Selenium	50	2.5	0.16 J	0.14 U	0.14 U	0.29 J	0.14 U	0.14 U
Silver	-	2.0	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
Sodium	-	21000	75000	30700	34400	63400	11400	12000
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	0.51 J	0.27 U	0.27 U	1.1	0.27 U	0.27 U
Zinc	-	7.8	2.5 U*	4.3 U*	2.7 U*	2.6 U*	2.7 U*	2.4 U
Radium (pCi/L)								
Radium-226	-	NC	NA	0.451+-0.382 U	0.0694+-0.317 U	0.139+-0.385 U	0.348+-0.745 U	0.000+-0.282 U
Radium-228	-	NC	NA	0.686+-0.472 U	0.705+-0.532 U	-0.0710+-0.443 U	0.699+-0.496 U	-0.0297+-0.447 U
Total Radium	5	3.5	NA	1.14+-0.607 U	0.774+-0.619 U	0.139+-0.587 U	1.05+-0.895 U	0.000+-0.529 U

Notes:

Well IDs are presented in the table without dashes (-) for data management purposes. Well IDs with dashes are equivalent to Well IDs withough dashes, i.e. ALF202 equals ALF-202.
GWPS - Groundwater Protection Standard
(a) No Maximum Contaminant Level (MCL) established. GWPS is based on Regional Screening Levels (RSLs) for certain metals recognized in the federal CCR Rule at 40 C.F.R. 257.95(h)(2) (see 83 Fed. Reg. 36435 (July 30, 2018)).`
(b) No MCL established. GWPS is based on lead and copper Action Levels established in the federal Lead and Copper Rule at 40 C.F.R. 141.80(c)(1)(2) (see 56 Fed. Reg. 26548 (June 7, 1991))
(c) GWPS is based on Tennessee MCL for Public Water Systems (see Title 69, Chapter 3, Part 1, TDEC Rule 0400-45-01-.06, February 17, 2019)
Dash (-) indicates no GWPS exists in the federal CCR Rule.
Background - site-specific background concentrations calculated as 95% Upper Tolerance Limits (UTLs) in accordance with USEPA Unified Guidance (see 2020 Background Analysis Report for Allen Fossil Plant, February 2021).
J - The result is estimated.
mg/L - milligrams per liter; ug/L - micrograms per liter; pCi/L - picocuries per liter
NA - Constituent was not analyzed.
NC - Background value was not calculated.
NR - Results for this constituent were not available at the time this table was published.
U - The analyte was not detected above the indicated reporting limit.
U* - The analyte was detected in an associated blank.
Sample analytical results that exceed the GWPS are shaded YELLOW.

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Table 5c
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - September 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	ACC1A	ACC3A	ACC5A	ACC5B	ALF201	ALF201A	ALF201B	ALF202	ALF202A	ALF202B	ALF203	ALF203A	ALF203B
		Sampling Date	2-Sep-20	2-Sep-20	2-Sep-20	1-Sep-20	2-Sep-20	3-Sep-20	3-Sep-20	1-Sep-20	8-Sep-20	8-Sep-20	2-Sep-20	9-Sep-20	10-Sep-20
		Depth (ft toc)	**165.5**	**126**	**139**	**55.5**	**49**	**126**	**89**	**43**	**145.5**	**89.5**	**52**	**118**	**89**
General Chemistry (mg/L)	**GWPS**	**Background**													
Alkalinity, Total as CaCO3	-	NC	300	417	248	463	536	257	273	111	225	208	200	118	164
Alkalinity, Bicarbonate (CaCO3)	-	540	300	417	248	463	536	257	273	111	225	208	2.0 U	118	164
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	133	2.0 U	2.0 U
Chloride	-	23	5.9	8.2	17.4	3.5	3.0	20.3	18.9	14.0	16.6	14.1	14.9	15.5	12.1
Fluoride	4	0.22	0.12	0.091	0.083	0.14	0.65	0.28 J	0.56 J	2.0	0.18	0.20	3.6	0.13	0.52
Sulfate	-	100	0.92 J	65.2 J	67.2 J	78.7 J	43.2	111 J	85.7 J	119	39.6	50.8	214	23.5	33.9
Total Dissolved Solids	-	610	312	546	388	638	626	493	451	392	335	362	758	188	249
pH (standard units)	-	6.3 - 7.4	7.2 J	7.0 J	7.3 J	7.1 J	7.1 J	7.2 J	7.1 J	7.7 J	7.0 J	7.0 J	10.1 J	7.0 J	7.2 J
Metals (ug/L)															
Antimony	6	2.5	0.077 UJ	0.077 UJ	0.077 UJ	0.077 UJ	0.20 J	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	1.5	0.077 U	0.077 U
Arsenic	10	6.1	1.9	0.30 J	1.9	0.24 J	0.41 J	0.38 J	2.5	**391**	0.98	2.9	**2190**	0.24 J	**24.4**
Barium	2000	1000	429 J	876 J	59.3 J	552 J	286 J	229	133	70.8 J	313 J	363 J	15.6 J	233 J	115
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.078 J	0.054 U	0.054 U
Boron	-	340	7.3 J	130	25.2	67.5	357	549	2790	5420	1390	1840	7070	288	957
Cadmium	5	0.4	0.030 U	0.030 U	0.030 U	0.030 U	0.040 J	0.030 U	0.030 U	0.057 J	0.030 U	0.030 U	0.99	0.030 U	0.030 U
Calcium	-	160000	54200	113000	62600	134000	155000	77900	71900	22800	53100	50100	5170	32200	52300
Chromium	100	2.5	0.28 U*	0.38 U*	0.43 U*	0.35 U*	0.41 U*	0.38 U*	0.27 U*	0.45 U*	0.29 U*	0.31 U*	1.6 U*	0.29 U*	0.31 U*
Cobalt	6 (a)	3.8	0.40 J	0.085 U	0.085 U	3.6	0.29 J	0.085 U	0.085 U	0.10 J	0.085 U	0.085 U	0.22 J	0.085 U	0.085 U
Copper	1300 (b)	1.0	0.43 U	0.43 U	0.43 U	0.44 J	0.52 J	0.43 U	0.43 U	1.1 U*	0.43 U	0.43 U	37.4	0.43 U	0.43 U
Lead	15 (a)(b)	0.075	0.043 U	0.043 U	0.043 U	0.088 U*	0.079 J	0.043 U	0.043 U	0.55	0.043 U	0.043 U	**28.9**	0.043 U	0.043 U
Lithium	40 (a)	20	1.2	6.3	2.5	18.0	17.0	4.8	16.9	6.5	3.0	4.7	0.62	1.8	9.1
Magnesium	-	47000	28500	38600	25800	34800	37700	22600	21700	4780	22500	17700	418	12500	11900
Mercury	2	0.2	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U
Molybdenum	100 (a)	1.0	0.48 J	0.22 J	0.26 J	0.15 J	78.4	9.5	**254**	**282**	**171**	**135**	**475**	1.4	**142**
Nickel	100 (c)	11.0	0.94	0.25 J	0.30 J	8.2	2.8	0.24 J	0.23 J	0.92	0.18 U	0.18 U	5.5	0.18 U	0.21 J
Potassium	-	3500	2340	3120	2510	2380	2130	3360	4180	2050 J	2730	2690	776	1380	1470
Selenium	50	2.5	0.14 U	0.14 U	0.14 U	0.14 U	4.5	0.14 U	0.14 U	0.26 J	0.14 U	0.14 U	6.3	0.14 U	0.14 U
Silver	-	2.0	0.077 U	0.077 U	0.077 U	0.077 U	0.10 U*	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.086 U*	0.077 U	0.077 U
Sodium	-	21000	9330	11600	11300	6110	20100	62400	41000	100000 J	19700	15200	182000	15400	17700
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	0.27 U	0.27 U	0.27 U	0.27 U	0.28 J	0.27 U	0.27 U	1.8	0.27 U	0.27 U	15.1	0.27 U	0.27 U
Zinc	-	7.8	3.3 U*	2.3 U	3.5 U*	5.4 U*	3.0 U*	2.3 U	2.7 U*	2.5 U*	2.8 U*	2.3 U	11.4 U	3.0 U*	2.3 U
Radium (pCi/L)															
Radium-226	-	NC	0.112+-0.465 U	1.01+-0.574	0.198+-0.434 U	0.165+-0.389 U	0.616+-0.612 U	0.541+-0.490 UJ	-0.231+-0.394 UJ	0.587+-0.595 U	0.569+-0.452 U	0.342+-0.404 U	0.255+-0.507 U	0.659+-0.596 U	0.000+-0.403 U
Radium-228	-	NC	0.639+-0.483 U	0.601+-0.647 U	0.708+-0.543 U	0.645+-0.540 U	0.385+-0.359 U	0.0547+-0.559 U	0.353+-0.566 U	-0.344+-0.397 U	0.0497+-0.586 U	0.467+-0.551 U	0.266+-0.424 U	0.378+-0.385 U	0.731+-0.407
Total Radium	5	3.5	0.751+-0.670 U	1.61+-0.865 J	0.906+-0.695 U	0.810+-0.666 U	1.00+-0.710 U	0.596+-0.743 UJ	0.353+-0.690 UJ	0.587+-0.715 U	0.619+-0.740 U	0.809+-0.683 U	0.520+-0.661 U	1.04+-0.710 U	0.731+-0.573 J

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Table 5c
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - September 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	ALF204	ALF204A	ALF204B	ALF205	ALF205A	ALF205B	ALF206	ALF210	ALF210-F	ALF210A	ALF210B	ALF212	ALF212A
		Sampling Date	3-Sep-20	10-Sep-20	10-Sep-20	3-Sep-20	9-Sep-20	9-Sep-20	2-Sep-20	1-Sep-20	1-Sep-20	2-Sep-20	2-Sep-20	1-Sep-20	3-Sep-20
		Depth (ft toc)	**49**	**116**	**89**	**54**	**107**	**86.5**	**54**	**47**	**47**	**125**	**84.5**	**67**	**165**
General Chemistry (mg/L)	**GWPS**	**Background**													
Alkalinity, Total as CaCO3	-	NC	188	185	117	379	124	132	137	406	NA	280	416	315	257
Alkalinity, Bicarbonate (CaCO3)	-	540	188	185	117	379	124	132	137	406	NA	280	416	315	257
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	NA	2.0 U	2.0 U	2.0 U	2.0 U
Chloride	-	23	13.0	14.8	11.9	11.7	15.8	10.2	10.8	0.68 J	NA	57.4	9.7	15.5	71.4
Fluoride	4	0.22	0.15	0.14	0.20	1.2	0.14	0.15	0.29	0.22	NA	0.081	0.18	1.5	0.14 J
Sulfate	-	100	22.6 J	5.7	11.5	93.9 J	12.2	14.9	13.4	8.2	NA	165 J	0.42 UJ	1.2	0.42 UJ
Total Dissolved Solids	-	610	285	227	167	584	192	195	199	439	NA	648	475	361	375
pH (standard units)	-	6.3 - 7.4	7.2 J	7.1 J	7.1 J	7.4 J	7.0 J	7.1 J	7.6 J	7.3 J	NA	7.1 J	7.0 J	7.2 J	7.0 J
Metals (ug/L)															
Antimony	6	2.5	0.077 U	0.077 U	0.077 U	0.17 J	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.084 J	0.077 U	0.077 U
Arsenic	10	6.1	**32.6**	0.24 J	1.8	0.66	0.50	4.5	7.5	1.5	0.66	1.0	1.9	**13.4**	4.1
Barium	2000	1000	219	296	193	165	293 J	231 J	222 J	292 J	264 J	120 J	522	229 J	463
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
Boron	-	340	403	88.6	382	5970	62.0	83.7	76.7	75.0	75.1 J	2030	220 J	1850	44.5
Cadmium	5	0.4	0.030 U	0.030 U	0.030 U	0.63	0.030 U	0.030 U	0.030 U	0.044 J	0.046 J	0.030 U	0.030 U	0.030 U	0.030 U
Calcium	-	160000	56200	46300	30100	99700	30100	35000	37500	125000	118000	111000	117000	69100	78900
Chromium	100	2.5	0.54 U*	0.20 U	0.24 U*	0.20 U	0.51 U*	0.38 U*	0.35 U*	0.29 U*	0.35 U*	0.38 U*	0.45 U*	0.32 U*	0.30 U*
Cobalt	6 (a)	3.8	0.085 U	0.085 U	0.085 U	0.64	0.085 U	0.085 U	0.085 U	2.3	2.0	0.085 U	0.11 J	0.26 J	0.30 J
Copper	1300 (b)	1.0	0.48 J	0.43 U	0.43 U	2.5	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Lead	15 (a)(b)	0.075	0.043 U	0.043 U	0.053 U*	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U
Lithium	40 (a)	20	5.0	2.9	3.0	16.9	2.7	3.7	4.4	20.0	18.6	7.5	14.0	11.8	2.8
Magnesium	-	47000	14600	13800	9620	17800	10700	10100	9370	30600	27200	29000	28200	19000	26700
Mercury	2	0.2	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U
Molybdenum	100 (a)	1.0	10.3	1.7	35.0	**101**	0.89	0.89	2.5	1.8	1.6	1.1	1.5	41.1	1.0
Nickel	100 (c)	11.0	0.76	0.18 U	0.18 J	5.7	0.25 J	0.18 U	0.18 U	3.8	3.3	0.23 J	0.27 J	0.34 J	0.85
Potassium	-	3500	3520	2280	1970	2810	2160	2710	2330	2450 J	2340	4380	3650	2520	2810
Selenium	50	2.5	0.14 U	0.14 U	0.14 U	0.33 J	0.14 U	0.14 U	0.14 U	0.88	0.68	0.14 U	0.14 U	0.22 J	0.14 U
Silver	-	2.0	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
Sodium	-	21000	11100	14200	14400	73600	14300	12400	12600	3520 J	3320	56800	10400	39300	10300
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	0.44 J	0.27 U	0.27 U	1.8	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Zinc	-	7.8	5.5 U*	3.2 U*	3.2 U*	5.6 U*	2.3 U	2.3 U	5.3 U*	2.8 U*	2.4 U*	5.1 U*	4.1 U*	2.3 U	2.9 U*
Radium (pCi/L)															
Radium-226	-	NC	0.117+-0.317 U	0.454+-0.425 U	0.279+-0.330 U	0.0655+-0.273 U	0.416+-0.389 U	0.597+-0.679 U	1.14+-0.766	0.142+-0.396 U	NA	0.737+-0.548	1.05+-0.594	0.115+-0.461 U	0.173+-0.407 UJ
Radium-228	-	NC	0.363+-0.353 U	0.158+-0.395 U	0.389+-0.650 U	0.273+-0.398 U	-0.0514+-0.570 U	0.294+-0.516 U	0.613+-0.389	0.942+-0.588	NA	0.225+-0.458 U	0.185+-0.388 U	0.459+-0.512 U	0.812+-0.516 U
Total Radium	5	3.5	0.480+-0.474 U	0.612+-0.580 U	0.668+-0.729 U	0.339+-0.482 U	0.416+-0.690 U	0.891+-0.853 U	1.76+-0.859	1.08+-0.709 J	NA	0.962+-0.714 J	1.24+-0.710 J	0.574+-0.689 U	0.985+-0.657 UJ

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Table 5c
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - September 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	ALF213	ALF213A	ALF213B	ALF214	ALF214A	ALF214B	ALF215	ALF216	ALF217	ALF217A	ALF217B	P4	P4S
		Sampling Date	3-Sep-20	8-Sep-20	8-Sep-20	2-Sep-20	2-Sep-20	2-Sep-20	2-Sep-20	1-Sep-20	9-Sep-20	9-Sep-20	9-Sep-20	9-Sep-20	9-Sep-20
		Depth (ft toc)	**71**	**157.75**	**116.75**	**45**	**130**	**88**	**25**	**50**	**60.75**	**187.75**	**126.75**	**77**	**41**
General Chemistry (mg/L)	**GWPS**	**Background**													
Alkalinity, Total as CaCO3	-	NC	307	101	328	283	175	242	264	418	345	302	258	120	184
Alkalinity, Bicarbonate (CaCO3)	-	540	307	101	328	283	175	242	264	418	345	302	258	120	184
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Chloride	-	23	11.7	16.6	54.0	1.4	35.1	30.3	1.1 J	3.5	14.2	52.8	58.6	9.6	9.5
Fluoride	4	0.22	0.24	0.19	0.10	0.26	0.061	0.12	0.24	0.072	1.4	0.094	0.10	0.25	0.34
Sulfate	-	100	0.76 J	22.8	0.42 U	11.6	278 J	239 J	14.8 J	34.8 J	0.42 U	0.42 U	0.42 U	30.7	72.0
Total Dissolved Solids	-	610	361	179	478	322	664	728	287	456	394	405	364	191	333
pH (standard units)	-	6.3 - 7.4	7.2 J	6.9 J	7.0 J	7.7 J	6.6 J	6.8 J	7.5 J	7.1 J	7.1 J	6.7 J	6.9 J	7.2 J	7.1 J
Metals (ug/L)															
Antimony	6	2.5	0.077 U	0.077 U	0.077 U	0.19 J	0.077 U	0.077 U	0.22 J	0.077 UJ	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
Arsenic	10	6.1	**47.7**	4.3	3.1	0.33 J	1.5	4.1	0.66	5.8	**45.2**	7.7	**12.3**	2.8	3.2
Barium	2000	1000	443	276 J	542 J	151 J	28.6 J	170 J	217 J	546 J	204 J	442 J	655 J	181 J	98.6 J
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
Boron	-	340	184	46.0	26.7	262	95.3	154	54.4	221	1290	23.2	45.5	66.0	384
Cadmium	5	0.4	0.030 U	0.030 U	0.030 U	0.10	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U
Calcium	-	160000	72900	26100	76800	86000	109000	121000	65800	112000	69500	75400	64900	43900	46400
Chromium	100	2.5	0.28 U*	0.30 U*	0.56 U*	0.38 U*	0.40 U*	0.50 U*	0.25 U*	0.33 U*	0.66 U*	0.36 U*	0.34 U*	0.67 U*	0.39 U*
Cobalt	6 (a)	3.8	0.090 J	0.085 U	0.54	0.40 J	0.085 U	0.085 U	1.8	0.61	0.25 J	0.23 J	0.15 J	0.085 U	0.86
Copper	1300 (b)	1.0	0.43 U	0.43 U	0.43 U	0.44 J	0.43 U	0.43 U	0.48 J	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Lead	15 (a)(b)	0.075	0.043 U	0.043 U	0.051 U*	0.043 U	0.043 U	0.043 U	0.070 U*	0.043 U	0.043 U	0.043 U	0.043 U	0.071 U*	0.043 U
Lithium	40 (a)	20	8.4	2.3	7.8	11.2	4.9	8.8	5.8	17.0	10.1	8.9	3.5	3.4	3.5
Magnesium	-	47000	21600	10200	27900	17900	36100	36100	20600	32300	17000	21100	24400	11100	16600
Mercury	2	0.2	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U
Molybdenum	100 (a)	1.0	2.3	0.99	0.66	2.1	0.44 J	0.26 J	3.3	0.25 J	23.1	0.86	0.65	2.3	5.2
Nickel	100 (c)	11.0	0.18 U	0.18 U	0.36 J	4.2	0.18 U	0.22 J	4.2	0.58	0.31 J	0.19 J	0.26 J	0.34 J	2.7
Potassium	-	3500	3890	2470	3650	1110	2920	3050	630 U*	2700	3960	2180	2870	2350	3140
Selenium	50	2.5	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.63	0.14 U	0.32 J	0.14 U	0.14 U	0.14 U	0.14 U
Silver	-	2.0	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
Sodium	-	21000	19900	12500	12100	7290	36300	32600	5120	6860	34200	15100	10200	13700	23100
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	0.27 U	0.27 U	0.27 U	0.68 J	0.27 U	0.27 U	1.0	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Zinc	-	7.8	4.7 U*	3.0 U*	5.8 U*	2.3 U*	2.3 U	2.7 U*	4.4 U*	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	5.0 U*
Radium (pCi/L)															
Radium-226	-	NC	0.954+-0.563	0.440+-0.540 U	0.256+-0.532 U	0.113+-0.312 U	0.627+-0.395	0.217+-0.513 U	0.105+-0.252 U	0.641+-0.474 U	0.169+-0.257 U	0.708+-0.470	0.332+-0.471 U	0.223+-0.386 U	-0.122+-0.414 U
Radium-228	-	NC	0.623+-0.442 U	0.0413+-0.589 U	0.280+-0.604 U	0.858+-0.600 U	0.357+-0.580 U	0.503+-0.460 U	0.938+-0.591 U	0.200+-0.502 U	0.358+-0.670 U	0.745+-0.722 U	0.819+-0.532 U	0.764+-0.413	0.226+-0.405 U
Total Radium	5	3.5	1.58+-0.716 J	0.481+-0.799 U	0.536+-0.805 U	0.971+-0.676 U	0.984+-0.702 J	0.720+-0.689 U	1.04+-0.642 U	0.841+-0.690 U	0.527+-0.718 U	1.45+-0.862 J	1.15+-0.711 U	0.987+-0.565 J	0.226+-0.579 U

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Table 5c
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - September 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	PMW02A	PMW02A-F	PMW02B	PMW02C	PMW04A	PMW04B	PMW04C	PMW07A	PMW07B	PMW07C	PMW10A	PMW10B
		Sampling Date	9-Sep-20	9-Sep-20	9-Sep-20	9-Sep-20	10-Sep-20	10-Sep-20	10-Sep-20	10-Sep-20	10-Sep-20	10-Sep-20	3-Sep-20	3-Sep-20
		Depth (ft toc)	**29**	**29**	**54**	**124**	**29**	**57**	**124**	**24**	**55**	**117**	**32**	**68**
General Chemistry (mg/L)	**GWPS**	**Background**												
Alkalinity, Total as CaCO3	-	NC	211	NA	297	119	117	312	121	225	292	132	79.3	401
Alkalinity, Bicarbonate (CaCO3)	-	540	2.0 U	NA	297	119	117	312	121	62.2	292	132	79.3	401
Alkalinity, Carbonate (CaCO3)	-	NC	172	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	162	2.0 U	2.0 U	2.0 U	2.0 U
Chloride	-	23	12.9	NA	15.5	15.3	15.8	17.2	15.0	12.7	15.6	14.4	12.9	12.2
Fluoride	4	0.22	2.9	NA	0.14	0.13	3.0	0.14	0.13	3.1	0.096	0.20	3.2 J	0.21 J
Sulfate	-	100	240	NA	15.7	21.0	211	65.0	25.6	194	59.8	10.2	110 J	0.53 J
Total Dissolved Solids	-	610	792	NA	384	185	566	471	196	602	411	173	340	236
pH (standard units)	-	6.3 - 7.4	10.1 J	NA	7.2 J	7.0 J	7.7 J	7.0 J	7.1 J	9.4 J	7.1 J	7.1 J	7.7 J	7.6 J
Metals (ug/L)														
Antimony	6	2.5	1.3	1.1	0.077 U	0.077 U	0.43 J	0.077 U	0.077 U	0.74	0.077 U	0.077 U	0.077 U	0.077 U
Arsenic	10	6.1	**2150**	**2380**	**66.5**	0.28 J	**3030**	**58.3**	0.14 U	**886**	**13.3**	1.8	**255**	**100**
Barium	2000	1000	21.9 J	16.0	152 J	202 J	41.9	320	227	33.1	161	188	77.4	252
Beryllium	4	0.5	0.062 J	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
Boron	-	340	10200	10900	1770	176	6100	3470	119	10900	2950	387	4070	364
Cadmium	5	0.4	0.68	0.29	0.030 U	0.030 U	0.11	0.030 U	0.030 U	0.11	0.030 U	0.030 U	0.040 J	0.030 U
Calcium	-	160000	5350	5100	47900	35600	24600	95500	34000	16000	81700	31000	27200	104000
Chromium	100	2.5	1.7 U*	1.1 U*	0.54 U*	1.2 U*	0.79 U*	0.68 U*	0.30 U*	0.50 U*	1.3 U*	0.39 U*	0.29 U*	0.51 U*
Cobalt	6 (a)	3.8	1.1	0.66	0.13 J	0.085 U	2.8	0.094 J	0.085 U	0.45 J	0.086 J	0.36 J	0.72	0.21 J
Copper	1300 (b)	1.0	31.7	19.0 U*	0.43 U	0.43 U	10.4	0.43 U	0.43 U	13.1	0.43 U	0.43 U	0.43 U	0.43 U
Lead	15 (a)(b)	0.075	7.9	4.0	0.043 U	0.043 U	0.50	0.043 U	0.043 U	1.2	0.043 U	0.047 U*	0.043 U	0.043 U
Lithium	40 (a)	20	0.67	0.44 J	7.4	2.1	4.3	12.1	2.1	2.8	7.6	3.7	6.4	8.9
Magnesium	-	47000	108	38.0 U*	16000	9680	4000	26600	8990	2630	20300	11700	5680	22300
Mercury	2	0.2	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U
Molybdenum	100 (a)	1.0	**603**	**578**	12.6	1.7	**474**	**156**	2.1	**574**	**142**	25.4	**259**	2.2
Nickel	100 (c)	11.0	7.3	6.5 U*	0.27 J	0.48 J	21.8	0.21 J	0.18 U	3.3	0.35 J	1.2	2.4	0.18 J
Potassium	-	3500	1530	1490 U*	3760	1320	3830	3080	1380	1890	4990	1820	3350	5550
Selenium	50	2.5	4.6	4.1	0.14 U	0.14 U	1.0	0.14 U	0.14 U	1.3	0.14 U	0.14 U	0.17 J	0.14 U
Silver	-	2.0	0.078 J	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
Sodium	-	21000	207000 J	241000 J	33800	14600	137000	17100	14300	191000	20900	16200	57100	15200
Thallium	2	0.5	0.047 U	0.052 J	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	51.2	47.3	0.82 J	0.27 U	5.0	0.27 U	0.27 U	26.7	0.63 J	0.27 U	0.70 J	0.27 U
Zinc	-	7.8	5.2 U*	2.6 U*	9.2 U*	3.4 U*	2.3 U	2.3 U	2.3 U	3.4 U*	2.7 U*	2.3 U	2.3 U	2.3 U
Radium (pCi/L)														
Radium-226	-	NC	0.337+-0.764 U	NA	0.0732+-0.334 U	0.639+-0.527 U	-0.0790+-0.360 U	1.17+-0.712	0.273+-0.379 U	0.000+-0.384 U	0.545+-0.375	-0.133+-0.321 U	-0.115+-0.319 UJ	-0.0586+-0.345 UJ
Radium-228	-	NC	0.291+-0.766 U	NA	0.883+-0.529 U	0.591+-0.520 U	0.204+-0.495 U	0.242+-0.378 U	0.854+-0.437	0.419+-0.380 U	-0.0373+-0.520 U	0.176+-0.503 U	-0.00419+-0.394 U	0.856+-0.550 U
Total Radium	5	3.5	0.628+-1.08 U	NA	0.956+-0.626 U	1.23+-0.740 U	0.204+-0.612 U	1.41+-0.806 J	1.13+-0.578 J	0.419+-0.540 U	0.545+-0.641 J	0.176+-0.597 U	0.000+-0.507 UJ	0.856+-0.649 UJ

Table 5c
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - September 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	PMW10C	PMW11A	PMW11B	PMW11C	PMW14A	PMW14B	PMW14C	Production Well #1
		Sampling Date	3-Sep-20	3-Sep-20	3-Sep-20	3-Sep-20	3-Sep-20	3-Sep-20	3-Sep-20	10-Sep-20
		Depth (ft toc)	**148**	**27**	**63**	**144**	**49**	**85**	**156**	**See Notes**
General Chemistry (mg/L)	**GWPS**	**Background**								
Alkalinity, Total as CaCO3	-	NC	199	229	225	168	306	312	143	85.3
Alkalinity, Bicarbonate (CaCO3)	-	540	199	229	225	168	306	312	143	85.3
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Chloride	-	23	16.4	9.5	16.3	19.3	13.4	12.2	16.1	1.8
Fluoride	4	0.22	0.17 J	2.4 J	1.7 J	0.31 J	1.1 J	0.12 J	0.13 J	0.076
Sulfate	-	100	47.8 J	91.6 J	51.9	96.5 J	48.3 J	29.1 J	27.7 J	2.1
Total Dissolved Solids	-	610	323	447	386	394	455	392	231	100
pH (standard units)	-	6.3 - 7.4	7.4 J	7.2 J	7.2 J	7.2 J	7.2 J	6.9 J	6.9 J	6.7 J
Metals (ug/L)										
Antimony	6	2.5	0.077 U	0.077 U	0.077 U	0.077 U	0.10 J	0.077 U	0.077 U	0.077 U
Arsenic	10	6.1	0.53	**111**	**14.6**	0.63	**81.9**	**66.2**	0.23 J	0.16 J
Barium	2000	1000	229	135	230	159	127	725	214	66.9
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
Boron	-	340	3270	3040	4410	5580	5500	1880	237	4.6 U
Cadmium	5	0.4	0.030 U	0.030 U	0.030 U	0.030 U	0.055 J	0.030 U	0.030 U	0.030 U
Calcium	-	160000	48600	48800	48900	47700	59900	82400	40300	16700
Chromium	100	2.5	0.37 U*	0.43 U*	0.25 U*	0.43 U*	0.38 U*	0.40 U*	0.23 U*	0.44 U*
Cobalt	6 (a)	3.8	0.085 U	1.1	0.092 J	0.085 U	3.5	0.14 J	0.085 U	0.085 U
Copper	1300 (b)	1.0	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.44 J
Lead	15 (a)(b)	0.075	0.043 U	0.043 U	0.043 U	0.043 U	0.11 U*	0.043 U	0.043 U	0.053 U*
Lithium	40 (a)	20	2.3	5.9	11.0	2.8	6.3	6.9	2.9	0.95
Magnesium	-	47000	18400	11900	13400	16000	15900	22900	13700	6810
Mercury	2	0.2	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U
Molybdenum	100 (a)	1.0	**344**	**169**	**225**	**318**	52.6	1.4	7.3	0.11 J
Nickel	100 (c)	11.0	0.18 U	1.6	0.18 U	0.48 J	6.7	0.18 J	0.18 U	0.21 J
Potassium	-	3500	2210	1900	2770	2180	1470	4650	1820	923
Selenium	50	2.5	0.14 U	0.16 J	0.14 U	0.14 U	0.24 J	0.14 U	0.14 U	0.14 U
Silver	-	2.0	0.077 U	0.077 U	0.12 J	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
Sodium	-	21000	26100	64600	43700	45100	60800	12600	11900	6420
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	0.27 U	0.73 J	0.46 J	0.27 U	0.92 J	0.27 U	0.27 U	0.27 U
Zinc	-	7.8	2.3 U	2.3 U	2.3 U*	2.3 U	2.3 U	3.7 U*	2.3 U	2.6 U*
Radium (pCi/L)										
Radium-226	-	NC	0.516+-0.518 UJ	0.339+-0.316 UJ	0.189+-0.327 UJ	0.300+-0.456 UJ	0.167+-0.256 UJ	0.378+-0.495 UJ	0.171+-0.371 UJ	-0.111+-0.345 U
Radium-228	-	NC	0.420+-0.421 U	0.590+-0.513 U	0.651+-0.612 U	1.10+-0.567	0.418+-0.491 U	0.918+-0.487	0.693+-0.434 U	0.550+-0.552 U
Total Radium	5	3.5	0.936+-0.668 UJ	0.929+-0.603 UJ	0.840+-0.694 UJ	1.40+-0.728 J	0.585+-0.554 UJ	1.30+-0.694 J	0.864+-0.571 UJ	0.550+-0.651 U

Notes:

Well IDs are presented in the table without dashes (-) for data management purposes. Well IDs with dashes are equivalent to Well IDs withough dashes, i.e. ALF202 equals ALF-202.

GWPS - Groundwater Protection Standard

(a) No Maximum Contaminant Level (MCL) established. GWPS is based on Regional Screening Levels (RSLs) for certain metals recognized in the federal CCR Rule at 40 C.F.R. 257.95(h)(2) (see 83 Fed. Reg. 36435 (July 30, 2018)).

(b) No MCL established. GWPS is based on lead and copper Action Levels established in the federal Lead and Copper Rule at 40 C.F.R. 141.80(c)(1)(2) (see 56 Fed. Reg. 26548 (June 7, 1991)).

(c) GWPS is based on Tennessee MCL for Public Water Systems (see Title 69, Chapter 3, Part 1, TDEC Rule 0400-45-01-.06, February 17, 2019).

Dash (-) indicates no GWPS exists in the federal CCR Rule.

Background - site-specific background concentrations calculated as 95% Upper Tolerance Limits (UTLs) in accordance with USEPA Unified Guidance (see 2020 Background Analysis Report for Allen Fossil Plant, February 2021).

J - The result is estimated.

mg/L - milligrams per liter; ug/L - micrograms per liter; pCi/L - picocuries per liter

NA - Constituent was not analyzed.

NC - Background value was not calculated.

NR - Results for this constituent were not available at the time this table was published.

U - The analyte was not detected above the indicated reporting limit.

U* - The analyte was detected in an associated blank.

Sample analytical results that exceed the GWPS are shaded YELLOW.

The Production Well No. 1 well screen in the Memphis aquifer is 503-603 feet below ground surface (bgs) and the well pump is positioned at approximately 170-190 ft bgs.

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Table 5d
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - December 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	ACC1A	ACC3A	ACC5A	ACC5B	ALF201	ALF201A	ALF201B	ALF202	ALF202A	ALF202B	ALF203	ALF203A
		Sampling Date	08-Dec-20	08-Dec-20	08-Dec-20	08-Dec-20	09-Dec-20	09-Dec-20	09-Dec-20	16-Dec-20	16-Dec-20	16-Dec-20	10-Dec-20	10-Dec-20
		Depth (ft toc)	**165.5**	**126**	**139**	**55.5**	**49**	**126**	**89**	**43**	**145.5**	**89.5**	**52**	**118**
General Chemistry (mg/L)	**GWPS**	**Background**												
Alkalinity, Total as CaCO3	-	NC	325	456	241	488	378	246	280	108	232	244	255	146
Alkalinity, Bicarbonate (CaCO3)	-	540	325	456	241	488	378	246	280	108	232	244	2.0 U	146
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	187	2.0 U
Chloride	-	23	8.0	7.9	22.3	2.3	9.4	23.8	21.4	15.0	16.8	15.1	14.0	21.1
Fluoride	4	0.22	0.15	0.12	0.11	0.20	0.84	0.39	0.61	2.9	0.21	0.20	**4.2**	0.20
Sulfate	-	100	1.8	37.2	75.7	39.1	71.0	137	89.4	134	40.2	84.3	278	31.0
Total Dissolved Solids	-	610	288	410	362	455	415	450	430	385	326	411	650	218
pH (standard units)	-	6.3 - 7.4	6.7 J	6.7 J	6.6 J	6.8 J	7.1 J	7.1 J	7.0 J	7.6 J	6.9 J	6.9 J	10.1 J	6.9 J
Metals (ug/L)														
Antimony	6	2.5	0.077 U	0.077 U	0.077 U	0.077 U	0.13 J	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	1.1	0.077 U
Arsenic	10	6.1	2.3	0.43 J	2.1	0.41 J	0.78	0.55	2.8	**463**	1.1	3.3	**1470**	0.27 J
Barium	2000	1000	502	832	65.8	598	217	192	136	58.9 J	325 J	479 J	14.4	256
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.067 J	0.054 U
Boron	-	340	10.1	295	24.2	69.9	2200	592	2700	5990 J	1580 J	2890 J	6360	281
Cadmium	5	0.4	0.030 U	0.030 U	0.030 U	0.030 U	0.27	0.030 U	0.030 U	0.092	0.031 J	0.030 U	0.60	0.030 U
Calcium	-	160000	62000	104000	71500	136000	104000	74700	76900	19900	60600	85800	5140	36400
Chromium	100	2.5	0.46 U*	0.42 U*	2.5	0.68 U*	0.40 U*	0.46 U*	0.24 U*	0.61 U*	0.58 U*	0.34 U*	1.3 U*	0.43 U*
Cobalt	6 (a)	3.8	0.56	0.085 U	0.085 U	3.5	1.1	0.085 U	0.085 U	0.12 J	0.085 U	0.085 U	0.26 J	0.085 U
Copper	1300 (b)	1.0	0.58 J	0.43 U	0.43 U	0.58 J	0.72 J	0.43 U	0.43 U	1.8	0.43 U	0.43 U	17.4	0.43 U
Lead	15 (a)(b)	0.075	0.043 U	0.049 U*	0.043 U	0.083 U*	0.043 U	0.074 J	0.043 U	0.55	0.10	0.043 U	**21.3**	0.043 U
Lithium	40 (a)	20	1.4	7.2	3.1	20.3	17.6	5.1	20.7	5.8 J	3.4 J	5.5 J	0.81	1.8
Magnesium	-	47000	33600	40400	29200	34900	25400	21100	22900	6680 J	23900 J	24600 J	356	13700
Mercury	2	0.2	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U
Molybdenum	100 (a)	1.0	0.60	0.35 J	0.46 J	0.19 J	109	9.9	**278**	**314**	**179**	**132**	**291**	1.2
Nickel	100 (c)	11.0	1.5 U*	0.25 U*	1.2 U*	6.0 U*	12.9	0.35 J	0.27 J	1.4	0.22 J	0.20 J	2.6	0.18 U
Potassium	-	3500	2680	3260	2840	2100	2340	3090	4170	1830	2620	3010	803	1430
Selenium	50	2.5	0.14 U	0.14 U	0.14 U	0.14 U	0.24 J	0.14 U	0.14 U	0.30 J	0.14 U	0.14 U	2.4 J	0.14 U
Silver	-	2.0	0.077 UJ	0.077 UJ	0.077 UJ	0.077 UJ	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 UJ	0.077 UJ
Sodium	-	21000	11100	12200	12900	6420	32900	58900	45500	90900	20300	17600	218000	16900
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	0.27 U	0.27 U	0.27 U	0.27 U	0.36 J	0.27 U	0.27 U	2.0	0.27 U	0.27 U	9.4	0.27 U
Zinc	-	7.8	5.8 U*	2.5 U*	2.5 U*	3.9 U*	2.3 U*	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
Radium (pCi/L)														
Radium-226	-	NC	0.588+-0.551 U	1.29+-0.710	0.407+-0.633 U	0.391+-0.448	0.243+-0.553 U	0.242+-0.415 U	-0.0905+-0.588 U	0.115+-0.263 U	0.531+-0.389 U*	0.422+-0.395 U	0.111+-0.267 U	0.399+-0.489 U
Radium-228	-	NC	0.0573+-0.532 UJ	0.497+-0.646 UJ	0.0901+-0.550 UJ	0.153+-0.549 UJ	-0.186+-0.434 UJ	0.940+-0.511 UJ	0.716+-0.567 UJ	0.0718+-0.397 U	0.762+-0.435 U	0.301+-0.403 U	0.674+-0.597 UJ	0.577+-0.460 UJ
Total Radium	5	3.5	0.645+-0.766 UJ	1.79+-0.960 J	0.497+-0.839 UJ	0.544+-0.709 J	0.243+-0.703 UJ	1.18+-0.658 UJ	0.716+-0.817 UJ	0.187+-0.476 U	1.29+-0.584 U*	0.723+-0.564 U	0.785+-0.654 UJ	0.976+-0.671 UJ

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Table 5d
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - December 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	ALF203B	ALF204	ALF204A	ALF204B	ALF205	ALF205A	ALF205B	ALF206	ALF210	ALF210-F	ALF210A	ALF210B	ALF212
		Sampling Date	10-Dec-20	16-Dec-20	16-Dec-20	16-Dec-20	15-Dec-20	15-Dec-20	15-Dec-20	10-Dec-20	08-Dec-20	08-Dec-20	08-Dec-20	08-Dec-20	09-Dec-20
		Depth (ft toc)	**89**	**49**	**116**	**89**	**54**	**107**	**81.5**	**54**	**47**	**47**	**125**	**84.5**	**67**
General Chemistry (mg/L)	**GWPS**	**Background**													
Alkalinity, Total as CaCO3	-	NC	178	200	185	115	292	125	113	127	415	NA	300	464	298
Alkalinity, Bicarbonate (CaCO3)	-	540	178	200	185	115	292	125	113	127	415	NA	300	464	298
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	NA	2.0 U	2.0 U	2.0 U
Chloride	-	23	14.7	13.2	15.4	11.7	13.3	15.2	10.4	12.7	0.83 J	NA	74.5	10.7	17.1
Fluoride	4	0.22	0.87	0.16	0.18	0.24	1.5	0.18	0.20	0.40	0.31	NA	0.085 J	0.25	1.9
Sulfate	-	100	52.6	19.7	3.6	16.8	112	13.2	16.8	21.4	9.8	NA	247	0.42 U	3.5
Total Dissolved Solids	-	610	278	243	221	160	518	173	168	200	385	NA	645	515	310
pH (standard units)	-	6.3 - 7.4	7.0 J	7.0 J	7.0 J	7.0 J	7.1 J	6.9 J	6.9 J	6.9 J	6.8 J	NA	6.8 J	6.9 J	7.1 J
Metals (ug/L)															
Antimony	6	2.5	0.077 U	0.077 U	0.077 U	0.077 U	0.11 J	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.13 J	0.081 J	0.077 U
Arsenic	10	6.1	**28.0**	**53.9**	0.30 J	3.0	0.74	0.45 J	4.1	7.8	2.5	1.1	0.49 J	1.8	**14.6**
Barium	2000	1000	149	266 J	312 J	200 J	142	298	204	204	338	316 J	255	562	210
Beryllium	4	0.5	0.054 U	0.054 U	0.057 J	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
Boron	-	340	1290	505 J	105 J	495 J	6520	65.4	98.8	83.2	80.3	80.4	219	231	1940
Cadmium	5	0.4	0.030 U	0.030 U	0.030 U	0.030 U	0.15	0.030 U	0.030 U	0.030 U	0.048 J	0.051 J	0.26	0.030 U	0.030 U
Calcium	-	160000	56600	52100	43900	28500	82500	30500	30100	35200	120000	117000	120000	118000	65200
Chromium	100	2.5	0.41 U*	0.42 U*	0.39 U*	0.46 U*	0.47 U*	0.43 U*	0.29 U*	0.33 U*	0.45 U*	0.34 U*	0.46 U*	0.39 U*	0.49 U*
Cobalt	6 (a)	3.8	0.085 U	0.085 U	0.085 U	0.085 U	0.22 J	0.085 U	0.085 U	0.085 U	3.4	3.2	0.16 J	0.13 J	0.24 J
Copper	1300 (b)	1.0	0.43 U	0.43 U	0.43 U	0.43 U	1.3	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Lead	15 (a)(b)	0.075	0.093 J	0.043 U	0.093 J	0.047 J	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.062 J	1.3
Lithium	40 (a)	20	9.8	5.8 J	3.4 J	2.9 J	14.5	3.1	3.6	4.5	20.2	20.8	18.0	15.1	11.9
Magnesium	-	47000	13200	15400 J	14200 J	8610 J	14400	10800	8610	8980	27800	27000	29200	30400	16300
Mercury	2	0.2	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U
Molybdenum	100 (a)	1.0	**154**	24.1	2.1	49.6	**133**	1.0	1.1	2.5	2.0	2.0	1.5	1.4	43.8
Nickel	100 (c)	11.0	0.33 J	0.22 J	0.18 U	0.29 J	4.3	0.20 J	0.18 U	0.18 U	3.3	3.1	8.0	0.26 J	0.44 J
Potassium	-	3500	1620	3210	2180	1860	2550	2230	2500	2170	2680	2560	2140	3790	2420
Selenium	50	2.5	0.14 U	0.14 U	0.14 U	0.14 U	0.50	0.14 U	0.14 U	0.14 U	0.41 J	0.34 J	0.14 U	0.14 U	0.20 J
Silver	-	2.0	0.077 UJ	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 UJ	0.077 U	0.078 U*	0.077 U	0.080 J	0.077 U
Sodium	-	21000	19500	12000	14400	14000	80200	14700	12100	12700	3470	3280	7280	11000	39700
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	0.27 U	0.73 J	0.27 U	0.27 U	1.3	0.27 U	0.27 U	0.27 U	0.49 J	0.27 U	0.80 J	0.27 U	0.27 U
Zinc	-	7.8	2.3 U	2.3 U	11.8 U*	4.2 U*	3.1 U*	6.0 U*	2.3 U	2.3 U	2.3 U	2.7 U*	3.4 U*	2.3 U	11.0 U*
Radium (pCi/L)															
Radium-226	-	NC	0.0597+-0.388 U	0.262+-0.241	0.520+-0.497 U	0.0960+-0.219 U	0.525+-0.549 UJ	0.465+-0.394 UJ	0.217+-0.262 UJ	-0.107+-0.418 U	0.245+-0.480 U	NA	0.335+-0.384	0.647+-0.514 U	0.0143+-0.460 U
Radium-228	-	NC	0.325+-0.436 UJ	0.0955+-0.307 U	0.946+-0.506	0.226+-0.379 U	-0.0904+-0.362 U	0.321+-0.321 U	0.776+-0.431 U	0.0282+-0.348 U	0.171+-0.424 U	NA	0.838+-0.673 U	1.51+-0.622	0.802+-0.502 UJ
Total Radium	5	3.5	0.385+-0.584 UJ	0.358+-0.390 J	1.47+-0.709 J	0.322+-0.438 U	0.525+-0.658 UJ	0.786+-0.508 UJ	0.993+-0.504 UJ	0.0282+-0.544 U	0.416+-0.640 U	NA	1.17+-0.775 J	2.16+-0.807 J	0.816+-0.681 UJ

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Table 5d
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - December 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	ALF212A	ALF213	ALF213A	ALF213B	ALF214	ALF214A	ALF214B	ALF215	ALF216	ALF217	ALF217A	ALF217B	P4
		Sampling Date	09-Dec-20	15-Dec-20	15-Dec-20	15-Dec-20	08-Dec-20	09-Dec-20	09-Dec-20	09-Dec-20	08-Dec-20	09-Dec-20	10-Dec-20	10-Dec-20	15-Dec-20
		Depth (ft toc)	**165**	**71**	**157.75**	**116.75**	**45**	**140**	**88**	**25**	**50**	**60.8**	**187.8**	**126.8**	**77**
General Chemistry (mg/L)	**GWPS**	**Background**													
Alkalinity, Total as CaCO3	-	NC	253	240	110	331	438	192	334	242	424	352	297	280	134
Alkalinity, Bicarbonate (CaCO3)	-	540	253	240	110	331	438	192	334	242	424	352	297	280	134
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Chloride	-	23	64.3	13.8	17.7	53.7	2.6	35.3	27.9	0.38 J	4.4	16.5	81.3	65.4	9.7
Fluoride	4	0.22	0.18	0.27	0.22	0.11	0.30	0.088	0.14	0.38	0.095	2.6	0.13	0.14	0.26
Sulfate	-	100	0.42 U	2.4	22.3	0.42 U	26.4	363	233	7.7	42.9	0.42 U	0.42 U	0.42 U	44.4
Total Dissolved Solids	-	610	285	265	185	408	350	705	670	250	435	384	385	362	220
pH (standard units)	-	6.3 - 7.4	6.7 J	6.9 J	6.8 J	6.9 J	7.0 J	6.5 J	6.7 J	7.0 J	6.7 J	7.2 J	6.6 J	6.9 J	7.1 J
Metals (ug/L)															
Antimony	6	2.5	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.079 J	0.077 U	0.077 U	0.11 J	0.077 J	0.077 U
Arsenic	10	6.1	4.0	**47.1**	3.8	3.7	1.2	1.5	4.2	1.1	5.7	**56.3**	9.7	**13.4**	2.6
Barium	2000	1000	404	373	316	524	146	29.9	164	185	533	217	490	731	186
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.058 J
Boron	-	340	45.1	188	42.2	28.0	2050	99.5	240	38.3	203	1330	29.5	49.2	77.0
Cadmium	5	0.4	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U
Calcium	-	160000	65800	54200	31600	102000	133000	125000	129000	60100	118000	80000	105000	84700	45400
Chromium	100	2.5	0.42 U*	0.50 U*	0.43 U*	0.55 U*	0.76 U*	0.43 U*	1.1 U*	0.29 U*	0.49 U*	0.31 U*	0.62 U*	0.39 U*	0.50 U*
Cobalt	6 (a)	3.8	0.27 J	0.094 J	0.085 U	0.21 J	0.085 U	0.085 U	0.085 U	1.5	0.62	0.27 U*	0.59	0.26 J	0.085 U
Copper	1300 (b)	1.0	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Lead	15 (a)(b)	0.075	0.043 U	0.043 U	0.043 U	0.043 U	0.12	0.043 U	0.043 U	0.048 J	0.043 U	0.043 U	0.094 J	0.066 J	0.063 J
Lithium	40 (a)	20	2.8	7.3	2.5	6.9	9.3	6.2	10.1	6.2	17.3	11.6	9.5	3.9	3.7
Magnesium	-	47000	23200	17400	11200	26500	36700	41100	38900	19200	34100	17900	24100	26400	11400
Mercury	2	0.2	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U
Molybdenum	100 (a)	1.0	1.2	2.5	1.2	1.3	1.2	0.64	0.32 J	3.0	0.25 J	26.1	1.7	0.94	2.2
Nickel	100 (c)	11.0	0.70	1.5	0.19 J	0.49 J	0.40 J	0.20 J	0.60	3.2	0.48 U*	0.34 J	1.1	0.53	0.27 J
Potassium	-	3500	2480	3430	2460	3480	5040	3180	3080	523	2760	4050	2360	3060	2460
Selenium	50	2.5	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.37 J	0.14 U	0.14 U	0.14 U
Silver	-	2.0	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 UJ	0.077 U	0.077 UJ	0.077 UJ	0.077 U
Sodium	-	21000	10600	18200	13700	12000	64900	38600	30700	3030	7250	37600	15600	11700	15300
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	0.27 U	0.27 J	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.34 J	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Zinc	-	7.8	2.3 U	2.3 U	2.3 U	2.3 U*	3.5 U*	2.3 U*	2.3 U	2.3 U	2.3 U	2.3 U	6.9 U*	4.4 U*	2.9 U*
Radium (pCi/L)															
Radium-226	-	NC	0.903+-0.635	0.0528+-0.343 UJ	0.122+-0.416 UJ	0.888+-0.541 J	0.249+-0.671 U	0.103+-0.442 U	0.409+-0.550 U	0.751+-0.498	0.335+-0.520 U	0.215+-0.489 U	0.427+-0.470 U	1.15+-0.592	0.000+-0.301 UJ
Radium-228	-	NC	0.532+-0.390 UJ	0.138+-0.396 U	0.246+-0.388 U	0.770+-0.522 U	0.309+-0.590 U	0.146+-0.430 UJ	0.563+-0.466 UJ	0.221+-0.542 U	1.31+-0.604 J	0.189+-0.312 UJ	1.37+-0.562 J	1.01+-0.420 J	0.565+-0.437 U
Total Radium	5	3.5	1.44+-0.745 J	0.191+-0.524 UJ	0.368+-0.569 UJ	1.66+-0.752 J	0.558+-0.893 U	0.249+-0.617 UJ	0.972+-0.721 UJ	0.972+-0.736 J	1.65+-0.797 J	0.404+-0.580 UJ	1.8+-0.733 J	2.16+-0.726 J	0.565+-0.531 UJ

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Table 5d
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - December 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	P4S	PMW02A	PMW02B	PMW02C	PMW04A	PMW04B	PMW04C	PMW07A	PMW07B	PMW07C	PMW10A	PMW10B
		Sampling Date	15-Dec-20	15-Dec-20	15-Dec-20	15-Dec-20	14-Dec-20	14-Dec-20	14-Dec-20	16-Dec-20	16-Dec-20	16-Dec-20	09-Dec-20	09-Dec-20
		Depth (ft toc)	**41**	**29**	**54**	**124**	**29**	**57**	**124**	**24**	**55**	**117**	**125**	**63**
General Chemistry (mg/L)	**GWPS**	**Background**												
Alkalinity, Total as CaCO3	-	NC	261	135	339	127	121	309	148	228	303	126	91.7	397
Alkalinity, Bicarbonate (CaCO3)	-	540	261	135	339	127	121	309	148	2.0 U	303	126	91.7	397
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	207	2.0 U	2.0 U	2.0 U	2.0 U
Chloride	-	23	8.4	15.0	17.3	15.7	17.1	18.1	17.8	11.4	17.1	15.8	15.3	15.8
Fluoride	4	0.22	0.40	3.4	0.17	0.16	**4.1**	0.22	0.16	3.1	0.17	0.23	**4.5**	0.26
Sulfate	-	100	88.9	225	29.4	22.6	248	53.8	30.1	216	72.5	17.4	146	0.42 U
Total Dissolved Solids	-	610	423	566	415	194	544	427	223	648	451	192	324	385
pH (standard units)	-	6.3 - 7.4	7.0 J	7.7 J	7.1 J	7.0 J	7.3 J	7.0 J	7.1 J	9.3 J	6.9 J	6.8 J	7.4 J	7.0 J
Metals (ug/L)														
Antimony	6	2.5	0.34 J	0.64	0.077 U	0.077 U	0.35 J	0.077 U	0.077 U	0.91	0.077 U	0.077 U	0.088 J	0.077 U
Arsenic	10	6.1	1.7	**2570**	**107**	0.34 J	**1650**	**78.6**	0.14 U	**978**	**14.7**	1.8	**260**	**97.3**
Barium	2000	1000	131	72.1	212	236	66.9	346	304	40.7 J	216 J	206 J	79.7	292
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
Boron	-	340	1840	7750	2470	164	7210	2870	117	12400 J	3480 J	399 J	4840	911
Cadmium	5	0.4	0.42	0.25	0.030 U	0.030 U	0.11	0.030 U	0.030 U	0.27	0.043 J	0.030 U	0.048 J	0.030 U
Calcium	-	160000	73400	24400	88900	39200	36500	92200	522000	12600	93300	28700	30200	97700
Chromium	100	2.5	0.36 U*	0.70 U*	0.50 U*	1.0 U*	0.42 U*	0.46 U*	0.34 U*	0.80 U*	0.53 U*	0.46 U*	0.41 U*	0.49 U*
Cobalt	6 (a)	3.8	0.29 J	0.78	0.18 J	0.085 U	4.5	0.10 J	0.085 U	0.48 J	0.12 J	0.30 J	0.91	0.26 J
Copper	1300 (b)	1.0	1.2	4.3	0.52 J	0.43 U	4.5	0.43 U	0.43 U	17.6	0.43 U	0.43 U	2.7	0.43 U
Lead	15 (a)(b)	0.075	0.043 U	0.48	0.093 J	0.043 U	0.043 U	0.043 U	0.058 J	2.1	0.086 J	0.080 J	0.091 J	0.043 U
Lithium	40 (a)	20	3.7	4.2	10	2.2	7.6	11.5	3.1	2.4 J	7.7 J	3.3 J	8.1	9.9
Magnesium	-	47000	17400	2330	21600	10800	5510	25400	11700	982 J	22900 J	12700 J	6430	20900
Mercury	2	0.2	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U
Molybdenum	100 (a)	1.0	7.3	**549**	30.6	1.8	**475**	**135**	1.7	**436**	**225**	24.0	**322**	2.7
Nickel	100 (c)	11.0	4.1	9.3	0.45 J	0.20 J	17.1	0.21 J	0.20 J	3.7	0.39 J	1.3	3.7	0.27 J
Potassium	-	3500	3960	6070	4500	1420	5410	3600	1650	1830	5380	1610	3830	5510
Selenium	50	2.5	0.24 J	2.4	0.14 U	0.14 U	0.76	0.14 U	0.14 U	2.0	0.14 U	0.14 U	0.41 J	0.14 U
Silver	-	2.0	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
Sodium	-	21000	50100	165000	41900	15700	121000	18100	14100	197000	23500	14700	75000	19400
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	2.9	3.3	0.82 J	0.27 U	3.6	0.28 J	0.27 U	22.1	0.82 J	0.27 U	1.4	0.36 J
Zinc	-	7.8	20.1 U*	4.3 U*	46.4	3.3 U*	2.3 U	2.3 U	2.3 U	2.9 U*	6.0 U*	4.1 U*	2.3 U	2.3 U
Radium (pCi/L)														
Radium-226	-	NC	0.120+-0.288 UJ	-0.292+-0.304 UJ	-0.0655+-0.426 UJ	0.313+-0.443 UJ	0.0670+-0.348 U	0.165+-0.446 U	0.295+-0.418 U	0.381+-0.299 U*	0.116+-0.265 U	0.360+-0.305 U	0.420+-0.639 U	0.0763+-0.496 U
Radium-228	-	NC	0.148+-0.390 U	0.0593+-0.310 U	0.531+-0.360 U	0.504+-0.372 U	0.00209+-0.355 UJ	0.191+-0.343 UJ	0.374+-0.345 UJ	0.581+-0.556 U	0.171+-0.345 U	0.339+-0.484 U	0.00785+-0.418 U	0.639+-0.451 U
Total Radium	5	3.5	0.268+-0.485 UJ	0.0593+-0.434 UJ	0.531+-0.558 UJ	0.817+-0.578 UJ	0.0691+-0.497 UJ	0.356+-0.563 UJ	0.669+-0.542 UJ	0.962+-0.631 U*	0.287+-0.435 U	0.699+-0.572 U	0.428+-0.764 U	0.715+-0.670 U

Table 5d
Groundwater Analytical Data (ALF and ACC Monitoring Wells) - December 2020
TVA Allen Fossil Plant
Memphis, Tennessee

		Location	PMW10C	PMW11A	PMW11B	PMW11C	PMW14A	PMW14B	PMW14C	Production Well #1
		Sampling Date	09-Dec-20	16-Dec-20	16-Dec-20	16-Dec-20	10-Dec-20	10-Dec-20	10-Dec-20	8-Dec-20
		Depth (ft toc)	**148**	**27**	**63**	**144**	**49**	**85**	**156**	**See Notes**
General Chemistry (mg/L)	**GWPS**	**Background**								
Alkalinity, Total as CaCO3	-	NC	210	272	181	165	311	320	163	88.3
Alkalinity, Bicarbonate (CaCO3)	-	540	210	272	181	165	311	320	163	88.3
Alkalinity, Carbonate (CaCO3)	-	NC	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Chloride	-	23	19.6	10.9	16.2	22.2	16.6	14.5	17.2	2.3
Fluoride	4	0.22	0.24	2.1	2.1	0.33	1.4	0.14	0.18	0.13
Sulfate	-	100	62.6	84.4	79.6	80.7	56.2	33.6	19.5	2.8
Total Dissolved Solids	-	610	310	438	361	356	436	390	229	97.0
pH (standard units)	-	6.3 - 7.4	6.8 J	8.0 J	7.2 J	7.0 J	7.0 J	6.8 J	6.7 J	6.7 J
Metals (ug/L)										
Antimony	6	2.5	0.077 U	0.077 U	0.077 U	0.077 U	0.14 J	0.077 U	0.077 U	0.077 U
Arsenic	10	6.1	0.73	**147**	**16.7**	0.89	**84.5**	**74.2**	0.20 J	0.15 J
Barium	2000	1000	267	203 J	179 J	169 J	151	692	226	76.4
Beryllium	4	0.5	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.059 J	0.054 U
Boron	-	340	2900	3970 J	5270 J	7800 J	7000	1620	415	6.4 U*
Cadmium	5	0.4	0.030 U	0.075 J	0.054 J	0.045 J	0.076 J	0.030 U	0.030 U	0.030 U
Calcium	-	160000	56700	70400	36500	48000	67600	82200	41100	18700
Chromium	100	2.5	0.38 U*	0.39 U*	0.34 U*	0.36 U*	0.35 U*	0.40 U*	0.52 U*	1.2 U*
Cobalt	6 (a)	3.8	0.085 U	0.47 J	0.085 U	0.085 U	4.0	0.15 J	0.085 U	0.085 U
Copper	1300 (b)	1.0	0.43 U	0.66 J	0.43 U	0.43 U	0.59 J	0.43 U	0.43 U	0.43 U
Lead	15 (a)(b)	0.075	0.043 U	0.043 U	0.043 U	0.043 U	0.24	0.043 U	0.043 U	0.043 U
Lithium	40 (a)	20	3.0	8.3 J	10.8 J	3.4 J	8.5	7.0	3.1	1.1
Magnesium	-	47000	21000	16300 J	11000 J	17300 J	17300	22000	14100	7480
Mercury	2	0.2	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U
Molybdenum	100 (a)	1.0	**347**	**191**	**334**	**380**	62.6	1.5	2.7	0.12 J
Nickel	100 (c)	11.0	0.18 U	0.99	0.18 J	0.20 J	7.5	0.28 J	0.22 J	0.67 U*
Potassium	-	3500	2410	2610	2240	2190	1700	4600	1820	997
Selenium	50	2.5	0.14 U	0.16 J	0.14 U	0.15 J	0.32 J	0.14 U	0.14 U	0.14 U
Silver	-	2.0	0.077 U	0.077 U	0.077 U	0.077 U	0.077 UJ	0.077 UJ	0.077 UJ	0.077 UJ
Sodium	-	21000	28000	66400	62700	44000	78600	12900	12900	7020
Thallium	2	0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U
Vanadium	-	1.5	0.27 U	0.60 J	0.70 J	0.27 U	1.3	0.27 U	0.27 U	0.27 U
Zinc	-	7.8	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
Radium (pCi/L)										
Radium-226	-	NC	-0.0836+-0.382 U	0.0552+-0.286 U	0.519+-0.486 U	0.625+-0.361	0.350+-0.651 U	0.207+-0.627 U	0.321+-0.431 U	0.560+-0.420
Radium-228	-	NC	0.281+-0.379 U	-0.00214+-0.405 U	0.513+-0.459 U	0.882+-0.461	0.296+-0.370 UJ	0.615+-0.443 UJ	-0.202+-0.328 UJ	0.975+-0.611 UJ
Total Radium	5	3.5	0.281+-0.538 U	0.0552+-0.496 U	1.03+-0.668 U	1.51+-0.586	0.646+-0.749 UJ	0.822+-0.768 UJ	0.321+-0.542 UJ	1.54+-0.741 J

Notes:

Well IDs are presented in the table without dashes (-) for data management purposes. Well IDs with dashes are equivalent to Well IDs withough dashes, i.e. ALF202 equals ALF-202.
GWPS - Groundwater Protection Standard
(a) No Maximum Contaminant Level (MCL) established. GWPS is based on Regional Screening Levels (RSLs) for certain metals recognized in the federal CCR Rule at 40 C.F.R. 257.95(h)(2) (see 83 Fed. Reg. 36435 (July 30, 2018)).
(b) No MCL established. GWPS is based on lead and copper Action Levels established in the federal Lead and Copper Rule at 40 C.F.R. 141.80(c)(1)(2) (see 56 Fed. Reg. 26548 (June 7, 1991)).
(c) GWPS is based on Tennessee MCL for Public Water Systems (see Title 69, Chapter 3, Part 1, TDEC Rule 0400-45-01-.06, February 17, 2019).
Dash (-) indicates no GWPS exists in the federal CCR Rule.
Background - site-specific background concentrations calculated as 95% Upper Tolerance Limits (UTLs) in accordance with USEPA Unified Guidance (see 2020 Background Analysis Report for Allen Fossil Plant, February 2021).
J - The result is estimated.
mg/L - milligrams per liter; ug/L - micrograms per liter; pCi/L - picocuries per liter
NA - Constituent was not analyzed.
NC - Background value was not calculated.
NR - Results for this constituent were not available at the time this table was published.
U - The analyte was not detected above the indicated reporting limit.
U* - The analyte was detected in an associated blank.
Sample analytical results that exceed the GWPS are shaded YELLOW.
The Production Well No. 1 well screen in the Memphis aquifer is 503-603 feet below ground surface (bgs) and the well pump is positioned at approximately 170-190 ft bgs.

Stantec

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	Date	Depth																														
ALF 201																																
ALF-201	15-Nov-16	49	NA	7.29	1.01	89.3	484	6.94	0.269 U*	1.73 J	219	0.102 U	3870	0.152 U	90600	0.339 U	1.15	NA	0.0675 U	16.8	NA	0.0521 U	247	NA	NA	0.452 J	NA	NA	0.036 U	NA	NA	NA
ALF-201	30-Jan-17	49	NA	8.31	0.384	43.2	530	6.85	0.634 U*	3.37	386	0.131 U	1900 J	0.0781 U	127000	0.378 U	1.2	NA	0.318 U	24.4	NA	0.0521 U	31.7	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-201	28-Feb-17	49	NA	14.2	1.48	94.6	477	7.04	0.67 U*	3.92	200	0.131 U	5130	0.11 U*	74500	0.378 U	0.944	NA	0.318 U	16.8	NA	0.0653 U	396	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-201	28-Mar-17	49	NA	11	1.26	82.5	491	6.9	1.31 U*	3.44	206	0.131 U	3570	0.0781 U	79600	0.378 U	0.795	NA	0.318 U	15.7 U*	NA	0.0653 U	290	NA	NA	2.86 J	NA	NA	0.0531 U	NA	NA	NA
ALF-201	18-Apr-17	49	NA	8.04	0.569	32.8	514	6.88	0.443 U	3.65	319	0.131 U	1460	0.0781 U	114000	0.378 U	1.4	NA	0.318 U	20.7	NA	0.0653 U	37.3	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-201	10-May-17	49	NA	9.34	0.282	51.2	572	6.8	0.443 U	3.14	463	0.131 U	1650	0.0781 U	139000	0.378 U	0.635 U*	NA	0.318 U	22.5	NA	0.0653 U	23	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-201	31-May-17	49	NA	11.9	0.676 J	83.3	486	-	2.00 U	3.64	295	2.00 U	2590	1.00 U	99000	2.00 U	0.512 J	NA	2.00 U	17.5 J	NA	0.200 U	138	NA	NA	2.00 U	NA	NA	2.00 U	NA	NA	0.529
ALF-201	13-Jun-17	49	NA	10.8	1.29	77.5	497	6.95	0.443 U	2.67	190	0.131 U	2940	0.194 J	91000	0.378 UJ	0.852	NA	0.318 U	15.6	NA	0.0653 U	240	NA	NA	2.22 J	NA	NA	0.0531 U	NA	NA	NA
ALF-201	13-Jul-17	49	NA	10.6	1.42	75.2	508	7.55	1.43 U*	2.59	225	0.131 U	2820	0.0781 U	101000	0.381 J	0.648	NA	0.318 U	15.9	NA	0.0653 U	239	NA	NA	3.94 J	NA	NA	0.0531 U	NA	NA	NA
ALF-201	19-Jul-17	49	NA	11.7	1.12	79.1	533	6.91	0.443 U	2.47	224	0.131 U	3310	0.0781 U	108000	0.378 U	0.788	NA	0.318 U	15.9	NA	0.0653 U	244	NA	NA	2.12 J	NA	NA	0.0531 U	NA	NA	NA
ALF-201	24-Aug-17	49	NA	12.2	1.1	81	505	7.07	0.443 U	18.5	358	0.131 U	3680	0.0781 U	103000	0.562 J	0.769	NA	0.318 U	16	NA	0.0653 U	300	NA	NA	4.75 J	NA	NA	0.0531 U	NA	NA	NA
ALF-201	26-Sep-17	49	365	12.9	1.4	84.8 J	504	7.2 J	0.14 J	1.2	206	0.20 U	4110 J	0.080 U	99500	0.15 U*	0.40 J	0.61 U*	0.10 U	16.4	23700	0.20 U	309	2.4	3000	4.5	0.50 U	48700	0.10 U	0.53 J	3.7 U*	1.43
ALF-201	18-Oct-17	49	284	15.6	2.1	91.1	460	7.1 J	0.13 J	2.1	178	0.20 U	4650	0.080 U	82700	2.8	0.41 J	0.50 U*	0.10 U	14.5	19400	0.20 UJ	444	2.3	3110	1.2	0.50 U	60200	0.10 U	1.0 U	1.2 U*	ND
ALF-201	15-Nov-17	49	300	14.4	1.7	94.1	448 J	7.3 J	0.12 J	1.2	196 J	0.3	4180 J	0.40 U	80200	0.50 U	0.39 J	0.31 U*	0.10 U	14.5	20900	0.20 U	395	2.6	2900	0.50 U	0.50 U	47100	0.029 U*	1.0 U	1.3 U*	1.02
ALF-201	6-Jun-18	49	NA	7.86	1.59	58.1	487	6.73	1.12 U	3.04	231	0.057 U	2080	0.125 U	101000	1.68 U*	0.432 J	NA	0.094 U	18.2	NA	0.0653 U	204	NA	NA	4.5 J	NA	NA	0.063 U	NA	NA	NA
ALF-201	19-Jun-18	49	NA	7.64	1.59	55.6	491	6.87	1.12 U	1.85 U*	231	0.057 U	2100	0.125 U	110000	1.85 U*	0.281 J	NA	0.094 U	18	NA	0.0653 U	192	NA	NA	4.25 J	NA	NA	0.063 U	NA	NA	NA
ALF-201	17-Jul-18	49	NA	10	1.4	67.7	500	6.79	1.12 U	1.21	217	0.057 U	2150	0.125 U	104000	1.54 U*	0.191 J	NA	0.094 U	16.5 U*	NA	0.0653 U	176	NA	NA	3.84 J	NA	NA	0.063 U	NA	NA	NA
ALF-201	1-Aug-18	49	NA	11.5	1.37	79.1	532	6.84	1.12 U	0.7 U*	191	0.057 U	2840	0.125 U	102000	0.631 U	0.142 J	NA	0.094 U	15.9	NA	0.0653 U	180	NA	NA	5.25	NA	NA	0.063 U	NA	NA	NA
ALF-201	21-Aug-18	49	NA	6.53	1.52	73.4	544	6.82	1.12 U	0.958 J	219	0.057 U	2790	0.125 U	107000	2.46 U*	0.201 J	NA	0.094 U	15.9	NA	0.0653 U	184	NA	NA	7.65	NA	NA	0.063 U	NA	NA	NA
ALF-201	29-Nov-18	49	437	9	0.92	66.1	560	7.0 J	0.16 J	1.6	230	0.10 U	2110	0.080 U	123000	0.22 J	0.53	0.49 J	0.10 U	18.5	29900	0.20 U	121	6	2770	2.6	0.40 U	30900	0.10 U	0.20 J	5.0 U	ND
ALF-201	15-Apr-19	49	377	6.6	0.72	48.6	488	7.7	0.12 J	0.55	190	2.0 U	1160	0.080 U	96800	0.50 U	0.14	0.38 J	0.10 U	13.9	22800	0.20 U	94.1	0.94	2010	2	0.40 U	20900	0.10 U	0.30 U	5.0 U	3.09+-1.13 J
ALF-201	26-Jun-19	49	307 J	14.6	0.39	79.5	438	6.7 J	0.50 U	1.1	220	0.20 U	2140	0.080 U	86400	0.49 U*	1.7	1.0 U	0.10 U	19.9	23000	0.20 U	42.2	4.5	2770	0.26 J	0.50 U	33400	0.10 U	1.0 U	5.0 U	0.662+-0.647 U
ALF-201	12-Sep-19	49	352	7.3	0.98	44.3	441	7.4 J	0.12 J	0.88	208	0.054 U	761	0.030 U	87800	6.7	0.33 J	0.43 U	0.046 U	13.1	25100	0.093 U	87.3	1.8	1790	3.0	0.077 U	17000	0.047 U	0.27 U	2.6 J	1.18+-0.615
ALF-201	13-Dec-19	49	269	19.2 J	0.66	108 J	432	6.9 J	0.50 U	2.2	223	0.20 U	1580	0.047 J	93300	0.50 U	2.3	0.43 J	0.10 U	17.2	23000	0.20 U	54.5	3.8	2510	0.32 J	0.50 U	28900	0.10 U	1.0 U	4.2 U*	0.112+-0.494 UJ
ALF-201	24-Feb-20	49	357	7.4 J	0.78	51.0 J	474	7.2 J	0.11 J	0.44 J	212	0.054 U	682	0.030 U	112000	0.33 J	0.085 U	0.43 U	0.046 U	14.6	27000	0.093 U	59.7	1.2	1940	2.0	0.077 U	17900	0.047 U	0.27 U	2.4 U	2.05+-0.854 J
ALF-201	13-May-20	49	371	4.6 J	0.61 J	39.7 J	481	7.2 J	0.091 J	0.64	237	0.054 U	417	0.030 U	118000	0.48 U*	0.13 J	0.43 U	0.046 U	15.1	31100	0.093 U	68.6	1.2	1600	3.3	0.077 U	14500	0.047 U	0.27 U	2.7 U*	0.526+-0.610 U
ALF-201	2-Sep-20	49	536	3.0	0.65	43.2	626	7.1 J	0.20 J	0.41 J	286 J	0.054 U	357	0.040 J	155000	0.41 U*	0.29 J	0.52 J	0.079 J	17.0	37700	0.080 U	78.4	2.8	2130	4.5	0.10 U*	20100	0.047 U	0.28 J	3.0 U*	1.00+-0.710 U
ALF-201	9-Dec-20	49	378	9.4	0.84	71.0	415	7.1 J	0.13 J	0.78	217	0.054 U	2200	0.27	104000	0.40 U*	1.1	0.72 J	0.043 U	17.6	25400	0.080 U	109	12.9	2340	0.24 J	0.077 U	32900	0.047 U	0.36 J	2.3 U*	0.243+-0.703 UJ
ALF-201B	26-Sep-17	89	355	15.2	0.41	130 J	562	7.0 J	0.50 U	2.3	235	0.20 U	5310 J	0.080 U	109000	0.42 U*	0.50 U	1.0 U	0.040 U*	22.4	31100	0.20 U	189	0.30 U*	6050	0.50 U	0.50 U	51300	0.10 U	1.0 U	2.9 U*	1.35
ALF-201B	18-Oct-17	89	342	14.5	0.4	117	548	7.0 J	0.50 U	2.6	197 J	0.73	4730	0.080 U	90000	0.50 U	0.50 U	1.0 U	0.10 U	21.7	27600	0.20 U	201	0.50 U	5420	0.50 U	0.50 U	44000	0.10 U	1.0 U	1.6 U*	ND
ALF-201B	15-Nov-17	89	318	14.2	0.35	127	558 J	7.2 J	0.50 U	1.8	215 J	0.4	5860 J	0.080 U	88400	0.50 U	0.50 U	1.0 U	0.031 U*	21.7	26900	0.20 U	184	0.50 U	4860	0.50 U	0.50 U	45100	0.10 U	1.0 U	1.3 U*	1.08
ALF-201B	28-Nov-18	89	256	16.6	0.46	138	517	7.3	0.50 U	2.9	131	0.10 U	5910	0.080 U	74000	0.50 U	0.012 J	0.50 U	0.10 U	17.4	21200	0.20 U	348	0.50 U	4680	0.50 U	0.40 U	56200	0.10 U	0.077 J	5.0 U	ND
ALF-201B	15-Apr-19	89	285	15.4	0.44	113	524	7.6	5.0 U	2.1	118	5.0 U	5190	0.80 U	67000	5.0 U	1.0 U	5.0 U	1.0 U	18.4 J	19000	0.20 U	272	5.0 U	3860	5.0 U	4.0 U	52300	1.0 U	3.0 U	50.0 U	1.51+-0.721 J
ALF-201B	21-Jun-19	89	278 J	17.7	0.56	176	571	7.0 J	0.50 U	2.9	152	0.20 U	5500	0.080 U	76100	0.50 U	0.50 U	0.60 J	0.10 U	21.1	24500	0.20 U	329	0.16 J	4390	0.50 U	0.50 U	67400	0.10 U	1.0 U	5.0 U	1.38+-0.626 J
ALF-201B	13-Sep-19	89	228	16.0 J	0.73	124	472	7.1 J	0.077 U	2.9	136	0.054 U	5300	0.030 U	65400	0.21 U	0.085 U	0.43 U	0.046 U	17.8	20500	0.093 U	357	0.23 J	4290	0.14 U	0.077 U	53800	0.047 U	1.3 U	2.4 U	0.711+-0.664 U
ALF-201B	13-Dec-19	89	240	24.8	0.85	165	468	7.1 J	0.50 U	3.1	141	0.20 U	4890	0.080 U	75900	0.50 U	0.50 U	1.0 U	0.10 U	18.8	22800	0.20 U	327	0.22 J	5090	0.50 U	0.50 U	54200	0.10 U	1.0 U	5.0 U	0.854+-0.583 J
ALF-201B	25-Feb-20	89	216	17.4	0.64 J	134	470	7.2 J	0.077 U	2.7	131	0.054 U	5180	0.030 U	70400	0.21 U	0.085 U	3.1	0.16 U*	17.7	21600	0.093 U	335	0.27 J	4440	0.14 U	0.077 U	45400	0.047 U	0.27 U	3.6 U*	1.10+-0.598 UJ
ALF-201B	13-May-20	89	252	14.4 J	0.54 J	87.4 J	446	7.1 J	0.077 U	2.7	134	0.054 U	2980	0.038 J	72100	0.21 U	0.085 U	0.43 U	0.046 U	17.1	24000	0.093 U	292	0.20 J	4280	0.14 U	0.077 U	39700	0.047 U	0.27 U	2.7 U*	0.315+-0.658 U
ALF-201B	3-Sep-20	89	273	18.9	0.56 J	85.7 J	451	7.1 J	0.077 U	2.5	133	0.054 U	2790	0.030 U	71900	0.27 U*	0.085 U	0.43 U	0.043 U	16.9	21700	0.080 U	254	0.23 J	4180	0.14 U	0.077 U	41000	0.047 U	0.27 U	2.7 U*	0.353+-0.690 UJ
ALF-201B	9-Dec-20	89	280	21.4	0.61	89.4	430	7.0 J	0.077 U	2.8	136	0.054 U	2700	0.030 U	76900	0.24 U*	0.085 U	0.43 U	0.043 U	20.7	22900	0.080 U	278	0.27 J	4170	0.14 U	0.077 U	45500	0.047 U	0.27 U	2.3 U	0.716+-0.817 UJ
ALF-201A	26-Sep-17	126	203	32.3	0.31	70.2 J	337	7.2 J	0.50 U	0.50 U	205	0.20 U	437 J	0.080 U	57100	0.35 U*	0.50 U	1.0 U	0.10 U	5	15000	0.20 U	13.3	0.29 U*	2870	0.50 U	0.50 U	58700	0.10 U	1.0 U	1.8 U*	ND
ALF-201A	17-Oct-17	126	215	32.7	0.31	71.7	388	7.2 J	0.50 U	0.50 U	213	0.20 U	486	0.080 U	57000	0.14 U*	0.50 U	1.0 U	0.10 U	4.6	16300	0.20 U	12.2	0.18 J	2930 J	0.50 U	0.50 U	58000	0.10 U	1.0 U	1.5 U*	ND
ALF-201A	14-Nov-17	126	206	33.3	0.30 J	75.3	394	8.1 J	0.50 U	0.50 U	209	0.20 U	504	0.080 U	57500	0.18 U*	0.50 U	1.0 U	0.069 U*	4.6	15800	0.20 U	13.6	0.40 U*	3060	0.50 U	0.50 U	58700	0.10 U	1.0 U	1.7 U*	ND
ALF-201A	28-Nov-18	126	273	27	0.29	79.8	408	7.5	0.50 U	0.4	160	0.10 U	525	0.080 U	64800	0.50 U	0.010 J	0.14 J	0.10 U	4.7	18700	0.20 U	14.9	0.50 U	2940	0.50 U	0.40 U	50100	0.10 U	0.13 J	3.6 J	ND
ALF-201A	15-Apr-19	126	210	20.2	0.25	69.6	350	7.6	0.50 U	0.34	127	1.0 U	411	0.080 U	47200	0.50 U	0.051 J	1.2	0.10 U	3.5	13100	0.20 U	13.4	0.24 J	2440	0.50 U	0.40 U	36100	0.10 U	0.30 U	5.0 U	0.220+-0.507 U
ALF-201A	20-Jun-19	126	224 J	18.8	0.38	68.1	347	6.9 J	0.50 U	0.36 J	151	0.20 U	418	0.080 U	58000	0.50 U	0.50 U	1.2	0.10 U	4.6	16400	0.20 U	15.1	0.25 U*	2630	0.50 U	0.50 U	36800	0.10 U	1.0 U	5.0 U	1.36+-0.614 J
ALF-201A	12-Sep-19	126	209	18.7	0.42	90.3	402	6.8 J	0.077 U	0.37 J	154	0.054 U	372	0.030 U	55300	0.21 U	0.085 U	0.43 U	0.046 U	3.9	15800	0.093 U	14.5	0.20 J	2590	0.14 U	0.077 U	44700	0.047 U	0.27 U	2.4 J	0.815+-0.617 U
ALF-201A	13-Dec-19	126	236	31.0	0.48	146	403	7.2 J	0.50 U	0.45 J	196	0.20 U	518	0.080 U	72600	0.32 J	0.50 U	0.54 J	0.082 J	4.9	20800	0.20 U	14.7	0.29 J	3380	0.50 U	0.50 U	62100	0.10 U	1.0 U	3.2 U*	0.412+-0.522 UJ
ALF-201A	25-Feb-20	126	272	26.9	0.46 J	148	530	7.4 J	0.077 U	0.39 J	226	0.054 U	491	0.030 U	80900	0.21 U	0.085 U	0.43 U	0.046 U	4.9	22500	0.093 U	10.6	0.18 J	3400	0.14 U	0.077 U	66200	0.047 U	0.27 U	2.4 U	0.583+-0.680 UJ
ALF-201A	13-May-20	126	254	17.1 J	0.33 J	103 J	459	7.2 J	0.077 U	0.36 J	191	0.054 U	443	0.030 U	67400	0.35 U*	0.085 U	0.43 U	0.046 U	4.5	20000	0.093 U	9.3	0.18 J	3050	0.14 U	0.077 U	64400	0.047 U	0.27 U	2.4 U	0.791+-0.545 U
ALF-201A	3-Sep-20	126	257	20.3	0.28 J	111 J	493	7.2 J	0.077 U	0.38 J	229	0.054 U	549	0.030 U	77900	0.38 U*	0.085 U	0.43 U	0.043 U	4.8	22600	0.080 U	9.5	0.24 J	3360	0.14 U	0.077 U	62400	0.047 U	0.27 U	2.3 U	0.596+-0.743 UJ
ALF-201A	9-Dec-20	126	246	23.8	0.39	137	450	7.1 J	0.077 U	0.55	192	0.054 U	592	0.030 U	74700	0.46 U*	0.085 U	0.43 U	0.074 J	5.1	21100	0.080 U	9.9	0.35 J	3090	0.14 U	0.077 U	58900	0.047 U	0.27 U	2.3 U	1.18+-0.658 UJ

Stantec

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	Date	Depth																														
ALF 202																																
ALF-202	14-Nov-16	43	NA	13.8	4.45	133	335	7.9	0.217 U*	177 J	70.3	0.102 U	5370	0.171 J	24800	0.339 U	0.22 J	NA	0.883 J	8.38	NA	0.0521 U	473	NA	NA	0.348 U	NA	NA	0.036 U	NA	NA	NA
ALF-202	30-Jan-17	43	NA	17	3.46	168	391	7.46	0.944 U*	176	75.1	0.131 UJ	6130	0.109 J	24200	0.378 U	0.109 J	NA	0.619 J	11.8 U*	NA	0.0521 U	313	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-202	28-Feb-17	43	NA	16.9	3.49	164	392	7.45	0.443 U*	199	66.5	0.131 U	6060	0.151 U*	22100	0.378 U	0.138 J	NA	0.908 J	9.29 U*	NA	0.0653 U	288	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-202	28-Mar-17	43	NA	13.5	3.63	137	392	7.29	1.07 U*	245	73.5	0.131 U	5510	0.098 J	20400	0.378 U	0.12 J	NA	0.924 J	8.03 U*	NA	0.0653 U	291	NA	NA	1.5 J	NA	NA	0.0531 U	NA	NA	NA
ALF-202	18-Apr-17	43	NA	16.4	3.5	153	373	7.45	0.443 U	197	63.7	0.131 U	4900	0.135 J	20900	0.378 U	0.105 J	NA	0.686 J	7.53	NA	0.0653 U	288	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-202	10-May-17	43	NA	15.5	3.09	153	386	7.34	0.443 U	234	71.2	0.131 U	7160	0.187 J	23400	0.378 U	0.129 U*	NA	0.563 J	7.65 U*	NA	0.0653 U	309	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-202	31-May-17	43	NA	15.8	3.52 J	158	381	-	4.00 U	246	78.9	5.00 U	5140	0.500 U	23100	2.50 U	0.500 U	NA	4.16 J	15.0 U	NA	0.100 U	280	NA	NA	1.50 U	NA	NA	4.00 U	NA	NA	ND
ALF-202	13-Jun-17	43	NA	16.2	3.6	147	371	7.23	0.443 U	228	74.5	0.131 U	6010	0.214 J	23100	0.378 UJ	0.0947 U	NA	0.481 J	7.87	NA	0.0653 U	329	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-202	13-Jul-17	43	NA	16.2	3.68	152	383	7.55	0.958 U*	221	71.6	0.131 U	5100	0.0781 U	24900	0.378 U	0.0947 U	NA	0.318 U	7.98	NA	0.0653 U	340	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-202	19-Jul-17	43	NA	15.3	3.67	136	391	7.54	0.443 U	298	82.5	0.131 U	5740	0.082 J	28300	0.378 U	0.0947 U	NA	0.318 U	8.12	NA	0.0653 U	349	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-202	23-Aug-17	43	NA	16.4	3.29	151	406		0.726 U*	281	76.9	0.157	6290	0.0781 U	25900	0.378 U	0.242 J	NA	0.81 J	7.19	NA	0.0653 U	478	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-202	27-Sep-17	43	108	16.1	3.7	109 J	369 J	7.4 J	0.50 U	266	72	0.36	5300	0.080 U	20500	0.31 U*	0.50 U	1.9	0.86	7	5310	0.20 U	439	0.92 U*	1860	0.23 J	0.50 U	81700	0.10 U	1.8	2.6 U*	ND
ALF-202	18-Oct-17	43	97	15.3	3.5	106	361	7.3 J	0.50 U	275	63.1 J	0.87	5230	0.80 U	21000	0.28 U*	0.50 U	1.8 U*	0.64	6.9	5010	0.20 U	401	0.83	1780	0.30 J	0.50 U	78400	0.10 U	1.7	0.88 U*	ND
ALF-202	16-Nov-17	43	85.8	14.6	3.1	117	369	7.7 J	0.50 U	282	58.1	0.41	5760	0.080 U	18800	0.26 J	0.50 U	2.3 U*	0.84	6.1	4350	0.20 U	314	0.83 U*	1600	0.33 J	0.50 U	78800	0.10 U	2.1	1.1 U*	ND
ALF-202	5-Jun-18	43	NA	14.4	3.09	139	397	7.2	1.12 U	399	62.4	0.057 U	6440	0.125 U	17400	1.38 U*	0.102 J	NA	0.533 U*	7.52 U*	NA	0.0653 U	276	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-202	19-Jun-18	43	NA	15	3.12	136	368	7.58	1.12 U	363	75.9	0.057 U	5960	0.125 U	23000	1.81 U*	0.162 J	NA	0.374 J	6.14 U*	NA	0.0653 U	269	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-202	17-Jul-18	43	NA	16.4	3.16	143	378	7.39	1.12 U	426	74.7	0.057 U	5550	0.125 U	24100	1.56 U*	0.094 J	NA	0.34 J	8.54 U*	NA	0.0653 U	355	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-202	31-Jul-18	43	NA	16.6	3.14	145	398	7.55	1.12 U	329	68.5	0.057 U	6770	0.188 J	28300	0.631 U	0.075 U	NA	0.293 J	8.21	NA	0.0653 U	486	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-202	21-Aug-18	43	NA	15.4	3.39	128	393	7.37	1.12 U	321	73.4	0.057 U	6180	0.125 U	23900	1.62 U*	0.086 J	NA	0.286 J	7.2	NA	0.0653 U	518	NA	NA	0.813 U	-	-	0.063 U	NA	NA	NA
ALF-202	29-Nov-18	43	90.4	15.4	3.3	147	391	7.6 J	0.50 U	336	68.6	0.022 J	5580	0.13	23400	0.52	0.16	1.9	0.74	5.8	5440	0.20 U	389	1.6	1950	0.50 U	0.40 U	121000	0.10 U	1.6	5.0 U	ND
ALF-202	15-Jan-19	43	83	14.9	3.3	133	384	7.9	0.50 U	324	65.5	0.10 U	5170	0.11	21500	0.50 U	0.088 J	1.7	0.6	5.9	5060	0.12 J	302	0.77	1940	0.32 J	0.40 U	87900	0.10 U	1.8	5.0 U	ND
ALF-202	10-Apr-19	43	96.6	15	3.3	107	386	7.4	2.5 U	287	47.6	0.50 U	5520	0.40 U	21000	2.5 U	0.50 U	2.5 U	0.35 J	6.0 J	4970	0.11 J	357	0.68 J	1830	2.5 U	2.0 U	91800	0.50 U	1.8	25.0 U	0.303+-0.644 U
ALF-202	26-Jun-19	43	94.5 J	15.0	4.3	135	375	7.5 J	0.50 U	378	93.3	0.083 U*	5380	0.058 U*	21400	0.25 J	0.14 U*	9.8	0.56 U*	6.5	5060	0.20 U	357	0.87 U*	1660	0.28 J	0.50 U	86500	0.10 U	1.8	2.9 J	0.525+-0.634 UJ
ALF-202	18-Sep-19	43	92.6	14.9	4.2	145 J	383	7.4 J	0.077 U	339	64.4 J	0.054 U	4990	0.11	21700	0.34 U*	0.088 J	1.7 U*	0.66	6.1	4510	0.093 U	326	0.69	1890	0.28 J	0.077 U	89400	0.047 U	1.8	2.4 U	0.823+-0.588 U
ALF-202	19-Dec-19	43	83.7	20.3	4.5	198	249	7.1 J	0.50 U	367	56.1	0.20 U	5330	0.035 J	19900	0.32 U*	0.093 J	2.0	0.61	5.1	4360	0.20 U	221	0.77	1880	0.30 J	0.50 U	90900	0.10 U	2.1	5.0 U	0.233+-0.550 UJ
ALF-202	24-Feb-20	43	93.5	13.1 J	4.0	139 J	368	7.5 J	0.077 U	344	40.5	0.054 U	5720	0.076 J	17100	0.25 J	0.12 J	2.6 U*	0.70	4.9	3710	0.093 U	279	0.94	1780	0.38 J	0.077 U	95300	0.047 U	2.3	2.4 U	0.000+-0.459 U
ALF-202	19-May-20	43	94.2	11.2 J	2.2 J	106 J	353	7.6 J	0.077 U	374	45.2	0.054 U	6060	0.054 U*	18800	0.54 U*	0.10 J	1.8	0.47	5.3	4120	0.075 U	246	1.0	1850	0.33 J	0.077 U	102000	0.047 U	2.0	5.2 U*	1.22+-0.616 UJ
ALF-202	1-Sep-20	43	111	14.0	2.0	119	392	7.7 J	0.077 U	391	70.8 J	0.054 U	5420	0.057 J	22800	0.45 U*	0.10 J	1.1 U*	0.55	6.5	4780	0.080 U	282	0.92	2050 J	0.26 J	0.077 U	100000 J	0.047 U	1.8	2.5 U*	0.587+-0.715 U
ALF-202	16-Dec-20	43	108	15.0	2.9	134	385	7.6 J	0.077 U	463	58.9 J	0.054 U	5990 J	0.092	19900	0.61 U*	0.12 J	1.8	0.55	5.8 J	6680 J	0.080 U	314	1.4	1830	0.30 J	0.077 U	90900	0.047 U	2.0	2.3 U	0.187+-0.476 U
ALF-202B	28-Sep-17	89.5	258	16	0.17	65.1	377	7.0 J	0.50 U	2.4	481	0.16 J	2440	0.080 U	72300	0.33 U*	0.50 U	1.0 U	0.10 U	5.9	21900	0.20 U	168	0.20 U*	3590	0.50 U	0.50 U	18400 J	0.10 U	1.0 U	3.1 U*	1.05
ALF-202B	18-Oct-17	89.5	258	16.6	0.17	87	365	7.0 J	0.50 U	2.6	518 J	0.52	2970	0.080 U	79100	0.16 U*	0.50 U	1.0 U	0.10 U	6.1	22300	0.20 U	160	0.23 J	3670	0.50 U	0.50 U	18000	0.10 U	1.0 U	2.7 U*	ND
ALF-202B	15-Nov-17	89.5	258	16.3	0.17	86.1	422 J	7.0 J	0.50 U	1.4	523 J	0.22	3170 J	0.080 U	75200	0.50 U	0.50 U	1.0 U	0.10 U	6	21600	0.20 U	150	0.50 U	3590	0.50 U	0.50 U	17600	0.10 U	1.0 U	1.5 U*	1.73
ALF-202B	29-Nov-18	89.5	267	18.2	0.2	60.1	400	7.0 J	0.50 U	2.8	422	0.10 U	2330	0.080 U	75400	0.16 J	0.050 J	0.50 U	0.10 U	4.6	20800	0.20 U	152	0.50 U	3230	0.50 U	0.40 U	17900	0.10 U	0.30 U	5.0 U	ND
ALF-202B	10-Apr-19	89.5	229	15.3	0.19	69.2	372	7	2.5 U	2.5	405	0.50 U	2380	0.40 U	76200	2.5 U	0.50 U	2.5 U	0.50 U	5.7 J	20000	0.12 J	137	2.5 U	2970	2.5 U	2.0 U	16800	0.50 U	1.5 U	25.0 U	0.750+-0.664 U
ALF-202B	26-Jun-19	89.5	211 J	15.1	0.25	64.6	345	7.2 J	0.50 U	2.9	402	0.20 U	2310	0.080 U	68500	0.50 U	0.50 U	1.0 U	0.10 U	5.4	18800	0.20 U	138	0.16 U*	2570	0.50 U	0.50 U	15200	0.10 U	1.0 U	5.0 U	1.52+-0.825 J
ALF-202B	18-Sep-19	89.5	218	15.2	0.32	82.9 J	371	7.0 J	0.077 U	3.0	443	0.054 U	2410	0.030 U	82200	0.47 U*	0.085 U	0.43 U	0.046 U	5.4	22400	0.093 U	150	0.20 J	3310	0.14 U	0.077 U	18300	0.047 U	0.27 U	2.8 J	1.33+-0.888
ALF-202B	19-Dec-19	89.5	219	21.4	0.33	98.8	404	6.7 J	0.50 U	3.2	434	0.20 U	2240	0.080 U	75300	0.50 U	0.50 U	1.0 U	0.10 U	4.6	20400	0.20 U	138	0.22 J	3080	0.50 U	0.50 U	16900	0.10 U	1.0 U	5.0 U	0.485+-0.708 UJ
ALF-202B	24-Feb-20	89.5	207	19.0	0.39 J	78.0	343	7.4 J	0.077 U	2.7	409	0.054 U	2070	0.030 U	69800	0.21 U	0.085 U	0.43 U	0.091 U*	4.7	19600	0.093 U	146	0.15 J	3000	0.14 U	0.077 U	16400	0.047 U	0.27 U	2.4 U	0.651+-0.565 UJ
ALF-202B	19-May-20	89.5	207	11.7 J	0.20 J	43.1 J	306	7.2 J	0.077 U	3.1	386	0.054 U	1960	0.030 U	71500	0.70 U*	0.085 U	0.43 U	0.046 U	5.2	19200	0.075 U	134	0.21 J	2930	0.14 U	0.077 U	16000	0.047 U	0.27 U	4.1 U*	1.61+-0.705 U*
ALF-202B	8-Sep-20	89.5	208	14.1	0.20	50.8	362	7.0 J	0.077 U	2.9	363 J	0.054 U	1840	0.030 U	50100	0.31 U*	0.085 U	0.43 U	0.043 U	4.7	17700	0.080 U	135	0.18 U	2690	0.14 U	0.077 U	15200	0.047 U	0.27 U	2.3 U	0.809+-0.683 U
ALF-202B	16-Dec-20	89.5	244	15.1	0.20	84.3	411	6.9 J	0.077 U	3.3	479 J	0.054 U	2890 J	0.030 U	85800	0.34 U*	0.085 U	0.43 U	0.043 U	5.5 J	24600 J	0.080 U	132	0.20 J	3010	0.14 U	0.077 U	17600	0.047 U	0.27 U	2.3 U	0.723+-0.564 U
ALF-202A	29-Sep-17	145.5	193	16.9	0.12	35.4	281	6.9 J	0.50 U	0.65	260	0.16 J	2280 J	0.080 U	49400	0.18 U*	0.50 U	1.0 U	0.046 U*	3.9	18800	0.20 U	166	0.19 U*	2710	0.50 U	0.50 U	22000	0.10 U	1.0 U	2.9 U*	ND
ALF-202A	18-Oct-17	145.5	201	18.6	0.11	37.5	296	6.9 J	0.50 U	0.66	254 J	0.33	1950	0.080 U	46900	0.15 U*	0.50 U	1.0 U	0.030 J	3.7	18800	0.20 U	156	0.17 J	2500	0.50 U	0.50 U	21300	0.10 U	1.0 U	2.0 U*	ND
ALF-202A	15-Nov-17	145.5	210	18.3	0.1	34.6	269 J	7.1 J	0.50 U	0.24 J	269 J	0.21	2110 J	0.080 U	50200	0.14 J	0.50 U	0.62 U*	0.060 U*	4.4	19400	0.20 U	76	0.19 U*	2660	0.50 U	0.50 U	23300	0.10 U	1.0 U	3.4 U*	1.38
ALF-202A	29-Nov-18	145.5	212	16.7	0.2	38.1	309	7.0 J	0.50 U	0.53	250	0.10 U	1670	0.080 U	51100	0.17 J	0.046 J	0.50 U	0.10 U	2.5	18700	0.20 U	207	0.50 U	2590	0.50 U	0.40 U	20100	0.10 U	0.097 J	5.0 U	ND
ALF-202A	15-Jan-19	145.5	205	16.2	0.18	34.9	303	8.1	0.50 U	0.56	251	0.10 U	1720	0.080 U	49000	0.50 U	0.10 U	0.6	0.089 J	2.7	18200	0.20 U	192	0.23 J	2470	0.50 U	0.40 U	19200	0.10 U	0.30 U	1.5 J	ND
ALF-202A	10-Apr-19	145.5	209	15.9	0.19	28.4	283	7.1	2.5 U	0.6	259	0.50 U	2110	0.40 U	53300	2.5 U	0.50 U	2.5 U	0.50 U	3.3 J	18900	0.15 J	197	2.5 U	2520	2.5 U	2.0 U	19500	0.50 U	1.5 U	25.0 U	0.515+-0.614 U
ALF-202A	26-Jun-19	146	208 J	16.6	0.25	34.4	294	7.1 J	0.50 U	0.67	278	0.20 U	1550	0.080 U	51800	0.50 U	0.50 U	0.77 J	0.10 U	3.2	19400	0.20 U	185	0.50 U	2340	0.50 U	0.50 U	18700	0.10 U	1.0 U	2.7 J	1.80+-0.821 J
ALF-202A	18-Sep-19	146	219	17.4	0.30	47.1 J	337	7.1 J	0.077 U	0.90	316 J	0.054 U	1450	0.030 U	62100	0.26 U*	0.085 U	0.43 U	0.10 U*	3.2	21300	0.093 U	178	0.26 J	2740	0.14 U	0.077 U	19500	0.047 U	0.27 U	3.6 J	1.33+-0.855 U
ALF-202A	19-Dec-19	146	226	24.6	0.31	58.9	337	6.7 J	0.50 U	0.76	325	0.20 U	1410	0.080 U	64100	0.47 J	0.50 U	1.0 U	0.11	3.0	22900	0.20 U	169	0.26 J	2900	0.50 U	0.50 U	20300	0.10 U	1.0 U	2.4 J	0.629+-0.730 UJ
ALF-202A	24-Feb-20	145	215	19.9	0.32 J	45.7	318	7.1 J	0.077 U	0.69	326	0.054 U	1290	0.030 U	59500	0.21 U	0.085 U	0.44 U*	0.046 U	3.6	22400	0.093 U	188	0.15 U	2810	0.14 U	0.077 U	21800	0.047 U	0.27 U	2.4 U	1.46+-0.658 J
ALF-202A	19-May-20	145.5	217	14.6 J	0.20 J	34.3 J	319	7.4 J	0.077 U	0.84	328	0.054 U	1410	0.030 U	63000	0.28 U*	0.085 U	0.43 U	0.069 J	3.2	24400	0.075 U	180	0.18 J	2820	0.14 U	0.077 U	20400	0.047 U	0.27 U	13.6 U*	1.11+-0.694 U*
ALF-202A	8-Sep-20	145.5	225	16.6	0.18	39.6	335	7.0 J	0.077 U	0.98	313 J	0.054 U	1390	0.030 U	53100	0.29 U*	0.085 U	0.43 U	0.043 U	3.0	22500	0.080 U	171	0.18 U	2730	0.14 U	0.077 U	19700	0.047 U	0.27 U	2.8 U*	0.619+-0.740 U
ALF-202A	16-Dec-20	145.5	232	16.8	0.21	40.2	326	6.9 J	0.077 U	1.1	325 J	0.054 U	1580 J	0.031 J	60600	0.58 U*	0.085 U	0.43 U	0.10	3.4 J	23900 J	0.080 U	179	0.22 J	2620	0.14 U	0.077 U	20300	0.047 U	0.27 U	2.3 U	1.29+-0.584 U*

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	Date	Depth																														
ALF 203																																
ALF-203	16-Nov-16	52	NA	12.6	5.26	141	420	8.72	0.99 U*	3900	36.2	0.149 J	3870	2.56	16100	2.14	1.44	NA	36.2	4.05 U*	NA	0.0521 U	284	NA	NA	6.96	NA	NA	0.036 U	NA	NA	NA
ALF-203	31-Jan-17	52	NA	13.6	4.14	184	557	8.85	1.68 U*	3230	39.5	0.145	5250 J	2.74	15800	2.77	1.19	NA	42	6.69 U*	NA	0.0521 U	267	NA	NA	5.26	NA	NA	0.0531 U	NA	NA	NA
ALF-203	1-Mar-17	52	NA	13.8	4.97	188	533	9.07	1.4 U*	3220	34.8	0.228 J	5770	2.35	14000	1.93 U*	1.18	NA	36.3	4.88 U*	NA	0.0653 U	256	NA	NA	5.49	NA	NA	0.0531 U	NA	NA	NA
ALF-203	29-Mar-17	52	NA	11.9	5.01	143	506	9.1	1.97 U*	3620	32.9	0.131 U	5310	3.55	10100	2.53	1.49	NA	60.4	3.1 U*	NA	0.0653 U	270	NA	NA	10.8 J	NA	NA	0.0531 U	NA	NA	NA
ALF-203	19-Apr-17	52	NA	14.8	4.94	158	490	9.1	1.81 U*	2890	35.5	0.175 J	4080	3.72	13100	2.64	1.3	NA	61.3	3.19 J	NA	0.0653 U	254	NA	NA	7.23	NA	NA	0.0531 U	NA	NA	NA
ALF-203	9-May-17	52	NA	14.4	4.53	152	508	9.06	1.93 U*	3560	44.8	0.249 J	6830	3.61	14200	2.27	1.21	NA	63.9	3.41 U*	NA	0.0883 J	296	NA	NA	6.44	NA	NA	0.0531 U	NA	NA	NA
ALF-203	31-May-17	52	NA	14.4	5.41 J	160	496	-	1.61 J	4070	40.1	0.245 J	5260	3.66	12700	3.05	0.951 J	NA	70.2	50.0 U	NA	0.103 J	306	NA	NA	9.84	NA	NA	2.00 U	NA	NA	ND
ALF-203	14-Jun-17	52	NA	15.2	5.44	157	519	9.07	1.36 J	3370	36.8	0.256 J	5570	3.02	13200	2.7	1.12	NA	56.8	2.96 J	NA	0.0653 U	276	NA	NA	5.45	NA	NA	0.0531 U	NA	NA	NA
ALF-203	14-Jul-17	52	NA	16	5.53	164	524	9.29	2.47 U*	3520	33.3	0.191 J	5230	2.98	12200	3.28	1.27	NA	55.9	3.6 J	NA	0.0653 U	284	NA	NA	7.98	NA	NA	0.0531 U	NA	NA	NA
ALF-203	19-Jul-17	52	NA	15.2	5.26	153	529	9.36	1.97 U*	4140	33.6	0.151 J	5410	3.08	12400	2.99	1.35	NA	56.5	2.81 J	NA	0.0653 U	307	NA	NA	7.87	NA	NA	0.0531 U	NA	NA	NA
ALF-203	23-Aug-17	52	NA	17.7	4.34	187	627	10.1	2.18 U*	3550	31.2	0.189 J	5760	2.98	10400	2.15	0.848	NA	67.3	2.12 U	NA	0.0891 J	301	NA	NA	7.67	NA	NA	0.0531 U	NA	NA	NA
ALF-203	27-Sep-17	52	211	18.4	4.3	202 J	692 J	9.8 J	2	2780	28.7	0.47	5490	2.6	9740	1.8 U*	0.48 J	51.7	61.8	1.3	1000	0.20 U	304	7	1880	4.9	0.50 U	166000	0.10 U	19.6	2.7 U*	1.73
ALF-203	17-Oct-17	52	250	18.1	3.7	199	694	9.8 J	1.8	2160	26.9	0.10 J	6120	2.0 J	9920	1.7	10.0 U	71.3	66.1	1.3	952	0.20 U	283	6.2 J	1280 J	6.1 J	0.50 UJ	205000	0.10 U	19.3	100 U	ND
ALF-203	14-Nov-17	52	243	16.5	3.2 J	206	770	9.9 J	1.5	1800	25.4	0.13 U*	6270	2.8	9340	1.7	0.48 J	49.7 J	56.1	1.2	801	0.20 U	297	5.5 J	1700	4.8	0.50 U	210000	0.10 U	19.3	2.8 U*	ND
ALF-203	7-Jun-18	52	NA	17	4.16	195	638	9.46	1.76 J	2170	26.6	0.164 J	5510	2.33	7620	4.06 U*	0.723	NA	56.3	4.86 U*	NA	0.0653 U	366	NA	NA	7.1	NA	NA	0.063 U	NA	NA	NA
ALF-203	21-Jun-18	52	NA	18.4	4.59	214	637	9.95	1.88 J	2190	26.4	0.141 J	6240	2.25	7310	4.31 U*	0.813	NA	55.4	2.56 U	NA	0.0653 U	384	NA	NA	7.11	NA	NA	0.063 U	NA	NA	NA
ALF-203	18-Jul-18	52	NA	18.5	4.45	200	618	9.84	2.03	3260	25.3	0.1 J	5890	2.15	7230	3.81 U*	0.682	NA	51.6	2.56 U	NA	0.068 J	382	NA	NA	9.61	NA	NA	0.063 U	NA	NA	NA
ALF-203	1-Aug-18	52	NA	18.7	4.7	198	665	9.87	1.92 J	3130	19.6	0.104 J	7310	1.32	7510	1.37 J	0.358 J	NA	41.3	2.56 U	NA	0.0653 U	381	NA	NA	6.25	NA	NA	0.063 U	NA	NA	NA
ALF-203	22-Aug-18	52	NA	18.1	4.98	197	720	10.01	2.08	2950	19.1	0.057 J	5660	1.54	5530	4.6 U*	0.413 J	NA	40.9	4.95 U*	NA	0.0653 U	382	NA	NA	8.51	NA	NA	0.063 U	NA	NA	NA
ALF-203	28-Nov-18	52	246	18.1	4.3	212	756	10	1.8	2120	20.4	0.1	6950	1.4	6320	1.6	0.49	39.2	41.7	0.39 J	674	0.20 U	409	7.1	1190	4.9	0.090 J	210000	0.10 U	20.5	4.7 J	ND
ALF-203	15-Jan-19	52	194	18.1	4.5	251	387	9.8	1.4	1960	19	0.088 J	7040	1.2	6030	5.0 U	1.0 U	12.6	34.2	0.88 J	529	0.20 U	459	2.3	1160	4.1	0.084 J	216000	0.10 U	17.3	2.4 J	ND
ALF-203	15-Apr-19	52	272	15	3.2	209	708	9.1	5.0 U	1340	91.8	5.0 U	4750	1.1	35600	5.0 U	1.0 U	27.1	25.6	4.9 J	9460	0.20 U	306	4.4 J	1460	3.5 J	4.0 U	131000	1.0 U	9.8	50.0 U	2.04+-1.06 J
ALF-203	21-Jun-19	52	209 J	17.6	4.9	287	686	9.5 J	1.4 J	2010	38.0	1.0 U	6730	2.0	15200	2.7	0.66 J	56.8	47.7	2.1 J	2700	0.20 U	478	9.1	1390	6.7	2.5 U	219000	0.50 U	23.1	25.0 U	0.593+-0.667 U
ALF-203	13-Sep-19	52	190	16.6 J	5.7	271	792	7.6 J	1.5	2150	20.2	0.11 J	8890	0.75	6900	1.2 U*	0.43 U	22.3	23.2	0.79	614	0.093 U	435	5.2	1020	3.5	0.077 U	243000	0.047 U	15.8	12.0 U	0.895+-0.598 U
ALF-203	13-Dec-19	52	194	22.9	6.4	284	678	9.6 J	1.5 J	2170	24.4	1.0 U	7190	1.3	10000	1.3 J	2.5 U	47.3	32.8	1.7 J	856	0.20 U	368	6.5	1170	5.7	2.5 U	208000	0.50 U	15.9	25.0 U	0.968+-0.792 UJ
ALF-203	26-Feb-20	52	208 J	14.4	5.4	221	374	9.8 J	1.7 J	2230	22.0	0.27 U	8540	1.9	6950	1.9 J	0.55 J	60.1	50.3	0.88 J	511	0.093 U	371 J	6.9	961	7.2	0.38 U	213000	0.24 U	21.1	12.0 U	0.577+-0.650 U
ALF-203	14-May-20	52	224	11.8 J	3.9 J	169 J	664	9.8 J	1.5	2250	37.2	0.12 J	8140	2.3	13400	2.3	0.70 J	71.1	54.2	1.8	1410	0.093 U	393	9.4	1190	6.7	0.15 J	203000	0.047 U	23.2	12.0 U	0.571+-0.783 U
ALF-203	2-Sep-20	52	200	14.9	3.6	214	758	10.1 J	1.5	2190	15.6 J	0.078 J	7070	0.99	5170	1.6 U*	0.22 J	37.4	28.9	0.62	418	0.080 U	475	5.5	776	6.3	0.086 U*	182000	0.047 U	15.1	11.4 U	0.520+-0.661 U
ALF-203	10-Dec-20	52	255	14.0	4.2	278	650	10.1 J	1.1	1470	14.4	0.067 J	6360	0.60	5140	1.3 U*	0.26 J	17.4	21.3	0.81	356	0.080 U	291	2.6	803	2.4 J	0.077 UJ	218000	0.047 U	9.4	2.3 U	0.785+-0.654 UJ
ALF-203B	27-Sep-17	89	163	18	2.6	84.9 J	357 J	7.1 J	0.50 U	226	110	0.4	6330	0.80 U	35900	0.25 U	0.50 U	1.0 U	0.072 U*	12	8340	0.20 U	477	0.36 U*	2100	0.50 U	0.50 U	56600	0.10 U	0.40 J	2.1 U*	ND
ALF-203B	17-Oct-17	89	204	19.4	2	86.3	386	7.2 J	0.50 U	33	153	0.20 U	5270	0.080 U	55400	0.13 U*	0.50 U	1.0 U	0.028 J	12.5	12300	0.20 U	394	0.14 J	2570 J	0.50 U	0.50 U	63700	0.10 U	1.0 U	0.96 U*	ND
ALF-203B	14-Nov-17	89	187	17.4	1.6 J	71.8	381	7.5 J	0.50 U	22.2	145	0.20 U	4380	0.080 U	53000	0.50 U	0.50 U	0.21 U*	2.0 U	11.8	11800	0.20 U	345	0.24 U*	2470	0.50 U	0.50 U	54300	0.10 U	1.0 U	1.2 U*	ND
ALF-203B	28-Nov-18	89	225	16.6	0.94	64.3	346	7.7	0.50 U	44.7	168	0.10 U	2320	0.080 U	62200	0.29 J	0.1	0.34 J	0.16	10.7	14500	0.20 U	225	0.61	2040	0.50 U	0.40 U	30700	0.10 U	0.26 J	3.3 J	ND
ALF-203B	15-Jan-19	89	198	15.8	0.7	47.8	313	8.1	0.50 U	19.7	153	0.10 U	1400	0.080 U	58200	0.50 U	0.068 J	0.89	0.13	8.9	13700	0.20 U	153	0.37 J	1750	0.50 U	0.40 U	22100	0.10 U	0.20 J	1.9 J	ND
ALF-203B	15-Apr-19	89	173	12.3	0.43	36.6	269	7.7	2.5 U	9.8	108	2.0 U	925	0.40 U	42500	2.5 U	0.50 U	2.5 U	0.50 U	6.3 J	9480	0.20 U	88.5	2.5 U	1170	2.5 U	2.0 U	15400	0.50 U	1.5 U	25.0 U	0.633+-0.598 U
ALF-203B	24-Jun-19	89	210	13.5	0.50	37.1	301	7.0 J	0.50 U	8.1	157	0.20 U	1320	0.080 U	60700	0.50 U	0.50 U	1.0 U	0.10 U	7.9	13600	0.20 U	99.8	0.17 J	1510	0.50 U	0.50 U	22300	0.10 U	1.0 U	5.0 U	0.690+-0.517 UJ
ALF-203B	16-Sep-19	89	178	13.6	0.92	39.4 J	280	7.1 J	0.077 U	33.0	120	0.054 U	1070	0.030 U	42200	0.21 U	0.085 U	0.43 U	0.046 U	7.6	11100	0.093 U	138	0.24 J	1370	0.14 U	0.077 U	19200	0.047 U	0.27 U	2.4 U	1.03+-0.761
ALF-203B	13-Dec-19	89	172	18.7	0.73	45.1	267	7.3 J	0.50 U	13.0	132	0.20 U	966	0.080 U	50500	0.23 J	0.50 U	1.0 U	0.086 J	7.7	12200	0.20 U	112	0.35 J	1440	0.50 U	0.50 U	18700	0.10 U	1.0 U	5.0 U	0.682+-0.636 UJ
ALF-203B	25-Feb-20	89	179	10.4	0.56 J	27.2	254	7.1 J	0.077 U	6.3	128	0.054 U	1220	0.030 U	50100	0.21 U	0.085 U	0.43 U	0.046 U	7.0	11600	0.093 U	98.9	5.0	1440	0.14 U	0.077 U	20500	0.047 U	0.27 U	2.4 U	0.794+-0.589 U
ALF-203B	14-May-20	89	160	8.0 J	0.35 J	15.8 J	227	7.1 J	0.077 U	5.8	115	0.054 U	818	0.030 U	46400	0.23 U*	0.085 U	0.43 U	0.046 U	6.7	10200	0.093 U	80.1	0.17 J	1400	0.14 U	0.077 U	17900	0.047 U	0.27 U	2.8 U*	1.35+-0.678 J
ALF-203B	10-Sep-20	89	164	12.1	0.52	33.9	249	7.2 J	0.077 U	24.4	115	0.054 U	957	0.030 U	52300	0.31 U*	0.085 U	0.43 U	0.043 U	9.1	11900	0.080 U	142	0.21 J	1470	0.14 U	0.077 U	17700	0.047 U	0.27 U	2.3 U	0.731+-0.573 J
ALF-203B	10-Dec-20	89	178	14.7	0.87	52.6	278	7.0 J	0.077 U	28.0	149	0.054 U	1290	0.030 U	56600	0.41 U*	0.085 U	0.43 U	0.093 J	9.8	13200	0.080 U	154	0.33 J	1620	0.14 U	0.077 UJ	19500	0.047 U	0.27 U	2.3 U	0.385+-0.584 UJ
ALF-203A	28-Sep-17	118	160	20.3	0.13	28.5	202	6.9 J	0.50 U	0.33 J	305	0.20 U	340	0.080 U	37500	0.19 U*	0.50 U	1.0 U	0.10 U*	2.1	15600	0.20 U	0.99	0.28 U*	1650	0.50 U	0.50 U	17000 J	0.041 U*	1.0 U	4.9 U*	ND
ALF-203A	17-Oct-17	118	138	18.8	0.17	35.3	214	6.9 J	0.50 U	0.23 J	242	0.20 U	355	0.080 U	38300	0.15 U*	0.50 U	1.0 U	0.047 J	2.1	14900	0.20 U	2.2	0.50 U	1470 J	0.50 U	0.50 U	17700	0.10 U	1.0 U	1.3 U*	ND
ALF-203A	14-Nov-17	118	124	17.6	0.14 J	38.6	230	7.9 J	0.50 U	0.50 U	255	0.20 U	363	0.080 U	39200	0.14 U*	0.50 U	1.0 U	0.047 U*	2.6	14300	0.20 U	3.1	0.50 U	1590	0.50 U	0.50 U	17900	0.10 U	1.0 U	2.1 U*	ND
ALF-203A	28-Nov-18	118	148	19.3	0.14	31.1	218	7.1	0.11 J	0.45	239	0.10 U	397	0.080 U	34800	0.44 J	0.11	0.65	0.18	2.1 J	14600	0.20 U	4.2	0.5	1530	0.50 U	0.40 U	17100	0.10 U	0.20 J	4.7 J	ND
ALF-203A	15-Jan-19	118	108	16.6	0.14	33	195	8	0.50 U	0.21	174	0.10 U	321	0.080 U	27500	0.50 U	0.10 U	7.3	0.3	1.9 J	12700	0.20 U	3.1	0.20 J	1340	0.50 U	0.40 U	15800	0.10 U	0.14 J	7.5	1.66
ALF-203A	15-Apr-19	118	123	16.1	0.12	30.3	190	7.4	0.50 U	0.17	189	0.50 U	255	0.080 U	28100	0.50 U	0.10 U	0.50 U	0.10 U	1.4 J	10700	0.20 U	0.74	0.13 J	1180	0.50 U	0.40 U	12800	0.10 U	0.30 U	5.0 U	1.32+-0.718 U
ALF-203A	24-Jun-19	118	100	16.4	0.18	29.5	171	6.9 J	0.50 U	0.18 J	180	0.20 U	314	0.080 U	24100	0.50 U	0.50 U	1.0 U	0.10 U	2.0	11800	0.20 U	2.7	0.50 U	1250	0.50 U	0.50 U	14900	0.10 U	1.0 U	5.0 U	2.44+-1.03 J
ALF-203A	13-Sep-19	118	116	15.1 J	0.19	27.4	210	7.4 J	0.077 U	0.31 U*	254	0.054 U	286	0.030 U	35100	0.37 U*	0.097 J	0.43 U	0.12	1.8	12800	0.093 U	1.4	0.27 J	1320	0.14 U	0.077 U	15400	0.047 U	0.27 U	2.8 U*	1.29+-0.723
ALF-203A	13-Dec-19	118	102	22.8	0.24	41.2	113	7.4 J	0.50 U	0.20 J	194	0.20 U	283	0.080 U	27400	0.24 J	0.50 U	1.0 U	0.10 U	1.8	11900	0.20 U	2.2	0.15 J	1280	0.50 U	0.50 U	14100	0.10 U	1.0 U	5.0 U	0.000+-0.512 UJ
ALF-203A	25-Feb-20	118	103	14.5	0.21 J	27.7	172	6.6 J	0.077 U	0.23 J	181	0.054 U	273	0.030 U	27500	0.21 U	0.085 U	0.43 U	0.046 U	1.9	12000	0.093 U	2.5	0.15 U	1280	0.14 U	0.077 U	15000	0.047 U	0.27 U	2.4 U	0.401+-0.560 U
ALF-203A	14-May-20	118	122	13.7 J	0.11 J	19.4 J	206	6.9 J	0.077 U	0.21 J	240	0.054 U	272	0.030 U	34600	0.21 U	0.085 U	0.43 U	0.046 U	1.7	13100	0.093 U	0.74	0.15 U	1420	0.14 U	0.077 U	14800	0.047 U	0.27 U	3.1 U*	2.08+-0.813 J
ALF-203A	9-Sep-20	118	118	15.5	0.13	23.5	188	7.0 J	0.077 U	0.24 J	233 J	0.054 U	288	0.030 U	32200	0.29 U*	0.085 U	0.43 U	0.043 U	1.8	12500	0.080 U	1.4	0.18 U	1380	0.14 U	0.077 U	15400	0.047 U	0.27 U	3.0 U*	1.04+-0.710 U
ALF-203A	10-Dec-20	118	146	21.1	0.20	31.0	218	6.9 J	0.077 U	0.27 J	256	0.054 U	281	0.030 U	36400	0.43 U*	0.085 U	0.43 U	0.043 U	1.8	13700	0.080 U	1.2	0.18 U	1430	0.14 U	0.077 UJ	16900	0.047 U	0.27 U	2.3 U	0.976+-0.671 UJ

Stantec

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	Date	Depth																														
ALF 204																																
ALF-204	16-Nov-16	49	NA	11.4	0.249	9.72	398	7	0.164 U*	46 J	358	0.102 U	461	0.152 U	64600	0.339 U	0.132 J	NA	0.0675 U	9.92	NA	0.0521 U	5.25	NA	NA	0.348 U	NA	NA	0.036 U	NA	NA	NA
ALF-204	31-Jan-17	49	NA	18	0.224	2.25	458	7	0.82 U*	42.8	318	0.131 U	659 J	0.0781 U	78500	0.378 U	0.0947 U	NA	0.318 U	14 U*	NA	0.0521 U	6.93	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-204	1-Mar-17	49	NA	19	2.5	0.792 J	422	7.09	0.613 U*	36.8	332	0.131 U	598	0.0781 U	75800	0.378 U	0.0947 U	NA	0.318 U	12.7 U*	NA	0.0653 U	2.61 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-204	29-Mar-17	49	NA	15.4	0.283	1.33	400	7.1	0.84 U*	49.9	296	0.131 U	525	0.0781 U	61400	0.378 U	0.0947 U	NA	0.318 U	9.49 U*	NA	0.0653 U	6.24	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-204	19-Apr-17	49	NA	17.4	0.289	6.29	403	7.01	0.507 U*	49.1	300	0.131 U	467	0.0781 U	75200	0.378 U	0.0947 U	NA	0.318 U	8.94	NA	0.0653 U	8.61	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-204	9-May-17	49	NA	16.6	0.233	16.8	375	7.02	0.443 U	56.9	332	0.131 U	721	0.0781 U	78000	0.378 U	0.0947 U	NA	0.318 U	9.23 U*	NA	0.0653 U	9.63	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-204	1-Jun-17	49	NA	17.1	0.250 U*	13.1	361	-	2.00 U	53.0 J	295 J	2.00 U	582	1.00 U	70900 J	1.02 J	2.00 U	NA	2.00 U	7.95 J	NA	0.200 U	9.33 J	NA	NA	2.00 U	NA	NA	2.00 U	NA	NA	0.504
ALF-204	14-Jun-17	49	NA	17.3	0.31	13.8	380	7.07	0.443 U	45.5	285	0.131 U	534	0.0781 U	67100	0.378 U	0.0947 U	NA	0.318 U	8.52	NA	0.0653 U	9.08	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-204	14-Jul-17	49	NA	17.5	0.262	13	354	6.99	1.16 U*	38.7	257	0.131 U	551	0.0781 U	68200	0.405 J	0.0947 U	NA	0.318 U	9.09	NA	0.0653 U	7.67	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-204	19-Jul-17	49	NA	18.2	0.247	10	341	7.12	0.443 U	47.3	261	0.131 U	660	0.0781 U	72100	0.378 U	0.0947 U	NA	0.318 U	8.14	NA	0.0653 U	8.2	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-204	23-Aug-17	49	NA	18.3	0.22	12.1	366	7.25	0.443 U	36.4	242	0.131 U	543	0.0781 U	67400	0.378 U	0.0947 U	NA	0.318 U	7.55	NA	0.0653 U	7.72	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-204	29-Sep-17	49	305	16.8	0.18	13.4	356	7.2 J	0.50 U	24.4	260	0.20 U	507	0.080 U	67400	0.30 U*	0.50 U	0.70 U*	0.084 U*	8.5	19900	0.20 U	7.1	0.74 U*	4470	0.50 U	0.50 U	25900	0.10 U	0.58 J	8.6 U*	ND
ALF-204	18-Oct-17	49	309	16.6	0.18	16.5	357	7.0 J	0.50 U	52.6	293 J	0.10 J	533	0.080 U	65900	0.26 U*	0.50 U	1.0 U	0.10 U	8	20200	0.20 U	11.9	0.32 J	4040	0.50 U	0.50 U	22500	0.10 U	1.0 U	3.3 U*	ND
ALF-204	15-Nov-17	49	308	15.9	0.16	19	347 J	7.1 J	0.50 U	57.2	343 J	0.064 J	722 J	0.080 U	67500	0.19 J	0.50 U	0.20 U*	0.10 U	7.6	21500	0.20 U	20	0.15 U*	4220	0.50 U	0.50 U	21500	0.10 U	1.0 U	2.2 U*	ND
ALF-204	7-Jun-18	49	NA	15.3	0.198	25.5	351	6.71	1.12 U	80.8	400	0.057 U	479	0.125 U	67500	1.47 U*	0.075 U	NA	0.094 U	9.81 U*	NA	0.0653 U	10.2	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-204	20-Jun-18	49	NA	14.6	0.168	26.3	354	6.99	1.12 U	68.4	404	0.057 U	580	0.125 U	70700	1.41 U*	0.075 U	NA	0.094 U	8.34	NA	0.0653 U	10.5	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-204	19-Jul-18	49	NA	15	0.166	25.5	357	6.87	1.12 U	54.7	374	0.057 U	562	0.125 U	71900	1.5 U*	0.075 U	NA	0.094 U	8.4	NA	0.0653 U	10.8	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-204	1-Aug-18	49	NA	16	0.186	25.8	344	6.99	1.12 U	52.4	307	0.057 U	635	0.125 U	69700	0.631 U	0.075 U	NA	0.094 U	6.78	NA	0.0653 U	11.2	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-204	22-Aug-18	49	NA	11.4	0.149	21.3	322	7	1.12 U	46.9	350	0.057 U	516	0.125 U	66300	2.17 U*	0.146 J	NA	0.094 U	9.53 U*	NA	0.0653 U	10.1	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-204	28-Nov-18	49	264	14.9	0.16	23.6	327	7.5	0.50 U	52.2	297	0.10 U	594	0.080 U	62900	0.18 J	0.038 J	0.17 J	0.10 U	5.7	18400	0.20 U	14.5	0.50 U	3850	0.50 U	0.40 U	13000	0.10 U	0.11 J	5.0 U	ND
ALF-204	16-Apr-19	49	219	13.3	0.099 J	32.6	306	7.7	0.50 U	10.6	182	0.10 U	421	0.080 U	65600	0.50 U	0.42	0.7	0.055 J	3.9	14800	0.20 U	10.5	1.2	3080	0.11 J	0.40 U	11400	0.10 U	0.28 J	44.6	1.21+-0.517 J
ALF-204	25-Jun-19	49	228	13.2	0.18	30.7	304	7.0 J	0.50 U	45.6	320	0.20 U	481	0.080 U	62000	0.50 U	0.24 J	0.50 J	0.063 J	5.3	17200	0.20 U	16.2	0.39 J	3650	0.50 U	0.50 U	12000	0.10 U	0.94 J	8.8	0.901+-0.693 UJ
ALF-204	17-Sep-19	49	210	13.7	0.18	22.1 J	284	6.8 J	0.077 U	72.5 J	361 J	0.054 U	476	0.030 U	65000	0.24 U*	0.11 J	0.43 U	0.046 U	5.7	17100	0.093 U	8.8	0.28 J	4390 J	0.14 U	0.077 U	13800 J	0.047 U	1.5 J	9.1 J	0.788+-0.559
ALF-204	18-Dec-19	49	188	18.9	0.27	31.7	290	6.8 J	0.50 U	46.8	246	0.20 U	388	0.080 U	58500	0.35 J	0.15 J	0.62 J	0.10 U	4.6	15100	0.20 U	14.3	0.34 J	3340	0.50 U	0.50 U	11900	0.10 U	1.1	14.0	0.788+-0.718 U
ALF-204	25-Feb-20	49	206	12.4 J	0.21	27.7 J	289	7.0 J	0.077 U	55.4	276	0.054 U	387	0.030 U	58700	0.32 J	0.14 J	0.43 U	0.046 U	4.6	15100	0.093 U	14.9	0.26 J	3470	0.14 U	0.077 U	11900	0.047 U	1.0	2.4 U*	0.739+-0.654 U
ALF-204	19-May-20	49	196	11.3 J	0.15 J	24.0 J	152	7.4 J	0.077 U	53.3	289 J	0.054 U	552	0.030 U	56500	0.28 U*	0.085 U	0.43 U	0.046 U	5.8	16800	0.075 U	9.4	0.29 J	3640 J	0.14 U	0.077 U	11600	0.047 U	0.31 J	5.6 U*	0.481+-0.564 U
ALF-204	3-Sep-20	49	188	13.0	0.15	22.6 J	285	7.2 J	0.077 U	32.6	219	0.054 U	403	0.030 U	56200	0.54 U*	0.085 U	0.48 J	0.043 U	5.0	14600	0.080 U	10.3	0.76	3520	0.14 U	0.077 U	11100	0.047 U	0.44 J	5.5 U*	0.480+-0.474 U
ALF-204	16-Dec-20	49	200	13.2	0.16	19.7	243	7.0 J	0.077 U	53.9	266 J	0.054 U	505 J	0.030 U	52100	0.42 U*	0.085 U	0.43 U	0.043 U	5.8 J	15400 J	0.080 U	24.1	0.22 J	3210	0.14 U	0.077 U	12000	0.047 U	0.73 J	2.3 U	0.358+-0.390 J
ALF-204B	28-Sep-17	89	147	16.2	0.16	28	214	6.8 J	0.50 U	0.44 J	310	0.20 U	314	0.080 U	38800	0.50 U*	0.50 U	1.0 U	0.060 U*	3.4	13900	0.20 U	29.7	0.24 U*	2360	0.50 U	0.50 U	16800 J	0.10 U	1.0 U	7.7 U*	ND
ALF-204B	18-Oct-17	89	171	17.7	0.18	28.3	219	6.9 J	0.50 U	0.54	288 J	0.11 J	293	0.043 J	36700	0.18 U*	0.50 U	0.25 U*	0.086 J	3.4	14100	0.20 U	27.8	0.20 J	2140	0.50 U	0.50 U	16400	0.043 U*	1.0 U	2.2 U*	ND
ALF-204B	14-Nov-17	89	154	16.2	0.16 J	29.8	257	7.7 J	0.50 U	0.50 U	321	0.20 U	344	0.080 U	45100	0.50 U	0.50 U	1.0 U	0.098 U*	3.3	14700	0.20 U	33.4	0.50 U	2450	0.50 U	0.50 U	17400	0.10 U	1.0 U	3.0 U*	ND
ALF-204B	28-Nov-18	89	164	15.7	0.19	33.4	239	7	0.50 U	0.39	305	0.10 U	400	0.080 U	44900	0.19 J	0.11	0.21 J	0.14	3.6	11600	0.20 U	46.4	0.58	2370	0.50 U	0.40 U	16400	0.10 U	0.15 J	4.9 J	ND
ALF-204B	16-Apr-19	89	107	14.3	0.2	31	185	7.1	0.50 U	5.7	105	0.10 U	410	0.080 U	34200	0.50 U	0.46	0.7	0.22	3.1	8360	0.20 U	53.8	1.5	2140	0.50 U	0.40 U	13900	0.10 U	0.51	9.7	0.743+-0.535 U
ALF-204B	25-Jun-19	89	117	14.3	0.26	22.1	175	6.2 J	0.50 U	4.0	228	0.20 U	402	0.080 U	34700	0.50 U	0.14 J	0.85 J	0.15	3.3	9010	0.20 U	52.8	0.75	2160	0.50 U	0.50 U	14100	.010 U	1.0 U	9.7	1.75+-0.777 J
ALF-204B	18-Sep-19	89	115	13.6	0.32	28.2 J	199	7.3 J	0.077 U	4.3	213 J	0.054 U	371	0.030 U	35000	0.25 U*	0.085 U	0.43 U	0.085 J	3.1	10200	0.093 U	38.2	0.34 J	2130	0.14 U	0.077 U	14100	0.047 U	0.29 J	6.1	0.762+-0.529 U
ALF-204B	18-Dec-19	89	111	18.2	0.35	40.7	216	6.6 J	0.50 U	5.2	212	0.20 U	563	0.080 U	36200	0.50 U	0.50 U	0.44 J	0.10 U	3.0	9030	0.20 U	54.2	0.35 J	2140	0.50 U	0.50 U	15200	0.10 U	1.0 U	7.0	1.02+-0.862 U
ALF-204B	25-Feb-20	89	97.2	7.9	0.31	18.8	159	6.7 J	0.077 U	2.6	184	0.054 U	418	0.030 U	28800	0.21 U	0.085 U	0.43 U	0.046 U	2.7	6930	0.093 U	55.4	0.23 J	1920	0.14 U	0.077 U	13000	0.047 U	0.27 U	2.4 U	0.672+-0.595 U
ALF-204B	19-May-20	89	81.0	8.9 J	0.25 J	15.6 J	131	7.4 J	0.077 U	2.0	177 J	0.054 U	360	0.030 U	25800	0.36 U*	0.085 U	0.43 U	0.12	2.8	6700	0.075 U	57.4	0.30 J	1870 J	0.14 U	0.077 U	12800	0.047 U	0.41 J	7.7 U*	0.634+-0.618 U
ALF-204B	10-Sep-20	89	117	11.9	0.20	11.5	167	7.1 J	0.077 U	1.8	193	0.054 U	382	0.030 U	30100	0.24 U*	0.085 U	0.43 U	0.053 U*	3.0	9620	0.080 U	35.0	0.18 J	1970	0.14 U	0.077 U	14400	0.047 U	0.27 U	3.2 U*	0.668+-0.729 U
ALF-204B	16-Dec-20	89	115	11.7	0.24	16.8	160	7.0 J	0.077 U	3.0	200 J	0.054 U	495 J	0.030 U	28500	0.46 U*	0.085 U	0.43 U	0.047 J	2.9 J	8610 J	0.080 U	49.6	0.29 J	1860	0.14 U	0.077 U	14000	0.047 U	0.27 U	4.2 U*	0.322+-0.438 U
ALF-204A	28-Sep-17	116	150	15.9	0.12	13.3	204	7.2 J	0.15 J	0.47 J	280	0.20 U	94.4	0.080 U	39100	0.23 U*	0.50 U	1.0 U	0.12 U*	5.6	13600	0.20 U	2.7	0.20 U*	2220	0.50 U	0.50 U	14000 J	0.10 U	1.0 U	4.4 U*	ND
ALF-204A	18-Oct-17	116	163	17	0.18	12	202	7.1 J	0.50 U	0.54	243 J	0.20 U	98.4	0.080 U	38900	0.50 U	0.50 U	1.0 U	0.10 U	4.8	13000	0.20 U	2.3	0.50 U	2160	0.50 U	0.50 U	13200	0.10 U	1.0 U	1.0 U*	ND
ALF-204A	15-Nov-17	116	147	16.7	0.16	13.8	201 J	7.2 J	0.50 U	0.39 J	254 J	0.20 U	104 J	0.080 U	35900	0.50 U	0.50 U	1.0 U	0.087 U*	5.1	12400	0.20 U	2.3	0.19 U*	2050	0.50 U	0.50 U	13300	0.10 U	1.0 U	8.6 U*	1.35
ALF-204A	28-Nov-18	116	159	16.2	0.18	14	211	7.3	0.50 U	0.17	269	0.10 U	95.5	0.080 U	37000	0.21 J	0.060 J	0.86	0.10 U	2.6	12100	0.20 U	2.9	0.50 U	2070	0.50 U	0.40 U	13300	0.10 U	0.30 U	5.0 U	ND
ALF-204A	16-Apr-19	116	172	15.6	0.15	8.7	214	7.2	0.50 U	0.65	291	0.10 U	103	0.080 U	41100	0.50 U	0.067 J	0.50 U	0.10 U	2.7	12100	0.20 U	2.6	0.21 J	2120	0.50 U	0.40 U	13500	0.10 U	0.30 U	2.3 J	1.35+-0.587
ALF-204A	25-Jun-19	116	173	15.8	0.20	6.5	212	6.5 J	0.50 U	0.24 J	320	0.20 U	87.1	0.080 U	43300	0.50 U	0.50 U	0.53 J	0.10 U	2.9	13400	0.20 U	2.3	0.50 U	2340	0.50 U	0.50 U	13800	0.10 U	1.0 U	2.6 J	1.69+-0.811 J
ALF-204A	17-Sep-19	116	172	16.1	0.24	8.4 J	227	6.8 J	0.077 U	0.50	287	0.054 U	112	0.030 U	48100	0.34 U*	0.085 U	0.43 U	0.11	3.3	13700	0.093 U	2.0	0.34 J	2330 J	0.14 U	0.077 U	13900	0.047 U	0.33 J	11.3	1.76+-0.801
ALF-204A	18-Dec-19	116	176	23.1	0.24	7.0	236	6.4 J	0.50 U	0.34 J	335	0.20 U	104	0.080 U	46600	0.30 J	0.50 U	1.0 U	0.10	3.0	14000	0.20 U	2.4	0.24 J	2540	0.50 U	0.50 U	16300	0.10 U	1.0 U	10.7	0.711+-0.673 U
ALF-204A	26-Feb-20	116	190 J	14.9 J	0.0065 U	6.5	230	7.0 J	0.077 U	0.18 J	359 J	0.054 U	95.6	0.030 U	47100	0.21 U	0.085 U	0.43 U	0.046 U	3.0	14900	0.093 U	2.3	0.15 U	2590	0.14 U	0.077 U	15600	0.047 U	0.27 U	2.6 J	0.558+-0.505 UJ
ALF-204A	19-May-20	116	12.9 J	0.15 J	4.4 J	220	7.3 J	0.077 U	0.15 J	337 J	0.054 U	96.8	0.030 U	38200	0.98 U*	0.085 U	0.43 U	0.046 U	3.1	14600	0.075 U	2.1	0.44 J	2440 J	0.14 U	0.077 U	14700	0.047 U	0.27 U	4.1 U*	0.987+-0.587 U
ALF-204A	10-Sep-20	116	185	14.8	0.14	5.7	227	7.1 J	0.077 U	0.24 J	296	0.054 U	88.6	0.030 U	46300	0.20 U	0.085 U	0.43 U	0.043 U	2.9	13800	0.080 U	1.7	0.18 U	2280	0.14 U	0.077 U	14200	0.047 U	0.27 U	3.2 U*	0.612+-0.580 U
ALF-204A	16-Dec-20	116	185	15.4	0.18	3.6	221	7.0 J	0.077 U	0.30 J	312 J	0.057 J	105 J	0.030 U	43900	0.39 U*	0.085 U	0.43 U	0.093 J	3.4 J	14200 J	0.080 U	2.1	0.18 U	2180	0.14 U	0.077 U	14400	0.047 U	0.27 U	11.8 U*	1.47+-0.709 J

Stantec

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	Date	Depth																														
ALF 205																																
ALF-205	16-Nov-16	54	NA	15.1	1.9	94.8	401	7.17	0.303 U*	1.1 J	106	0.102 U	6990	0.152 U	61800	0.339 U	0.966	NA	0.088 J	14.8	NA	0.0521 U	252	NA	NA	0.816 J	NA	NA	0.036 U	NA	NA	NA
ALF-205	31-Jan-17	54	NA	23.1	2.54	123	461	7.21	0.751 U*	1.54	83.3	0.131 UJ	6720 J	0.0781 U	53300	0.424 J	1.32	NA	0.318 U	16.1 U*	NA	0.0521 U	279	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-205	1-Mar-17	54	NA	23	2.5	125	455	7.22	0.628 U*	1.22	88.5	0.131 U	7460	0.0781 U	54300	0.378 U	1.11	NA	0.318 U	14.1 U*	NA	0.0653 U	299	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-205	29-Mar-17	54	NA	20.3	2.68	91	436	7.32	1.33 U*	1.41	78.4	0.131 U	6290	0.0781 U	43900	0.378 U	1.01	NA	0.318 U	11.4 U*	NA	0.0653 U	325	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-205	18-Apr-17	54	NA	23.4	2.48	103	454	7.11	0.601 U*	1.95	103	0.131 U	5530	0.0781 U	61400	0.378 U	1.06	NA	0.318 U	12.7	NA	0.0653 U	292	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-205	9-May-17	54	NA	22.2	2.06	94.4	492	7.05	0.443 U	2.66	131	0.131 U	8810	0.126 J	74200	0.378 U	1.05	NA	0.318 U	14.5	NA	0.0653 U	314	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-205	1-Jun-17	54	NA	21.7	2.12 J	102	471	-	2.00 U	2.52 J	115 J	2.00 U	6210	1.00 U	70200 J	2.00 U	0.498 J	NA	0.162 J	12.9 J	NA	0.200 U	276 J	NA	NA	2.00 U	NA	NA	2.00 U	NA	NA	0.55
ALF-205	14-Jun-17	54	NA	23.3	2.55	107	469	7.08	0.443 U	1.6	110	0.131 U	7950	0.206 J	62300	0.378 U	0.903	NA	0.318 U	13.4	NA	0.0653 U	325	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-205	13-Jul-17	54	NA	23.1	2.57	108	462	7.24	0.856 U*	1.83	100	0.131 U	7470	0.0781 U	59400	0.378 U	1.13	NA	0.318 U	13.2	NA	0.0653 U	311	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-205	19-Jul-17	54	NA	23.9	2.53	94.7	455	7.27	0.443 U	1.59	91.3	0.131 U	7880	0.0781 U	58100	0.378 U	1.14	NA	0.318 U	12.4	NA	0.0653 U	337	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-205	24-Aug-17	54	NA	23.6	2.31	114	457	7.4	0.634 U*	2.03 U*	112	0.131 U	9140	0.17 J	58400	0.378 U	1.01	NA	0.318 U	12.4	NA	0.0653 U	365	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-205	28-Sep-17	54	325	21.3	1.5	93.4	505	7.1 J	0.50 U	0.62	164	0.45	6740	0.080 U	79800	0.14 U*	0.42 J	1.1 U*	0.10 U	17.7	15000	0.20 U	220	3.3	2830	0.27 J	0.50 U	63500 J	0.10 U	0.51 U*	2.1 U*	ND
ALF-205	19-Oct-17	54	371	20.8 J	0.99 J	81	522	6.8 J	0.19 J	0.34 J	195	1.1	6060	0.080 U	101000	0.19 U*	0.16 J	1.2 U*	0.10 U	19.1	19800	0.20 U	147	3.8	3000	0.31 J	0.50 U	55400	0.10 U	0.45 J	1.7 U*	ND
ALF-205	15-Nov-17	54	384	21.3	1.2	79.9	544 J	7.2 J	0.16 J	0.57	198 J	0.37	5280 J	0.080 U	103000	0.50 U	0.93	0.55 U*	0.10 U	18.4	20900	0.20 U	144	5	2890	0.50 U	0.50 U	49400	0.10 U	0.44 J	1.9 U*	ND
ALF-205	7-Jun-18	54	NA	17	1.77	77.4	645	6.98	1.12 U	1.15	167	0.057 U	6950	0.125 U	88400	1.57 U*	0.919	NA	0.094 U	22.1	NA	0.0653 U	197	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-205	20-Jun-18	54	NA	16.3	1.68	81	648	7.06	1.12 U	1.52 U*	181	0.057 U	8350	0.133 J	97100	1.41 U*	1.03	NA	0.094 U	20.3	NA	0.0653 U	215	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-205	19-Jul-18	54	NA	17.9	1.6	93.2	578	7.03	1.12 U	1.71	170	0.057 U	7120	0.272 J	86800	1.41 U*	0.86	NA	0.119 J	18.2	NA	0.0653 U	220	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-205	31-Jul-18	54	NA	1.15 J	0.205 J	13.8 J	532	7.05	1.12 U	0.95 U*	120	0.057 U	8010	0.144 J	80300	0.631 U	0.647	NA	0.094 U	15.8	NA	0.0714 J	231	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-205	22-Aug-18	54	NA	13.8	1.82	98	541	7.09	1.12 U	19.6	467	0.068 J	7670	0.476 J	81100	2.96 U*	1.01	NA	0.445 J	15.3 U*	NA	0.0653 U	217	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-205	29-Nov-18	54	294	19.7	2	123	525	7.4 J	0.50 U	1.1	114	0.10 U	6560	0.11	67300	0.14 J	0.67	1.1	0.10 U	11.5	12600	0.20 U	241	5.2	2620	0.50 U	0.40 U	123000	0.10 U	0.83	5.0 U	ND
ALF-205	12-Apr-19	54	401	15.6	1.3	90.6	603	7.6	25.0 U	5.0 U	165	5.0 U	6790	4.0 U	101000	25.0 U	5.0 U	25.0 U	5.0 U	22.0 J	17700	0.20 U	135	6.0 J	2740	25.0 U	20.0 U	80800	5.0 U	15.0 U	250 U	1.76+-0.795 U*
ALF-205	25-Jun-19	54	409	15.6	1.3	89.9	606	7.0 J	0.50 U	1.2	197	0.058 J	6420	0.071 J	102000	0.50 U	1.4	1.1	0.078 J	19.0	20200	0.20 U	110	6.1	3200	0.50 U	0.50 U	63900	0.10 U	0.56 J	5.7	1.60+-0.718 J
ALF-205	18-Sep-19	54	443	13.9	1.7	89.6 J	628	7.1 J	0.077 U	0.91	206 J	0.054 U	6570	0.12	128000	0.26 U*	1.6	0.43 U	0.046 U	18.6	22100	0.093 U	112	6.4	3170	0.14 J	0.077 U	78800	0.047 U	0.62 J	2.4 U	1.25+-0.774 U
ALF-205	19-Dec-19	54	388	19.8	1.6	144	592	6.9 J	0.50 U	1.0	177	0.20 U	6780	0.083	112000	0.50 U	1.4	1.0 U	0.10 U	16.0	18800	0.20 U	126	5.8	3200	0.14 J	0.50 U	85300	0.10 U	0.62 J	5.0 U	0.241+-0.604 UJ
ALF-205	26-Feb-20	54	358 J	15.2	1.3	107	590	7.2 J	0.077 U	1.7	195	0.054 U	7310	0.049 J	114000	0.21 U	1.4	0.60 J	0.046 U	18.4	19500	0.093 U	89.1 J	5.4	2940	0.14 U	0.077 U	70200	0.047 U	0.51 J	2.4 U	0.523+-0.601 U
ALF-205	18-May-20	54	397	11.3 J	0.97 J	76.8 J	572	7.2 J	0.077 U	2.0	212	0.054 U	7380	0.12	127000	0.32 U*	1.8	0.43 U	0.14	19.3	21600	0.093 U	83.8	6.2	3120	0.14 U	0.077 U	72800	0.047 U	0.39 J	3.4 U*	0.825+-0.614 U
ALF-205	3-Sep-20	54	379	11.7	1.2	93.9 J	584	7.4 J	0.17 J	0.66	165	0.054 U	5970	0.63	99700	0.20 U	0.64	2.5	0.043 U	16.9	17800	0.080 U	101	5.7	2810	0.33 J	0.077 U	73600	0.047 U	1.8	5.6 U*	0.339+-0.482 U
ALF-205	15-Dec-20	54	292	13.3	1.5	112	518	7.1 J	0.11 J	0.74	142	0.054 U	6520	0.15	82500	0.47 U*	0.22 J	1.3	0.043 U	14.5	14400	0.080 U	133	4.3	2550	0.50	0.077 U	80200	0.047 U	1.3	3.1 U*	0.525+-0.658 UJ
ALF-205B	29-Sep-17	81.5	173	14.2	0.14	26.5	223	6.8 J	0.50 U	3.9	315	0.20 U	139	0.080 U	47000	0.14 U*	0.50 U	1.0 U	0.10 U	4.6	13700	0.20 U	1.5	0.20 U*	2860	0.50 U	0.50 U	14900	0.10 U	1.0 U	1.3 U*	ND
ALF-205B	19-Oct-17	81.5	171	15.2 J	0.12 J	25.5	228	6.7 J	0.50 U	2.7	329	0.20 U	123	0.080 U	47200	0.15 U*	0.50 U	1.0 U	0.10 U	4.5	13900	0.20 U	1.6	0.50 U	2720	0.50 U	0.50 U	14700	0.10 U	1.0 U	5.0 U	ND
ALF-205B	15-Nov-17	81.5	176	15.3	0.14	30.7	237 J	7.2 J	0.50 U	2	321 J	0.20 U	131 J	0.080 U	50000	0.50 U	0.50 U	1.0 U	0.10 U	4.5	13700	0.20 U	1.2	0.50 U	2650	0.50 U	0.50 U	14300	0.10 U	1.0 U	0.94 U*	0.97
ALF-205B	29-Nov-18	81.5	127	14.4	0.18	24.8	198	7.1 J	0.50 U	4	216	0.10 U	136	0.080 U	34900	0.16 J	0.080 J	0.20 J	0.081 J	3.8	9500	0.20 U	1.1	0.50 U	2360	0.50 U	0.40 U	13200	0.10 U	0.30 U	4.7 J	ND
ALF-205B	12-Apr-19	81.5	129	14.3	0.15	18.7	190	7.2	5.0 U	5	221	1.0 U	207 J	0.80 U	36100	5.0 U	1.0 U	5.0 U	1.0 U	4.2 J	9530	0.20 U	1.0 J	5.0 U	2400	5.0 U	4.0 U	13000	1.0 U	3.0 U	50.0 U	0.824+-0.718 U
ALF-205B	25-Jun-19	81.5	117	11.8	0.22	16.7	183	7.0 J	0.50 U	5.0	210	0.20 U	152	0.080 U	31200	0.50 U	0.50 U	1.0 U	0.10 U	4.0	8940	0.20 U	1.1	0.50 U	2720	0.50 U	0.50 U	13100	0.10 U	1.0 U	5.0 U	1.46+-0.830 J
ALF-205B	18-Sep-19	81.5	109	11.6	0.27	19.0 J	182	6.2 J	0.077 U	4.4	210 J	0.054 U	150	0.030 U	30700	0.51 U*	0.085 U	0.43 U	0.066 J	3.9	8480	0.093 U	0.99	0.38 J	2690	0.14 U	0.077 U	12700	0.047 U	0.27 U	3.7 J	1.46+-0.748
ALF-205B	19-Dec-19	81.5	111	16.2	0.27	16.9 J	170	5.7 J	0.50 U	4.1	208	0.20 U	119	0.080 U	31400	0.23 J	0.50 U	1.0 U	0.10 U	3.7	8680	0.20 U	1.0	0.22 J	2860	0.50 U	0.50 U	13600	0.10 U	1.0 U	5.0 U	0.352+-0.613 UJ
ALF-205B	26-Feb-20	81.5	102 J	10.4 J	0.23	16.9	157	6.9 J	0.077 U	5.1	202 J	0.054 U	82.2	0.030 U	29600	0.21 U	0.085 U	0.43 U	0.046 U	3.5	8420	0.093 U	0.94 U*	0.17 U*	2690	0.14 U	0.077 U	12400	0.047 U	0.27 U	2.4 U	0.860+-0.529 UJ
ALF-205B	18-May-20	81.5	128	10.6 J	0.17 J	7.3	164	7.1 J	0.077 U	5.4	222	0.054 U	74.8	0.030 U	36700	0.53 U*	0.085 U	0.43 U	0.046 U	3.6	9860	0.093 U	1.0	0.20 J	2750	0.14 U	0.077 U	12400	0.047 U	0.27 U	2.8 U*	0.834+-0.716 U
ALF-205B	9-Sep-20	81.5	132	10.2	0.15	14.9	195	7.1 J	0.077 U	4.5	231 J	0.054 U	83.7	0.030 U	35000	0.38 U*	0.085 U	0.43 U	0.043 U	3.7	10100	0.080 U	0.89	0.18 U	2710	0.14 U	0.077 U	12400	0.047 U	0.27 U	2.3 U	0.891+-0.853 U
ALF-205B	15-Dec-20	81.5	113	10.4	0.20	16.8	168	6.9 J	0.077 U	4.1	204	0.054 U	98.8	0.030 U	30100	0.29 U*	0.085 U	0.43 U	0.043 U	3.6	8610	0.080 U	1.1	0.18 U	2500	0.14 U	0.077 U	12100	0.047 U	0.27 U	2.3 U	0.993+-0.504 UJ
ALF-205A	29-Sep-17	107	109	17.2	0.15	22.8	157	6.9 J	0.50 U	0.48 J	283	0.20 U	80.1	0.080 U	28700	0.22 U*	0.50 U	0.36 U*	0.078 U*	3.2	10700	0.20 U	0.96	0.20 U*	2160	0.50 U	0.50 U	16000	0.10 U	1.0 U	4.7 U*	1.48
ALF-205A	18-Oct-17	107	114	18.4	0.16	25.6	176	6.6 J	0.50 U	0.40 J	264 J	0.20 U	74.1	0.080 U	27500	0.50 U	0.50 U	1.0 U	0.10 U	3.2	10800	0.20 U	1	0.50 U	1980	0.50 U	0.50 U	15200	0.10 U	1.0 U	1.6 U*	ND
ALF-205A	15-Nov-17	107	111	18	0.14	28.8	189 J	7.0 J	0.21 J	0.50 U	274 J	0.20 U	71.3 J	0.080 U	29100	0.50 U	0.50 U	0.37 U*	0.064 U*	3.2	10700	0.20 U	0.79	0.50 U	2020	0.50 U	0.50 U	14500	0.10 U	1.0 U	3.0 U*	1.28
ALF-205A	29-Nov-18	107	125	17.6	0.18	20.6	191	7.0 J	0.50 U	0.38	284	0.10 U	64.9	0.080 U	31000	0.35 J	0.079 J	0.12 J	0.11	2.9	11300	0.20 U	1.2	0.50 U	2100	0.50 U	0.40 U	15100	0.10 U	0.12 J	2.6 J	ND
ALF-205A	12-Apr-19	107	125	16.6	0.15	16.4	180	7.1	5.0 U	0.67 J	308	1.0 U	75.4 J	0.80 U	30800	5.0 U	1.0 U	5.0 U	1.0 U	25.0 U	10400	0.20 U	1.4 J	5.0 U	2080	5.0 U	4.0 U	14700	1.0 U	3.0 U	50.0 U	1.22+-0.665 U
ALF-205A	25-Jun-19	107	121	16.9	0.19	16.0	180	6.5 J	0.50 U	0.48 J	302	0.20 U	69.4	0.080 U	30400	0.50 U	0.50 U	1.0 U	0.10 U	3.1	11100	0.20 U	0.95	0.50 U	2250	0.50 U	0.50 U	14600	0.10 U	1.0 U	3.1 J	1.58+-0.781 J
ALF-205A	18-Sep-19	107	120	17.4	0.24	15.9 J	191	7.3 J	0.077 U	0.53	309 J	0.054 U	70.6	0.030 U	32500	0.21 U	0.085 U	0.43 U	0.046 U	3.2	11100	0.093 U	1.0	0.15 U	2380	0.14 U	0.077 U	15600	0.047 U	0.27 U	2.7 J	1.50+-0.625
ALF-205A	19-Dec-19	107	120	23.6	0.26	21.0	186	6.1 J	0.50 U	0.40 J	305	0.20 U	70.8	0.080 U	33000	0.50 U	0.50 U	1.0 U	0.10 U	3.0	11300	0.20 U	0.96	0.15 J	2430	0.50 U	0.50 U	15500	0.10 U	1.0 U	3.4 J	0.689+-0.695 UJ
ALF-205A	26-Feb-20	107	122 J	16.4 J	0.22	14.8	186	6.8 J	0.077 U	0.48 J	303 J	0.054 U	68.1	0.030 U	32500	0.21 U	0.085 U	0.43 U	0.046 U	3.5	11200	0.093 U	0.91	0.15 U	2420	0.14 U	0.077 U	15600	0.047 U	0.27 U	2.4 U	0.810+-0.570 J
ALF-205A	18-May-20	107	119	13.6 J	0.14 J	12.3 J	194	7.3 J	0.077 U	0.42 J	309	0.054 U	64.8	0.030 U	33400	0.31 U*	0.18 J	0.43 U	0.046 U	3.1	11400	0.093 U	0.88	0.15 U	2300	0.14 U	0.077 U	15000	0.047 U	0.27 U	4.4 U*	0.412+-0.506 U
ALF-205A	9-Sep-20	107	124	15.8	0.14	12.2	192	7.0 J	0.077 U	0.50	293 J	0.054 U	62.0	0.030 U	30100	0.51 U*	0.085 U	0.43 U	0.043 U	2.7	10700	0.080 U	0.89	0.25 J	2160	0.14 U	0.077 U	14300	0.047 U	0.27 U	2.3 U	0.416+-0.690 U
ALF-205A	15-Dec-20	107	125	15.2	0.18	13.2	173	6.9 J	0.077 U	0.45 J	298	0.054 U	65.4	0.030 U	30500	0.43 U*	0.085 U	0.43 U	0.043 U	3.1	10800	0.080 U	1.0	0.20 J	2230	0.14 U	0.077 U	14700	0.047 U	0.27 U	6.0 U*	0.786+-0.508 UJ

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	Date	Depth																														
ALF 206																																
ALF-206	16-Nov-16	54	NA	11.7	0.302	16.2	242	7.15	0.227 U*	3.22 J	241	0.102 U	121	0.152 U	50000	0.339 U	0.05 J	NA	0.0675 U	7.52 U*	NA	0.0521 U	2.77 J	NA	NA	0.348 U	NA	NA	0.036 U	NA	NA	NA
ALF-206	30-Jan-17	54	NA	17.8	0.315	17.1	220	7.07	0.691 U*	4.48	245	0.131 U	125 J	0.0781 U	50200	0.378 U	0.0947 U	NA	0.318 U	9.31 U*	NA	0.0521 U	2.03 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-206	28-Feb-17	54	NA	17.5	0.24	17.3	242	7.09	0.527 U*	5.36	232	0.131 U	118	0.0781 U	46000	0.378 U	0.0947 U	NA	0.318 U	7.68 U*	NA	0.0653 U	1.69 J	NA	NA	1.27 U	NA	NA	0.198 U*	NA	NA	NA
ALF-206	29-Mar-17	54	NA	16.9	0.361	18	236	7.03	0.91 U*	5.8	237	0.131 U	93.2	0.0781 U	42500	0.378 U	0.0947 U	NA	0.318 U	6.42 U*	NA	0.0653 U	1.7 U*	NA	NA	1.27 J	NA	NA	0.0531 U	NA	NA	NA
ALF-206	18-Apr-17	54	NA	18.3	0.355	21.8	215	7.06	0.762 U*	4.89	243	0.131 U	87.9	0.0781 U	44000	0.378 U	0.0947 U	NA	0.318 U	5.5	NA	0.0653 U	2.21 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-206	9-May-17	54	NA	17.3	0.331	23	229	7.12	0.443 U	6.44	281	0.131 U	131	0.0781 U	45400	0.378 U	0.0947 U	NA	0.318 U	5.85 U*	NA	0.0653 U	2.63 U*	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-206	1-Jun-17	54	NA	16.6	0.322 J	22.8	207	-	2.00 U	5.56 J	252 J	2.00 U	237 U*	1.00 U	41200 J	2.00 U	2.00 U	NA	2.00 U	4.78 J	NA	0.200 U	2.24 J	NA	NA	2.00 U	NA	NA	2.00 U	NA	NA	0.43
ALF-206	13-Jun-17	54	NA	16.4	0.401	24.3	218	7.21	0.443 U	5.31	238	0.131 U	103	0.0781 U	39800	0.378 UJ	0.0947 U	NA	0.318 U	5.84	NA	0.0653 U	2.33 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-206	13-Jul-17	54	NA	16.4	0.372	23.4	216	7.27	2.5 U*	5.55	229	0.131 U	113	0.0781 U	40000	0.378 U	0.0947 U	NA	0.318 U	6.86	NA	0.0653 U	2.46 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-206	19-Jul-17	54	NA	15.8	0.331	18.2	168	7.27	0.543 U*	7.5	233	0.131 U	178	0.0781 U	42900	0.378 U	0.0947 U	NA	0.318 U	5.5	NA	0.0653 U	2.3 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-206	23-Aug-17	54	NA	16.9	0.337	23	227	7.4	0.443 U	4.71	197	0.131 U	141 U*	0.0781 U	43400	0.378 U	0.0947 U	NA	0.318 U	5.32	NA	0.0653 U	3.4 U*	NA	NA	1.27 U	NA	NA	0.163 U*	NA	NA	NA
ALF-206	28-Sep-17	54	149	16.6	0.26	22.3	236 J	6.9 J	0.50 U	8.2	244	0.20 U	108	0.080 U	44900	0.13 U*	0.50 U	1.0 U	0.10 U	5.3	11400	0.20 U	2.4	0.13 U*	2670	0.50 U	0.50 U	14200	0.10 U	1.0 U	1.1 U*	ND
ALF-206	18-Oct-17	54	179	18.4	0.31	23.1	240	6.7 J	0.50 U	10.9	263 J	0.20 U	114	0.080 U	45200	0.50 U	0.50 U	1.0 U	0.10 U	5.7	12900	0.20 U	2.5	0.50 U	2630	0.50 U	0.50 U	15100	0.10 U	1.0 U	2.3 U*	ND
ALF-206	16-Nov-17	54	173	18	0.24	23.7	251	7.1 J	0.50 U	8.3	281	0.20 U	121	0.080 U	52600	0.50 U	0.50 U	1.0 U	0.10 U	5.7	13000	0.20 U	2.3	0.50 U	2620	0.50 U	0.50 U	14400	0.10 U	1.0 U	1.8 U*	ND
ALF-206	6-Jun-18	54	NA	16.1	0.336	29.5	236	6.87	1.12 U	7.79	324	0.057 U	107	0.125 U	48500	1.61 U*	0.075 U	NA	0.094 U	7.5 U*	NA	0.0653 U	2.45 J	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-206	20-Jun-18	54	NA	15.8	0.318	26.2	267	7.16	1.12 U	8.27	299	0.057 U	121	0.125 U	51000	1.44 U*	0.115 J	NA	0.094 U	7.7	NA	0.0653 U	2.45 J	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-206	19-Jul-18	54	NA	16.4	0.262	27.8	250	7.03	1.12 U	7.59	294	0.057 U	92.4	0.125 U	49700	1.74 U*	0.077 J	NA	0.094 U	5.09	NA	0.0653 U	2.25 J	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-206	1-Aug-18	54	NA	17.5	0.326	28.8	244	7.16	1.12 U	8.58	240	0.057 U	114	0.125 U	49900	0.631 U	0.075 U	NA	0.094 U	5.79	NA	0.0653 U	2.08 U*	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-206	22-Aug-18	54	NA	13.7	0.311	24.1	257	7.05	1.12 U	9.13	284	0.057 U	114	0.125 U	48700	2.39 U*	0.075 U	NA	0.094 U	5.89 U*	NA	0.0653 U	2.43 U*	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-206	4-Dec-18	54	154	16.4	0.29	26.1	228	7.1	0.50 U	6.3	262	0.10 U	86	0.080 U	42800	0.94	0.092 J	0.25 J	0.10 U	4.8	11200	0.20 U	2.5	2.6	2590	0.50 U	0.40 U	14800	0.10 U	0.20 J	2.8 J	ND
ALF-206	9-Apr-19	54	135	13.6	0.29	30.9	205	7.1	0.50 U	5.6	222	0.10 U	60.6	0.080 U	44300	0.50 U	0.061 J	0.50 U	0.10 U	4.1	8470	0.20 U	2.1	0.24 J	2220	0.50 U	0.40 U	12900	0.10 U	0.30 U	5.0 U	0.903+-0.577 U
ALF-206	24-Jun-19	54	133	12.2	0.34	29.7	210	6.5 J	0.50 U	6.0	246	0.20 U	70.4	0.080 U	38100	0.50 U	0.50 U	1.2	0.10 U	4.2	9500	0.20 U	2.4	0.50 U	2490	0.50 U	0.50 U	13600	0.10 U	1.0 U	5.0 U	1.80+-0.743 J
ALF-206	18-Sep-19	54	136	12.1	0.46	27.2 J	231	6.5 J	0.077 U	7.1	234	0.054 U	88.4	0.030 U	42800	0.21 U	0.085 U	0.43 U	0.046 U	4.6	10500	0.093 U	2.4	0.15 U	2680	0.14 U	0.077 U	14600	0.047 U	0.27 U	2.4 U	1.84+-0.800
ALF-206	18-Dec-19	54	124	14.2	0.35	32.3	202	6.4 J	0.50 U	5.9	224	0.20 U	76.2	0.080 U	35700	0.50 U	0.50 U	1.0 U	0.10 U	4.0	8940	0.20 U	2.4	0.16 J	2430	0.50 U	0.50 U	14000	0.10 U	1.0 U	5.0 U	0.217+-0.629 U
ALF-206	25-Feb-20	54	115	10.6 J	0.40	21.1 J	186	7.0 J	0.077 U	5.6	202	0.054 U	75.7	0.030 U	31500	0.21 U	0.085 U	0.43 U	0.046 U	3.7	7680	0.093 U	2.3	0.15 U	2250	0.14 U	0.077 U	12400	0.047 U	0.27 U	2.4 U	0.661+-0.650 U
ALF-206	19-May-20	54	128	8.9 J	0.28 J	12.0 J	179	7.5 J	0.077 U	6.2	212 J	0.054 U	71.8	0.030 U	34200	0.30 U*	0.085 U	0.43 U	0.046 U	4.4	8770	0.075 U	2.2	0.15 U	2280 J	0.14 U	0.077 U	13000	0.047 U	0.27 U	2.9 U*	0.000+-0.442 U
ALF-206	2-Sep-20	54	137	10.8	0.29	13.4	199	7.6 J	0.077 U	7.5	222 J	0.054 U	76.7	0.030 U	37500	0.35 U*	0.085 U	0.43 U	0.043 U	4.4	9370	0.080 U	2.5	0.18 U	2330	0.14 U	0.077 U	12600	0.047 U	0.27 U	5.3 U*	1.76+-0.859
ALF-206	10-Dec-20	54	127	12.7	0.40	21.4	200	6.9 J	0.077 U	7.8	204	0.054 U	83.2	0.030 U	35200	0.33 U*	0.085 U	0.43 U	0.043 U	4.5	8980	0.080 U	2.5	0.18 U	2170	0.14 U	0.077 UJ	12700	0.047 U	0.27 U	2.3 U	0.0282+-0.544 U
ALF 210																																
ALF-210	15-Nov-16	47	NA	1.14	0.189	5.49	488	6.67	0.33 U*	9.57 J	298	0.102 U	80.3	0.152 U	133000	0.339 U	2.46	NA	0.0675 U	23.1	NA	0.0521 U	2.37 J	NA	NA	0.687 J	NA	NA	0.036 U	NA	NA	NA
ALF-210	30-Jan-17	47	NA	1.28	0.169	0.876 J	488	6.78	0.998 U*	3.46	323	0.131 U	84	0.0781 U	137000	0.378 U	0.212 J	NA	0.318 U	24.6	NA	0.0521 U	1.54 J	NA	NA	1.27 U	NA	NA	0.135 J	NA	NA	NA
ALF-210	28-Feb-17	47	NA	1.11 J	0.183	5.14	506	6.73	0.565 U*	10.6	328	0.131 U	79.4 J	0.0781 U	137000	0.378 U	1.82	NA	0.318 U	23.3	NA	0.0653 U	2.58 J	NA	NA	1.27 U	NA	NA	0.11 U*	NA	NA	NA
ALF-210	28-Mar-17	47	NA	1.18	0.216	1.62	503	6.73	1.42 U*	9.24	313	0.131 U	67.5 J	0.0781 U	123000	0.378 U	0.726	NA	0.318 U	21	NA	0.0653 U	1.41 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-210	18-Apr-17	47	NA	1.5	0.261	0.97 J	491	6.76	0.478 U*	3.51	339	0.131 U	69.4 J	0.0781 U	132000	0.378 U	0.164 J	NA	0.318 U	20.4	NA	0.0653 U	1.37 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-210	9-May-17	47	NA	1.4	0.227	3.08	537	6.83	0.443 U	2.93	424	0.131 U	83.1	0.0781 U	158000	0.378 U	0.096 U*	NA	0.318 U	23	NA	0.0653 U	1.08 U*	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-210	13-Jun-17	47	NA	1.34	0.287	7.54	524	6.73	0.443 U	6.71	361	0.131 U	69.1 J	0.0781 U	131000	0.378 UJ	0.97	NA	0.318 U	20.6	NA	0.0653 U	1.22 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-210	13-Jul-17	47	NA	1.45	0.279	11.1	495	6.72	1.03 U*	6.37	335	0.131 U	83 U*	0.0781 U	136000	0.378 U	1.05	NA	0.318 U	21.1	NA	0.0653 U	1.22 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-210	18-Jul-17	47	NA	1.56	0.208	8.47	496	6.72	0.669 U*	7.03	324	0.131 U	80.7	0.0781 U	135000	0.378 U	1.81	NA	0.318 U	20.7	NA	0.0653 U	1.61 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-210	23-Aug-17	47	NA	1.21	0.212	12.5	481	6.78	0.918 U*	4.74	311	0.131 U	80.5	0.0781 U	132000	0.378 U	1.24	NA	0.318 U	20.3	NA	0.0653 U	1.76 U*	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-210	26-Sep-17	47	437	0.98 J	0.2	13.0 J	463	6.8 J	0.50 U	4.6	347	0.20 U	70.0 J	0.080 U	136000	0.16 U*	1.1	1.0 U	0.10 U	20.1	30000	0.20 U	1.8	2.6	2980	0.20 J	0.50 U	3420	0.10 U	1.0 U	5.0 U	ND
ALF-210	16-Oct-17	47	473	0.82 J	0.2	11.8	416	7.0 J	0.50 U	1.8	308	0.20 U	76.2	0.080 U	128000	0.13 J	0.75	0.29 J	0.062 U*	21.6	28100 J	0.20 U	1.7	2.1	2890	0.40 J	0.50 U	3190	0.036 U*	1.0 U	1.7 J	ND
ALF-210	13-Nov-17	47	459	0.81 J	0.2	10.7	460	8.2 J	0.50 U	4.9	371	0.20 U	69.5	0.080 U	136000	0.50 U	0.48 J	1.0 U	0.061 U*	21.1	29700	0.20 U	1.3	0.97	3060	0.25 J	0.50 U	3410	0.029 J	1.0 U	1.3 U*	ND
ALF-210	5-Jun-18	47	NA	0.98 J	0.253	11.6	508	6.61	1.12 U	1.18	339	0.057 U	69.4 J	0.125 U	115000	1.01 U*	2.14	NA	0.094 U	23.8	NA	0.0653 U	1.77 J	NA	NA	2.18 J	NA	NA	0.063 U	NA	NA	NA
ALF-210	19-Jun-18	47	NA	1.13	0.243	14.1	490	6.59	1.12 U	1.14 U*	349	0.057 U	74.1 J	0.125 U	134000	1.79 U*	2.74	NA	0.094 U	25.9	NA	0.0653 U	1.73 J	NA	NA	13.8	NA	NA	0.063 U	NA	NA	NA
ALF-210	17-Jul-18	47	NA	1.17	0.227	13.7	495	6.65	1.12 U	1.7	343	0.057 U	63 J	0.125 U	133000	1.47 U*	2.72	NA	0.094 U	22.4	NA	0.0653 U	1.67 J	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-210	31-Jul-18	47	NA	19.1 J	1.71 J	102 J	491	6.56	1.12 U	1.4 U*	305	0.057 U	72.6 J	0.125 U	133000	0.631 U	2.29	NA	0.094 U	23.1	NA	0.0653 U	1.82 U*	NA	NA	1.85 J	NA	NA	0.063 U	NA	NA	NA
ALF-210	21-Aug-18	47	NA	0.955 J	0.217	10.3	491	6.63	1.12 U	2.74	337	0.057 U	76 J	0.125 U	130000	1.79 U*	2.5	NA	0.094 U	21.3	NA	0.0653 U	1.71 U*	NA	NA	0.991 J	NA	NA	0.063 U	NA	NA	NA
ALF-210	27-Nov-18	47	497	0.98 J	0.22	12.6	486	6.8 J	1.0 U	3.4	311	0.10 U	65	0.080 U	126000	0.50 U	1.2 J	0.50 U	0.10 U	19.8	30600	0.20 U	1.4	1.5	2640	0.32 J	0.40 U	4750	2.0 U	0.30 U	5.0 U	ND
ALF-210	9-Apr-19	47	466	0.96 J	0.21	12.9	472	6.8	0.50 U	1.3	291	0.10 U	63.5	0.080 U	141000	4.5	2.3	0.35 J	0.10 U	18.1	29300	0.20 U	1.7	5.1	2370	1.3	0.40 U	3950	0.10 U	0.30 U	1.7 J	0.858+-0.644 U
ALF-210	19-Jun-19	47	462	1.1 J	0.25	11.1	469	6.6 J	0.50 U	1.2	363	0.20 U	68.8	0.080 U	139000	0.50 U	1.9	0.43 J	0.10 U	20.9	30400	0.20 U	1.7	3.2	2460	0.78	0.50 U	4100	0.10 U	1.0 U	2.8 J	2.48+-0.770 U*
ALF-210	11-Sep-19	47	429	1.1 U*	0.36	11.8	459	7.2 J	0.077 U	1.2	321	0.054 U	74.1	0.030 U	128000	0.21 U	2.1	0.43 U	0.046 U	21.4	31300	0.093 U	1.6	3.3	2580	0.29 J	0.077 U	3910	0.047 UJ	0.27 U	2.4 U	0.842+-0.594 U
ALF-210	12-Dec-19	47	443	1.8	0.34	16.2	457	7.0 J	0.50 U	2.2	337	0.20 U	69.1	0.080 U	132000	0.50 U	2.3	1.0 U	0.10 U	20.0	29800	0.20 U	1.6	3.4	2700	0.22 J	0.50 U	3770	0.10 U	1.0 U	5.0 U	1.79+-0.821 J
ALF-210	24-Feb-20	47	434	1.2 J	0.28	12.0 J	476	6.8 J	0.077 U	0.95	315	0.054 U	74.7	0.035 J	130000	0.21 U	2.3	0.43 U	0.046 U	19.3	30900	0.093 U	1.7	3.8	2580	0.32 J	0.077 U	3770	0.047 U	0.27 U	2.4 U	1.12+-0.742 J
ALF-210	12-May-20	47	409	0.58 J	0.24 J	8.5 J	437	6.8 J	0.12 J	0.70	294	0.054 U	79.0	0.10	120000	0.25 U*	0.95	1.7	0.046 U	18.9	32400	0.093 U	1.8	8.2	2370	0.64	0.077 U	4260	0.047 U	0.39 J	15.0 U*	0.559+-0.642 U
ALF-210	1-Sep-20	47	406	0.68 J	0.22	8.2	439	7.3 J	0.077 U	1.5	292 J	0.054 U	75.0	0.044 J	125000	0.29 U*	2.3	0.43 U	0.043 U	20.0	30600	0.080 U	1.8	3.8	2450 J	0.88	0.077 U	3520 J	0.047 U	0.27 U	2.8 U*	1.08+-0.709 J
ALF-210	8-Dec-20	47	415	0.83 J	0.31	9.8	385	6.8 J	0.077 U	2.5	338	0.054 U	80.3	0.048 J	120000	0.45 U*	3.4	0.43 U	0.043 U	20.2	27800	0.080 U	2.0	3.3	2680	0.41 J	0.077 U	3470	0.047 U	0.49 J	2.3 U	0.416+-0.640 U
ALF-210B	11-Feb-20	84.5	391	12.8 J	0.18	1.1 J	446	NA	0.077 U	2.3	599	0.054 U	331	0.030 U	108000	0.21 U	0.14 J	0.43 U	0.046 U	14.4	27600	0.093 U	2.1	0.20 J	3760	0.14 U	0.077 U	15400	0.047 U	0.27 U	2.4 U	2.06+-0.746 U*
ALF-210B	12-May-20	84.5	337	14.4 J	0.21 J	0.42 UJ	387	6.7 J	0.12 J	2.8	550	0.054 U	320	0.030 U	96400	0.28 U*	0.12 J	0.43 U	0.046 U	13.1	25700	0.093 U	2.3	0.24 J	3630	0.14 U	0.077 U	15400	0.047 U	0.27 U	5.8 U*	1.29+-0.621 J
ALF-210B	2-Sep-20	84.5	416	9.7	0.18	0.42 UJ	475	7.0 J	0.084 J	1.9	522	0.054 U	220 J	0.030 U	117000	0.45 U*	0.11 J	0.43 U	0.043 U	14.0	28200	0.080 U	1.5	0.27 J	3650	0.14 U	0.077 U	10400	0.047 U	0.27 U	4.1 U*	1.24+-0.710 J
ALF-210B	8-Dec-20	84.5	464	10.7	0.25	0.42 U	515	6.9 J	0.081 J	1.8	562	0.054 U	231	0.030 U	118000	0.39 U*	0.13 J	0.43 U	0.062 J	15.1	30400	0.080 U	1.4	0.26 J	3790	0.14 U	0.080 J	11000	0.047 U	0.27 U	2.3 U	2.16+-0.807 J
ALF-210A	26-Sep-17	125	350	49.6	0.26	126 J	807	7.2 J	0.50 U	0.54	307	0.20 U	1890 J	0.080 U	133000	0.19 U*	0.50 U	1.0 U	0.10 U	19.8	36800	0.20 U	3.5	0.28 U*	5690	0.50 U	0.50 U	86200	0.10 U	1.0 U	2.6 U*	ND
ALF-210A	17-Oct-17	125	361	51.4	0.18	224	804	6.9 J	0.50 U	0.5	252	0.20 U	2110	0.080 U	139000	0.15 U*	0.50 U	1.0 U	0.10 U	13	40700	0.20 U	1.5	0.15 J	5410 J	0.50 U	0.50 U	71700	0.10 U	1.0 U	1.8 U*	ND
ALF-210A	14-Nov-17	125	365	63.8	0.13 J	215	816	7.8 J	0.50 U	0.7	238	0.20 U	2190	0.080 U	153000	0.50 U	0.50 U	0.30 U*	2.0 U	11.3	41100	0.20 U	1.3	0.24 U*	5230	0.50 U	0.50 U	63300	0.10 U	1.0 U	1.9 U*	ND
ALF-210A	28-Nov-18	125	354	67.7	0.089 J	205	782	7.2	0.50 U	0.58	150	0.10 U	2320	0.080 U	138000	0.50 U	0.035 J	0.16 J	0.10 U	9	39200	0.20 U	0.86	0.94	4700	0.50 U	0.40 U	66200	0.10 U	0.30 U	5.0 U	ND
ALF-210A	9-Apr-19	125	307	78.5	0.084 J	239	865	6.9	5.0 U	1.0 U	129	0.10 U	1890	0.80 U	155000	5.0 U	1.0 U	5.0 U	1.0 U	7.0 J	33700	0.20 U	5.0 U	5.0 U	4240	5.0 U	4.0 U	59100	1.0 U	3.0 U	50.0 U	1.03+-0.702 U
ALF-210A	19-Jun-19	125	295	73.3	0.095	261	806	6.6 J	0.50 U	0.51	117	0.20 U	2070	0.080 U	143000	0.50 U	0.50 U	1.0 U	0.10 U	8.1	37400	0.20 U	0.51	0.28 U*	4370	0.50 U	0.50 U	70900	0.10 U	1.0 U	2.5 J	2.07+-0.732 U*
ALF-210A	11-Sep-19	125	299 J	58.9 J	0.15	190 J	703	6.6 J	0.077 U	1.1	127	0.054 U	2220	0.030 U	122000	0.21 U	0.085 U	0.46 U*	0.082 J	8.1	31800	0.093 U	1.2	1.2 U*	4660	0.14 U	0.077 U	58900	0.047 U	0.27 U	2.5 J	0.847+-0.667
ALF-210A	11-Dec-19	125	287	103	0.13	345	817	6.9 J	0.50 U	0.51	142	0.20 U	1740	0.080 U	152000	0.50 U	0.50 U	1.0 U	0.051 U*	8.3	35900	0.20 U	0.68	0.21 J	4890	0.50 U	0.50 U	68300	0.10 U	1.0 U	5.0 U	2.36+-0.936 U*
ALF-210A	18-Feb-20	125	281	72.8	0.099	259 J	818	7.0 J	0.077 U	0.52	112	0.054 U	2060	0.030 U	147000	0.21 U	0.085 U	0.43 U	0.046 U	8.0	38400	0.093 U	0.49 J	0.15 U	4630	0.14 U	0.077 U	70700	0.047 U	0.27 U	2.4 U	1.00+-0.564 J
ALF-210A	12-May-20	125	280	64.0 J	0.094 J	207	796	7.1 J	0.077 U	0.81	117	0.054 U	1950	0.030 U	133000	0.27 U*	0.11 J	0.43 U	0.15	7.4	36600	0.093 U	0.95	0.35 J	4600	0.14 U	0.077 U	63100	0.047 U	0.27 U	3.9 U*	1.07+-0.685 U
ALF-210A	2-Sep-20	125	280	57.4	0.081	165 J	648	7.1 J	0.077 U	1.0	120 J	0.054 U	2030	0.030 U	111000	0.38 U*	0.085 U	0.43 U	0.043 U	7.5	29000	0.080 U	1.1	0.23 J	4380	0.14 U	0.077 U	56800	0.047 U	0.27 U	5.1 U*	0.962+-0.714 J
ALF-210A	8-Dec-20	125	300	74.5	0.085 J	247	645	6.8 J	0.13 J	0.49 J	255	0.054 U	219	0.26	120000	0.46 U*	0.16 J	0.43 U	0.043 U	18.0	29200	0.080 U	1.5	8.0	2140	0.14 U	0.077 U	7280	0.047 U	0.80 J	3.4 U*	1.17+-0.775 J

Stantec

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	Date	Depth																														
ALF 212																																
ALF-212	15-Nov-16	67	NA	10.3	1.63	16	443	6.96	0.166 U*	11.6	273	0.102 U	2770	0.152 U	91600	0.339 U	0.283 J	NA	0.0675 U	14.6	NA	0.0521 U	38.5	NA	NA	0.348 U	NA	NA	0.036 U	NA	NA	NA
ALF-212	31-Jan-17	67	NA	20.2	1.42	18.9	522	6.94	0.611 U*	12.2	285	0.131 U	3270	0.0781 U	102000	0.378 U	0.239 U*	NA	0.318 U	17.7 U*	NA	0.0521 U	37.7	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-212	28-Feb-17	67	NA	20	1.42	17.9	491	6.97	0.834 U*	15.4	305	0.131 U	3060	0.0781 U	101000	0.378 U	0.393 J	NA	0.318 U	16.3	NA	0.0653 U	40.8	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-212	28-Mar-17	67	NA	17.5	1.19	13.8	495	6.89	0.663 U*	14.5	286	0.131 U	2210	0.0781 U	91900	0.378 U	0.216 J	NA	0.318 U	14.3 U*	NA	0.0653 U	38.8	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-212	18-Apr-17	67	NA	20.7	1.02	18.1	480	6.93	0.443 U	8.45	287	0.131 U	2390	0.0781 U	96300	0.378 U	0.254 J	NA	0.318 U	14.9	NA	0.0653 U	39.6	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-212	10-May-17	67	NA	20.3	0.656	22.2	502	6.86	0.443 U	5.56	324	0.131 U	3760	0.0781 U	109000	0.378 U	0.251 U*	NA	0.318 U	17.2	NA	0.0653 U	45.6	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-212	1-Jun-17	67	NA	19.7 J	0.653 J	17.5 J	481 J	-	2.00 U	7.92	332 J	2.00 U	3000	1.00 U	103000 J	2.00 U	2.00 U	NA	2.00 U	14.1 J	NA	0.200 UJ	41.7 J	NA	NA	2.00 U	NA	NA	2.00 U	NA	NA	ND
ALF-212	13-Jun-17	67	NA	21	0.842	19.4	488	6.99	0.443 U	7.93	303	0.131 U	3050	0.0781 U	99200	0.378 UJ	0.235 J	NA	0.318 U	15.8	NA	0.0653 U	40.8	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-212	13-Jul-17	67	NA	21.3	0.982	24.6	487	6.97	0.567 U*	8.85	305	0.131 U	2800	0.0781 U	105000	0.378 U	0.263 J	NA	0.318 U	14.7	NA	0.0653 U	43.9	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-212	19-Jul-17	67	NA	21.8	0.961	20.2	468	6.98	0.443 U	12.3	299	0.131 U	3300	0.0781 U	105000	0.378 U	0.322 J	NA	0.318 U	14.8	NA	0.0653 U	47.4	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-212	23-Aug-17	67	NA	18.5	2.22	9.26	402	7.26	0.535 U*	36.3	241	0.131 U	2210	0.0781 U	74500	0.406 J	0.192 J	NA	0.376 J	10.3	NA	0.0653 U	40.7	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-212	27-Sep-17	67	369	18.7	1.8	15.6 J	420 J	7.0 J	0.50 U	23.4	255	0.17 J	2650	0.080 U	78500	0.41 U*	0.24 J	0.24 J	0.058 U*	12.8	20200	0.20 U	39.1	0.54 U*	2700	0.50 U	0.50 U	41900	0.10 U	0.36 J	4.0 U*	ND
ALF-212	17-Oct-17	67	392	17.9	1.9	11.1	418	7.1 J	0.50 U	27	265	0.20 U	2640	0.080 U	88000	0.21 U*	0.24 J	1.0 U	0.10 U	11.8	22000	0.20 U	40.7	0.35 J	2990 J	0.19 J	0.50 U	45700	0.10 U	1.0 U	1.3 U*	ND
ALF-212	16-Nov-17	67	373	16.5	1.4	13.8	441	7.2 J	0.50 U	22.2	261	0.14 J	2040	0.080 U	85400	0.24 J	0.25 J	1.0 U	0.10 U	13.1	21900	0.20 U	37.4	0.37 U*	2590	0.20 J	0.50 U	40500	0.10 U	1.0 U	0.89 U*	ND
ALF-212	6-Jun-18	67	NA	15.9	1.12	2.87	369	6.59	1.12 U	14.7	247	0.057 U	1890	0.125 U	72400	1.68 U*	0.258 J	NA	0.094 U	15.1	NA	0.0653 U	51.8	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-212	19-Jun-18	67	NA	15	1.11	4.75	370	6.99	1.12 U	13.3	241	0.057 U	2220	0.125 U	74200	1.8 U*	0.334 J	NA	0.094 U	11.5 U*	NA	0.0653 U	54.7	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-212	18-Jul-18	67	NA	17.4	1.18	3.05	373	6.84	1.12 U	13	234	0.057 U	1820	0.125 U	75000	1.13 U*	0.249 J	NA	0.094 U	11.7	NA	0.0653 U	50.3	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-212	31-Jul-18	67	NA	16.5 J	0.99 J	3.75 J	376	7.08	1.12 U	11.7	189	0.057 U	2140	0.125 U	71400	0.631 U	0.155 J	NA	0.094 U	12.3	NA	0.0653 U	51.1	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-212	21-Aug-18	67	NA	11.6	1.37	3.49	378	7.1	1.12 U	15.5	196	0.057 U	2070	0.125 U	63400	2.29 U*	0.288 J	NA	0.094 U	11.1	NA	0.0653 U	50.1	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-212	29-Nov-18	67	311	16.5	1.5	7	358	7.2 J	0.50 U	15.4	210	0.10 U	1710	0.080 U	64100	0.39 J	0.32	0.44 J	0.24	9.9	16500	0.20 U	52.9	0.6	2310	0.50 U	0.40 U	39000	0.10 U	0.57	5.0 U	ND
ALF-212	11-Apr-19	67	376	17	1.3	6.2	416	7.3	2.5 U	12.7	233	0.50 U	1920	0.40 U	79500	2.5 U	0.31 J	2.5 U	0.50 U	12.2 J	18600	0.20 U	35.7	2.5 U	2290	2.5 U	2.0 U	36300	0.50 U	1.5 U	25.0 U	0.719+-0.645 U
ALF-212	20-Jun-19	67	343 J	17.5	1.4	3.2	416	7.0 J	0.50 U	13.8	311 J	0.20 U	1980	0.080 U	85600	0.50 U	0.28 J	1.0 U	0.10 U	11.7	21400	0.20 U	39.2	0.39 J	2430	0.22 J	0.50 U	37700	0.10 U	0.29 J	2.4 U*	0.490+-0.489 UJ
ALF-212	13-Sep-19	67	343	15.8 J	1.6	2.3 U*	407	7.1 J	0.077 U	10.4	249	0.054 U	1600	0.030 U	75300	0.22 U*	0.24 J	0.43 U	0.046 U	12.0	19500	0.093 U	37.6	0.22 J	2180	0.21 J	0.077 U	37400	0.047 U	1.3 U	2.4 U	0.723+-0.659 U
ALF-212	13-Dec-19	67	289	23.0	1.7	7.0	361	7.1 J	0.50 U	12.4	215	0.20 U	1690	0.080 U	70200	0.32 U*	0.33 J	1.0 U	0.089 J	11.5	17700	0.20 U	48.5	0.42 J	2310	0.25 J	0.50 U	37500	0.10 U	0.38 J	3.8 J	0.0413+-0.495 UJ
ALF-212	25-Feb-20	67	265	15.2 J	1.7	2.2 J	340	6.8 J	0.077 U	12.4	196	0.054 U	2020	0.030 U	61300	0.21 U	0.22 J	1.2 U*	0.046 U	10.1	15100	0.093 U	46.2	0.28 J	2280	0.19 J	0.077 U	35800	0.047 U	0.27 J	2.4 U	0.679+-0.664 U
ALF-212	13-May-20	67	308	13.6 J	1.3 J	1.6 J	371	6.9 J	0.077 U	7.9	221	0.054 U	1770	0.030 U	72300	0.21 U	0.24 J	0.43 U	0.046 U	11.6	18400	0.093 U	38.7	0.32 J	2250	0.20 J	0.077 U	38200	0.047 U	0.27 U	16.2 U*	1.77+-0.752 J
ALF-212	1-Sep-20	67	315	15.5	1.5	1.2	361	7.2 J	0.077 U	13.4	229 J	0.054 U	1850	0.030 U	69100	0.32 U*	0.26 J	0.43 U	0.043 U	11.8	19000	0.080 U	41.1	0.34 J	2520	0.22 J	0.077 U	39300	0.047 U	0.27 U	2.3 U	0.574+-0.689 U
ALF-212	9-Dec-20	67	298	17.1	1.9	3.5	310	7.1 J	0.077 U	14.6	210	0.054 U	1940	0.030 U	65200	0.49 U*	0.24 J	0.43 U	1.3	11.9	16300	0.080 U	43.8	0.44 J	2420	0.20 J	0.077 U	39700	0.047 U	0.27 U	11.0 U*	0.816+-0.681 UJ
ALF-212A	29-Sep-17	165	280	37.1	0.14	1.0 U	307	6.8 J	0.50 U	4.9	454	0.20 U	52.8	0.080 U	68900	0.15 U*	0.76	1.7 U*	0.11 U*	3	25500	0.20 U	1.3	1.3	2680	0.50 U	0.50 U	12300	0.10 U	1.0 U	4.8 U*	1.17
ALF-212A	18-Oct-17	165	278	39.6	0.12	1.0 UJ	325	6.7 J	0.50 U	4.5	402 J	0.20 U	60.2	0.080 U	63300	0.16 U*	0.73	0.48 U*	0.056 J	3	23800	0.20 U	1.4	1.3	2480	0.50 U	0.50 U	12600	0.10 U	1.0 U	3.3 U*	ND
ALF-212A	15-Nov-17	165	254	36.6	0.16	1.0 U	310 J	6.9 J	0.50 U	2.7	409 J	0.20 U	68.3 J	0.080 U	60500	0.50 U	0.7	1.0 U	0.10 U	3	22800	0.20 U	1.5	0.82 U*	2500	0.50 U	0.50 U	13000	0.10 U	1.0 U	4.8 U*	1.49
ALF-212A	29-Nov-18	165	271	41.1	0.17	1.0 U	315	6.8 J	0.50 U	3.1	380	0.10 U	52.3	0.080 U	67900	0.12 J	0.21	0.12 J	0.10 U	2.6	25500	0.20 U	1.4	0.50 U	2540	0.50 U	0.40 U	13100	0.10 U	0.30 U	5.0 U	ND
ALF-212A	11-Apr-19	165	258	41.5	0.16	1.0 U	304	7.1	2.5 U	3.2	387	0.50 U	61.5 J	0.40 U	65500	2.5 U	0.50 U	2.5 U	0.50 U	3.1 J	23400	0.20 U	1.3 J	2.5 U	2610	2.5 U	2.0 U	11900	0.50 U	1.5 U	25.0 U	1.21+-0.518 U*
ALF-212A	21-Jun-19	165	225	40.3	0.21	0.54 U*	288	6.6 J	0.50 U	3.7	396	0.20 U	52.9	0.080 U	54400	0.50 U	0.16 J	0.81 J	0.062 J	2.9	22400	0.20 U	1.4	0.50 BF	2680	0.50 U	0.50 U	11400	0.10 U	1.0 U	9.9	1.48+-0.777 U
ALF-212A	13-Sep-19	165	233	41.3 J	0.22	0.28 U	320	7.0 J	0.077 U	4.1	418	0.054 U	52.9	0.030 U	66700	0.21 U	0.25 J	0.43 U	0.046 U	3.0	24000	0.093 U	1.1	0.62	2540	0.14 U	0.077 U	12000	0.047 U	0.27 U	13.2 U*	0.745+-0.662 U
ALF-212A	13-Dec-19	165	225	54.8	0.28	1.7 U*	291	7.2 J	0.50 U	4.3	396	0.20 U	52.3	0.080 U	63000	0.50 U	0.21 J	1.0 U	0.10 U	3.0	24200	0.20 U	1.5	0.48 J	2760	0.50 U	0.50 U	12300	0.10 U	1.0 U	12.9	0.516+-0.585 UJ
ALF-212A	26-Feb-20	165	227 J	39.2 J	0.21	0.28 U	312	7.1 J	0.077 U	3.8	375 J	0.054 U	48.0	0.030 U	63800	0.21 U	0.15 J	0.43 U	0.046 U	2.8	22000	0.093 U	1.2 U*	0.37 U*	2600	0.14 U	0.077 U	12000	0.047 U	0.27 U	2.4 U	1.78+-0.701 J
ALF-212A	13-May-20	165	226	42.9 J	0.21 J	0.42 UJ	321	6.8 J	0.077 U	3.8	413	0.054 U	53.1	0.030 U	68600	0.23 U*	0.16 J	0.43 U	0.046 U	2.9	25600	0.093 U	1.2	0.40 J	2780	0.14 U	0.077 U	11700	0.047 U	0.27 U	4.4 U*	1.01+-0.645 U
ALF-212A	3-Sep-20	165	257	71.4	0.14 J	0.42 UJ	375	7.0 J	0.077 U	4.1	463	0.054 U	44.5	0.030 U	78900	0.30 U*	0.30 J	0.43 U	0.043 U	2.8	26700	0.080 U	1.0	0.85	2810	0.14 U	0.077 U	10300	0.047 U	0.27 U	2.9 U*	0.985+-0.657 UJ
ALF-212A	9-Dec-20	165	253	64.3	0.18	0.42 U	285	6.7 J	0.077 U	4.0	404	0.054 U	45.1	0.030 U	65800	0.42 U*	0.27 J	0.43 U	0.043 U	2.8	23200	0.080 U	1.2	0.70	2480	0.14 U	0.077 U	10600	0.047 U	0.27 U	2.3 U	1.44+-0.745 J

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	Date	Depth																														
ALF 213																																
ALF-213	16-Nov-16	71	NA	11.7	0.239	2.48	300	6.98	0.184 U*	31.6	211	0.102 U	189	0.152 U	55100	0.339 U	0.265 J	NA	0.0675 U	10.3	NA	0.0521 U	5.18	NA	NA	0.348 U	NA	NA	0.036 U	NA	NA	NA
ALF-213	31-Jan-17	71	NA	15.8	0.422	20.1	267	6.98	0.694 U*	16.4	174	0.131 UJ	201	0.0781 U	46000	0.378 U	0.0947 U	NA	0.318 U	11.7 U*	NA	0.0521 U	4.68 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-213	28-Feb-17	71	NA	16.3	0.272	26	264	7.06	0.741 U*	15.1	172	0.131 U	199	0.0781 U	43000	0.378 U	0.0947 U	NA	0.318 U	10.3 U*	NA	0.0653 U	4.09 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-213	28-Mar-17	71	NA	13.5	0.479	22.5	221	6.98	0.645 U*	11.4	165	0.131 U	150	0.0781 U	35600	0.378 U	0.0947 U	NA	0.318 U	7.62 U*	NA	0.0653 U	3.76 J	NA	NA	1.79 J	NA	NA	0.0531 U	NA	NA	NA
ALF-213	18-Apr-17	71	NA	16.2	0.518	27.6	206	6.99	0.443 U	7.99	201	0.131 U	159	0.0781 U	37800	0.378 U	0.0947 U	NA	0.318 U	7.71	NA	0.0653 U	4.02 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-213	10-May-17	71	NA	15.6	0.474	29.8	221	6.92	0.443 U	7.53	259	0.131 U	207	0.0781 U	37900	0.378 U	0.0947 U	NA	0.318 U	8.19 U*	NA	0.0653 U	4.38 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-213	1-Jun-17	71	NA	15.6 J	0.277 J	36.9 J	208 J	-	2.00 U	7.36	274 J	2.00 U	199	1.00 U	36600 J	2.00 U	2.00 U	NA	2.00 U	6.45 J	NA	0.200 UJ	3.89 J	NA	NA	2.00 U	NA	NA	2.00 U	NA	NA	0.916
ALF-213	13-Jun-17	71	NA	16.1	0.555	31.4	231	7.05	0.443 U	7.03	255	0.131 U	189	0.0781 U	35500	0.378 UJ	0.0947 U	NA	0.318 U	7.57	NA	0.0653 U	4.02 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-213	13-Jul-17	71	NA	15.9	0.508	29.6	234	7.2	0.443 U	8.4	272	0.131 U	291	0.0781 U	37700	0.378 U	0.0947 U	NA	0.318 U	8.23	NA	0.0653 U	3.61 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-213	19-Jul-17	71	NA	15.5	0.444	23.7	228	7.18	0.443 U	12.7	279	0.131 U	189	0.0781 U	42800	0.378 U	0.0947 U	NA	0.318 U	7.35	NA	0.0653 U	3.92 J	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-213	23-Aug-17	71	NA	14.9	0.322	13.6	304	7.16	0.443 U	39.6	324	0.131 U	254	0.0781 U	58800	0.378 U	0.1 J	NA	0.318 U	8.27	NA	0.0653 U	3.5 U*	NA	NA	1.27 U	NA	NA	0.0531 U	NA	NA	NA
ALF-213	28-Sep-17	71	250	13.9	0.26	12.2	284	6.8 J	0.50 U	47	317	0.20 U	188	0.080 U	51700	0.25 U*	0.50 U	1.0 U	0.10 U	8.4	17700	0.20 U	3.5	0.50 U	3420	0.50 U	0.50 U	22100 J	0.10 U	1.0 U	3.7 U*	ND
ALF-213	19-Oct-17	71	234	14.5	0.22 J	9.6	275	6.4 J	0.50 U	45.7	254	0.20 U	193	0.080 U	48800	0.15 U*	0.50 U	0.32 U*	0.10 U	7.3	15600	0.20 U	3.2	0.93	3010	0.50 U	0.50 U	18600	0.10 U	1.0 U	5.0 U	ND
ALF-213	16-Nov-17	71	176	16.2	0.28	25.4	237	6.9 J	0.50 U	27.7	211	0.20 U	196	0.080 U	44000	0.22 J	0.50 U	1.0 U	0.10 U	7.4	13500	0.20 U	3.5	0.50 U	2740	0.50 U	0.50 U	17300	0.10 U	1.0 U	1.8 U*	ND
ALF-213	6-Jun-18	71	NA	15.5	0.466	28.5	229	6.78	1.12 U	9.92	307	0.057 U	177	0.125 U	39600	1.62 U*	0.075 U	NA	0.094 U	9.79 U*	NA	0.0653 U	4.01 J	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-213	20-Jun-18	71	NA	15.7	0.421	25.4	257	6.96	1.12 U	14.5	323	0.057 U	203	0.125 U	45200	1.24 U*	0.075 U	NA	0.094 U	9.29	NA	0.0653 U	3.56 J	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-213	19-Jul-18	71	NA	16.7	0.39	27.9	228	6.9	1.12 U	11.4	319	0.057 U	167	0.125 U	43400	1.6 U*	0.075 U	NA	0.094 U	6.53	NA	0.0653 U	3.81 J	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-213	1-Aug-18	71	NA	16	0.402	19.2	282	6.8	1.12 U	21.5	294	0.057 U	220	0.125 U	53700	0.631 U	0.075 U	NA	0.094 U	8.45	NA	0.0653 U	3.11 U*	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-213	22-Aug-18	71	NA	11	0.323	11.1	289	6.42	1.12 U	37.7	343	0.057 U	211	0.125 U	56700	1.82 U*	0.096 J	NA	0.094 U	8.39 U*	NA	0.0653 U	2.95 U*	NA	NA	0.813 U	NA	NA	0.063 U	NA	NA	NA
ALF-213	4-Dec-18	71	151	16.6	0.4	24.6	230	7.1	0.50 U	7.8	286	0.10 U	180	0.080 U	38300	0.19 J	0.049 J	0.16 J	0.10 U	6.8	11900	0.20 U	3.9	0.50 U	2970	0.50 U	0.40 U	16800	0.10 U	0.10 J	5.0 U	ND
ALF-213	11-Apr-19	71	149	15.7	0.43	14.1	197	7.1	2.5 U	6.3	269	0.50 U	159	0.40 U	35800	2.5 U	0.50 U	2.5 U	0.50 U	5.8 J	10600	0.20 U	3.5	2.5 U	2750	2.5 U	2.0 U	12900	0.50 U	1.5 U	25.0 U	1.16+-0.730 U
ALF-213	24-Jun-19	71	160	15.8	0.52	7.6	215	6.9 J	0.50 U	6.9	323	0.20 U	133	0.080 U	40700	0.50 U	0.50 U	1.0 U	0.10 U	6.6	12200	0.20 U	3.5	0.50 U	3110	0.50 U	0.50 U	14200	0.10 U	1.0 U	5.0 U	0.640+-0.614 U
ALF-213	20-Sep-19	71	229	14.6	0.48	7.1 J	277	6.6 J	0.077 U	27.1	389	0.054 U	190	0.030 U	56000	0.21 U	0.085 U	0.43 U	0.046 U	7.9	17300	0.093 U	3.1	0.16 J	3500	0.14 U	0.077 U	19600	0.047 U	0.27 U	2.4 U	1.19+-0.638 U
ALF-213	12-Dec-19	71	168	23.5	0.72	9.3	199	7.4 J	0.50 U	7.7	292	0.20 U	118	0.080 U	35600	0.50 U	0.50 U	1.0 U	0.10 U	6.3	11600	0.20 U	3.2	0.50 U	2930	0.50 U	0.50 U	14400	0.10 U	1.0 U	5.0 U	0.680+-0.673 UJ
ALF-213	27-Feb-20	71	158	14.0 J	0.59	18.8	238	7.2 J	0.077 U	5.9	309 J	0.054 U	124	0.030 U	39200	0.21 U	0.085 U	0.43 U	0.046 U	6.5	11600	0.093 U	3.0 J	0.15 J	2890	0.14 U	0.077 U	14100	0.047 U	0.27 U	2.4 U	0.695+-0.506 UJ
ALF-213	15-May-20	71	146	11.8 J	0.46 J	9.1 J	198	7.2 J	0.077 U	6.9	295	0.054 U	130	0.030 U	41300	0.21 U	0.085 U	0.43 U	0.046 U	6.5	12000	0.093 U	3.3	0.15 U	2990	0.14 U	0.077 U	14700	0.047 U	0.27 U	2.4 U	1.38+-0.730 U
ALF-213	3-Sep-20	71	307	11.7	0.24	0.76 J	361	7.2 J	0.077 U	47.7	443	0.054 U	184	0.030 U	72900	0.28 U*	0.090 J	0.43 U	0.043 U	8.4	21600	0.080 U	2.3	0.18 U	3890	0.14 U	0.077 U	19900	0.047 U	0.27 U	4.7 U*	1.58+-0.716 J
ALF-213	15-Dec-20	71	240	13.8	0.27	2.4	265	6.9 J	0.077 U	47.1	373	0.054 U	188	0.030 U	54200	0.50 U*	0.094 J	0.43 U	0.043 U	7.3	17400	0.080 U	2.5	1.5	3430	0.14 U	0.077 U	18200	0.047 U	0.27 J	2.3 U	0.191+-0.524 UJ
ALF-213B	4-Dec-18	117	116	18.2	0.2	21.4	196	7	0.50 U	1.8	300	0.10 U	41.4	0.080 U	31000	0.28 J	0.083 J	0.50 U	0.10 U	2.6	11800	0.20 U	0.94	0.50 U	2340	0.50 U	0.40 U	13300	0.10 U	0.13 J	5.0 U	ND
ALF-213B	11-Apr-19	117	398	54.7	0.10 U	1.0 U	451	7.3	2.5 U	2.4	525	0.50 U	35.4 J	0.40 U	103000	2.5 U	0.28 J	2.5 U	0.50 U	8.2 J	26800	0.20 U	2.4 J	2.5 U	3410	2.5 U	2.0 U	17600	0.50 U	1.5 U	25.0 U	1.66+-0.816 J
ALF-213B	24-Jun-19	117	366	60.8	0.13	0.60 J	450	6.8 J	0.50 U	2.9	573	0.20 U	24.2	0.080 U	104000	0.50 U	0.13 J	1.0 U	0.10 U	7.2	29100	0.20 U	1.7	0.23 J	3740	0.50 U	0.50 U	17000	0.10 U	1.0 U	5.0 U	2.85+-0.871 J
ALF-213B	20-Sep-19	117	340	63.1	0.19	0.52 U*	434	6.8 J	0.19 J	3.8	621	0.054 U	24.0	0.030 U	112000	0.21 U	0.33 J	1.1 U*	0.053 J	9.8	30300	0.093 U	2.1	0.65	3930	0.14 U	0.077 U	15100	0.047 U	0.27 U	11.4	1.30+-0.582
ALF-213B	12-Dec-19	117	345	92.2	0.20	0.62 U*	442	7.0 J	0.50 U	2.9	544	0.20 U	26.2	0.080 U	95800	0.23 U*	0.16 J	1.0 U	0.10 U	7.1	27700	0.20 U	1.5	0.40 U*	3590	0.50 U	0.50 U	17400	0.10 U	1.0 U	5.0 U	1.09+-0.722 UJ
ALF-213B	28-Feb-20	116.8	324	50.9 J	0.15	0.28 U	432	7.0 J	0.077 U	3.1	497 J	0.054 U	23.1	0.030 U	97600	0.21 U	0.13 J	0.44 J	0.046 U	5.8	27500	0.093 U	1.0 J	0.46 J	3350	0.14 U	0.077 U	14200	0.047 U	0.27 U	2.4 U	0.837+-0.592 UJ
ALF-213B	15-May-20	116.8	295	43.1 J	0.13 J	0.42 UJ	387	7.3 J	0.077 U	3.3	482	0.054 U	24.2	0.030 U	98000	0.29 U*	0.10 J	0.43 U	0.046 U	5.9 J	26700	0.093 U	1.1	0.51	3440	0.14 U	0.077 U	14600	0.047 U	0.27 U	3.0 U*	0.825+-0.551 U
ALF-213B	8-Sep-20	116.75	328	54.0	0.10	0.42 U	478	7.0 J	0.077 U	3.1	542 J	0.054 U	26.7	0.030 U	76800	0.56 U*	0.54	0.43 U	0.051 U*	7.8	27900	0.080 U	0.66	0.36 J	3650	0.14 U	0.077 U	12100	0.047 U	0.27 U	5.8 U*	0.536+-0.805 U
ALF-213B	15-Dec-20	116.75	331	53.7	0.11	0.42 U	408	6.9 J	0.077 U	3.7	524	0.054 U	28.0	0.030 U	102000	0.55 U*	0.21 J	0.43 U	0.043 U	6.9	26500	0.080 U	1.3	0.49 J	3480	0.14 U	0.077 U	12000	0.047 U	0.27 U	2.3 U*	1.66+-0.752 J
ALF-213A	4-Dec-18	158	378	35.9	0.10 U	62.6	557	7.2	0.11 J	3.7	547	0.10 U	32.9	0.080 U	103000	0.34 J	0.56	0.16 J	0.088 J	19.5	28900	0.20 U	10.6	0.5	4190	0.50 U	0.40 U	58200	0.10 U	0.18 J	2.5 J	ND
ALF-213A	11-Apr-19	158	122	18.8	0.2	20.5	177	7.1	2.5 U	3	279	0.50 U	53.0 J	0.40 U	29000	2.5 U	0.50 U	2.5 U	0.50 U	2.6 J	10400	0.20 U	0.96 J	2.5 U	2310	2.5 U	2.0 U	12000	0.50 U	1.5 U	25.0 U	1.71+-0.903 J
ALF-213A	24-Jun-19	158	105	17.5	0.24	24.1	173	7.0 J	0.50 U	4.4	292	0.20 U	46.0	0.080 U	26700	0.50 U	0.50 U	1.0 U	0.10 U	2.5	10700	0.20 U	1.1	0.50 U	2620	0.50 U	0.50 U	13100	0.10 U	1.0 U	5.0 U	0.895+-0.611 U*
ALF-213A	20-Sep-19	158	100	18.2	0.30	26.5 J	189	7.0 J	0.077 U	4.7	303	0.054 U	45.7	0.030 U	26600	0.21 U	0.085 U	0.43 U	0.046 U	2.7	11000	0.093 U	1.1	0.15 U	2630	0.14 U	0.077 U	13300	0.047 U	0.27 U	2.4 U	1.36+-0.746
ALF-213A	12-Dec-19	158	104	27.7	0.34	36.5	177	6.6 J	0.50 U	4.0	286	0.20 U	41.9	0.080 U	25600	0.50 U	0.50 U	1.0 U	0.10 U	2.3	10300	0.20 U	1.0	0.50 U	2560	0.50 U	0.50 U	12800	0.10 U	1.0 U	5.0 U	0.334+-0.605 UJ
ALF-213A	27-Feb-20	157.75	99.5	16.9 J	0.29	27.0	180	7.0 J	0.077 U	4.6	298 J	0.054 U	46.7	0.030 U	25600 J	0.21 U	0.085 U	1.9	0.046 U	2.6	10900	0.093 U	1.2 J	0.15 U	2700	0.14 U	0.077 U	13900	0.047 U	0.27 U	2.4 U	0.232+-0.574 UJ
ALF-213A	15-May-20	157.75	99.2	13.9 J	0.22 J	20.3 J	174	6.8 J	0.077 U	4.1	293	0.054 U	44.6	0.030 U	28400	0.21 U	0.085 U	0.81 J	0.046 U	2.9 U	10600	0.093 U	1.1	0.15 U	2570	0.14 U	0.077 U	13300	0.047 U	0.27 U	2.7 U*	1.17+-0.794 U
ALF-213A	8-Sep-20	157.75	101	16.6	0.19	22.8	179	6.9 J	0.077 U	4.3	276 J	0.054 U	46.0	0.030 U	26100	0.30 U*	0.085 U	0.43 U	0.043 U	2.3	10200	0.080 U	0.99	0.18 U	2470	0.14 U	0.077 U	12500	0.047 U	0.27 U	3.0 U*	0.481+-0.799 U
ALF-213A	15-Dec-20	157.75	110	17.7	0.22	22.3	185	6.8 J	0.077 U	3.8	316	0.054 U	42.2	0.030 U	31600	0.43 U*	0.085 U	0.43 U	0.043 U	2.5	11200	0.080 U	1.2	0.19 J	2460	0.14 U	0.077 U	13700	0.047 U	0.27 U	2.3 U	0.368+-0.569 UJ

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	Date	Depth																														
ALF 214																																
ALF-214	26-Sep-17	45	288	6	0.26	52.6 J	389	7.3 J	0.26 J	0.37 J	165	0.20 U	405 J	0.1	104000	0.25 U*	0.25 J	0.43 U*	0.10 U	14	21100	0.20 U	2	5.3	1460	1.1	0.50 U	11100	0.10 U	0.70 J	2.5 U*	ND
ALF-214	17-Oct-17	45	316	5.1	0.26	45.1	389	7.2 J	0.22 J	0.48 J	144	0.20 U	360	0.1	106000	0.14 U*	0.18 J	0.26 U*	0.10 U	13.6	21000	0.20 U	1.8	5.6	1270 J	2	0.50 U	10100	0.10 U	0.74 J	1.6 U*	ND
ALF-214	14-Nov-17	45	366	4.4	0.23 J	41.2	474	7.1 J	0.50 U	0.87	198	0.20 U	343	0.052 J	119000	0.50 U	1.5	0.81 U*	0.036 U*	16.8	26700	0.20 U	1.6	4.2	2150	0.50 U	0.50 U	10200	0.10 U	0.48 J	2.0 U*	ND
ALF-214	28-Nov-18	45	293	2.5	0.27	21.8	328	7.6	0.21 J	0.44	129	0.10 U	260	0.11	83200	0.50 U	0.22	0.51	0.10 U	11.9	18000	0.20 U	1.9	3.8	1200	0.50 U	0.40 U	7700	0.10 U	0.67	4.7 J	ND
ALF-214	12-Apr-19	45	286	1.8	0.26	17.1	319	7.5	5.0 U	0.61 J	124	1.0 U	359	0.80 U	79600	5.0 U	1.0 U	5.0 U	1.0 U	10.2 J	16200	0.20 U	1.8 J	3.6 J	1050	5.0 U	4.0 U	8460 J	1.0 U	1.2 J	50.0 U	0.645+-0.591 U
ALF-214	20-Jun-19	45	251 J	1.4	0.35	12.5	274	7.0 J	0.22 J	0.43 J	111	0.20 U	259 J	0.080 J	72100	0.50 U	0.16 J	1.0 U	0.10 U	10.9 J	15000	0.20 U	2.4 J	3.8	1130	0.22 J	0.50 U	8500	0.10 U	0.79 J	5.0 U	2.02+-0.739 J
ALF-214	11-Sep-19	45	227	1.5 U*	0.41	12.3 J	246	6.8 J	0.21 J	0.40 J	121	0.054 U	223	0.091	72000	0.21 U	0.21 J	0.43 U	0.046 U	9.6	15500	0.093 U	2.4	3.8	1150	0.14 J	0.077 U	7600	0.047 U	0.78 J	2.5 J	0.480+-0.489 U
ALF-214	12-Dec-19	45	349	8.3	0.38	31.7	400	7.4 J	0.12 J	0.60	215	0.20 U	248	0.16	109000	0.50 U	1.8	0.59 U*	0.10 U	14.8	24100	0.20 U	1.6	7.0	2190	0.50 U	0.50 U	11000	0.10 U	0.69 J	5.0 U	0.491+-0.625 UJ
ALF-214	19-Feb-20	45	238	1.5 U*	0.39	13.4 J	267	7.1 J	0.20 J	0.33 J	114	0.054 U	265	0.066 J	69900	0.21 U	0.43 J	0.43 U	0.046 U	9.4	14000	0.093 U	2.3	3.5	1010	0.14 U	0.077 U	7370	0.047 U	0.59 J	2.4 U	0.000+-0.408 UJ
ALF-214	13-May-20	45	255	1.0 J	0.32 J	9.7 J	294	7.0 J	0.17 J	0.34 J	123	0.054 U	238	0.084	67700	0.31 U*	0.29 J	0.43 U	0.046 U	9.4	16400	0.093 U	2.4	3.7	990	0.14 U	0.077 U	6820	0.047 U	0.68 J	2.4 U*	0.669+-0.557 U
ALF-214	2-Sep-20	45	283	1.4	0.26	11.6	322	7.7 J	0.19 J	0.33 J	151 J	0.054 U	262	0.10	86000	0.38 U*	0.40 J	0.44 J	0.043 U	11.2	17900	0.080 U	2.1	4.2	1110	0.14 U	0.077 U	7290	0.047 U	0.68 J	2.3 U*	0.971+-0.676 U
ALF-214	8-Dec-20	45	438	2.6	0.30	26.4	350	7.0 J	0.077 U	1.2	146	0.054 U	2050	0.030 U	133000	0.76 U*	0.085 U	0.43 U	0.12	9.3	36700	0.080 U	1.2	0.40 J	5040	0.14 U	0.077 U	64900	0.047 U	0.27 U	3.5 U*	0.558+-0.893 U
ALF-214B	27-Sep-17	88	304	22.1	0.12	159 J	586 J	6.7 J	0.50 U	1.2	166	0.20 U	161	0.080 U	100000	0.27 U*	0.50 U	1.0 U	0.10 U	12.8	30600	0.20 U	0.47 J	0.26 U*	2990	0.50 U	0.50 U	25500	0.10 U	1.0 U	1.3 U*	1.67
ALF-214B	17-Oct-17	88	343	18.5	0.11	133	586	6.8 J	0.50 U	0.94	155	0.20 U	154	0.080 U	120000	0.20 U*	0.50 U	1.0 U	0.053 J	11.8	35900	0.20 U	0.48 J	0.18 J	3130 J	0.50 U	0.50 U	25200	0.10 U	1.0 U	3.4 U*	ND
ALF-214B	14-Nov-17	88	290	25.4	0.11 J	206	680	7.1 J	0.50 U	1	168	0.20 U	150	0.080 U	132000	0.50 U	0.50 U	0.26 U*	0.051 U*	10.6	40700	0.20 U	0.40 J	0.20 U*	3340	0.50 U	0.50 U	36600	0.10 U	1.0 U	2.5 U*	ND
ALF-214B	28-Nov-18	88	218	34.3	0.12	202	599	7.1	0.50 U	3.7	123	0.10 U	141	0.080 U	103000	0.14 J	0.021 J	0.29 J	0.10 U	8.9	31500	0.20 U	0.27 J	0.50 U	2760	0.50 U	0.40 U	38400	0.10 U	0.30 U	5.0 U	ND
ALF-214B	12-Apr-19	88	204	36.8	0.11	199	572	6.8	5.0 U	3.9	137	1.0 U	167 J	0.80 U	89400	5.0 U	1.0 U	5.0 U	1.0 U	10.5 J	25400	0.20 U	5.0 U	5.0 U	2640	5.0 U	4.0 U	45600	1.0 U	3.0 U	50.0 U	0.947+-0.706 U
ALF-214B	20-Jun-19	88	184 J	35.5	0.14	198	531	6.5 J	0.50 U	4.0	135	0.20 U	161	0.080 U	87800	0.50 U	0.50 U	1.0 U	0.10 U	9.4	25400	0.20 U	0.24 J	0.50 U	2630	0.50 U	0.50 U	36700	0.10 U	1.0 U	5.0 U	1.16+-0.639 U
ALF-214B	12-Sep-19	88	182	27.4	0.16	163	485	6.3 J	0.077 U	3.6	113	0.054 U	120	0.030 U	75300	0.21 U	0.085 U	0.49 U*	0.083 J	7.7	23100	0.093 U	0.31 J	0.23 J	2320	0.14 U	0.077 U	28200	0.047 U	0.27 U	4.7 J	0.698+-0.669 U
ALF-214B	12-Dec-19	88	195	42.1	0.20	237	480	7.0 J	0.50 U	3.6	117	0.20 U	129	0.080 U	96800	0.50 U	0.50 U	1.0 U	0.10 U	7.9	26900	0.20 U	0.27 J	0.27 J	2620	0.50 U	0.50 U	26600	0.10 U	1.0 U	5.0 U	0.668+-0.641 UJ
ALF-214B	19-Feb-20	88	190	30.8	0.15	191 J	520	6.7 J	0.077 U	3.7	115	0.054 U	131	0.030 U	95800	0.21 U	0.085 U	0.43 U	0.063 U*	8.0	28700	0.093 U	0.24 J	0.15 U	2570	0.14 U	0.077 U	34100	0.047 U	0.27 U	2.4 U	0.680+-0.510 UJ
ALF-214B	13-May-20	88	191	27.2 J	0.11 J	174 J	572	6.7 J	0.077 U	3.5	132	0.054 U	119	0.030 U	91900	0.21 U	0.085 U	0.43 U	0.046 U	8.3	31100	0.093 U	0.28 J	0.23 J	2610	0.14 U	0.077 U	30900	0.047 U	0.27 U	4.1 U*	0.646+-0.612 U
ALF-214B	2-Sep-20	88	242	30.3	0.12	239 J	728	6.8 J	0.077 U	4.1	170 J	0.054 U	154	0.030 U	121000	0.50 U*	0.085 U	0.43 U	0.043 U	8.8	36100	0.080 U	0.26 J	0.22 J	3050	0.14 U	0.077 U	32600	0.047 U	0.27 U	2.7 U*	0.720+-0.689 U
ALF-214B	9-Dec-20	88	334	27.9	0.14	233	670	6.7 J	0.077 U	4.2	164	0.054 U	240	0.030 U	129000	1.1 U*	0.085 U	0.43 U	0.043 U	10.1	38900	0.080 U	0.32 J	0.60	3080	0.14 U	0.077 U	30700	0.047 U	0.27 U	2.3 U	0.972+-0.721 UJ
ALF-214A	27-Sep-17	130	236	44.4	0.075 J	411 J	900 J	6.7 J	0.16 J	2.5	116	0.20 U	157	0.080 U	147000	0.26 U*	0.5	1.0 U	0.10 U	19.8	46800	0.20 U	8.4	0.25 U*	5800	0.50 U	0.50 U	47800	0.10 U	1.0 U	3.7 U*	2.37
ALF-214A	17-Oct-17	130	256	44.1	0.051 J	400	998	6.6 J	0.12 J	2.3	78.6	0.20 U	144	0.080 U	161000	0.50 U	0.17 J	1.0 U	0.034 J	13.6	52700	0.20 U	4.9	0.25 J	4950 J	0.50 U	0.50 U	47300	0.10 U	1.0 U	2.5 U*	ND
ALF-214A	14-Nov-17	130	241	42.4	0.11	372	976	7.3 J	0.50 U	2.8	82.8	0.20 U	143	0.080 U	162000	0.50 U	0.50 U	1.0 U	0.10 U	15.3	52400	0.20 U	4.3	0.22 U*	5390	0.50 U	0.50 U	48700	0.10 U	1.0 U	1.9 U*	ND
ALF-214A	28-Nov-18	130	221	43.4	0.083 J	390	902	6.5	0.50 U	1.6	32	0.10 U	134	0.080 U	148000	0.50 U	0.031 J	0.12 J	0.10 U	5.6	48200	0.20 U	1.1	0.50 U	3430	0.50 U	0.40 U	58400	0.10 U	0.30 U	5.0 U	ND
ALF-214A	12-Apr-19	130	199	59.8	0.083 J	315	785	7.1	5.0 U	1.2	36.4	1.0 U	131 J	0.80 U	127000	5.0 U	1.0 U	5.0 U	1.0 U	7.1 J	37600	0.20 U	5.0 U	5.0 U	3220	5.0 U	4.0 U	43600	1.0 U	3.0 U	50.0 U	0.504+-0.547 U
ALF-214A	20-Jun-19	130	189 J	64.3	0.095	318	738	6.5 J	0.50 U	1.0	26.8	0.20 U	102 J	0.080 U	137000	0.50 U	0.50 U	1.0 U	0.10 U	6.4 J	41200	0.20 U	0.37 J	0.28 U*	3500	0.50 U	0.50 U	41900	0.10 U	1.0 U	3.2 J	0.687+-0.540 U
ALF-214A	12-Sep-19	130	175	55.9	0.099	324	788	6.2 J	0.077 U	1.3	29.8	0.054 U	92.8	0.030 U	122000	0.21 U	0.085 U	0.43 U	0.046 U	5.3	38800	0.093 U	0.48 J	0.15 U	3010	0.14 U	0.077 U	39100	0.047 U	0.27 U	2.6 J	0.812+-0.659 U
ALF-214A	12-Dec-19	130	188	61.5	0.11	505	771	6.8 J	0.50 U	1.1	27.9	0.20 U	102	0.080 U	120000	0.50 U	0.50 U	1.0 U	0.10 U	5.8	41000	0.20 U	0.62	0.50 U	3380	0.50 U	0.50 U	37700	0.10 U	1.0 U	2.5 U*	0.363+-0.620 UJ
ALF-214A	19-Feb-20	130	184	39.6	0.086	342 J	778	6.6 J	0.077 U	1.2	24.9	0.054 U	106	0.030 U	136000	0.21 U	0.085 U	0.43 U	0.046 U	5.8	44700	0.093 U	0.34 J	0.15 U	3220	0.14 U	0.077 U	42400	0.047 U	0.27 U	2.4 U	0.000+-0.403 UJ
ALF-214A	13-May-20	130	175	41.7 J	0.079 J	215 J	644	6.4 J	0.077 U	0.87	30.2	0.054 U	103	0.030 U	105000	0.22 U*	0.085 U	0.43 U	0.046 U	4.7	40200	0.093 U	0.38 J	0.15 U	2840	0.14 U	0.077 U	37100	0.047 U	0.27 U	3.0 U*	0.498+-0.654 U
ALF-214A	2-Sep-20	130	175	35.1	0.061	278 J	664	6.6 J	0.077 U	1.5	28.6 J	0.054 U	95.3	0.030 U	109000	0.40 U*	0.085 U	0.43 U	0.043 U	4.9	36100	0.080 U	0.44 J	0.18 J	2920	0.14 U	0.077 U	36300	0.047 U	0.27 U	2.3 U	0.984+-0.702 J
ALF-214A	9-Dec-20	130	192	35.3	0.088	363	705	6.5 J	0.077 U	1.5	29.9	0.054 U	99.5	0.030 U	125000	0.43 U*	0.085 U	0.43 U	0.043 U	6.2	41100	0.080 U	0.64	0.20 J	3180	0.14 U	0.077 U	38600	0.047 U	0.27 U	2.3 U*	0.249+-0.617 UJ

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	Date	Depth																														
ALF 215																																
ALF-215	28-Sep-17	25	317	4.9	0.3	31.3	372	6.9 J	0.50 U	6.3	227	0.20 U	192	0.080 U	74500	0.23 U*	3.8	1.0 U	0.10 U	10.6	24700	0.20 U	16.9	2.6	998	0.50 U	0.50 U	23100 J	0.10 U	1.0 U	2.6 U*	ND
ALF-215	16-Oct-17	25	335	6.8	0.29	38.9	366	7.00 J	0.50 U	7.9	221	0.20 U	236 J	0.080 U	94200	0.33 U*	3.6	0.64 U*	0.044 J	9.7 J	30200	0.20 U	12.6	2.9	833	0.50 U	0.50 U	20700	0.10 U	1.0 U	3.5 U*	2.43
ALF-215	13-Nov-17	25	364	8.2	0.26	45.2	402	8.2 J	0.50 U	4.7	273	0.20 U	400	0.080 U	99700	0.50 U	3.9	1.0 U	0.10 U	11.2	33600	0.20 U	14.5	3.5	924	0.50 U	0.50 U	18200	0.10 U	1.0 U	6.0 U*	ND
ALF-215	3-Dec-18	25	331	3.3	0.24	31.9	366	7.1 U*	0.12 J	0.98	224 J	0.10 U	1120	0.062 J	70900	0.54	2.3	0.28 U*	0.10 U	9.3	22700	0.20 U	4.9	4.7	863 J	0.50 U	0.40 U	15500	0.10 U	1.1	2.8 J	ND
ALF-215	9-Apr-19	25	286	1.2	0.21	17.3	299	7	0.50 U	0.4	182	0.10 U	149	0.080 U	75100	0.50 U	0.34	0.43 J	0.053 J	6.2	19300	0.20 U	3	2.8	682	1.5	0.40 U	9210	0.10 U	0.38	1.1 J	1.01+-0.659 U
ALF-215	19-Jun-19	25	260	1.3	0.29	21.4	302	6.5 J	0.18 J	1.3	226	0.20 U	248	0.079 J	73000	0.50 U	9.7	2.1	0.10 U	7.8	22400	0.20 U	10.9	5.8	859	0.38 J	0.50 U	13500	0.10 U	0.63 J	4.0 J	1.30+-0.799 U
ALF-215	12-Sep-19	25	236	0.75 U*	0.34	12.8	269	7.1 J	0.077 U	2.2	207	0.054 U	98.0	0.030 U	64800	0.21 U	3.2	0.43 U	0.046 U	7.0	19400	0.093 U	2.8	4.2	733	0.14 U	0.077 U	8300	0.047 U	0.41 J	2.4 U	1.10+-0.631 U
ALF-215	17-Dec-19	25	205	0.76 J	0.40 J	5.2	222	7.4 J	0.12 J	0.85	178	0.20 U	34.3	0.032 J	53200	0.50 U	0.42 J	1.0 U	0.10 U	6.1	16200	0.20 U	1.5	1.8	611	0.28 J	0.50 U	5450	0.10 U	1.0	5.0 U	0.446+-0.707 U
ALF-215	20-Feb-20	25	233	1.0 U*	0.32	6.6	247	7.4 J	0.077 U	0.73	207	0.054 U	36.1	0.030 U	61100	0.21 U	0.44 J	0.43 U	0.046 U	6.0	19800	0.093 U	2.5 J	1.8	601	0.25 J	0.077 U	6000	0.047 U	0.27 U	2.4 U	0.305+-0.451 UJ
ALF-215	13-May-20	25	241	0.99 J	0.28 J	12.5 J	264	7.2 J	0.12 J	0.44 J	210	0.054 U	69.5	0.030 U	66300	0.21 U	0.46 J	2.0	0.078 U*	5.9	20600	0.093 U	5.3	3.9	618	0.46 J	0.077 U	5100	0.047 U	0.56 J	7.0 U*	0.640+-0.519 U
ALF-215	2-Sep-20	25	264	1.1 J	0.24	14.8 J	287	7.5 J	0.22 J	0.66	217 J	0.054 U	54.4	0.030 U	65800	0.25 U*	1.8	0.48 J	0.070 U*	5.8	20600	0.080 U	3.3	4.2	630 U*	0.63	0.077 U	5120	0.047 U	1.0	4.4 U*	1.04+-0.642 U
ALF-215	9-Dec-20	25	242	0.38 J	0.38	7.7	250	7.0 J	0.079 J	1.1	185	0.054 U	38.3	0.030 U	60100	0.29 U*	1.5	0.43 U	0.048 J	6.2	19200	0.080 U	3.0	3.2	523	0.14 U	0.077 U	3030	0.047 U	0.34 J	2.3 U	0.972+-0.736 J
ALF 216																																
ALF-216	28-Sep-17	50	489	3	0.063 J	43.9	1070 J	6.6 J	0.50 U	5.1	672	0.20 U	84.8	0.080 U	121000	0.13 U*	0.84	1.0 U	0.10 U	18.4	36800	0.20 U	0.26 J	0.79	2830	0.50 U	0.50 U	7120 J	0.10 U	1.0 U	2.3 U*	1.26
ALF-216	16-Oct-17	50	496	3.1	0.072 J	41.9	522	6.8 J	0.50 U	4.9	670	0.20 U	93.3 J	0.080 U	149000	0.13 U*	0.88	1.0 U	0.035 J	16.8 J	43200	0.20 U	0.23 J	0.86	2900	0.50 U	0.50 U	7490	0.10 U	1.0 U	1.2 U*	2.43
ALF-216	14-Nov-17	50	495	2.9	0.065 J	44.4	610	6.8 J	0.50 U	3.8	680	0.20 U	88.4	0.080 U	148000	0.22 U*	0.59	0.30 U*	0.20 U*	17.8	43000	0.20 U	0.33 J	0.38 U*	3050	0.50 U	0.50 U	8580	0.10 U	1.0 U	3.1 U*	ND
ALF-216	27-Nov-18	50	549	3.2	0.079 J	45.5	588	6.8 J	0.50 U	4.6	669	0.10 U	128	0.080 U	147000	0.12 U*	0.24	0.15 J	0.10 U	16.8	44100	0.20 U	0.33 J	0.50 U	2830	0.50 U	0.40 U	8790	0.10 U	0.30 U	5.0 U	ND
ALF-216	10-Apr-19	50	532	3.8	0.068 J	48.2	593	6.8	2.5 U	5.1	657	0.50 U	201	0.40 U	156000	2.5 U	0.62	2.5 U	0.50 U	18.4	40300	0.11 J	2.5 U	2.5 U	2870	2.5 U	2.0 U	8230	0.50 U	1.5 U	25.0 U	0.918+-0.587 U
ALF-216	11-Sep-19	50	437	5.0	0.12	33.8	493	6.5 J	0.077 U	6.1	649	0.054 U	179	0.030 U	135000	0.21 U	0.58	0.43 U	0.046 U	15.9	39500	0.093 U	0.22 J	0.49 J	2980	0.14 U	0.077 U	7830	0.047 U	0.27 U	2.4 J	1.65+-0.725
ALF-216	11-Dec-19	50	470	8.0	0.13	44.7 J	516	6.7 J	0.50 U	5.3	597	0.20 U	167	0.080 U	133000	0.50 U	0.61	1.0 U	0.10 U	16.4	37100	0.20 U	0.24 J	0.31 J	2760	0.50 U	0.50 U	7490	0.10 U	1.0 U	5.0 U	0.353+-0.747 UJ
ALF-216	18-Feb-20	50	474	5.6	0.093	40.3 J	518	7.0 J	0.077 U	5.9	637	0.054 U	190	0.030 U	136000	0.21 U	0.52	0.43 U	0.046 U	16.8	38700	0.093 U	0.22 J	0.27 U*	2750	0.14 U	0.077 U	7860	0.047 U	0.27 U	2.4 U	0.972+-0.605 UJ
ALF-216	12-May-20	50	459	4.8 J	0.077 J	33.3 J	522	6.7 J	0.077 U	5.9	612	0.054 U	200	0.030 U	131000	0.30 U*	0.74	0.43 U	0.046 U	16.8	39400	0.093 U	0.24 J	0.53	2900	0.14 U	0.077 U	7810	0.047 U	0.27 U	3.5 U*	2.08+-0.694 J
ALF-216	1-Sep-20	50	418	3.5	0.072	34.8 J	456	7.1 J	0.077 UJ	5.8	546 J	0.054 U	221	0.030 U	112000	0.33 U*	0.61	0.43 U	0.043 U	17.0	32300	0.080 U	0.25 J	0.58	2700	0.14 U	0.077 U	6860	0.047 U	0.27 U	2.3 U	0.841+-0.690 U
ALF-216	8-Dec-20	50	424	4.4	0.095	42.9	435	6.7 J	0.077 U	5.7	533	0.054 U	203	0.030 U	118000	0.49 U*	0.62	0.43 U	0.043 U	17.3	34100	0.080 U	0.25 J	0.48 U*	2760	0.14 U	0.077 UJ	7250	0.047 U	0.27 U	2.3 U	1.65+-0.797 J
ALF-217																																
ALF-217	4-Dec-18	61	362	16	2.4	0.81 J	405	7	0.50 U	44.4	229	0.10 U	1320	0.080 U	77400	0.12 J	0.28	2.2	0.10 U	11.1	18000	0.20 U	24.1	0.50 U	4400	0.38 J	0.40 U	38500	0.10 U	0.28 J	2.9 J	ND
ALF-217	11-Apr-19	61	371	15.2	2.3	1.0 U	368	7.4	5.0 U	36.8	218	1.0 U	1320	0.80 U	78200	5.0 U	1.0 U	5.0 U	1.0 U	12.0 J	17100	0.20 U	21.4	5.0 U	4340	5.0 U	4.0 U	34600	1.0 U	3.0 U	50.0 U	0.737+-0.660 U
ALF-217	21-Jun-19	61	351 J	16.0	2.2	0.58 U*	392	6.9 J	0.50 U	42.6	230	0.20 U	1400	0.080 U	80800	0.52	0.25 J	1.0 U	0.10 U	12.3	18000	0.20 U	22.9	0.23 J	4330	0.28 J	0.50 U	34500	0.10 U	0.28 J	5.0 U	1.68+-0.859 U*
ALF-217	20-Sep-19	61	332	15.9	2.6	0.55 U*	374	7.0 J	0.077 U	43.3	218	0.054 U	1430	0.030 U	69800	0.21 U	0.25 J	0.43 U	0.046 U	11.0	16800	0.093 U	23.5	0.36 J	4300	0.39 J	0.077 U	36000	0.047 U	0.27 U	2.4 U	0.592+-0.448
ALF-217	12-Dec-19	61	334	23.2	3.1	0.65 U*	361	7.5 J	0.50 U	33.7	173	0.20 U	1150	0.080 U	78000	0.50 U	0.25 J	0.60 J	0.10 U	10.4	16500	0.20 U	21.9	0.28 U*	4270	0.29 J	0.50 U	35700	0.10 U	1.0 U	5.0 U	1.02+-0.607 U*
ALF-217	28-Feb-20	60.75	347	14.7 J	2.1	0.28 U	404	7.1 J	0.077 U	42.7	228 J	0.054 U	1370	0.030 U	76900 J	0.24 J	0.25 J	0.43 U	0.046 U	11.2	18500	0.093 U	23.5 J	0.35 J	4500	0.30 J	0.077 U	34400	0.047 U	0.27 U	2.4 U	0.0319+-0.544 UJ
ALF-217	14-May-20	60.75	334	12.4 J	1.7 J	0.42 U	393	7.3 J	0.077 U	42.9	224	0.054 U	1320	0.030 U	84600	0.35 U*	0.25 J	0.46 J	0.046 U	11.5	19100	0.093 U	21.5	0.38 J	4490	0.31 J	0.077 U	37600	0.047 U	0.27 U	2.4 U	1.46+-0.739 J
ALF-217	9-Sep-20	60.75	345	14.2	1.4	0.42 U	394	7.1 J	0.077 U	45.2	204 J	0.054 U	1290	0.030 U	69500	0.66 U*	0.25 J	0.43 U	0.043 U	10.1	17000	0.080 U	23.1	0.31 J	3960	0.32 J	0.077 U	34200	0.047 U	0.27 U	2.3 U	0.527+-0.718 U
ALF-217	9-Dec-20	60.75	352	16.5	2.6	0.42 U	384	7.2 J	0.077 U	56.3	217	0.054 U	1330	0.030 U	80000	0.31 U*	0.27 U*	0.43 U	0.043 U	11.6	17900	0.080 U	26.1	0.34 J	4050	0.37 J	0.077 U	37600	0.047 U	0.27 U	2.3 U	0.404+-0.580 UJ
ALF-217B	4-Dec-18	127	325	76.4	0.098 J	1.0 U	457	6.9	0.50 U	9.5	765	0.10 U	36.4	0.080 U	103000	0.27 J	0.36	0.21 J	0.12	4.2	30600	0.20 U	0.75	0.64	2590	0.50 U	0.40 U	9120	0.10 U	0.27 J	3.9 J	ND
ALF-217B	11-Apr-19	127	400	102	0.12	1.0 U	528	7	5.0 U	13.4	967	1.0 U	77.4 J	0.80 U	127000	5.0 U	1.0 U	5.0 U	1.0 U	5.3 J	35900	0.20 U	5.0 U	1.1 J	2990	5.0 U	4.0 U	11000	1.0 U	3.0 U	50.0 U	2.81+-0.933 J
ALF-217B	25-Jun-19	127	370	103	0.13	0.50 J	498 J	6.6 J	0.50 U	13.9	994	0.20 U	36.7	0.080 U	121000	0.50 U	0.21 J	0.63 J	0.10 U	4.8	34800	0.20 U	0.59	0.62	3320	0.50 U	0.50 U	12200	0.10 U	1.0 U	5.0 U	2.48+-0.974 J
ALF-217B	20-Sep-19	127	270	65.4	0.19	0.56 U*	358	7.0 J	0.077 U	12.3	684	0.054 U	40.7	0.030 U	84400	0.21 U	0.21 J	0.43 U	0.070 J	3.8	25700	0.093 U	0.83	0.36 J	2710	0.14 U	0.077 U	10100	0.047 U	0.27 U	3.3 J	1.52+-0.647
ALF-217B	12-Dec-19	127	348	122 J	0.19 J	0.58 U*	454	7.0 J	0.50 U	13.3	1020	0.20 U	37.9	0.080 U	117000	0.25 U*	0.23 J	1.0 U	0.070 J	4.8	32200	0.20 U	0.74	0.72 U*	3490	0.50 U	0.50 U	13300	0.10 U	1.0 U	3.0 J	2.11+-0.811 U*
ALF-217B	28-Feb-20	126.8	349	77.9 J	0.14	0.28 U	530	6.8 J	0.077 U	13.4	972 J	0.054 U	34.4	0.030 U	122000	0.21 U	0.20 J	0.43 U	0.046 U	4.7	34700	0.093 U	0.64 J	0.71	3550	0.14 U	0.077 U	12900	0.047 U	0.27 U	2.4 U	1.47+-0.635 J
ALF-217B	14-May-20	126.8	358	71.3 J	0.21 J	0.42 UJ	486	7.0 J	0.077 U	14.3	1020	0.054 U	35.9	0.030 U	132000	0.21 U	0.22 J	0.43 U	0.046 U	5.0	36500	0.093 U	0.67	0.80	3950	0.14 U	0.077 U	14700	0.047 U	0.27 U	3.2 U*	1.91+-0.763 J
ALF-217B	9-Sep-20	126.75	258	58.6	0.10	0.42 U	364	6.9 J	0.077 U	12.3	655 J	0.054 U	45.5	0.030 U	64900	0.34 U*	0.15 J	0.43 U	0.043 U	3.5	24400	0.080 U	0.65	0.26 J	2870	0.14 U	0.077 U	10200	0.047 U	0.27 U	2.3 U	1.15+-0.711 U
ALF-217B	10-Dec-20	126.75	280	65.4	0.14	0.42 U	362	6.9 J	0.077 J	13.4	731	0.054 U	49.2	0.030 U	84700	0.39 U*	0.26 J	0.43 U	0.066 J	3.9	26400	0.080 U	0.94	0.53	3060	0.14 U	0.077 UJ	11700	0.047 U	0.27 U	4.4 U*	2.16+-0.726 J
ALF-217A	4-Dec-18	188	345	30.2	0.10 U	6.6	403	7	0.34 J	3.5	379	0.10 U	23.1 J	0.080 U	80300	0.26 J	1.4	0.50 U	0.14	27.1	20700	0.20 U	4.8	1.3	3330	0.50 U	0.40 U	35400	0.021 J	0.16 J	5.5	ND
ALF-217A	11-Apr-19	188	324	30.4	0.10 U	1.0 U	372	7	2.5 U	7.4	459	0.50 U	31.8 J	0.40 U	90800	2.5 U	0.94	2.5 U	0.50 U	7.9 J	20500	0.20 U	2.7	0.93 J	2160	2.5 U	2.0 U	10900	0.50 U	1.5 U	25.0 U	2.79+-1.01 J
ALF-217A	21-Jun-19	188	304 J	26.1	0.050	0.53 U*	332	6.9 J	0.50 U	8.5	472	0.20 U	20.1	0.080 U	78000	0.50 U	0.69	1.0 U	0.10 U	6.8	20500	0.20 U	1.8	0.48 J	2270	0.50 U	0.50 U	10400	0.10 U	1.0 U	3.0 J	1.39+-0.677 U*
ALF-217A	20-Sep-19	188	304	26.2	0.085	3.1 J	352	7.0 J	0.077 U	6.9	407	0.054 U	18.1	0.030 U	82600	0.21 U	0.89	0.43 U	0.046 U	10.4	18600	0.093 U	2.5	0.66	2220	0.14 U	0.077 U	17600	0.047 U	0.27 U	2.4 U	2.30+-0.897
ALF-217A	12-Dec-19	188	295	30.2 J	0.16 J	0.62 U*	339	6.8 J	0.50 U	8.6	411	0.20 U	18.0	0.080 U	75300	0.50 U	0.50	1.0 U	0.10 U	7.1	19500	0.20 U	2.3	0.53 U*	2090	0.50 U	0.50 U	11700	0.10 U	1.0 U	3.1 J	1.55+-0.654 U*
ALF-217A	28-Feb-20	187.75	291	33.9 J	0.091	0.28 U	376	7.0 J	0.077 U	9.2	412 J	0.054 U	20.3	0.030 U	83300 J	0.26 J	0.30 J	0.43 U	0.046 U	6.2	19500	0.093 U	1.2 J	0.39 J	2030	0.14 U	0.077 U	10400	0.047 U	0.27 U	2.8 J	0.751+-0.713 J
ALF-217A	14-May-20	187.75	279	34.1 J	0.13 J	0.42 UJ	372	7.0 J	0.077 U	9.4	445	0.054 U	18.0	0.030 U	93300	0.27 U*	0.20 J	49.7	0.046 U	7.0	21700	0.093 U	0.63	0.34 J	2220	0.14 U	0.077 U	12500	0.047 U	0.27 U	2.4 U*	1.47+-0.740 U
ALF-217A	9-Sep-20	187.75	302	52.8	0.094	0.42 U	405	6.7 J	0.077 U	7.7	442 J	0.054 U	23.2	0.030 U	75400	0.36 U*	0.23 J	0.43 U	0.043 U	8.9	21100	0.080 U	0.86	0.19 J	2180	0.14 U	0.077 U	15100	0.047 U	0.27 U	2.3 U	1.45+-0.862 J
ALF-217A	10-Dec-20	187.75	297	81.3	0.13	0.42 U	385	6.6 J	0.11 J	9.7	490	0.054 U	29.5	0.030 U	105000	0.62 U*	0.59	0.43 U	0.094 J	9.5	24100	0.080 U	1.7	1.1	2360	0.14 U	0.077 UJ	15600	0.047 U	0.27 U	6.9 U*	1.8+-0.733 J

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	**Date**	**Depth**																														
P-04																																
P-04-S	27-Sep-17	41	170	15.4	0.33	55.9 J	286 J	7.0 J	0.50 U	1.6	114	0.20 U	159	0.080 U	49000	0.34 U*	0.91	0.48 J	0.10 U	3.7	13900	0.20 U	2.3	1.3	3300	0.50 U	0.50 U	19200	0.10 U	1.0 U	1.7 U*	ND
ALF-P-4S	16-Oct-17	41	171	16.8	0.32	53.2	290	7.3 J	0.50 U	2.6	141	0.20 U	183 J	0.080 U	53900	0.22 U*	0.19 J	1.0 U	0.034 J	4.6 J	13200	0.20 U	3.5	0.47 J	3590	0.50 U	0.50 U	24300	0.10 U	1.0 U	1.0 U*	ND
ALF-P-4S	13-Nov-17	41	210	15.7	0.29	64.6	344	8.2 J	0.22 J	0.99	142	0.20 U	140	0.073 J	68800	0.50 U	0.62	0.58 U*	0.065 U*	4.6	18200	0.20 U	4.5	2.9	4050	6.1	0.50 U	25000	0.034 J	0.73 J	1.8 U*	0.761
ALF-P-4S	27-Nov-18	41	164	13.2	0.38	34.3	247	7.1 J	0.13 J	1.9	68.6	0.10 U	183	0.070 J	45800	0.23 U*	0.6	0.48 J	0.085 J	2.9	11700	0.20 U	3.7	2.7	3130	0.50 U	0.40 U	19500	0.10 U	1	3.2 J	ND
ALF-P-4S	16-Apr-19	41	148	9	0.39	26.1	789	8	0.50 U	1.6	53.9	0.10 U	85.5	0.080 U	41700	0.50 U	0.84	0.36 J	0.072 J	1.8 J	9700	0.20 U	5.3	2.1	2160	0.50 U	0.40 U	13000	0.10 U	0.29 J	10.2	1.71+-0.655 J
ALF-P-4S	24-Jun-19	41	161	10.2	0.44	21.1 J	209	7.0 J	0.50 U	1.4	60.4	0.20 U	97.4	0.032 J	40100	0.50 U	0.59	1.0 U	0.10 U	1.7	11700	0.20 U	7.4	2.3	2440	0.50 U	0.50 U	12500	0.10 U	0.29 J	5.0 U	0.215+-0.596 U
ALF-P-4S	16-Sep-19	41	149	11.2	0.55	33.6 J	227	7.5 J	0.077 U	1.4	59.9	0.054 U	186	0.062 J	42800	0.21 U	0.68	0.43 U	0.046 U	2.1	10400	0.093 U	5.3	2.0	2350	0.14 U	0.077 U	14000	0.047 U	0.27 U	3.9 J	0.366+-0.371 U
ALF-P-4S	17-Dec-19	41	176	13.9	0.66	92.4	371	7.6 J	0.50 U	2.1	90.6	0.20 U	1390	0.080 U	56700	0.26 J	0.97	1.0 U	0.10 U	2.2	13800 J	0.20 U	10.4	2.9	3350	0.50 U	0.50 U	27500	0.10 U	1.0 U	5.0 U	0.168+-0.586 U
ALF-P-4S	19-Feb-20	41	128	7.0	0.64	54.3 J	230	7.3 J	0.077 U	1.9	49.5	0.054 U	975	0.034 J	36000	0.21 U	0.57	1.9	0.10 U*	1.7	8770	0.093 U	13.2	2.4	2440	0.14 U	0.077 U	29200	0.047 U	0.27 U	2.4 U	0.768+-0.496 UJ
ALF-P-4S	18-May-20	41	141	5.8 J	0.48 J	36.4 J	221	7.3 J	0.077 U	2.2	57.5 J	0.054 U	728	0.035 J	40600	0.68 U*	0.76	0.43 U	0.11	1.9	10500 J	0.075 U	11.6	2.5	2420 J	0.14 U	0.077 U	26900	0.047 U	0.27 U	6.3 U*	1.47+-0.861 U
ALF-P-4S	9-Sep-20	41	184	9.5	0.34	72.0	333	7.1 J	0.077 U	3.2	98.6 J	0.054 U	384	0.030 U	46400	0.39 U*	0.86	0.43 U	0.043 U	3.5	16600	0.080 U	5.2	2.7	3140	0.14 U	0.077 U	23100	0.047 U	0.27 U	5.0 U*	0.226+-0.579 U
ALF-P-4S	15-Dec-20	41	261	8.4	0.40	88.9	423	7.0 J	0.34 J	1.7	131	0.054 U	1840	0.42	73400	0.36 U*	0.29 J	1.2	0.043 U	3.7	17400	0.080 U	7.3	4.1	3960	0.24 J	0.077 U	50100	0.047 U	2.9	20.1 U*	0.268+-0.485 UJ
ALF-P-4	1-Jun-17	75	NA	15.9 J	0.327 J	22.4 J	204 J	-	2.00 U	4.21 J	175 J	2.00 U	126 U*	1.00 U	38700 J	1.23 J	2.00 U	-	1.22 J	4.23 J	-	0.200 UJ	2.42 J	-	-	2.00 U	-	-	2.00 U	-	-	0.44
ALF-P-4	28-Sep-17	75	168	18.7	0.31	41.5	245	7.0 J	0.50 U	4.2	201	0.20 U	148	0.080 U	47200	0.37 U*	0.50 U	0.44 U*	0.31	5.8	12800	0.20 U	2.8	0.57 U*	2920	0.50 U	0.50 U	20400 J	0.10 U	0.47 U*	3.2 U*	ND
ALF-P-4	17-Oct-17	75	168	18.1	0.3	39	271	6.9 J	0.50 U	3.6	170	0.20 U	171	0.080 U	63100	0.29 U*	0.50 U	1.0 U	0.15	5.4	12800	0.20 U	3.4	0.44 J	3020 J	0.50 U	0.50 U	27300	0.10 U	1.0 U	1.8 U*	ND
ALF-P-4	14-Nov-17	75	166	17.1	0.25 J	56.7	310	7.8 J	0.50 U	4.6	221	0.20 U	159	0.080 U	59700	0.47 U*	0.50 U	0.64 U*	0.48	5.9	14500	0.20 U	2.9	0.96	3330	0.50 U	0.50 U	23100	0.10 U	0.67 J	3.3 U*	ND
ALF-P-4	27-Nov-18	75	127	13.1	0.34	37	216	7.2 J	0.50 U	3.7	151	0.10 U	186	0.080 U	40100	0.13 U*	0.034 J	0.56	0.085 J	4.4	10100	0.20 U	4.2	1.9	2600	0.50 U	0.40 U	16800	0.10 U	0.24 J	3.4 J	ND
ALF-P-4	16-Apr-19	75	86.2	7.1	0.29	17.2	132	7.9	0.50 U	1.9	101	0.10 U	28.6	0.080 U	25000	0.50 U	0.065 J	0.50 U	0.17	2.1 J	5980	0.20 U	2.3	0.34 J	1590	0.50 U	0.40 U	9820	0.10 U	0.33	1.4 J	1.14+-0.593 UJ
ALF-P-4	24-Jun-19	77	79.8	11.5	0.31	21.3	137	7.1 J	0.50 U	1.7	111	0.20 U	35.6	0.080 U	25900	0.50 U	0.50 U	0.51 J	0.11	2.5	6730	0.20 U	2.0	0.23 J	1620	0.50 U	0.50 U	9340	0.10 U	0.28 J	5.0 U	1.11+-0.658 J
ALF-P-4	16-Sep-19	77	80.5	8.7	0.42	19.3	139	7.2 J	0.077 U	1.9	87.3	0.054 U	43.3	0.030 U	22600	0.26 U*	0.085 U	0.43 U	0.10	2.1	5590	0.093 U	2.3	0.29 J	1460	0.14 U	0.077 U	8620	0.047 U	0.27 U	2.4 U	0.105+-0.426 U
ALF-P-4	17-Dec-19	77	107	13.1 J	0.42	27.7	173	7.2 J	0.50 U	2.0	124	0.20 U	48.6	0.080 U	31000	1.1	0.50 U	1.0 U	0.061 J	2.6	7670 J	0.20 U	2.2	0.26 J	1850	0.50 U	0.50 U	10600	0.10 U	1.0 U	5.0 U	0.119+-0.445 U
ALF-P-4	19-Feb-20	77	95.8	10.9	0.35	38.1 J	175	7.3 J	0.077 U	2.2	137	0.054 U	62.1	0.030 U	34700	0.21 U	0.085 U	0.43 U	0.071 U*	2.9	8520	0.093 U	2.4	0.17 J	1810	0.14 U	0.077 U	10300	0.047 U	0.27 U	2.4 U	0.260+-0.465 UJ
ALF-P-4	18-May-20	77	86.7	6.1	0.26 J	16.9 J	149	7.1 J	0.077 U	2.0	118 J	0.057 J	35.9	0.030 U	27400	0.22 U*	0.085 U	0.43 U	0.12	2.7	7270 J	0.075 U	2.2	0.27 J	1710 J	0.14 U	0.077 U	9730	0.047 U	0.27 U	3.2 U*	0.931+-0.712 U
ALF-P-4	9-Sep-20	77	120	9.6	0.25	30.7	191	7.2 J	0.077 U	2.8	181 J	0.054 U	66.0	0.030 U	43900	0.67 U*	0.085 U	0.43 U	0.071 U*	3.4	11100	0.080 U	2.3	0.34 J	2350	0.14 U	0.077 U	13700	0.047 U	0.27 U	2.3 U	0.987+-0.565 J
ALF-P-4	15-Dec-20	77	134	9.7	0.26	44.4	220	7.1 J	0.077 U	2.6	186	0.058 J	77.0	0.030 U	45400	0.50 U*	0.085 U	0.43 U	0.063 J	3.7	11400	0.080 U	2.2	0.27 J	2460	0.14 U	0.077 U	15300	0.047 U	0.27 U	2.9 U*	0.565+-0.531 UJ

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	Date	Depth																														
ACC																																
ACC-1A	27-Sep-17	165.5	301	6.6	0.16	2.1	302 J	6.6 J	0.50 U	1.7	548	0.20 U	9.0 U*	0.080 U	56900	0.22 U*	0.93	1.0 U	0.062 U*	1.5	29600	0.20 U	0.81	1.7	2560	0.50 U	0.50 U	10300	0.10 U	1.0 U	6.1 U*	ND
ACC-1A	17-Oct-17	165.5	339	6.6	0.12	2.1	327	6.6 J	0.50 U	1.8	543	0.20 U	7.0 U*	0.080 U	64200	0.50 U	0.68	0.37 U*	0.064 J	1.3	33100	0.20 U	0.64	1.3	2560 J	0.50 U	0.50 U	10700	0.10 U	1.0 U	6.7	ND
ACC-1A	14-Nov-17	165.5	320	6.5	0.086 J	5.8	350	6.8 J	0.50 U	2.3	567	0.20 U	11.2 U*	0.080 U	66300	0.50 U	0.55	1.0 U	0.037 U*	1.5	33400	0.20 U	0.91	1.2	2660	0.50 U	0.50 U	14300	0.10 U	1.0 U	4.1 U*	ND
ACC-1A	27-Nov-18	165.5	337	6.2	0.13 J	2.8 J	325	7.2 J	0.50 U	2	454	0.10 U	9.3 U*	0.080 U	60900	0.50 U	0.38	0.50 U	0.10 U	1.0 J	31200	0.20 U	0.54	0.98 U*	2550	0.50 U	0.40 U	10600	0.10 U	0.30 U	2.8 U*	ND
ACC-1A	10-Apr-19	165.5	313	5.7	0.12	1.9	311	6.8	2.5 U	1.9	476	0.50 U	112 J	0.40 U	64200	2.5 U	0.52	2.5 U	0.50 U	12.5 U	30800	0.11 J	2.5 U	1.2 J	2580	2.5 U	2.0 U	10300	0.50 U	1.5 U	25.0 U	0.984+-0.721 U
ACC-1A	11-Sep-19	165.5	298	6.0	0.18	1.4 U*	300	6.2 J	0.077 U	2.0	478	0.054 U	8.2 J	0.030 U	60000	0.21 U	0.52	0.43 U	0.053 U*	1.1	31500	0.093 U	0.52	1.2	2500	0.14 U	0.077 U	10000	0.047 U	0.27 U	6.0	1.42+-0.792 U
ACC-1A	11-Dec-19	165.5	99.0	8.6	0.18	2.6 J	302	6.9 J	0.50 U	1.9	463	0.20 U	8.9 J	0.080 U	63100	0.50 U	0.56	1.0 U	0.054 J	1.2	30600	0.20 U	0.51	1.3	2450	0.50 U	0.50 U	9770	0.10 U	1.0 U	5.1	1.84+-0.653 J
ACC-1A	19-Feb-20	165.5	308	5.9	0.14	1.1 J	306	6.9 J	0.077 U	2.1	508	0.054 U	10.4	0.030 U	65800	0.24 J	0.62	0.43 U	0.046 U	1.3	33800	0.093 U	0.51	1.3	2670	0.14 U	0.077 U	10600	0.047 U	0.27 U	5.8	0.692+-0.536 UJ
ACC-1A	12-May-20	165.5	301	4.7 J	0.12 J	0.53 J	292	6.9 J	0.077 U	2.0	481	0.054 U	9.0 J	0.030 U	60200	0.21 U	0.56	0.43 U	0.046 U	1.2	33200	0.093 U	0.48 J	1.2	2680	0.14 U	0.077 U	10400	0.047 U	0.27 U	11.2 U*	1.41+-0.727 U
ACC-1A	2-Sep-20	165.5	300	5.9	0.12	0.92 J	312	7.2 J	0.077 UJ	1.9	429 J	0.054 U	7.3 J	0.030 U	54200	0.28 U*	0.40 J	0.43 U	0.043 U	1.2	28500	0.080 U	0.48 J	0.94	2340	0.14 U	0.077 U	9330	0.047 U	0.27 U	3.3 U*	0.751+-0.670 U
ACC-1A	8-Dec-20	165.5	325	8.0	0.15	1.8	288	6.7 J	0.077 U	2.3	502	0.054 U	10.1	0.030 U	62000	0.46 U*	0.56	0.58 J	0.043 U	1.4	33600	0.080 U	0.60	1.5 U*	2680	0.14 U	0.077 UJ	11100	0.047 U	0.27 U	5.8 U*	0.645+-0.766 UJ
ACC-3A	27-Sep-17	126	449	6.8	0.067 J	13.2	464 J	6.7 J	0.50 U	0.61	858	0.20 U	105	0.080 U	99300	0.39 U*	0.50 U	1.7	0.044 U*	6.9	35800	0.20 U	0.89	0.38 U*	3190	0.50 U	0.50 U	11500	0.10 U	1.0 U	6.9 U*	ND
ACC-3A	17-Oct-17	126	484	6.5	0.089 J	12	460	6.8 J	0.50 U	0.40 J	888	0.20 U	115	0.080 U	124000	0.24 U*	0.50 U	1.0 U	0.10 U	6.7	43400	0.20 U	0.59	0.25 J	3360 J	0.50 U	0.50 U	12000	0.10 U	1.0 U	4.7 J	ND
ACC-3A	14-Nov-17	126	493	6.7	0.096 J	23.1	556	6.8 J	0.50 U	0.82	872	0.20 U	115	0.080 U	119000	0.28 U*	0.50 U	0.23 U*	0.058 U*	7.2	42900	0.20 U	1	0.27 U*	3520	0.50 U	0.50 U	21400	0.10 U	1.0 U	6.6 U*	ND
ACC-3A	27-Nov-18	126	500	6.7	0.096 J	14.3 J	489	7.5 J	0.50 U	0.31	883	0.10 U	145	0.080 U	117000	0.50 U	0.10 U	0.25 J	0.10 U	6.6	40900	0.20 U	0.33 J	0.34 U*	3140	0.50 U	0.40 U	11900	0.10 U	0.30 U	4.0 U*	ND
ACC-3A	10-Apr-19	126	469	6.5	0.094 J	20.2	497	6.9	2.5 U	0.38 J	869	0.50 U	210	0.40 U	119000	2.5 U	0.50 U	2.5 U	0.50 U	6.7 J	37200	0.11 J	2.5 U	2.5 U	3140	2.5 U	2.0 U	11300	0.50 U	1.5 U	25.0 U	2.42+-0.707
ACC-3A	21-Jun-19	126	410	9.1	0.13	70.6	506	7.1 J	0.50 U	0.36 J	1010	0.20 U	264	0.080 U	122000	0.50 U	0.50 U	1.3	0.064 J	7.2	37200	0.20 U	0.39 J	0.25 U*	3240	0.50 U	0.50 U	11800	0.10 U	1.0 U	5.3	3.14+-0.930 J
ACC-3A	11-Sep-19	126	428	7.6	0.15	39.2	498	6.7 J	0.077 U	0.38 J	950	0.054 U	108	0.030 U	118000	0.21 U	0.085 U	0.43 U	0.062 U*	6.0	42600	0.093 U	0.27 J	0.39 J	3230	0.14 U	0.077 U	11100	0.047 U	0.27 U	4.5 J	2.30+-0.843
ACC-3A	11-Dec-19	126	427	11.3	0.14	65.7	498	6.5 J	0.50 U	0.26 J	903	0.20 U	159	0.080 U	123000	0.32 J	0.50 U	6.6	0.10	6.6	38500	0.20 U	0.35 J	0.34 J	3120	0.50 U	0.50 U	11000	0.10 U	1.0 U	6.7	2.24+-0.818 J
ACC-3A	19-Feb-20	126	404	8.9	0.12	76.8 J	534	6.9 J	0.077 U	0.35 J	990	0.054 U	299	0.030 U	125000	0.21 U	0.085 U	0.43 U	0.046 U	6.6	40100	0.093 U	0.32 J	0.15 U	3280	0.14 U	0.077 U	12400	0.047 U	0.27 U	2.4 U	2.41+-0.841 J
ACC-3A	12-May-20	126	391	8.2 J	0.097 J	78.8 J	550	6.8 J	0.077 U	0.37 J	1030	0.054 U	428	0.030 U	123000	0.37 U*	0.085 U	0.43 U	0.046 U	6.8	41700	0.093 U	0.34 J	0.23 J	3420	0.14 U	0.077 U	13100	0.047 U	0.27 U	10.7 U*	2.46+-0.936 J
ACC-3A	2-Sep-20	126	417	8.2	0.091	65.2 J	546	7.0 J	0.077 UJ	0.30 J	876 J	0.054 U	130	0.030 U	113000	0.38 U*	0.085 U	0.43 U	0.043 U	6.3	38600	0.080 U	0.22 J	0.25 J	3120	0.14 U	0.077 U	11600	0.047 U	0.27 U	2.3 U	1.61+-0.865 J
ACC-3A	8-Dec-20	126	456	7.9	0.12	37.2	410	6.7 J	0.077 U	0.43 J	832	0.054 U	295	0.030 U	104000	0.42 U*	0.085 U	0.43 U	0.049 U*	7.2	40400	0.080 U	0.35 J	0.25 U*	3260	0.14 U	0.077 UJ	12200	0.047 U	0.27 U	2.5 U*	1.79+-0.960 J
ACC-5B	20-Sep-17	55.5	226	12.5	0.19	65.3	353	6.7 J	0.14 J	0.52	150	0.20 U	19.3	0.080 U	61900	0.23 U*	0.73	1.0 U	0.12 U*	6	23000	0.20 U	3.3	1.5	1590	0.50 U	0.50 U	19400	0.10 U	1.0 U	52.2	ND
ACC-5B	17-Oct-17	55.5	493	3	0.12	27.8	486	6.7 J	0.50 U	1.1	484	0.20 U	73.1	0.080 U	141000	0.22 U*	2.9	0.62 U*	0.092 J	19.2	35300	0.20 U	0.41 J	6	2300 J	0.50 U	0.50 U	6670	0.10 U	1.0 U	2.8 U*	ND
ACC-5B	13-Nov-17	55.5	433	4.6	0.13	19.8	446	8.1 J	0.50 U	1.6	581	0.20 U	91.6	0.080 U	130000	0.50 U	2.2	1.0 U	0.065 U*	18.6	33200	0.20 U	0.64	3.8	2210	0.50 U	0.50 U	6650	0.10 U	1.0 U	2.9 U*	ND
ACC-5B	27-Nov-18	55.5	258	17.2	0.081 J	80.2 J	397	7.2 J	0.50 U	0.29	480	0.10 U	96.2	0.080 U	130000	0.50 U	3.2	0.50 U	0.10 U	17.3	33900	0.20 U	0.18 J	7	2270	0.50 U	0.40 U	7760	0.10 U	0.30 U	2.7 U*	ND
ACC-5B	10-Apr-19	55.5	465	4.5	0.15	29.9	508	7	2.5 U	0.32 J	598	0.50 U	158	0.40 U	134000	2.5 U	3.3	2.5 U	0.50 U	16.2	31500	0.20 U	2.5 U	6.8	2120	2.5 U	2.0 U	7790	0.50 U	1.5 U	25.0 U	1.82+-0.686 U*
ACC-5B	26-Jun-19	55.5	451 J	3.9	0.19	30.8	500	6.8 J	0.50 U	0.39 J	672	0.20 U	129	0.080 U	130000	0.50 U	3.2	1.0 U	0.072 U*	16.2	33200	0.20 U	0.23 J	6.2	1960	0.50 U	0.50 U	7040	0.10 U	1.0 U	5.6	2.63+-1.09 J
ACC-5B	11-Sep-19	55.5	450	4.1	0.20	43.7	530	6.6 J	0.077 U	0.31 J	611	0.054 U	86.5	0.030 U	141000	0.21 U	3.7	0.43 U	0.046 U	16.4	37200	0.093 U	0.13 J	8.5	2350	0.14 U	0.077 U	6470	0.047 U	0.27 U	4.5 J	1.20+-0.733
ACC-5B	11-Dec-19	56	460	5.4	0.22	59.3	534	6.6 J	0.50 U	0.33 J	648	0.20 U	84.2	0.080 U	140000	0.50 U	3.8	1.0 U	0.10 U	15.1	34400	0.20 U	0.17 J	6.7	2100	0.50 U	0.50 U	6150	0.10 U	1.0 U	3.9 J	0.338+-0.469 U*
ACC-5B	19-Feb-20	55.5	453	4.1	0.20	38.4 J	526	6.8 J	0.077 U	0.40 J	676	0.054 U	94.2	0.030 U	137000	0.21 U	3.1	0.43 U	0.046 U	16.1	34500	0.093 U	0.21 J	5.0	1980	0.14 U	0.077 U	6410	0.047 U	0.27 U	3.5 J	1.54+-0.748 J
ACC-5B	12-May-20	55.5	438	2.3 J	0.16 J	20.7 J	470	6.8 J	0.077 U	0.42 J	662	0.054 U	110	0.030 U	133000	0.43 U*	2.9	0.43 U	0.077 J	17.2	35800	0.093 U	0.22 J	5.3	2270	0.14 U	0.077 U	7330	0.047 U	0.27 U	7.5 U*	1.45+-0.750 J
ACC-5B	1-Sep-20	55.5	463	3.5	0.14	78.7 J	638	7.1 J	0.077 UJ	0.24 J	552 J	0.054 U	67.5	0.030 U	134000	0.35 U*	3.6	0.44 J	0.088 U*	18.0	34800	0.080 U	0.15 J	8.2	2380	0.14 U	0.077 U	6110	0.047 U	0.27 U	5.4 U*	0.810+-0.666 U
ACC-5B	8-Dec-20	55.5	488	2.3	0.20	39.1	455	6.8 J	0.077 U	0.41 J	598	0.054 U	69.9	0.030 U	136000	0.68 U*	3.5	0.58 J	0.083 U*	20.3	34900	0.080 U	0.19 J	6.0 U*	2100	0.14 U	0.077 UJ	6420	0.047 U	0.27 U	3.9 U*	0.544+-0.709 J
ACC-5A	21-Sep-17	139	485	2.6	0.1	32	519	6.9 J	0.50 U	1.6	446	0.20 U	64	0.080 U	143000	0.33 U*	2.9	1.0 U	0.074 U*	19.8	35300	0.20 U	1.2	5.2	2490	0.50 U	0.50 U	7410	0.10 U	1.0 U	3.9 U*	ND
ACC-5A	17-Oct-17	139	261	15.8	0.066 J	64.7	405	6.7 J	0.50 U	0.39 J	174	0.20 U	23.3	0.080 U	70400	0.21 U*	0.50 U	1.0 U	0.036 J	3.5	29600	0.20 U	0.6	0.34 J	2650 J	0.50 U	0.50 U	16900	0.10 U	1.0 U	8.9	ND
ACC-5A	13-Nov-17	136	274	15.8	0.085 J	62.1	405	7.6 J	0.50 U	0.69	185	0.20 U	22.7	0.080 U	70400	0.50 U	0.50 U	1.0 U	0.031 U*	3.8	29500	0.20 U	0.94	0.20 U*	3040	0.50 U	0.50 U	15200	0.10 U	1.0 U	8.1 U*	ND
ACC-5A	27-Nov-18	139	519	3.1	0.15 J	19.8 J	512	7.1 J	0.50 U	1.5	99.4	0.10 U	25.9 U*	0.080 U	71600	0.50 U	0.10 U	0.50 U	0.10 U	2.9	29600	0.20 U	0.26 J	0.28 U*	2640	0.50 U	0.40 U	12900	0.10 U	0.30 U	1.4 U*	ND
ACC-5A	10-Apr-19	139	269	16.8	0.074 J	94.3	434	6.8	2.5 U	1.7	78	0.50 U	48.4 J	0.40 U	83000	2.5 U	0.50 U	2.5 U	0.50 U	12.5 U	29700	0.11 J	2.5 U	2.5 U	2520	2.5 U	2.0 U	12400	0.50 U	1.5 U	25.0 U	0.843+-0.576 U
ACC-5A	26-Jun-19	144	255 J	17.4	0.090	96.6	414	6.4 J	0.50 U	2.1	81.1	0.20 U	36.5	0.080 U	78000	0.50 U	0.50 U	1.2	0.080 U*	2.4	32100	0.20 U	0.37 J	0.40 U*	2510	0.50 U	0.50 U	13300	0.10 U	1.0 U	12.6	0.561+-0.760 UJ
ACC-5A	11-Sep-19	144	242	17.5	0.12	97.7	427	6.5 J	0.077 U	1.5	78.9	0.054 U	31.3	0.030 U	74800	0.22 U*	0.085 U	0.43 U	0.075 U*	2.3	30400	0.093 U	0.46 J	0.34 J	2690	0.14 U	0.077 U	12800	0.047 U	0.27 U	4.0 J	0.858+-0.538 U
ACC-5A	11-Dec-19	144	258	23.7	0.12	115	404	7.0 J	0.50 U	1.8	70.3	0.20 U	31.6	0.080 U	80000	0.50 U	0.50 U	1.0 U	0.10 U	2.6	31600	0.20 U	0.31 J	0.30 J	2840	0.50 U	0.50 U	13300	0.10 U	1.0 U	2.8 J	1.06+-0.683 UJ
ACC-5A	19-Feb-20	139	244	17.3	0.097	82.8 J	404	6.7 J	0.077 U	1.9	65.7	0.054 U	30.8	0.030 U	75500	0.21 U	0.085 U	0.43 U	0.046 U	2.5	31300	0.093 U	0.23 J	0.15 U	2670	0.14 U	0.077 U	13900	0.047 U	0.27 U	2.7 J	0.787+-0.680 UJ
ACC-5A	12-May-20	139	234	15.6 J	0.082 J	64.7 J	384	6.9 J	0.077 U	1.8	76.6	0.054 U	32.6	0.030 U	75200	0.52 U*	0.085 U	0.43 U	0.046 U	2.0	33700	0.093 U	0.27 J	0.25 J	2690	0.14 U	0.077 U	13800	0.047 U	0.27 U	3.0 U*	0.848+-0.582 J
ACC-5A	2-Sep-20	139	248	17.4	0.083	67.2 J	388	7.3 J	0.077 UJ	1.9	59.3 J	0.054 U	25.2	0.030 U	62600	0.43 U*	0.085 U	0.43 U	0.043 U	2.5	25800	0.080 U	0.26 J	0.30 J	2510	0.14 U	0.077 U	11300	0.047 U	0.27 U	3.5 U*	0.906+-0.695 U
ACC-5A	8-Dec-20	139	241	22.3	0.11	75.7	362	6.6 J	0.077 U	2.1	65.8	0.054 U	24.2	0.030 U	71500	2.5	0.085 U	0.43 U	0.043 U	3.1	29200	0.080 U	0.46 J	1.2 U*	2840	0.14 U	0.077 UJ	12900	0.047 U	0.27 U	2.5 U*	0.497+-0.839 UJ

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	Date	Depth																														
Pre-Design Wells - North																																
EW-N02	29-Nov-18	30	244	13.4	3.1	210	646	10 J	0.99	2400	27.1	0.12	6090 J	1.2	4020	1.2	1.1	23.3	11.7	6.2	221	0.20 U	327	7.2	1350	1.3	0.050 J	202000	0.10 U	21.6	4.0 J	ND
EW-N02	15-Jan-19	30	206	13.5	2.2	204	321	9.9 J	0.98	1420	23.1	0.12	5430	1.2	3670	1.1	0.89	19.4	11	2.0 J	72.1	0.15 J	356 J	6	1470	1.5	0.40 U	194000	0.10 U	19.7	19.8	ND
PMW-02A	29-Nov-18	29	248	15.2	2.9	210	674	10.0 J	1.5	3450	28.2	0.095 J	6430 J	2.2	4270	1.4	1.9	34.4	23.4	0.58 J	96.7	0.20 U	339	13.3	1410	3.2	0.079 J	200000	0.10 U	38.4	8.8	ND
PMW-02A	16-Jan-19	29	252	16.2	3	191	686	10.1	1.6	3650	41	0.15	7350	3.3	5270	25.0 U	3.7 J	58.6	32.7	0.76 J	123	0.10 J	406	24.6 J	1430	5.7	0.11 J	215000	0.064 J	67.2	6.4	ND
PMW-02A	16-Apr-19	29	192	17.1	3	186	646	10	10.0 U	3840	46.9	2.0 U	6950	2.3	6970	10.0 U	3.3	59.9	22.7	50.0 U	564	0.20 U	440	20.7	1670	6.3 J	8.0 U	179000	2.0 U	71.1	100 U	1.67+-0.996 J
PMW-02A	26-Jun-19	29	217	15.7	3.5	206	666	10.1	1.8 J	3700	55.1	1.0 U	7020	2.4	7680	3.4	3.3	53.6	25.7	0.92 J	216	0.20 U	447	22.9	1390	6.4	2.5 U	191000	0.50 U	85.2	20.3 J	0.582+-0.667 U
PMW-02A	17-Sep-19	29	232	14.1	4.0	229 J	733	10.0 J	1.3	3300	33.4	0.13 J	8230	1.3	4440	2.3 U*	1.7	34.3	10.8	1.7	223	0.093 U	303	11.7	1300 J	3.0	0.090 J	224000	0.047 U	50.1	8.3	0.193+-0.762 U
PMW-02A	18-Dec-19	29	261	20.1	4.2	261	692	9.7 J	1.2	3310	17.8	0.063 J	7090	0.93	5110	1.2	1.1	25.7	7.7	0.84	179	0.20 U	301	9.2	1260	2.5	0.50 U	232000	0.10 U	35.5	3.7 J	0.757+-0.655 UJ
PMW-02A	20-Feb-20	29	185	13.7	4.1	225	664	10 J	1.3	3450	33.5	0.12 J	6570	1.6	4050	2.1	1.5	27.5	14.7	0.88	161	0.093 U	341 J	11.8	1210	2.7	0.077 U	189000	0.050 J	34.6	7.2	0.000+-0.948 UJ
PMW-02A	19-May-20	29	179	11.9 J	3.4 J	219 J	690	10.2 J	1.2 J	2820 J	20.9 J	0.27 U	7330	1.1	3440 J	1.6 U*	1.0 J	31.0	14.8	1.1 J	95.3	0.075 U	353 J	10.1	962 J	2.7	0.38 U	187000 J	0.24 U	33.3 J	12.0 U	1.68+-1.08 U
PMW-02A	9-Sep-20	29	211	12.9	2.9	240	792	10.1 J	1.3	2150	21.9 J	0.062 J	10200	0.68	5350	1.7 U*	1.1	31.7	7.9	0.67	108	0.080 U	603	7.3	1530	4.6	0.078 J	207000 J	0.047 U	51.2	5.2 U*	0.628+-1.08 U
PMW-02A	15-Dec-20	29	135	15.0	3.4	225	566	7.7 J	0.64	2570	72.1	0.054 U	7750	0.25	24400	0.70 U*	0.78	4.3	0.48	4.2	2330	0.080 U	549	9.3	6070	2.4	0.077 U	165000	0.047 U	3.3	4.3 U*	0.0593+-0.434 UJ
PMW-02B	29-Nov-18	54	339	17.3	0.17	29.4	415	7.1 J	0.077 U	107	212	0.054 U	2470	0.030 U	88900	0.50 U*	0.18 J	0.52 J	0.093 J	10	21600	0.080 U	30.6	0.45 J	4500	0.14 U	0.077 U	41900	0.047 U	0.82 J	46.4	0.531+-0.558 UJ
PMW-02B	16-Jan-19	54	127	15.7	0.16	22.6	194	7.0 J	0.077 U	0.34 J	236	0.054 U	164	0.030 U	39200	1.0 U*	0.085 U	0.43 U	0.043 U	2.2	10800	0.080 U	1.8	0.20 J	1420	0.14 U	0.077 U	15700	0.047 U	0.27 U	3.3 U*	0.817+-0.578 UJ
PMW-02B	16-Apr-19	54	207	14.9	0.093 J	46	315	7.5	0.50 U	12.9	119	0.10 U	991	0.080 U	63800	0.50 U	1.8	0.66	0.21	5.2	13400	0.20 U	58.7	2.3	3100	0.14 J	0.40 U	14400	0.10 U	0.91	62.9	0.386+-0.572 UJ
PMW-02B	26-Jun-19	54	290	16.6 J	0.14	48.9	381	7.0 J	0.50 U	29.5	155	0.20 U	1670	0.080 U	80400	0.44 J	1.8	1.0 U	0.10	8.3	17700	0.20 U	82.7	2.0	3440	0.50 U	0.50 U	19600	0.10 U	1.6	28.2	0.431+-0.595 U
PMW-02B	17-Sep-19	54	187	13.6	0.20	9.6 J	258	6.7 J	0.077 U	37.6	89.7	0.054 U	465	0.030 U	42500	0.36 U*	0.43 J	0.55 U*	0.14	4.6	9550	0.093 U	6.6	0.62	2980 J	0.14 U	0.077 U	25500	0.047 U	2.0	117	0.616+-0.753 U
PMW-02B	18-Dec-19	54	290	23.0	0.20	57.9	400	7.3 J	0.50 U	69.5	164	0.20 U	2170	0.080 U	81700	0.54	0.70	1.7	0.27	8.3	18200	0.20 U	73.9	0.77	4130	0.50 U	0.50 U	31600	0.10 U	1.3	81.6	0.180+-0.549 UJ
PMW-02B	20-Feb-20	54	264	14.6	0.21	41.7	374	7.4 J	0.077 U	70.5	167	0.054 U	2420	0.030 U	72600	0.24 J	0.64	0.43 U	0.069 U*	10.1	18400	0.093 U	115 J	0.50	3890	0.14 J	0.077 U	29900	0.047 U	0.99 J	23.0	0.0685+-0.549 UJ
PMW-02B	19-May-20	54	283	13.0 J	0.16 J	27.6 J	392	7.3 J	0.077 U	46.8	163	0.054 U	2400	0.030 U	79700	0.42 U*	0.18 J	0.43 U	0.076 J	9.4	18000	0.075 U	33.9	0.40 J	4010	0.14 U	0.077 U	32300	0.047 U	1.1	25.0 U*	1.03+-0.712 UJ
PMW-02B	9-Sep-20	54	297	15.5	0.14	15.7	384	7.2 J	0.077 U	66.5	152 J	0.054 U	1770	0.030 U	47900	0.54 U*	0.13 J	0.43 U	0.043 U	7.4	16000	0.080 U	12.6	0.27 J	3760	0.14 U	0.077 U	33800	0.047 U	0.82 J	9.2 U*	0.956+-0.626 U
PMW-02B	15-Dec-20	54	339	17.3	0.17	29.4	415	7.1 J	0.077 U	107	212	0.054 U	2470	0.030 U	88900	0.50 U*	0.18 J	0.52 J	0.093 J	10	21600	0.080 U	30.6	0.45 J	4500	0.14 U	0.077 U	41900	0.047 U	0.82 J	46.4	0.531+-0.558 UJ
PMW-02C	29-Nov-18	124	158	16.2	0.089 J	22.9	225	7.1 J	0.50 U	0.25	260	0.10 U	119 J	0.080 U	45600	0.50 U	0.10 U	0.50 U	0.10 U	2.7	11400	0.20 U	1.5	0.24 J	1480	0.50 U	0.40 U	14000	0.10 U	0.30 U	1.5 J	ND
PMW-02C	16-Jan-19	124	145	16.8	0.11	27.3	210	7.6	0.50 U	0.12	259	0.10 U	337 J	0.080 U	44800	0.50 U	0.10 U	0.50 U	0.10 U	2.8	11200	0.20 U	1.9	0.17 J	1570	0.50 U	0.40 U	15100	0.10 U	0.30 U	5.0 U	ND
PMW-02C	15-Apr-19	124	124	15.5	0.12	29	195	7.4	0.50 U	0.24	211	0.10 U	116	0.080 U	34000	0.50 U	0.077 J	0.50 U	0.095 J	2.2 J	7720	0.20 U	2.3	0.22 J	1400	0.50 U	0.40 U	11700 J	0.10 U	0.30 U	3.4 J	0.930+-0.789 U
PMW-02C	26-Jun-19	124	116	16.4	0.16	30.7	213	7.2	0.50 U	0.50 U	238	0.20 U	134	0.080 U	38500	0.24 J	0.50 U	1.0 U	0.073 J	2.7	9280	0.20 U	2.8	0.28 J	1400	0.50 U	0.50 U	13700	0.10 U	1.0 U	5.2	0.658+-0.655 U
PMW-02C	17-Sep-19	124	104	16.5	0.23	35.3 J	194	6.3 J	0.077 U	0.43 J	197	0.054 U	175	0.030 U	35400	0.94 U*	0.087 J	0.43 U	0.061 J	2.2	9340	0.093 U	1.7	0.53	1280 J	0.14 U	0.077 U	14200	0.047 U	0.27 U	5.3	2.51+-0.809
PMW-02C	18-Dec-19	124	120	21.2	0.20	38.5	221	6.3 J	0.50 U	0.27 J	243	0.20 U	146	0.033 J	43000	0.25 J	0.50 U	1.0 U	0.075 J	2.5	10000	0.20 U	2.0	0.23 J	1590	0.50 U	0.50 U	15200	0.10 U	1.0 U	5.6	0.695+-0.514 UJ
PMW-02C	20-Feb-20	124	124	14.7	0.17	27.5	202	7.3 J	0.077 U	0.15 J	245	0.054 U	139	0.030 U	40100	0.43 J	0.085 U	0.43 U	0.046 U	2.5	9530	0.093 U	3.1 J	0.15 U	1550	0.14 U	0.077 U	13700	0.047 U	0.27 U	2.8 J	0.467+-0.608 UJ
PMW-02C	19-May-20	124	125	13.7 J	0.16 J	9.7 J	183	7.3 J	0.077 U	0.33 J	203	0.054 U	163	0.030 U	35900	0.21 U	0.085 U	0.43 U	0.046 U	2.3	9730	0.075 U	2.6	0.16 J	1420	0.14 U	0.077 U	15800	0.047 U	0.27 U	3.5 U*	1.42+-0.819 UJ
PMW-02C	9-Sep-20	124	119	15.3	0.13	21.0	185	7.0 J	0.077 U	0.28 J	202 J	0.054 U	176	0.030 U	35600	1.2 U*	0.085 U	0.43 U	0.043 U	2.1	9680	0.080 U	1.7	0.48 J	1320	0.14 U	0.077 U	14600	0.047 U	0.27 U	3.4 U*	1.23+-0.740 U
PMW-02C	15-Dec-20	124	127	15.7	0.16	22.6	194	7.0 J	0.077 U	0.34 J	236	0.054 U	164	0.030 U	39200	1.0 U*	0.085 U	0.43 U	0.043 U	2.2	10800	0.080 U	1.8	0.20 J	1420	0.14 U	0.077 U	15700	0.047 U	0.27 U	3.3 U*	0.817+-0.578 UJ

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	**Date**	**Depth**																														
PMW-04A	29-Nov-18	29	186	15.6	4.4	184	561	7.6 J	0.47 J	3050	55.8 J	0.10 U	7380 J	0.15	39300	0.50 U	1.3	7.5	0.19	6.8	6880 J	0.20 U	679 J	12.2	3770 J	0.78	0.40 U	166000	0.10 U	6.8	2.6 J	ND
PMW-04A	15-Jan-19	29	182	15.3	4.4	165	540	7.9 J	0.46 J	2440	53.3	0.10 U	7100	0.25	34100	0.50 U	1.1	7.5	0.23	6.5	7550	0.20 U	740 J	11.7	3740	0.71	0.40 U	129000	0.10 U	5.3	5.0 U	ND
PMW-04A	16-Apr-19	29	218	14.9	3.9	162	586	8	2.5 U	2260	59.6	0.50 U	6850	0.40 U	38600	2.5 U	0.92	3.6	0.50 U	6.8 J	8080	0.20 U	891	9.1	4170	0.46 J	2.0 U	142000	0.50 U	5	25.0 U	1.46+-0.609 J
PMW-04A	25-Jun-19	29	293	13.5	3.9	166	593 J	7.7 J	0.32 J	1430	75.2	0.20 U	5540	0.042 J	48900	0.50 U	0.80	2.8	0.068 J	6.4	13000	0.20 U	569	6.3	5080	0.30 J	0.50 U	122000	0.10 U	3.7	5.0 U	2.63+-1.09 J
PMW-04A	17-Sep-19	29	136	15.2	3.7	204	506	7.2 J	0.34 J	1460	63.2	0.054 U	6930	0.13	45900	0.21 U	1.4	3.6 U*	0.074 J	7.0	10100	0.093 U	528	11.5	5510 J	0.53	0.077 U	101000	0.047 U	4.1	2.4 U	2.47+-0.864
PMW-04A	17-Dec-19	29	204	22.8	4.1	272	644	7.6 J	0.35 J	1430	85.1	0.20 U	6800	0.16	75900	0.48 J	0.42 J	7.4	0.20	11.3	16200 J	0.20 U	547	9.7	2540	0.89	0.50 U	97300	0.10 U	6.8	5.0 U	0.0741+-0.582 U
PMW-04A	21-Feb-20	29	159	16.2	4.0	219	572	7.6 J	0.43 J	2300	59.1	0.054 U	6810	0.078 J	49200	0.43 J	0.65	9.8	0.24 U*	8.7	11800	0.093 U	747 J	14.6	2810	0.95	0.077 U	113000	0.047 U	6.4	4.0 J	0.516+-0.519 UJ
PMW-04A	15-May-20	29	252	11.5 J	2.4 J	160 J	616	7.7 J	0.29 J	1300	73.7	0.054 U	6680	0.041 J	66000	0.30 U*	0.61	2.7	0.046 U	9.2	14000	0.093 U	872	6.9	3180	0.32 J	0.077 U	140000	0.047 U	4.0	2.9 U*	0.902+-0.734 U
PMW-04A	10-Sep-20	29	117	15.8	3.0	211	566	7.7 J	0.43 J	3030	41.9	0.054 U	6100	0.11	24600	0.79 U*	2.8	10.4	0.50	4.3	4000	0.080 U	474	21.8	3830	1.0	0.077 U	137000	0.047 U	5.0	2.3 U	0.204+-0.612 U
PMW-04A	14-Dec-20	29	121	17.1	4.1	248	544	7.3 J	0.35 J	1650	66.9	0.054 U	7210	0.11	36500	0.42 U*	4.5	4.5	0.043 U	7.6	5510	0.080 U	475	17.1	5410	0.76	0.077 U	121000	0.047 U	3.6	2.3 U	0.0691+-0.497 UJ
PMW-04B	29-Nov-18	57	309	18.1	0.22	53.8	427	7.0 J	0.077 U	78.6	346	0.054 U	2870	0.030 U	92200	0.46 U*	0.10 J	0.43 U	0.043 U	11.5	25400	0.080 U	135	0.21 J	3600	0.14 U	0.077 U	18100	0.047 U	0.28 J	2.3 U	0.356+-0.563 UJ
PMW-04B	15-Jan-19	57	148	17.8	0.16	30.1	223	7.1 J	0.077 U	0.14 U	304	0.054 U	117	0.030 U	522000	0.34 U*	0.085 U	0.43 U	0.058 J	3.1	11700	0.080 U	1.7	0.20 J	1650	0.14 U	0.077 U	14100	0.047 U	0.27 U	2.3 U	0.669+-0.542 UJ
PMW-04B	16-Apr-19	57	228	11.4	3.1	216	648	9.3 J	0.91	978	40.7 J	0.054 U	12400 J	0.27	12600	0.80 U*	0.48 J	17.6	2.1	2.4 J	982 J	0.080 U	436	3.7	1830	2.0	0.077 U	197000	0.047 U	22.1	2.9 U*	0.962+-0.631 U*
PMW-04B	25-Jun-19	57	303	17.1	0.17	72.5	451	6.9 J	0.077 U	14.7	216 J	0.054 U	3480 J	0.043 J	93300	0.53 U*	0.12 J	0.43 U	0.086 J	7.7 J	22900 J	0.080 U	225	0.39 J	5380	0.14 U	0.077 U	23500	0.047 U	0.82 J	6.0 U*	0.287+-0.435 U
PMW-04B	17-Sep-19	57	126	15.8	0.23	17.4	192	6.8 J	0.077 U	1.8	206 J	0.054 U	399 J	0.030 U	28700	0.46 U*	0.30 J	0.43 U	0.080 J	3.3 J	12700 J	0.080 U	24.0	1.3	1610	0.14 U	0.077 U	14700	0.047 U	0.27 U	4.1 U*	0.699+-0.572 U
PMW-04B	17-Dec-19	57	91.7	15.3	4.5	146	324	7.4 J	0.088 J	260	79.7	0.054 U	4840	0.048 J	30200	0.41 U*	0.91	2.7	0.091 J	8.1	6430	0.080 U	322	3.7	3830	0.41 J	0.077 U	75000	0.047 U	1.4	2.3 U	0.428+-0.764 U
PMW-04B	21-Feb-20	57	397	15.8	0.26	0.42 U	385	7.0 J	0.077 U	97.3	292	0.054 U	911	0.030 U	97700	0.49 U*	0.26 J	0.43 U	0.043 U	9.9	20900	0.080 U	2.7	0.27 J	5510	0.14 U	0.077 U	19400	0.047 U	0.36 J	2.3 U	0.715+-0.670 U
PMW-04B	15-May-20	57	210	19.6	0.24	62.6	310	6.8 J	0.077 U	0.73	267	0.054 U	2900	0.030 U	56700	0.38 U*	0.085 U	0.43 U	0.043 U	3.0	21000	0.080 U	347	0.18 U	2410	0.14 U	0.077 U	28000	0.047 U	0.27 U	2.3 U	0.281+-0.538 U
PMW-04B	10-Sep-20	57	272	10.9	2.1	84.4	438	8.0 J	0.077 U	147	203 J	0.054 U	3970 J	0.075 J	70400	0.39 U*	0.47 J	0.66 J	0.043 U	8.3 J	16300 J	0.080 U	191	0.99	2610	0.16 J	0.077 U	66400	0.047 U	0.60 J	2.3 U	0.0552+-0.496 U
PMW-04B	14-Dec-20	57	309	18.1	0.22	53.8	427	7.0 J	0.077 U	78.6	346	0.054 U	2870	0.030 U	92200	0.46 U*	0.10 J	0.43 U	0.043 U	11.5	25400	0.080 U	135	0.21 J	3600	0.14 U	0.077 U	18100	0.047 U	0.28 J	2.3 U	0.356+-0.563 UJ
PMW-04C	29-Nov-18	124	165	22.2	0.33	80.7	356	7.0 J	0.077 U	0.89	169 J	0.054 U	7800 J	0.045 J	48000	0.36 U*	0.085 U	0.43 U	0.043 U	3.4 J	17300 J	0.080 U	380	0.20 J	2190	0.15 J	0.077 U	44000	0.047 U	0.27 U	2.3 U	1.51+-0.586
PMW-04C	15-Jan-19	124	311	16.6	1.4	56.2	436	7.0 J	0.14 J	84.5	151	0.054 U	7000	0.076 J	67600	0.35 U*	4.0	0.59 J	0.24	8.5	17300	0.080 U	62.6	7.5	1700	0.32 J	0.077 UJ	78600	0.047 U	1.3	2.3 U	0.646+-0.749 UJ
PMW-04C	16-Apr-19	124	320	14.5	0.14	33.6	390	6.8 J	0.077 U	74.2	692	0.054 U	1620	0.030 U	82200	0.40 U*	0.15 J	0.43 U	0.043 U	7.0	22000	0.080 U	1.5	0.28 J	4600	0.14 U	0.077 UJ	12900	0.047 U	0.27 U	2.3 U	0.822+-0.768 UJ
PMW-04C	25-Jun-19	125	163	17.2	0.18	19.5	229	6.7 J	0.077 U	0.20 J	226	0.059 J	415	0.030 U	41100	0.52 U*	0.085 U	0.43 U	0.043 U	3.1	14100	0.080 U	2.7	0.22 J	1820	0.14 U	0.077 UJ	12900	0.047 U	0.27 U	2.3 U	0.321+-0.542 UJ
PMW-04C	17-Sep-19	125	88.3	2.3	0.13	2.8	97.0	6.7 J	0.077 U	0.15 J	76.4	0.054 U	6.4 U*	0.030 U	18700	1.2 U*	0.085 U	0.43 U	0.043 U	1.1	7480	0.080 U	0.12 J	0.67 U*	997	0.14 U	0.077 UJ	7020	0.047 U	0.27 U	2.3 U	1.54+-0.741 J
PMW-04C	17-Dec-19	124	126	22.9	0.24	37.7	243	6.7 J	0.50 U	0.50 U	277	0.20 U	123	0.080 U	41000	0.35 J	0.091 J	1.0 U	0.15	2.8	9400 J	0.20 U	2.1	0.26 J	1710	0.50 U	0.50 U	12600	0.10 U	1.0 U	2.5 J	0.235+-0.547 U
PMW-04C	21-Feb-20	124	131	15.8	0.18	30.3	215	6.8 J	0.077 U	0.14 U	298	0.054 U	112	0.030 U	43200	0.21 U	0.085 U	0.43 U	0.046 U	2.9	10500	0.093 U	2.5 J	0.15 U	1720	0.14 U	0.077 U	14200	0.047 U	0.27 U	2.4 U	1.09+-0.620 UJ
PMW-04C	15-May-20	124	134	13.1 J	0.13 J	20.5 J	197	7.0 J	0.077 U	0.14 U	310	0.054 U	115	0.030 U	47500	0.21 U	0.085 U	0.43 U	0.046 U	3.1	10700	0.093 U	2.6	0.15 U	1930	0.14 U	0.077 U	14900	0.047 U	0.27 U	2.4 U	0.495+-0.583 U
PMW-04C	10-Sep-20	124	121	15.0	0.13	25.6	196	7.1 J	0.077 U	0.14 U	227	0.054 U	119	0.030 U	34000	0.30 U*	0.085 U	0.43 U	0.043 U	2.1	8990	0.080 U	2.1	0.18 U	1380	0.14 U	0.077 U	14300	0.047 U	0.27 U	2.3 U	1.13+-0.578 J
PMW-04C	14-Dec-20	124	148	17.8	0.16	30.1	223	7.1 J	0.077 U	0.14 U	304	0.054 U	117	0.030 U	522000	0.34 U*	0.085 U	0.43 U	0.058 J	3.1	11700	0.080 U	1.7	0.20 J	1650	0.14 U	0.077 U	14100	0.047 U	0.27 U	2.3 U	0.669+-0.542 UJ

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	Date	Depth																														
PMW-07A	3-Dec-18	24	241	17	3.5	178 J	696	9.4 J	0.98	1590	49.7	0.18	8660 J	0.72	18500	2.8	1.8	24.9 J	8.4	125 U	2010 J	0.20 U	990 J	7.3 J	1960	0.93	0.057 J	179000 J	0.10 U	24.3	9.6	ND
PMW-07A	16-Jan-19	24	219	16.9	3.5	184	630	9.4	1	1190	40.7	0.14	10100	1.2	13100	2.2	1.2	32.6	11.4	1.9 J	774	0.20 U	881	6.2	1890	1.4	0.083 J	188000	0.10 U	22.6	7.2	ND
PMW-07A	16-Apr-19	24	162	16.2	3	187	563	9.1	0.80 J	816	43.6	0.50 U	9790	0.40 U	23800	2.5 U	0.52	14.7	2.6	12.5 U	2980	0.20 U	918	4.5	2840	1.2 J	2.0 U	143000	0.50 U	23.7	25.0 U	0.472+-0.627 UJ
PMW-07A	26-Jun-19	24	174	17.3	4.6	232	614	8.8	0.40 J	520	63.9	0.11 J	12800	0.17	39300	0.53	0.31 J	8.3	2.4	3.3	3830	0.20 U	1020	3.2	2660	0.86	0.50 U	143000	0.10 U	8	4.7 J	0.337+-0.626 U
PMW-07A	18-Sep-19	24	220	16.3	3.5	237	659	7.8 J	0.41 J	218	162 J	0.055 J	10100	0.24	83400	0.58 U*	0.59	5.4	1.5	8.7	14100	0.093 U	939	2.7	4040	0.50	0.077 U	109000	0.047 U	2.9	5.5	1.31+-0.662
PMW-07A	19-Dec-19	24	195	23.2	4.6	298	690	8.4 J	0.85	797	63.1	0.20 U	11900	0.067 J	31800	0.38 U*	0.45 J	19.7	0.95	3.4	4040	0.20 U	792	4.4	2730	1.6	0.50 U	179000	0.10 U	12.1	3.6 J	0.403+-0.594 UJ
PMW-07A	24-Feb-20	24	171	14.8	4.6	223	601	8.8 J	1.0	1270	51.5	0.054 U	15000	0.60	21200	1.8	0.54	19.6	3.9	2.5	3290	0.093 U	693	5.4	2090	2.2	0.077 U	186000	0.047 U	20.8	4.7 J	0.167+-0.506 UJ
PMW-07A	18-May-20	24	218	11.9 J	3.6 J	186 J	660	9.4 J	0.97	1300	37.2 J	0.054 U	7270	0.20	18300	0.75 U*	0.41 J	15.3	3.1	2.0	2130 J	0.075 U	834	4.3	2050 J	1.6	0.077 U	200000	0.047 U	37.8	4.3 U*	0.0196+-0.551 U
PMW-07A	10-Sep-20	24	225	12.7	3.1	194	602	9.4 J	0.74	886	33.1	0.054 U	10900	0.11	16000	0.50 U*	0.45 J	13.1	1.2	2.8	2630	0.080 U	574	3.3	1890	1.3	0.077 U	191000	0.047 U	26.7	3.4 U*	0.419+-0.540 U
PMW-07A	16-Dec-20	24	228	11.4	3.1	216	648	9.3 J	0.91	978	40.7 J	0.054 U	12400 J	0.27	12600	0.80 U*	0.48 J	17.6	2.1	2.4 J	982 J	0.080 U	436	3.7	1830	2.0	0.077 U	197000	0.047 U	22.1	2.9 U*	0.962+-0.631 U*
PMW-07B	3-Dec-18	55	279	19.7	0.24	52.1 J	395	7.1 J	0.50 U	67.9	316 J	0.10 U	3380	0.080 U	69200	0.50 U	0.72	0.36 U*	0.059 J	9.4	20200	0.20 U	368	0.41 J	4420 J	0.50 U	0.40 U	23600 J	0.10 U	0.30 U	2.3 U*	ND
PMW-07B	16-Jan-19	55	302	19.2	0.18	72.6	419	7	0.50 U	78.1	375	0.10 U	4470	0.11	81100	0.52	0.26	0.50 U	0.10 U	8.4	25500	0.20 U	417	0.62	4870	0.50 U	0.40 U	29800	0.10 U	7.6 J	5.0 U	ND
PMW-07B	16-Apr-19	55	236	13.9	0.073 J	69.6	376	7.3	0.50 U	16.6	109	0.10 U	1170	0.080 U	74500	0.50 U	3.1	0.94	0.19	3.2	16700	0.20 U	61	2.7	3100	0.24 J	0.40 U	14600	0.10 U	0.82	53.5	1.33+-0.803 UJ
PMW-07B	26-Jun-19	55	286	16	0.12	76.5	432	7.1	0.50 U	19.4	152	0.20 U	2850	0.080 U	86100	0.24 J	1.9	0.44 J	0.1	6	19400	0.20 U	188	1.1	4340	0.50 U	0.50 U	31000	0.10 U	1.5	7.5	1.12+-0.749 U
PMW-07B	18-Sep-19	55	220	15.3	0.15	47.6 J	330	7.2 J	0.077 U	12.5	115 J	0.054 U	1740	0.030 U	73500	0.50 U*	0.39 J	0.43 U	0.10 U*	4.6	15800	0.093 U	24.9	0.66	3630	0.14 U	0.077 U	15000	0.047 U	1.4	9.2	1.20+-0.794
PMW-07B	19-Dec-19	55	292	22.4	0.19	86.7	466	6.5 J	0.50 U	11.0	169	0.20 U	2910	0.080 U	93200	0.38 U*	0.19 J	1.0 U	0.089 J	6.7	20300	0.20 U	125	0.59	5290	0.50 U	0.50 U	29200	0.10 U	1.2	8.9	0.215+-0.605 UJ
PMW-07B	24-Feb-20	55	289	15.7	0.27	76.0	445	7.0 J	0.077 U	8.6	186	0.054 U	3090	0.030 U	86500	0.34 J	0.11 J	0.43 U	0.051 U*	7.4	20500	0.093 U	247	0.19 J	5600	0.14 U	0.077 U	32800	0.047 U	0.67 J	2.8 J	0.000+-0.579 UJ
PMW-07B	18-May-20	55	297	12.9 J	0.18 J	58.1 J	420	7.0 J	0.077 U	4.3	205 J	0.054 U	2870	0.030 U	83900	0.36 U*	0.085 U	0.43 U	0.063 J	8.3	22500 J	0.075 U	136	0.30 J	5630 J	0.14 U	0.077 U	31300	0.047 U	0.72 J	6.2 U*	0.570+-0.596 U
PMW-07B	10-Sep-20	55	292	15.6	0.096	59.8	411	7.1 J	0.077 U	13.3	161	0.054 U	2950	0.030 U	81700	1.3 U*	0.086 J	0.43 U	0.043 U	7.6	20300	0.080 U	142	0.35 J	4990	0.14 U	0.077 U	20900	0.047 U	0.63 J	2.7 U*	0.545+-0.641 J
PMW-07B	16-Dec-20	55	303	17.1	0.17	72.5	451	6.9 J	0.077 U	14.7	216 J	0.054 U	3480 J	0.043 J	93300	0.53 U*	0.12 J	0.43 U	0.086 J	7.7 J	22900 J	0.080 U	225	0.39 J	5380	0.14 U	0.077 U	23500	0.047 U	0.82 J	6.0 U*	0.287+-0.435 U
PMW-07C	3-Dec-18	117	136	17.9	0.12	32.9 J	222	7.2 J	0.50 U	0.26	222 J	0.10 U	248	0.080 U	41700	0.50 U	0.10 U	0.50 U	0.10 U	3.2	9730	0.20 U	12	0.16 J	1640 J	0.50 U	0.40 U	16400 J	0.10 U	0.30 U	2.0 U*	ND
PMW-07C	16-Jan-19	117	142	16.9	0.15	30.7	209	7.2	0.50 U	0.14	246	0.10 U	502 J	0.080 U	39700	0.43 J	0.10 U	3.6	0.10 U	2.8	10900	0.20 U	12.4	0.29 J	1810	0.50 U	0.40 U	16200	0.10 U	0.30 U	5.0 U	ND
PMW-07C	16-Apr-19	117	122	17.2	0.18	29.7	203	7.8	0.50 U	2.8	174	0.10 U	191	0.080 U	38100	0.61	1.7	0.32 J	0.13	2.8	9220	0.20 U	12.5	4.3	1740	0.50 U	0.40 U	15100	0.10 U	0.29 J	3.0 J	1.26+-0.781 J
PMW-07C	26-Jun-19	117	126	17.4	0.22	23.9	205	7.5	0.50 U	1.7	233	0.20 U	213	0.080 U	38500	0.46 J	1.3	0.84 J	0.28	3.3	9820	0.20 U	11.3	2.8	1750	0.50 U	0.50 U	14700	0.10 U	0.61 J	6.8	0.537+-0.818 U
PMW-07C	18-Sep-19	117	109	17.1	0.31	36.9 J	199	7.2 J	0.077 U	2.7	201 J	0.054 U	419	0.030 U	36900	0.23 U*	0.92	0.43 U	0.12 U*	3.7	11200	0.093 U	27.2	2.6	1950	0.14 U	0.077 U	16100	0.047 U	0.28 J	3.0 J	0.896+-0.772 U
PMW-07C	19-Dec-19	117	119	25.2	0.29	43.8	214	7.2 J	0.50 U	1.9	226	0.20 U	232	0.080 U	39100	0.25 J	0.51	1.0 U	0.066 J	3.0	10400	0.20 U	11.9	1.4	2030	0.50 U	0.50 U	15900	0.10 U	1.0 U	2.4 J	1.07+-0.588 UJ
PMW-07C	25-Feb-20	117	150	14.9	0.23 J	11.6	205	6.9 J	0.077 U	0.88	252	0.054 U	261	0.030 U	38000	0.21 U	0.33 J	0.43 U	0.046 U	3.0	10600	0.093 U	11.6	0.79	1980	0.14 U	0.077 U	15200	0.047 U	0.27 U	2.4 U	1.70+-0.841 J
PMW-07C	19-May-20	117	153	13.1 J	0.18 J	5.3 J	194	7.3 J	0.077 U	1.0	271	0.054 U	262	0.030 U	41500	0.27 U*	0.30 J	0.43 U	0.046 U	3.5	12200	0.075 U	12.8	0.83	2240	0.14 U	0.077 U	16800	0.047 U	0.27 U	3.3 U*	1.29+-0.610 U*
PMW-07C	10-Sep-20	117	132	14.4	0.20	10.2	173	7.1 J	0.077 U	1.8	188	0.054 U	387	0.030 U	31000	0.39 U*	0.36 J	0.43 U	0.047 U*	3.7	11700	0.080 U	25.4	1.2	1820	0.14 U	0.077 U	16200	0.047 U	0.27 U	2.3 U	0.176+-0.597 U
PMW-07C	16-Dec-20	117	126	15.8	0.23	17.4	192	6.8 J	0.077 U	1.8	206 J	0.054 U	399 J	0.030 U	28700	0.46 U*	0.30 J	0.43 U	0.080 J	3.3 J	12700 J	0.080 U	24.0	1.3	1610	0.14 U	0.077 U	14700	0.047 U	0.27 U	4.1 U*	0.699+-0.572 U

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	Date	Depth																														
Pre-Design Wells - South																																
EW-S03	29-Nov-18	30	97	16.5	3.1	143	388	7.6 J	0.19 J	557	47.1 J	0.065 J	4710 J	0.24	15800	1.1	0.71	6.5	3.9	4.9	3460 J	0.20 U	270 J	4.5	1240 J	0.45 J	0.40 U	130000	0.10 U	7.3	4.5 J	ND
EW-S03	15-Jan-19	30	94.3	15.8	3.3	135	387	7.7 J	0.50 U	355	62.2	0.10 U	4450	0.23	18300	0.46 J	0.26	5.1	2.2	5.4	4150	0.20 U	285 J	2	2260	0.48 J	0.40 U	91700	0.10 U	3	9.5	ND
PMW-10A	4-Dec-18	32	102	14.9	2.9	129	374	7.6 J	0.50 U	234	70.9	0.10 U	4640	0.091	26300 J	0.50 U	0.8	0.30 U*	0.073 J	6.9	5810	0.20 U	414	2.7	3550	0.26 J	0.40 U	108000 J	0.10 U	0.92	1.9 J	ND
PMW-10A	15-Jan-19	32	96.5	15.6	3.9	115	357	7.8 J	0.50 U	238	72.5	0.10 U	4770	0.1	26600	0.50 U	0.74	0.57 U*	0.10 U	7.5	5700	0.20 U	474 J	2.6	3500	0.24 J	0.40 U	74400	0.10 U	1.1	5.0 U	ND
PMW-10A	10-Apr-19	32	109	16.1	4.6	110	368	7.4	2.5 U	222	75.3	0.50 U	6030	0.40 U	29500	2.5 U	0.78	2.5 U	0.50 U	8.1 J	6540	0.14 J	479	2.8	3510	2.5 U	2.0 U	68900	0.50 U	4.7	25.0 U	0.500+-0.498 U
PMW-10A	19-Jun-19	32	124	14.7	5.8	102	365	7.1 J	0.50 U	328	97.5	0.20 U	5140	0.057 J	31800	0.50 U	0.70	1.0 U	0.10 U	7.8	6980	0.20 U	441	2.4	3710	0.27 J	0.50 U	73500	0.10 U	6.7	5.0 U	1.79+-0.754 U*
PMW-10A	12-Sep-19	32	121	14.9 J	7.1	95.4	382	7.3 J	0.079 J	225	91.3	0.054 U	7080	0.073 J	35100	0.21 U	1.3	0.92 U*	0.12	8.2	7360	0.093 U	663	4.3	4510	0.39 J	0.077 U	83400	0.047 U	8.2	3.5 J	0.809+-0.531
PMW-10A	13-Dec-19	32	68.7	17.3	6.3	146	297	7.9 J	0.50 U	286	68.6	0.20 U	3220	0.080 U	27400	0.27 U*	0.74	1.0 U	0.10 U	7.2	5950	0.20 U	263	2.8	3690	0.26 J	0.50 U	54000	0.10 U	1.2	5.0 U	0.710+-0.672 UJ
PMW-10A	21-Feb-20	32	78.0	13.0	5.0	132	327	7.5 J	0.077 U	235	71.3	0.054 U	3670	0.030 U	28100	0.21 U	0.69	0.43 U	0.046 U	7.3	6280	0.093 U	309 J	2.4	3360	0.33 J	0.077 U	57100	0.047 U	0.87 J	2.4 U	0.326+-0.459 UJ
PMW-10A	13-May-20	32	71.2	10.7 J	3.4 J	96.7 J	302	7.3 J	0.077 U	311	70.2	0.054 U	3630	0.030 U	27600	0.32 U*	0.47 J	0.43 U	0.046 U	6.4	5640	0.093 U	244	1.7	3230	0.20 J	0.077 U	64800	0.047 U	0.83 J	5.9 U*	0.272+-0.568 U
PMW-10A	3-Sep-20	32	79.3	12.9	3.2 J	110 J	340	7.7 J	0.077 U	255	77.4	0.054 U	4070	0.040 J	27200	0.29 U*	0.72	0.43 U	0.043 U	6.4	5680	0.080 U	259	2.4	3350	0.17 J	0.077 U	57100	0.047 U	0.70 J	2.3 U	0.000+-0.507 UJ
PMW-10A	9-Dec-20	32	91.7	15.3	4.5	146	324	7.4 J	0.088 J	260	79.7	0.054 U	4840	0.048 J	30200	0.41 U*	0.91	2.7	0.091 J	8.1	6430	0.080 U	322	3.7	3830	0.41 J	0.077 U	75000	0.047 U	1.4	2.3 U	0.428+-0.764 U
PMW-10B	3-Dec-18	68	378	22.8	0.34	14.1	448	7.7 J	0.38 J	43	89.5 J	0.10 U	1560	0.080 U	58500	0.50 U	0.42	0.50 U	0.086 J	21.7	10400	0.20 U	45	1	4560 J	0.24 J	0.40 U	69100 J	0.10 U	1.3	1.9 J	ND
PMW-10B	15-Jan-19	68	393	18.3	0.18	1.6	487	8.0 J	0.16 J	42.2	102	0.10 U	1500	0.080 U	82200	0.50 U	0.37	0.50 U*	0.050 J	22.7	14200	0.20 U	33.0 J	0.68	4420	0.21 J	0.40 U	69900	0.10 U	0.58	5.0 U	ND
PMW-10B	10-Apr-19	68	491	14.5	0.092 J	1.0 U	551	7.7	2.5 U	41.4	95.5	0.50 U	1490	0.40 U	106000	2.5 U	0.34 J	2.5 U	0.50 U	40.7	14900	0.12 J	40.4	2.5 U	4180	2.5 U	2.0 U	78500	0.50 U	0.74 J	25.0 U	1.03+-0.595 U*
PMW-10B	19-Jun-19	68	430	10.4	0.16	0.68 U*	470	6.9 J	0.17 J	61.6	152	0.20 U	947	0.080 U	113000	0.50 U	0.35 J	1.0 U	0.10 U	26.2	19600	0.20 U	24.4	0.37 U*	4900	0.15 J	0.50 U	46200	0.10 U	0.44 J	5.0 U	2.01+-0.672 J
PMW-10B	12-Sep-19	68	394	14.0 J	0.34	1.4 U*	496	7.0 J	0.13 J	76.5	165	0.054 U	748	0.030 U	134000	0.21 U	0.42 J	0.43 U	0.046 U	18.9	22200	0.093 U	9.7	0.50	5700	0.16 J	0.077 U	29200	0.047 U	0.33 J	2.4 U	1.31+-0.751 U
PMW-10B	13-Dec-19	68	442	17.1	0.35	0.80 U*	507	7.4 J	0.084 J	77.7	145	0.20 U	699	0.080 U	121000	0.22 U*	0.33 J	1.0 U	0.10 U	14.2	22000	0.20 U	5.0	0.42 J	5440	0.50 U	0.50 U	23400	0.10 U	0.34 J	5.9	1.28+-0.752 UJ
PMW-10B	21-Feb-20	68	438	11.0	0.31	0.38 J	515	7.3 J	0.077 U	84.3	181	0.054 U	637	0.030 U	117000	0.38 J	0.29 J	0.43 U	0.27 U*	13.2	23400	0.093 U	4.4 J	0.38 J	5320	0.19 J	0.077 U	19400	0.047 U	0.27 U	16.8	0.487+-0.465 UJ
PMW-10B	13-May-20	68	407	9.2 J	0.22 J	0.42 UJ	444	6.9 J	0.12 J	109	293	0.054 U	429	0.081 U*	117000	0.25 U*	0.49 J	0.43 U	0.18 U*	9.9	25500	0.093 U	9.0	0.54	6170	0.14 U	0.077 U	16700	0.047 U	0.49 J	9.5 U*	0.995+-0.712 U
PMW-10B	3-Sep-20	68	401	12.2	0.21 J	0.53 J	236	7.6 J	0.077 U	100	252	0.054 U	364	0.030 U	104000	0.51 U*	0.21 J	0.43 U	0.043 U	8.9	22300	0.080 U	2.2	0.18 J	5550	0.14 U	0.077 U	15200	0.047 U	0.27 U	2.3 U	0.856+-0.649 UJ
PMW-10B	9-Dec-20	68	397	15.8	0.26	0.42 U	385	7.0 J	0.077 U	97.3	292	0.054 U	911	0.030 U	97700	0.49 U*	0.26 J	0.43 U	0.043 U	9.9	20900	0.080 U	2.7	0.27 J	5510	0.14 U	0.077 U	19400	0.047 U	0.36 J	2.3 U	0.715+-0.670 U
PMW-10C	3-Dec-18	148	198	18.5	0.23	45.6 J	311	7.2 J	0.50 U	0.78	227 J	0.10 U	2500	0.080 U	46800	0.50 U	0.067 J	0.50 U	0.10 U	3	16300	0.20 U	332	0.24 J	2320 J	0.50 U	0.40 U	26200 J	0.10 U	0.30 U	2.2 J	ND
PMW-10C	16-Jan-19	148	197	17.8	0.2	37.1	272	7.3	0.50 U	0.74	185	0.10 U	2130	0.080 U	44100	0.50 U	0.057 J	0.45 J	0.10 U	2.6	15900	0.20 U	268	0.33 J	2050	0.50 U	0.40 U	27900	0.10 U	7.4 J	5.0 U	ND
PMW-10C	10-Apr-19	148	169	17.4	0.21	38.4	264	7.1	2.5 U	0.51	179	0.50 U	2280	0.40 U	43200	2.5 U	0.50 U	2.5 U	0.50 U	12.5 U	15000	0.12 J	287	2.5 U	1900	2.5 U	2.0 U	23400	0.50 U	1.5 U	25.0 U	1.73+-0.770 U*
PMW-10C	20-Jun-19	148	156 J	18.3	0.28	43.4 J	280	6.6 J	0.50 U	0.60	187 J	0.20 U	1580	0.031 J	40800	0.50 U	0.50 U	1.0 U*	0.10 U	1.6	15100	0.20 U	253	0.50 U	1970	0.50 U	0.50 U	22900	0.10 U	1.0 U	5.0 U	2.54+-0.771
PMW-10C	12-Sep-19	148	190	16.6 J	0.29	57.1	327	7.1 J	0.077 U	0.67	252	0.054 U	2880	0.030 U	54200	0.21 U	0.085 U	0.43 U	0.046 U	2.3	19300	0.093 U	348	0.19 J	2400	0.14 U	0.077 U	27600	0.047 U	0.27 U	2.4 U	0.657+-0.658 U
PMW-10C	13-Dec-19	148	191	23.3	0.33	51.6	296	7.4 J	0.50 U	0.84	237	0.20 U	2450	0.080 U	53400	0.29 U*	0.50 U	1.0 U	0.10 U	2.4	19200	0.20 U	360	0.50 U	2390	0.50 U	0.50 U	26000	0.10 U	1.0 U	3.3 J	0.167+-0.553 UJ
PMW-10C	21-Feb-20	148	166	16.9	0.31	42.5	265	7.1 J	0.077 U	0.67	205	0.054 U	1980	0.030 U	44400	0.21 U	0.085 U	0.43 U	0.046 U	1.9	16700	0.093 U	254 J	0.15 U	1970	0.14 U	0.077 U	25900	0.047 U	0.27 U	2.4 U	0.458+-0.541 UJ
PMW-10C	13-May-20	148	168	14.7 J	0.27 J	37.3 J	264	6.6 J	0.077 U	0.57	202	0.054 U	1790	0.030 U	44600	0.21 U	0.085 U	0.43 U	0.046 U	1.6	15900	0.093 U	284	0.15 U	2050	0.14 U	0.077 U	25800	0.047 U	0.27 U	4.8 U*	1.01+-0.584 U
PMW-10C	3-Sep-20	148	199	16.4	0.17 J	47.8 J	323	7.4 J	0.077 U	0.53	229	0.054 U	3270	0.030 U	48600	0.37 U*	0.085 U	0.43 U	0.043 U	2.3	18400	0.080 U	344	0.18 U	2210	0.14 U	0.077 U	26100	0.047 U	0.27 U	2.3 U	0.936+-0.668 UJ
PMW-10C	9-Dec-20	148	210	19.6	0.24	62.6	310	6.8 J	0.077 U	0.73	267	0.054 U	2900	0.030 U	56700	0.38 U*	0.085 U	0.43 U	0.043 U	3.0	21000	0.080 U	347	0.18 U	2410	0.14 U	0.077 U	28000	0.047 U	0.27 U	2.3 U	0.281+-0.538 U

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	Date	Depth																														
PMW-11A	29-Nov-18	27	136	15.6	3.4	118	406	7.2 J	0.50 U	111	87.3	0.10 U	4530 J	0.080 U	37900	0.50 U	0.87	0.31 J	0.10 U	5.6	7810	0.20 U	259	1.8	1920	0.24 J	0.40 U	87700	0.10 U	1.2	5.0 U	ND
PMW-11A	16-Jan-19	27	141	15	3.9	113	382	7.4	0.50 U	122	103	0.10 U	5060	0.072 J	35700	0.65	0.65	0.54	0.053 J	6.3	8040	0.20 U	297	1.5	2090	0.23 J	0.40 U	86300	0.10 U	15.0 U	5.0 U	ND
PMW-11A	11-Apr-19	27	127	14.7	3.9	119	417	7.4	0.50 U	126 J	94.5 J	0.10 U	4540	0.080 U	32250 J	0.50 U	0.385 J	0.50 U	0.10 U	6 J	7150 J	0.20 U	226.5 J	1 J	1905 J	0.50 U	0.40 U	78000	0.10 U	1.4 J	5.0 U	0.951+-0.570 J
PMW-11A	21-Jun-19	27	194 J	12.7	3.7	116	328	7.0 J	0.50 U	184	140	0.20 U	3810	0.080 U	38100	0.50 U	0.33 J	0.85 J	0.10 U	6.9	9640	0.20 U	218	0.68	2130	0.17 J	0.50 U	83600	0.10 U	0.77 J	5.0 U	1.49+-0.788 U*
PMW-11A	17-Sep-19	27	173	12.9	3.8	118 J	414	7.2 J	0.077 U	120	127	0.054 U	3830	0.030 U	49400	0.21 U	1.3	0.43 U	0.046 U	6.8	11300	0.093 U	149	2.3	1930 J	0.18 J	0.077 U	76600	0.047 U	1.2	2.4 U	0.666+-0.634 U
PMW-11A	17-Dec-19	27	163	18.0	4.6	137	390	6.7 J	0.50 U	160	100	0.20 U	4310	0.080 U	32000	0.47 U*	0.57	1.0 U	0.10 U	5.9	7160	0.20 U	207	1.4	1960	0.16 J	0.50 U	84900	0.10 U	0.98 J	5.0 U	1.23+-0.667 J
PMW-11A	20-Feb-20	27	234	10.6	3.8	83.5	432	7.5 J	0.077 U	188	117	0.054 U	3800	0.030 U	36500	0.21 U	0.24 J	0.43 U	0.046 U	7.6	8540	0.093 U	177 J	0.69	2220	0.19 J	0.077 U	98200	0.047 U	0.67 J	2.4 U	0.139+-0.611 UJ
PMW-11A	14-May-20	27	239	9.2 J	1.5 J	89.0 J	455	7.4 J	0.077 U	166	157	0.054 U	3470	0.030 U	56300 J	0.30 U*	0.33 J	0.43 U	0.046 U	7.8	13900	0.093 U	155	0.78	2420	0.16 J	0.077 U	68700	0.047 U	0.50 J	3.0 U*	0.154+-0.545 U
PMW-11A	3-Sep-20	27	229	9.5	2.4 J	91.6 J	447	7.2 J	0.077 U	111	135	0.054 U	3040	0.030 U	48800	0.43 U*	1.1	0.43 U	0.043 U	5.9	11900	0.080 U	169	1.6	1900	0.16 J	0.077 U	64600	0.047 U	0.73 J	2.3 U	0.929+-0.603 UJ
PMW-11A	16-Dec-20	27	272	10.9	2.1	84.4	438	8.0 J	0.077 U	147	203 J	0.054 U	3970 J	0.075 J	70400	0.39 U*	0.47 J	0.66 J	0.043 U	8.3 J	16300 J	0.080 U	191	0.99	2610	0.16 J	0.077 U	66400	0.047 U	0.60 J	2.3 U	0.0552+-0.496 U
PMW-11B	4-Dec-18	63	130	17.5	2.3	122	404	7.4 J	0.50 U	12.1	189	0.10 U	6490	0.1	39700 J	0.50 U	0.15	0.50 U	0.10 U	11.6	11100	0.20 U	490	0.40 J	2460	0.16 J	0.40 U	63400 J	0.10 U	2.8	4.3 J	ND
PMW-11B	16-Jan-19	63	235	19.9	1.8	71.5	385	7.6	0.50 U	14.6	255	0.10 U	5740	0.082	52700	0.50 U	0.13	0.50 U	0.10 U	11.7	14300	0.20 U	349	0.26 J	3080	0.12 J	0.40 U	61900	0.10 U	15.0 U	5.0 U	1.89
PMW-11B	11-Apr-19	63	299	15.7	1.3	46.6	317	7.3	2.5 U	16.8	332	0.50 U	3540	0.40 U	73400	2.5 U	0.50 U	2.5 U	0.50 U	12.6	18700	0.20 U	217	0.86 J	3190	2.5 U	2.0 U	32800	0.50 U	0.76 J	25.0 U	1.35+-0.652 U*
PMW-11B	21-Jun-19	63	361 J	13.5	0.96	10.1	406	6.9 J	0.50 U	26.0	479	0.20 U	1250	0.080 U	95000	0.50 U	0.20 J	0.51 J	0.10 U	10.7	24700	0.20 U	60.6	0.50 U	4590	0.18 J	0.50 U	18400	0.10 U	1.0 U	5.0 U	2.01+-0.689 U*
PMW-11B	17-Sep-19	63	182	17.9	2.8	88.8 J	378	7.2 J	0.077 U	14.6	194	0.054 U	6600	0.030 U	45300	0.22 U*	0.085 U	0.43 U	0.046 U	14.8	12400	0.093 U	385	0.27 J	2250 J	0.14 J	0.077 U	63800	0.047 U	0.78 J	2.4 U	0.859+-0.692 U
PMW-11B	17-Dec-19	63	259	23.1	1.9	62.6	393	6.7 J	0.50 U	17.5	293	0.20 U	4070	0.080 U	60500	0.44 U*	0.12 J	1.0 U	0.10 U	10.8	16200	0.20 U	229	0.34 J	3310	0.50 U	0.50 U	36900	0.10 U	0.54 J	5.0 U	0.177+-0.778 U
PMW-11B	20-Feb-20	63	308	17.7	1.1	14.9	369	7.2 J	0.077 U	23.8	398	0.054 U	2780	0.030 U	71000	0.21 U	0.17 J	0.43 U	0.046 U	10.8	21200	0.093 U	86.5 J	0.15 U	4170	0.14 U	0.077 U	25700	0.047 U	0.27 U	2.9 U*	0.813+-0.591 J
PMW-11B	14-May-20	63	303	13.0 J	1.2 J	29.5 J	413	7.4 J	0.077 U	25.6	373	0.054 U	2830	0.030 U	71200	0.21 U	0.12 J	0.43 U	0.046 U	10.1	20800	0.093 U	119	0.15 U	3620	0.14 U	0.077 U	30700	0.047 U	0.27 U	4.3 U*	1.14+-0.607 U
PMW-11B	3-Sep-20	63	225	16.3	1.7 J	51.9	386	7.2 J	0.077 U	14.6	230	0.054 U	4410	0.030 U	48900	0.25 U*	0.092 J	0.43 U	0.043 U	11.0	13400	0.080 U	225	0.18 U	2770	0.14 U	0.12 J	43700	0.047 U	0.46 J	2.3 U*	0.840+-0.694 UJ
PMW-11B	16-Dec-20	63	181	16.2	2.1	79.6	361	7.2 J	0.077 U	16.7	179 J	0.054 U	5270 J	0.054 J	36500	0.34 U*	0.085 U	0.43 U	0.043 U	10.8 J	11000 J	0.080 U	334	0.18 J	2240	0.14 U	0.077 U	62700	0.047 U	0.70 J	2.3 U	1.03+-0.668 U
PMW-11C	4-Dec-18	144	212	22.4	0.18 J	61.4	373	7.3 J	0.50 U	1	140	0.10 U	3210	0.080 U	44200 J	0.50 U	0.071 J	0.50 U	0.10 U	3.3	14600	0.20 U	293	0.25 J	2430	0.50 U	0.40 U	59900 J	0.10 U	0.16 J	2.0 J	ND
PMW-11C	16-Jan-19	144	194	20.9	0.29	63.4	313	7.3	0.50 U	1.5	130	0.10 U	1980	0.080 U	47500	0.50 U	0.10 U	0.50 U	0.10 U	2.1 J	16100	0.20 U	292	0.21 J	2280	0.50 U	0.40 U	45600	0.10 U	15.0 U	5.0 U	ND
PMW-11C	11-Apr-19	144	181	19.8	0.43	65.5	298	7.2	2.5 U	2.5	127	0.50 U	1450	0.40 U	44100	2.5 U	0.50 U	2.5 U	0.50 U	2.6 J	14600	0.20 U	176	2.5 U	2070	2.5 U	2.0 U	35300	0.50 U	1.5 U	25.0 U	1.10+-0.592 U
PMW-11C	21-Jun-19	144	165 J	19.8	0.55	59.7	305	7.1 J	0.50 U	2.6	129	0.20 U	2030	0.080 U	38100	0.50 U	0.50 U	1.0 U	0.10 U	2.1	14200	0.20 U	148	0.50 U	2080	0.50 U	0.50 U	39000	0.10 U	1.0 U	5.0 U	1.66+-0.767 U*
PMW-11C	17-Sep-19	144	187	19.1	0.47	94.7 J	381	7.1 J	0.079 J	3.7	148	0.054 U	4320	0.030 U	49100	0.24 U*	0.085 U	3.9	0.17	3.8	15600	0.093 U	433	0.22 J	2360 J	0.14 U	0.077 U	54900	0.047 U	0.28 J	5.4	1.62+-0.892
PMW-11C	17-Dec-19	144	200	26.2	0.52	1.2 U	399	7.4 J	0.50 U	1.9	161	0.20 U	4530	0.042 J	46700	0.50 U	0.50 U	1.0 U	0.10 U	3.2	15100	0.20 U	301	0.58	2470	0.50 U	0.50 U	56400	0.10 U	1.0 U	5.6	0.898+-0.711 J
PMW-11C	20-Feb-20	144	165	17.0	0.51	55.2	269	7.3 J	0.077 U	1.4	129	0.054 U	2510	0.030 U	41600	0.46 J	0.085 U	0.43 U	0.046 U	2.4	14600	0.093 U	166 J	0.15 J	1980	0.14 U	0.077 U	39100	0.047 U	0.27 U	2.4 U	0.723+-0.696 UJ
PMW-11C	14-May-20	144	166	14.6 J	0.40 J	45.2 J	282	7.1 J	0.077 U	1.9	124	0.054 U	1620	0.030 U	39200	0.24 U*	0.085 U	0.43 U	0.046 U	1.8	15000	0.093 U	199	0.15 U	1780	0.14 U	0.077 U	34400	0.047 U	0.27 U	2.7 U*	0.774+-0.619 U
PMW-11C	3-Sep-20	144	168	19.3	0.31 J	96.5 J	394	7.2 J	0.077 U	0.63	159	0.054 U	5580	0.030 U	47700	0.43 U*	0.085 U	0.43 U	0.043 U	2.8	16000	0.080 U	318	0.48 J	2180	0.14 U	0.077 U	45100	0.047 U	0.27 U	2.3 U	1.40+-0.728 J
PMW-11C	16-Dec-20	144	165	22.2	0.33	80.7	356	7.0 J	0.077 U	0.89	169 J	0.054 U	7800 J	0.045 J	48000	0.36 U*	0.085 U	0.43 U	0.043 U	3.4 J	17300 J	0.080 U	380	0.20 J	2190	0.15 J	0.077 U	44000	0.047 U	0.27 U	2.3 U	1.51+-0.586

Table 6
Groundwater Analytical Data (ALF and ACC Monitoring Wells) (2016-2020)
TVA Allen Fossil Plant
Memphis, Tennessee

		Constituent:	Alkalinity (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (SU)	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Lithium	Magnesium	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Radium (pCi/L)
		GWPS	-	-	4	-	-	-	6	10	2000	4	-	5	-	100	6 (a)	1300 (b)	15(a)(b)	40 (a)	-	2	100 (a)	100 (c)	-	50	-	-	2	-	-	5
		Background:	NC	23	0.22	100	610	6.3 - 7.4	2.5	6.1	1000	0.5	340	0.4	160000	2.5	3.8	1.0	0.075	20	47000	0.2	1.0	11.0	3500	2.5	2.0	21000	0.5	1.5	7.8	3.5
Well	**Date**	**Depth**																														
PMW-14A	3-Dec-18	49	252	15.4	1.4	92.8 J	429	7.5 J	0.12 J	68.8	105 J	0.10 U	5400	0.080 U	52900	0.50 U	2.8	0.99	0.28	6.1	14000	0.20 U	86.3	6.4	1350 J	0.31 J	0.40 U	94100 J	0.10 U	1	2.2 J	ND
PMW-14A	16-Jan-19	49	280	14.8	1.1	74.6	442	7.5	0.12 J	66.9	108	0.10 U	5660	0.080 U	54900	0.50 U	3	0.74	0.28	6.9	14700	0.20 U	81.9	6.4	1420	0.27 J	0.40 U	79000	0.10 U	15.0 U	5.0 U	4.24
PMW-14A	11-Apr-19	49	253	15.2	1.1	70.9	411	7.3	25.0 U	67	114	5.0 U	6580	4.0 U	57600	25.0 U	3.6 J	25.0 U	5.0 U	125 U	13900	0.20 U	75.8	6.8 J	1320 J	25.0 U	20.0 U	66800	5.0 U	15.0 U	250 U	1.12+-0.603 U
PMW-14A	20-Jun-19	49	225 J	15.6	1.3	75.2	411	6.7 J	0.13 J	70.9	111 J	0.20 U	6130	0.098	51900	0.50 U	3.2	0.50 U*	0.21 U*	6.8	13900	0.20 U	78.4	6.2	1160	0.30 J	0.50 U	63500	0.052 J	1.2	5.0 U	1.62+-0.610 J
PMW-14A	16-Sep-19	49	297	14.6	1.6	48.6 J	447	7.0 J	0.11 J	76.1	122	0.054 U	5490	0.081 J	58800	0.21 U	4.1	0.48 U*	0.16	6.3	15100	0.093 U	60.9	6.7	1220	0.30 J	0.077 U	54800	0.047 U	0.97 J	2.4 U	0.373+-0.383 U
PMW-14A	17-Dec-19	49	334	17.0	1.6	47.9 J	470	7.3 J	0.11 J	98.7	136	0.20 U	5260	0.074 J	68900	0.31 U*	3.7	0.44 J	0.11	6.7	17200	0.20 U	53.7	7.1	1380	0.31 J	0.50 U	62600	0.10 U	1.2	5.0 U	0.358+-0.508 U
PMW-14A	25-Feb-20	49	339 J	13.6	1.4 J	37.7	461	7.0 J	0.13 J	90.4	138	0.054 U	5410	0.035 J	66800	0.21 U	4.0	0.58 J	0.10 U*	6.2	17500	0.093 U	55.4	7.9	1500	0.37 J	0.077 U	61600	0.047 U	1.2	2.4 U	0.247+-0.544 UJ
PMW-14A	14-May-20	49	319	11.8 J	1.0 J	19.7 J	443	7.2 J	0.080 J	83.7	120	0.054 U	6020	0.055 J	55800	0.39 U*	3.0	0.43 U	0.12	6.0	15400	0.093 U	44.1	6.6	1290	0.29 J	0.077 U	63400	0.047 U	1.1	2.6 U*	0.139+-0.587 U
PMW-14A	3-Sep-20	49	306	13.4	1.1 J	48.3 J	455	7.2 J	0.10 J	81.9	127	0.054 U	5500	0.055 J	59900	0.38 U*	3.5	0.43 U	0.11 U*	6.3	15900	0.080 U	52.6	6.7	1470	0.24 J	0.077 U	60800	0.047 U	0.92 J	2.3 U	0.585+-0.554 UJ
PMW-14A	10-Dec-20	49	311	16.6	1.4	56.2	436	7.0 J	0.14 J	84.5	151	0.054 U	7000	0.076 J	67600	0.35 U*	4.0	0.59 J	0.24	8.5	17300	0.080 U	62.6	7.5	1700	0.32 J	0.077 UJ	78600	0.047 U	1.3	2.3 U	0.646+-0.749 UJ
PMW-14B	3-Dec-18	85	328	14.6	0.077 J	37.8 J	403	7.0 J	0.50 U	36.8	635 J	0.10 U	1340	0.080 U	75800	0.50 U	0.22	0.50 U	0.10 U	6.4	19900	0.20 U	2	0.24 J	4200 J	0.50 U	0.40 U	11500 J	0.10 U	0.30 U	1.6 J	ND
PMW-14B	16-Jan-19	85	310	13.9	0.11	43.6	391	7.3	0.50 U	50.8	746	0.10 U	1490	0.080 U	83300	0.50 U	0.15	0.42 J	0.23	6.2	23700	0.20 U	2	0.22 J	4650	0.50 U	0.40 U	13300	0.10 U	15.0 U	5.0 U	ND
PMW-14B	11-Apr-19	85	290	14	0.12	50.3	363	7.1	2.5 U	48.1	702	1.0 U	1620	0.40 U	80600	2.5 U	0.50 U	2.5 U	0.50 U	6.4 J	21900	0.20 U	1.9 J	2.5 U	4660	2.5 U	2.0 U	12100	0.50 U	1.5 U	25.0 U	1.07+-0.705 U
PMW-14B	20-Jun-19	85	272 J	14.3	0.14	54.8	386	6.7 J	0.50 U	52.2	776 J	0.069 J	1620	0.080 U	81900	0.50 U	0.14 J	3.2 U*	0.10 U	6.0	24400	0.20 U	2.1	0.18 J	4410	0.50 U	0.50 U	12400	0.10 U	1.0 U	5.0 U	1.86+-0.708
PMW-14B	16-Sep-19	85	284	13.7	0.20	48.1 J	407	6.9 J	0.077 U	58.4	689	0.054 U	1760	0.030 U	70100	0.47 U*	0.18 J	0.43 U	0.046 U	6.0	21400	0.093 U	1.8	0.19 J	4370	0.14 U	0.077 U	11300	0.047 U	0.27 U	2.4 U	0.550+-0.598 U
PMW-14B	17-Dec-19	85	296	19.0	0.20 J	65.2	410	7.0 J	0.50 U	63.6	729	0.20 U	2000	0.080 U	85700	0.37 U*	0.14 J	1.0 U	0.10 U	6.4	23600	0.20 U	1.8	0.26 J	5000	0.50 U	0.50 U	12400	0.10 U	1.0 U	2.7 J	1.50+-0.952 U
PMW-14B	25-Feb-20	85	284	13.7	0.15 J	57.4	404	7.0 J	0.077 U	58.1	835	0.054 U	1670	0.030 U	84400	0.21 U	0.15 J	0.43 U	0.046 U	6.7	25000	0.093 U	2.1	0.15 U	5070	0.19 J	0.077 U	12500	0.047 U	0.27 U	2.4 U	0.770+-0.557 UJ
PMW-14B	14-May-20	85	281	11.0 J	0.18 J	42.8 J	381	7.1 J	0.077 U	51.8	770	0.054 U	1870	0.030 U	76300	0.21 U	0.092 J	0.43 U	0.046 U	5.7	22600	0.093 U	1.9	0.15 U	4480	0.14 U	0.077 U	11400	0.047 U	0.27 U	2.7 U*	1.05+-0.895 U
PMW-14B	3-Sep-20	85	312	12.2	0.12 J	29.1 J	392	6.9 J	0.077 U	66.2	725	0.054 U	1880	0.030 U	82400	0.40 U*	0.14 J	0.43 U	0.043 U	6.9	22900	0.080 U	1.4	0.18 J	4650	0.14 U	0.077 U	12600	0.047 U	0.27 U	3.7 U*	1.30+-0.694 J
PMW-14B	10-Dec-20	85	320	14.5	0.14	33.6	390	6.8 J	0.077 U	74.2	692	0.054 U	1620	0.030 U	82200	0.40 U*	0.15 J	0.43 U	0.043 U	7.0	22000	0.080 U	1.5	0.28 J	4600	0.14 U	0.077 UJ	12900	0.047 U	0.27 U	2.3 U	0.822+-0.768 UJ
PMW-14C	4-Dec-18	156	156	15.4	0.063 J	27.8	246	7.0 J	0.50 U	0.23	218	0.10 U	326	0.080 U	40500 J	0.50 U	0.069 J	0.50 U	0.10 U	3.8	14100	0.20 U	6.3	0.19 J	1930	0.50 U	0.40 U	15300 J	0.10 U	0.30 U	1.5 U*	ND
PMW-14C	16-Jan-19	156	154	14.3	0.13	25.4	222	7.6	0.50 U	0.32	220	0.10 U	306 J	0.080 U	40100	0.50 U	0.10 U	0.33 J	0.10 U	3	14500	0.20 U	8.7	0.50 J	1870	0.50 U	0.40 U	13300	0.10 U	1.5 U	2.3 J	ND
PMW-14C	11-Apr-19	156	163	14.3	0.14	25.8	25.0 U	7	2.5 U	0.50 U	208	0.50 U	289	0.40 U	39700	2.5 U	0.50 U	2.5 U	0.50 U	3.5 J	13400	0.20 U	9.3	2.5 U	1770	2.5 U	2.0 U	11700	0.50 U	1.5 U	25.0 U	1.27+-0.700 J
PMW-14C	20-Jun-19	156	147 J	14.8	0.16	26.9	225	6.3 J	0.50 U	0.21 J	233 J	0.20 U	354	0.080 U	46500	0.50 U	0.50 U	1.0 U	0.10 U	3.0	14700	0.20 U	7.5	0.23 J	1970	0.50 U	0.50 U	12700	0.10 U	1.0 U	3.2 U*	0.764+-0.507 U
PMW-14C	16-Sep-19	156	148	15.0	0.21	25.4 J	239	7.1 J	0.33 J	0.38 J	206	0.054 U	338	0.030 U	39200	0.42 U*	0.11 J	0.55 U*	0.088 J	3.2	13000	0.093 U	6.0	0.42 J	1830	0.14 U	0.077 U	11600	0.047 U	0.27 U	5.9	0.896+-0.524 U
PMW-14C	17-Dec-19	156	149	20.1	0.21 J	30.8	236	7.3 J	0.50 U	0.22 J	239	0.20 U	428	0.080 U	40500	0.50 U	0.50 U	1.0 U	0.10 U	2.9	14000	0.20 U	4.0	0.16 J	1960	0.50 U	0.50 U	12200	0.10 U	1.0 U	5.0 U	1.20+-0.842 U
PMW-14C	25-Feb-20	156	148	19.3	0.21 J	35.6	242	6.9 J	0.077 U	0.21 J	248	0.054 U	262	0.030 U	44500	0.21 U	0.085 U	0.43 U	0.046 U	3.0	15400	0.093 U	7.3	0.15 U	1900	0.14 U	0.077 U	12100	0.047 U	0.27 U	3.2 U*	0.745+-0.678 UJ
PMW-14C	14-May-20	156	146	14.4 J	0.16 J	25.5 J	236	6.9 J	0.077 U	0.20 J	228	0.054 U	230	0.030 U	38600	0.21 U	0.085 U	0.43 U	0.046 U	2.8	14700	0.093 U	7.6	0.15 U	1760	0.14 U	0.077 U	12000	0.047 U	0.27 U	2.4 U	0.000+-0.529 U
PMW-14C	3-Sep-20	156	143	16.1	0.13 J	27.7 J	231	6.9 J	0.077 U	0.23 J	214	0.054 U	237	0.030 U	40300	0.23 U*	0.085 U	0.43 U	0.043 U	2.9	13700	0.080 U	7.3	0.18 U	1820	0.14 U	0.077 U	11900	0.047 U	0.27 U	2.3 U	0.864+-0.571 UJ
PMW-14C	10-Dec-20	156	163	17.2	0.18	19.5	229	6.7 J	0.077 U	0.20 J	226	0.059 J	415	0.030 U	41100	0.52 U*	0.085 U	0.43 U	0.043 U	3.1	14100	0.080 U	2.7	0.22 J	1820	0.14 U	0.077 UJ	12900	0.047 U	0.27 U	2.3 U	0.321+-0.542 UJ
Production Wells																																
Production Well #1	22-Sep-17	503-603	88.3	2.2	0.057 J	2.7	90	6.6	0.12 U	0.21 U	75.3	0.064 U	2.7 UJ	0.028 U	18800	0.33 UJ	0.15 U	0.3 UJ	0.055 UJ	1	7290	0.1 U	0.22 J	0.4 J	1050	0.17 U	0.17 U	7290	0.028 U	0.27 U	3.1 UJ	ND
Production Well #1	18-Oct-17	503-603	83	2.2	0.09 J	2.9	91	6.8	0.12 U	0.31 J	69.5	0.064 U	4.6 J	0.028 U	16900	0.21 UJ	0.15 U	0.35 UJ	0.049 J	1	6930	0.062 U	0.24 J	0.2 J	920	0.17 U	0.17 U	6500	0.028 U	0.27 U	1.2 UJ	ND
Production Well #1	15-Nov-17	503-603	86.7	2.1	0.085 J	3	81	6.9	0.12 U	0.28 J	73.9	0.064 U	1.5 U	0.028 U	17400	0.13 U	0.15 U	0.26 UJ	0.094 UJ	1	6950	0.062 U	0.08 U	0.27 UJ	939	0.17 U	0.17 U	6570	0.028 U	0.27 U	1.2 UJ	ND
Production Well #1	10-Sep-20	503-603	85.3	1.8	0.076	2.1	100	6.7 J	0.077 U	0.16 J	66.9	0.054 U	4.6 U	0.030 U	16700	0.44 U*	0.085 U	0.44 J	0.053 U*	0.95	6810	0.080 U	0.11 J	0.21 J	923	0.14 U	0.077 U	6420	0.047 U	0.27 U	2.6 U*	0.550+-0.552 U
Production Well #1	8-Dec-20	503-603	88.3	2.3	0.13	2.8	97.0	6.7 J	0.077 U	0.15 J	76.4	0.054 U	6.4 U*	0.030 U	18700	1.2 U*	0.085 U	0.43 U	0.043 U	1.1	7480	0.080 U	0.12 J	0.67 U*	997	0.14 U	0.077 UJ	7020	0.047 U	0.27 U	2.3 U	1.54+-0.741 J

Notes:
GWPS - Groundwater Protection Standard
All results and GWPS in ug/L unless otherwise noted
(a) No Maximum Contaminant Level (MCL) established. GWPS is based on Regional Screening Levels (RSLs) for certain metals recognized in the federal CCR Rule at 40 C.F.R. 257.95(h)(2) (see 83 Fed. Reg. 36435 (July 30, 2018)).
(b) No MCL established. GWPS is based on lead and copper Action Levels established in the federal Lead and Copper Rule at 40 C.F.R. 141.80(c)(1)(2) (see 56 Fed. Reg. 26548 (June 7, 1991)).
(c) GWPS is based on Tennessee MCL for Public Water Systems (see Title 69, Chapter 3, Part 1, TDEC Rule 0400-45-01-.06, February 17, 2019).
Dash (-) indicates no GWPS exists in the federal CCR Rule.
Background - site-specific background concentrations calculated as 95% Upper Tolerance Limits (UTLs) in accordance with USEPA Unified Guidance (see 2020 Background Analysis Report for Allen Fossil Plant, February 2021).
J - The result is estimated.
mg/L - milligrams per liter; ug/L - micrograms per liter; pCi/L - picocuries per liter
NA - Constituent was not analyzed.
NC - Background value was not calculated.
NR - Results for this constituent were not available at the time this table was published.
U - The analyte was not detected above the indicated reporting limit.
U* - The analyte was detected in an associated blank.
Sample analytical results that exceed the GWPS are shaded YELLOW.
The Production Well No. 1 well screen in the Memphis aquifer is 503-603 feet below ground surface (bgs) and the well pump is positioned at approximately 170-190 ft bgs.

Table 7
Background Groundwater Quality Tolerance Limits and Tolerance Intervals
TVA Allen Fossil Plant
Memphis, Tennessee

Constituent	Unit	Sample Size (n)	Percent Non-Detects	Distribution	Tolerance Limit Method	Confidence	Previous Values from 2019 Annual Report		Updated Values from 2020 Annual Report	
							95% LTL	95% UTL	95% LTL	95% UTL
CCR Rule Appendix III Constituents										
Boron	mg/L	58	9%	Square Root	Parametric	0.95	NA	0.24	NA	0.34
Calcium	mg/L	56	0%	Non-parametric	Non-parametric	0.94	NA	160	NA	160
Chloride	mg/L	58	0%	Log	Parametric	0.95	NA	23	NA	23
Fluoride	mg/L	58	0%	Log	Parametric	0.95	NA	0.23	NA	0.22
pH	SU	57	0%	Log	Parametric	0.95	6.00	7.7	6.3	7.4
Sulfate	mg/L	58	2%	Normal	Parametric	0.95	NA	130	NA	100
Total Dissolved Solids (TDS)	mg/L	57	0%	Square	Parametric	0.95	NA	620	NA	610
CCR Rule Appendix IV Constituents										
Antimony	mg/L	58	98%	Non-parametric	Non-parametric	0.95	NA	0.0025	NA	0.0025
Arsenic	mg/L	58	0%	Non-parametric	Non-parametric	0.95	NA	0.0098	NA	0.0061
Barium	mg/L	58	0%	Non-parametric	Non-parametric	0.95	NA	1.1	NA	1.0
Beryllium	mg/L	58	100%	Non-parametric	Non-parametric	0.95	NA	0.0005	NA	0.0005
Cadmium	mg/L	58	100%	Non-parametric	Non-parametric	0.95	NA	0.0004	NA	0.0004
Chromium	mg/L	58	95%	Non-parametric	Non-parametric	0.95	NA	0.0025	NA	0.0025
Cobalt	mg/L	58	40%	Non-parametric	Non-parametric	0.95	NA	0.0071	NA	0.0038
Fluoride	mg/L	58	0%	Log	Parametric	0.95	NA	0.23	NA	0.22
Lead	mg/L	58	86%	Tenth Root	Parametric	0.95	NA	0.0005	NA	0.000075
Lithium	mg/L	56	3%	Non-parametric	Non-parametric	0.94	NA	0.034	NA	0.02
Mercury	mg/L	58	93%	Non-parametric	Non-parametric	0.95	NA	0.0002	NA	0.0002
Molybdenum	mg/L	57	9%	Log	Parametric	0.95	NA	0.002	NA	0.001
Rad226+228	pCi/L	40	50%	Fourth Root	Parametric	0.95	NA	3.8	NA	3.5
Selenium	mg/L	58	100%	Non-parametric	Non-parametric	0.95	NA	0.0025	NA	0.0025
Thallium	mg/L	58	100%	Non-parametric	Non-parametric	0.95	NA	0.0005	NA	0.0005
TDEC Metals Appendix I Constituents										
Copper	mg/L	57	84%	Log	Parametric	0.95	NA	0.0017	NA	0.001
Nickel	mg/L	58	36%	Log	Parametric	0.95	NA	0.012	NA	0.011
Silver	mg/L	58	100%	Non-parametric	Non-parametric	0.95	NA	0.002	NA	0.002
Vanadium	mg/L	58	100%	Non-parametric	Non-parametric	0.95	NA	0.0015	NA	0.0015
Zinc	mg/L	57	67%	Cube Root	Parametric	0.95	NA	0.01	NA	0.0078
Additional Constituents										
Magnesium	mg/L	58	0%	Normal	Parametric	0.95	NA	47	NA	45
Potassium	mg/L	58	0%	Square	Parametric	0.95	NA	3.5	NA	3.4
Sodium	mg/L	58	0%	Log	Parametric	0.95	NA	21	NA	18
Alkalinity, Bicarbonate (as CaCO3)	mg/L	58	0%	Cube	Parametric	0.95	NA	560	NA	540

NOTES:
mg/L - milligrams per liter
SU - standard unit
LTL - Lower Tolerance Limit
UTL - Upper Tolerance Limit
NA - Not Applicable

FIGURES

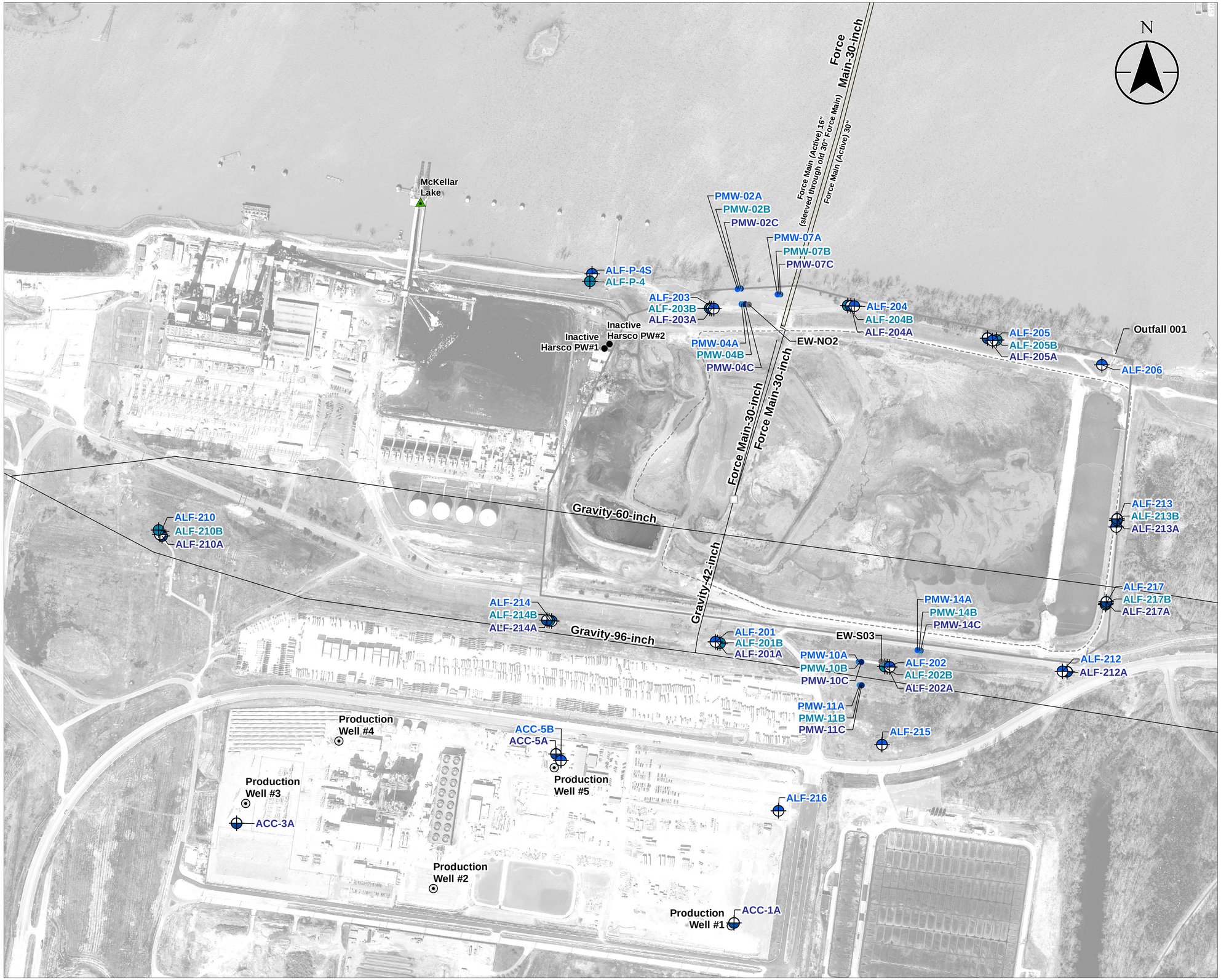

Figure No.
1

Title
Allen Fossil Plant EADA and ACC Plant Well Locations

Client/Project
Tennessee Valley Authority
Allen Fossil Plant

Project Location
Memphis, Tennessee

175577013
Prepared by LT on 2021-03-22
Technical Review by JJ on 2021-03-22

0 250 500 750 1,000 Feet
1:3,000 (At original document size of 22x34)

Legend

- Inactive Harsco Production Wells (PW)
- McKellar Lake Gauging Station
- Performance Monitoring Well (PMW) (Shallow)
- Performance Monitoring Well (PMW) (Intermediate)
- Performance Monitoring Well (PMW) (Deep)
- IRA Extraction Well (EW)
- Monitoring Well (Shallow)
- Monitoring Well (Intermediate)
- Monitoring Well (Deep)
- ACC Plant Production Well (Memphis Sand)
- Sewer Manhole Location of Force Main Transition to Gravity
- Sanitary Sewer Pipes
- East Ash Pond Boundary
- 2019 Imagery Boundary

Wells are screened in the Alluvial Aquifer unless otherwise noted.

Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Imagery Provided by TVA dated 3/15/2018 and 6/4/2019

Stantec TVA

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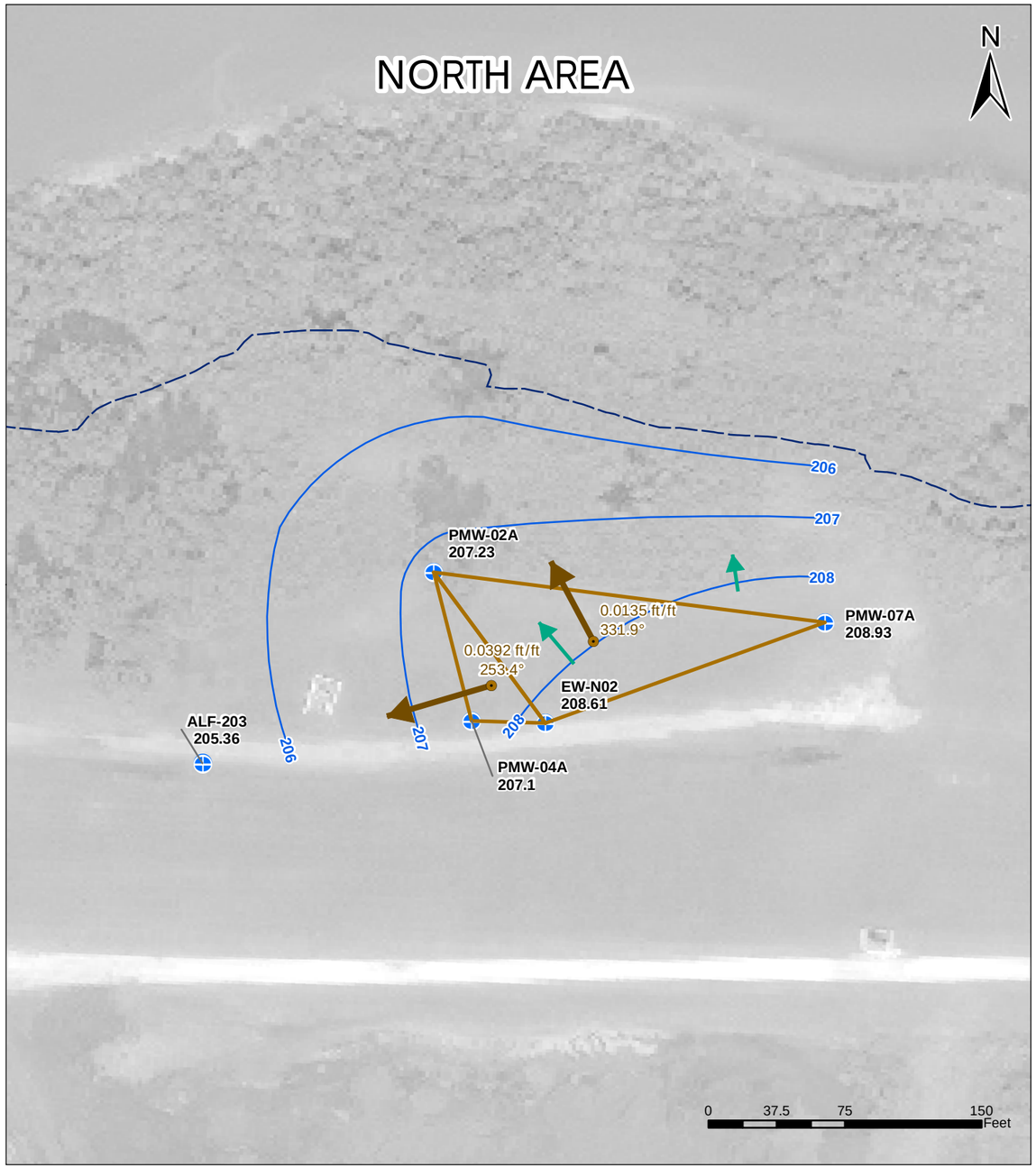

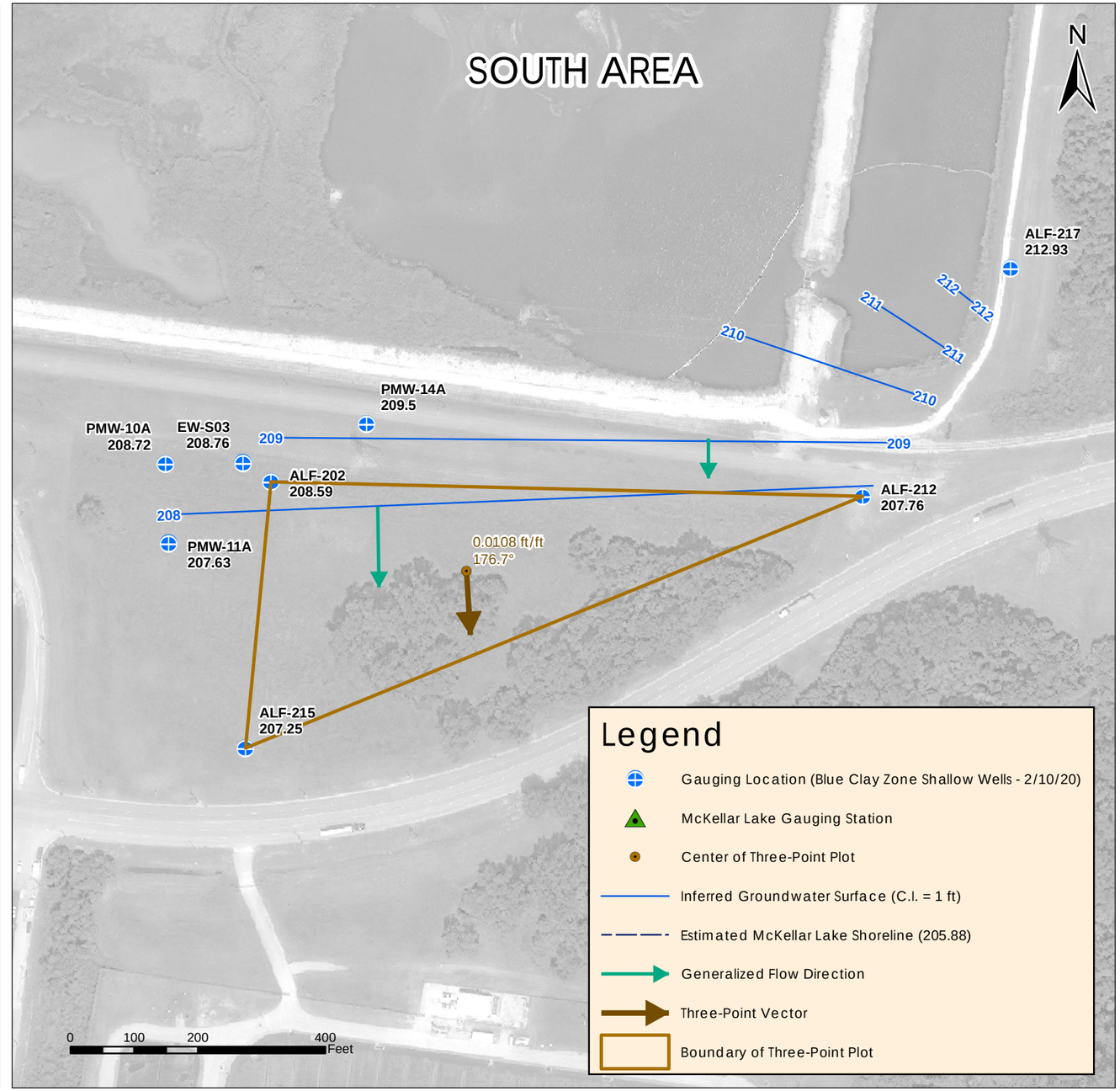

February 2021

C:\ProjTemp\TVA_ALF\03_data\gis_cad\gis\process_features\20210209_2020AnnualReport\FIG 2a GWE BCZ_202002_20200319.mxd
Revised: 2021-02-09 By: pitrell

Stantec

Notes

1. Horizontal Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet. Elevations listed are in feet above North American Vertical Datum of 1929.
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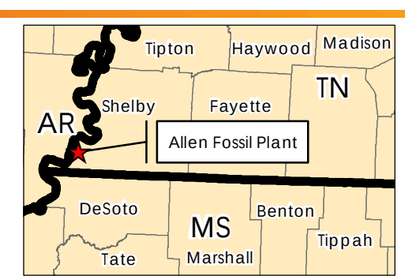
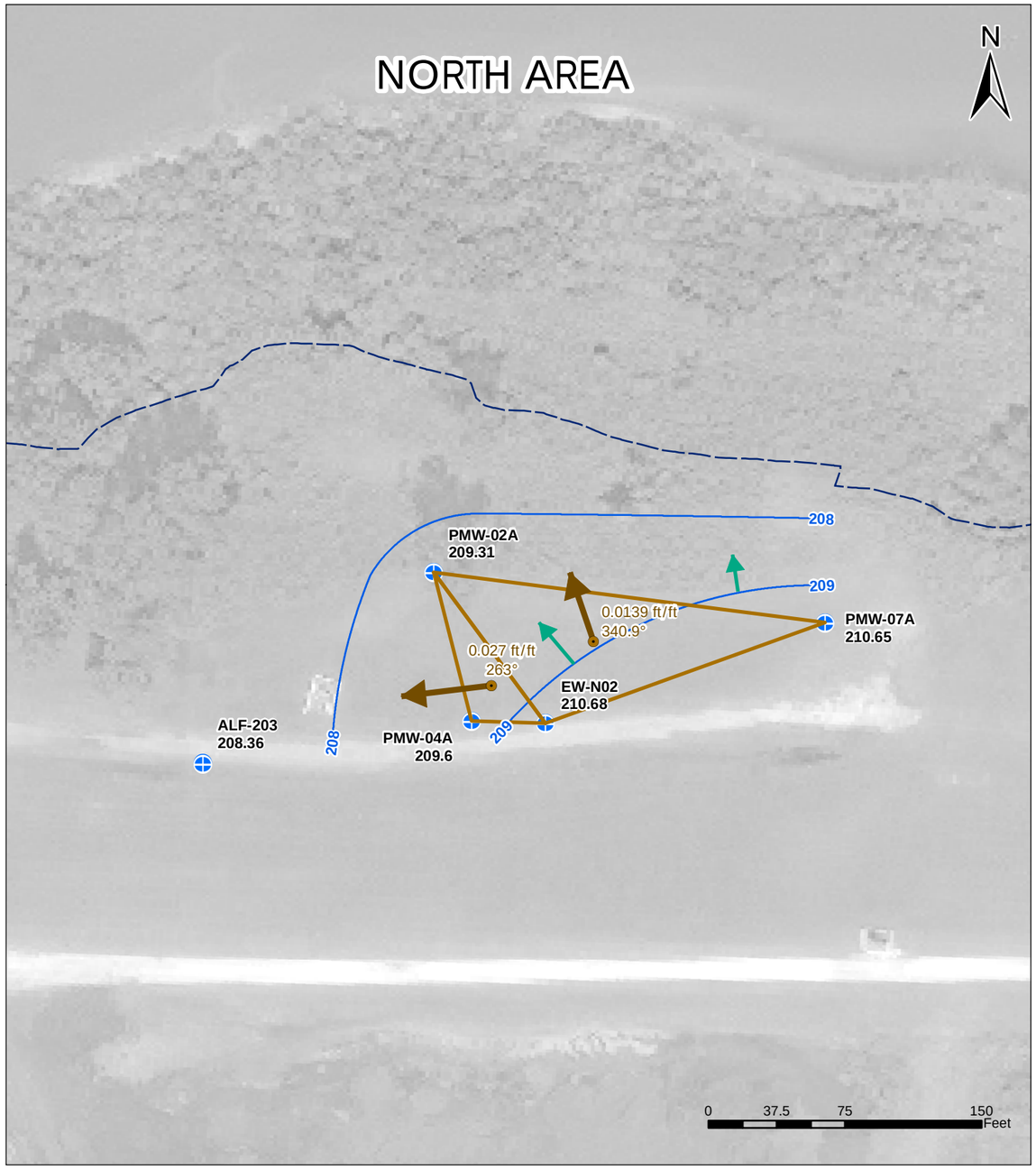
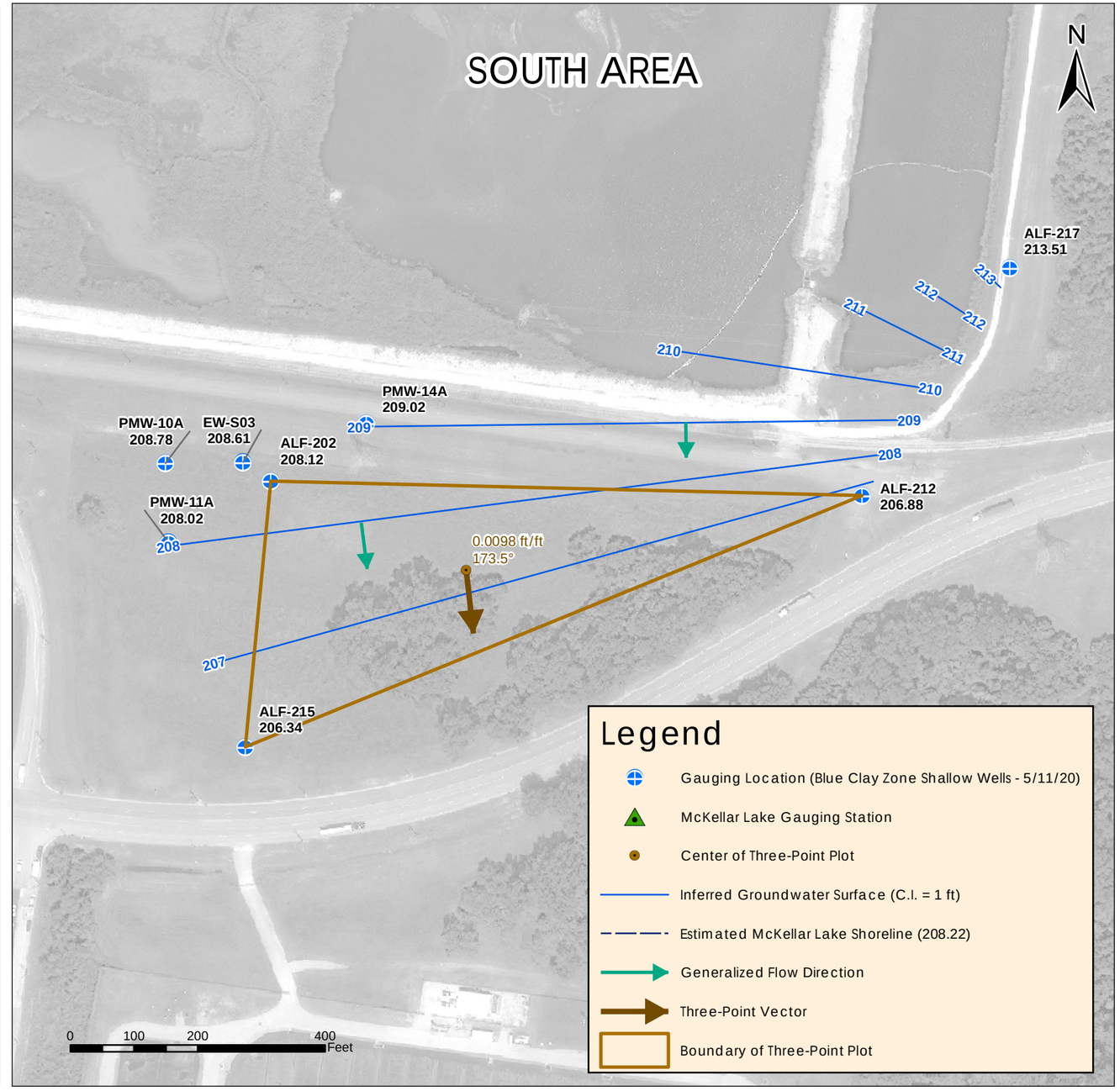


Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
2a

Title
Alluvial Aquifer
Groundwater Elevation Map
Blue Clay Zone Shallow Wells
(February 2020)





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Revised: 2021-02-09 By: prbell

February 2021

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Notes

1. Horizontal Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet. Elevations listed are in feet above North American Vertical Datum of 1929.
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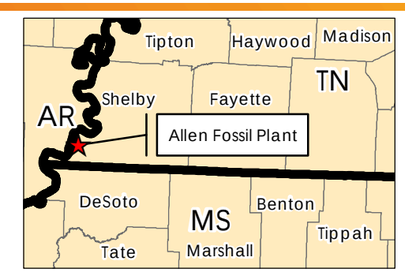
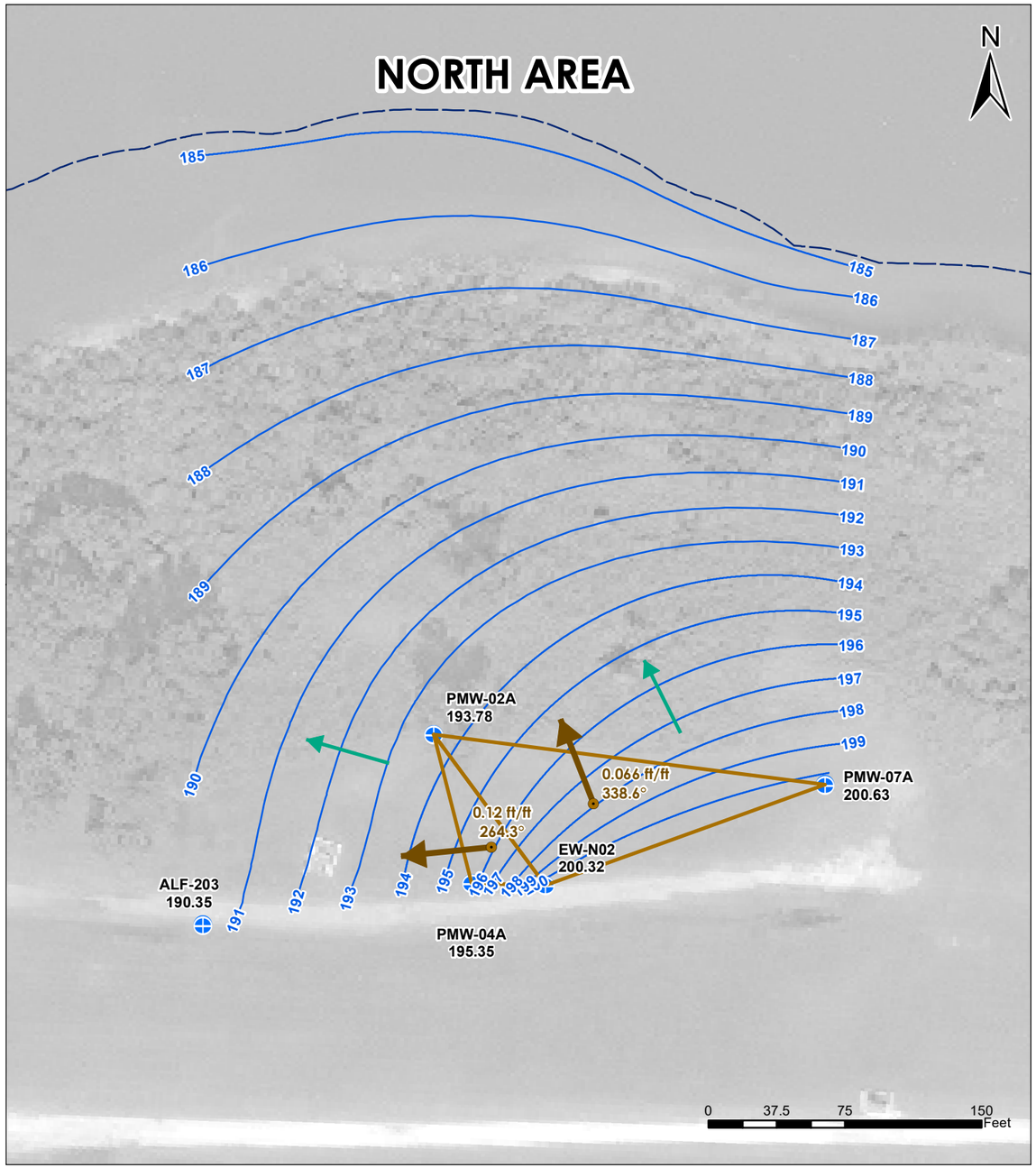
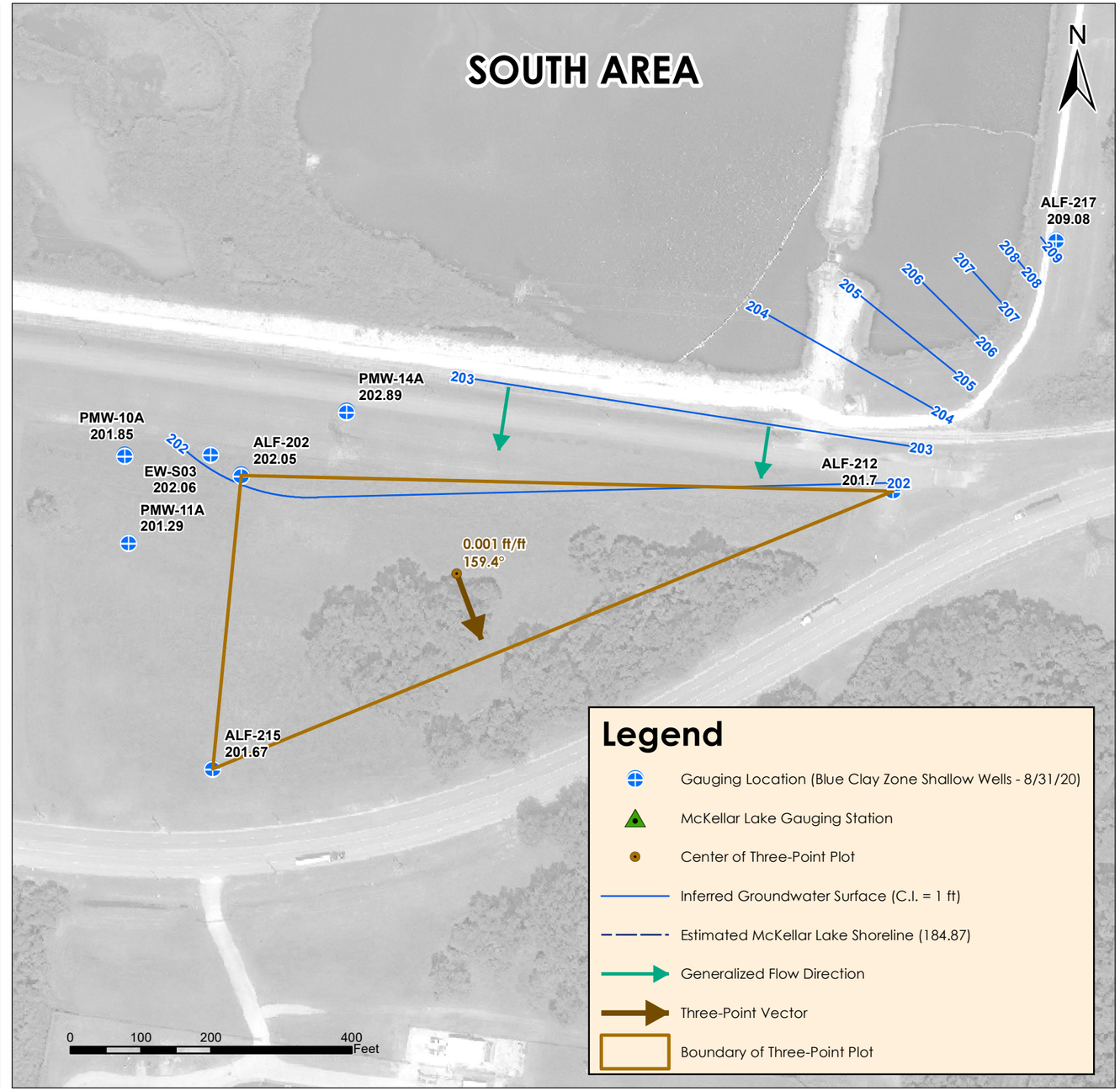


Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
2b

Title
Alluvial Aquifer
Groundwater Elevation Map
Blue Clay Zone Shallow Wells
(May 2020)





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Revised: 2021-03-24 By: pbell

March 2021

Stantec

Notes

1. Horizontal Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet. Elevations listed are in feet above North American Vertical Datum of 1929.
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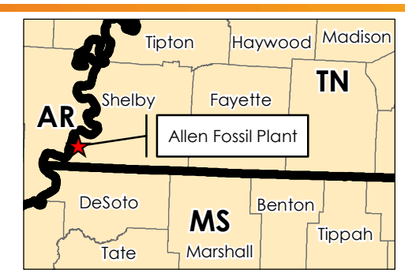
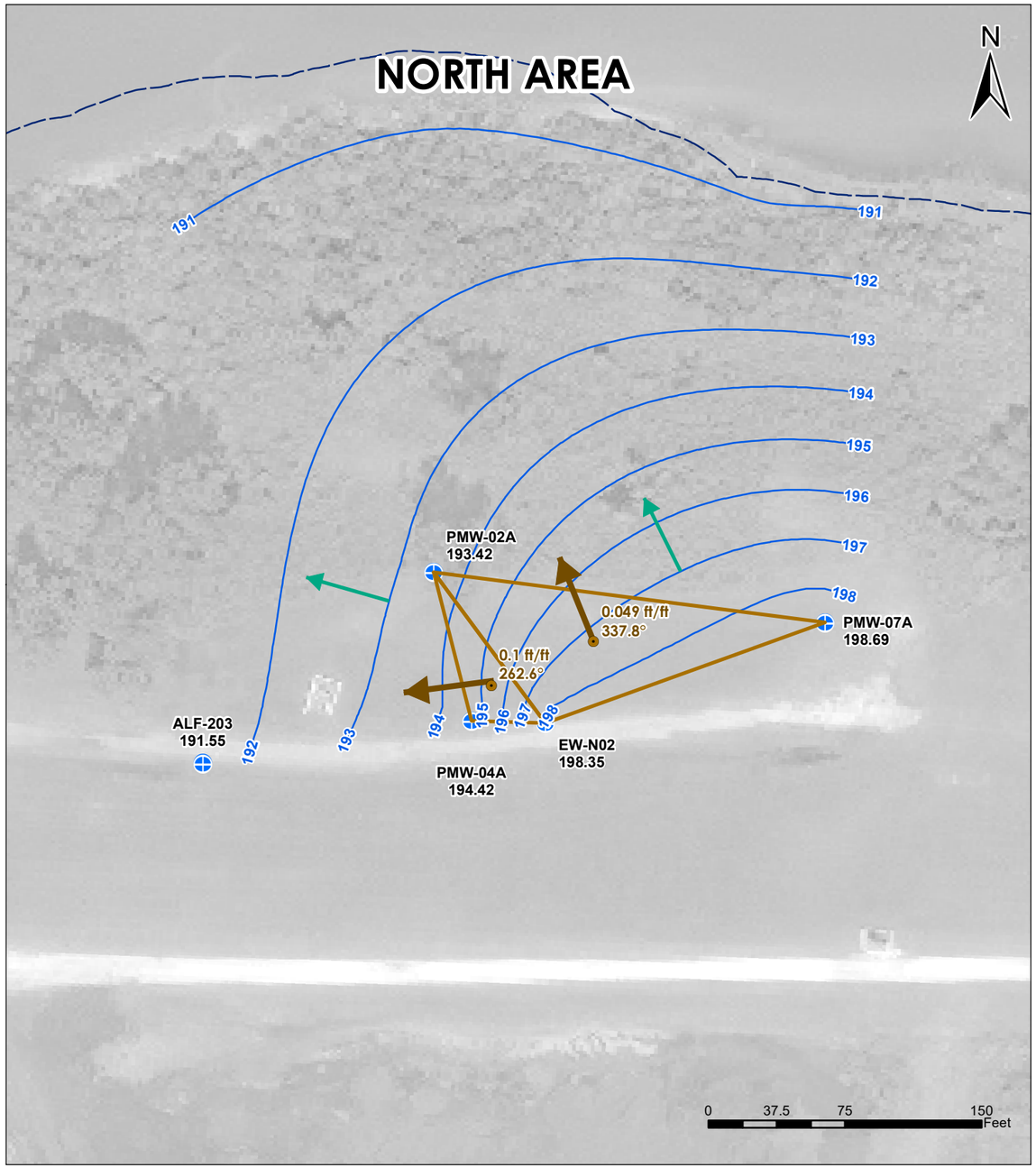
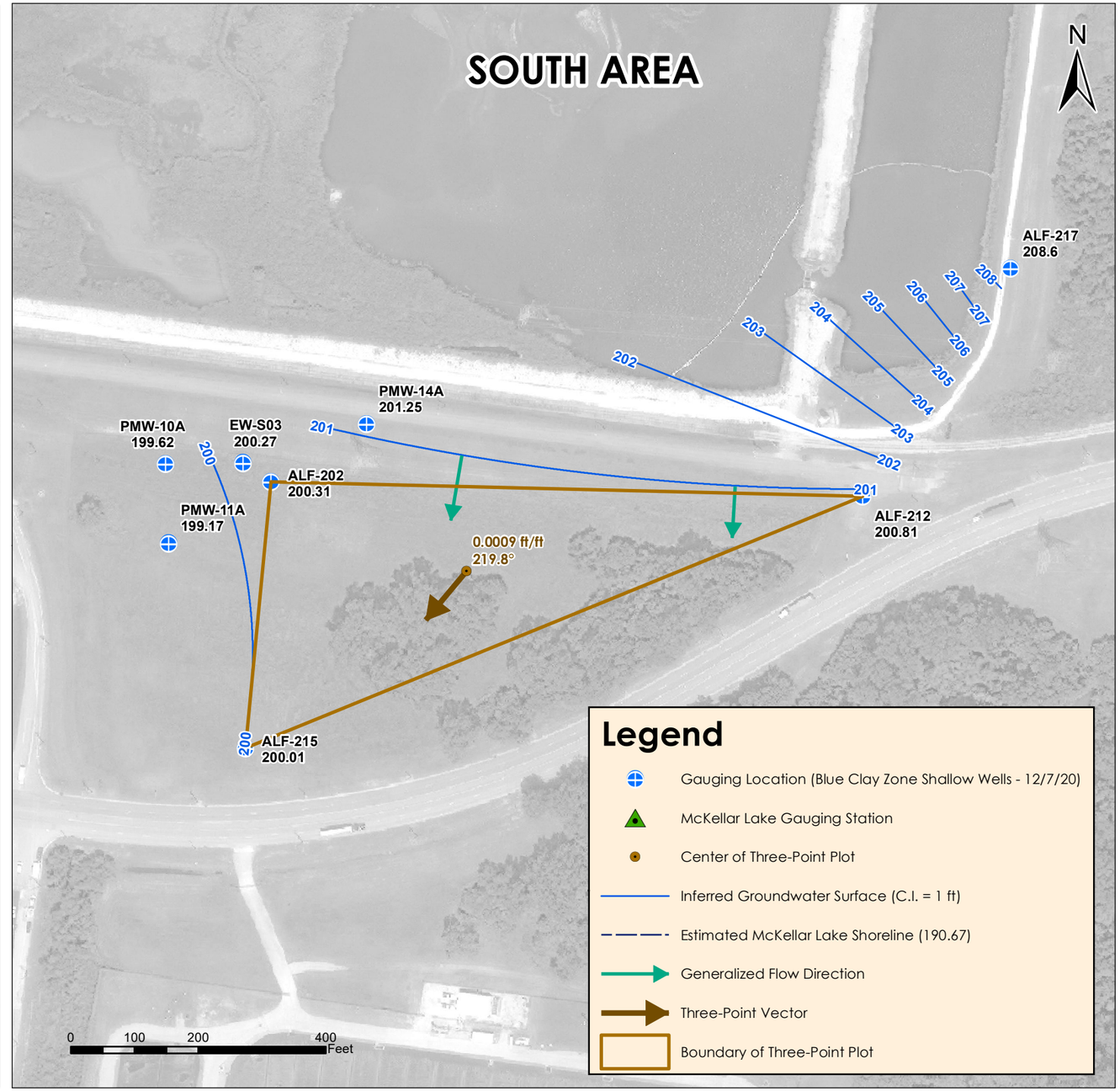


Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
2c

Title
Alluvial Aquifer Groundwater Elevation Map Blue Clay Zone Shallow Wells (September 2020)





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Revised: 2021-02-03 By: ptbell

February 2021

Stantec

Notes

1. Horizontal Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet. Elevations listed are in feet above North American Vertical Datum of 1929.
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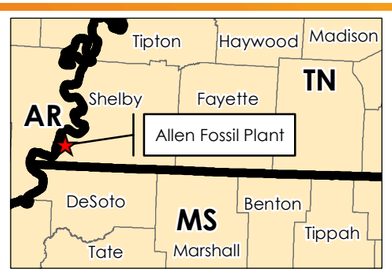
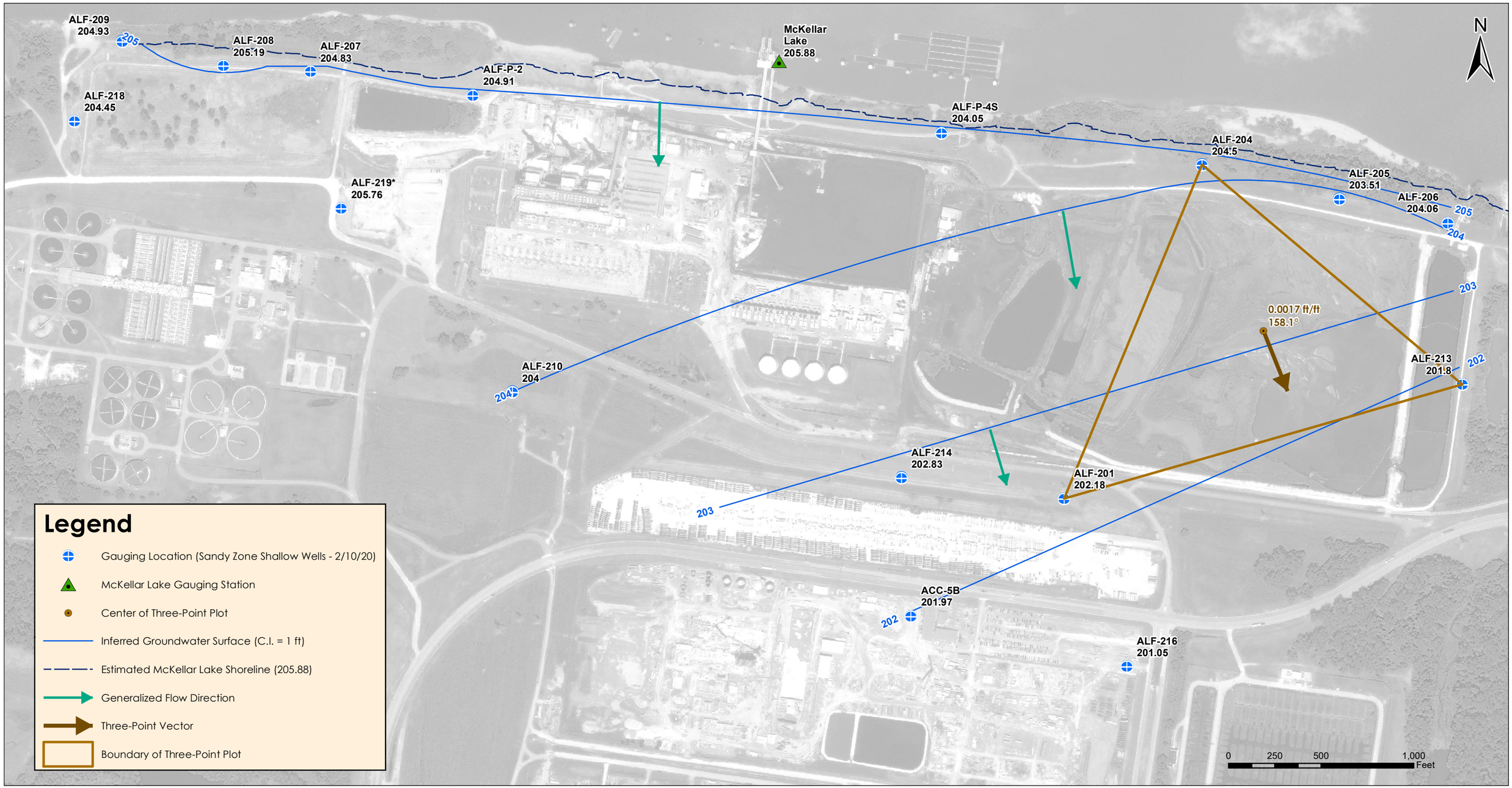


Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
2d

Title
Alluvial Aquifer Groundwater Elevation Map Blue Clay Zone Shallow Wells (December 2020)



C:\Proj\Temp\TVA_ALF\03_data\gis_cad\gis\process_features\20210209_2020AnnualReport\FIG 3a GWE SHALLOW_202002_20200319.mxd
Revised: 2021-03-24 By: prbell

March 2021

Stantec

Notes

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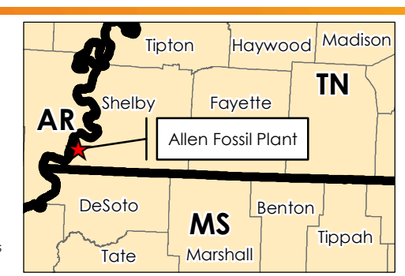
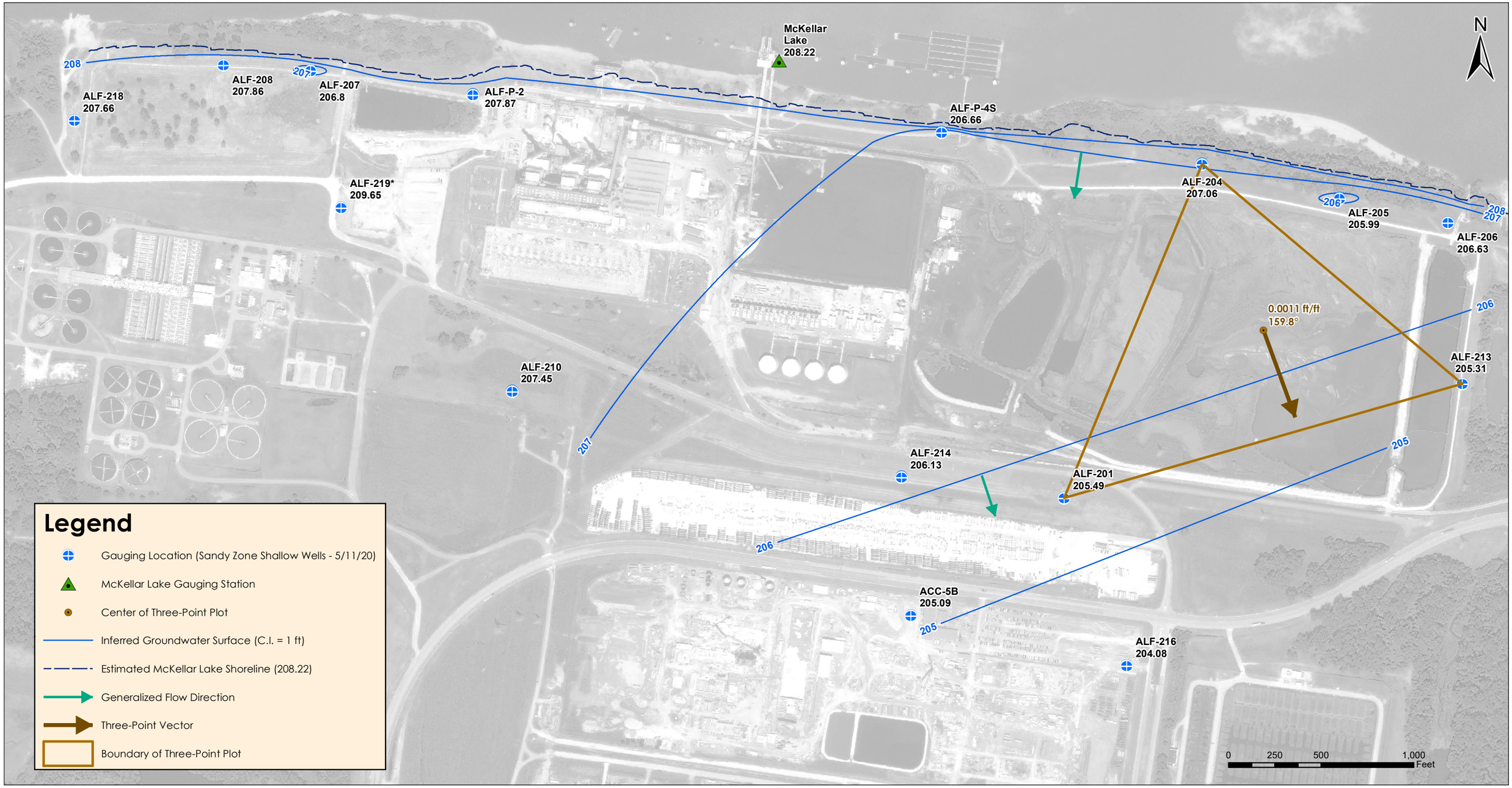


Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
3a

Title
Alluvial Aquifer Groundwater Elevation Map Sandy Zone Shallow Wells (February 2020)



C:\Proj\Temp\TVA_ALF\03_data\gis_cad\gis\process_features\20210209_2020AnnualReport\FIG 3b GWE SHALLOW_202005_20200615.mxd
Revised: 2021-03-24 By: prbell

March 2021

Stantec

Notes

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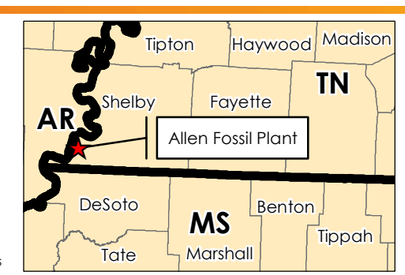
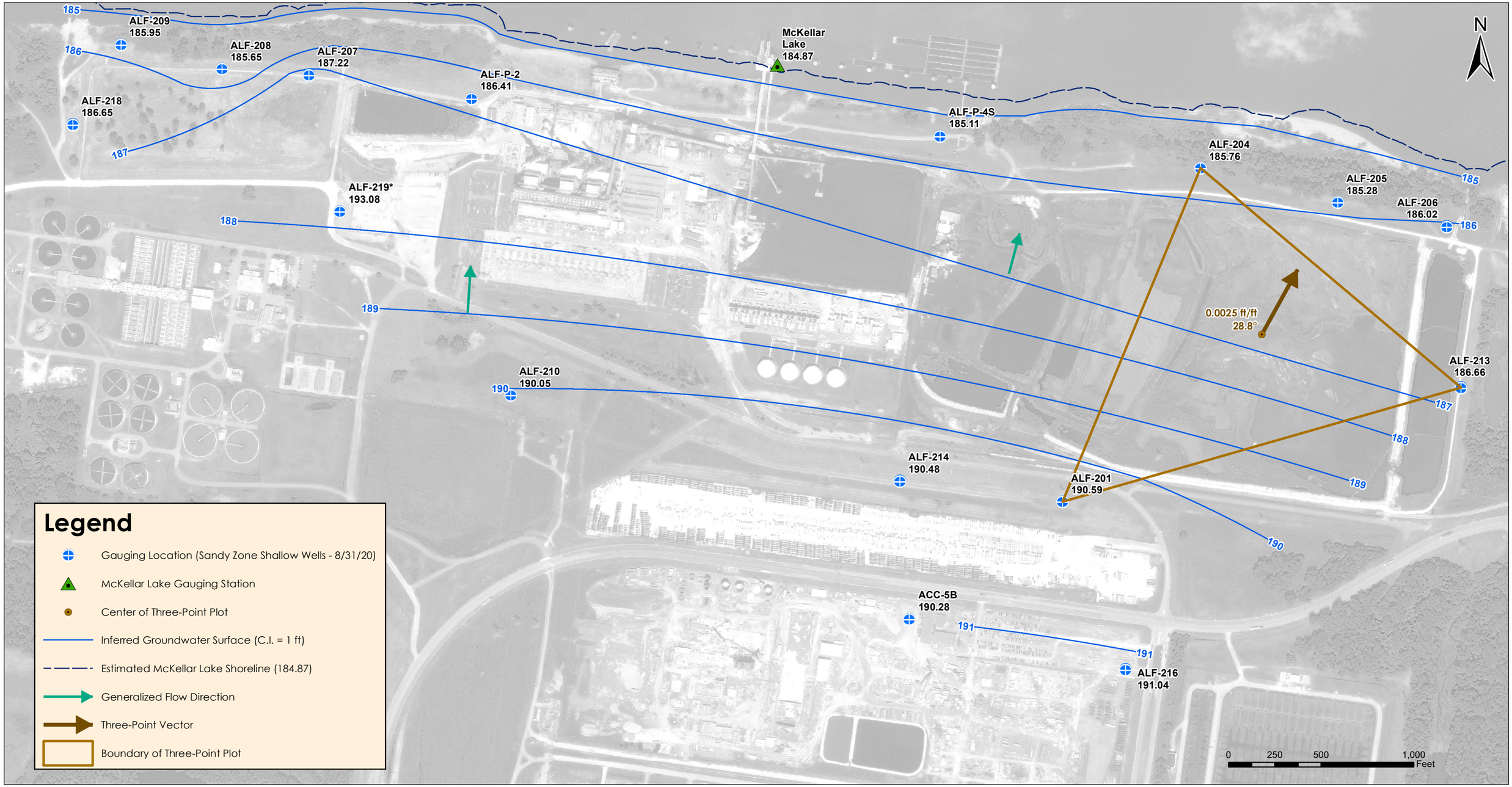


Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
3b

Title
Alluvial Aquifer Groundwater Elevation Map Sandy Zone Shallow Wells (May 2020)



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Revised: 2021-03-24 By: prbell

March 2021

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Notes

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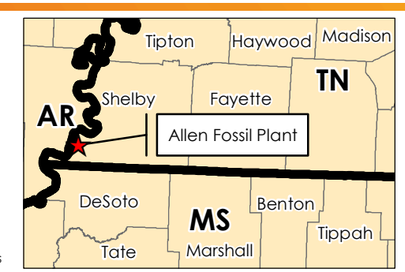
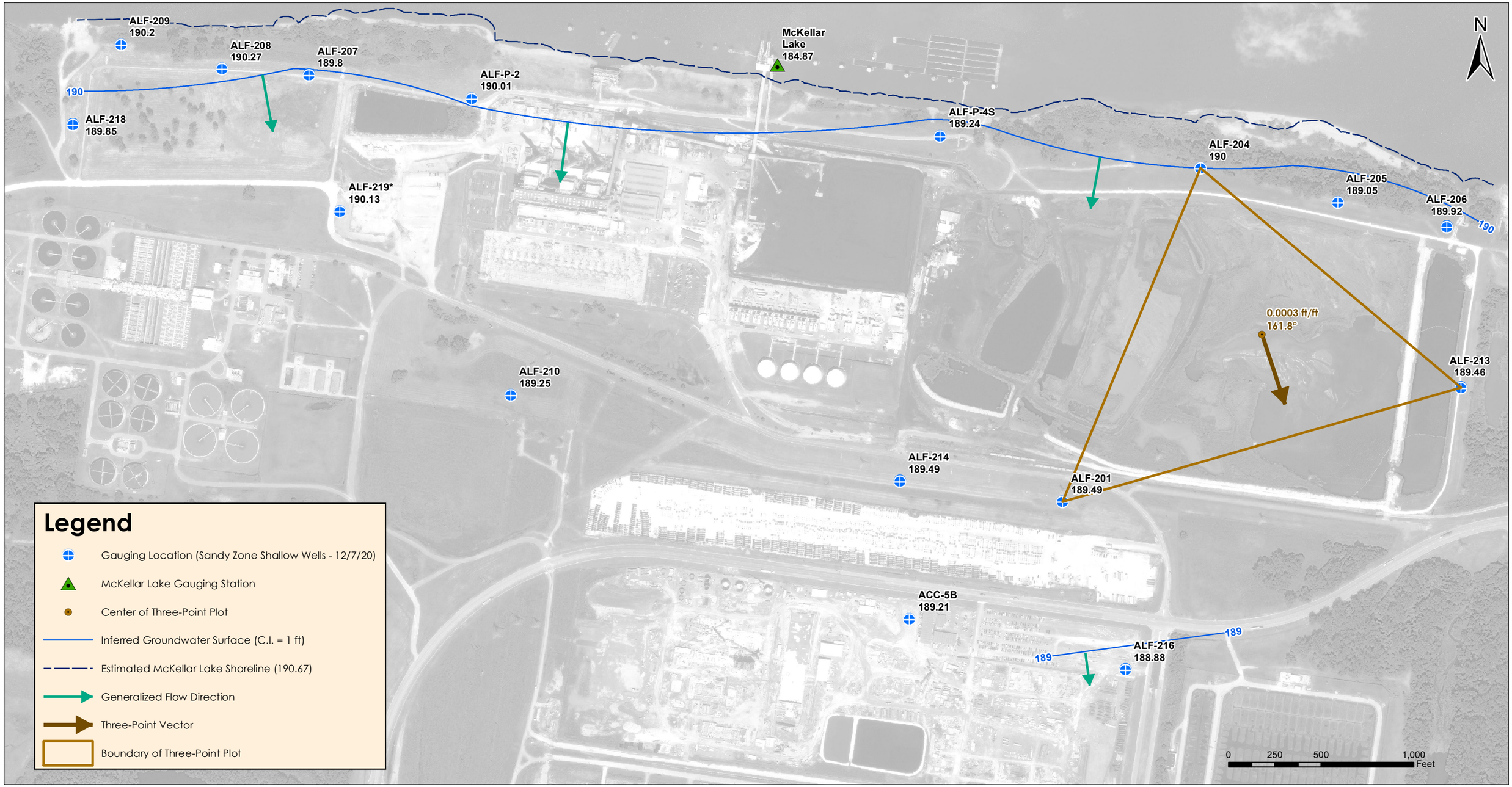


Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
3c

Title
Alluvial Aquifer Groundwater Elevation Map Sandy Zone Shallow Wells (September 2020)



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Revised: 2021-03-24 By: prbell

March 2021

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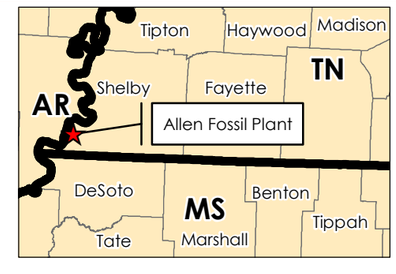
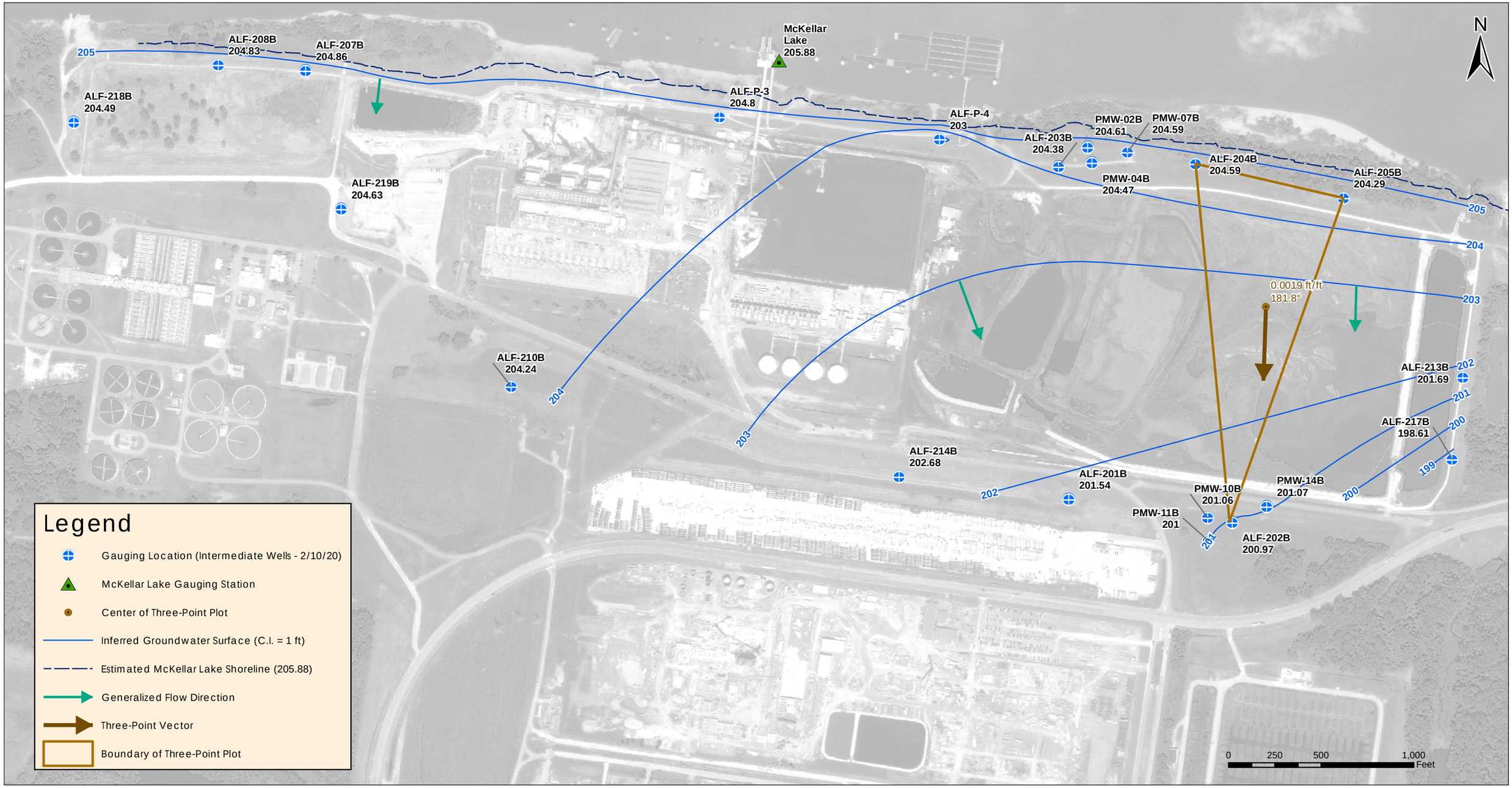


Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
3d

Title
Alluvial Aquifer Groundwater Elevation Map Sandy Zone Shallow Wells (December 2020)



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Revised: 2021-02-09 By: prbell

February 2021

Stantec

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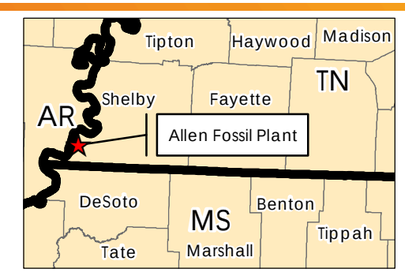
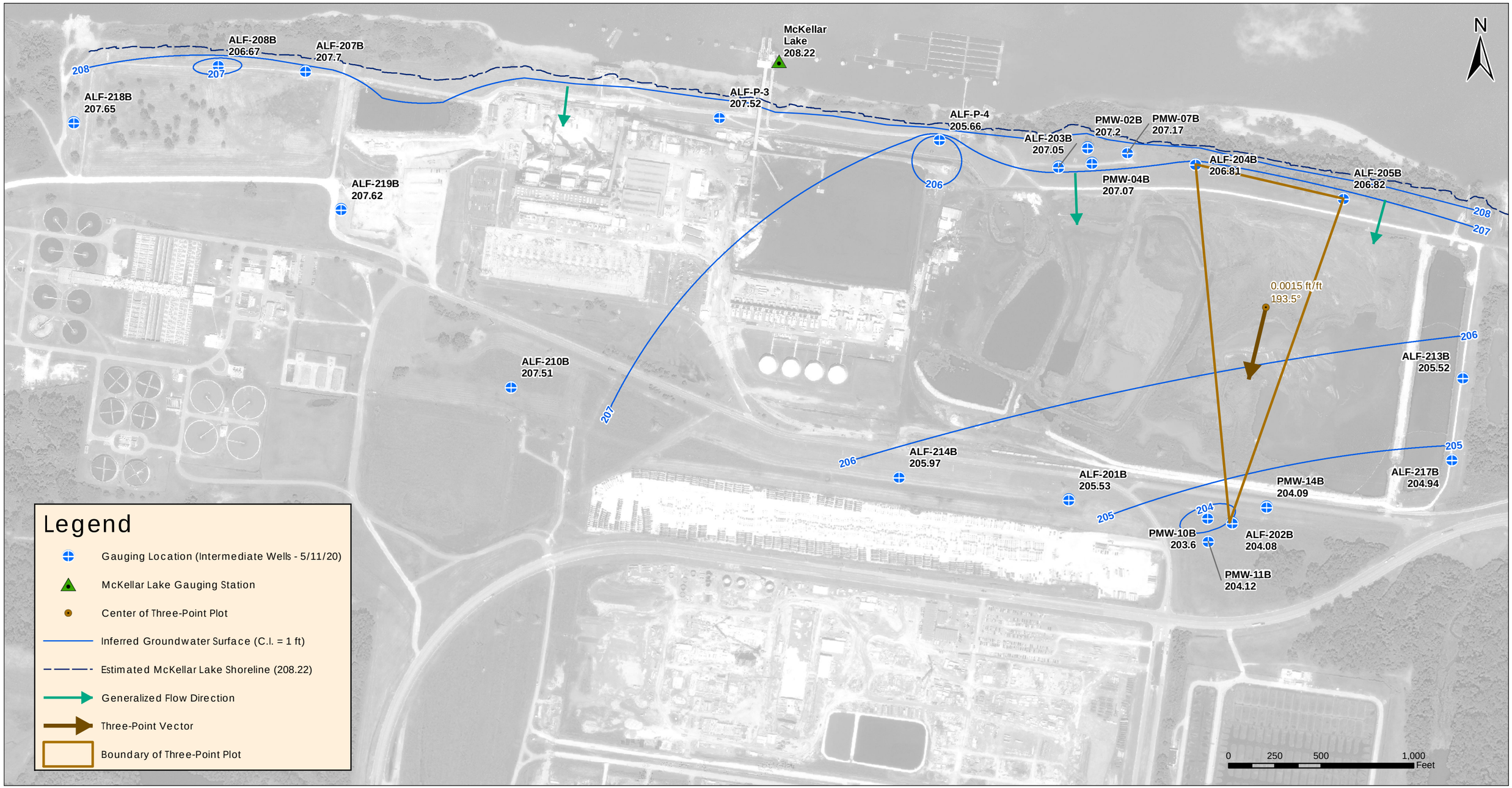


Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
4a

Title
Alluvial Aquifer
Groundwater Elevation Map
Intermediate Wells
(February 2020)



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Revised: 2021-02-09 By: prbell

February 2021

Stantec

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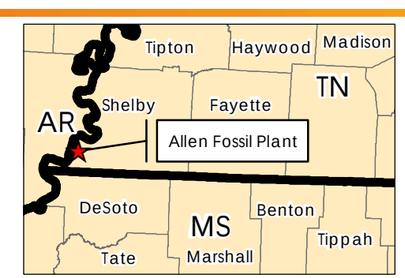
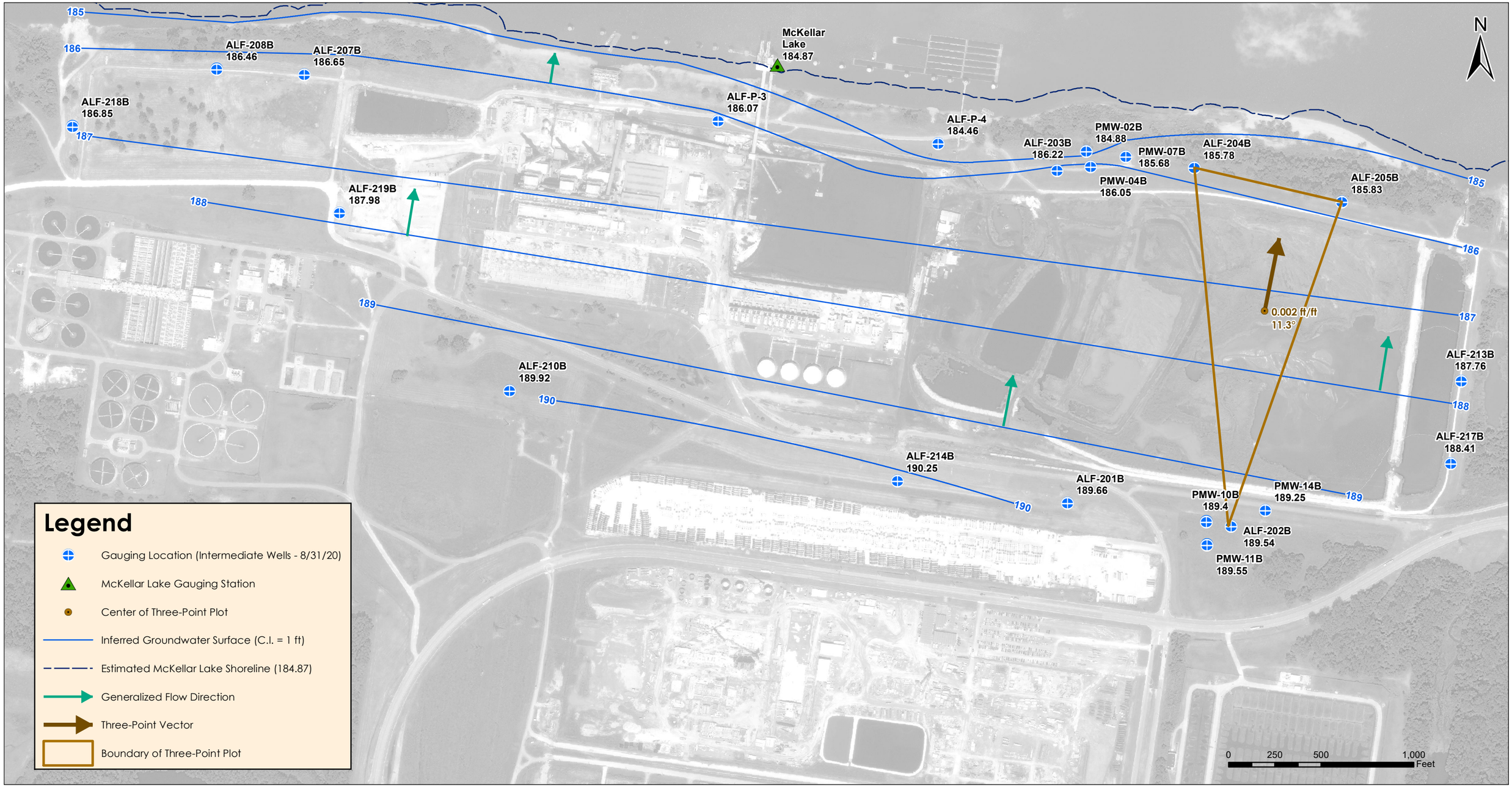
1. Horizontal Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet. Elevations listed are in feet above North American Vertical Datum of 1929.
2. Imagery provided by client (dated 2015)
3. The McKellar Lake elevation listed corresponds to the average value measured at between 12:25 and 15:05 on the date listed. The estimated shoreline indicated is based on interpretation of the United States Geological Survey (USGS) National Elevation Dataset (NED).
4. Water table surface contours were inferred based on gauging results at the locations indicated and estimated surface water elevation of McKellar Lake as indicated.



Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
4b

Title
Alluvial Aquifer Groundwater Elevation Map Intermediate Wells (May 2020)



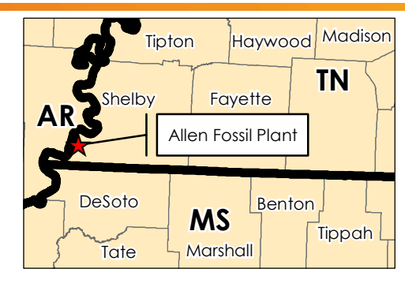
C:\ProjTemp\TVA_ALF\03_data\gis_cad\gis\process_features\20210209_2020AnnualReport\FIG 4c GWE INTERMEDIATE_20201014.mxd
Revised: 2021-03-24 By: pitpell

March 2021

Stantec

Notes

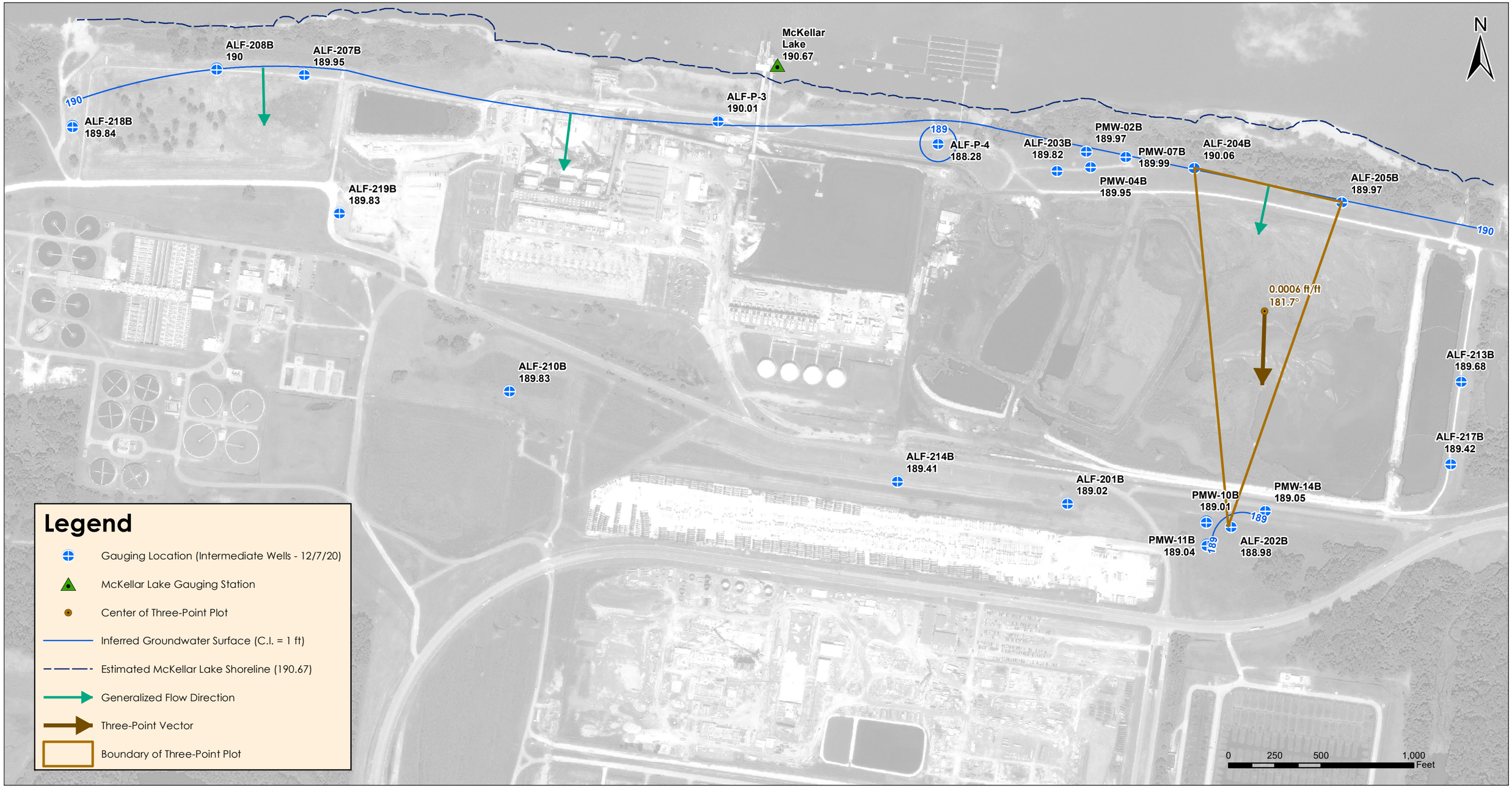
1. Horizontal Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet. Elevations listed are in feet above North American Vertical Datum of 1929.
2. Imagery provided by client (dated 2015)
3. The McKellar Lake elevation listed corresponds to the average value measured between 7:17 and 10:50 on the date listed. The estimated shoreline indicated is based on interpretation of the United States Geological Survey (USGS) National Elevation Dataset (NED).
4. Water table surface contours were inferred based on gauging results at the locations indicated and estimated surface water elevation of McKellar Lake as indicated.
5. Although the groundwater elevation values were collected on August 31, 2020, the measurements are affiliated with the September 2020 quarterly groundwater sampling event.



Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
4c

Title
Alluvial Aquifer Groundwater Elevation Map Intermediate Wells (September 2020)



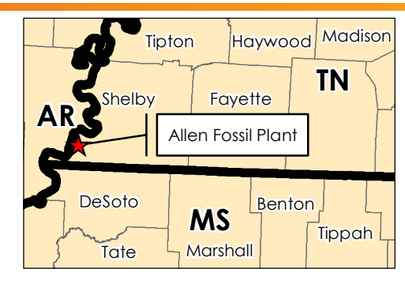
C:\ProjTemp\TVA_ALF\03_data\gis_cad\gis\process_features\20210127_Q4_2020_gwe_contours_20201216\FIG 4d GWE INTERMEDIATE_20201207_20210203.mxd
Revised: 2021-02-03 By: prbell

February 2021

Stantec

Notes

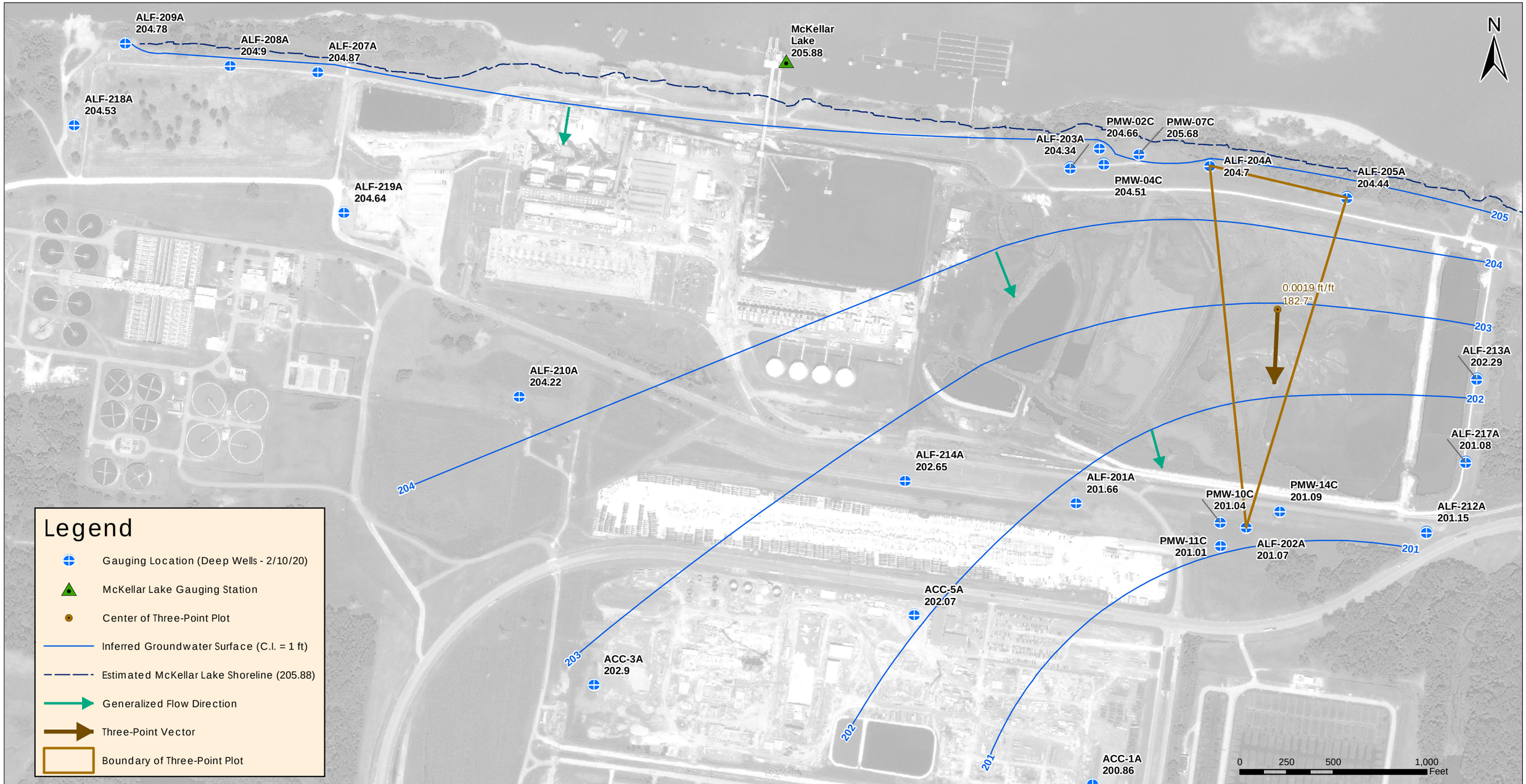
1. Horizontal Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet. Elevations listed are in feet above North American Vertical Datum of 1929.
2. Imagery provided by client (dated 2015)
3. The McKellar Lake elevation listed corresponds to the average value measured between 11:27 and 15:03 on the date listed. The estimated shoreline indicated is based on interpretation of the United States Geological Survey (USGS) National Elevation Dataset (NED).
4. Water table surface contours were inferred based on gauging results at the locations indicated and estimated surface water elevation of McKellar Lake as indicated.



Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
4d

Title
Alluvial Aquifer Groundwater Elevation Map Intermediate Wells (December 2020)

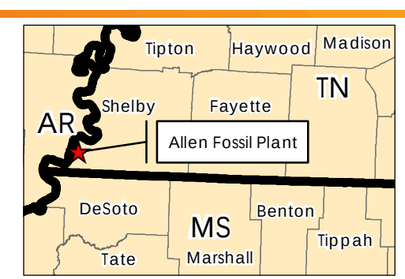


C:\Proj\Temp\TVA_ALF\03_data\gis_cad\gis\process_features\20210209_2020AnnualReport\FIG 5a GWE DEEP_202002_20200319.mxd
Revised: 2021-02-09 By: prbell

February 2021

Stantec

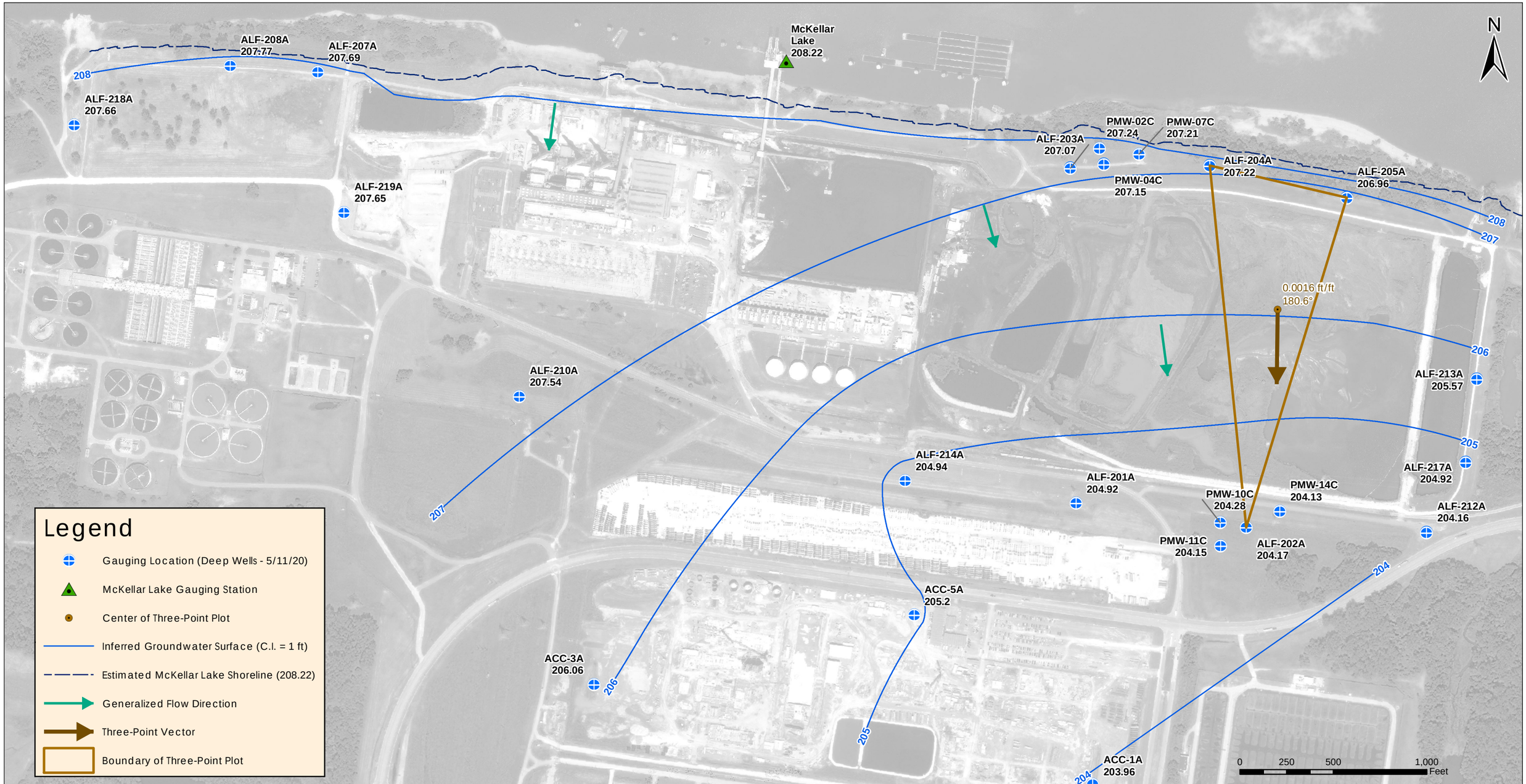
Notes
1. Horizontal Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet. Elevations listed are in feet above North American Vertical Datum of 1929.
2. Imagery provided by client (dated 2015)
3. The McKellar Lake elevation listed corresponds to the value measured at 11:00 on the date listed. The estimated shoreline indicated is based on interpretation of the United States Geological Survey (USGS) National Elevation Dataset (NED).
4. Water table surface contours were inferred based on gauging results at the locations indicated and estimated surface water elevation of McKellar Lake as indicated.



Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
5a

Title
Alluvial Aquifer
Groundwater Elevation Map
Deep Wells
(February 2020)

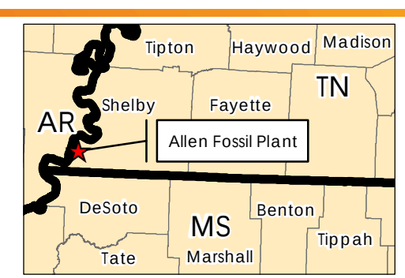


C:\Proj\Temp\TVA_ALF\03_data\gis_cad\gis\process_features\20210209_2020AnnualReport\FIG 5b GWE DEEP_202005_20200615.mxd
Revised: 2021-02-09 By: prbell

February 2021

Stantec

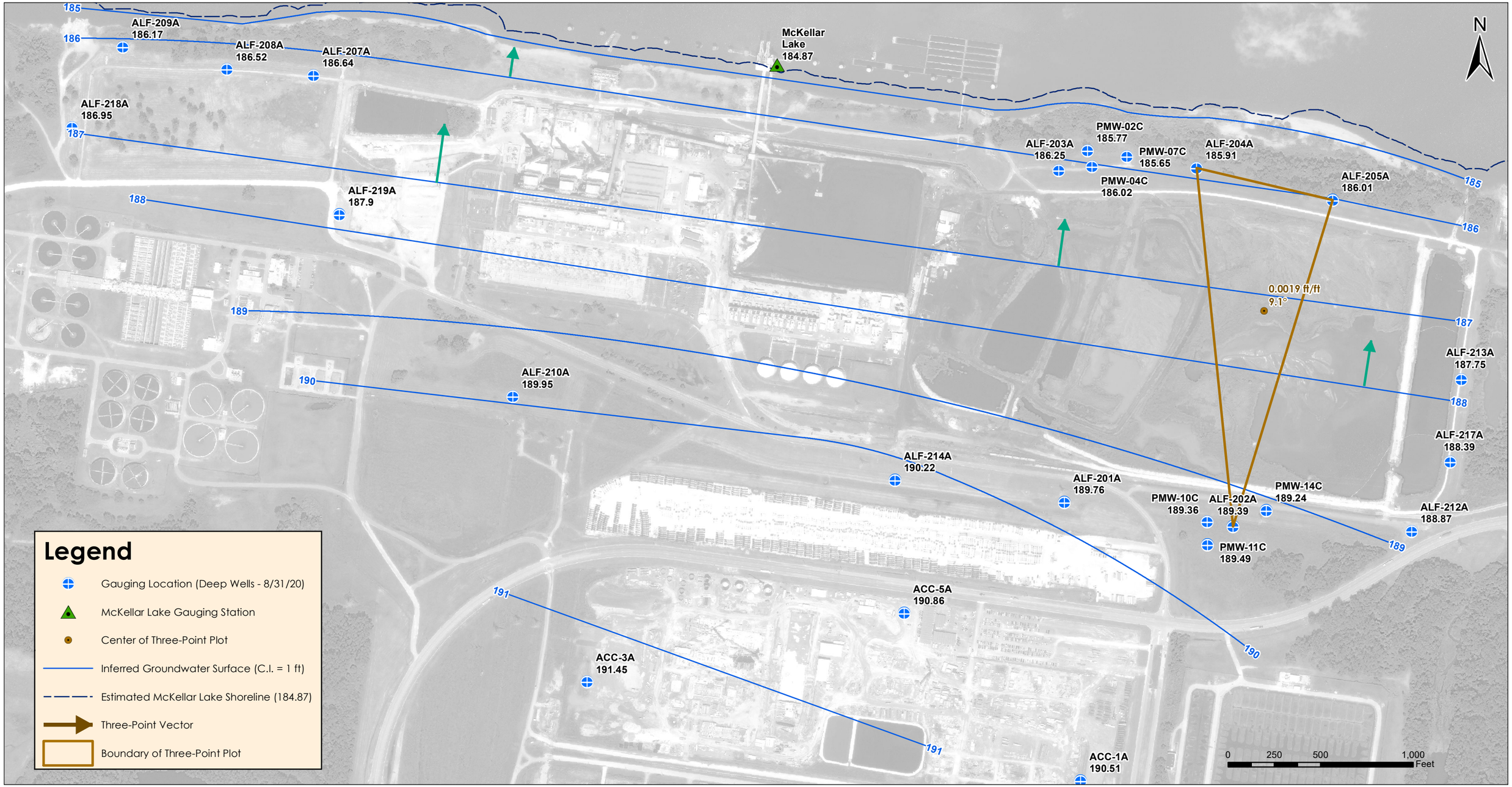
Notes
1. Horizontal Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet. Elevations listed are in feet above North American Vertical Datum of 1929.
2. Imagery provided by client (dated 2015)
3. The McKellar Lake elevation listed corresponds to the average value measured at between 12:25 and 15:05 on the date listed. The estimated shoreline indicated is based on interpretation of the United States Geological Survey (USGS) National Elevation Dataset (NED).
4. Water table surface contours were inferred based on gauging results at the locations indicated and estimated surface water elevation of McKellar Lake as indicated.



Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
5b

Title
Alluvial Aquifer
Groundwater Elevation Map
Deep Wells
(May 2020)



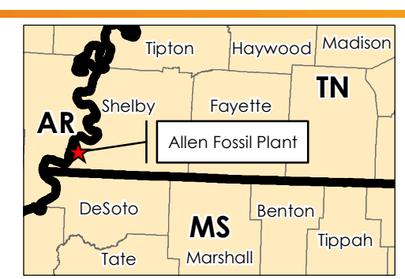
C:\ProjTemp\TVA_ALF\03_data\gis_cad\gis\process_features\20210209_2020AnnualReport\FIG 5c GWE DEEP_20200831_20201015.mxd
Revised: 2021-03-24 By: ptoell

March 2021

Stantec

Notes

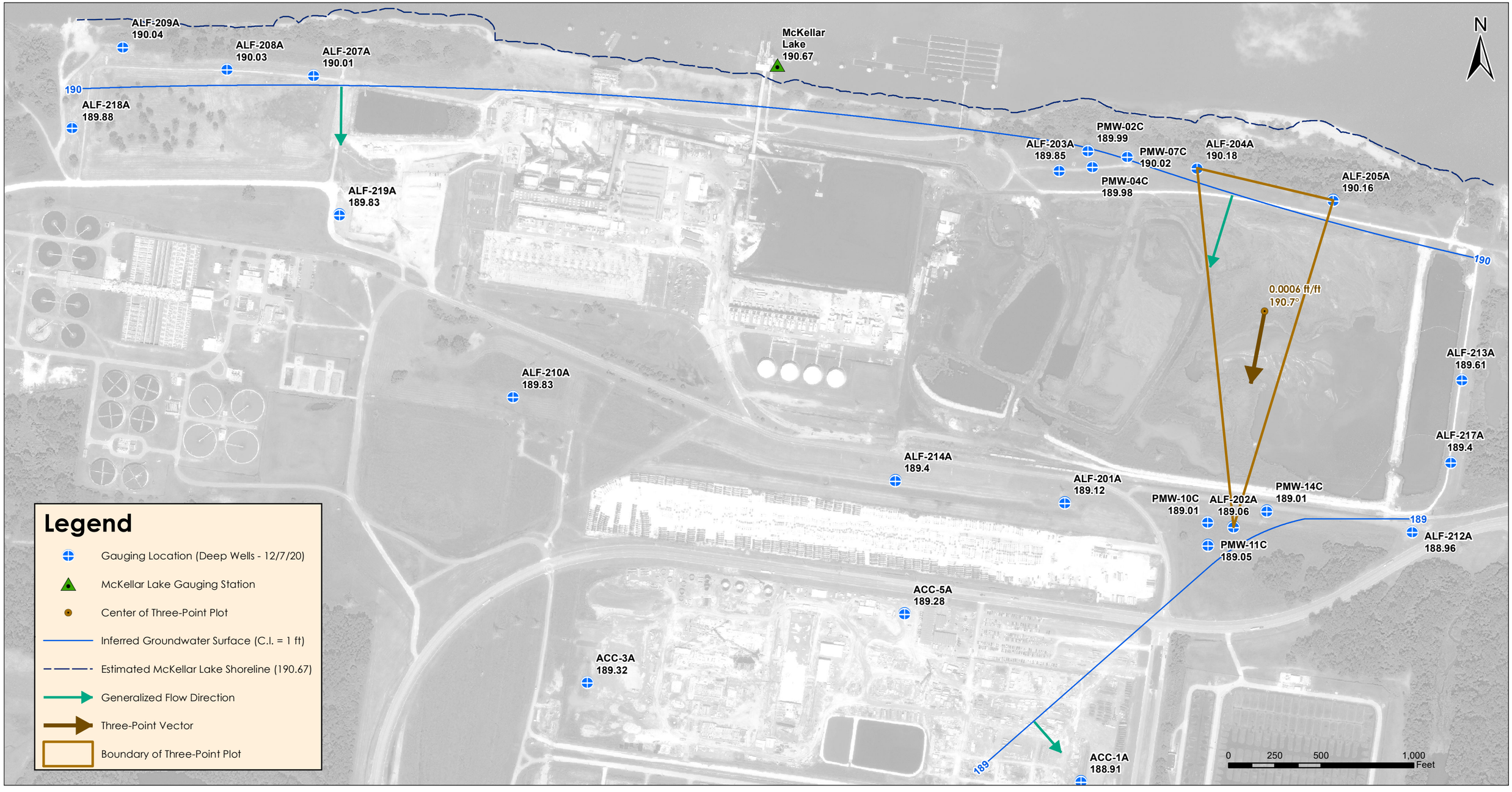
1. Horizontal Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet. Elevations listed are in feet above North American Vertical Datum of 1929.
2. Imagery provided by client (dated 2015)
3. The McKellar Lake elevation listed corresponds to the average value measured between 7:17 and 10:50 on the date listed. The estimated shoreline indicated is based on interpretation of the United States Geological Survey (USGS) National Elevation Dataset (NED).
4. Water table surface contours were inferred based on gauging results at the locations indicated and estimated surface water elevation of McKellar Lake as indicated.
5. Although the groundwater elevation values were collected on August 31, 2020, the measurements are affiliated with the September 2020 quarterly groundwater sampling event.



Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
5c

Title
Alluvial Aquifer Groundwater Elevation Map Deep Wells (September 2020)



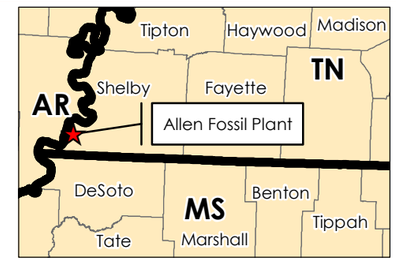
C:\ProjTemp\TVA_ALF\03_data\gis_cad\gis\process_features\20210127_Q4_2020_gwe_contours_20210216\FIG 5d GWE DEEP_20201207_20210203.mxd
Revised: 2021-02-03 By: prbell

February 2021

Stantec

Notes

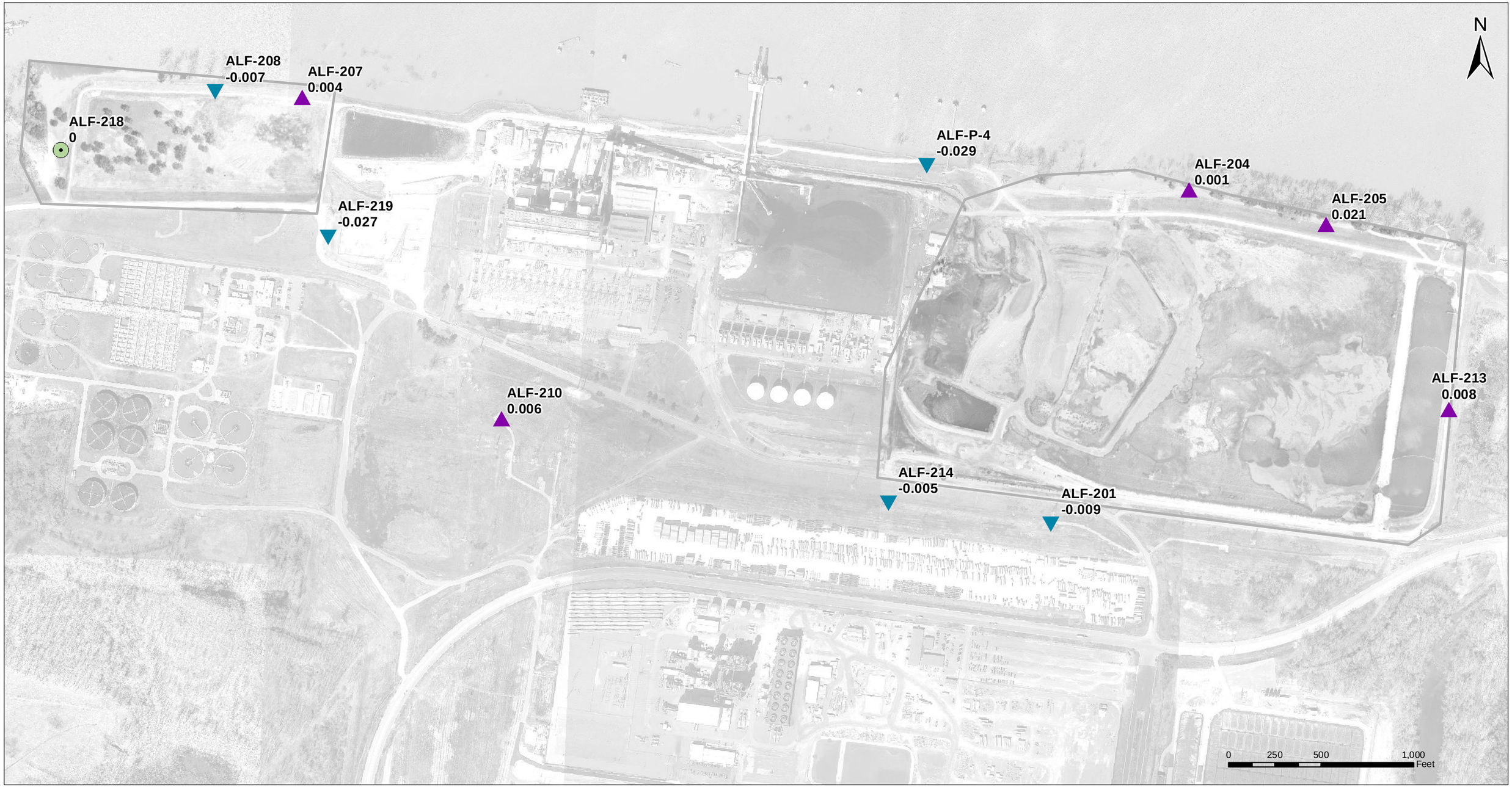
1. Horizontal Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet. Elevations listed are in feet above North American Vertical Datum of 1929.
2. Imagery provided by client (dated 2015)
3. The McKellar Lake elevation listed corresponds to the average value measured between 11:27 and 15:03 on the date listed. The estimated shoreline indicated is based on interpretation of the United States Geological Survey (USGS) National Elevation Dataset (NED).
4. Water table surface contours were inferred based on gauging results at the locations indicated and estimated surface water elevation of McKellar Lake as indicated.



Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
5d

Title
Alluvial Aquifer Groundwater Elevation Map Deep Wells (December 2020)



U:\TVA-EIP\175567295\gis\mxds\ACC\GW_Surface\Updates_20210201\Fig6a_Shallow_Inter.mxd
Revised: 2021-03-29 By: mbough

March 2021

Stantec

Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet

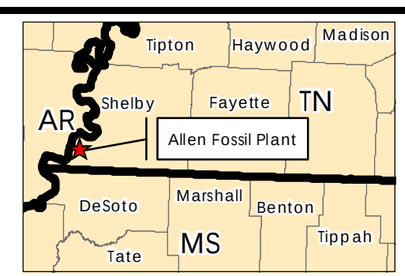
2. Imagery provided by client (dated 2018 & 2019).

3. Vertical gradient averaging includes groundwater elevation data measured between 9/20/2017 and 12/7/2020.

4. For this map, groundwater elevation data from the sandy zone of the shallow Alluvial aquifer was compared to intermediate Alluvial aquifer groundwater elevation data. Wells screened in the blue clay zone wells were excluded.

Legend

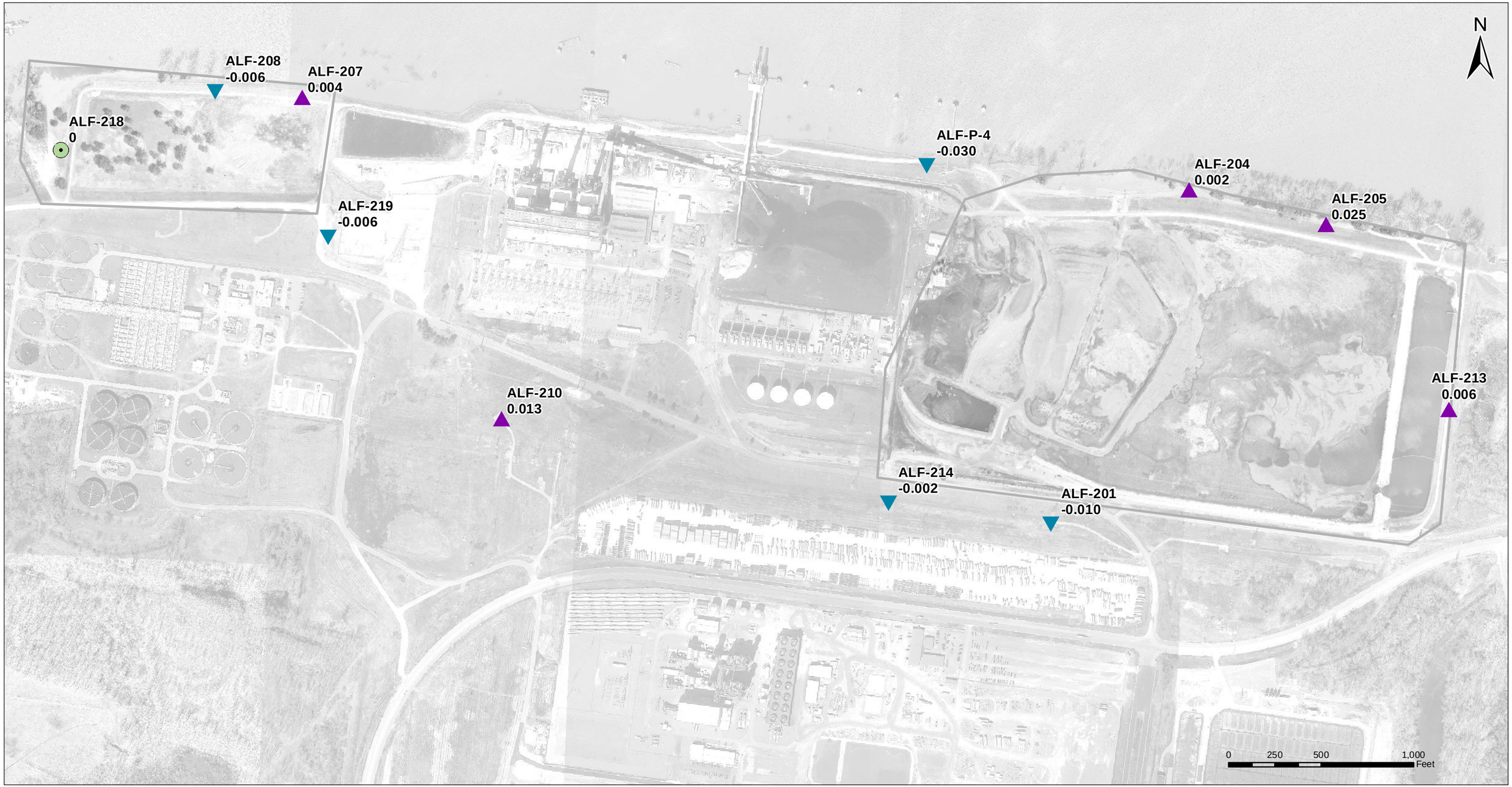
- Upward Vertical Gradient (Feet/Foot)
- No Gradient
- Downward Vertical Gradient (Feet/Foot)



Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
6a

Title
Vertical Gradients
Shallow to Intermediate Wells
(Average 2017 - 2020)



U:\TVA-EP\175567295\gis\mxds\ACC\GW_Surface\Updates_20210201\Fig6b_Shallow_Inter_Dec2020.mxd
Revised: 2021-03-29 By: mbough

March 2021

Stantec

Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet

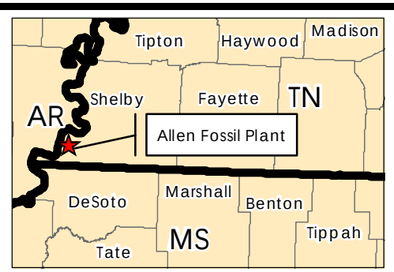
2. Imagery provided by client (dated 2018 & 2019).

3. Vertical gradient groundwater elevation data measured on 12/7/2020.

4. For this map, groundwater elevation data from the sandy zone of the shallow Alluvial aquifer was compared to intermediate Alluvial aquifer groundwater elevation data. Wells screened in the blue clay zone wells were excluded.

Legend

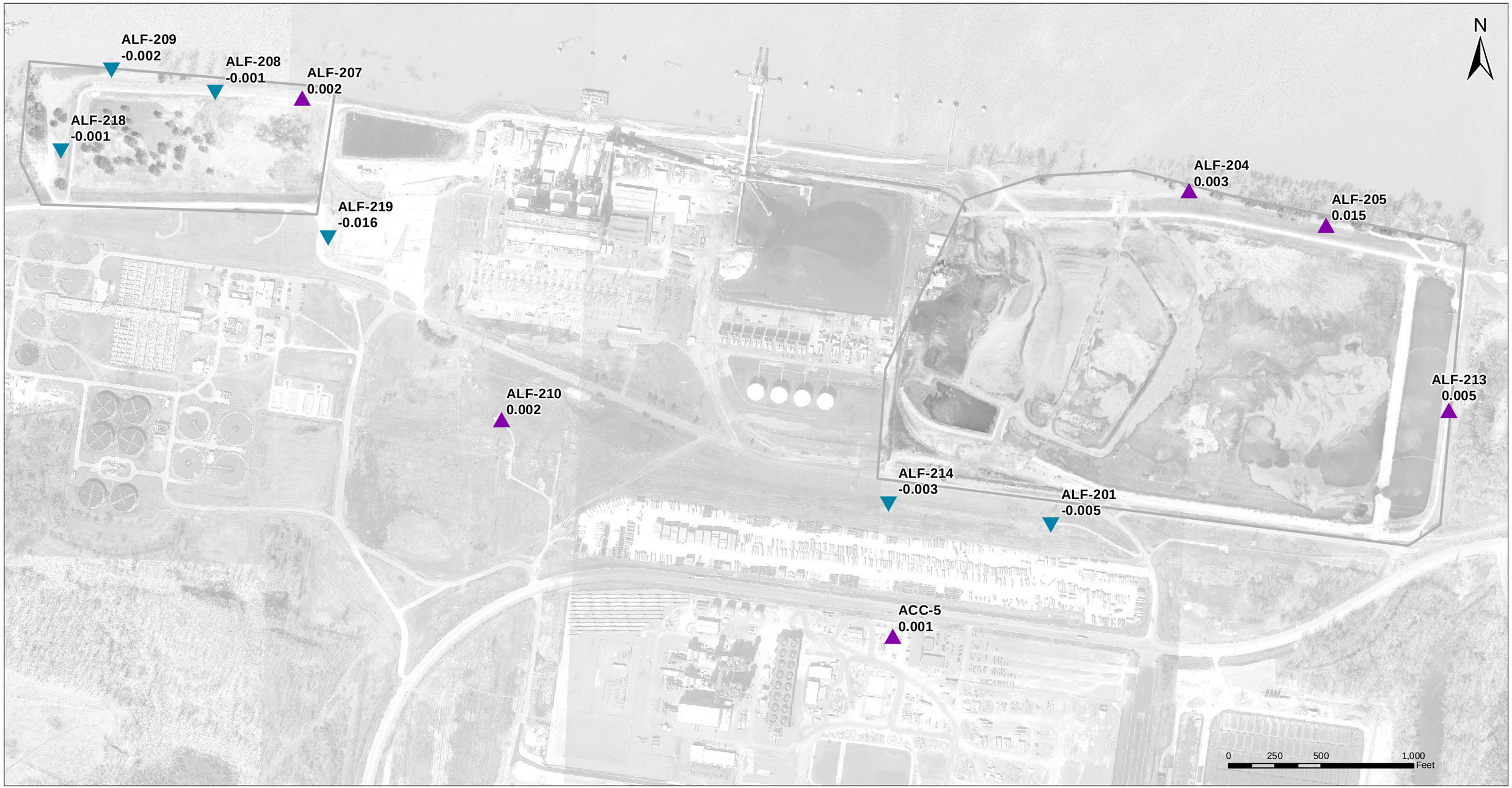
- Upward Vertical Gradient (Feet/Foot)
- No Gradient
- Downward Vertical Gradient (Feet/Foot)



Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
6b

Title
Vertical Gradients
Shallow to Intermediate Wells
(December 2020)



U:\TVA-EP\175567295\gis\mxds\ACC\GW_Surface\Updates_20210201\Fig6c_Shallow_Deep.mxd
Revised: 2021-03-29 By: mbough

March 2021

Stantec

Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet

2. Imagery provided by client (dated 2018 & 2019).

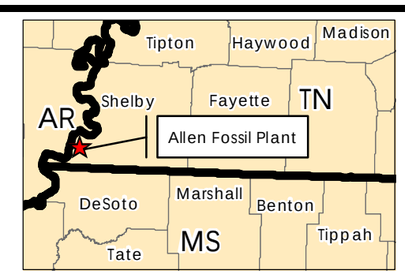
3. Vertical gradient averaging includes groundwater elevation data measured between 9/20/2017 and 12/7/2020.

4. For this map, groundwater elevation data from the sandy zone of the shallow Alluvial aquifer was compared to deep Alluvial aquifer groundwater elevation data.

Legend

Upward Vertical Gradient (Feet/Foot)

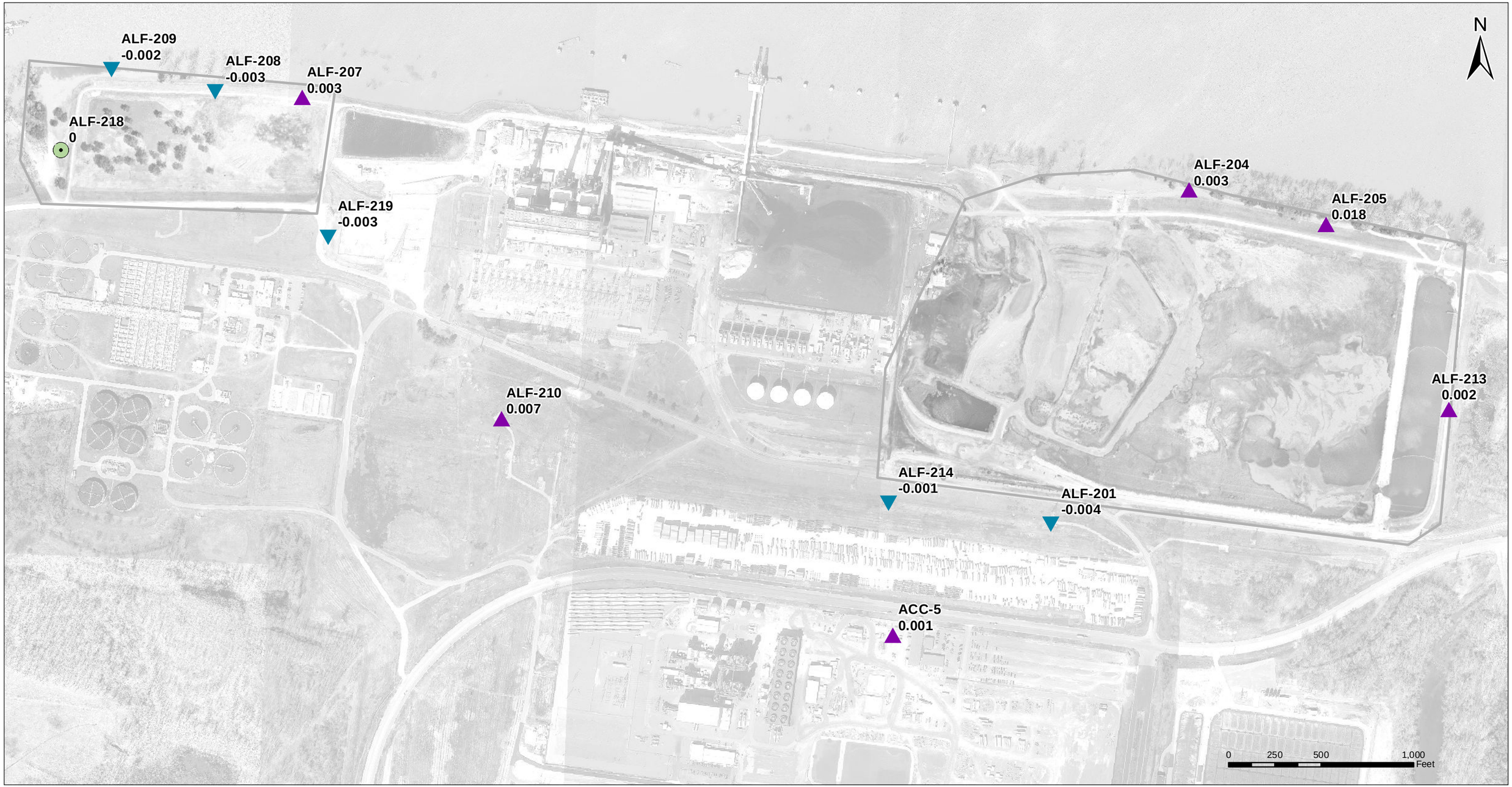
Downward Vertical Gradient (Feet/Foot)



Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
6c

Title
Vertical Gradients
Shallow to Deep Wells
(Average 2017 - 2020)



U:\TVA-EP\175567295\gis\mxds\ACC\GW_Surface\Updates_20210201\Fig6d_Shallow_Deep_Dec2020.mxd
Revised: 2021-03-29 By: mbough

March 2021

Stantec

Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet

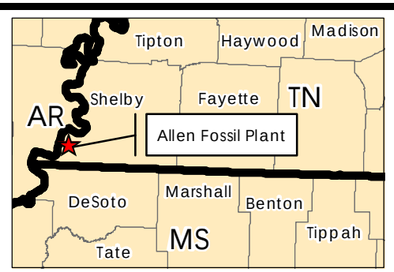
2. Imagery provided by client (dated 2018 & 2019).

3. Vertical gradient groundwater elevation data measured on 12/7/2020.

4. For this map, groundwater elevation data from the sandy zone of the shallow Alluvial aquifer was compared to deep Alluvial aquifer groundwater elevation data.

Legend

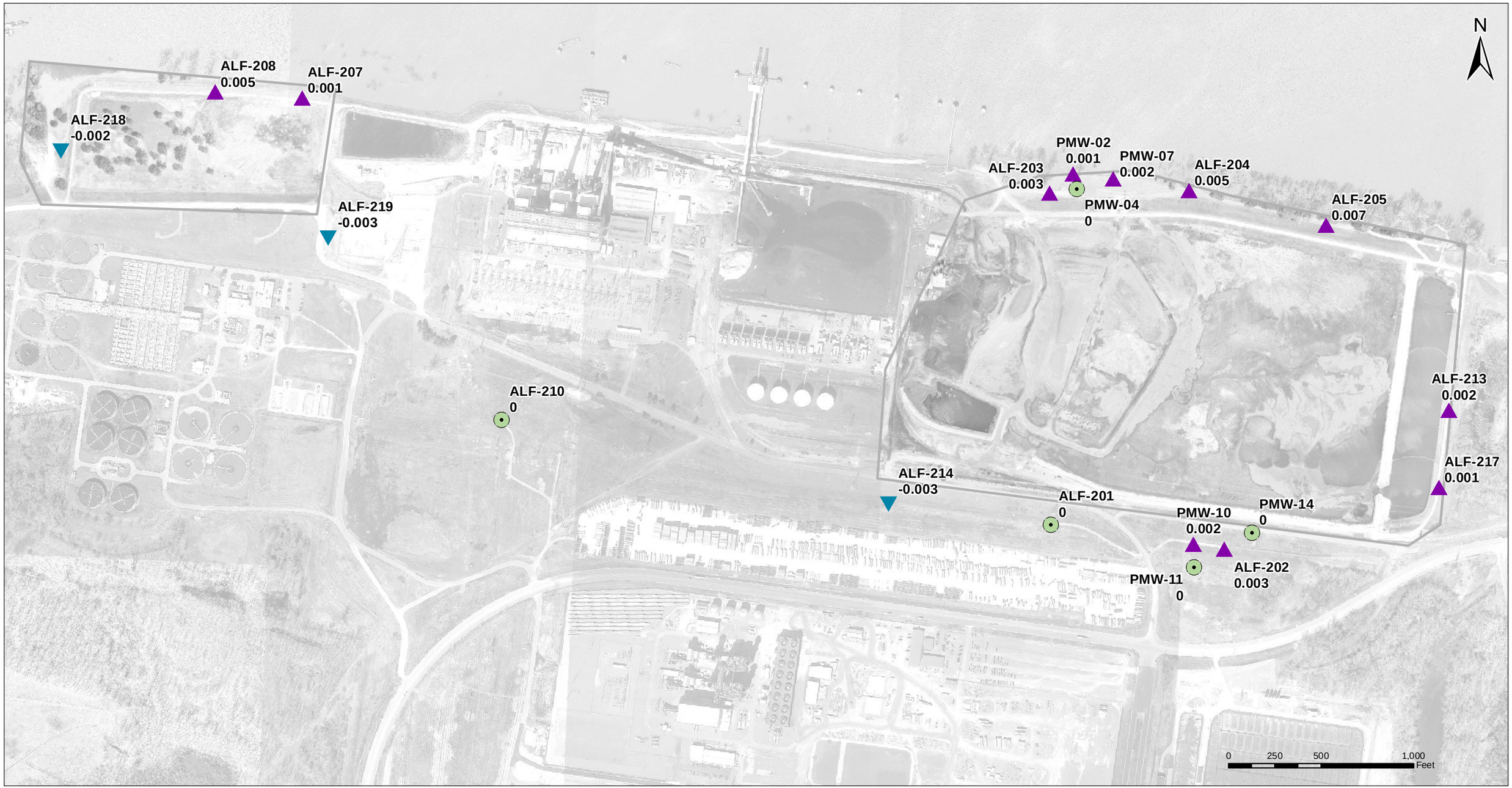
- Upward Vertical Gradient (Feet/Foot)
- No Gradient
- Downward Vertical Gradient (Feet/Foot)



Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
6d

Title
Vertical Gradients
Shallow to Deep Wells
(December 2020)



U:\TVA-EIP\175567295\gis\mxds\ACC\GW_Surface\Updates_20210201\Fig6e_Inter_Deep.mxd
Revised: 2021-03-29 By: mbough

March 2021

Stantec

Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet

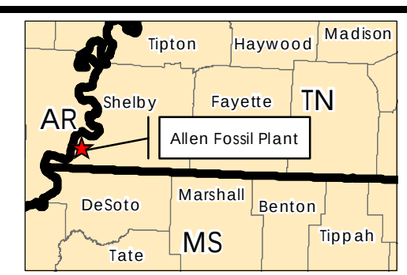
2. Imagery provided by client (dated 2018 & 2019).

3. Vertical gradient averaging includes groundwater elevation data measured between 9/20/2017 and 12/7/2020.

4. For this map, groundwater elevation data from the intermediate Alluvial aquifer was compared to deep Alluvial aquifer groundwater elevation data.

Legend

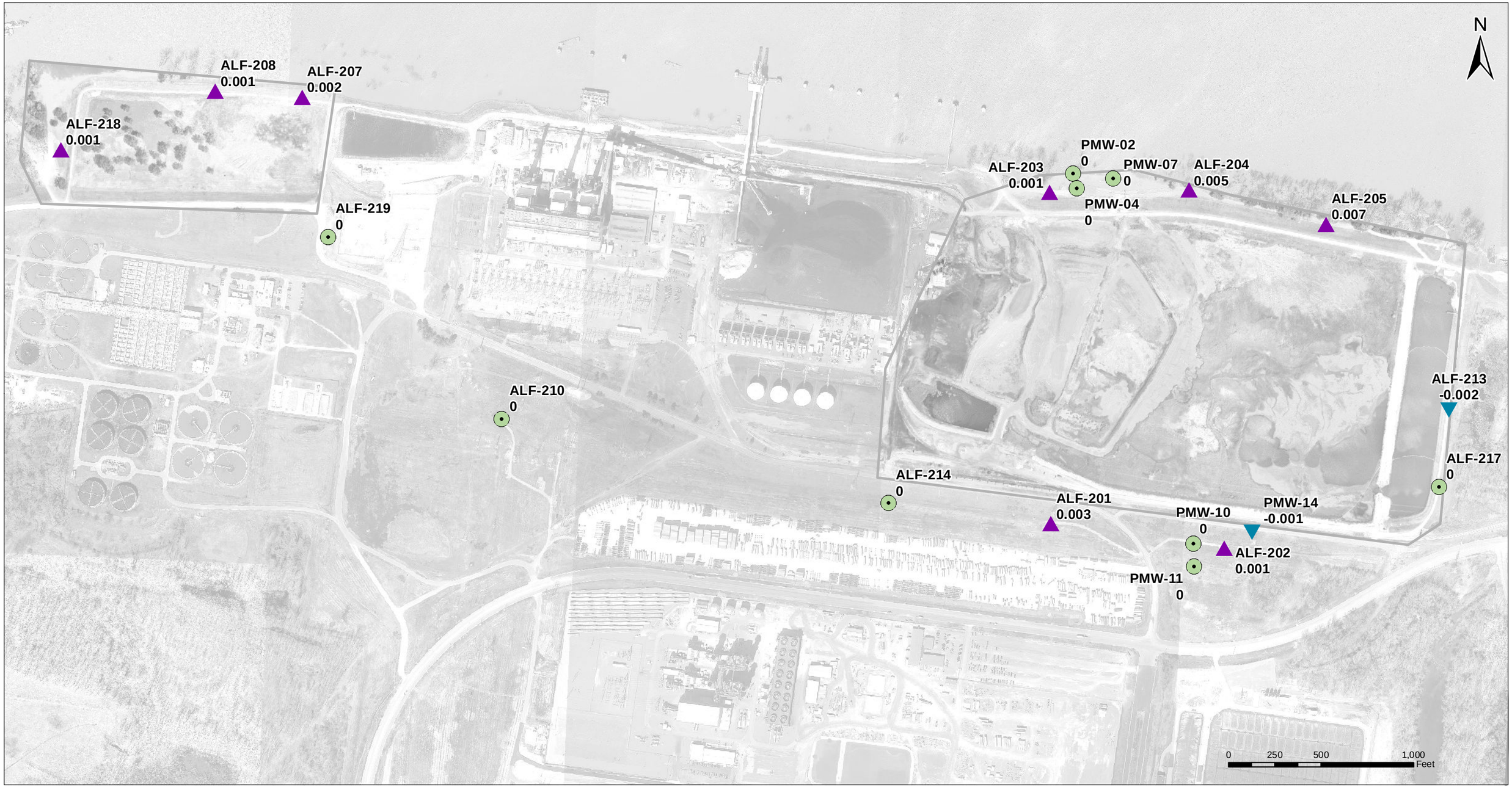
- Upward Vertical Gradient (Feet/Foot)
- No Gradient
- Downward Vertical Gradient (Feet/Foot)



Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
6e

Title
Vertical Gradients
Intermediate to Deep Wells
(Average 2017 - 2020)



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Revised: 2021-03-29 By: mbough

March 2021

Stantec

Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet

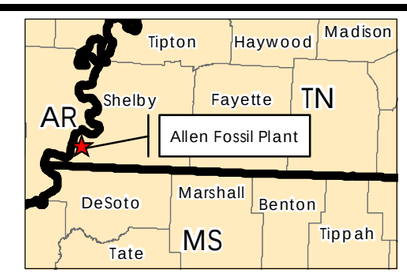
2. Imagery provided by client (dated 2018 & 2019).

3. Vertical gradient groundwater elevation data measured on 12/7/2020.

4. For this map, groundwater elevation data from the intermediate Alluvial aquifer was compared to deep Alluvial aquifer groundwater elevation data.

Legend

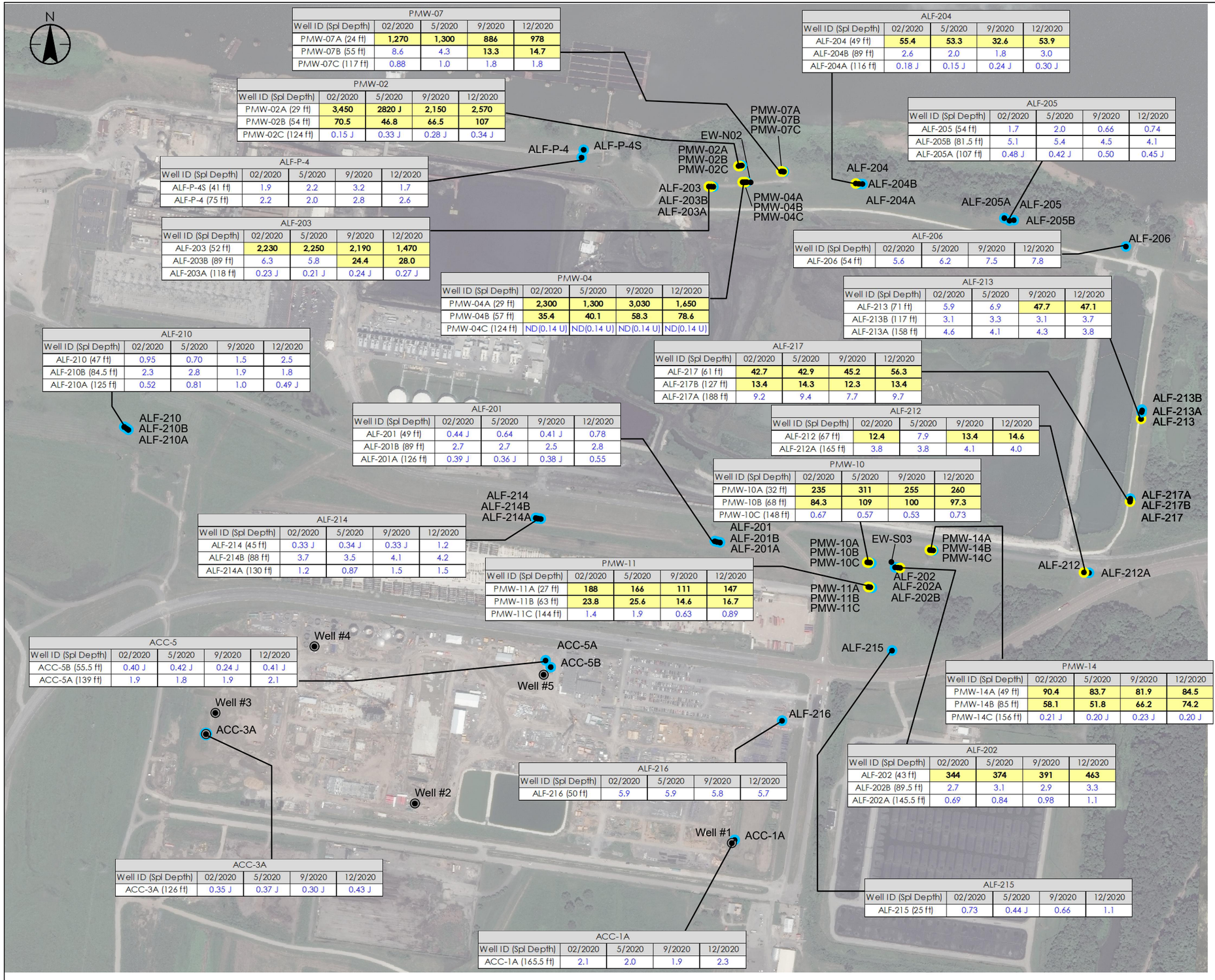
- Upward Vertical Gradient (Feet/Foot)
- No Gradient
- Downward Vertical Gradient (Feet/Foot)



Client/Project
Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

Figure No.
6f

Title
Vertical Gradients
Intermediate to Deep Wells
(December 2020)



PMW-07				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-07A (24 ft)	**1,270**	**1,300**	**886**	**978**
PMW-07B (55 ft)	8.6	4.3	**13.3**	**14.7**
PMW-07C (117 ft)	0.88	1.0	1.8	1.8

PMW-02				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-02A (29 ft)	**3,450**	**2820 J**	**2,150**	**2,570**
PMW-02B (54 ft)	**70.5**	**46.8**	**66.5**	**107**
PMW-02C (124 ft)	0.15 J	0.33 J	0.28 J	0.34 J

ALF-P-4				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-P-4S (41 ft)	1.9	2.2	3.2	1.7
ALF-P-4 (75 ft)	2.2	2.0	2.8	2.6

ALF-203				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-203 (52 ft)	**2,230**	**2,250**	**2,190**	**1,470**
ALF-203B (89 ft)	6.3	5.8	**24.4**	**28.0**
ALF-203A (118 ft)	0.23 J	0.21 J	0.24 J	0.27 J

PMW-04				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-04A (29 ft)	**2,300**	**1,300**	**3,030**	**1,650**
PMW-04B (57 ft)	**35.4**	**40.1**	**58.3**	**78.6**
PMW-04C (124 ft)	ND(0.14 U)	ND(0.14 U)	ND(0.14 U)	ND(0.14 U)

ALF-210				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-210 (47 ft)	0.95	0.70	1.5	2.5
ALF-210B (84.5 ft)	2.3	2.8	1.9	1.8
ALF-210A (125 ft)	0.52	0.81	1.0	0.49 J

ALF-201				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-201 (49 ft)	0.44 J	0.64	0.41 J	0.78
ALF-201B (89 ft)	2.7	2.7	2.5	2.8
ALF-201A (126 ft)	0.39 J	0.36 J	0.38 J	0.55

ALF-214				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-214 (45 ft)	0.33 J	0.34 J	0.33 J	1.2
ALF-214B (88 ft)	3.7	3.5	4.1	4.2
ALF-214A (130 ft)	1.2	0.87	1.5	1.5

PMW-11				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-11A (27 ft)	**188**	**166**	**111**	**147**
PMW-11B (63 ft)	**23.8**	**25.6**	**14.6**	**16.7**
PMW-11C (144 ft)	1.4	1.9	0.63	0.89

ACC-5				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ACC-5B (55.5 ft)	0.40 J	0.42 J	0.24 J	0.41 J
ACC-5A (139 ft)	1.9	1.8	1.9	2.1

ACC-3A				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ACC-3A (126 ft)	0.35 J	0.37 J	0.30 J	0.43 J

ALF-216				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-216 (50 ft)	5.9	5.9	5.8	5.7

ACC-1A				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ACC-1A (165.5 ft)	2.1	2.0	1.9	2.3

ALF-204				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-204 (49 ft)	**55.4**	**53.3**	**32.6**	**53.9**
ALF-204B (89 ft)	2.6	2.0	1.8	3.0
ALF-204A (116 ft)	0.18 J	0.15 J	0.24 J	0.30 J

ALF-205				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-205 (54 ft)	1.7	2.0	0.66	0.74
ALF-205B (81.5 ft)	5.1	5.4	4.5	4.1
ALF-205A (107 ft)	0.48 J	0.42 J	0.50	0.45 J

ALF-206				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-206 (54 ft)	5.6	6.2	7.5	7.8

ALF-213				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-213 (71 ft)	5.9	6.9	**47.7**	**47.1**
ALF-213B (117 ft)	3.1	3.3	3.1	3.7
ALF-213A (158 ft)	4.6	4.1	4.3	3.8

ALF-217				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-217 (61 ft)	**42.7**	**42.9**	**45.2**	**56.3**
ALF-217B (127 ft)	**13.4**	**14.3**	**12.3**	**13.4**
ALF-217A (188 ft)	9.2	9.4	7.7	9.7

ALF-212				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-212 (67 ft)	**12.4**	7.9	**13.4**	**14.6**
ALF-212A (165 ft)	3.8	3.8	4.1	4.0

PMW-10				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-10A (32 ft)	**235**	**311**	**255**	**260**
PMW-10B (68 ft)	**84.3**	**109**	**100**	**97.3**
PMW-10C (148 ft)	0.67	0.57	0.53	0.73

PMW-14				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-14A (49 ft)	**90.4**	**83.7**	**81.9**	**84.5**
PMW-14B (85 ft)	**58.1**	**51.8**	**66.2**	**74.2**
PMW-14C (156 ft)	0.21 J	0.20 J	0.23 J	0.20 J

ALF-202				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-202 (43 ft)	**344**	**374**	**391**	**463**
ALF-202B (89.5 ft)	2.7	3.1	2.9	3.3
ALF-202A (145.5 ft)	0.69	0.84	0.98	1.1

ALF-215				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-215 (25 ft)	0.73	0.44 J	0.66	1.1

Figure No.

7a

Title

Arsenic Groundwater Sample Concentrations from Monitoring Wells (February - December 2020)

Client/Project

TENNESSEE VALLEY AUTHORITY
ALLEN FOSSIL PLANT

0 500' 1000'

Legend

- Groundwater Monitoring Well (Alluvial Aquifer) (ALF-, EW-, and PMW- series wells)
- Production Well (Memphis Aquifer)
- Sample Result is less than MCL of 10 µg/L
- Sample Result is above MCL of 10 µg/L

Well Location ID

PMW-02				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-02A (29 ft)	**3,450**	**2820 J**	**2,150**	**2,570**
PMW-02B (54 ft)	**70.5**	**46.8**	**66.5**	**107**
PMW-02C (124 ft)	0.15 J	0.33 J	0.28 J	0.34 J

Well ID

Sample Depth (in feet)

Concentration Does Not Exceed MCL (µg/L)

Concentration Exceeds MCL (µg/L)

Notes

1. Coordinate System: GCS WGS 1984
2. Imagery provided by TerraServer (2016)
3. Existing monitoring wells are referenced from TVA Drawing 10W858-03 Allen Fossil Plant Reservation
4. Concentrations are reported in micrograms per liter (µg/L)
5. The coloration of the well symbols (blue or yellow) on the map is based on the most recent round of groundwater analytical data as compared to the MCL
6. Analytical Results derived from unfiltered samples
7. ND - Non-Detect
8. U - The analyte was not detected above the indicated reporting limit
9. J - The result is estimated
10. U* - The analyte was detected in an associated blank
11. UJ - The analyte was not detected above the estimated reporting limit

Stantec

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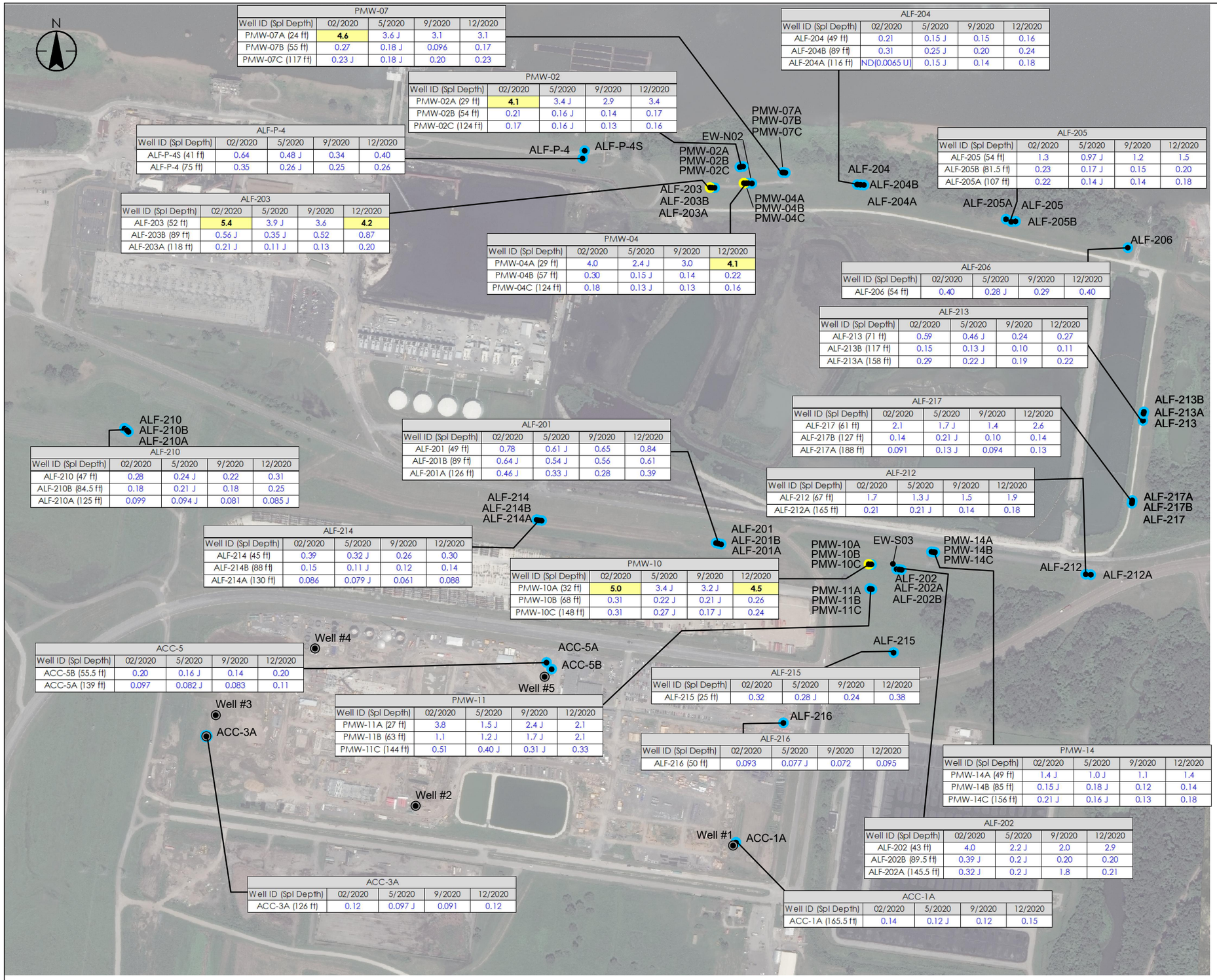

PMW-07				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-07A (24 ft)	**4.6**	3.6 J	3.1	3.1
PMW-07B (55 ft)	0.27	0.18 J	0.096	0.17
PMW-07C (117 ft)	0.23 J	0.18 J	0.20	0.23

PMW-02				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-02A (29 ft)	**4.1**	3.4 J	2.9	3.4
PMW-02B (54 ft)	0.21	0.16 J	0.14	0.17
PMW-02C (124 ft)	0.17	0.16 J	0.13	0.16

ALF-204				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-204 (49 ft)	0.21	0.15 J	0.15	0.16
ALF-204B (89 ft)	0.31	0.25 J	0.20	0.24
ALF-204A (116 ft)	ND(0.0065 U)	0.15 J	0.14	0.18

ALF-P-4				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-P-4S (41 ft)	0.64	0.48 J	0.34	0.40
ALF-P-4 (75 ft)	0.35	0.26 J	0.25	0.26

ALF-205				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-205 (54 ft)	1.3	0.97 J	1.2	1.5
ALF-205B (81.5 ft)	0.23	0.17 J	0.15	0.20
ALF-205A (107 ft)	0.22	0.14 J	0.14	0.18

ALF-203				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-203 (52 ft)	**5.4**	3.9 J	3.6	**4.2**
ALF-203B (89 ft)	0.56 J	0.35 J	0.52	0.87
ALF-203A (118 ft)	0.21 J	0.11 J	0.13	0.20

PMW-04				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-04A (29 ft)	4.0	2.4 J	3.0	**4.1**
PMW-04B (57 ft)	0.30	0.15 J	0.14	0.22
PMW-04C (124 ft)	0.18	0.13 J	0.13	0.16

ALF-206				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-206 (54 ft)	0.40	0.28 J	0.29	0.40

ALF-213				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-213 (71 ft)	0.59	0.46 J	0.24	0.27
ALF-213B (117 ft)	0.15	0.13 J	0.10	0.11
ALF-213A (158 ft)	0.29	0.22 J	0.19	0.22

ALF-217				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-217 (61 ft)	2.1	1.7 J	1.4	2.6
ALF-217B (127 ft)	0.14	0.21 J	0.10	0.14
ALF-217A (188 ft)	0.091	0.13 J	0.094	0.13

ALF-210				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-210 (47 ft)	0.28	0.24 J	0.22	0.31
ALF-210B (84.5 ft)	0.18	0.21 J	0.18	0.25
ALF-210A (125 ft)	0.099	0.094 J	0.081	0.085 J

ALF-201				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-201 (49 ft)	0.78	0.61 J	0.65	0.84
ALF-201B (89 ft)	0.64 J	0.54 J	0.56	0.61
ALF-201A (126 ft)	0.46 J	0.33 J	0.28	0.39

ALF-212				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-212 (67 ft)	1.7	1.3 J	1.5	1.9
ALF-212A (165 ft)	0.21	0.21 J	0.14	0.18

ALF-214				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-214 (45 ft)	0.39	0.32 J	0.26	0.30
ALF-214B (88 ft)	0.15	0.11 J	0.12	0.14
ALF-214A (130 ft)	0.086	0.079 J	0.061	0.088

PMW-10				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-10A (32 ft)	**5.0**	3.4 J	3.2 J	**4.5**
PMW-10B (68 ft)	0.31	0.22 J	0.21 J	0.26
PMW-10C (148 ft)	0.31	0.27 J	0.17 J	0.24

ACC-5				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ACC-5B (55.5 ft)	0.20	0.16 J	0.14	0.20
ACC-5A (139 ft)	0.097	0.082 J	0.083	0.11

PMW-11				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-11A (27 ft)	3.8	1.5 J	2.4 J	2.1
PMW-11B (63 ft)	1.1	1.2 J	1.7 J	2.1
PMW-11C (144 ft)	0.51	0.40 J	0.31 J	0.33

ALF-215				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-215 (25 ft)	0.32	0.28 J	0.24	0.38

ALF-216				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-216 (50 ft)	0.093	0.077 J	0.072	0.095

PMW-14				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-14A (49 ft)	1.4 J	1.0 J	1.1	1.4
PMW-14B (85 ft)	0.15 J	0.18 J	0.12	0.14
PMW-14C (156 ft)	0.21 J	0.16 J	0.13	0.18

ALF-202				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-202 (43 ft)	4.0	2.2 J	2.0	2.9
ALF-202B (89.5 ft)	0.39 J	0.2 J	0.20	0.20
ALF-202A (145.5 ft)	0.32 J	0.2 J	1.8	0.21

ACC-3A				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ACC-3A (126 ft)	0.12	0.097 J	0.091	0.12

ACC-1A				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ACC-1A (165.5 ft)	0.14	0.12 J	0.12	0.15

Figure No.

7b

Title

Fluoride Groundwater Sample Concentrations from Monitoring Wells (February - December 2020)

Client/Project

TENNESSEE VALLEY AUTHORITY
ALLEN FOSSIL PLANT

0 500' 1000'

Legend

- Groundwater Monitoring Well (Alluvial Aquifer) (ALF-, EW-, and PMW- series wells)
- Production Well (Memphis Aquifer)
- Sample Result is less than MCL of 4 mg/L
- Sample Result is above MCL of 4 mg/L

Well Location ID

ALF-203				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-203 (52 ft)	**5.4**	3.9 J	3.6	**4.2**
ALF-203B (89 ft)	0.56 J	0.35 J	0.52	0.87
ALF-203A (118 ft)	0.21 J	0.11 J	0.13	0.20

Well ID

Sample Depth (in feet)

Concentration Does Not Exceed MCL (mg/L)

Concentration Exceeds MCL (mg/L)

Notes

1. Coordinate System: GCS WGS 1984
2. Imagery provided by TerraServer (2016)
3. Existing monitoring wells are referenced from TVA Drawing 10W858-03 Allen Fossil Plant Reservation
4. Concentrations are reported in milligrams per liter (mg/L)
5. The coloration of the well symbols (blue or yellow) on the map is based on the most recent round of groundwater analytical data as compared to the MCL
6. Analytical Results derived from unfiltered samples
7. ND - Non-Detect
8. U - The analyte was not detected above the indicated reporting limit
9. J - The result is estimated
10. U* - The analyte was detected in an associated blank
11. UJ - The analyte was not detected above the estimated reporting limit

Stantec

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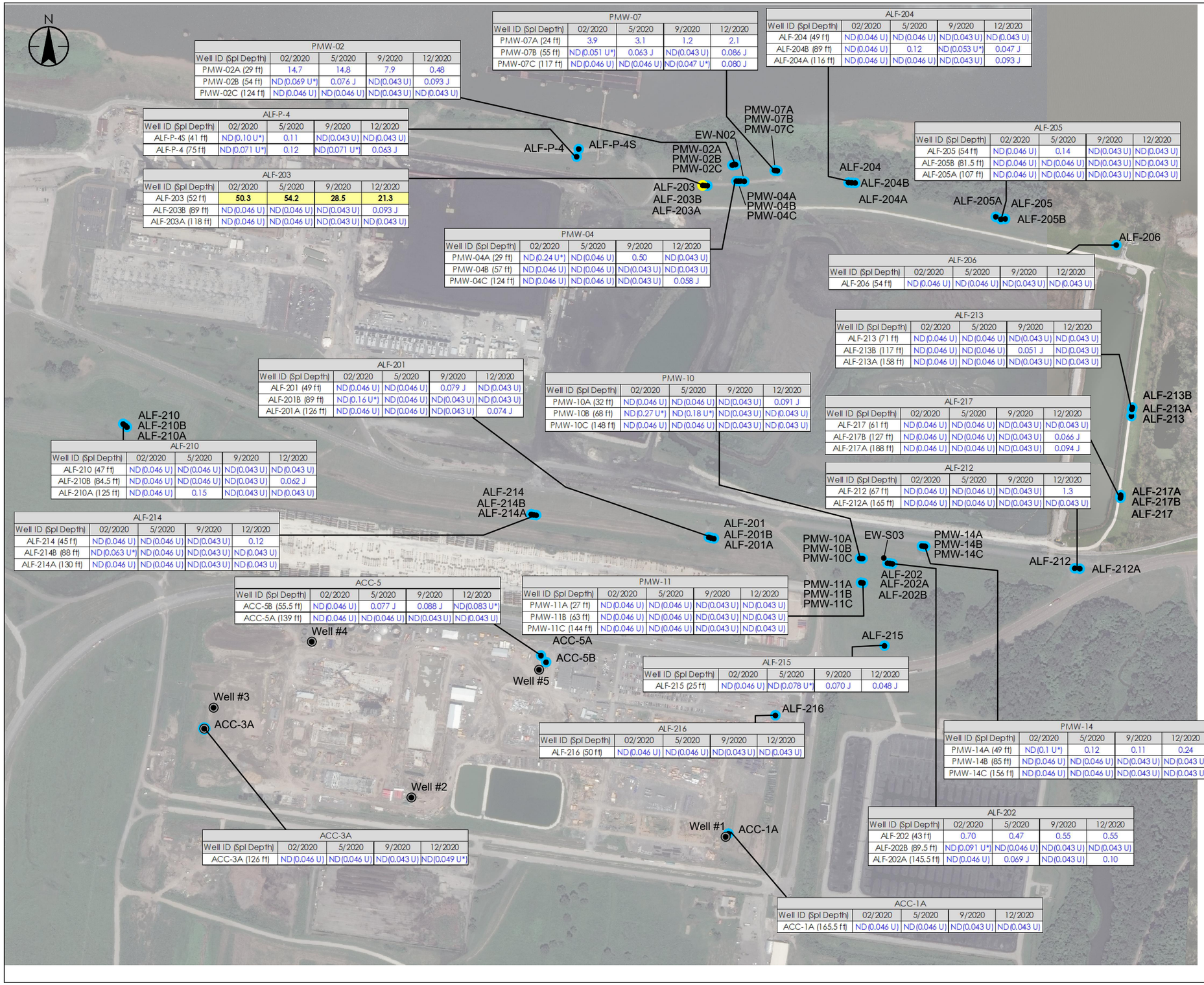

PMW-02				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-02A (29 ft)	14.7	14.8	7.9	0.48
PMW-02B (54 ft)	ND (0.069 U*)	0.076 J	ND (0.043 U)	0.093 J
PMW-02C (124 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)

PMW-07				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-07A (24 ft)	3.9	3.1	1.2	2.1
PMW-07B (55 ft)	ND (0.051 U*)	0.063 J	ND (0.043 U)	0.086 J
PMW-07C (117 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.047 U*)	0.080 J

ALF-204				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-204 (49 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)
ALF-204B (89 ft)	ND (0.046 U)	0.12	ND (0.053 U*)	0.047 J
ALF-204A (116 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	0.093 J

ALF-P-4				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-P-4S (41 ft)	ND (0.10 U*)	0.11	ND (0.043 U)	ND (0.043 U)
ALF-P-4 (75 ft)	ND (0.071 U*)	0.12	ND (0.071 U*)	0.063 J

ALF-205				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-205 (54 ft)	ND (0.046 U)	0.14	ND (0.043 U)	ND (0.043 U)
ALF-205B (81.5 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)
ALF-205A (107 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)

ALF-203				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-203 (52 ft)	**50.3**	**54.2**	**28.5**	**21.3**
ALF-203B (89 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	0.093 J
ALF-203A (118 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)

PMW-04				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-04A (29 ft)	ND (0.24 U*)	ND (0.046 U)	0.50	ND (0.043 U)
PMW-04B (57 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)
PMW-04C (124 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	0.058 J

ALF-206				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-206 (54 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)

ALF-213				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-213 (71 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)
ALF-213B (117 ft)	ND (0.046 U)	ND (0.046 U)	0.051 J	ND (0.043 U)
ALF-213A (158 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)

ALF-201				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-201 (49 ft)	ND (0.046 U)	ND (0.046 U)	0.079 J	ND (0.043 U)
ALF-201B (89 ft)	ND (0.16 U*)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)
ALF-201A (126 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	0.074 J

PMW-10				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-10A (32 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	0.091 J
PMW-10B (68 ft)	ND (0.27 U*)	ND (0.18 U*)	ND (0.043 U)	ND (0.043 U)
PMW-10C (148 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)

ALF-217				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-217 (61 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)
ALF-217B (127 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	0.066 J
ALF-217A (188 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	0.094 J

ALF-212				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-212 (67 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	1.3
ALF-212A (165 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)

ALF-210				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-210 (47 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)
ALF-210B (84.5 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	0.062 J
ALF-210A (125 ft)	ND (0.046 U)	0.15	ND (0.043 U)	ND (0.043 U)

ALF-214				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-214 (45 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	0.12
ALF-214B (88 ft)	ND (0.063 U*)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)
ALF-214A (130 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)

ACC-5				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ACC-5B (55.5 ft)	ND (0.046 U)	0.077 J	0.088 J	ND (0.083 U*)
ACC-5A (139 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)

PMW-11				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-11A (27 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)
PMW-11B (63 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)
PMW-11C (144 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)

ALF-215				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-215 (25 ft)	ND (0.046 U)	ND (0.078 U*)	0.070 J	0.048 J

ALF-216				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-216 (50 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)

PMW-14				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-14A (49 ft)	ND (0.1 U*)	0.12	0.11	0.24
PMW-14B (85 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)
PMW-14C (156 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)

ACC-3A				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ACC-3A (126 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.049 U*)

ALF-202				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-202 (43 ft)	0.70	0.47	0.55	0.55
ALF-202B (89.5 ft)	ND (0.091 U*)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)
ALF-202A (145.5 ft)	ND (0.046 U)	0.069 J	ND (0.043 U)	0.10

ACC-1A				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ACC-1A (165.5 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)

Figure No.

7c

Title

Lead Groundwater Sample Concentrations from Monitoring Wells (February - December 2020)

Client/Project

TENNESSEE VALLEY AUTHORITY
ALLEN FOSSIL PLANT

0 500' 1000'

Legend

- Groundwater Monitoring Well (Alluvial Aquifer) (ALF-, EW-, and PMW- series wells)
- Production Well (Memphis Aquifer)
- Sample Result is less than MCL of 15 µg/L
- Sample Result is above MCL of 15 µg/L

Well Location ID

ALF-203				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-203 (52 ft)	**50.3**	**54.2**	**28.5**	**21.3**
ALF-203B (89 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	0.093 J
ALF-203A (118 ft)	ND (0.046 U)	ND (0.046 U)	ND (0.043 U)	ND (0.043 U)

Well ID

Sample Depth (in feet)

Concentration Does Not Exceed MCL (µg/L)

Concentration Exceeds MCL (µg/L)

Notes

1. Coordinate System: GCS WGS 1984
2. Imagery provided by TerraServer (2016)
3. Existing monitoring wells are referenced from TVA Drawing 10W858-03 Allen Fossil Plant Reservation
4. Concentrations are reported in micrograms per liter (µg/L)
5. The coloration of the well symbols (blue or yellow) on the map is based on the most recent round of groundwater analytical data as compared to the MCL
6. Analytical Results derived from unfiltered samples
7. ND - Non-Detect
8. U - The analyte was not detected above the indicated reporting limit
9. J - The result is estimated
10. U* - The analyte was detected in an associated blank
11. UJ - The analyte was not detected above the estimated reporting limit

Stantec

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2021/01/29 1:09 PM By: Nolan, Vincent

PMW-02				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-02A (29 ft)	**10.0 J**	**10.2 J**	**10.1 J**	7.7 J
PMW-02B (54 ft)	7.4 J	7.3 J	7.2 J	7.1 J
PMW-02C (124 ft)	7.3 J	7.3 J	7.0 J	7.0 J

ALF-P-4				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-P-4S (41 ft)	7.3 J	7.3 J	7.1 J	7.0 J
ALF-P-4 (75 ft)	7.3 J	7.1 J	7.2 J	7.1 J

ALF-203				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-203 (52 ft)	**9.8 J**	**9.8 J**	**10.1 J**	**10.1 J**
ALF-203B (89 ft)	7.1 J	7.1 J	7.2 J	7.0 J
ALF-203A (118 ft)	6.6 J	6.9 J	7.0 J	6.9 J

PMW-04				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-04A (29 ft)	7.6 J	7.7 J	7.7 J	7.3 J
PMW-04B (57 ft)	7.1 J	7.7 J	7.0 J	7.0 J
PMW-04C (124 ft)	6.8 J	7.0 J	7.1 J	7.1 J

ALF-210				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-210 (47 ft)	6.8 J	6.8 J	7.3 J	6.8 J
ALF-210B (84.5 ft)	6.9 J	6.7 J	7.0 J	6.9 J
ALF-210A (125 ft)	7.0 J	7.1 J	7.1 J	6.8 J

PMW-10				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-10A (32 ft)	7.5 J	7.3 J	7.7 J	7.4 J
PMW-10B (68 ft)	7.3 J	6.9 J	7.6 J	7.0 J
PMW-10C (148 ft)	7.1 J	6.6 J	7.4 J	6.8 J

ALF-201				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-201 (49 ft)	7.2 J	7.2 J	7.1 J	7.1 J
ALF-201B (89 ft)	7.2 J	7.1 J	7.1 J	7.0 J
ALF-201A (126 ft)	7.4 J	7.2 J	7.2 J	7.1 J

ALF-214				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-214 (45 ft)	7.1 J	7.0 J	7.7 J	7.0 J
ALF-214B (88 ft)	6.7 J	6.7 J	6.8 J	6.7 J
ALF-214A (130 ft)	6.6 J	6.4 J	6.6 J	6.5 J

PMW-11				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-11A (27 ft)	7.5 J	7.4 J	7.2 J	8.0 J
PMW-11B (63 ft)	7.2 J	7.4 J	7.2 J	7.2 J
PMW-11C (144 ft)	7.3 J	7.1 J	7.2 J	7.0 J

ACC-5				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ACC-5B (55.5 ft)	6.8 J	6.8 J	7.1 J	6.8 J
ACC-5A (139 ft)	6.7 J	6.9 J	7.3 J	6.6 J

ALF-215				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-215 (25 ft)	7.4 J	7.2 J	7.5 J	7.0 J

ALF-216				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-216 (50 ft)	7.0 J	6.7 J	7.1 J	6.7 J

ACC-3A				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ACC-3A (126 ft)	6.9 J	6.8 J	7.0 J	6.7 J

ACC-1A				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ACC-1A (165.5 ft)	6.9 J	6.9 J	7.2 J	6.7 J

PMW-07				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-07A (24 ft)	**8.8 J**	**9.4 J**	**9.4 J**	**9.3 J**
PMW-07B (55 ft)	7.0 J	7.0 J	7.1 J	6.9 J
PMW-07C (117 ft)	6.9 J	7.3 J	7.1 J	6.8 J

ALF-204				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-204 (49 ft)	7.0 J	7.4 J	7.2 J	7.0 J
ALF-204B (89 ft)	6.7 J	7.4 J	7.1 J	7.0 J
ALF-204A (116 ft)	7.0 J	7.3 J	7.1 J	7.0 J

ALF-205				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-205 (54 ft)	7.2 J	7.2 J	7.4 J	7.1 J
ALF-205B (81.5 ft)	6.9 J	7.1 J	7.1 J	6.9 J
ALF-205A (107 ft)	6.8 J	7.3 J	7.0 J	6.9 J

ALF-206				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-206 (54 ft)	7.0 J	7.5 J	7.6 J	6.9 J

ALF-213				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-213 (71 ft)	7.2 J	7.2 J	7.2 J	6.9 J
ALF-213B (117 ft)	7.0 J	7.3 J	7.0 J	6.9 J
ALF-213A (158 ft)	7.0 J	6.8 J	6.9 J	6.8 J

ALF-217				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-217 (61 ft)	7.1 J	7.3 J	7.1 J	7.2 J
ALF-217B (127 ft)	6.8 J	7.0 J	6.9 J	6.9 J
ALF-217A (188 ft)	7.0 J	7.0 J	6.7 J	6.6 J

ALF-212				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-212 (67 ft)	6.8 J	6.9 J	7.2 J	7.1 J
ALF-212A (165 ft)	7.1 J	6.8 J	7.0 J	6.7 J

PMW-14				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-14A (49 ft)	7.0 J	7.2 J	7.2 J	7.0 J
PMW-14B (85 ft)	7.0 J	7.1 J	6.9 J	6.8 J
PMW-14C (156 ft)	6.9 J	6.9 J	6.9 J	6.7 J

ALF-202				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-202 (43 ft)	7.5 J	7.6 J	7.7 J	7.6 J
ALF-202B (89.5 ft)	7.4 J	7.2 J	7.0 J	6.9 J
ALF-202A (145.5 ft)	7.1 J	7.4 J	7.0 J	6.9 J

Figure No.

7d

Title

pH Measurements from Groundwater Samples from Monitoring Wells (February - December 2020)

Client/Project

TENNESSEE VALLEY AUTHORITY
ALLEN FOSSIL PLANT

0 500' 1000'

Legend

- Groundwater Monitoring Well (Alluvial Aquifer) (ALF-, EW-, and PMW- series wells)
- Production Well (Memphis Aquifer)
- pH Less Than 8.0 (pH Screening Level)
- pH Greater Than 8.0 (pH Screening Level)

Laboratory-measured pH values in Standard Units (S.U.) are estimated due to hold time and are indicated by the J qualifier. Field-measured pH values in Standard Units (S.U.) are in italics

Well Location ID

ALF-203				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-203 (52 ft)	**9.8 J**	**9.8 J**	**10.1 J**	**10.1 J**
ALF-203B (89 ft)	7.1 J	7.1 J	7.2 J	7.0 J
ALF-203A (118 ft)	6.6 J	6.9 J	7.0 J	6.9 J

Well ID

Sample Depth (in feet)

Concentration Does Not Exceed Screening Level (s.u.)

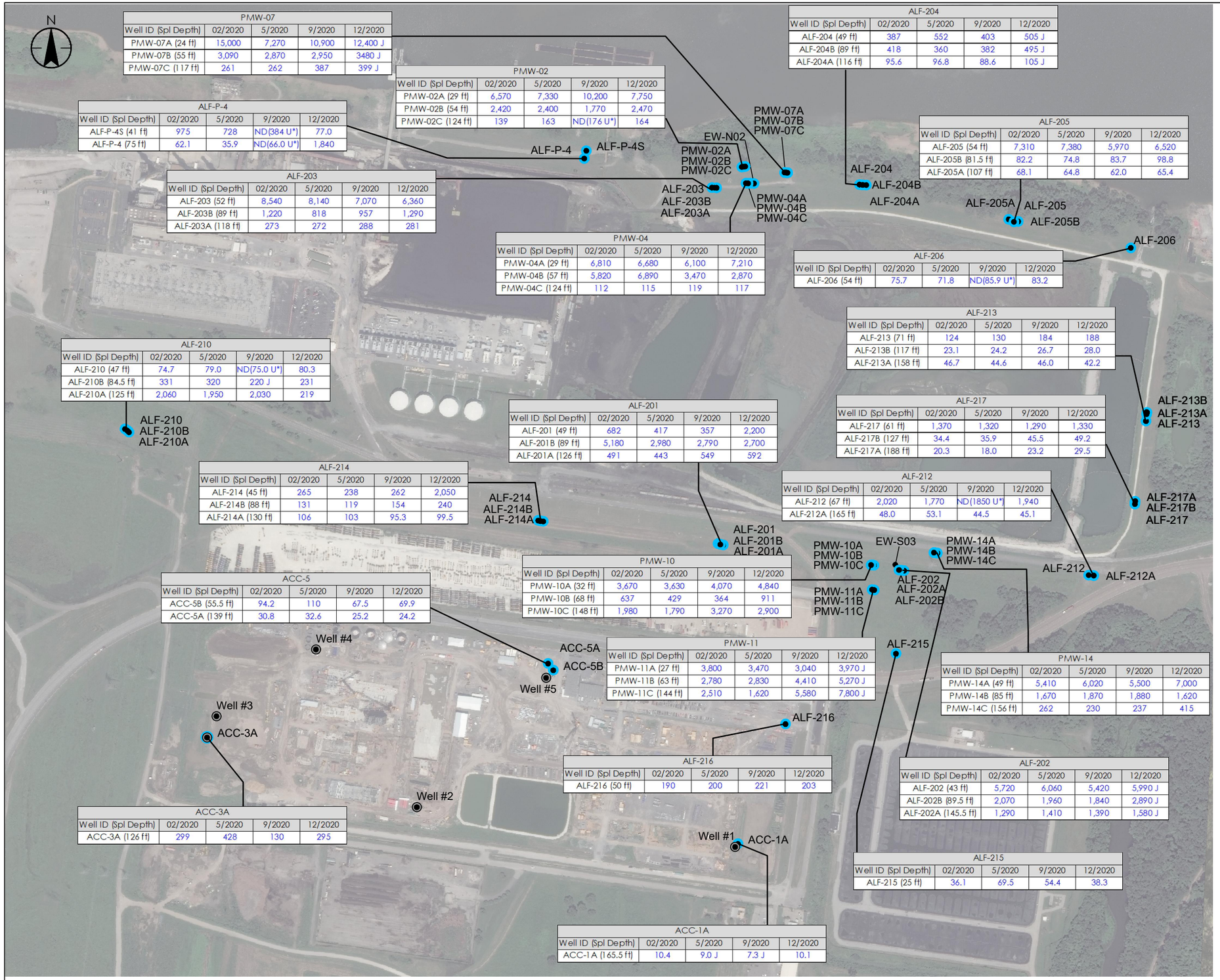
Concentration Exceeds Screening Level (s.u)

Notes

1. Coordinate System: GCS WGS 1984
2. Imagery provided by TerraServer (2016)
3. Existing monitoring wells are referenced from TVA Drawing 10W858-03 Allen Fossil Plant Reservation
4. The coloration of the well symbols (blue or yellow) on the map is based on the most recent round of groundwater analytical data
5. Analytical results derived from unfiltered samples

Stantec

U:\213402945\TVA\TVA - Allen\2020 RI Quarterly Monitoring Reports\CADD\2020 ANNL RPT-pH In GW Results Map.dwg
2021/01/29 1:12 PM By: Nolan, Vincent



PMW-07				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-07A (24 ft)	15,000	7,270	10,900	12,400 J
PMW-07B (55 ft)	3,090	2,870	2,950	3480 J
PMW-07C (117 ft)	261	262	387	399 J

PMW-02				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-02A (29 ft)	6,570	7,330	10,200	7,750
PMW-02B (54 ft)	2,420	2,400	1,770	2,470
PMW-02C (124 ft)	139	163	ND(176 U*)	164

ALF-204				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-204 (49 ft)	387	552	403	505 J
ALF-204B (89 ft)	418	360	382	495 J
ALF-204A (116 ft)	95.6	96.8	88.6	105 J

ALF-P-4				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-P-4S (41 ft)	975	728	ND(384 U*)	77.0
ALF-P-4 (75 ft)	62.1	35.9	ND(66.0 U*)	1,840

ALF-205				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-205 (54 ft)	7,310	7,380	5,970	6,520
ALF-205B (81.5 ft)	82.2	74.8	83.7	98.8
ALF-205A (107 ft)	68.1	64.8	62.0	65.4

ALF-203				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-203 (52 ft)	8,540	8,140	7,070	6,360
ALF-203B (89 ft)	1,220	818	957	1,290
ALF-203A (118 ft)	273	272	288	281

PMW-04				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-04A (29 ft)	6,810	6,680	6,100	7,210
PMW-04B (57 ft)	5,820	6,890	3,470	2,870
PMW-04C (124 ft)	112	115	119	117

ALF-206				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-206 (54 ft)	75.7	71.8	ND(85.9 U*)	83.2

ALF-213				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-213 (71 ft)	124	130	184	188
ALF-213B (117 ft)	23.1	24.2	26.7	28.0
ALF-213A (158 ft)	46.7	44.6	46.0	42.2

ALF-210				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-210 (47 ft)	74.7	79.0	ND(75.0 U*)	80.3
ALF-210B (84.5 ft)	331	320	220 J	231
ALF-210A (125 ft)	2,060	1,950	2,030	219

ALF-201				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-201 (49 ft)	682	417	357	2,200
ALF-201B (89 ft)	5,180	2,980	2,790	2,700
ALF-201A (126 ft)	491	443	549	592

ALF-217				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-217 (61 ft)	1,370	1,320	1,290	1,330
ALF-217B (127 ft)	34.4	35.9	45.5	49.2
ALF-217A (188 ft)	20.3	18.0	23.2	29.5

ALF-214				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-214 (45 ft)	265	238	262	2,050
ALF-214B (88 ft)	131	119	154	240
ALF-214A (130 ft)	106	103	95.3	99.5

ALF-212				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-212 (67 ft)	2,020	1,770	ND(1850 U*)	1,940
ALF-212A (165 ft)	48.0	53.1	44.5	45.1

PMW-10				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-10A (32 ft)	3,670	3,630	4,070	4,840
PMW-10B (68 ft)	637	429	364	911
PMW-10C (148 ft)	1,980	1,790	3,270	2,900

ACC-5				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ACC-5B (55.5 ft)	94.2	110	67.5	69.9
ACC-5A (139 ft)	30.8	32.6	25.2	24.2

PMW-11				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-11A (27 ft)	3,800	3,470	3,040	3,970 J
PMW-11B (63 ft)	2,780	2,830	4,410	5,270 J
PMW-11C (144 ft)	2,510	1,620	5,580	7,800 J

PMW-14				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
PMW-14A (49 ft)	5,410	6,020	5,500	7,000
PMW-14B (85 ft)	1,670	1,870	1,880	1,620
PMW-14C (156 ft)	262	230	237	415

ALF-216				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-216 (50 ft)	190	200	221	203

ALF-202				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-202 (43 ft)	5,720	6,060	5,420	5,990 J
ALF-202B (89.5 ft)	2,070	1,960	1,840	2,890 J
ALF-202A (145.5 ft)	1,290	1,410	1,390	1,580 J

ACC-3A				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ACC-3A (126 ft)	299	428	130	295

ALF-215				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-215 (25 ft)	36.1	69.5	54.4	38.3

ACC-1A				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ACC-1A (165.5 ft)	10.4	9.0 J	7.3 J	10.1

Figure No.

7e

Title

Boron Groundwater Sample Concentrations from Monitoring Wells (February - December 2020)

Client/Project

TENNESSEE VALLEY AUTHORITY
ALLEN FOSSIL PLANT

0 500' 1000'

Legend

- Groundwater Monitoring Well (Alluvial Aquifer) (ALF-, EW-, and PMW- series wells)
- Production Well (Memphis Aquifer)
- No MCL has been established for this constituent

Well Location ID

ALF-203				
Well ID (Spl Depth)	02/2020	5/2020	9/2020	12/2020
ALF-203 (52 ft)	8,540	8,140	7,070	6,360
ALF-203B (89 ft)	1,220	818	957	1,290
ALF-203A (118 ft)	273	272	288	281

Well ID

Sample Depth (in feet)

Notes

1. Coordinate System: GCS WGS 1984
2. Imagery provided by TerraServer (2016)
3. Existing monitoring wells are referenced from TVA Drawing 10W858-03 Allen Fossil Plant Reservation
4. Concentrations are reported in micrograms per liter (µg/L)
5. Analytical Results derived from unfiltered samples
6. ND - Non-Detect
7. U - The analyte was not detected above the indicated reporting limit
8. J - The result is estimated
9. U* - The analyte was detected in an associated blank
10. UJ - The analyte was not detected above the estimated reporting limit

Stantec

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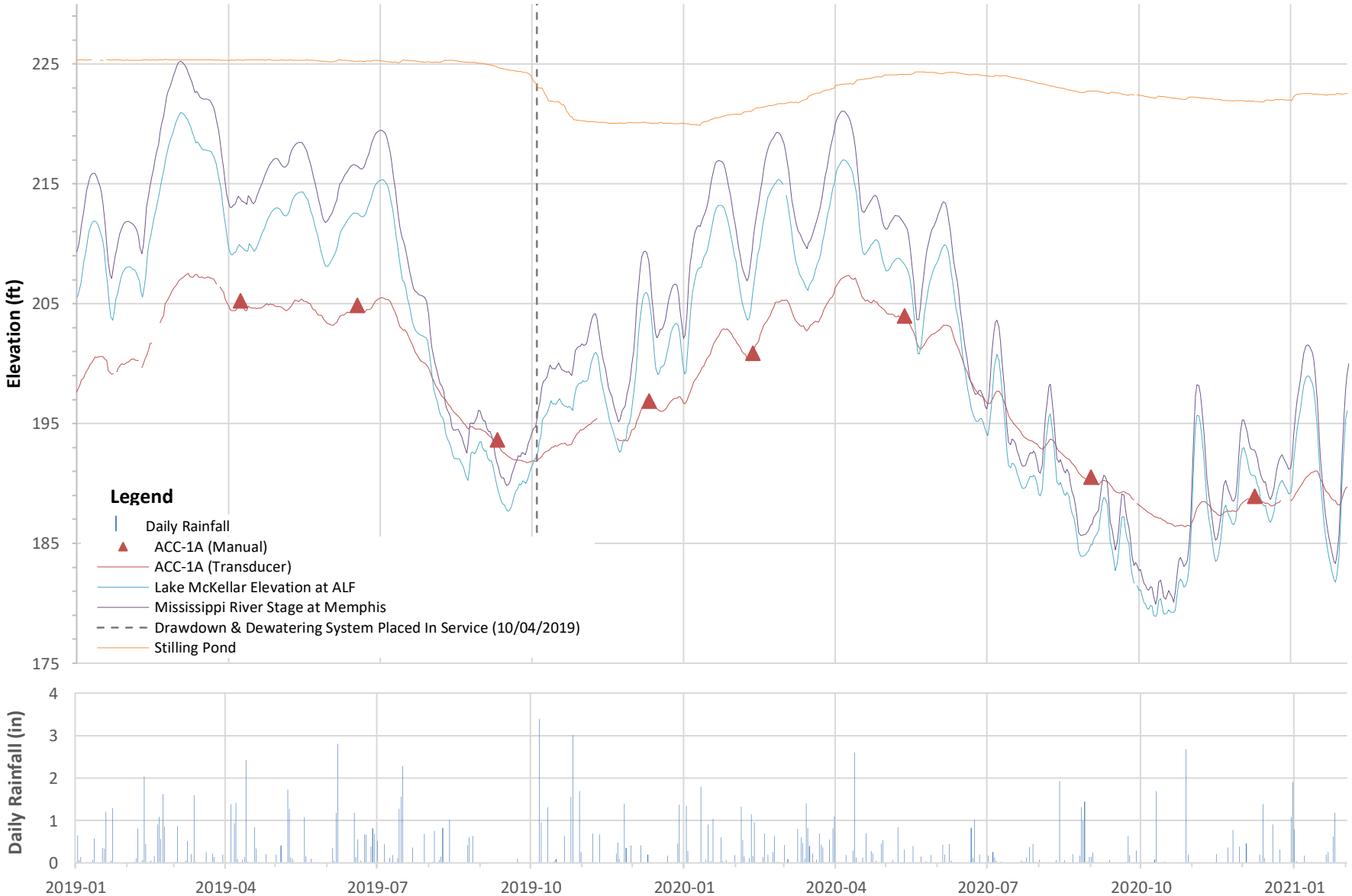
APPENDIX A
2020 TVA ALLEN
MONITORING WELL HYDROGRAPHS



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority

Allen Fossil Plant (ALF)

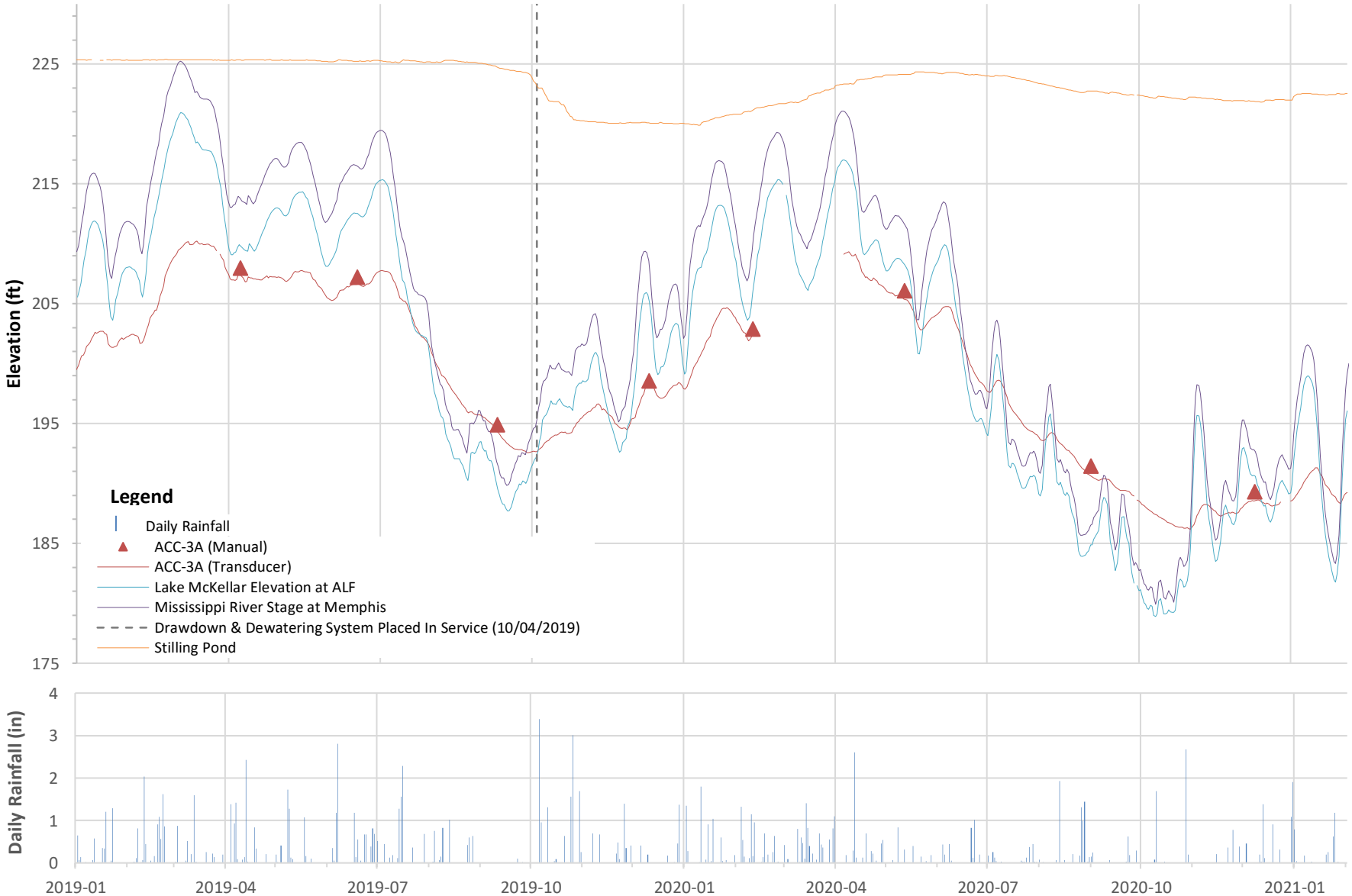
Stantec

Figure/Well No.

1 **ACC-1A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

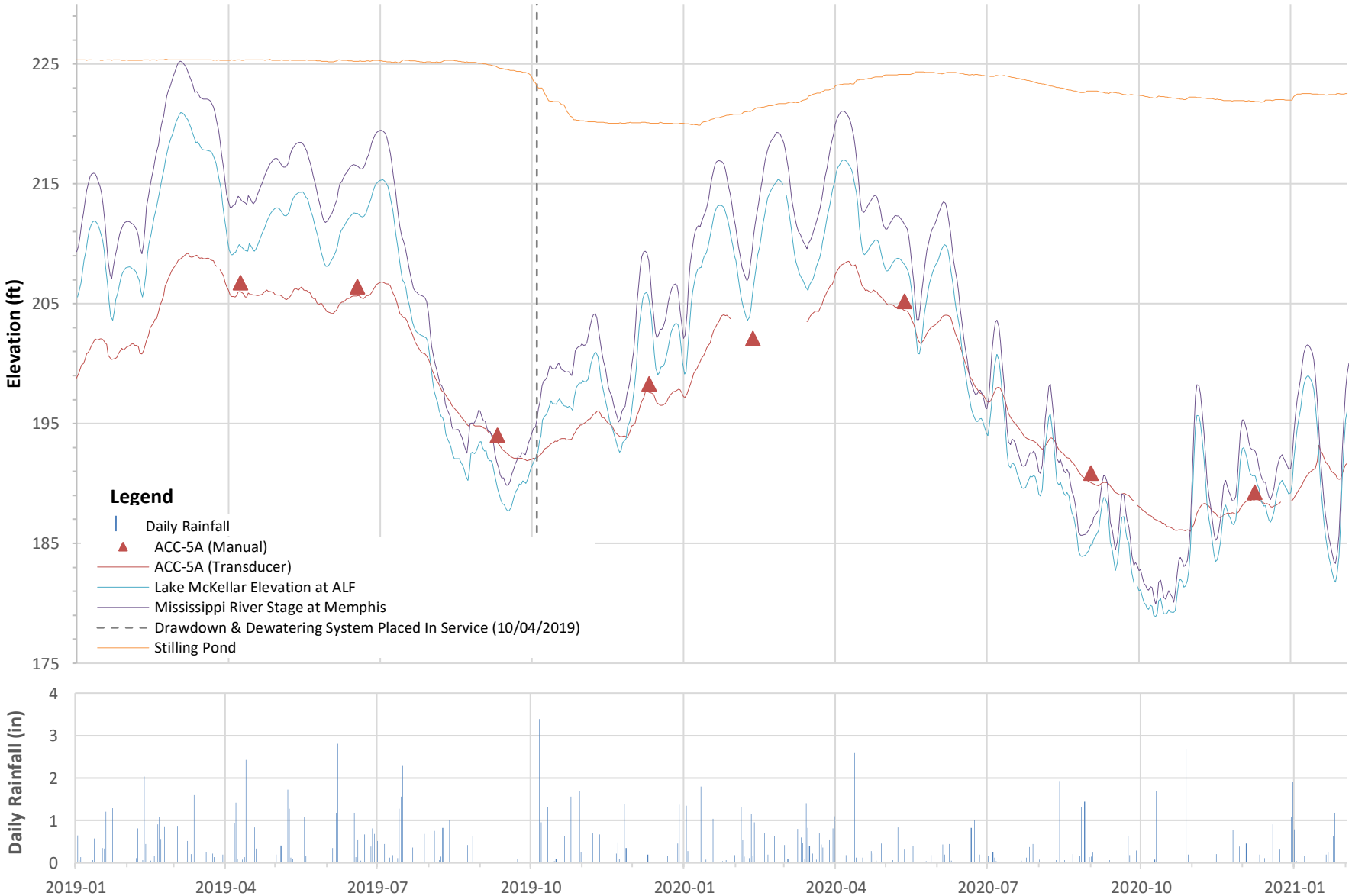
Stantec

Figure/Well No.

2 **ACC-3A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

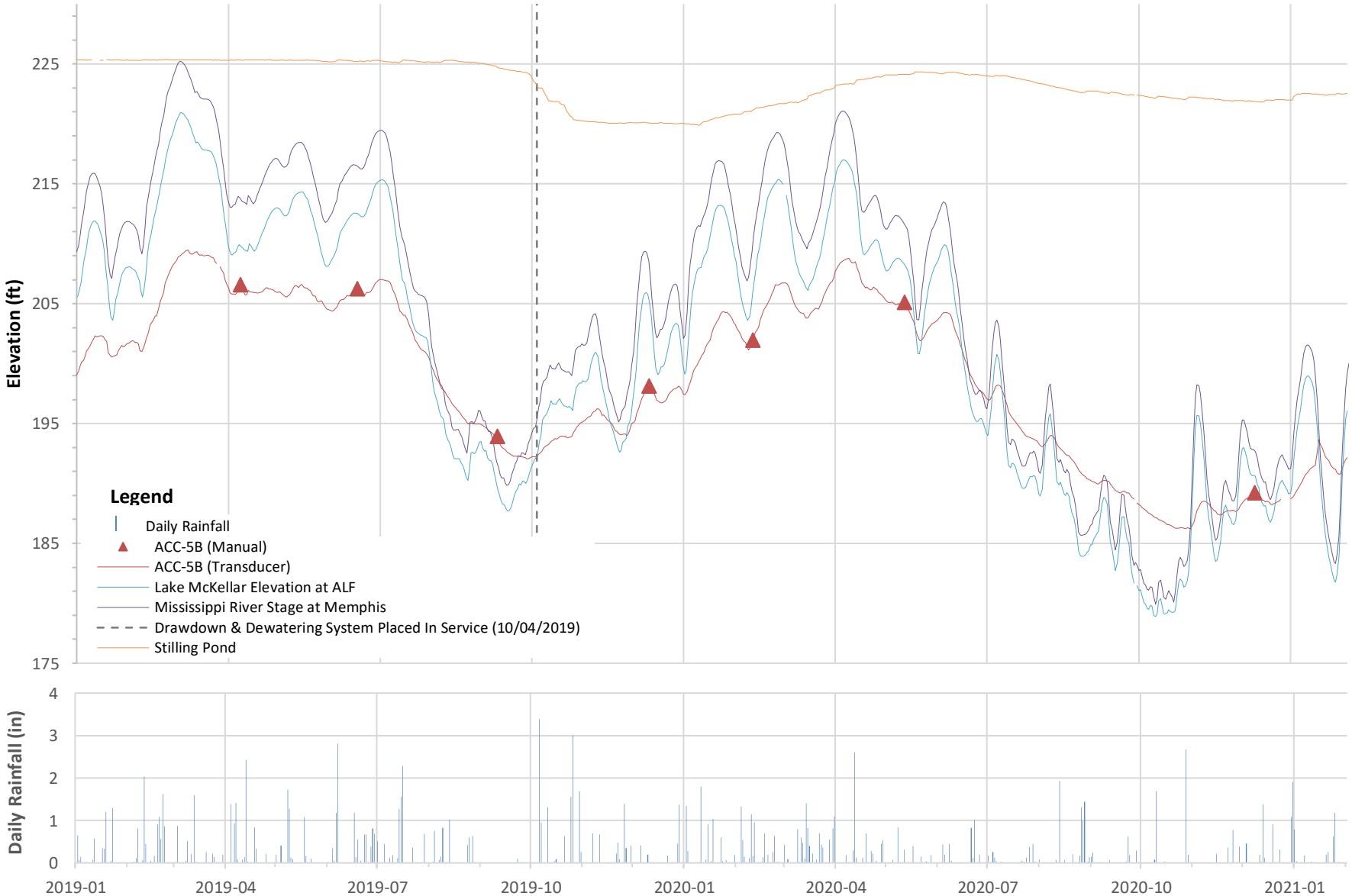
Stantec

Figure/Well No.

3 **ACC-5A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

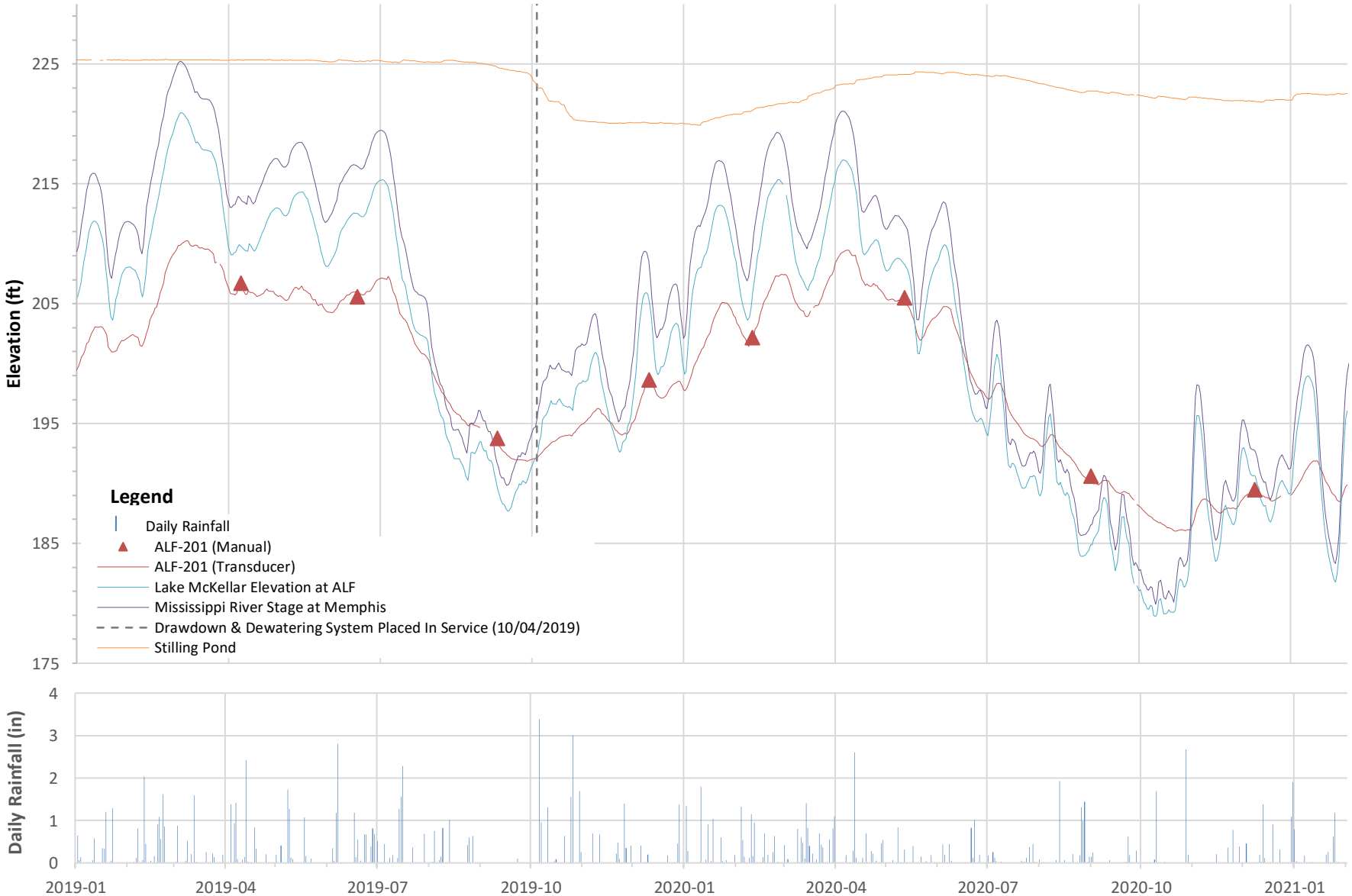
Stantec

Figure/Well No.

4 **ACC-5B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period or that anomalous data points were removed upon data review. Anomalous data filtered from the data set for this well include: 3/17/2020.

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

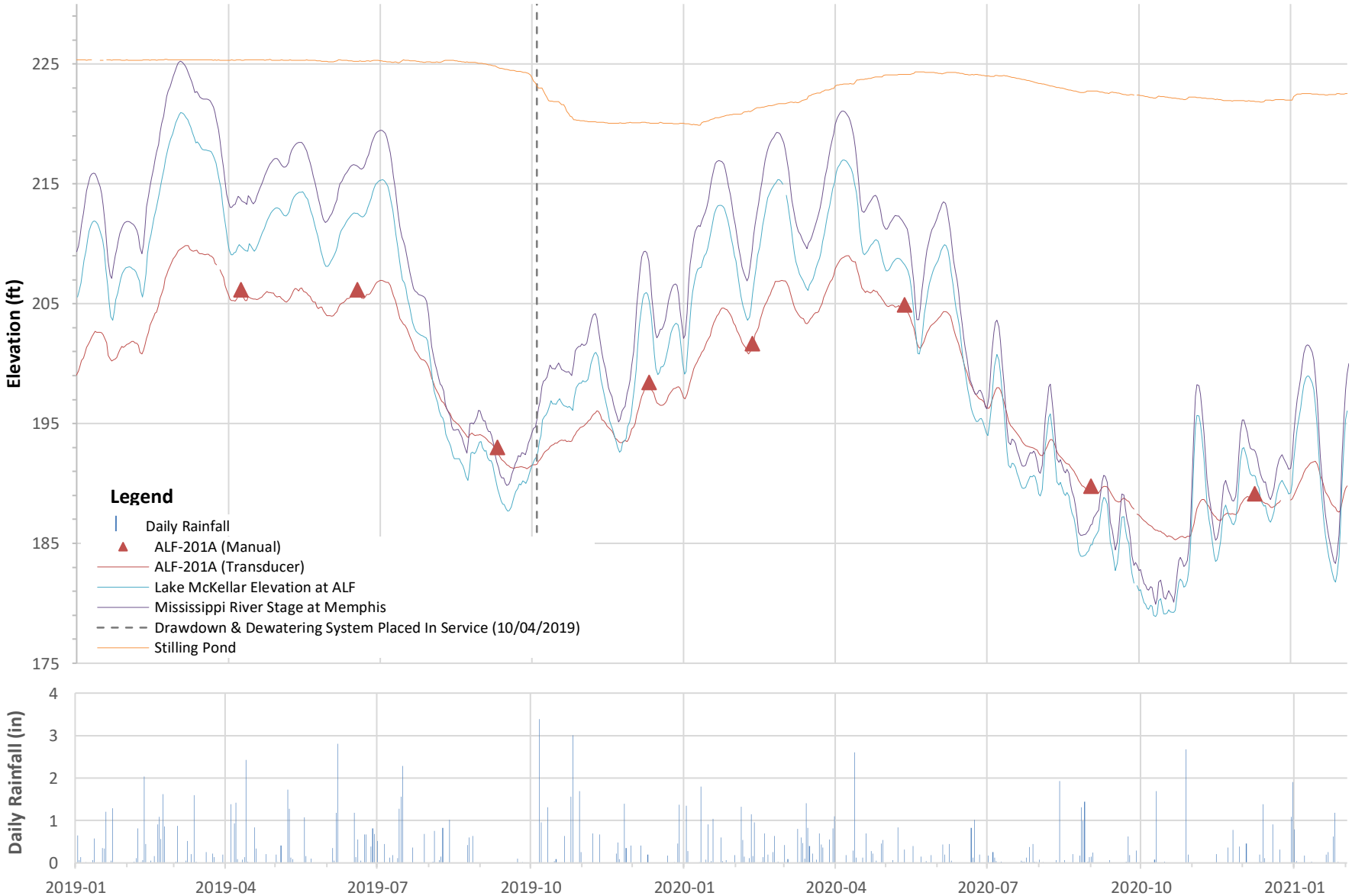
Stantec

Figure/Well No.

5 **ALF-201**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority

Allen Fossil Plant (ALF)

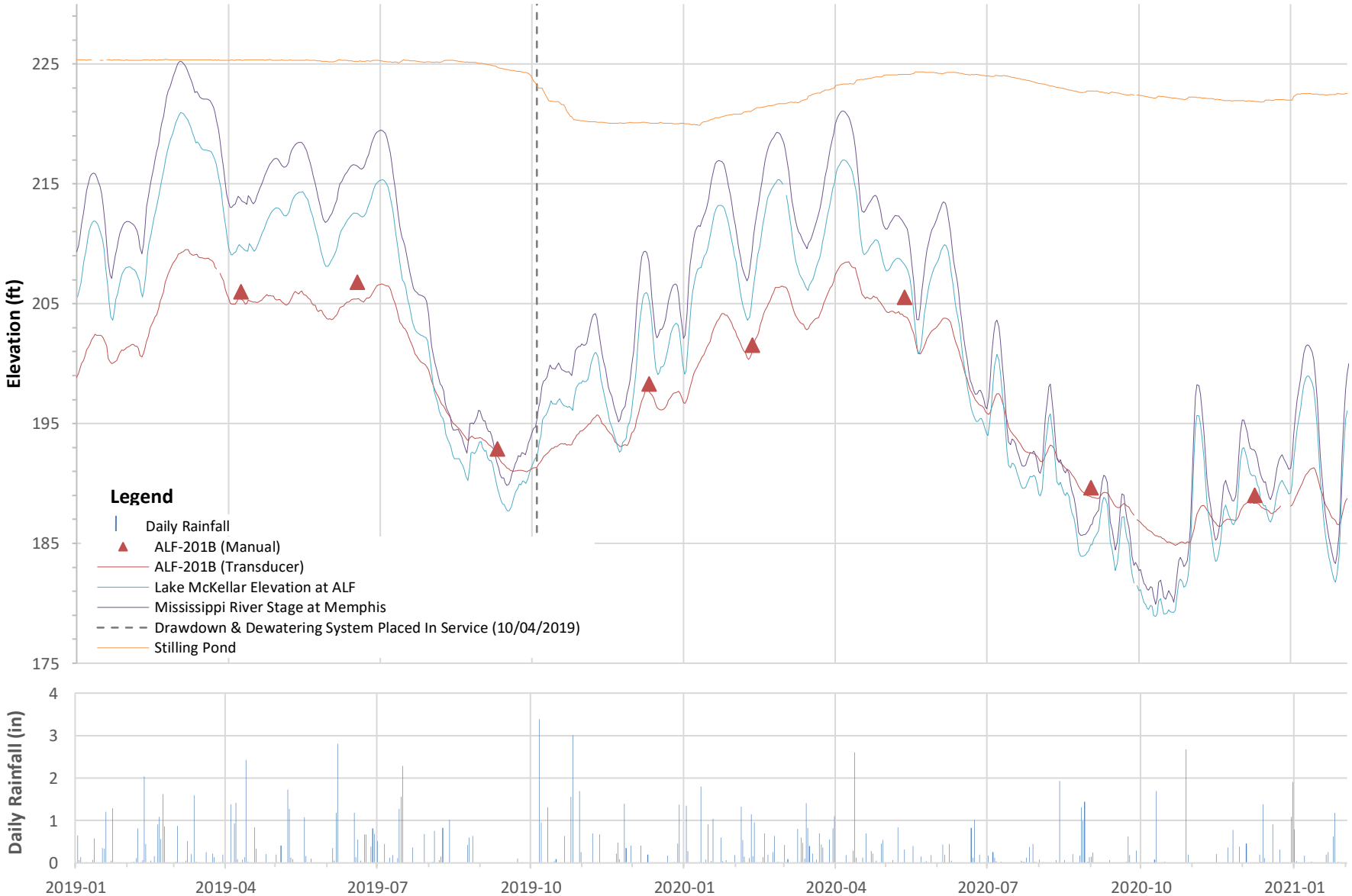
Stantec

Figure/Well No.

6 **ALF-201A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

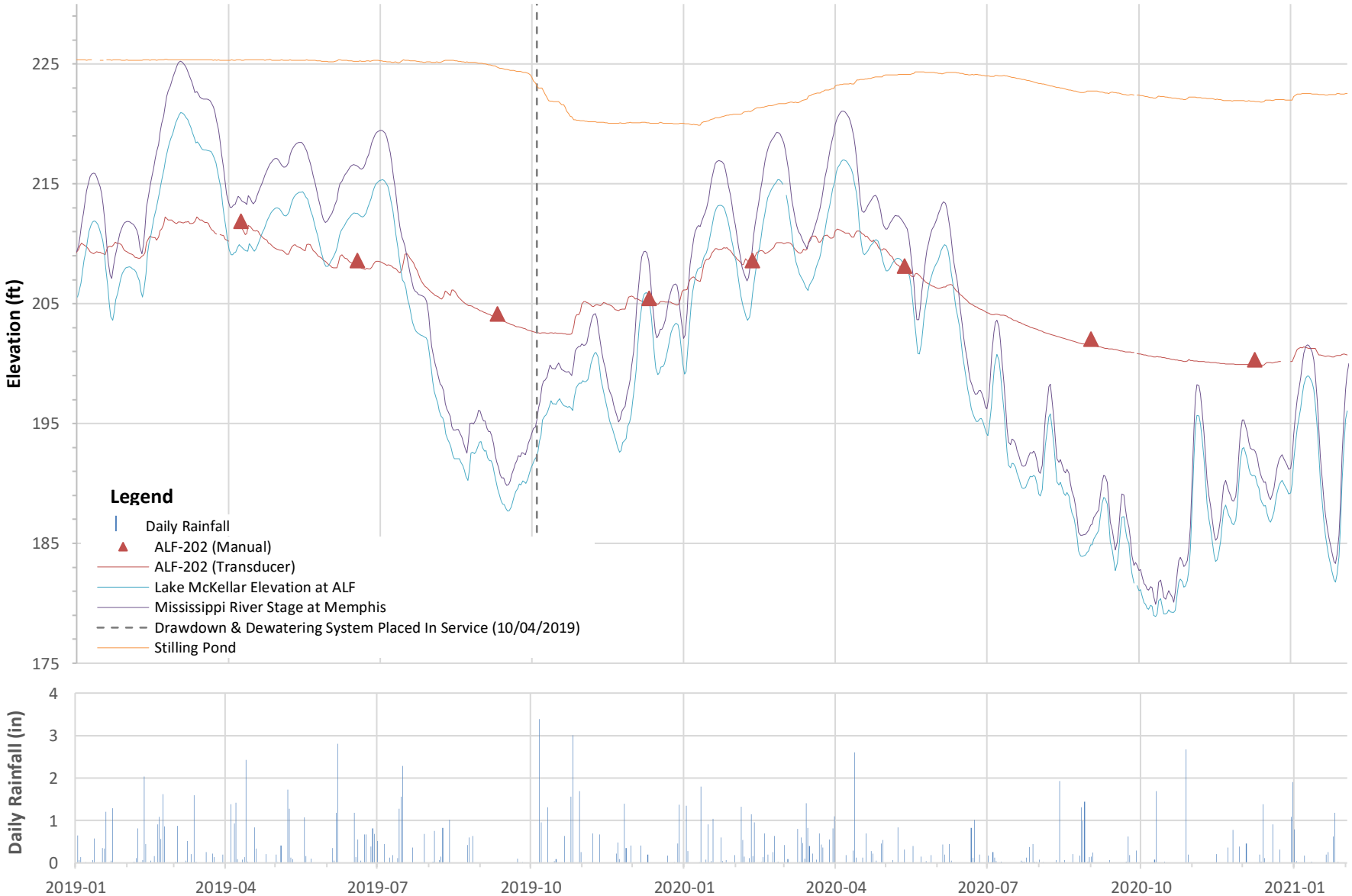
Stantec

Figure/Well No.

7 **ALF-201B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority

Allen Fossil Plant (ALF)

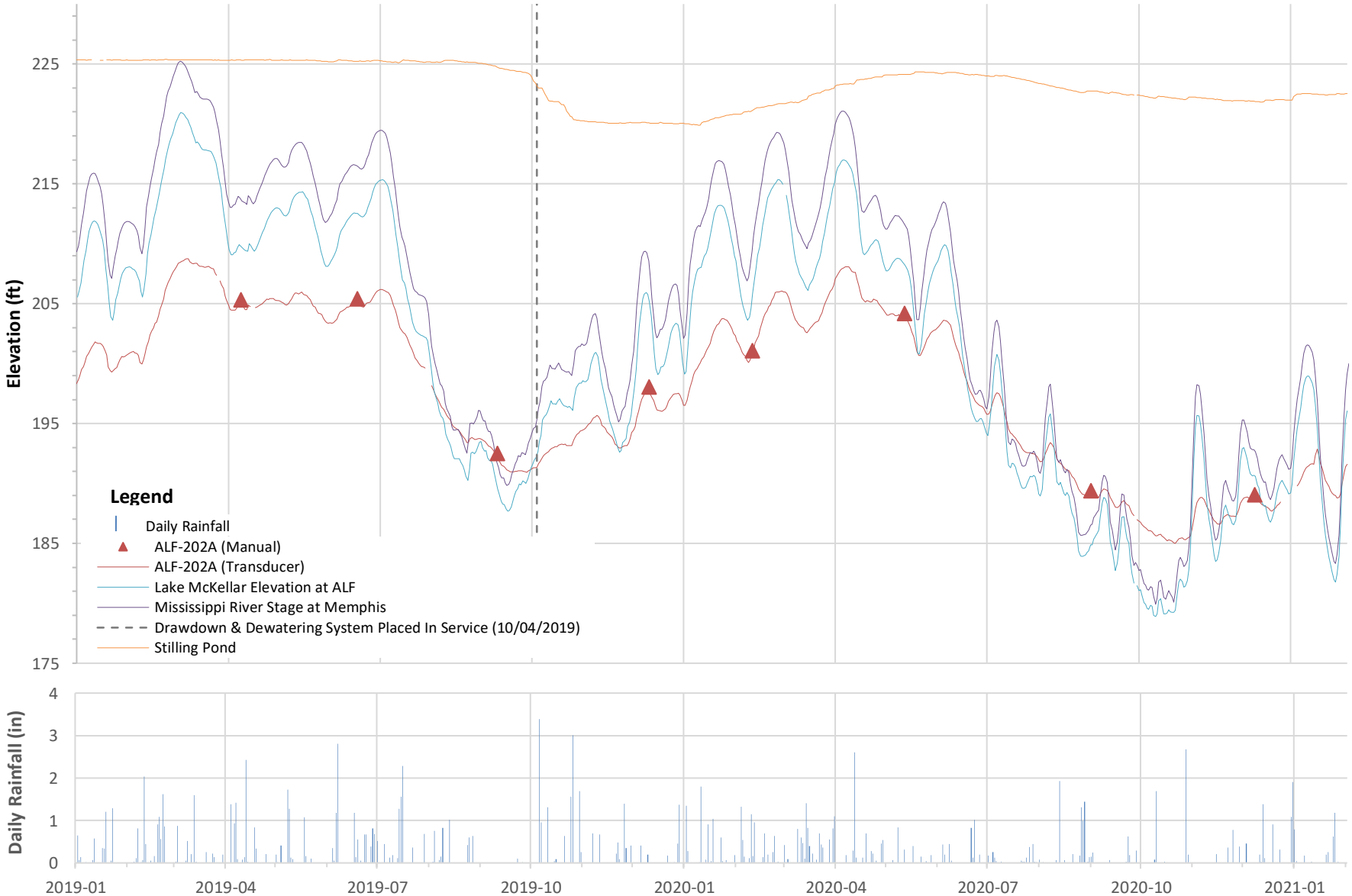
Stantec

Figure/Well No.

8 **ALF-202**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

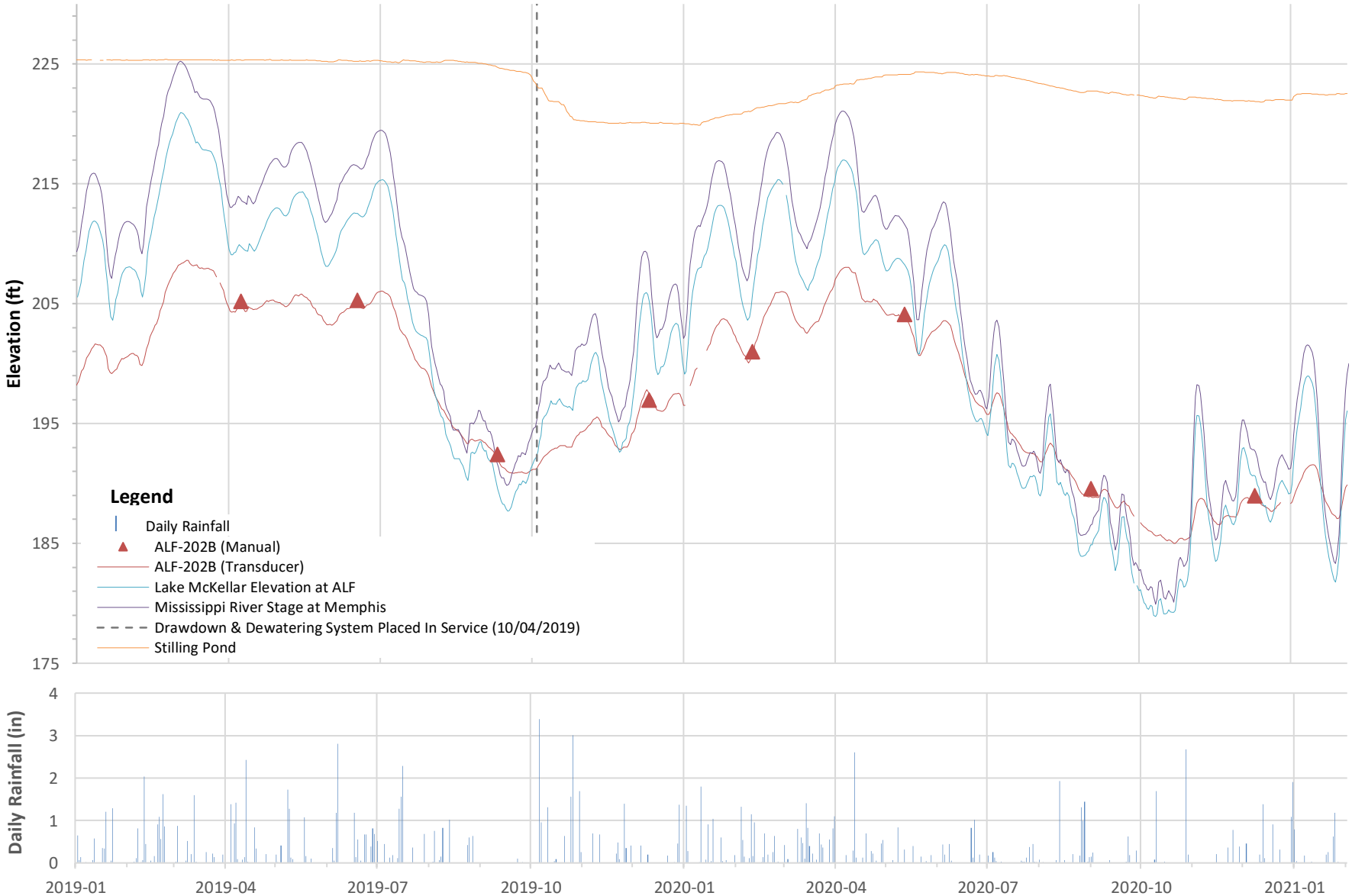
Stantec

Figure/Well No.

9 **ALF-202A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

10 **ALF-202B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period or that anomalous data points were removed upon data review. Anomalous data filtered from the data set for this well include: 4/16/2019.

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

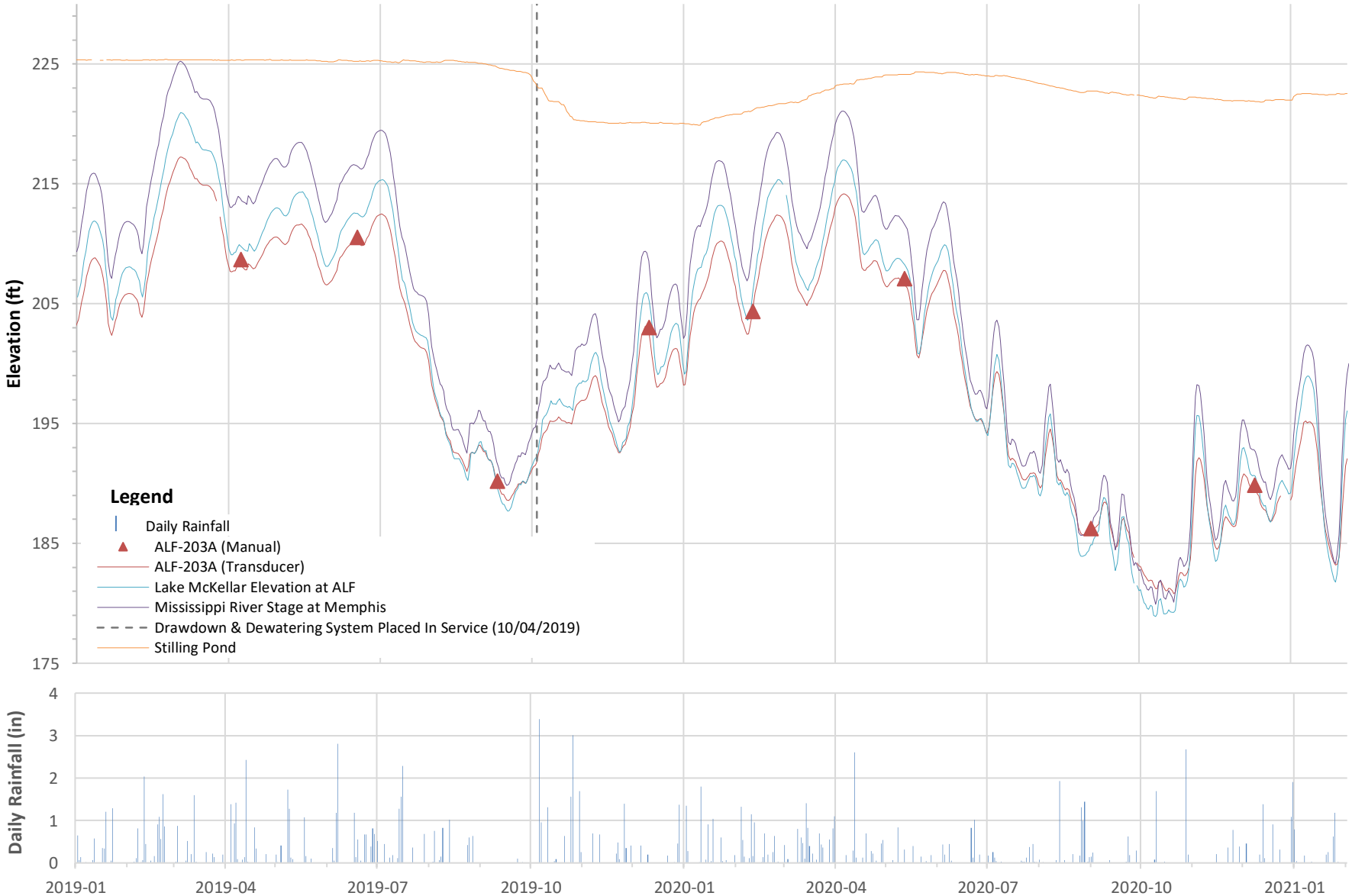
Stantec

Figure/Well No.

11 **ALF-203**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

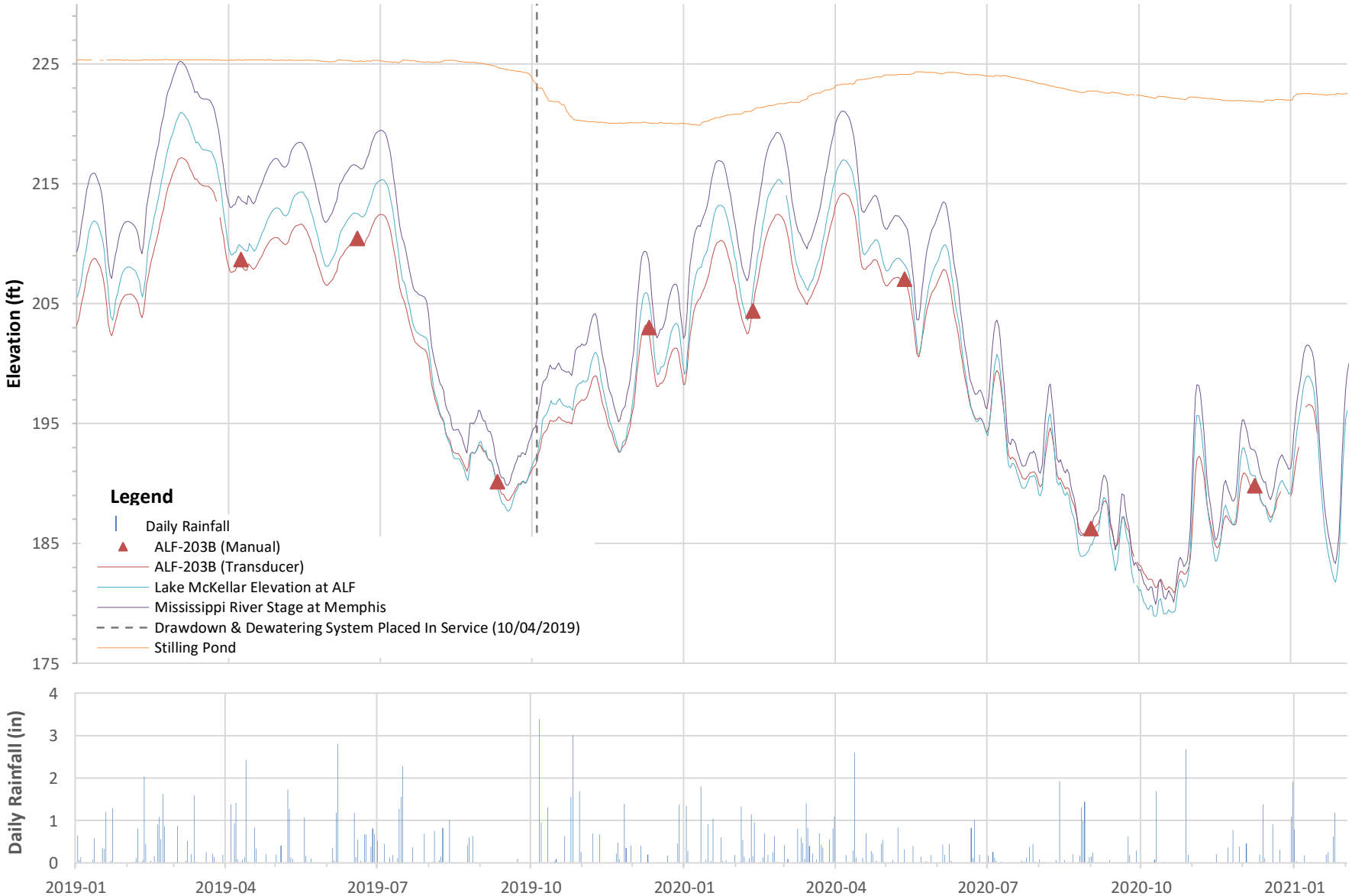
Stantec

Figure/Well No.

12 **ALF-203A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority

Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

13 **ALF-203B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period or that anomalous data points were removed upon data review. Anomalous data filtered from the data set for this well include: 4/17/2019 and 4/22/2020.

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

14 **ALF-204**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

15 **ALF-204A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority

Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

16 **ALF-204B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period or that anomalous data points were removed upon data review. Anomalous data filtered from the data set for this well include: 4/16/2019.

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

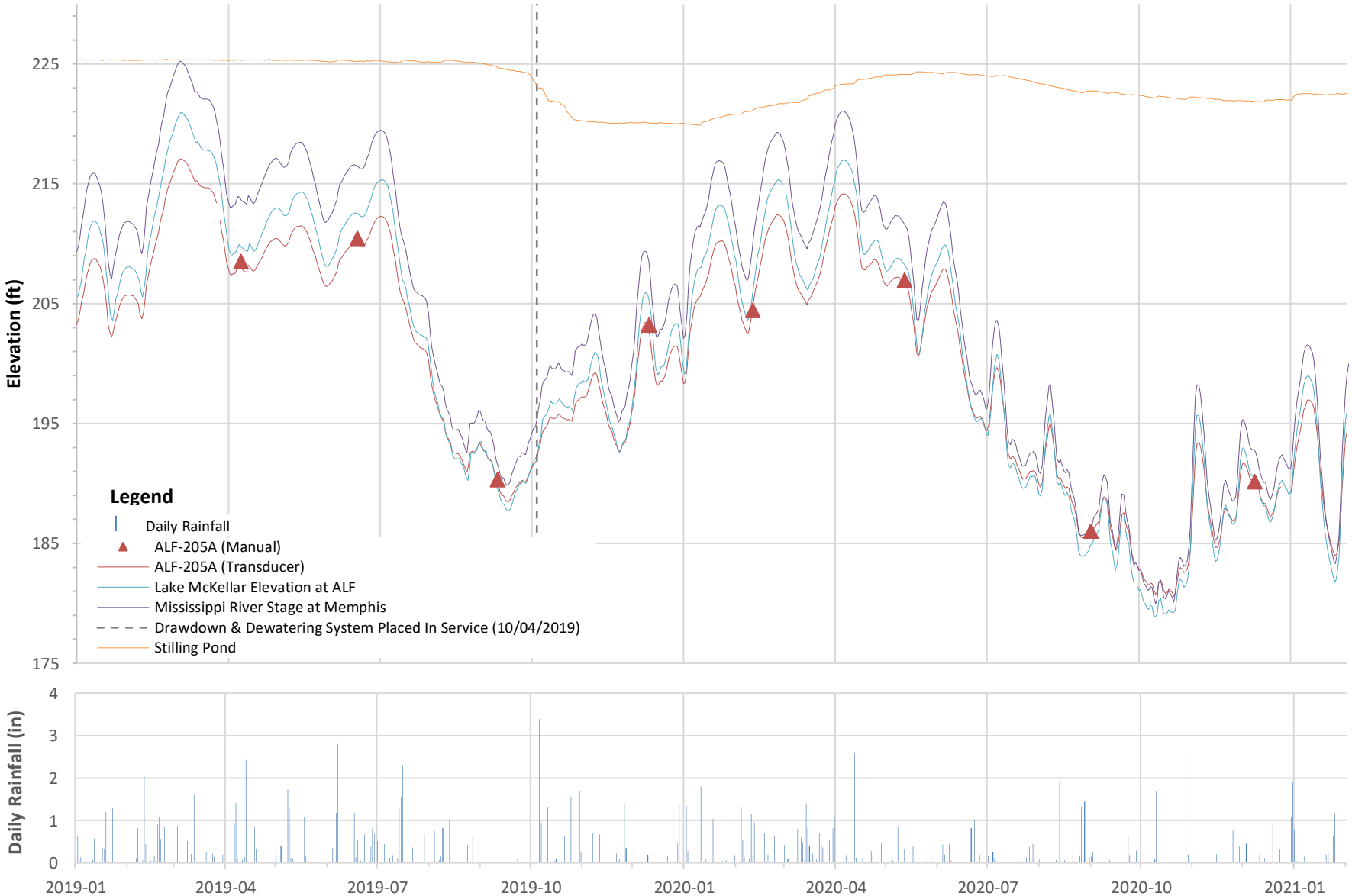
Stantec

Figure/Well No.

17 **ALF-205**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority

Allen Fossil Plant (ALF)

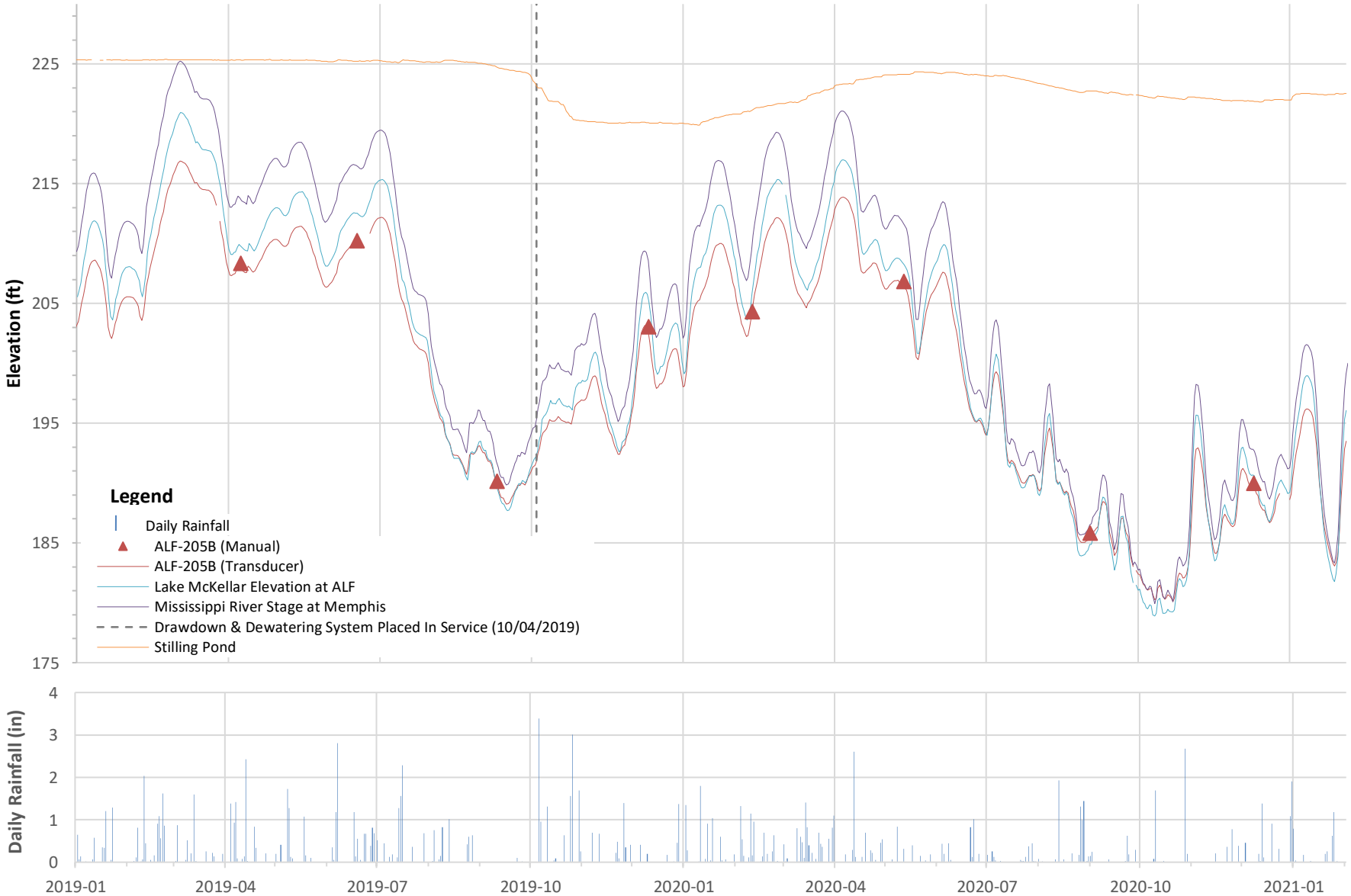
Stantec

Figure/Well No.

18 **ALF-205A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

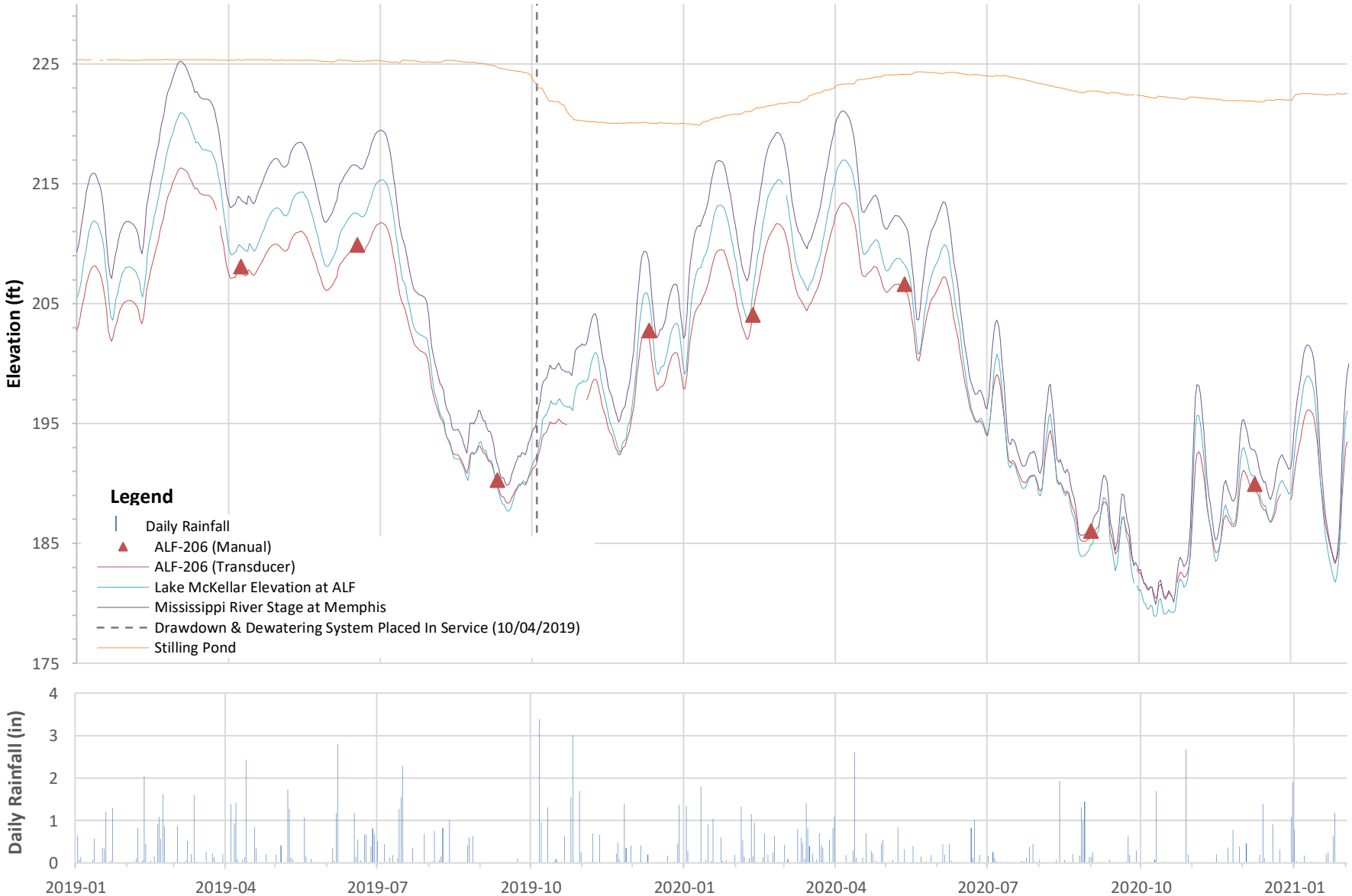
Stantec

Figure/Well No.

19 **ALF-205B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority

Allen Fossil Plant (ALF)

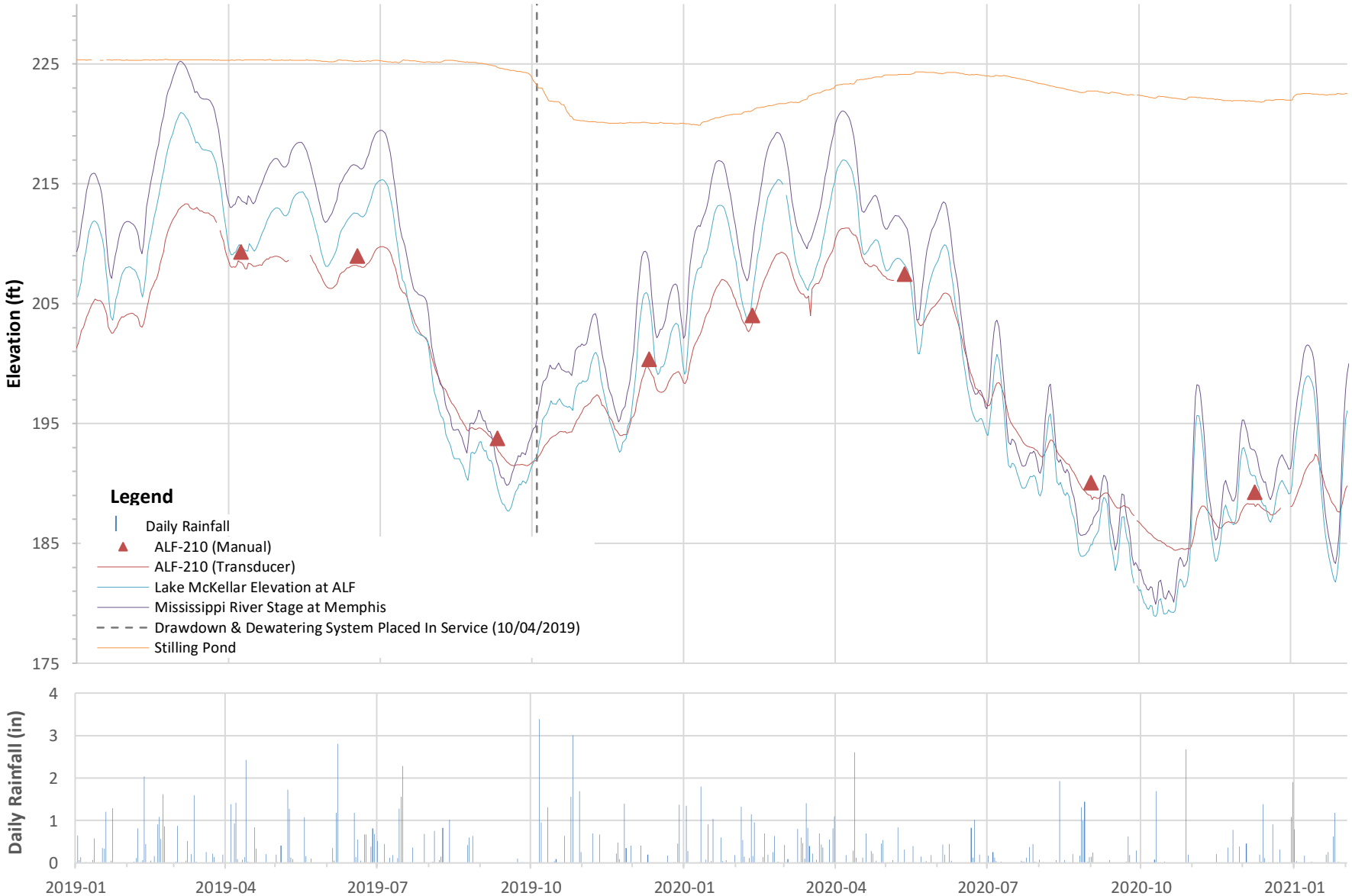
Stantec

Figure/Well No.

20 **ALF-206**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

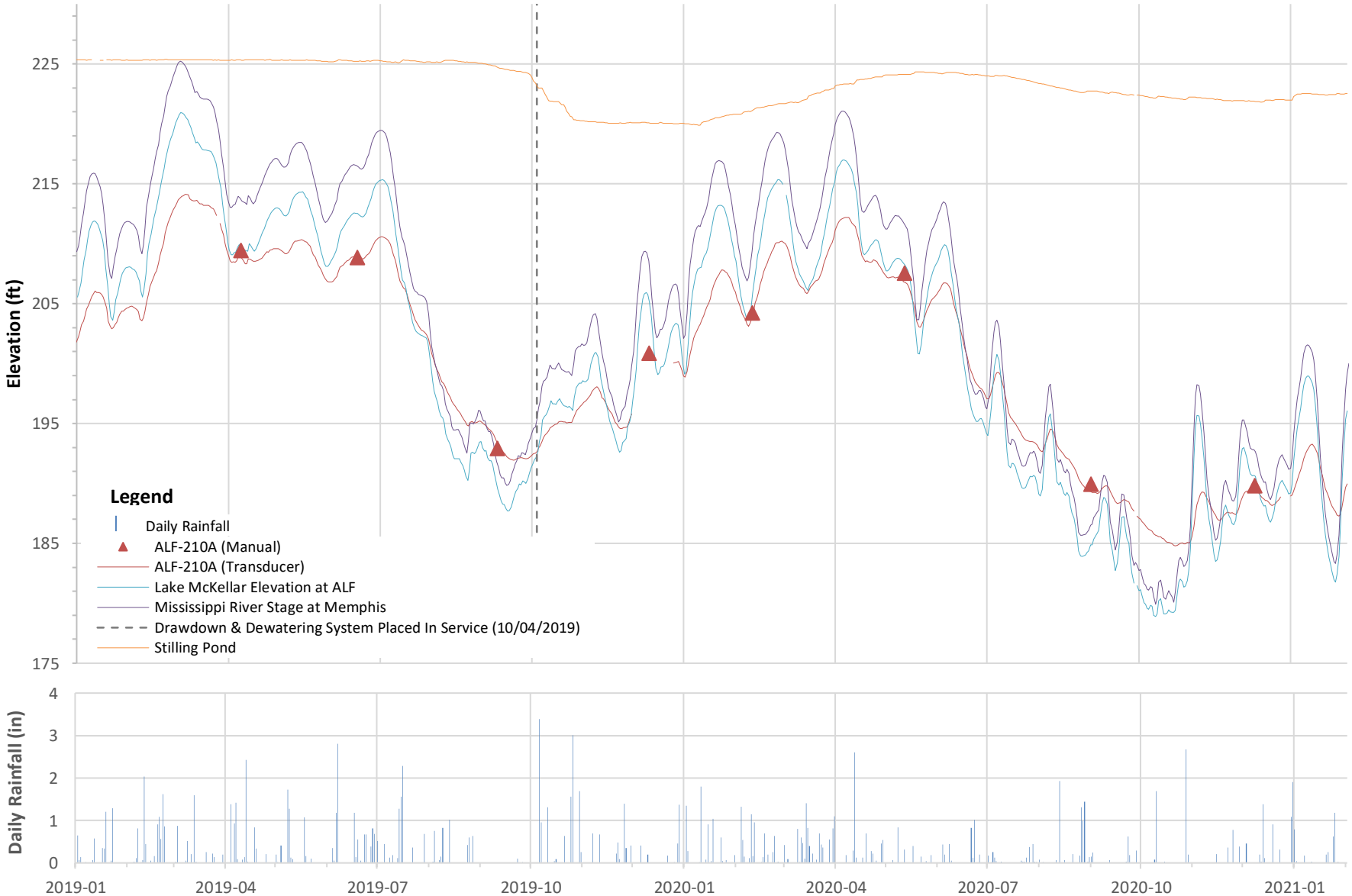
Stantec

Figure/Well No.

21 **ALF-210**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

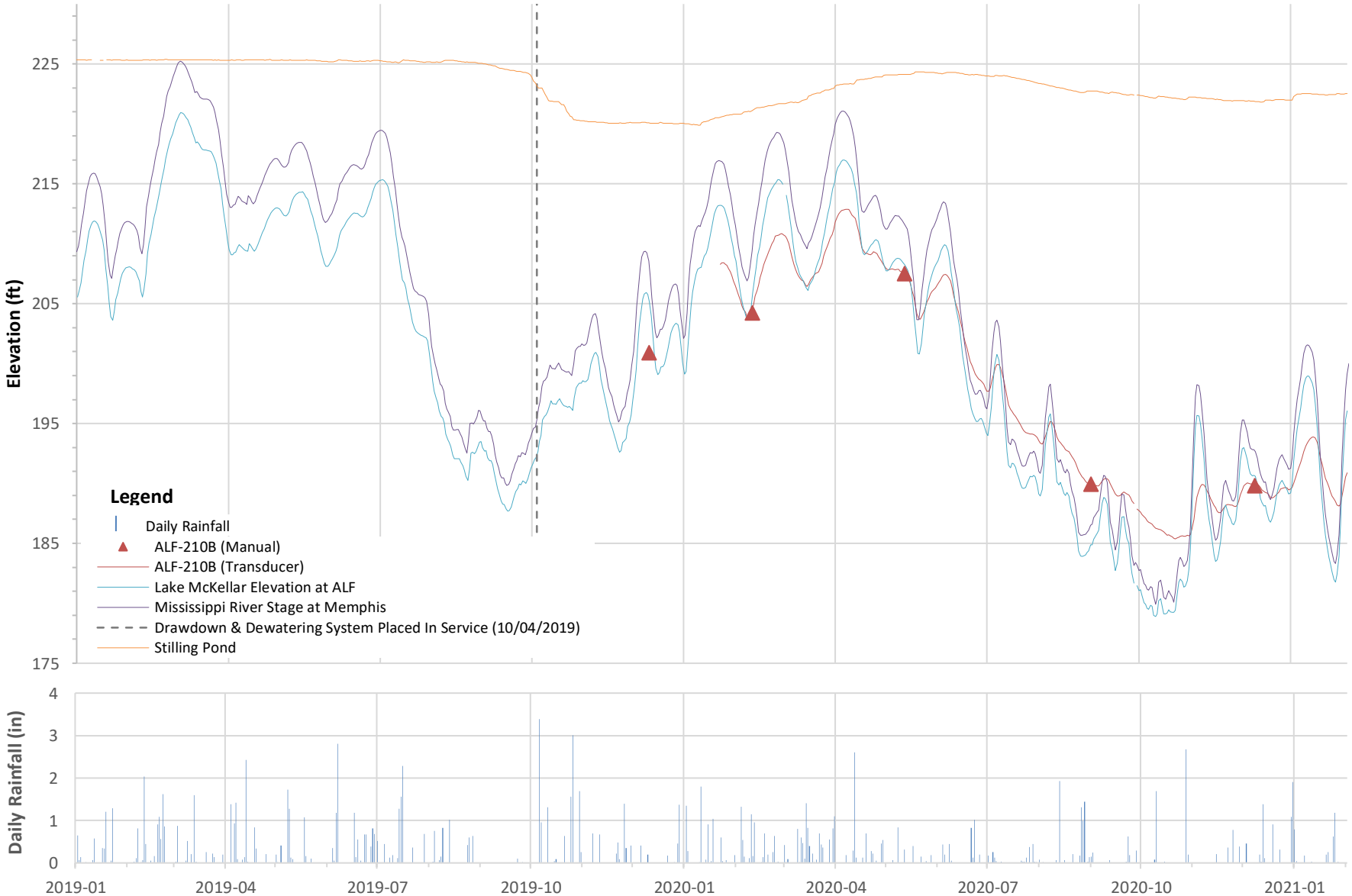
Stantec

Figure/Well No.

22 **ALF-210A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority

Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

23 **ALF-210B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority

Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

24 **ALF-212**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

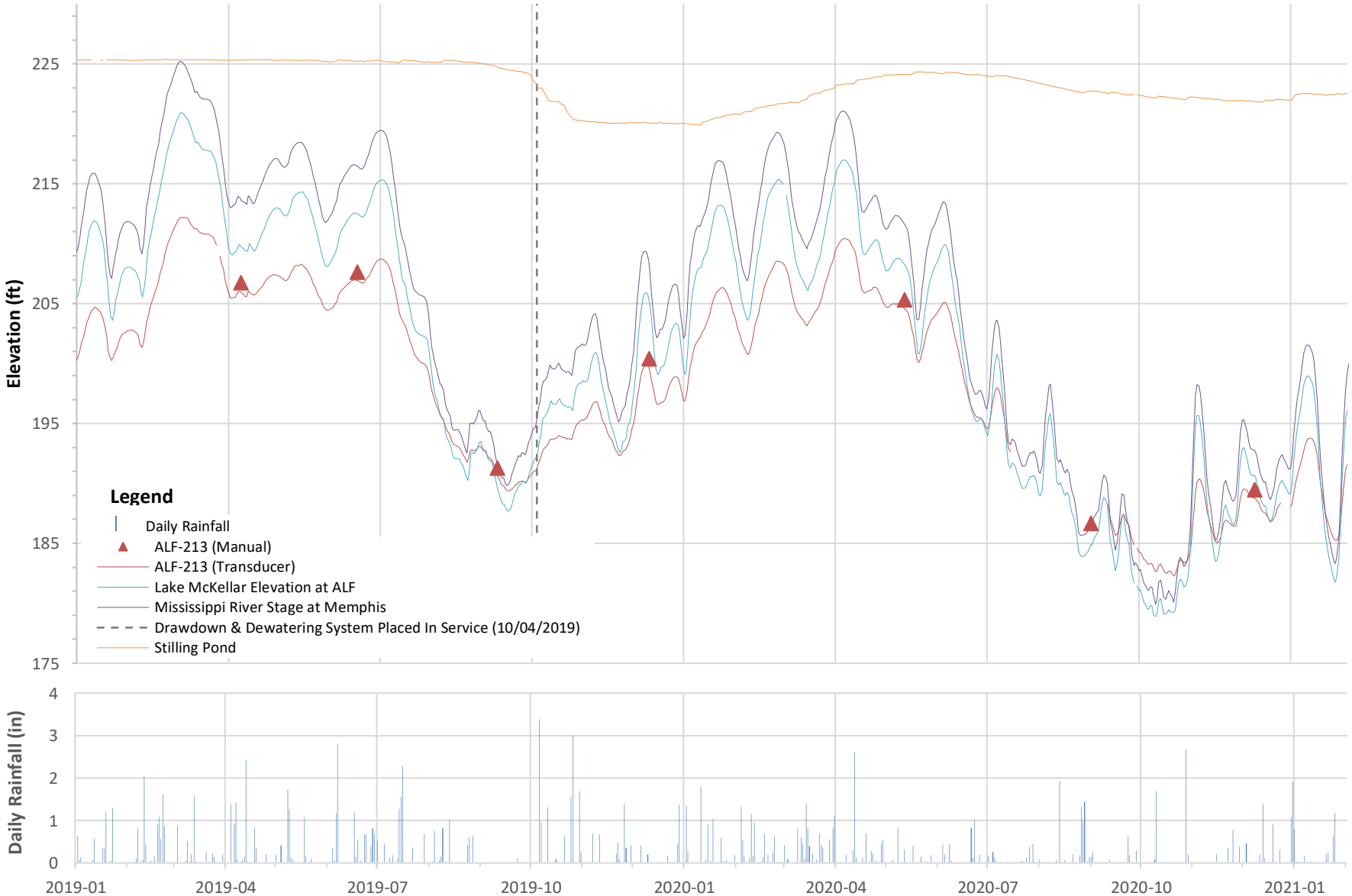
Stantec

Figure/Well No.

25 **ALF-212A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority

Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

26 **ALF-213**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

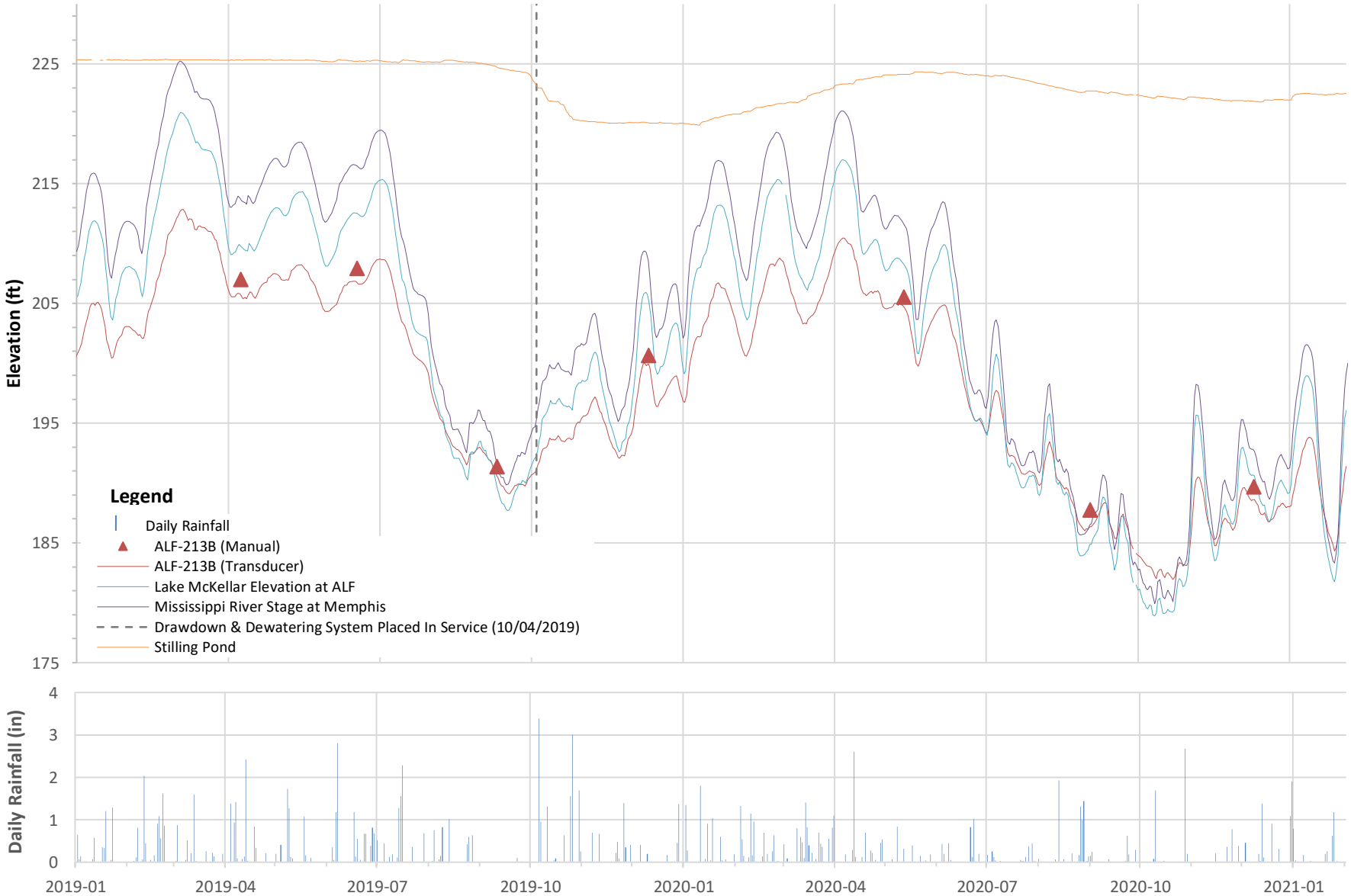
Stantec

Figure/Well No.

27 **ALF-213A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

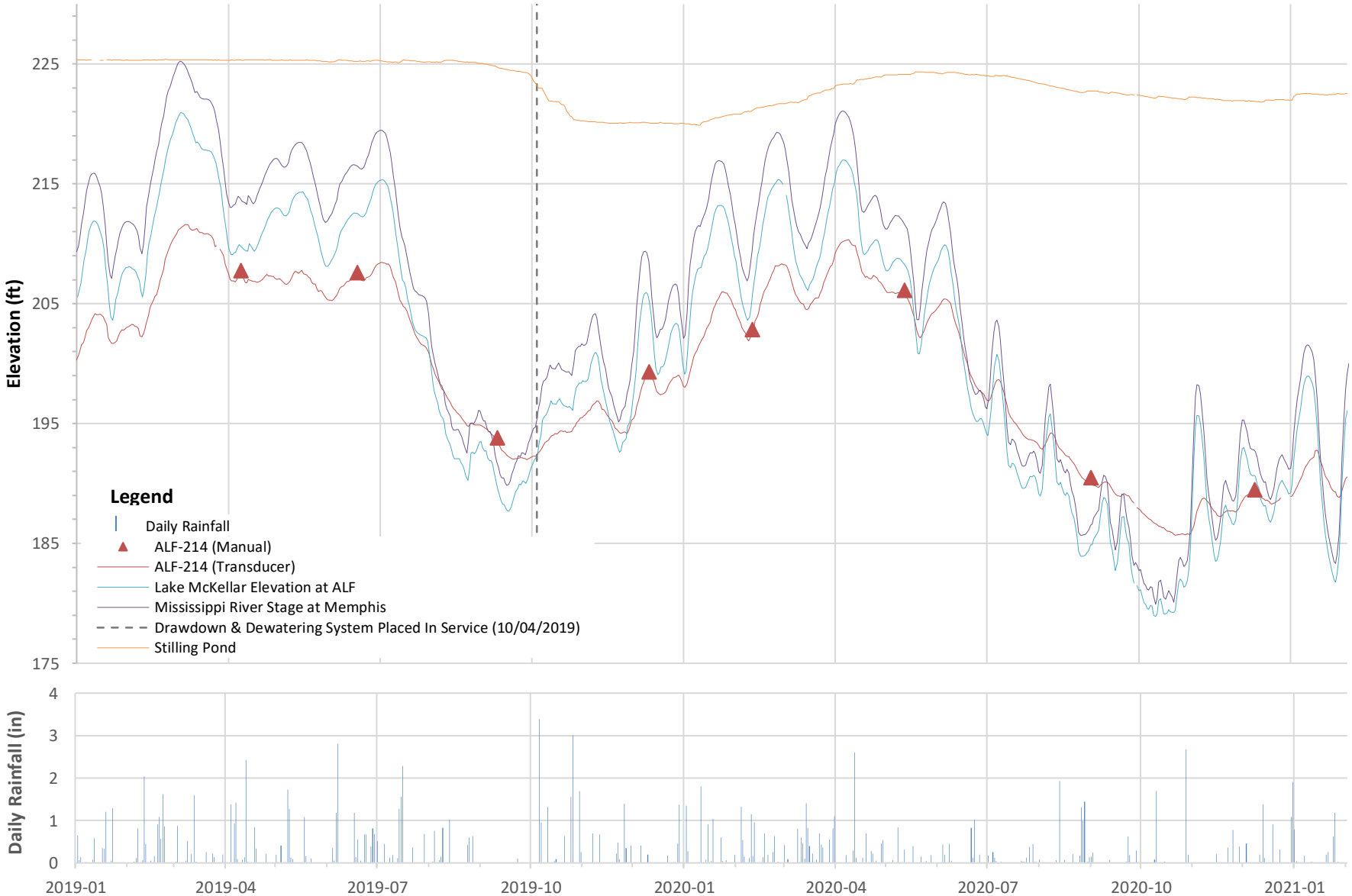
Stantec

Figure/Well No.

28 **ALF-213B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority

Allen Fossil Plant (ALF)

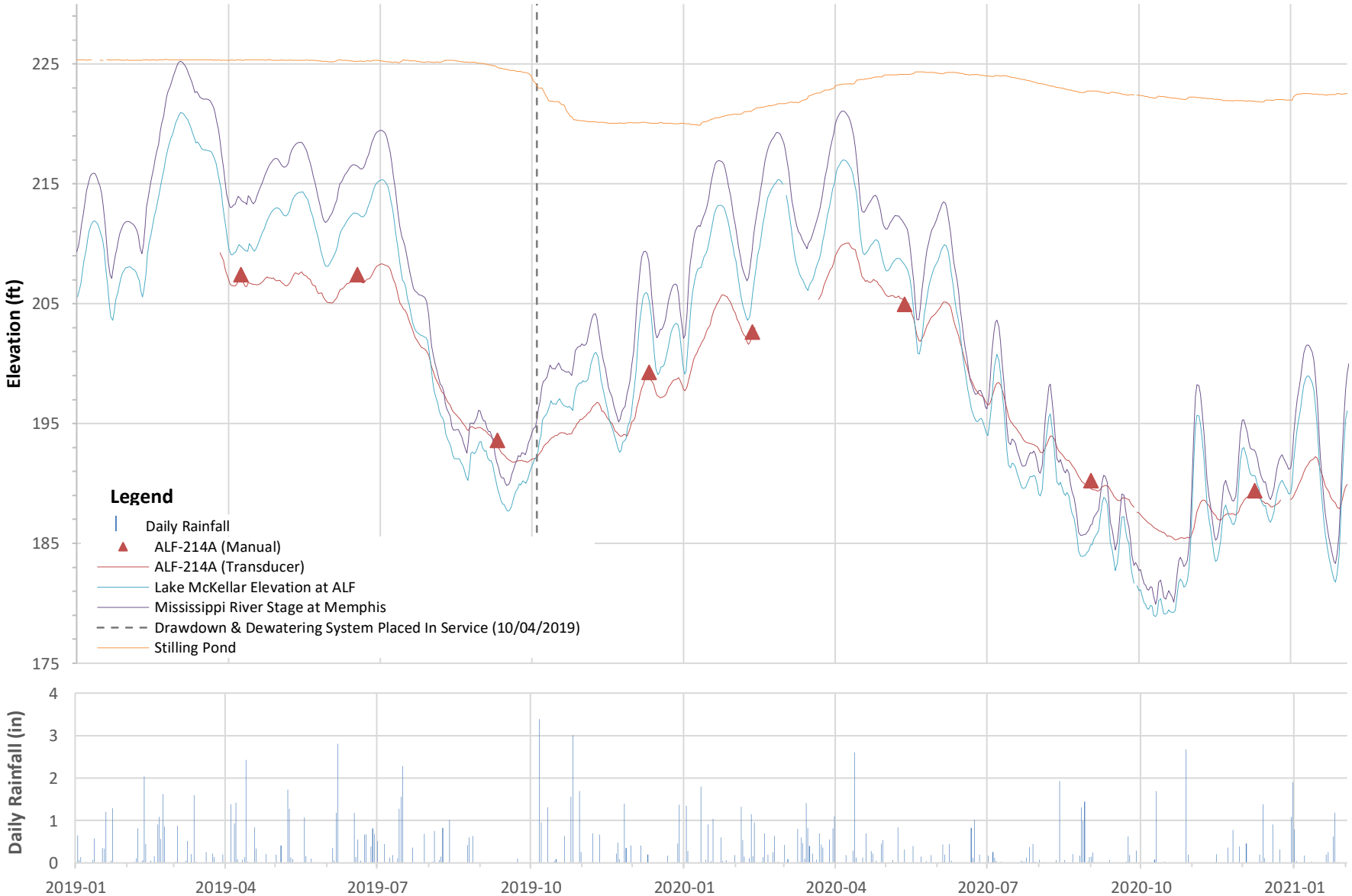
Stantec

Figure/Well No.

29 **ALF-214**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

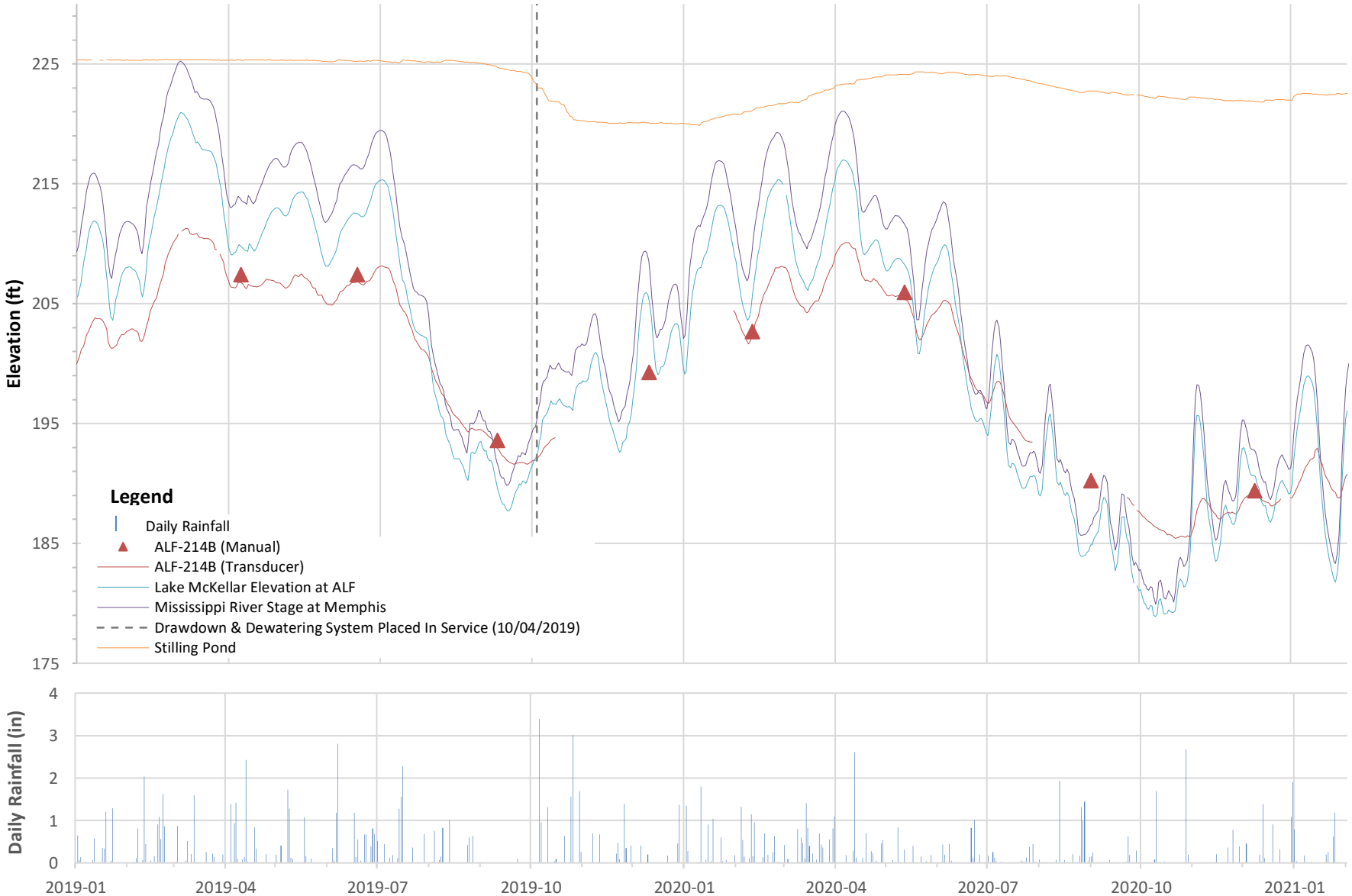
Stantec

Figure/Well No.

30 **ALF-214A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority

Allen Fossil Plant (ALF)

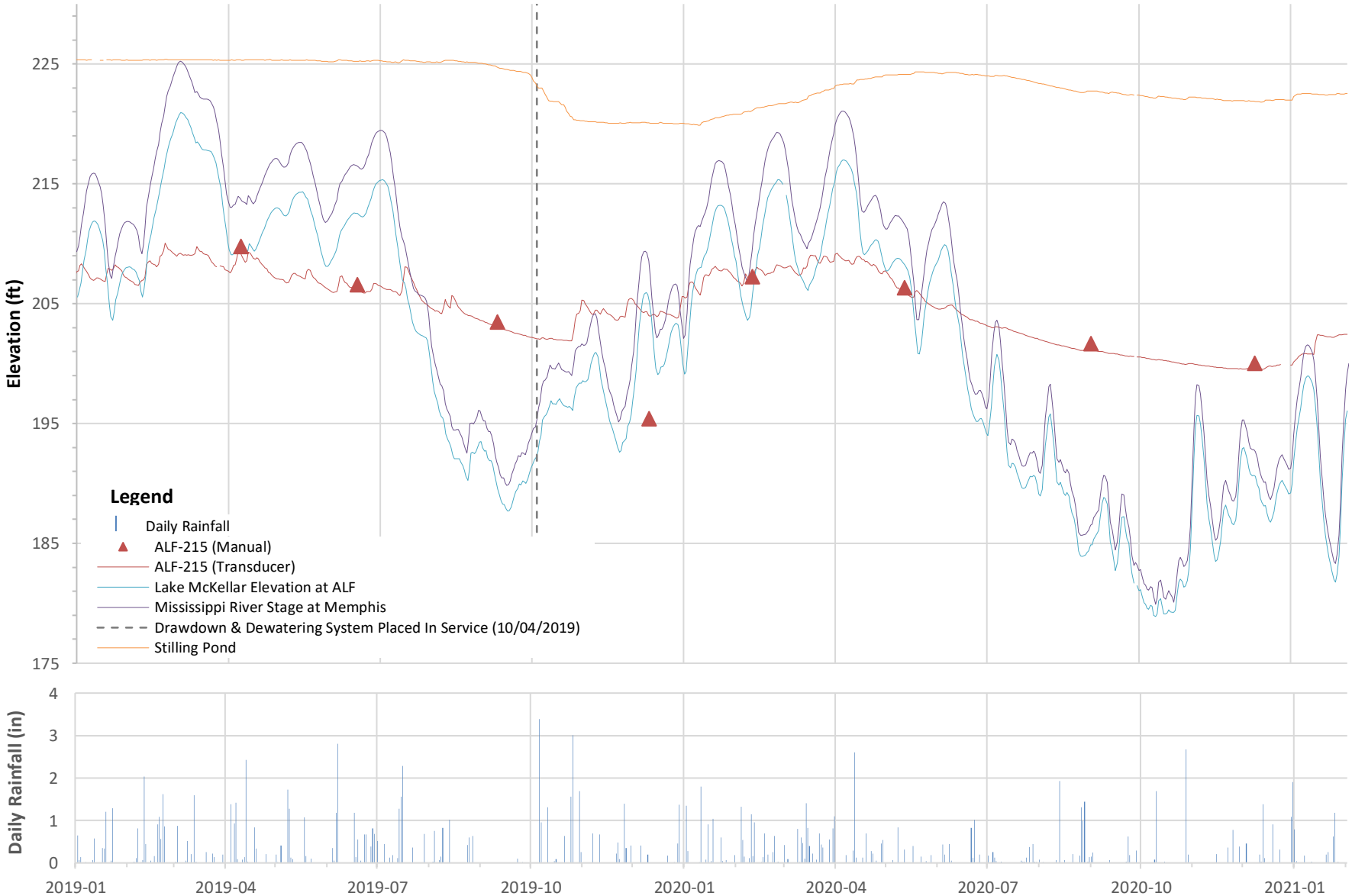
Stantec

Figure/Well No.

31 **ALF-214B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

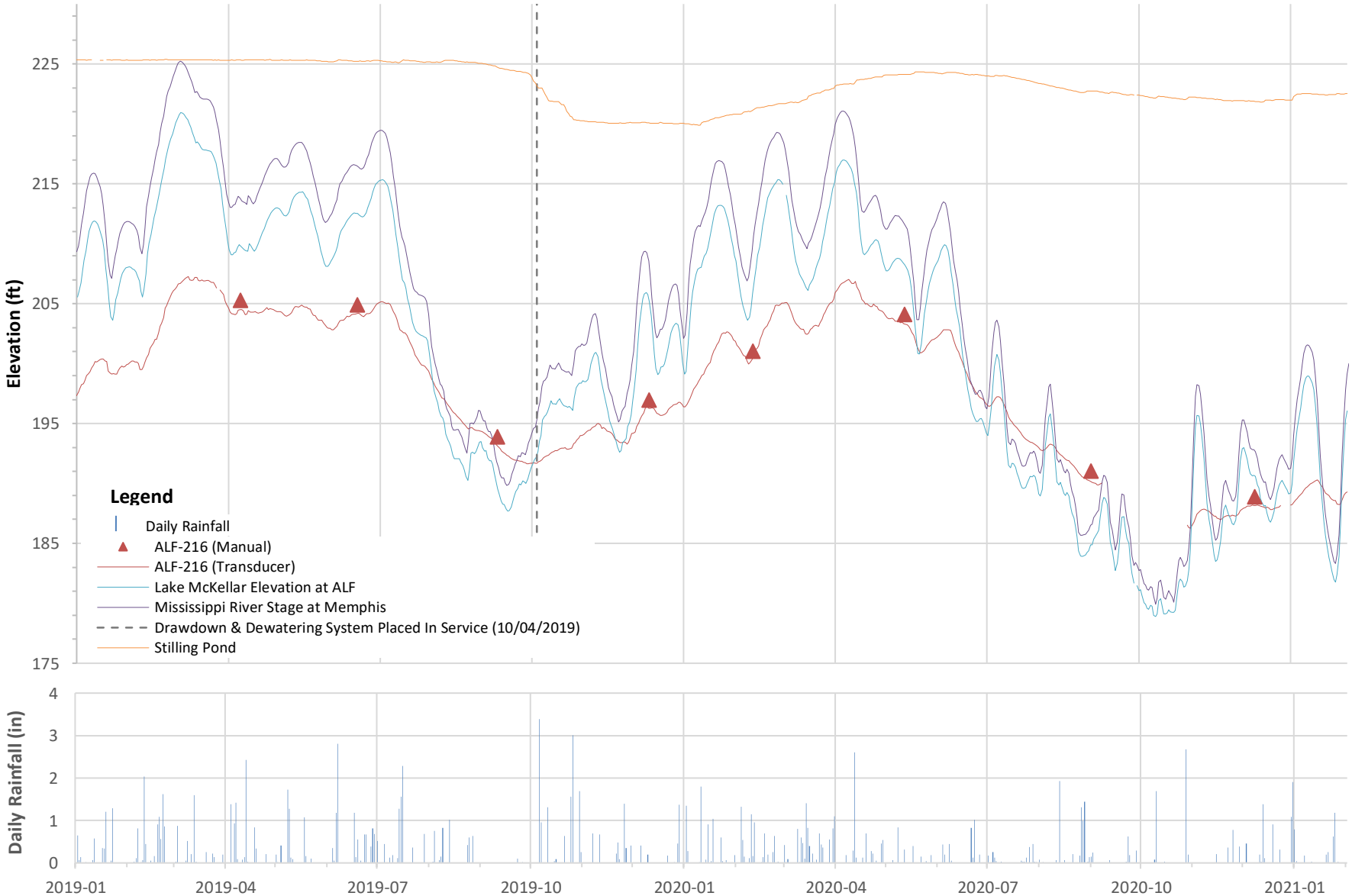
Stantec

Figure/Well No.

32 **ALF-215**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority

Allen Fossil Plant (ALF)

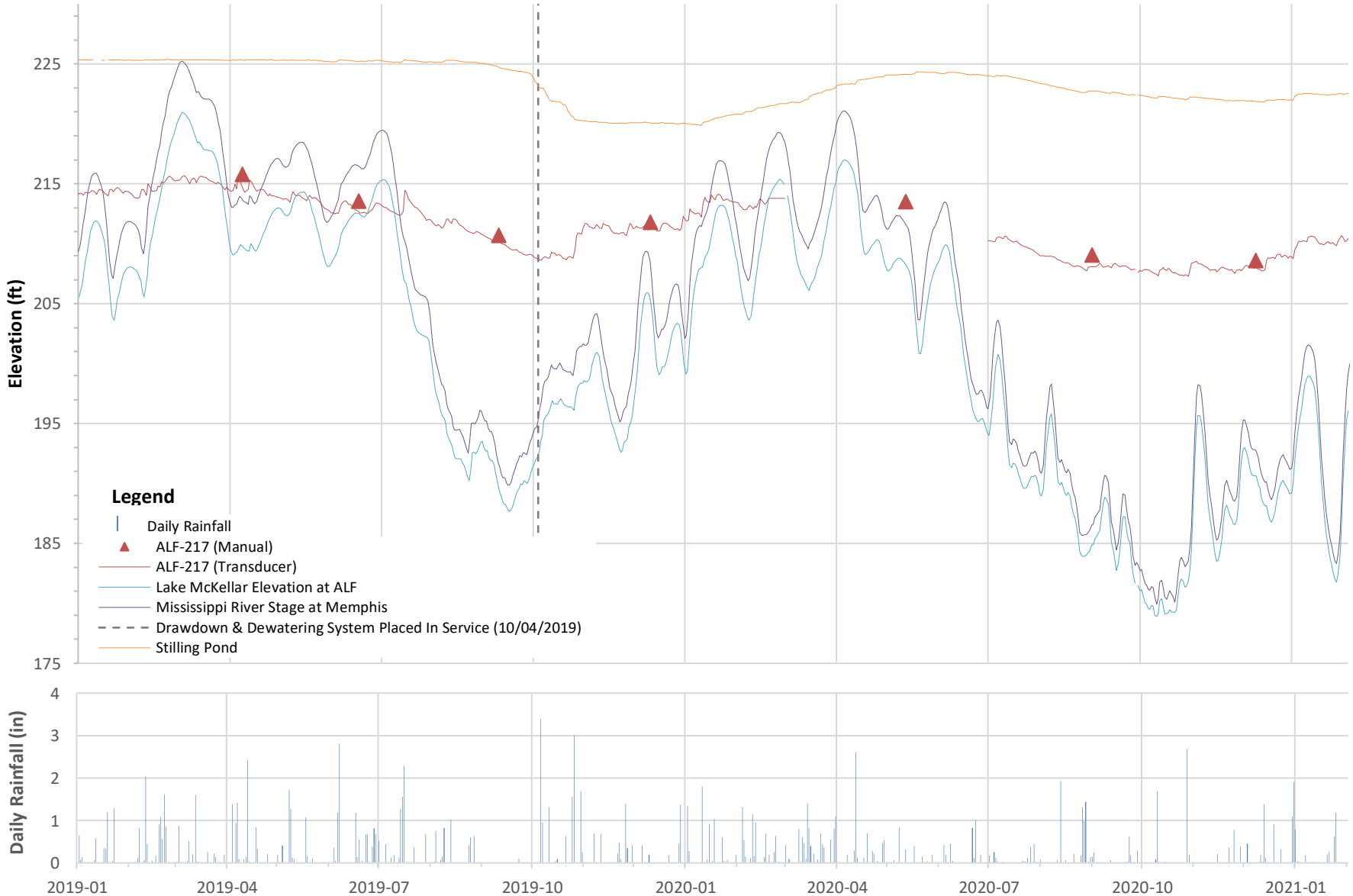
Stantec

Figure/Well No.

33 **ALF-216**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period or that anomalous data points were removed upon data review. Anomalous data filtered from the data set for this well include: 3/1/2020 - 3/17/2020.

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

34 **ALF-217**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

35 **ALF-217A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

The data output for this sensor appears to be affected by a malfunctioning transducer or vibrating wire analyzer which causes the high frequency data to oscillate. The daily average values shown here reduce the effect but the data may not be representative of water level fluctuations in this well.

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

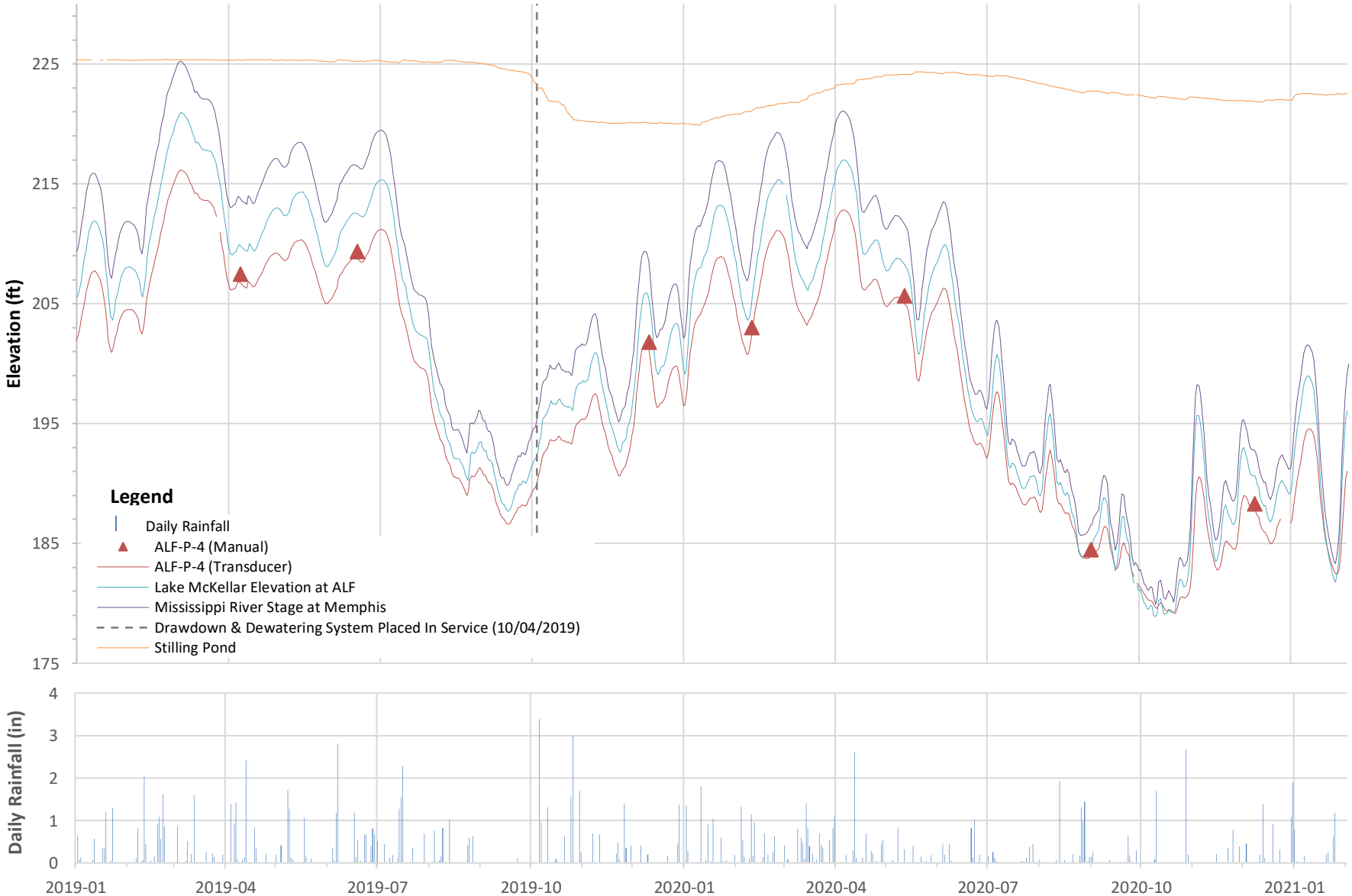
Stantec

Figure/Well No.

36 **ALF-217B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority

Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

37 **ALF-P-4**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period or that anomalous data points were removed upon data review. Anomalous data filtered from the data set for this well include: 4/15/2019.

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

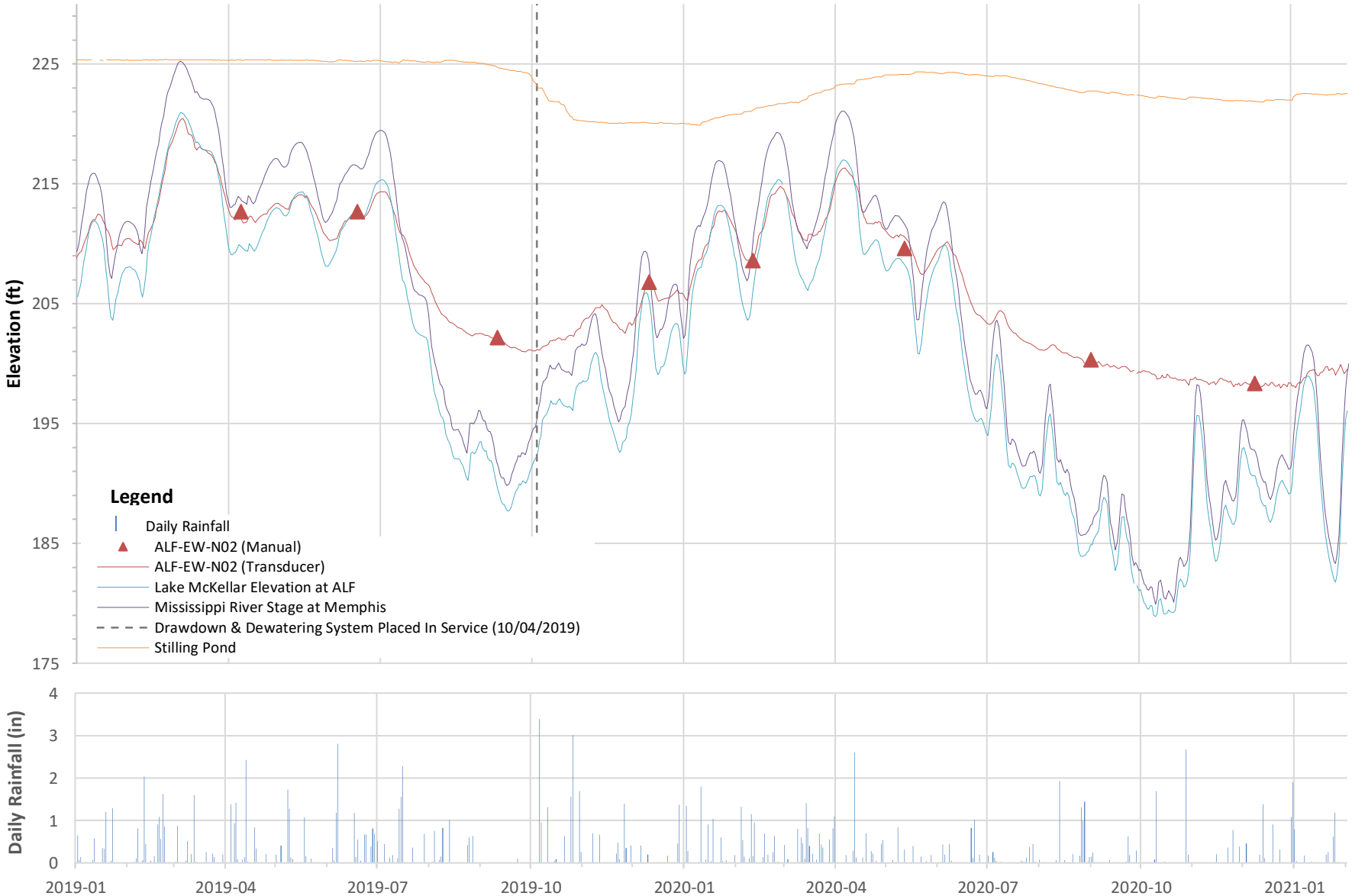
Stantec

Figure/Well No.

38 **ALF-P-4S**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority

Allen Fossil Plant (ALF)

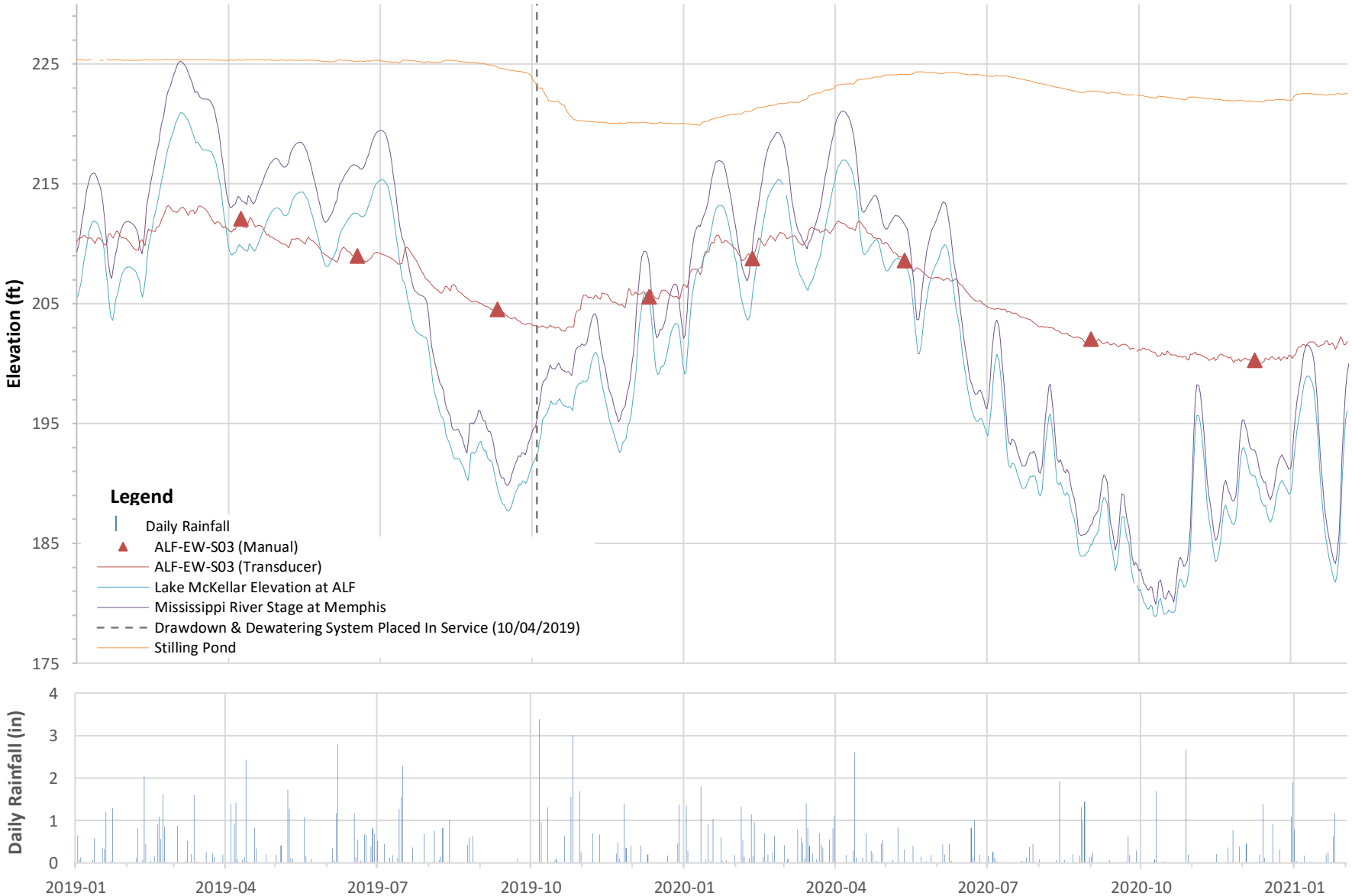
Stantec

Figure/Well No.

39 **ALF-EW-N02**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

40 **ALF-EW-S03**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

41 **PMW-02A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

42 **PMW-02B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

43 **PMW-02C**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period or that anomalous data points were removed upon data review. Anomalous data filtered from the data set for this well include: 9/10/2019.

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

44 **PMW-04A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period or that anomalous data points were removed upon data review. Anomalous data filtered from the data set for this well include: 9/10/2019.

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

45 **PMW-04B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

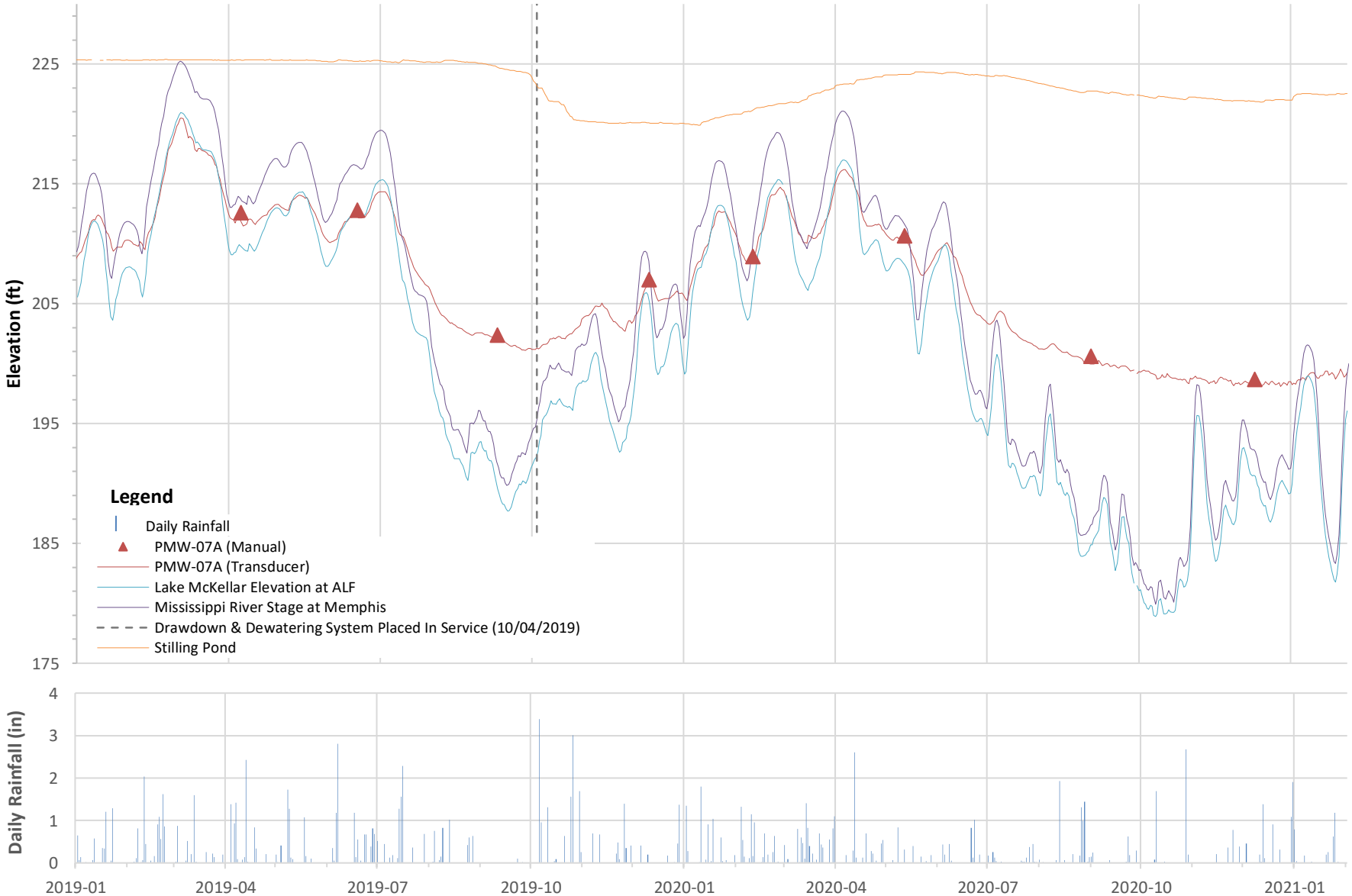
Stantec

Figure/Well No.

46 **PMW-04C**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

47 **PMW-07A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

48 **PMW-07B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

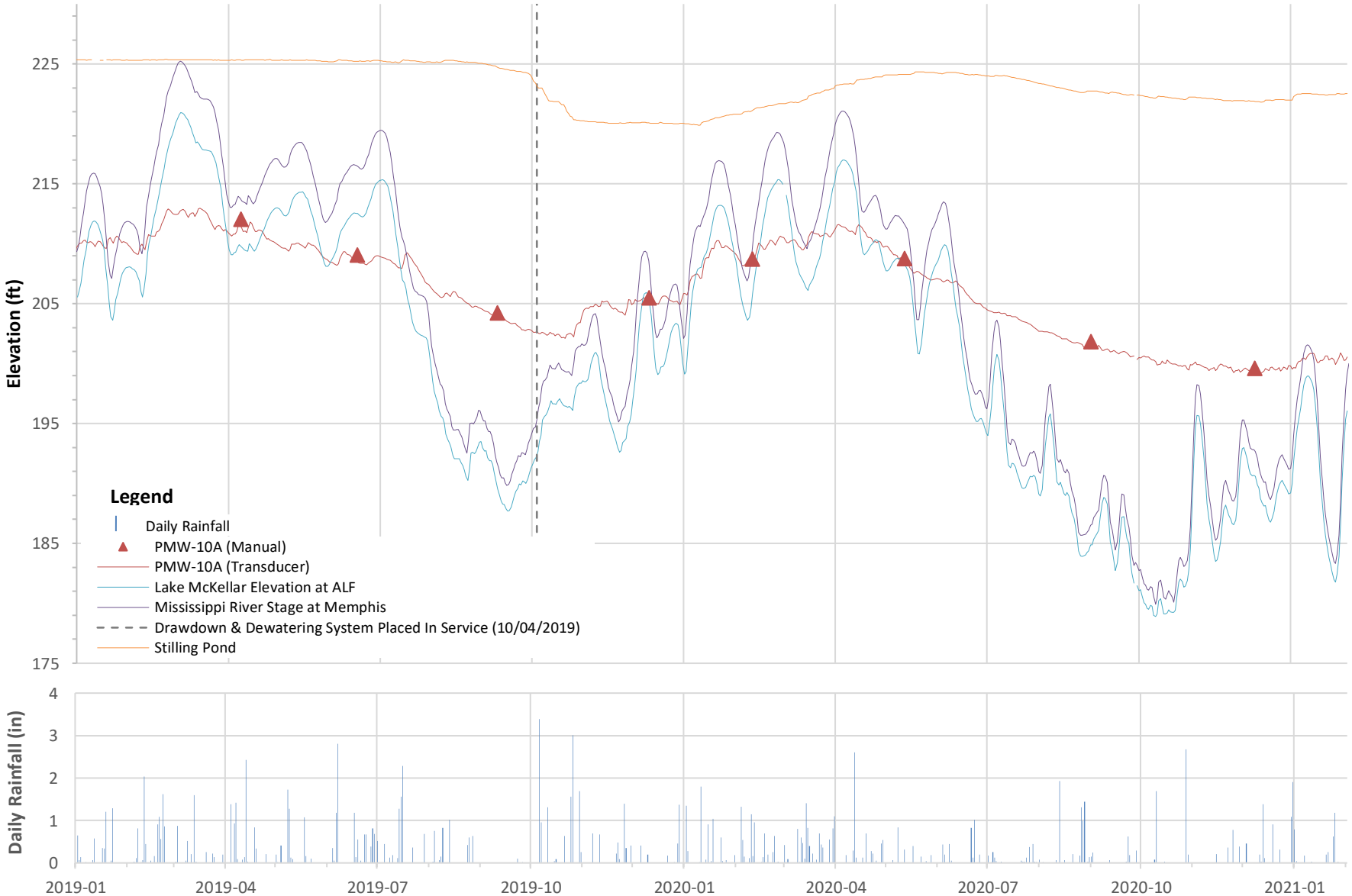
Stantec

Figure/Well No.

49 **PMW-07C**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

50 **PMW-10A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

51 **PMW-10B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

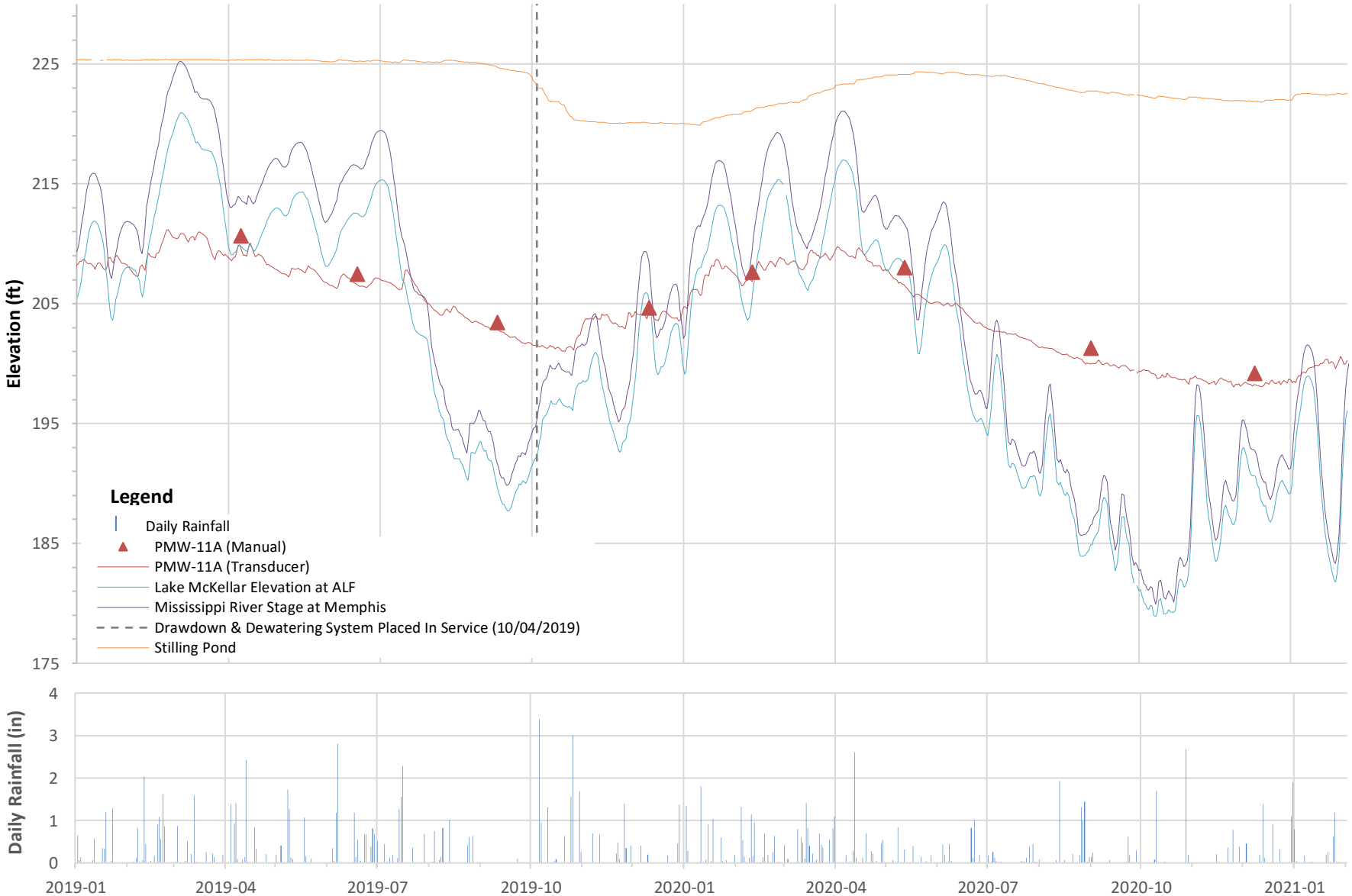
Stantec

Figure/Well No.

52 **PMW-10C**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

53 **PMW-11A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

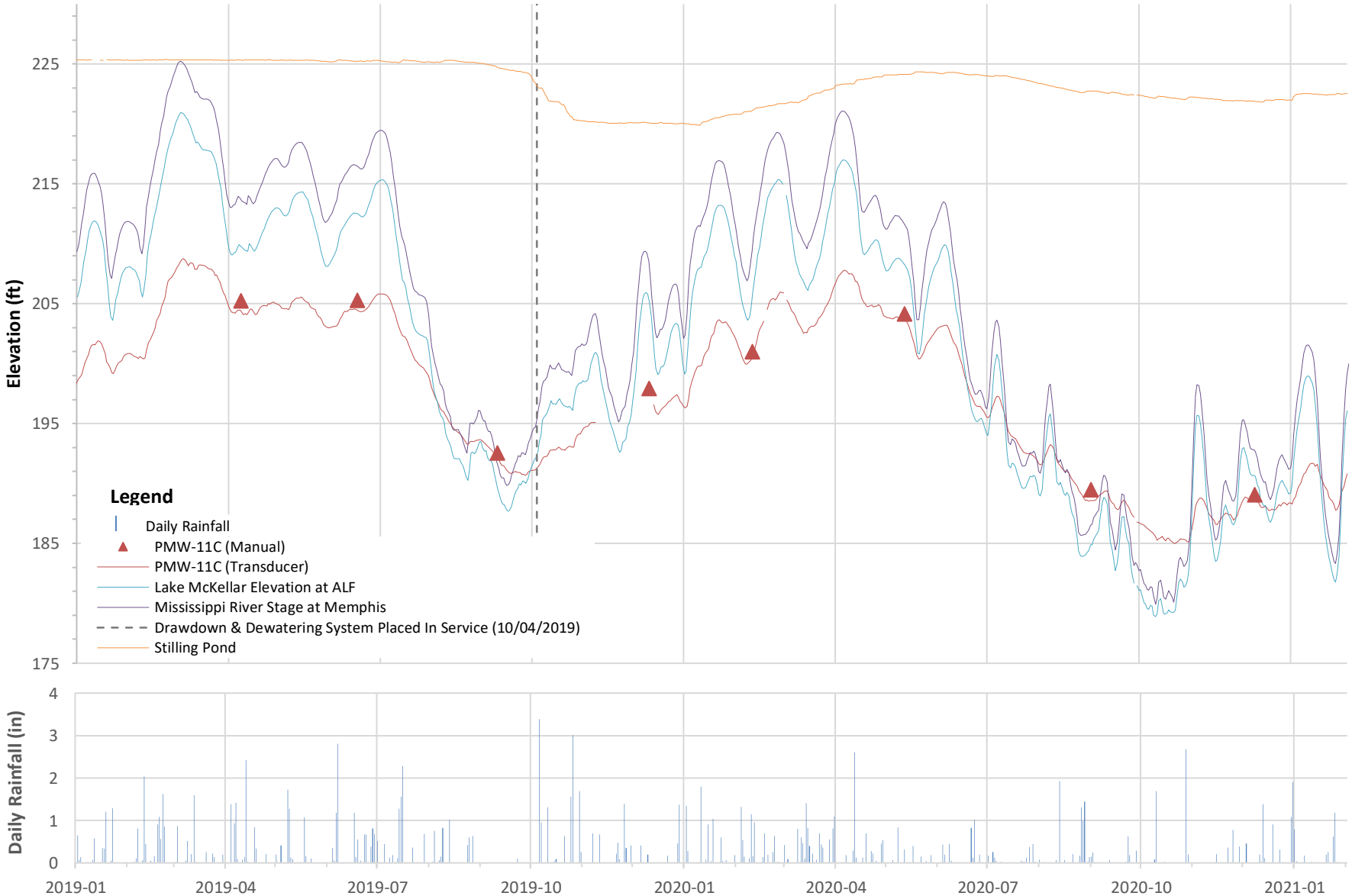
Stantec

Figure/Well No.

54 **PMW-11B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period or that anomalous data points were removed upon data review. Anomalous data filtered from the data set for this well include: 11/9/2019 - 12/12/2019; 2/18/2020; and, 3/1/2020.

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

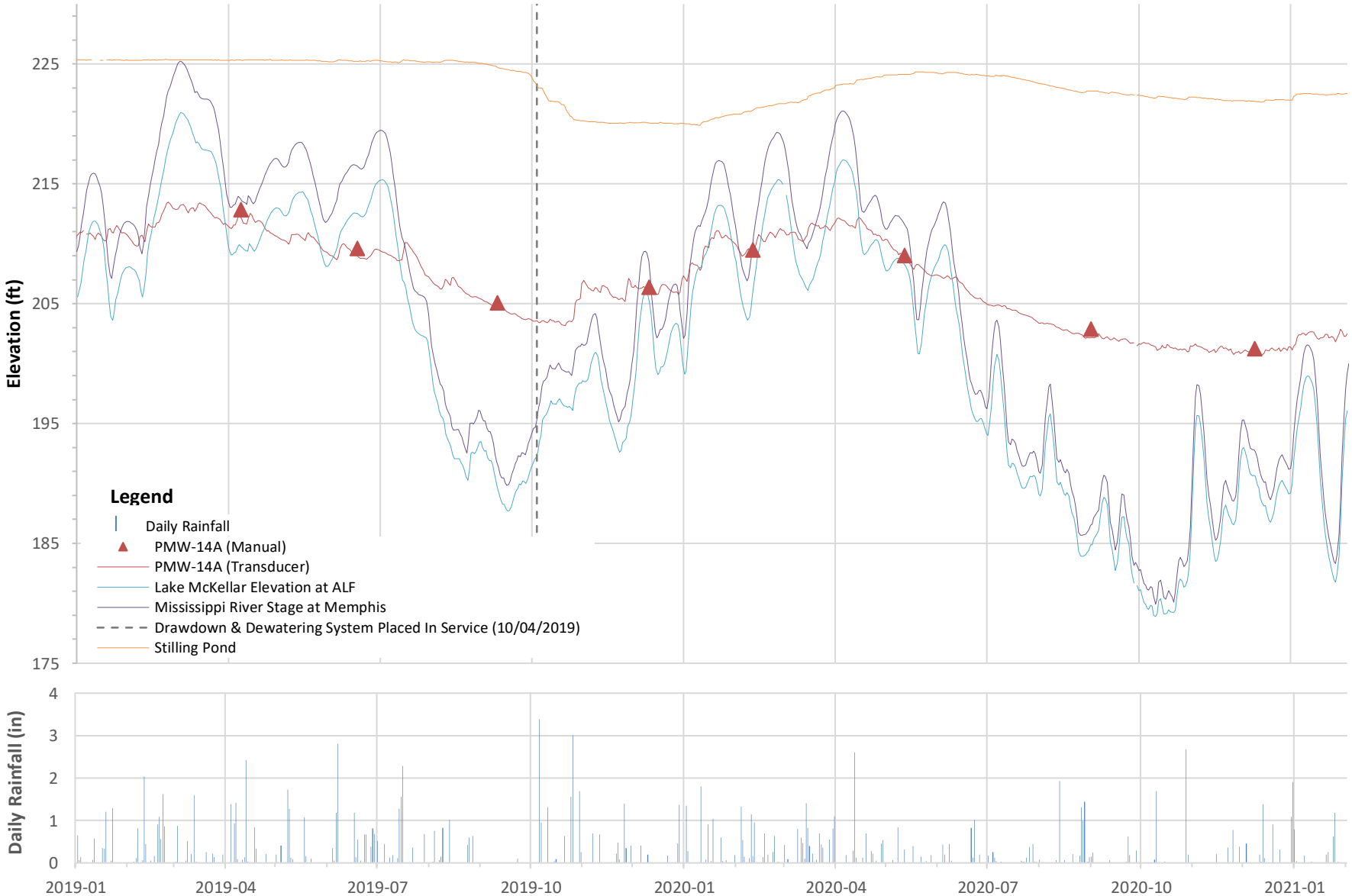
Stantec

Figure/Well No.

55 **PMW-11C**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall



Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

56 **PMW-14A**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

57 **PMW-14B**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

Note:

Gaps in the Groundwater Elevation (iSite) line indicate that iSite data was not available for that time period

Client/Project

Tennessee Valley Authority
Allen Fossil Plant (ALF)

Stantec

Figure/Well No.

58 **PMW-14C**

Title

Groundwater Elevation Hydrograph With Surface Water and Rainfall

APPENDIX B
2020 TVA ALLEN MONITORING WELL GROUNDWATER SAMPLING FORMS

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	11.01
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	170.5
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	159.49 / 394.12
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	165.5
Well ID:	ACC-1A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0925	11.01	290	0	16.1	7.31	551.9	1.28	12.6	10.7	7.90	clear	no odor
0928	11.01	290	0.9	16.3	6.96	545.2	0.80	8.4	2.4	3.40	clear	no odor
0931	11.01	290	1.7	16.3	6.84	547.8	0.52	5.1	-16.7	1.68	clear	no odor
0934	11.01	290	2.6	16.4	6.80	548.6	0.39	4.1	-26.7	1.75	clear	no odor
0937	11.01	290	3.5	16.0	6.77	549.5	0.37	3.6	-31.7	1.41	clear	no odor
0940	11.01	290	4.4	16.4	6.75	549.8	0.33	33.0	-35.0	1.13	clear	no odor
Final Purge Values:		0940	4.4	16.4	6.75	549.8	0.33	33	-35.0	1.13	clear	

2.14.20

Final Controller Settings	
Setting ID:	113
Pressure (PSI):	80
Ambient Air (°C):	7

Sample ID:	ALF-GW-ACC1A-20200219	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/19/2020	*Field Blank ID:*	NA
Collection Time:	9:44	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.4	*Equipment Blank ID:*	NA
Sample Depth (feet):	165.5	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	9:52
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	160.1	**Bottom of Screen (ft. btoc):**	170.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
11.01	16.7	6.67	552	0.79	7.9	-17.1	0.8	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1545

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/19/2020	**Signature:**	John Myer
Sampler Name:	Stefan Stahl	**Date:**	2/19/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	2/24/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	13.08
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	130.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	117.72 / 290.9
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	~~165.5~~ 126.0 CS 2/24/20
Well ID:	ACC-3A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1242	13.08	450	0	17.5	6.63	823	0.38	3.9	37.5	1.32	clear	no odor
1245	13.08	450	1.4	17.4	6.67	827	0.31	3.5	-12.1	1.19	clear	no odor
1248	13.08	450	2.7	17.5	6.73	826	0.33	3.3	-34.4	0.89	clear	no odor
1251	13.08	450	4.1	17.6	6.75	827	0.24	2.5	-44.7	0.66	clear	no odor
1254	13.08	450	5.4	17.6	6.76	826	0.21	2.3	-51.0	0.81	clear	no odor
Final Purge Values:		1254	5.4	17.6	6.76	826	0.21	2.3	-51.0	0.81	clear	

2.19.20

Final Controller Settings	
Setting ID:	105
Pressure (PSI):	75
Ambient Air (°C):	7

Sample ID:	ALF-GW-ACC3A-20200219	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	Yes
Sample Date:	2/19/2020	*Field Blank ID:*	ALF-GW-FB01-20200219
Collection Time:	13:00	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	5.4	*Equipment Blank ID:*	ALF-GW-EB01-20200219
Sample Depth (feet):	126.0 CS 2/24/20	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
		DI water lot #:	PACE 02102020
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	N/A
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:08
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	120.4	**Bottom of Screen (ft. btoc):**	130.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
13.08	17.5	6.78	826	0.33	3.4	-27	0.94	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1545

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	3	3	6	3	3	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/19/2020	**Signature:**	John Myer
Sampler Name:	Stefan Stahl	**Date:**	2/19/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	2/24/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	14.88
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	143.9
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	129.02 / 318.82
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	139.0
Well ID:	ACC-5A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1117	14.88	380	0	18.2	6.87	629	0.55	5.8	31.8	8.21	clear	no odor
1120	14.88	380	1.1	18.2	6.66	538	0.40	4.4	16.5	3.00	clear	no odor
1123	14.88	380	2.3	18.3	6.62	537	0.41	6.0	-5.0	1.16	clear	no odor
1126	14.88	380	3.4	18.1	6.60	615	0.38	3.8	-11.6	1.64	clear	no odor
1129	14.88	380	4.6	18.3	6.59	614	0.30	3.1	-16.5	0.98	clear	no odor
1132	14.88	380	5.7	18.3	6.59	614	0.42	4.6	-191.0	0.90	clear	no odor
Final Purge Values:		1132	5.7	18.3	6.59	614	0.42	4.6	-191.0	0.90	clear	

2.19.20

Final Controller Settings	
Setting ID:	106
Pressure (PSI):	80
Ambient Air (°C):	6

Sample ID:	ALF-GW-ACC5A-20200219	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/19/2020	*Field Blank ID:*	NA
Collection Time:	11:36	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	5.7	*Equipment Blank ID:*	NA
Sample Depth (feet):	139.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	11:44
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	133.5	**Bottom of Screen (ft. btoc):**	143.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
14.88	18.3	6.62	615	0.41	4.4	14.9	1.03	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1545

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/19/2020	**Signature:**	John Myer
Sampler Name:	Stefan Stahl	**Date:**	2/19/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	2/24/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	15.09
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	60.6
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	45.51 / 112.46
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	55.5
Well ID:	ACC-5B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1030	15.09	425	0	18.1	6.85	834	0.63	6.6	-16.0	3.13	clear	no odor
1033	15.09	425	1.3	18.2	6.81	836	0.52	5.4	-37.1	1.98	clear	no odor
1036	15.09	425	2.6	18.3	6.80	836	0.47	5.3	-44.5	1.88	clear	no odor
1039	15.09	425	3.8	18.1	6.80	834	0.46	4.9	-49.0	1.52	clear	no odor
1042	15.09	425	5.1	18.3	6.80	832	0.38	4.1	-52.0	1.71	clear	no odor
Final Purge Values:		1042	5.1	18.3	6.80	832	0.38	4.1	-52.0	1.71	clear	

2.19.20

Final Controller Settings	
Setting ID:	105
Pressure (PSI):	35
Ambient Air (°C):	6

Sample ID:	ALF-GW-ACC5B-20200219	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/19/2020	*Field Blank ID:*	NA
Collection Time:	10:46	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	5.1	*Equipment Blank ID:*	NA
Sample Depth (feet):	55.5	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	10:51
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	50.2	**Bottom of Screen (ft. btoc):**	60.2

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
15.09	18.2	6.83	827	0.74	7.5	-31.2	0.94	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1545

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/19/2020	**Signature:**	John Myer
Sampler Name:	Stefan Stahl	**Date:**	2/19/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	2/24/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA CCR GROUNDWATER SAMPLING FORM

ALF-00-GW-43-

Project Name:	TVA - CCR Groundwater Monitoring	Project Number:	A819P164
Facility Name:	Allen Fossil Plant	Well Type:	MW
Well ID:	ALF-201	Date:	2/24/2020
Initial Depth to Water (feet):	14.51	Well Diameter (inches):	4 inches
Total Depth of Well (feet):	50.70	Total Water Column (feet):	36.19
Method of Purging:	low flow	Pump Start Time:	1244
Measuring Point (toc, tor, etc.):	toc	Pump Intake Depth (feet):	49.00

* If water column is < Sample Set Volume contact TVA Project Manager

Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
1254	14.76	100	17.0	6.91	0.77	1.67	17.5	150.2	2.88	
1259	14.85	100	17.3	6.92	0.77	0.91	9.4	143.1	1.80	
1304	14.92	100	17.4	6.92	0.77	0.76	7.9	141.2	0.95	
1309	14.98	100	17.5	6.95	0.77	0.65	6.8	139.5	1.11	
1314	15.04	100	17.6	6.97	0.77	0.61	6.4	138.6	0.56	
1319	15.08	100	17.6	6.97	0.77	0.59	6.3	138.2	0.46	
Final Stabilization Values:		1319	17.6	6.97	0.77	0.59	6.3	138.2	0.46	
Post Sample Values:		1445	18.0	7.06	0.78	0.85	9.0	172.1	0.38	

Controller Mode/Setting ID:97
Controller Pressure (PSI):24
Discharge Interval (seconds):2
Refill Interval (seconds):13

2-24-20

2-24-20

2-24-20

Sample ID: ALF-GW-005-02242020

Method of Sampling:	Low Flow	MS/MSD/LD Collected (Y/N?):	N
Sample Date:	2/24/2020	Field Blank ID:	NA
Collection Time:	1320	Field Duplicate ID:	NA
Total Volume Purged (gal.):	0.5	Equipment Blank ID:	NA
Sample Depth (feet):	49.00	Filter Blank ID:	NA
Heavy Equipment in Area:	YES	Tubing Blank ID:	NA
Post Metals Collection Turbidity (NTU):	0.59	Lab Supplied DI Water Lot #:	NA
Analysis:	CCR GW	Tubing Lot #:	NA
Color:	CLEAR	Filter Lot #:	NA
Odor:	NONE	Filter Sample Metals (Y/N?):	N
Ambient Air (°C)	15.6	Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	NA
Stability Reached (Y/N):	Y	Sample on-Ice: Time:	1326
If No, Provide Explanation	NA	Drawdown Stabilized < 0.3 ft:	N
Top of Screen (ft. btoc):	23.3	Bottom of Screen (ft. btoc):	49.9

Depth to Water Meter Manufacturer:	Solinst	Model:	101	Serial No:	321335
Pump Controller Manufacturer:	QED	Model:	MP50	Serial No:	1917

Analytes:	Metals	Anions	Radium 226/ 228	TDS	TSS	As Speciacion
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D	HPLC
Bottle Lot Number	050619-2AFW	123019-2ADT	43111905	123019-2ADT	040119-2APJ	20-0002
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
Bottle Volume:	250 mL	500 mL	1L	500 mL	1L	10mL
Number of Bottles:	1	1	3	1	2	2
Preservative:	Nitric Acid	NA	Nitric Acid	NA	NA	EDTA

Lead Sampler Name:	Audrey Price	Date:	2/24/2020	Signature:	
Sampler Name:	Kyle Frame	Date:	2/24/2020	Signature:	
Reviewed by:	Matt Howard	Date:	3-2-20	Signature:	

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	15.55
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	94.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	78.75 / 194.6
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.0
Well ID:	ALF-201B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/25/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0930	15.58	485	0	19.4	7.31	677	0.25	2.5	170.9	1.12	Clear	No Odor
0933	15.58	485	1.5	19.6	7.15	677	0.14	1.4	139.3	0.73	Clear	No Odor
0936	15.58	485	2.9	19.6	7.14	675	0.11	1.2	125.1	0.75	Clear	No Odor
0939	15.58	485	4.4	19.6	7.13	674	0.12	1.3	110.5	0.30	Clear	No Odor
Final Purge Values:		0939	4.4	19.6	7.13	674	0.12	1.3	110.5	0.30	Clear	

Final Controller Settings	
Setting ID:	101
Pressure (PSI):	65
Ambient Air (°C):	10

Sample ID:	ALF-GW-ALF201B-20200225	**QA/QC Sample Collected:**	~~No~~ Yes CS 4/7/20
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/25/2020	*Field Blank ID:*	NA
Collection Time:	9:42	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.4	*Equipment Blank ID:*	~~NA~~ ALF-GW-EB01-20200225 CS 3/5/20
Sample Depth (feet):	89.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	~~NA~~ Pace 02/20/2020 CS 3/5/20
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	9:45
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	83.9	**Bottom of Screen (ft. btoc):**	93.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
1558	19.6	7.13	680	0.18	2.0	105.8	0.59	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	~~1~~ 2 CS 4/7/20	~~1~~ 2 CS 4/7/20	~~2~~ 4 CS 4/7/20	~~1~~ 2 CS 4/7/20	~~1~~ 2 CS 4/7/20	~~2~~ 4 CS 4/7/20
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/25/2020	**Signature:**	
Sampler Name:	Ismael Arroyo	**Date:**	2/25/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	3/5/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/5/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	14.21
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	130.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	116.49 / 287.86
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	126.0
Well ID:	ALF-201A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/25/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0838	14.22	300	0	18.8	7.00	785	0.33	3.4	25.6	1.45	Clear	No odor
0841	14.22	300	0.9	18.8	6.93	790	0.20	2.0	227.5	0.73	Clear	No odor
0844	14.22	300	1.8	18.9	6.97	791	0.18	1.9	210.1	0.39	Clear	No odor
0847	14.22	300	2.7	18.9	7.02	791	0.20	2.3	193.9	0.45	Clear	No odor
Final Purge Values:		0847	2.7	18.9	7.02	791	0.20	2.3	193.9	0.45	Clear	

2-25-20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	80
Ambient Air (°C):	10

Sample ID:	ALF-GW-ALF201A-20200225	**QA/QC Sample Collected:**	~~Yes~~ No CS 4/7/20
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/25/2020	*Field Blank ID:*	NA
Collection Time:	8:53	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.7	*Equipment Blank ID:*	~~ALF-GW-EB01-20200225~~ NA CS 3/5/20
Sample Depth (feet):	126.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace 02/20/2020
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	9:03
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	120.3	**Bottom of Screen (ft. btoc):**	130.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
14.22	19.1	7.2	794	0.14	1.6	172.4	0.16	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	~~2~~ 1 CS 4/7/20	~~2~~ 1 CS 4/7/20	~~4~~ 2 CS 4/7/20	~~2~~ 1 CS 4/7/20	~~2~~ 1 CS 4/7/20	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/25/2020	**Signature:**	
Sampler Name:	Ismael Arroyo	**Date:**	2/25/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	3/5/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/5/2020	**Signature:**	

TVA CCR GROUNDWATER SAMPLING FORM

ALF-00-GW-

Project Name:	TVA - CCR Groundwater Monitoring	Project Number:	A819P164
Facility Name:	Allen Fossil Plant	Well Type:	MW
Well ID:	ALF-202	Date:	2/24/2020
Initial Depth to Water (feet):	9.74	Well Diameter (inches):	4 inches
Total Depth of Well (feet):	44.80	Total Water Column (feet):	35.06
Method of Purging:	low flow	Pump Start Time:	1507
Measuring Point (toc, tor, etc.):	toc	Pump Intake Depth (feet):	43.00

* If water column is < Sample Set Volume contact TVA Project Manager

Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
1515	9.80	500	18.1	7.52	0.556	0.13	1.4	121.1	3.14	
1518	9.80	500	18.1	7.58	0.556	0.12	1.3	97.3	3.22	
1521	9.80	500	18.1	7.61	0.557	0.10	1.1	75.7	3.28	
Final Stabilization Values:		1521	18.1	7.61	0.557	0.10	1.1	75.7	3.28	
Post Sample Values:		1550	18.2	7.66	0.558	0.16	1.7	-40.1	3.07	

Controller Mode/Setting ID:102
Controller Pressure (PSI):25
Discharge Interval (seconds):4.5
Refill Interval (seconds):10.5

Sample ID:	ALF-GW-006-02242020	QA/QC Sample Information Below:	
Method of Sampling:	low flow	MS/MSD/LD Collected (Y/N?):	N
Sample Date:	2/24/2020	Field Blank ID:	NA
Collection Time:	1527	Field Duplicate ID:	NA
Total Volume Purged (gal.):	3	Equipment Blank ID:	NA
Sample Depth (feet):	43.00	Filter Blank ID:	NA
Heavy Equipment in Area:	NO	Tubing Blank ID:	NA
Post Metals Collection Turbidity (NTU):	3.22	Lab Supplied DI Water Lot #:	NA
Analysis:	CCR GW	Tubing Lot #:	NA
Color:	CLEAR	Filter Lot #:	NA
Odor:	NONE	Filter Sample Metals (Y/N?):	N
Ambient Air (°C)	15.9	Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	NA
Stability Reached (Y/N):	Y	Sample on-Ice: Time:	1534
If No, Provide Explanation	NA	Drawdown Stabilized < 0.3 ft:	Y
Top of Screen (ft. btoc):	23.4	Bottom of Screen (ft. btoc):	44.6

Depth to Water Meter Manufacturer:	Solinst	Model:	101	Serial No:	321335
Pump Controller Manufacturer:	QED	Model:	MP50	Serial No:	1917

Analytes:	Metals	Anions	Radium 226/ 228	TDS	TSS	As Speciacion
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D	HPLC
Bottle Lot Number	050619-2AFW	123019-2ADT	43111905	123019-2ADT	040119-2APJ	20-0002
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
Bottle Volume:	250 mL	500 mL	1L	500 mL	1L	10mL
Number of Bottles:	1	1	3	1	2	2
Preservative:	Nitric Acid	NA	Nitric Acid	NA	NA	EDTA

Lead Sampler Name:	Audrey Price	Date:	2-24-20	Signature:	Audrey Price
Sampler Name:	Kyle Frame	Date:	2-24-20	Signature:	Kyle Frame
Reviewed by:	Matt Howard	Date:	3-2-20	Signature:	Matt Howard

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	14.39
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	94.5
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	80.11 / 197.96
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.5
Well ID:	ALF-202B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/24/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1425	14.39	400	0	17.9	6.19	559.2	1.89	18.3	151.4	0.59	Clear	No Odor
1428	14.39	400	1.2	18.0	6.42	537.8	0.49	5.1	128.9	0.50	Clear	No Odor
1431	14.39	400	2.4	18.0	6.59	532.2	0.28	2.8	110.8	0.29	Clear	No Odor
1434	14.39	400	3.6	18.0	6.68	527.9	0.21	2.1	92.7	0.30	Clear	No Odor
1437	14.39	400	4.8	18.0	6.75	525.4	0.19	2.0	79.2	0.20	Clear	No Odor
Final Purge Values:		1437	4.8	18.0	6.75	525.4	0.19	2.0	79.2	0.20	Clear	

2-24-20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	55
Ambient Air (°C):	17

Sample ID:	ALF-GW-ALF202B-20200224	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/24/2020	*Field Blank ID:*	NA
Collection Time:	14:40	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.8	*Equipment Blank ID:*	NA
Sample Depth (feet):	89.5	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	14:50
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	~~83.9~~ 84.1 MD 3/6/2020	**Bottom of Screen (ft. btoc):**	~~93.9~~ 94.1 MD 3/6/2020

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
14.39	18.1	6.88	528.3	0.12	1.2	80	0.15	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/24/2020	**Signature:**	
Sampler Name:	Ismael Arroyo	**Date:**	2/24/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	2/25/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/6/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	13.75
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	150.5
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	136.75 / 337.92
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	145.5
Well ID:	ALF-202A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/24/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1517	13.78	225	0	17.8	7.08	527.0	0.26	2.5	67.6	2.09	Clear	No Odor
1520	13.78	225	0.7	17.8	6.87	522.2	0.15	1.7	59.3	1.46	Clear	No Odor
1523	13.78	225	1.4	17.8	6.83	516.2	0.14	1.5	48.2	1.85	Clear	No Odor
1526	13.78	225	2.0	7.8	6.87	513.9	0.15	1.7	37.2	0.88	Clear	No Odor
Final Purge Values:		1526	2.0	7.8	6.87	513.9	0.15	1.7	37.2	0.88	Clear	

2-24-20

Final Controller Settings	
Setting ID:	107
Pressure (PSI):	70
Ambient Air (°C):	16

Sample ID:	ALF-GW-ALF202A-20200224	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB01-20200224
Sample Date:	2/24/2020	*Field Duplicate ID:*	NA
Collection Time:	15:30	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	2.0	*Filter Blank ID:*	NA
Sample Depth (feet):	145.5	*Tubing Blank ID:*	NA
		DI water lot #:	Pace 02/20/2020
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	N/A
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	No	*Sample on-Ice: Time:*	15:33
If No, Provide Explanation	N/A	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	140.1	**Bottom of Screen (ft. btoc):**	150.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
13.78 CS 3/6/20	18.0	7.0	513.0	0.59	6.1	80.9	0.87	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	2	2	4	2	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/24/2020	**Signature:**	John Myer
Sampler Name:	Ismael Arroyo	**Date:**	2/24/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	3/6/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/6/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA CCR GROUNDWATER SAMPLING FORM

ALF-00-GW-4

Project Name:	TVA - CCR Groundwater Monitoring	Project Number:	A819P164
Facility Name:	Allen Fossil Plant	Well Type:	MW
Well ID:	ALF-203	Date:	2/26/2020
Initial Depth to Water (feet):	9.03	Well Diameter (inches):	4 inches
Total Depth of Well (feet):	54.10	Total Water Column (feet):	45.07
Method of Purging:	low flow	Pump Start Time:	833
Measuring Point (toc, tor, etc.):	toc	Pump Intake Depth (feet):	52.00

* If water column is < Sample Set Volume contact TVA Project Manager

Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
845	9.40	100	14.2	9.68	0.94	0.83	7.9	6.7	4.18	
850	9.50	100	14.8	9.71	0.95	0.14	1.4	-114.8	2.28	
855	9.56	100	15.0	9.74	0.96	0.11	1.1	-155.9	2.46	
900	9.61	100	15.5	9.94	0.95	0.06	0.7	-171.8	2.44	
905	9.65	100	15.0	10.13	0.95	0.09	0.9	-178.7	1.81	
910	9.68	100	15.2	10.16	0.95	0.06	0.6	-183.2	1.58	
915	9.69	100	15.2	10.22	0.95	0.05	0.5	-186.3	1.68	
Final Stabilization Values:		915	15.2	10.22	0.95	0.05	0.5	-186.3	1.68	
Post Sample Values:		1030	15.2	10.36	0.95	0.46	4.2	-144.7	1.59	

AJP 2-26-20

AJP 2-26-20

AJP 2-26-20

Controller Mode/Setting ID:97
Controller Pressure (PSI):28
Discharge Interval (seconds):2
Refill Interval (seconds):13

Sample ID: ALF-GW-007-02262020

Method of Sampling:	low flow
Sample Date:	2/26/2020
Collection Time:	917
Total Volume Purged (gal.):	1
Sample Depth (feet):	~~54.00~~ 52.00 MTH 3/9/20
Heavy Equipment in Area:	NONE
Post Metals Collection Turbidity (NTU):	1.93
Analysis:	CCR GW
Color:	RUSTY
Odor:	ROTTEN EGGS
Ambient Air (°C)	6.9
Stability Reached (Y/N):	Y
If No, Provide Explanation	NA

QA/QC Sample Information Below:

MS/MSD/LD Collected (Y/N?):	N
Field Blank ID:	ALF-AQ-900-02262020
Field Duplicate ID:	NA
Equipment Blank ID:	ALF-AQ-902-02262020
Filter Blank ID:	NA
Tubing Blank ID:	NA
Lab Supplied DI Water Lot #:	GEL 10-2-10 PACE 2-4-20
Tubing Lot #:	NA
Filter Lot #:	NA
Filter Sample Metals (Y/N?):	N
Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	NA
Sample on-Ice: Time:	922
Drawdown Stabilized < 0.3 ft:	Y

Top of Screen (ft. btoc):	33.1	Bottom of Screen (ft. btoc):	54.1

Depth to Water Meter Manufacturer:	Solinst	Model:	101	Serial No:	321335
Pump Controller Manufacturer:	QED	Model:	MP50	Serial No:	1917

Analytes:	Metals	Anions	Radium 226/ 228	TDS	TSS	As Speciacion
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D	HPLC
Bottle Lot Number	050619-2AFW	123019-2ADT	43111905	123019-2ADT	040119-2APJ	20-0002
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
Bottle Volume:	250 mL	500 mL	1L	500 mL	1L	10mL
Number of Bottles:	3	3	9	3	6	2
Preservative:	Nitric Acid	NA	Nitric Acid	NA	NA	EDTA

Lead Sampler Name:	Audrey Price	Date:	2/26/2020	Signature:	Audrey
Sampler Name:	Kyle Frame	Date:	2/26/2020	Signature:	Kyle Frame
Reviewed by:	Matt Howard	Date:	3-2-20	Signature:	M Howard

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	9.50
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	94.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	84.80 / 209.55
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.0
Well ID:	ALF-203B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/25/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0932	9.51	200	0	14.8	6.78	434.5	1.22	12.4	46.1	14.4	Clear	No Odor
0935	9.51	200	0.6	14.9	6.70	423.5	0.70	6.6	37.3	8.36	Clear	No Odor
0938	9.51	200	1.2	14.9	6.79	423.6	0.53	5.3	34.2	6.09	Clear	No Odor
0941	9.51	200	1.8	14.9	6.83	424.7	0.45	4.4	31.1	4.29	Clear	No Odor
0944	9.51	200	2.4	14.9	6.85	424.9	0.42	4.1	29.5	4.22	Clear	No Odor
0947	9.51	200	3.0	14.9	6.87	423.7	0.35	3.5	25.0	3.88	Clear	No Odor
Final Purge Values:		0947	3.0	14.9	6.87	423.7	0.35	3.5	25	3.88	Clear	

SM 2/25/2020

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	50
Ambient Air (°C):	11

Sample ID:	ALF-GW-ALF203B-20200225	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/25/2020	*Field Blank ID:*	NA
Collection Time:	9:50	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.0	*Equipment Blank ID:*	NA
Sample Depth (feet):	89.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:58
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	83.9	**Bottom of Screen (ft. btoc):**	93.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
9.51	15.1	7.01	424.4	0.68	6.9	25.9	4.24	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	1119051	012020-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyugen	**Date:**	2/25/2020	**Signature:**	
Sampler Name:	Stone McCoy	**Date:**	2/25/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/27/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/3/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	9.53
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	122.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	113.17 / 279.66
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	118.0
Well ID:	ALF-203A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/25/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1037	9.55	300	0	16.4	6.72	320.2	1.09	11.0	36.0	7.85	Clear	No Odor
1040	9.55	300	0.9	16.3	6.52	313.4	0.60	6.4	33.3	5.33	Clear	No Odor
1043	9.55	300	1.8	16.3	6.59	312.6	0.49	4.9	30.9	3.75	Clear	No Odor
1046	9.55	300	2.7	16.4	6.65	312.6	0.39	3.8	28.1	3.80	Clear	No Odor
1049	9.55	300	3.6	16.3	6.68	311.1	0.34	3.3	25.5	3.62	Clear	No Odor
Final Purge Values:		1049	3.6	16.3	6.68	311.1	0.34	3.3	25.5	3.62	Clear	

SM 2/25/2020

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	70
Ambient Air (°C):	10

Sample ID:	ALF-GW-ALF203A-20200225	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/25/2020	*Field Blank ID:*	~~ALF-GW-FB01-20200225~~ ALF-GW-FB02-20200225 (CR 2/27/2020)
Collection Time:	10:52	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.6	*Equipment Blank ID:*	NA
Sample Depth (feet):	118.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Analytical Services, LLC Minneapolis, MN. Fill date 02/20/2020
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:59
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	112.3	**Bottom of Screen (ft. btoc):**	122.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
9.55	16.3	6.85	311.7	0.77	7.8	25.4	3.47	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	1119051	012020-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	~~1~~ 2 (CR 2/27/2020)	~~1~~ 2 (CR 2/27/2020)	~~2~~ 4 (CR 2/27/2020)	~~1~~ 2 (CR 2/27/2020)	~~1~~ 2 (CR 2/27/2020)	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyugen	**Date:**	2/25/2020	**Signature:**	
Sampler Name:	Stone McCoy	**Date:**	2/25/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/27/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/3/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA CCR GROUNDWATER SAMPLING FORM

ALF-00-GW-43-(

Project Name:	TVA - CCR Groundwater Monitoring	Project Number:	A819P164
Facility Name:	Allen Fossil Plant	Well Type:	MW
Well ID:	ALF-204	Date:	2/25/2020
Initial Depth to Water (feet):	5.50	Well Diameter (inches):	4 inches
Total Depth of Well (feet):	59.20	Total Water Column (feet):	53.70
Method of Purging:	low flow	Pump Start Time:	1145
Measuring Point (toc, tor, etc.):	toc	Pump Intake Depth (feet):	49.00

* If water column is < Sample Set Volume contact TVA Project Manager

Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
1155	5.71	100	14.3	7.19	0.476	0.99	9.4	-112.0	10.9	
1200	5.72	100	14.2	7.19	0.486	0.35	3.4	-137.7	14.3	
1205	5.75	100	14.3	7.19	0.487	0.29	2.9	-142.1	9.28	
1210	5.75	100	14.4	7.19	0.486	0.29	2.8	-143.5	6.50	
1215	5.75	100	14.4	7.19	0.486	0.27	2.8	-146.2	4.99	
1220	5.75	100	14.3	7.20	0.488	0.23	2.2	-148.6	6.35	
1225	5.76	100	14.4	7.20	0.488	0.24	2.3	-146.3	4.85	
1230	5.76	100	14.4	7.20	0.486	0.20	1.9	-148.3	7.12	
1235	5.76	100	14.4	7.20	0.485	0.24	2.4	-149.4	11.2	
1240	5.75	100	14.4	7.21	0.499	0.21	2.0	-152.7	7.00	
1245	5.75	100	14.5	7.21	0.498	0.19	1.9	-154.5	6.22	
1250	5.75	100	14.5	7.20	0.497	0.17	1.7	-154.6	7.00	
1255	5.75	100	14.4	7.20	0.496	0.31	3.0	-155.7	8.37	
1300	5.75	100	14.4	7.21	0.501	0.35	3.4	-141.3	5.99	
1305	5.76	100	14.4	7.21	0.501	0.17	1.7	-152.7	6.03	
1310	5.76	100	14.4	7.21	0.501	0.17	1.7	-156.1	5.63	
1315	5.76	100	14.4	7.19	0.501	0.14	1.4	-158.7	5.21	
1320	5.75	100	14.4	7.20	0.500	0.13	1.2	-158.4	4.91	
1325	5.75	100	14.4	7.21	0.500	0.14	1.5	-159.2	4.78	
1330	5.75	100	14.5	7.21	0.500	0.13	1.3	-160.3	4.73	
										Controller Mode/Setting ID:97
										Controller Pressure (PSI):23
										Discharge Interval (seconds):2
										Refill Interval (seconds):13
Final Stabilization Values:		1330	14.5	7.21	0.500	0.13	1.3	-160.3	4.73	
Post Sample Values:		1451	14.5	7.19	0.518	0.92	9.1	-140.7	6.78	

AP 2-25-20

AP 2-25-20

AP 2-25-20

Sample ID: ALF-GW-008-02252020

Method of Sampling:	low flow	MS/MSD/LD Collected (Y/N?):	N
Sample Date:	2/25/2020	Field Blank ID:	ALF-GW-900-02252020
Collection Time:	1332	Field Duplicate ID:	NA
Total Volume Purged (gal.):	2.5	Equipment Blank ID:	NA
Sample Depth (feet):	~~49.00~~	Filter Blank ID:	NA
Heavy Equipment in Area:	NO	Tubing Blank ID:	NA
Post Metals Collection Turbidity (NTU):	4.45	Lab Supplied DI Water Lot #:	PACE 2-4-20 and GEL 10-2-19
Analysis:	CCR GW	Tubing Lot #:	NA
Color:	CLEAR	Filter Lot #:	NA
Odor:	NONE	Filter Sample Metals (Y/N?):	N
Ambient Air (°C)	12.9	Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	NA
Stability Reached (Y/N):	Y	Sample on-Ice: Time:	1337
If No, Provide Explanation	NA	Drawdown Stabilized < 0.3 ft:	Y
Top of Screen (ft. btoc):	49.0	Bottom of Screen (ft. btoc):	59.2

QA/QC Sample Information Below:

Depth to Water Meter Manufacturer:	Solinst	Model:	101	Serial No:	321335
Pump Controller Manufacturer:	QED	Model:	MP50	Serial No:	1917

Analytes:	Metals	Anions	Radium 226/ 228	TDS	TSS	As Speciacion
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D	HPLC
Bottle Lot Number	050619-2AFW	123019-2ADT	43111905	123019-2ADT	040119-2APJ	20-0002
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
Bottle Volume:	250 mL	500 mL	1L	500 mL	1L	10mL
Number of Bottles:	2	2	6	2	4	2
Preservative:	Nitric Acid	NA	Nitric Acid	NA	NA	EDTA

Lead Sampler Name:	Audrey Price	Date:	2/25/2020	Signature:	Audrey Price
Sampler Name:	Kyle Frame	Date:	2/25/2020	Signature:	Kyle Frame
Reviewed by:	Matt Howard	Date:	3-2-20	Signature:	Matt Howard

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	5.56
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	94.1
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	88.54 / 218.79
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.0
Well ID:	ALF-204B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/25/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1155	5.56	350	0	14.9	6.64	271.4	1.40	13.7	43.9	5.12	Clear	No Odor
1158	5.56	350	1.1	14.9	6.62	268.9	0.70	6.8	41.0	3.99	Clear	No Odor
1201	5.56	350	2.1	14.9	6.64	267.8	0.44	4.7	38.4	3.08	Clear	No Odor
1204	5.56	350	3.2	14.9	6.70	266.0	0.38	3.5	35.7	3.04	Clear	No Odor
1207	5.56	350	4.2	14.9	6.72	265.6	0.30	3.1	34.1	2.88	Clear	No Odor
Final Purge Values:		1207	4.2	14.9	6.72	265.6	0.30	3.1	34.1	2.88	Clear	

SM 2/25/2020

Final Controller Settings	
Setting ID:	102
Pressure (PSI):	60
Ambient Air (°C):	11

Sample ID:	ALF-GW-ALF204B-20200225	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	Yes
Sample Date:	2/25/2020	*Field Blank ID:*	NA
Collection Time:	12:10	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.2	*Equipment Blank ID:*	NA
Sample Depth (feet):	89.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:16
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	~~120.0~~ 83.7 (CR 2/27/2020)	**Bottom of Screen (ft. btoc):**	~~130.0~~ 93.7 (CR 2/27/2020)

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
5.56	14.9	6.94	26.5	0.57	5.6	43.2	2.92	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	1119051	012020-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	3	3	6	3	3	6
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyugen	**Date:**	2/25/2020	**Signature:**	
Sampler Name:	Stone McCoy	**Date:**	2/25/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/27/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/3/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	5.57
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	120.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	115.13 / 284.5
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	116.0
Well ID:	ALF-204A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/26/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0838	5.58	300	0	14.2	6.71	427.8	0.45	4.3	83.8	2.54	Clear	No Odor
0841	5.58	300	0.9	14.1	6.63	427.8	0.39	3.6	81.1	2.38	Clear	No Odor
0844	5.58	300	1.8	14.1	6.62	427.6	0.36	3.7	75.7	2.22	Clear	No Odor
Final Purge Values:		0844	1.8	14.1	6.62	427.6	0.36	3.7	75.7	2.22	Clear	

SM 2/26/2020

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	65
Ambient Air (°C):	5

Sample ID:	ALF-GW-ALF204A-20200226	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB02-20200226
Sample Date:	2/26/2020	*Field Duplicate ID:*	NA
Collection Time:	8:47	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	1.8	*Filter Blank ID:*	NA
Sample Depth (feet):	116.0	*Tubing Blank ID:*	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Analytical Services, LLC Minneapolis, MN. Fill date 02/20/2020
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	8:55
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	~~120~~ 110.3 MD 3/5/2020	**Bottom of Screen (ft. btoc):**	~~130~~ 120.3 MD 3/5/2020

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
5.58	14.2	6.90	429	0.61	6.2	56.4	2.44	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	1119051	012020-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	~~1~~ 2 (CR 3/5/2020)	~~1~~ 2 (CR 3/5/2020)	~~2~~ 4 (CR 3/5/2020)	~~1~~ 2 (CR 3/5/2020)	~~1~~ 2 (CR 3/5/2020)	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyugen	**Date:**	2/26/2020	**Signature:**	
Sampler Name:	Stone McCoy	**Date:**	2/26/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	3/5/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/5/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA CCR GROUNDWATER SAMPLING FORM

ALF-00-GW-4

Project Name:	TVA - CCR Groundwater Monitoring	Project Number:	A819P164
Facility Name:	Allen Fossil Plant	Well Type:	MW
Well ID:	ALF-205	Date:	2/26/2020
Initial Depth to Water (feet):	9.82	Well Diameter (inches):	4 inches
Total Depth of Well (feet):	55.60	Total Water Column (feet):	45.78
Method of Purging:	low flow	Pump Start Time:	1115
Measuring Point (toc, tor, etc.):	toc	Pump Intake Depth (feet):	54.00

* If water column is < Sample Set Volume contact TVA Project Manager

Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
1125	10.09	100	13.1	6.85	0.91	1.04	9.9	-31.6	1.56	
1130	10.14	100	13.3	6.85	0.91	0.70	6.6	-47.2	0.96	
1135	10.20	100	13.4	6.85	0.91	0.62	5.9	-50.1	1.12	
1140	10.25	100	13.4	6.84	0.90	0.64	6.2	-49.9	0.84	
1145	10.28	100	13.4	6.88	0.90	0.48	4.7	-54.4	0.60	
1150	10.28	100	13.5	6.93	0.90	0.43	4.1	-62.6	1.24	
1155	10.29	100	13.3	6.96	0.90	0.36	3.4	-66.8	1.60	
Final Stabilization Values:		1155	13.3	6.96	0.90	0.36	3.4	-66.8	1.60	
Post Sample Values:		1329	13.2	7.09	0.90	0.48	4.6	-49.8	0.52	

Controller Mode/Setting ID:97
Controller Pressure (PSI):31
Discharge Interval (seconds):2
Refill Interval (seconds):13

GP 2-26-20

GP 2-26-20

GP 2-26-20

Sample ID: ALF-GW-009-02262020

Method of Sampling:	low flow	MS/MSD/LD Collected (Y/N?):	N
Sample Date:	2/26/2020	Field Blank ID:	NA
Collection Time:	1157	Field Duplicate ID:	NA
Total Volume Purged (gal.):	0.5	Equipment Blank ID:	NA
Sample Depth (feet):	54.00	Filter Blank ID:	NA
Heavy Equipment in Area:	NO	Tubing Blank ID:	NA
Post Metals Collection Turbidity (NTU):	0.47	Lab Supplied DI Water Lot #:	NA
Analysis:	CCR GW	Tubing Lot #:	NA
Color:	CLEAR	Filter Lot #:	NA
Odor:	NONE	Filter Sample Metals (Y/N?):	N
Ambient Air (°C)	8.2	Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	NA
Stability Reached (Y/N):	Y	Sample on-Ice: Time:	1206
If No, Provide Explanation	NA	Drawdown Stabilized < 0.3 ft:	Y
Top of Screen (ft. btoc):	34.5	Bottom of Screen (ft. btoc):	55.5

QA/QC Sample Information Below:

Depth to Water Meter Manufacturer:	Solinst	Model: 101	Serial No: 321335
Pump Controller Manufacturer:	QED	Model: MP50	Serial No: 1917

Analytes:	Metals	Anions	Radium 226/ 228	TDS	TSS	As Speciacion
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D	HPLC
Bottle Lot Number	050619-2AFW	123019-2ADT	43111905	123019-2ADT	040119-2APJ	20-0002
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
Bottle Volume:	250 mL	500 mL	1L	500 mL	1L	10mL
Number of Bottles:	1	1	3	1	2	2
Preservative:	Nitric Acid	NA	Nitric Acid	NA	NA	EDTA

Lead Sampler Name:	Audrey Price	Date:	2/26/2020	Signature:	Audrey Price
Sampler Name:	Kyle Frame	Date:	2/26/2020	Signature:	Kyle Frame
Reviewed by:	Matt Howard	Date:	3-2-20	Signature:	Matt Howard

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	8.71
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	86.5
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	77.79 / 192.23
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	81.5
Well ID:	ALF-205B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/26/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1032	8.74	350	0	15.2	7.10	271.2	0.25	2.5	209.5	2.19	Clear	No odor
1035	8.74	350	1.1	15.3	6.92	269.6	0.15	1.5	193.7	2.59	Clear	No odor
1038	8.74	350	2.1	15.3	6.93	268.4	0.13	1.3	181.7	1.96	Clear	No odor
1041	8.74	350	3.2	15.3	6.94	266.8	0.11	1.3	170.7	1.65	Clear	No odor
Final Purge Values:		1041	3.2	15.3	6.94	266.8	0.11	1.3	170.7	1.65	Clear	

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	50
Ambient Air (°C):	9

2-26-20

Sample ID:	ALF-GW-ALF205B-20200226	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/26/2020	*Field Blank ID:*	ALF-GW-FB01-20200226
Collection Time:	10:45	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.2	*Equipment Blank ID:*	NA
Sample Depth (feet):	81.5	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace 02/20/2020
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*QA/QC Sample Collected:*	As_Spec
		Sample on-Ice: Time:	10:50
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	76.1	**Bottom of Screen (ft. btoc):**	86.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
8.74	15.3	7.01	261.7	0.74	6.5	169.9	0.63	**Odor:**	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	2	2	4	2	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/26/2020	**Signature:**	
Sampler Name:	Ismael Arroyo	**Date:**	2/26/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	3/5/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/6/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	8.38
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	112.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	104.02 / 257.04
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	107.0
Well ID:	ALF-205A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/26/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1000	8.38	400	0	15.3	6.88	335.7	0.53	5.2	56.7	2.99	Clear	No Odor
1003	8.38	400	1.2	15.3	6.88	335.9	0.39	3.8	52.6	2.80	Clear	No Odor
1006	8.38	400	2.4	15.2	6.88	335.9	0.36	3.6	50.6	2.69	Clear	No Odor
1009	8.38	400	3.6	15.3	6.89	335.9	0.34	3.4	49.9	2.14	Clear	No Odor
Final Purge Values:		1009	3.6	15.3	6.89	335.9	0.34	3.4	49.9	2.14	Clear	

SM 2/26/2020

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	65
Ambient Air (°C):	5

Sample ID:	ALF-GW-ALF205A-20200226	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/26/2020	*Field Blank ID:*	NA
Collection Time:	10:12	*Field Duplicate ID:*	ALF-GW-DUP03-20200226
Total Volume Purged (L):*	3.6	*Equipment Blank ID:*	NA
Sample Depth (feet):	107.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	10:18
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	~~120.0~~ 102.0 (CR 3/5/2020)	**Bottom of Screen (ft. btoc):**	~~130.0~~ 112.0 (CR 3/5/2020)

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
8.38	15.2	6.98	337.1	0.44	4.4	36.4	1.84	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	1119051	012020-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	2	2	4	2	2	4
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyugen	**Date:**	2/26/2020	**Signature:**	
Sampler Name:	Stone McCoy	**Date:**	2/26/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	3/5/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/5/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA CCR GROUNDWATER SAMPLING FORM

ALF-00-GW-43

Project Name:	TVA - CCR Groundwater Monitoring	Project Number:	A819P164
Facility Name:	Allen Fossil Plant	Well Type:	MW
Well ID:	ALF-206	Date:	2/25/2020
Initial Depth to Water (feet):	13.85	Well Diameter (inches):	4 inches
Total Depth of Well (feet):	64.40	Total Water Column (feet):	50.55
Method of Purging:	low flow	Pump Start Time:	946
Measuring Point (toc, tor, etc.):	toc	Pump Intake Depth (feet):	54.00

* If water column is < Sample Set Volume contact TVA Project Manager

Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
953	13.89	500	15.6	7.41	0.316	0.26	2.6	-167.6	1.36	
956	13.89	500	15.7	7.40	0.315	0.18	1.8	-176.9	0.91	
959	13.89	500	15.7	7.39	0.315	0.15	1.6	-181.3	0.75	
										Controller Mode/Setting ID:100
										Controller Pressure (PSI):40
										Discharge Interval (seconds):3.5
										Refill Interval (seconds):11.5
Final Stabilization Values:		959	15.7	7.39	0.315	0.15	1.6	-181.3	0.75	
Post Sample Values:		1110	15.5	7.39	0.323	0.19	1.9	-161.3	2.45	

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Apr 2-25-20

Apr 2-25-20

Sample ID: ALF-GW-010-02252020

Method of Sampling:	low flow	MS/MSD/LD Collected (Y/N?):	Y
Sample Date:	2/25/2020	Field Blank ID:	NA
Collection Time:	1013	Field Duplicate ID:	ALF-GW-903-02252020
Total Volume Purged (gal.):	5	Equipment Blank ID:	NA
Sample Depth (feet):	54.00	Filter Blank ID:	NA
Heavy Equipment in Area:	NO	Tubing Blank ID:	NA
Post Metals Collection Turbidity (NTU):	0.44	Lab Supplied DI Water Lot #:	NA
Analysis:	CCR GW	Tubing Lot #:	NA
Color:	CLEAR	Filter Lot #:	NA
Odor:	NONE	Filter Sample Metals (Y/N?):	N
Ambient Air (°C)	15.8	Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	NA
Stability Reached (Y/N):	Y	Sample on-Ice: Time:	1018
If No, Provide Explanation	NA	Drawdown Stabilized < 0.3 ft:	Y
Top of Screen (ft. btoc):	54.00	Bottom of Screen (ft. btoc):	64.2

Depth to Water Meter Manufacturer:	Solinst	Model:	101	Serial No:	321335
Pump Controller Manufacturer:	QED	Model:	MP50	Serial No:	1917

Analytes:	Metals	Anions	Radium 226/ 228	TDS	TSS	As Speciacion
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D	HPLC
Bottle Lot Number	050619-2AFW	123019-2ADT	43111905	123019-2ADT	040119-2APJ	20-0002
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
Bottle Volume:	250 mL	500 mL	1L	500 mL	1L	10mL
Number of Bottles:	4	4	9	3	6	8
Preservative:	Nitric Acid	NA	Nitric Acid	NA	NA	EDTA

Lead Sampler Name:	Audrey Price	Date:	2/25/2020	Signature:	Audrey Price
Sampler Name:	Kyle Frame	Date:	2/25/2020	Signature:	Kyle Frame
Reviewed by:	Matt Howard	Date:	3-2-20	Signature:	Matt Howard

TVA CCR GROUNDWATER SAMPLING FORM

ALF-00-GW-4

Project Name:	TVA - CCR Groundwater Monitoring	Project Number:	A819P164
Facility Name:	Allen Fossil Plant	Well Type:	MW
Well ID:	ALF-210	Date:	2/24/2020
Initial Depth to Water (feet):	9.88	Well Diameter (inches):	4 inches
Total Depth of Well (feet):	48.80	Total Water Column (feet):	38.92 * If water column is < Sample Set Volume contact TVA Project Manager
Method of Purging:	low flow	Pump Start Time:	834
Measuring Point (toc, tor, etc.):	toc	Pump Intake Depth (feet):	47.00

Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
845	10.26	100	14.7	6.74	0.83	1.46	14.3	32.4	15.5	
850	10.40	100	15.1	6.71	0.80	0.69	7.0	16.0	11.7	
855	10.47	100	15.2	6.70	0.81	0.58	5.7	14.0	13.0	
900	10.55	100	15.2	6.73	0.80	0.45	4.5	10.8	10.8	
905	10.62	100	15.2	6.74	0.80	0.39	3.9	5.2	9.81	
910	10.69	100	15.2	6.75	0.79	0.38	3.9	2.1	9.08	
915	10.72	100	15.4	6.76	0.80	0.42	4.1	1.6	10.2	
920	10.76	100	15.3	6.75	0.80	0.38	3.7	2.1	8.72	
925	10.81	100	15.3	6.75	0.79	0.34	3.5	1.6	8.04	
930	10.85	100	15.3	6.76	0.79	0.36	3.7	1.0	7.28	
Final Stabilization Values:		930	15.3	6.76	0.79	0.36	3.7	1.0	7.28	
Post Sample Values:		1105	15.5	6.79	0.81	0.55	5.5	26.4	6.68	

2-24-20

Controller Mode/Setting ID:97
Controller Pressure (PSI):24
Discharge Interval (seconds):2
Refill Interval (seconds):13

2-24-20

Sample ID: ALF-GW-014-02242020

Method of Sampling:	Low Flow
Sample Date:	2/24/2020
Collection Time:	938
Total Volume Purged (gal.):	2
Sample Depth (feet):	47.00
Heavy Equipment in Area:	NO
Post Metals Collection Turbidity (NTU):	10.2
Analysis:	CCR GW
Color:	CLEAR
Odor:	NONE
Ambient Air (°C)	12.2
Stability Reached (Y/N):	Y
If No, Provide Explanation	HISTORICALLY HIGH TURBIDITY

QA/QC Sample Information Below:

MS/MSD/LD Collected (Y/N?):	N
Field Blank ID:	ALF-AQ-900-02242020
Field Duplicate ID:	NA
Equipment Blank ID:	NA
Filter Blank ID:	ALF-AQ-901A-02242020 / ALF-AQ-901B-02242020
Tubing Blank ID:	ALF-AQ-904-02242020
Lab Supplied DI Water Lot #:	PACE 2-4-20 AND GEL 10-2-19
Tubing Lot #:	18323
Filter Lot #:	E-1814 (Stand. Sampling) / 19-0231 (As Spec.)
Filter Sample Metals (Y/N?):	Y
Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	Y
Sample on-Ice: Time:	943
Drawdown Stabilized < 0.3 ft:	N

MTH
3/9/20

Top of Screen (ft. btoc):	27.2	Bottom of Screen (ft. btoc):	48.1 ~~64.2~~

Depth to Water Meter Manufacturer:	Solinst	Model:	101	Serial No:	321335
Pump Controller Manufacturer:	QED	Model:	MP50	Serial No:	1917

Analytes:	Metals	Anions	Radium 226/ 228	TDS	TSS	As Speciacion
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D	HPLC
Bottle Lot Number	050619-2AFW	123019-2ADT	43111905	123019-2ADT	040119-2APJ	20-0002
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
Bottle Volume:	250 mL	500 mL	1L	500 mL	1L	10mL
Number of Bottles:	5	2	6	2	4	4
Preservative:	Nitric Acid	NA	Nitric Acid	NA	NA	EDTA

Lead Sampler Name:	Audrey Price	Date:	2/24/2020	Signature:	Audrey Price
Sampler Name:	Kyle Frame	Date:	2/24/2020	Signature:	Kyle Frame
Reviewed by:	Matt Howard	Date:	3-2-20	Signature:	Matt Howard

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	TVA TDEC Order	**Initial Depth to Water (feet):**	16.35
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	89.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	73.47 / 181.55
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175568282		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	84.5
Well ID:	ALF-~~209B~~210B CS 4/7/20	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	2/11/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0938	16.34	470	0	17.0	7.31	816	1.31	12.3	132.7	4.02	clear	no odor
0941	16.34	470	1.4	17.2	6.81	801	0.72	7.7	81.6	3.95	clear	no odor
0944	16.34	470	2.8	17.2	6.82	800	0.77	7.7	53.4	2.40	clear	no odor
0947	16.34	470	4.2	17.2	6.86	799	0.59	5.9	13.9	2.51	clear	no odor
0950	16.34	470	5.6	17.3	6.88	797	0.43	4.4	-11.0	3.17	clear	no odor
0953	16.34	470	7.1	17.2	6.90	795	0.34	3.6	-39.0	2.88	clear	no odor
0956	16.34	470	8.5	17.2	6.91	794	0.31	3.0	-51.1	1.67	clear	no odor
Final Purge Values:		0956	8.5	17.2	6.91	794	0.31	3.0	-51.1	1.67	clear	**Ambient Air (°C):** 4

DW 2/11/20

Final Controller Settings	
Setting ID:	102
Pressure (PSI):	60

Sample ID:	ALF-GW-073-20200211	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/11/2020	*Field Blank ID:*	NA
Collection Time:	10:00	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	8.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	84.5	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	TDEC Order	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	NA	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	10:06
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	79.6	**Bottom of Screen (ft. btoc):**	89.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
16.34	17.3	7.02	794	0.45	0.5	3.2	2.51	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	Rental ID: 032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1545

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**
Method:	SW 846 6020A/7470A	SW 846 9056A, SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C
Bottle Lot Number	863673	761481	43101905	761498
Bottle Type:	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	500	1000	500
No. of Bottles Collected:	1	1	3	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved

Lead Sampler Name:	David Webb	**Date:**	2/11/2020	**Signature:**	
Sampler Name:	Ismael Arroyo	**Date:**	2/11/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	2/19/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	George Cartwright	**Date:**	3/9/2020	**Signature:**	George Cartwright

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	11.98
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	130.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	118.42 / 292.63
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	125.0
Well ID:	ALF-210A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/18/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1422	11.98	300	0	16.6	6.64	1299	0.78	8.0	166.2	2.46	clear	no odor
1425	11.98	300	0.90	16.8	6.69	1293	0.73	7.5	100.8	2.58	clear	no odor
1428	11.98	300	1.80	16.8	6.73	1289	0.68	7.0	53.2	1.56	clear	no odor
1431	11.98	300	2.70	16.9	6.77	1288	0.63	6.5	18.7	1.06	clear	no odor
Final Purge Values:		1431	2.7	16.9	6.77	1288	0.63	6.5	18.7	1.06	clear	

TV 2/18/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	75
Ambient Air (°C):	7

Sample ID:	ALF-GW-ALF210A-20200218	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/18/2020	*Field Blank ID:*	ALF-GW-FB02-20200218
Collection Time:	14:34	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.7	*Equipment Blank ID:*	NA
Sample Depth (feet):	125.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Fill Date: 02/10/20 Pace Minneapolis
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	14:40
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	120.0	**Bottom of Screen (ft. btoc):**	130.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
11.98	16.9	6.92	1277	0.45	4.6	10.1	1.84	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP-50	**Serial No:**	MP-50-2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	010620-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	2	2	4	2	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nguyen	**Date:**	2/18/2020	**Signature:**	
Sampler Name:	Trenton VanEgtern	**Date:**	2/18/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/24/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA CCR GROUNDWATER SAMPLING FORM

ALF-00-GW-43-

Project Name:	TVA - CCR Groundwater Monitoring	Project Number:	A819P164
Facility Name:	Allen Fossil Plant	Well Type:	MW
Well ID:	ALF-212	Date:	2/25/2020
Initial Depth to Water (feet):	29.94	Well Diameter (inches):	4 inches
Total Depth of Well (feet):	67.90	Total Water Column (feet):	37.96
Method of Purging:	low flow	Pump Start Time:	817
Measuring Point (toc, tor, etc.):	toc	Pump Intake Depth (feet):	67.00

* If water column is < Sample Set Volume contact TVA Project Manager

Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
825	30.25	390	17.8	7.02	0.573	0.37	3.8	-110.4	1.73	
829	30.25	390	17.9	7.08	0.573	0.23	2.3	-126.1	0.75	
833	30.25	390	17.9	7.12	0.572	0.16	1.7	-137.0	0.57	
Final Stabilization Values:		833	17.9	7.12	0.572	0.16	1.7	-137.0	0.57	
Post Sample Values:		906	17.9	7.15	0.571	0.21	2.2	-131.8	0.86	

Controller Mode/Setting ID:101
Controller Pressure (PSI):40
Discharge Interval (seconds):4
Refill Interval (seconds):11

AJP 2-25-20

AJP 2-25-20

AJP 2-25-20

Sample ID: ALF-GW-016-02252020

Method of Sampling:	low flow	MS/MSD/LD Collected (Y/N?):	N
Sample Date:	2/25/2020	Field Blank ID:	NA
Collection Time:	839	Field Duplicate ID:	NA
Total Volume Purged (gal.):	3.5	Equipment Blank ID:	NA
Sample Depth (feet):	67.00	Filter Blank ID:	NA
Heavy Equipment in Area:	YES	Tubing Blank ID:	NA
Post Metals Collection Turbidity (NTU):	0.85	Lab Supplied DI Water Lot #:	NA
Analysis:	CCR GW	Tubing Lot #:	NA
Color:	CLEAR	Filter Lot #:	NA
Odor:	NONE	Filter Sample Metals (Y/N?):	N
Ambient Air (°C)	12.5	Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	NA
Stability Reached (Y/N):	Y	Sample on-Ice: Time:	845
If No, Provide Explanation	NA	Drawdown Stabilized < 0.3 ft:	Y
Top of Screen (ft. btoc):	51.8	Bottom of Screen (ft. btoc):	67.8

Depth to Water Meter Manufacturer:	Solinst	Model:	101	Serial No:	321335
Pump Controller Manufacturer:	QED	Model:	MP50	Serial No:	1917

Analytes:	Metals	Anions	Radium 226/ 228	TDS	TSS	As Speciacion
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D	HPLC
Bottle Lot Number	050619-2AFW	123019-2ADT	43111905	123019-2ADT	040119-2APJ	20-0002
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
Bottle Volume:	250 mL	500 mL	1L	500 mL	1L	10mL
Number of Bottles:	1	1	3	1	2	2
Preservative:	Nitric Acid	NA	Nitric Acid	NA	NA	EDTA

Lead Sampler Name:	Audrey Price	Date:	2/25/2020	Signature:	Audrey Price
Sampler Name:	Kyle Frame	Date:	2/25/2020	Signature:	Kyle Frame
Reviewed by:	Matt Howard	Date:	3-2-20	Signature:	MH

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.81
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	169.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	135.99 / 336.05
			**if water column is < 4.5 L contact Field Coordinator*
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	165.0
Well ID:	ALF-212A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/26/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0824	33.88	370	0	17.1	6.31	536.9	0.45	4.8	259.1	0.72	Clear	No odor
0827	33.88	370	1.1	17.1	6.45	542.0	0.25	2.6	228.7	0.58	Clear	No odor
0830	33.88	370	2.2	15.0	6.50	531.0	0.32	3.1	208.6	0.52	Clear	No odor
0833	33.88	370	3.3	16.2	6.48	531.1	0.24	2.2	193.0	0.47	Clear	No odor
Final Purge Values:		0833	3.3	16.2	6.48	531.1	0.24	2.2	193.0	0.47	Clear	

2-26-20

Final Controller Settings	
Setting ID:	52
Pressure (PSI):	80
Ambient Air (°C):	8

Sample ID:	ALF-GW-ALF212A-20200226	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/26/2020	*Field Blank ID:*	NA
Collection Time:	8:36	*Field Duplicate ID:*	ALF-GW-DUP02-20200226
Total Volume Purged (L):*	3.3	*Equipment Blank ID:*	NA
Sample Depth (feet):	165.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	8:40
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	159.4	**Bottom of Screen (ft. btoc):**	169.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
33.88	16.6	6.89	552.5	0.18	1.7	191.3	0.34	**Odor:**	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	2	2	4	2	2	4
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/26/2020	**Signature:**	
Sampler Name:	Ismael Arroyo	**Date:**	2/26/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	3/5/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/6/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.09
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	81.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	50.21 / 124.07
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	71.0
Well ID:	ALF-213	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/27/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1610	31.11	175	0	16.6	6.61	381.4	0.88	8.7	213.7	3.78	Clear	No odor
1613	31.11	175	0.5	16.5	6.62	387.9	0.60	6.1	191.4	1.15	Clear	No odor
1616	31.11	175	1.1	16.6	6.66	387.1	0.49	5.0	170.4	0.59	Clear	No odor
1619	31.11	175	1.6	16.4	6.72	387.7	0.42	4.2	150.3	0.59	Clear	No odor
1622	31.11	175	2.1	16.5	6.75	387.2	0.38	4.0	136.6	0.49	Clear	No odor
Final Purge Values:		1622	2.1	16.5	6.75	387.2	0.38	4.0	136.6	0.49	Clear	

2-27-20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	38
Ambient Air (°C):	9

Sample ID:	ALF-GW-ALF213-20200227	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/27/2020	*Field Blank ID:*	ALF-GW-FB01-20200227
Collection Time:	16:26	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.1	*Equipment Blank ID:*	NA
Sample Depth (feet):	71.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace 02/20/2020
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
		Filter Lot #:	N/A
Tubing Lot #:	N/A	*Filter Sample Metals:*	No
		Other Filtered Samples Collected:	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	16:30
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	71.0	**Bottom of Screen (ft. btoc):**	81.2

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
31.11	16.2	6.82	380.6	6.62	6.6	142.3	0.55	**Odor:**	No odor

WL Meter Manufacturer:	Heron Instruments	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2006

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	2	2	4	2	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/27/2020	**Signature:**	John Myer
Sampler Name:	Ismael Arroyo	**Date:**	2/27/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	3/5/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/6/2020	**Signature:**	

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.62
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	121.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	90.13 / 222.72
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	116.75
Well ID:	ALF-213B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/28/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0847	31.66	365	0	16.4	6.77	721	0.32	3.1	195.0	3.36	Clear	No odor
0850	31.66	365	1.1	16.3	6.83	730	0.22	2.2	126.4	2.12	Clear	No odor
0853	31.66	365	2.2	16.3	6.87	728	0.19	1.8	114.8	1.52	Clear	No odor
0856	31.66	365	3.3	16.3	6.90	727	0.18	1.8	102.5	1.26	Clear	No odor
Final Purge Values:		0856	3.3	16.3	6.9	727	0.18	1.8	102.5	1.26	Clear	

2-28-20

Final Controller Settings	
Setting ID:	58
Pressure (PSI):	80
Ambient Air (°C):	6 CS 3/6/20

Sample ID:	ALF-GW-ALF213B-202002~~XX~~28 CS 3/6/20	**QA/QC Sample Collected:**	Y
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	N
Sample Date:	2/28/2020	*Field Blank ID:*	LF-GW-~~ALF213B~~FB01 MD 3/6/2020-202002
Collection Time:	9:02	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.3	*Equipment Blank ID:*	NA
Sample Depth (feet):	116.8	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace 02/20/2020
Analysis:	RI	*Filter purged for minimum 500 mL:*	N
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	N
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	9:06
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	111.4	**Bottom of Screen (ft. btoc):**	121.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
31.66	16.2	7.03	710	0.27	2.7	112	2.58	**Odor:**	No odor

WL Meter Manufacturer:	Heron Instruments	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2006

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	2	2	4	2	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer CS 3/6/20	**Date:**	2/28/2020	**Signature:**	John Myer
Sampler Name:	Ismael Arroyo CS 3/6/20	**Date:**	2/28/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	3/6/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/6/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.56
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	162.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	131.19 / 324.19
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	157.75
Well ID:	ALF-213A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/27/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1610	31.56	325	0	16.6	7.16	326.7	1.32	13.1	118.6	1.51	Clear	No Odor
1613	31.56	325	1.0	16.7	6.93	325.7	1.15	11.0	111.7	1.44	Clear	No Odor
1616	31.56	325	2.0	16.5	6.90	326.7	1.00	9.8	106.7	1.33	Clear	No Odor
1619	31.56	325	2.9	16.5	6.84	326.1	0.97	9.8	100.2	0.98	Clear	No Odor
1622	31.56	325	3.9	16.5	6.79	325.9	1.00	10.1	93.6	0.92	Clear	No Odor
Final Purge Values:		1622	3.9	16.5	6.79	325.9	1.00	10.1	93.6	0.92	Clear	

SM 2/27/2020

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	70
Ambient Air (°C):	10

Sample ID:	ALF-GW-ALF213A-20200227	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB02-20200227
Sample Date:	2/27/2020	*Field Duplicate ID:*	NA
Collection Time:	16:25	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	3.9	*Filter Blank ID:*	NA
Sample Depth (feet):	157.8	*Tubing Blank ID:*	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Analytical Services, LLC Minneapolis, MN. Fill date 02/20/2020
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	16:31
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	152.4	**Bottom of Screen (ft. btoc):**	162.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
31.56	16.3	6.87	328.8	0.97	10.2	45.1	0.88	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	1119051	012020-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	~~1~~ 2 (CR 3/4/2020)	~~1~~ 2 (CR 3/4/2020)	~~2~~ 4 (CR 3/4/2020)	~~1~~ 2 (CR 3/4/2020)	~~1~~ 2 (CR 3/4/2020)	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyugen	**Date:**	2/27/2020	**Signature:**	
Sampler Name:	Stone McCoy	**Date:**	2/27/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	3/4/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	3/5/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	14.53
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	54.9
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	40.37 / 99.76
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	45.0
Well ID:	ALF-214	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0845	14.54	340	0	17.2	7.37	486.9	0.40	4.1	143.1	3.06	clear	no odor
0848	14.54	340	1.02	17.2	7.29	483.4	0.35	3.6	137.0	1.14	clear	no odor
0851	14.54	340	2.04	17.2	7.28	480.6	0.33	3.5	131.7	0.63	clear	no odor
0854	14.54	340	3.06	17.2	7.29	478.9	0.29	3.0	124.9	0.47	clear	no odor
Final Purge Values:		0854	3.06	17.2	7.29	478.9	0.29	3.0	124.9	0.47	clear	

TV 2/19/20

Final Controller Settings	
Setting ID:	101
Pressure (PSI):	30
Ambient Air (°C):	3

Sample ID:	ALF-GW-ALF214-20200219	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/19/2020	*Field Blank ID:*	NA
Collection Time:	~~0:00~~ 8:57 (CR 2/24/2020)	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.06	*Equipment Blank ID:*	NA
Sample Depth (feet):	45.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	9:05
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	34.5	**Bottom of Screen (ft. btoc):**	54.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
14.54	17.4	7.41	481.5	0.25	2.6	116	0.38	Odor:	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP-50	**Serial No:**	MP-50-2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	123019-2EIZ	111819-2EIX	111819-2EEY	010620-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyguen	**Date:**	2/19/2020	**Signature:**	
Sampler Name:	Trenton VanEgtern	**Date:**	2/19/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/24/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	14.45
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	93.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	78.85 / 194.85
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	88.0
Well ID:	ALF-214B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1038	14.45	500	0	17.7	6.65	870	0.23	2.5	19.6	3.70	clear	no odor
1041	14.45	500	1.50	17.8	6.77	873	0.19	2.1	-29.6	1.37	clear	no odor
1044	14.45	500	3.00	17.8	6.81	871	0.17	1.9	-51.5	1.04	clear	no odor
1047	14.45	500	4.50	17.8	6.83	872	0.13	1.4	-59.4	1.32	clear	no odor
Final Purge Values:		1047	4.5	17.8	6.83	872	0.13	1.4	-59.4	1.32	clear	

2/19/20

TV

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	50
Ambient Air (°C):	7

Sample ID:	ALF-GW-ALF214B-20200219	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/19/2020	*Field Blank ID:*	ALF-GW-FB02-20200219
Collection Time:	10:50	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	88.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Fill Date: 02/10/20 Pace Minneapolis
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	10:57
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	82.9	**Bottom of Screen (ft. btoc):**	92.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
14.45	17.8	6.85	872	0.11	1.2	-47	0.35	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP-50	**Serial No:**	MP-50-2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	123019-2EIZ	111819-2EIX	111819-2EEY	010620-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	~~1~~ 2 (CR 2/24/2020)	~~1~~ 2 (CR 2/24/2020)	~~2~~ 4 (CR 2/24/2020)	~~1~~ 2 (CR 2/24/2020)	~~1~~ 2 (CR 2/24/2020)	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyguen	**Date:**	2/19/2020	**Signature:**	
Sampler Name:	Trenton VanEgtern	**Date:**	2/19/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/24/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	14.59
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	133.0
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	118.41 / 292.6
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	130.0
Well ID:	ALF-214A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0938	14.61	275	0	17.1	6.35	1176	0.29	3.0	29.1	2.39	clear	no odor
0941	14.61	275	0.8	17.0	6.40	1174	0.26	2.7	23.7	1.10	clear	no odor
0944	14.61	275	1.7	17.0	6.45	1172	0.31	3.3	7.8	1.19	clear	no odor
0947	14.61	275	2.5	17.1	6.45	1170	0.26	2.7	2.1	0.93	clear	no odor
Final Purge Values:		0947	2.5	17.1	6.45	1170	0.26	2.7	2.1	0.93	clear	

TV 2/19/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	80
Ambient Air (°C):	4

Sample ID:	ALF-GW-ALF214A-20200219	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/19/2020	*Field Blank ID:*	NA
Collection Time:	~~9:00~~ 9:50 (CR 2/24/2020)	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	130.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	9:57
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	122.6	**Bottom of Screen (ft. btoc):**	132.6

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
14.59	17.1	6.57	1148	0.43	4.5	15.5	0.56	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP-50	**Serial No:**	MP-50-2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	123019-2EIZ	111819-2EIX	111819-2EEY	010620-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nguyen	**Date:**	2/19/2020	**Signature:**	
Sampler Name:	Trenton VanEgtern	**Date:**	2/19/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/24/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	8.40
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	30.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	22.00 / 54.36
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	25.0
Well ID:	ALF-215	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/20/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0940	8.45	340	0	14.5	7.69	436.9	1.20	11.4	221.3	7.54	clear	no odor
0943	8.45	340	1.0	14.6	7.37	330.9	0.78	8.0	210.9	2.70	clear	no odor
0946	8.45	340	2.0	14.6	7.31	329.2	0.75	7.4	208.0	1.29	clear	no odor
0949	8.45	340	3.1	14.7	7.27	328.4	0.74	6.8	204.7	0.98	clear	no odor
0952	8.45	340	4.1	14.7	7.23	328.3	0.68	6.6	200.9	0.96	clear	no odor
Final Purge Values:		0952	4.1	14.7	7.23	328.3	0.68	6.6	200.9	0.96	clear	

2.20.20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	30
Ambient Air (°C):	3

Sample ID:	ALF-GW-ALF215-20200220	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/20/2020	*Field Blank ID:*	NA
Collection Time:	9:55	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.1	*Equipment Blank ID:*	NA
Sample Depth (feet):	25.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	N/A
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:58
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	20.0	**Bottom of Screen (ft. btoc):**	30.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
8.46	14.7	7.34	404.1	0.76	7.7	193.4	1.13	**Odor:**	no odor

WL Meter Manufacturer:	Heron Instruments	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2006

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/20/2020	**Signature:**	John Myer
Sampler Name:	Stefan Stahl	**Date:**	2/20/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	2/24/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	13.40
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	60.0
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	46.60 / 115.15
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	50.0
Well ID:	ALF-216	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/18/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1435	13.45	400	0	17.1	6.97	878	1.51	15.3	-40.6	4.08	clear	no odor
1438	13.45	400	1.2	17.2	6.99	880	0.98	8.8	-51.8	3.99	clear	no odor
1441	13.45	400	2.4	17.3	6.80	748	0.44	4.3	-62.1	1.57	clear	no odor
1444	13.45	400	3.6	17.3	6.79	877	0.39	4.0	-68.1	1.39	clear	no odor
1447	13.45	400	4.8	17.3	6.77	876	0.34	3.5	-75.1	2.77	clear	no odor
1450	13.45	400	6.0	17.3	6.75	874	0.33	3.3	-79.1	3.48	clear	no odor
Final Purge Values:		1450	6.0	17.3	6.75	874	0.33	3.3	-79.1	3.48	clear	

2-18-20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	30
Ambient Air (°C):	14

Sample ID:	ALF-GW-ALF216-20200218	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/18/2020	*Field Blank ID:*	ALF-GW-FB01-20200218
Collection Time:	14:55	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	6.0	*Equipment Blank ID:*	NA
Sample Depth (feet):	50.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace Minneapolis 02102020
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	14:58
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	39.6	**Bottom of Screen (ft. btoc):**	59.6

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
13.45	17.4	6.8	879	0.44	4.5	-48	4.97	Odor:	no odor

WL Meter Manufacturer:	Heron Instruments	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2006

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	2	2	4	2	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/18/2020	**Signature:**	John Myer
Sampler Name:	Stefan Stahl	**Date:**	2/18/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	2/20/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	26.62
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	71.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	45.13 / 111.52
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	60.75
Well ID:	ALF-217	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/28/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0822	26.64	100	0	15.0	6.44	672	1.55	15.4	196.1	5.10	Clear	No Odor
0825	26.64	100	0.3	15.1	6.47	675	1.25	11.4	165.6	3.59	Clear	No Odor
0828	26.64	100	0.6	15.3	6.51	677	1.07	10.7	155.6	3.01	Clear	No Odor
0831	26.64	100	0.9	15.4	6.61	679	0.94	9.5	134.2	2.81	Clear	No Odor
0834	26.64	100	1.2	15.4	6.68	679	0.85	8.6	129.3	2.42	Clear	No Odor
0837	26.64	100	1.5	15.4	6.71	680	0.79	7.8	125.3	2.39	Clear	No Odor
Final Purge Values:		0837	1.5	15.4	6.71	680	0.79	7.8	125.3	2.39	Clear	

SM 2-28-2020

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	35
Ambient Air (°C):	6

Sample ID:	ALF-GW-ALF217-20200228	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB02-20200228
Sample Date:	2/28/2020	*Field Duplicate ID:*	NA
Collection Time:	8:40	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	1.5	*Filter Blank ID:*	NA
Sample Depth (feet):	60.75	*Tubing Blank ID:*	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Analytical Services, LLC Minneapolis, MN. Fill date 02/20/2020
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	8:42
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	49.4	**Bottom of Screen (ft. btoc):**	71.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
26.64	15.7	7.13	678	0.79	7.8	91.4	2.98	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	1119051	012020-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	~~1~~ 2 (CR 3/5/2020)	~~1~~ 2 (CR 3/5/2020)	~~2~~ 4 (CR 3/5/2020)	~~1~~ 2 (CR 3/5/2020)	~~1~~ 2 (CR 3/5/2020)	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nguyen	**Date:**	2/28/2020	**Signature:**	
Sampler Name:	Stone McCoy	**Date:**	2/28/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	3/5/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/5/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.49
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	131.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	98.26 / 242.81
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	126.75
Well ID:	ALF-217B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/28/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0944	33.52	280	0	16.6	6.88	879	1.00	4.7	134.7	2.28	Clear	No odor
0947	33.52	280	0.8	16.6	6.83	881	0.32	3.3	122.0	0.98	Clear	No odor
0950	33.52	280	1.7	16.7	6.82	875	0.24	2.3	114.6	0.70	Clear	No odor
0953	33.52	280	2.5	16.6	6.83	869	0.18	1.8	104.2	0.75	Clear	No odor
Final Purge Values:		0953	2.5	16.6	6.83	869	0.18	1.8	104.2	0.75	Clear	

2-28-20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	75
Ambient Air (°C):	8 MD 3/6/2020

Sample ID:	ALF-GW-ALF217B-202002~~XX~~28 MD 3/6/2020	**QA/QC Sample Collected:**	N
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	NA
Sample Date:	2/28/2020	*Field Blank ID:*	NA
Collection Time:	.9:58	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	126.8	*Filter Blank ID:*	NA
Heavy Equipment in Area:	N	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	N
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	N
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Y	*Sample on-Ice: Time:*	1003 CS 3/6/20
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	121.4	**Bottom of Screen (ft. btoc):**	131.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
33.52	16.6	6.99	875	0.25	2.3	113.3	0.44	**Odor:**	No odor

WL Meter Manufacturer:	Heron Instruments	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2006

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer CS 3/6/20	**Date:**	2/28/2020	**Signature:**	
Sampler Name:	Ismael Arroyo	**Date:**	2/28/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	3/6/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/6/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	32.61
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	192.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	160.14 / 395.72
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	187.75
Well ID:	ALF-217A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/28/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0930	32.66	300	0	16.6	6.64	655	0.79	8.2	74.7	3.64	Clear	No Odor
0933	32.66	300	0.9	16.5	6.67	660	0.60	6.1	65.2	2.14	Clear	No Odor
0936	32.66	300	1.8	16.5	6.71	663	0.54	5.6	61.4	2.02	Clear	No Odor
0939	32.66	300	2.7	16.6	6.74	665	0.50	5.2	57.2	2.11	Clear	No Odor
Final Purge Values:		0939	2.7	16.6	6.74	665	0.50	5.2	57.2	2.11	Clear	

2-28-2020

5-M

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	80
Ambient Air (°C):	7

Sample ID:	ALF-GW-ALF217A-20200228	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/28/2020	*Field Blank ID:*	NA
Collection Time:	9:42	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.7	*Equipment Blank ID:*	NA
Sample Depth (feet):	187.75	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:48
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	182.4	**Bottom of Screen (ft. btoc):**	192.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
32.66	16.3	6.83	678	0.54	5.7	35.1	1.42	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	1119051	012020-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nguyen	**Date:**	2/28/2020	**Signature:**	
Sampler Name:	Stone McCoy	**Date:**	2/28/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	3/5/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dowre	**Date:**	3/5/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	4.49
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	50.1
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	45.61 / 112.71
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	41.0
Well ID:	P-4S	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1245	4.50	500	0	16.4	7.12	391.6	0.32	3.3	11.3	0.85	clear	no odor
1248	4.50	500	1.5	16.5	7.16	389.6	0.27	2.8	6.6	0.76	clear	no odor
1251	4.50	500	3.0	16.5	7.18	388.7	0.22	2.3	4.9	0.65	clear	no odor
1254	4.50	500	4.5	16.5	7.19	388.5	0.18	1.9	4.4	0.44	clear	no odor
Final Purge Values:		1254	4.5	16.5	7.19	388.5	0.18	1.9	4.4	0.44	clear	

TV 2/19/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	30
Ambient Air (°C):	9

Sample ID:	ALF-GW-P4S-20200219	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/19/2020	*Field Blank ID:*	NA
Collection Time:	12:57	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	ALF-GW-EB02-20200219
Sample Depth (feet):	41.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Fill Date: 02/10/20 Pace Minneapolis
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	N/A
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:04
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	29.7	**Bottom of Screen (ft. btoc):**	49.7

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
4.5	16.4	7.26	394.2	0.15	1.6	21	1.01	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP-50	**Serial No:**	MP-50-2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	123019-2EIZ	111819-2EIX	111819-2EEY	010620-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	2	2	4	2	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nguyen	**Date:**	2/19/2020	**Signature:**	
Sampler Name:	Trenton VanEgtern	**Date:**	2/19/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/24/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	11.05
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	81.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	70.75 / 43.71
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	77.0
Well ID:	P-4	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	2.0	**Date:**	2/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1158	11.07	500	0	16.3	7.25	316.8	0.23	2.5	29.7	1.91	clear	no odor
1201	11.07	500	1.5	16.4	7.25	313.3	0.18	1.9	-10.2	1.17	clear	no odor
1204	11.07	500	3.0	16.3	7.25	313.4	0.15	1.7	-37.8	1.18	clear	no odor
1207	11.07	500	4.5	16.2	7.28	313.3	0.13	1.5	-50.3	1.15	clear	no odor
Final Purge Values:		1207	4.5	16.2	7.28	313.3	0.13	1.5	-50.3	1.15	clear	

TV 2/19/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	55
Ambient Air (°C):	8

Sample ID:	ALF-GW-P4-20200219	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/19/2020	*Field Blank ID:*	NA
Collection Time:	12:10	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	77.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	N/A
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:17
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	71.7	**Bottom of Screen (ft. btoc):**	81.8

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
11.07	15.9	7.26	313.0	0.20	2.1	-18.1	1.01	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP-50	**Serial No:**	MP-50-2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	123019-2EIZ	111819-2EIX	111819-2EEY	010620-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyguen	**Date:**	2/19/2020	**Signature:**	
Sampler Name:	Trenton VanEgtern	**Date:**	2/19/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/24/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	8.78
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	40.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	31.65 / 78.21
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	29.0
Well ID:	PMW-02A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/20/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1127	8.80	200	0	16.4	10.44	976	0.23	2.4	-121.8	5.54	reddish brown	no odor
1130	8.80	200	0.6	16.3	10.44	977	0.18	1.8	-119.2	5.41	reddish brown	no odor
1133	8.80	200	1.2	16.4	10.44	979	0.14	1.5	-113.9	5.76	reddish brown	no odor
1136	8.80	200	1.8	16.5	10.43	979	0.13	1.3	-108.9	5.23	reddish brown	no odor
1139	8.80	200	2.4	16.3	10.43	980	0.12	1.3	-100.5	6.48	reddish brown	no odor
1142	8.80	200	3.0	16.3	10.42	978	0.09	1.0	-95.4	7.04	reddish brown	no odor
1145	8.80	200	3.6	16.3	10.42	978	0.10	1.0	-92.5	6.95	reddish brown	no odor
1148	8.80	200	4.2	16.3	10.42	980	0.11	1.1	-90.0	7.00	reddish brown	no odor
1151	8.80	200	4.8	16.3	10.41	979	0.09	0.9	-85.7	8.86	reddish brown	no odor
1154	8.80	200	5.4	16.3	10.40	978	0.07	0.8	-83.6	9.15	reddish brown	no odor
1157	8.80	200	6.0	16.4	10.38	979	0.08	0.9	-78.0	9.78	reddish brown	no odor
1200	8.80	200	6.6	16.4	10.38	979	0.07	0.8	-77.8	9.99	reddish brown	no odor
1203	8.80	200	7.2	16.4	10.38	978	0.07	0.8	-77.5	10.5	reddish brown	no odor
1206	8.80	200	7.8	16.4	10.37	979	0.07	0.8	-76.9	12.7	reddish brown	no odor
1209	8.80	200	8.4	16.4	10.37	979	0.06	0.7	-75.8	14.2	reddish brown	no odor
1212	8.80	200	9.0	16.4	10.37	979	0.06	0.7	-75.0	14.8	reddish brown	no odor
1215	8.80	200	9.6	16.4	10.37	979	0.06	0.7	-74.7	15.4	reddish brown	no odor
Final Purge Values:		1215	9.6	16.4	10.37	979	0.06	0.7	-74.7	15.4	reddish brown	

TV 2/20/20

Final Controller Settings	
Setting ID:	101
Pressure (PSI):	20
Ambient Air (°C):	3

Sample ID:	ALF-GW-PMW02A-20200220	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	Yes
Sample Date:	2/20/2020	*Field Blank ID:*	~~NA~~ ALF-GW-FB02-20200220 (CR 2/25/2020)
Collection Time:	12:22	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	9.6	*Equipment Blank ID:*	NA
Sample Depth (feet):	29.0	*Filter Blank ID:*	ALF-GW-FLB01-20200220
Heavy Equipment in Area:	No	*Tubing Blank ID:*	ALF-GW-TUB01-20200220
		DI water lot #:	Fill Date: 02/10/20 Pace Minneapolis
Analysis:	RI	*Filter purged for minimum 500 mL:*	Yes
Tubing Lot #:	N/A	*Filter Lot #:*	H1826
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	Yes
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	12:30
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	19.0	**Bottom of Screen (ft. btoc):**	40.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	reddish brown
8.80	15.6	10.21	952	0.28	2.9	-7.7	17.6	Odor:	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP-50	**Serial No:**	MP-50-2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	123019-2EIZ	111819-2EIX	111819-2EEY	010620-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	6	~~3~~ 4 (CR 2/25/2020)	~~6~~ 8 (CR 2/25/2020)	~~3~~ 4 (CR 2/25/2020)	~~3~~ 4 (CR 2/25/2020)	6
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyguen	**Date:**	2/20/2020	**Signature:**	
Sampler Name:	Trenton VanEgtern	**Date:**	2/20/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/25/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	8.81
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	58.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	49.99 / 123.53
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	54.0
Well ID:	PMW-02B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/20/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1002	8.83	200	0	14.1	7.24	678	0.40	4.1	-26.8	1.62	clear	no odor
1005	8.83	200	0.6	14.5	7.24	681	0.35	3.6	-78.2	1.33	clear	no odor
1008	8.83	200	1.2	14.5	7.24	681	0.30	3.0	-92.9	1.65	clear	no odor
1011	8.83	200	1.8	14.5	7.24	676	0.26	2.6	-101.9	1.18	clear	no odor
Final Purge Values:		1011	1.8	14.5	7.24	676	0.26	2.6	-101.9	1.18	clear	

TV 2/20/20

Final Controller Settings	
Setting ID:	102
Pressure (PSI):	25
Ambient Air (°C):	4

Sample ID:	ALF-GW-PMW02B-20200220	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/20/2020	*Field Blank ID:*	NA
Collection Time:	10:14	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	1.8	*Equipment Blank ID:*	NA
Sample Depth (feet):	54.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	N/A
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:21
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	48.4	**Bottom of Screen (ft. btoc):**	58.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
8.83	14.6	7.41	612.8	0.34	3.5	-52.2	1.41	Odor:	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP-50	**Serial No:**	MP-50-2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	123019-2EIZ	111819-2EIX	111819-2EEY	010620-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyguen	**Date:**	2/20/2020	**Signature:**	
Sampler Name:	Trenton VanEgtern	**Date:**	2/20/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/25/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	7.78
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	129.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	121.89 / 301.2
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	124.0
Well ID:	PMW-02C	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/20/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0830	7.78	400	0	15.3	6.96	375.5	0.27	2.7	59.1	1.39	clear	no odor
0833	7.78	400	1.20	15.3	7.01	374.9	0.22	2.3	42.4	0.85	clear	no odor
0836	7.78	400	2.40	15.4	7.05	372.6	0.18	1.9	8.6	0.61	clear	no odor
0839	7.78	400	3.60	15.4	7.09	370.7	0.15	1.6	-24.9	0.54	clear	no odor
Final Purge Values:		0839	3.6	15.4	7.09	370.7	0.15	1.6	-24.9	0.54	clear	

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	80
Ambient Air (°C):	1

Sample ID:	ALF-GW-PMW02C-20200220	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/20/2020	*Field Blank ID:*	NA
Collection Time:	8:42	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.6	*Equipment Blank ID:*	NA
Sample Depth (feet):	124.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	8:50
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	119.3	**Bottom of Screen (ft. btoc):**	129.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
7.78	15.1	7.32	364.5	0.38	4.5	2.7	1.28	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP-50	**Serial No:**	MP-50-2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	123019-2EIZ	111819-2EIX	111819-2EEY	010620-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyguen	**Date:**	2/20/2020	**Signature:**	
Sampler Name:	Trenton VanEgtern	**Date:**	2/20/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/25/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	8.09
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	40.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	32.65 / 80.68
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	29.0
Well ID:	PMW-04A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/21/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0830	8.09	500	0	17.2	7.52	889	0.40	4.2	77.6	2.22	clear	no odor
0833	8.09	500	1.5	17.3	7.51	889	0.26	2.7	81.0	1.15	clear	no odor
0836	8.09	500	3.0	17.4	7.50	887	0.21	2.2	82.7	1.65	clear	no odor
0839	8.09	500	4.5	17.4	7.47	885	0.16	1.7	84.2	1.57	clear	no odor
Final Purge Values:		0839	4.5	17.4	7.47	885	0.16	1.7	84.2	1.57	clear	

TV 2/21/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	20
Ambient Air (°C):	-2

Sample ID:	~~ALF-GW-PMW02A-20200221~~ ALF-GW-PMW04A-20200221 (CR 2/25/2020)	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/21/2020	*Field Blank ID:*	NA
Collection Time:	8:42	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	29.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	8:50
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	19.3	**Bottom of Screen (ft. btoc):**	~~20.3~~ 40.3 (CR 2/25/2020)

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
8.09	17.3	7.57	874	0.18	1.9	96.6	1.81	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP-50	**Serial No:**	MP-50-2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	123019-2EIZ	111819-2EIX	111819-2EEY	010620-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyguen	**Date:**	2/21/2020	**Signature:**	
Sampler Name:	Trenton VanEgtern	**Date:**	2/21/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/25/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	9.84
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	62.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	52.56 / 129.88
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	57.0
Well ID:	PMW-04B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/21/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0928	9.86	500	0	16.0	7.04	844	0.34	3.6	-14.4	2.94	clear	no odor
0931	9.86	500	1.5	16.0	7.07	860	0.18	1.9	-79.9	2.81	clear	no odor
0934	9.86	500	3.0	16.1	7.14	869	0.14	1.5	-106.7	2.21	clear	no odor
0937	9.86	500	4.5	16.1	7.16	867	0.11	1.2	-115.5	0.71	clear	no odor
Final Purge Values:		0937	4.5	16.1	7.16	867	0.11	1.2	-115.5	0.71	clear	

TV 2/21/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	35
Ambient Air (°C):	-1

Sample ID:	ALF-GW-PMW04B-20200221	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/21/2020	*Field Blank ID:*	NA
Collection Time:	9:40	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	57.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	N/A
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:46
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	52.0	**Bottom of Screen (ft. btoc):**	62.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
9.86	15.8	7.25	856	0.45	4.6	-62.8	1	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP-50	**Serial No:**	MP-50-2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	123019-2EIZ	111819-2EIX	111819-2EEY	010620-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyguen	**Date:**	2/21/2020	**Signature:**	
Sampler Name:	Trenton VanEgtern	**Date:**	2/21/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/25/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	8.76
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	129.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	120.97 / 298.93
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	124.0
Well ID:	PMW-04C	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/21/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1021	8.77	400	0	15.8	6.55	375.9	0.40	4.1	-20.5	2.49	clear	no odor
1024	8.77	400	1.2	15.8	6.51	378.6	0.34	3.6	-6.9	1.19	clear	no odor
1027	8.77	400	2.4	15.8	6.81	378.5	0.27	2.8	-19.0	0.45	clear	no odor
1030	8.77	400	3.6	15.9	6.91	379.5	0.19	2.0	-29.9	0.41	clear	no odor
Final Purge Values:		1030	3.6	15.9	6.91	379.5	0.19	2.0	-29.9	0.41	clear	

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	85
Ambient Air (°C):	1

Sample ID:	ALF-GW-PMW04C-20200221	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/21/2020	*Field Blank ID:*	ALF-GW-FB02-20200221
Collection Time:	10:33	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.6	*Equipment Blank ID:*	NA
Sample Depth (feet):	124.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Fill Date: 02/10/20 Pace Minneapolis
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	N/A
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:40
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	119.3	**Bottom of Screen (ft. btoc):**	129.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
8.77	15.9	6.92	389.0	0.26	2.7	-34.4	0.37	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP-50	**Serial No:**	MP-50-2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	123019-2EIZ	111819-2EIX	111819-2EEY	010620-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	2	2	4	2	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyguen	**Date:**	2/21/2020	**Signature:**	
Sampler Name:	Trenton VanEgtern	**Date:**	2/21/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/25/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	4.10
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	29.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	25.22 / 62.32
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	24.0
Well ID:	PMW-07A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/24/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1235	4.21	450	0	16.7	9.01	882	0.54	5.6	125.6	6.49	Clear	No Odor
1238	4.21	450	1.4	16.7	9.08	883	0.45	4.7	118.5	5.75	Clear	No Odor
1241	4.21	450	2.7	16.7	9.13	884	0.40	3.9	111.1	5.70	Clear	No Odor
1244	4.21	450	4.1	16.7	9.15	885	0.35	3.4	105.6	6.11	Clear	No Odor
1247	4.21	450	5.4	16.7	9.18	885	0.31	3.1	101.4	6.35	Clear	No Odor
1250	4.21	450	6.8	16.8	9.20	884	0.27	2.8	97.1	5.33	Clear	No Odor
1253	4.21	450	8.1	16.8	9.22	884	0.24	2.4	91.0	4.89	Clear	No Odor
1256	4.21	450	9.5	16.8	9.23	885	0.22	2.4	92.0	4.98	Clear	No Odor
1259	4.21	450	10.8	16.8	9.24	885	0.21	2.1	84.7	4.84	Clear	No Odor
Final Purge Values:		1259	10.8	16.8	9.24	885	0.21	2.1	84.7	4.84	Clear	

SM 2/24/2020

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	18
Ambient Air (°C):	12

Sample ID:	ALF-GW-PMW07A-20200224	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/24/2020	*Field Blank ID:*	NA
Collection Time:	13:02	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	10.8	*Equipment Blank ID:*	NA
Sample Depth (feet):	24.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:08
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	18.9	**Bottom of Screen (ft. btoc):**	28.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
4.21	16.9	9.31	883	0.58	5.9	62.0	4.61	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	1119020	111819-2EIX	1119051	012020-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyugen	**Date:**	2/24/2020	**Signature:**	
Sampler Name:	Stone McCoy	**Date:**	2/24/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/25/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/3/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	5.86
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	59.9
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	54.02 / 133.49
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	55.0
Well ID:	PMW-07B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/24/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1349	6.05	275	0	16.3	7.94	751	0.79	7.6	54.2	3.11	Clear	No Odor
1352	6.05	275	0.8	16.3	7.43	749	0.33	3.5	42.3	4.32	Clear	No Odor
1355	6.05	275	1.7	16.3	7.38	748	0.30	3.1	35.2	4.37	Clear	No Odor
1358	6.05	275	2.5	16.3	7.32	748	0.30	3.0	31.5	2.46	Clear	No Odor
Final Purge Values:		1358	2.5	16.3	7.32	748	0.30	3.0	31.5	2.46	Clear	

SM 2/24/2020

Final Controller Settings	
Setting ID:	104
Pressure (PSI):	30
Ambient Air (°C):	13

Sample ID:	ALF-GW-PMW07B-~~202002XX~~ 20200224 (CR 2/25/2020)	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-~~FB01~~FB02 MD 3/4/2020-2020022
Sample Date:	2/24/2020	*Field Duplicate ID:*	NA
Collection Time:	14:01	*Equipment Blank ID:*	ALF-GW-~~EB01~~EB02 MD 3/4/2020-2020022
Total Volume Purged (L):*	2.5	*Filter Blank ID:*	NA
Sample Depth (feet):	55.0	*Tubing Blank ID:*	NA
		DI water lot #:	Pace Analytical Services, LLC Minneapolis, MN. Fill date 02/20/2020
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
		Filter Lot #:	NA
Analysis:	RI	*Filter Sample Metals:*	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	14:09
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	49.5	**Bottom of Screen (ft. btoc):**	59.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
6.06	16.4	7.08	751	7.1	6.9	27.0	3.29	Odor:	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	1119020	111819-2EIX	1119051	012020-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	~~1~~ 3 (CR 2/25/2020)	~~1~~ 3 (CR 2/25/2020)	~~2~~ 6 (CR 2/25/2020)	~~1~~ 3 (CR 2/25/2020)	~~1~~ 3 (CR 2/25/2020)	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyugen	**Date:**	2/24/2020	**Signature:**	[signature]
Sampler Name:	Stone McCoy	**Date:**	2/24/2020	**Signature:**	[signature]
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/25/2020	**Signature:**	[signature]
DL/SME Review by:	Matthew Dower	**Date:**	3/4/2020	**Signature:**	[signature]

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	5.73
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	122.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	117.05 / 289.24
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	117.0
Well ID:	PMW-07C	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/25/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0826	5.74	375	0	15.8	7.44	361.9	0.77	7.4	89.3	5.47	Clear	No Odor
0829	5.74	375	1.1	15.8	6.60	360.7	0.52	5.2	88.5	5.09	Clear	No Odor
0832	5.74	375	2.3	15.8	6.51	360.9	0.51	5.3	79.9	2.84	Clear	No Odor
0835	5.74	375	3.4	15.8	6.57	361.0	0.43	4.4	65.8	3.13	Clear	No Odor
0838	5.74	375	4.5	15.8	6.63	360.8	0.38	3.6	58.2	3.01	Clear	No Odor
0841	5.74	375	5.6	15.8	6.67	360.9	0.34	3.4	54.9	3.05	Clear	No Odor
Final Purge Values:		0841	5.6	15.8	6.67	360.9	0.34	3.4	54.9	3.05	Clear	

SM 2/25/2020

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	72
Ambient Air (°C):	10

Sample ID:	ALF-GW-PMW07C-20200225	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/25/2020	*Field Blank ID:*	NA
Collection Time:	8:44	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	5.6	*Equipment Blank ID:*	NA
Sample Depth (feet):	117.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	8:50
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	112.5	**Bottom of Screen (ft. btoc):**	122.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
5.74	15.7	6.91	360.2	0.77	7.6	37.0	3.01	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2950-T
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2101

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	1119051	012020-2ADT	111819-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	Kevin Nyugen	**Date:**	2/25/2020	**Signature:**	
Sampler Name:	Stone McCoy	**Date:**	2/25/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	2/27/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	3/3/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	12.34
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	44.0
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	31.61 / 78.11
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	32.0
Well ID:	PMW-10A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/21/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0854	12.36	250	0	15.9	7.55	455.1	0.44	4.6	196.9	4.45	clear	no odor
0857	12.36	250	0.8	16.1	7.56	453.9	0.44	4.5	192.4	3.99	clear	no odor
0900	12.36	250	1.5	16.3	7.56	453.7	0.43	4.4	190.2	3.96	clear	no odor
0903	12.36	250	2.3	16.3	7.57	453.9	0.39	3.9	186.5	3.75	clear	no odor
Final Purge Values:		0903	2.3	16.3	7.57	453.9	0.39	3.9	186.5	3.75	clear	

2.21.20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	20
Ambient Air (°C):	-1

Sample ID:	ALF-GW-PMW10A-20200221	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/21/2020	*Field Blank ID:*	NA
Collection Time:	9:10	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.3	*Equipment Blank ID:*	NA
Sample Depth (feet):	32.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	N/A
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:13
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	22.6	**Bottom of Screen (ft. btoc):**	43.6

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
12.36	16	7.65	454.9	1.26	12.7	176.5	3.42	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1545

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/21/2020	**Signature:**	John Myer
Sampler Name:	Stefan Stahl	**Date:**	2/21/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	2/24/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	16.91
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	73.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	56.37 / 139.3
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	68.0
Well ID:	PMW-10B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/21/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0957	17.45	200	0	16.2	7.26	797	2.03	22.7	73.9	2.21	clear	no odor
1000	17.45	200	0.6	16.3	7.25	797	1.91	18.7	4.8	1.73	clear	no odor
1003	17.45	200	1.2	16.3	7.26	797	1.76	18.2	-13.3	1.75	clear	no odor
1006	17.45	200	1.8	16.3	7.24	797	1.66	16.9	-43.7	1.75	clear	no odor
1009	17.45	200	2.4	16.5	7.27	796	1.51	16.0	-64.2	1.10	clear	no odor
Final Purge Values:		1009	2.4	16.5	7.27	796	1.51	16.0	-64.2	1.10	clear	

2.21.20

Final Controller Settings	
Setting ID:	104
Pressure (PSI):	35
Ambient Air (°C):	1

Sample ID:	ALF-GW-PMW10B-20200221	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/21/2020	*Field Blank ID:*	NA
Collection Time:	10:12	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.4	*Equipment Blank ID:*	NA
Sample Depth (feet):	68.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	10:15
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	62.9	**Bottom of Screen (ft. btoc):**	72.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
17.45	16.8	7..31	770	0.52	5..4	-32	1.56	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1545

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/21/2020	**Signature:**	John Myer
Sampler Name:	Stefan Stahl	**Date:**	2/21/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	2/24/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	17.03
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	152.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	135.39 / 334.56
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	148.0
Well ID:	PMW-10C	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/21/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1045	17.05	460	0	17.8	7.19	430.1	0.44	5.3	11.3	2.15	clear	no odor
1048	17.05	460	1.4	17.9	7.16	424.6	0.36	3.6	-17.3	2.03	clear	no odor
1051	17.05	460	2.8	18.0	7.15	423.8	0.31	3.1	-29.4	2.59	clear	no odor
1054	17.05	460	4.1	17.8	7.14	421.9	0.35	3.6	-40.0	1.86	clear	no odor
Final Purge Values:		1054	4.1	17.8	7.14	421.9	0.35	3.6	-40.0	1.86	clear	

2.21.20

Final Controller Settings	
Setting ID:	56
Pressure (PSI):	75
Ambient Air (°C):	1

Sample ID:	ALF-GW-PMW10C-20200221	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/21/2020	*Field Blank ID:*	ALF-GW-FB01-20200221
Collection Time:	10:58	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.1	*Equipment Blank ID:*	NA
Sample Depth (feet):	148.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	PACE 120419
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	11:00
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	142.0	**Bottom of Screen (ft. btoc):**	152.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)		
17.05	17.8	7.12	421.9	0.38	3.9	47.7	1.71	**Color:**	clear
								Odor:	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1545

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	2	2	4	2	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/21/2020	**Signature:**	John Myer
Sampler Name:	Stefan Stahl	**Date:**	2/21/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	2/24/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	9.45
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	38.0
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	28.59 / 70.65
			**If water column is < 4.5 L contact Field Coordinator*
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	27.0
Well ID:	PMW-11A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/20/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1045	9.48	325	0	17.3	7.36	578.9	0.82	8.4	117.5	17.3	clear	no odor
1048	9.48	325	1.0	17.4	7.37	580.2	0.68	7.1	101.6	17.8	clear	no odor
1051	9.48	325	2.0	17.4	7.32	585.0	0.55	5.6	69.7	18.0	clear	no odor
1054	9.48	325	2.9	17.6	7.35	586.0	0.46	5.0	42.1	18.8	clear	no odor
1057	9.48	325	3.9	17.6	7.27	586.0	0.42	4.4	20.0	17.9	clear	no odor
1100	9.48	325	4.9	17.6	7.23	588.0	0.35	3.8	-8.7	17.4	clear	no odor
1103	9.48	325	5.9	17.6	7.21	591.0	0.36	3.7	-23.3	17.5	clear	no odor
1106	9.48	325	6.8	17.5	7.20	595.0	0.36	3.7	-36.5	16.6	clear	no odor
1109	9.48	325	7.8	17.6	7.20	593.0	0.35	3.8	-38.7	16.4	clear	no odor
1112	9.48	325	8.8	17.8	7.20	591.0	0.34	3.4	-45.1	16.4	clear	no odor
1115	9.48	325	9.8	17.8	7.20	594.0	0.33	3.5	-47.7	16.3	clear	no odor
1118	9.48	325	10.7	17.7	7.24	593.0	0.31	3.3	-57.0	15.8	clear	no odor
1121	9.48	325	11.7	17.7	7.20	592.0	0.30	2.9	-57.4	15.4	clear	no odor
1124	9.48	325	12.7	17.8	7.23	597.0	0.30	3.2	-65.7	15.2	clear	no odor
1127	9.48	325	13.7	17.7	7.23	598.0	0.29	3.1	-66.2	14.9	clear	no odor
1130	9.48	325	14.6	17.4	7.23	600.0	0.29	3.0	-67.0	14.6	clear	no odor
1133	9.48	325	15.6	17.5	7.24	598.0	0.27	2.7	-71.9	14.2	clear	no odor
1136	9.48	325	16.6	17.5	7.23	597.0	0.27	2.8	-72.5	13.6	clear	no odor
1139	9.48	325	17.6	17.6	7.24	598.0	0.28	2.8	-73.6	13.9	clear	no odor
1142	9.48	325	18.5	17.8	7.24	600.0	0.27	2.6	-75.5	13.2	clear	no odor
1145	9.48	325	19.5	17.6	7.24	601.0	0.27	2.7	-75.9	13.2	clear	no odor
1148	9.48	325	20.5	17.8	7.23	601.0	0.25	2.4	-77.1	13.3	clear	no odor
1151	9.48	325	21.5	17.8	7.24	599.0	0.25	2.8	-78.0	13.1	clear	no odor
1154	9.48	325	22.4	17.6	7.24	601.0	0.27	3.0	-79.2	13.0	clear	no odor
1157	9.48	325	23.4	17.6	7.24	602.0	0.26	2.6	-79.4	13.0	clear	no odor
1200	9.48	325	24.4	17.8	7.23	602.0	0.25	2.6	-80.3	12.8	clear	no odor
1203	9.48	325	25.4	17.7	7.23	601.0	0.28	2.8	-80.7	12.5	clear	no odor
1206	9.48	325	26.3	17.8	7.23	604.0	0.24	2.7	-81.4	12.8	clear	no odor
1209	9.48	325	27.3	17.7	7.23	604.0	0.23	2.5	-82.6	12.5	clear	no odor
1212	9.48	325	28.3	17.8	7.23	603.0	0.24	2.7	-82.8	12.4	clear	no odor
1215	9.48	325	29.3	17.7	7.19	606.0	0.26	2.6	-82.6	12.0	clear	no odor
1218	9.48	325	30.2	17.7	7.22	608.0	0.25	2.5	-82.6	11.8	clear	no odor
1221	9.48	325	31.2	17.7	7.19	608.0	0.23	2.5	-83.5	12.0	clear	no odor
1224	9.48	325	32.2	17.7	7.21	608.0	0.26	2.6	-83.0	11.8	clear	no odor
1227	9.48	325	33.2	17.7	7.21	617.0	0.24	2.7	-83.7	11.5	clear	no odor
1230	9.48	325	34.1	17.7	7.22	616.0	0.24	2.5	-83.8	11.3	clear	no odor
1233	9.48	325	35.1	17.6	7.22	618.0	0.23	2.4	84.4	10.8	clear	no odor
1236	9.48	325	36.1	17.7	7.21	620.0	0.27	2.7	-84.0	10.7	clear	no odor
1239	9.48	325	37.1	17.8	7.21	616.0	0.25	2.6	-85.4	11.6	clear	no odor
1242	9.48	325	38.0	17.7	7.22	616.0	0.23	2.8	-85.2	11.0	clear	no odor
1245	9.48	325	39.0	17.7	7.20	621.0	0.25	2.6	-83.2	11.7	clear	no odor
												Final Controller Settings
												Setting ID: 98
												Pressure (PSI): 20
Final Purge Values:		1245	39.0	17.7	7.20	621.0	0.25	2.6	-83.2	11.7	clear	**Ambient Air (°C):** 5

2-20-20

Sample ID:	ALF-GW-PMW11A-20200220	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/20/2020	*Field Blank ID:*	NA
Collection Time:	12:48	*Field Duplicate ID:*	ALF-GW-DUP01-20200220
Total Volume Purged (L):*	39.0	*Equipment Blank ID:*	NA
Sample Depth (feet):	27.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	Yes
Analysis:	RI	*Filter Lot #:*	H1826
		Filter Sample Metals:	Yes
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	No	*Sample on-Ice: Time:*	12:51
If No, Provide Explanation	2 Hours of Purging	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	16.6	**Bottom of Screen (ft. btoc):**	37.6

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
9.48	17.9	7.29	624	0.36	3.5	16.5	10.3	**Odor:**	no odor

WL Meter Manufacturer:	Heron Instruments	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2006

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	4	2	4	2	2	4
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/20/2020	**Signature:**	John Myer
Sampler Name:	Stefan Stahl	**Date:**	2/20/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	2/24/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	12.95
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	67.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	54.79 / 135.39
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	63.0
Well ID:	PMW-11B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/20/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1342	12.98	360	0	18.0	7.08	633	0.40	4.2	-60.4	1.88	clear	no odor
1345	12.98	360	1.1	18.1	7.02	638	0.32	3.2	-94.8	1.68	clear	no odor
1348	12.98	360	2.2	18.0	7.00	637	0.26	3.1	-108.5	1.51	clear	no odor
1351	12.98	360	3.2	18.3	6.99	636	0.28	3.0	-113.9	1.03	clear	no odor
Final Purge Values:		1351	3.2	18.3	6.99	636	0.28	3.0	-113.9	1.03	clear	

2.20.20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	30
Ambient Air (°C):	5

Sample ID:	ALF-GW-PMW11B-20200220	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/20/2020	*Field Blank ID:*	ALF-GW-FB01-20200220
Collection Time:	13:55	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.2	*Equipment Blank ID:*	NA
Sample Depth (feet):	63.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	PACE 02/10/2020
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	13:58
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	57.3	**Bottom of Screen (ft. btoc):**	67.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
12.98	18	7.01	638	1.25	12.3	-77.3	1.17	Odor:	no odor

WL Meter Manufacturer:	Heron Instruments	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2006

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	2	2	4	2	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/20/2020	**Signature:**	John Myer
Sampler Name:	Stefan Stahl	**Date:**	2/20/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	2/24/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	12.89
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	149.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	136.52 / 337.36
			**if water column is < 4.5 L contact Field Coordinator*
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	144.0
Well ID:	PMW-11C	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/20/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1433	13.10	265	0	17.5	6.91	480.4	0.70	7.4	-14.1	1.85	clear	no odor
1436	13.10	265	0.8	17.8	6.84	464.9	0.49	5.0	-39.9	1.84	clear	no odor
1439	13.10	265	1.6	17.5	6.80	460.4	0.39	4.2	-56.8	1.16	clear	no odor
1442	13.10	265	2.4	17.7	6.79	458.5	0.38	4.1	-71.6	1.50	clear	no odor
Final Purge Values:		1442	2.4	17.7	6.79	458.5	0.38	4.1	-71.6	1.50	clear	

2.20.20

Final Controller Settings	
Setting ID:	106
Pressure (PSI):	75
Ambient Air (°C):	6

Sample ID:	ALF-GW-PMW11C-20200220	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/20/2020	*Field Blank ID:*	NA
Collection Time:	14:45	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.4	*Equipment Blank ID:*	NA
Sample Depth (feet):	144.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	N/A
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	As_Spec
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	14:48
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	139.0	**Bottom of Screen (ft. btoc):**	149.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
13.1	17.9	6.99	447	0.3	0.31	-55	2.44	**Odor:**	no odor

WL Meter Manufacturer:	Heron Instruments	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2006

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/20/2020	**Signature:**	John Myer
Sampler Name:	Stefan Stahl	**Date:**	2/20/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	2/24/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/2/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	28.98
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	59.9
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	30.96 / 76.51
			**if water column is < 4.5 L contact Field Coordinator*
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	49.0
Well ID:	PMW-14A	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/25/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1250	29.08	275	0	17.7	7.14	678	1.65	15.2	79.1	1.17	Clear	No odor
1253	29.08	275	0.8	7.8	7.05	684	0.68	7.1	66.6	0.74	Clear	No odor
1256	29.08	275	1.7	17.8	7.04	686	0.47	4.8	55.3	0.80	Clear	No odor
1259	29.08	275	2.5	17.8	7.05	687	0.38	4.0	45.5	0.58	Clear	No odor
1302	29.08	275	3.3	17.7	7.06	687	0.29	3.2	35.0	0.44	Clear	No odor
Final Purge Values:		1302	3.3	17.7	7.06	687	0.29	3.2	35.0	0.44	Clear	

Final Controller Settings	
Setting ID:	99
Pressure (PSI):	30
Ambient Air (°C):	11

2-25-20

Sample ID:	ALF-GW-PMW14A-20200225	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/25/2020	*Field Blank ID:*	ALF-GW-FB01-20200225
Collection Time:	13:06	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.3	*Equipment Blank ID:*	NA
Sample Depth (feet):	49.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace 02/20/2020
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	13:10
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	38.5	**Bottom of Screen (ft. btoc):**	59.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
29.08	17.7	7.22	6.87	0.24	2.2	67.8	0.40	**Odor:**	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	2	2	4	2	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/25/2020	**Signature:**	
Sampler Name:	Ismael Arroyo	**Date:**	2/25/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	3/5/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/5/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.96
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	89.9
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	55.91 / 138.16
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	85.0
Well ID:	PMW-14B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/25/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1157	33.98	200	0	17.0	6.63	653	0.21	2.1	79.9	3.45	Clear	No Odor
1200	33.98	200	0.6	17.1	6.67	660	0.14	1.4	67.6	2.19	Clear	No Odor
1203	33.98	200	1.2	17.1	6.79	666	0.16	1.8	45.5	2.20	Clear	No Odor
1206	33.98	200	1.8	17.1	6.91	669	0.15	1.5	14.1	1.00	Clear	No Odor
1209	33.98	200	2.4	17.2	6.95	669	0.10	1.1	-19.3	0.80	Clear	No Odor
1212	33.98	200	3.0	17.2	7.03	669	0.10	1.0	-36.4	0.61	Clear	No Odor
Final Purge Values:		1212	3.0	17.2	7.03	669	0.10	1.0	-36.4	0.61	Clear	

2-25-20

Final Controller Settings	
Setting ID:	104
Pressure (PSI):	45
Ambient Air (°C):	11

Sample ID:	ALF-GW-PMW14B-20200225	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	2/25/2020	*Field Blank ID:*	NA
Collection Time:	12:15	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3	*Equipment Blank ID:*	NA
Sample Depth (feet):	85.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	12:18
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	79.5	**Bottom of Screen (ft. btoc):**	89.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
33.98	17.1	7.15	665	0.54	4.9	62.5	0.32	**Odor:**	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	1	1	2	1	1	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/25/2020	**Signature:**	
Sampler Name:	Ismael Arroyo	**Date:**	2/25/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	3/5/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	3/5/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.88
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	162.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	128.39 / 317.27
			**if water column is < 4.5 L contact Field Coordinator*
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	156.0
Well ID:	PMW-14C	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	toc
Well Diameter (inches):	4.0	**Date:**	2/25/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1037	35.90	460	0	17.3	6.68	389.6	1.17	12.7	117.3	1.86	Clear	No Odor
1040	35.90	460	1.38	17.3	6.88	390.4	1.07	11.8	97.5	0.57	Clear	No Odor
1043	35.90	460	2.76	17.2	6.95	393.7	0.99	10.5	79.6	0.42	Clear	No Odor
1046	35.90	460	4.14	17.3	6.97	391.3	0.97	9.99	55.0	0.27	Clear	No Odor
Final Purge Values:		1046	4.14	17.3	6.97	391.3	0.97	9.99	55.0	0.27	Clear	

2-25-20

Final Controller Settings	
Setting ID:	55
Pressure (PSI):	80
Ambient Air (°C):	10

Sample ID:	ALF-GW-PMW14C-20200225	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	Yes
Sample Date:	2/25/2020	*Field Blank ID:*	NA
Collection Time:	10:52	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.14	*Equipment Blank ID:*	NA
Sample Depth (feet):	156.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	As_Spec
		Sample on-Ice: Time:	10:55
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	151.9	**Bottom of Screen (ft. btoc):**	161.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
35.9	17.2	7.01	392.3	0.23	2.3	97.8	0.21	**Odor:**	No Odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	032871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**	**As Spec**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B	As Spec
Bottle Lot Number	010620-2AFW	111819-2EIX	011320-2EEY	012020-2ADT	010620-2EIX	19-0254
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic	Glass
Volume (mL):	250	250	1000	500	250	10
No. of Bottles Collected:	3	3	6	3	3	6
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved	EDTA

Lead Sampler Name:	John Myer	**Date:**	2/25/2020	**Signature:**	
Sampler Name:	Ismael Arroyo	**Date:**	2/25/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	3/5/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	3/5/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	10.79
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	170.5
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	159.71 / 1578.64
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	165.5
Well ID:	ACC-1A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/12/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0846	10.79	350	0	17.3	7.04	616	0.44	4.6	-237.1	0.35	Clear	No odor
0849	10.79	350	1.1	17.3	6.74	610	0.31	3.1	-255.5	1.13	Clear	No odor
0852	10.79	350	2.1	17.3	6.58	612	0.20	2.3	-269.2	0.81	Clear	No odor
0855	10.79	350	3.2	17.3	6.52	613	0.18	1.8	-275.3	0.65	Clear	No odor
0858	10.79	350	4.2	17.3	6.49	614	0.17	1.7	-279.1	0.48	Clear	No odor
Final Purge Values:		0858	4.2	17.3	6.49	614	0.17	1.7	-279.1	0.48	Clear	

5-12-20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	80
Ambient Air (°C):	11

Sample ID:	ALF-GW-ACC1A-20200512	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/12/2020	*Field Blank ID:*	NA
Collection Time:	9:01	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.2	*Equipment Blank ID:*	NA
Sample Depth (feet):	165.5	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	9:06
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	160.1	**Bottom of Screen (ft. btoc):**	170.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
10.79	17.3	6.55	609	0.86	8.1	-200.6	0.87	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	17551

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/12/2020	**Signature:**	
Sampler Name:	Emily Schieben	**Date:**	5/12/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/13/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	12.98
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	130.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	117.82 / 1164.59
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	126.0
	ACC-3A	**Method of Purging:**	Dedicated bladder pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/12/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1245	12.99	500	0	17.2	6.68	917	0.38	3.9	-217.3	0.66	Clear	No odor
1248	12.99	500	1.5	17.1	6.67	920	0.29	2.7	-225.5	0.44	Clear	No odor
1251	12.99	500	3.0	17.2	6.69	920	0.20	2.1	-230.7	0.53	Clear	No odor
1254	12.99	500	4.5	17.2	6.70	920	0.17	1.9	-233.1	0.34	Clear	No odor
Final Purge Values:		1254	4.5	17.2	6.70	920	0.17	1.9	-233.1	0.34	Clear	

5-12-20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	80
Ambient Air (°C):	11

Sample ID:	ALF-GW-ACC3A-20200512	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/12/2020	*Field Blank ID:*	NA
Collection Time:	12:57	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	126.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	13:01
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	120.4	**Bottom of Screen (ft. btoc):**	130.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
12.99	17.2	6.9	919	0.42	3.7	-200.6	0.24	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	17551

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/12/2020	**Signature:**	
Sampler Name:	Emily Schieben	**Date:**	5/12/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/13/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	15.09
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	143.9
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	128.81 / 1273.22
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	139.0
Well ID:	ACC-5A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/12/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1150	15.09	320	0	18.3	7.08	676	0.36	3.9	-239.7	0.43	Clear	No odor
1153	15.09	320	1.0	18.3	6.64	665	0.37	3.9	-248.2	0.92	Clear	No odor
1156	15.09	320	1.9	18.3	6.57	666	0.24	2.5	-259.0	0.96	Clear	No odor
1159	15.09	320	2.9	18.4	6.56	665	0.20	1.9	-268.9	0.87	Clear	No odor
Final Purge Values:		1159	2.9	18.4	6.56	665	0.20	1.9	-268.9	0.87	Clear	

5-12-20

Final Controller Settings	
Setting ID:	106
Pressure (PSI):	80
Ambient Air (°C):	12

Sample ID:	ALF-GW-ACC5A-20200512	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/12/2020	*Field Blank ID:*	NA
Collection Time:	12:02	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.9	*Equipment Blank ID:*	NA
Sample Depth (feet):	139.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:07
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	133.5	**Bottom of Screen (ft. btoc):**	143.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
15.09	18.3	6.68	663	0.27	2.9	-226.7	0.95	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	17551

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/12/2020	**Signature:**	
Sampler Name:	Emily Schieben	**Date:**	5/12/2020	**Signature:**	Emily Schieben
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/13/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	15.18
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	60.6
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	45.42 / 448.95
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	55.5
Well ID:	ACC-5B	**Method of Purging:**	Dedicated Sampling Well
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/12/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			NA	NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	NA	
1103	15.18	490	0	18.4	6.88	887	0.38	3.7	-236.7	6.67	Clear	No odor
1106	15.18	490	1.5	18.4	6.83	884	0.30	3.4	-252.3	3.13	Clear	No odor
1109	15.18	490	2.9	18.4	6.82	883	0.21	2.8	-259.6	2.65	Clear	No odor
1112	15.18	490	4.4	18.4	6.80	880	0.35	3.0	-295.7	1.71	Clear	No odor
1115	15.18	490	5.9	18.4	6.80	881	0.20	2.6	-266.1	1.86	Clear	No odor
1118	15.18	490	7.4	18.4	6.78	880	0.17	1.8	-272.4	1.35	Clear	No odor
Final Purge Values:		1118	7.4	18.4	6.78	880	0.17	1.8	-272.4	1.35	Clear	

5-12-20

Final Controller Settings	
Setting ID:	99
Pressure (PSI):	45
Ambient Air (°C):	13

Sample ID:	ALF-GW-ACC5B-20200512
Method of Sampling:	Low Flow
Sample Date:	5/12/2020
Collection Time:	11:21
Total Volume Purged (L):*	7.4
Sample Depth (feet):	55.5
Heavy Equipment in Area:	No
Analysis:	RI
Tubing Lot #:	N/A
Stability Reached (Y/N):	Yes
If No, Provide Explanation	NA

QA/QC Sample Collected:	Yes
MS/MSD/LD collected:	No
Field Blank ID:	ALF-GW-FB02-20200512
Field Duplicate ID:	NA
Equipment Blank ID:	NA
Filter Blank ID:	NA
Tubing Blank ID:	NA
DI water lot #:	Pace Analytical Minneapolis, Fill Date: 05/04/2020
Filter purged for minimum 500 mL:	No
Filter Lot #:	NA
Filter Sample Metals:	No
Other Filtered Samples Collected:	NA
Sample on-Ice: Time:	11:26
Drawdown Stabilized < 0.3 ft:	Yes

Top of Screen (ft. btoc):	50.2	**Bottom of Screen (ft. btoc):**	60.2

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
15.18	18.4	6.97	880	0.74	6.8	-175.9	1.28	Odor:	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	17551

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/12/2020	**Signature:**
Sampler Name:	Emily Schieben	**Date:**	5/12/2020	**Signature:**
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/13/2020	**Signature:**
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**

*Does not include volume purged during establishment of stable flow rate

EIP_GW_Sample_Record_Form_20190502_rev2

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	16.95
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	50.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	33.75 / 333.6
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	49.0
Well ID:	ALF-201	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/13/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1038	16.95	140	0	20.2	6.98	870	1.01	11.2	217.1	9.17	clear	no odor
1041	16.95	140	0.4	20.2	6.96	867	0.91	10.0	219.7	6.56	clear	no odor
1044	16.95	140	0.8	20.2	6.96	866	0.86	9.5	219.6	5.10	clear	no odor
1047	16.95	140	1.3	20.2	6.94	866	0.76	8.4	218.7	4.88	clear	no odor
1050	16.95	140	1.7	20.2	6.94	866	0.71	7.8	217.1	3.48	clear	no odor
1053	16.95	140	2.1	20.2	6.94	866	0.66	7.3	214.8	3.32	clear	no odor
Final Purge Values:		1053	2.1	20.2	6.94	866	0.66	7.3	214.8	3.32	clear	

TV 5/13/20

Final Controller Settings	
Setting ID:	104
Pressure (PSI):	25
Ambient Air (°C):	22

Sample ID:	ALF-GW-ALF201-20200513	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/13/2020	*Field Blank ID:*	NA
Collection Time:	10:56	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.1	*Equipment Blank ID:*	NA
Sample Depth (feet):	49.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:06
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	23.3	**Bottom of Screen (ft. btoc):**	49.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
16.95	20.4	6.97	873	0.65	7.2	226.0	1.75	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/13/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/13/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/14/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/18/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	18.09
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	94.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	76.21 / 753.29
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.0
Well ID:	ALF-201B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/13/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1305	18.09	500	0	20.9	6.91	801	0.48	4.9	138.2	2.81	clear	no odor
1308	18.09	500	1.5	20.6	6.92	797	0.31	3.4	15.7	1.66	clear	no odor
1311	18.09	500	3.0	20.6	6.93	796	0.29	3.2	-4.7	1.34	clear	no odor
1314	18.09	500	4.5	20.5	6.95	797	0.26	2.8	-46.7	1.32	clear	no odor
Final Purge Values:		1314	4.5	20.5	6.95	797	0.26	2.8	-46.7	1.32	clear	

TV 5/13/20

Final Controller Settings	
Setting ID:	101
Pressure (PSI):	65
Ambient Air (°C):	24

Sample ID:	ALF-GW-ALF201B-20200513	**QA/QC Sample Collected:**	Yes
Method of Sampling:	low-flow	*MS/MSD/LD collected:*	No
Sample Date:	5/13/2020	*Field Blank ID:*	ALF-GW-FB01-20200513
Collection Time:	13:17	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	89.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace Minneapolis Fill Date: 05/04/2020
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	13:27
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	83.9	**Bottom of Screen (ft. btoc):**	93.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
18.09	20.5	6.96	796	0.1	1.1	16.2	2.15	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	~~1~~ 2 MD 5/18/2020	~~1~~ 2 MD 5/18/2020	~~2~~ 4 MD 5/18/2020	~~1~~ 2 MD 5/18/2020	~~1~~ 2 MD 5/18/2020
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/13/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/13/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/14/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/18/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	17.83
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	130.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	112.87 / 1115.66
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	126.0
Well ID:	ALF-201A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/13/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1149	17.83	480	0	20.6	6.85	858	0.41	4.3	144.9	3.91	clear	no odor
1152	17.83	480	1.4	20.5	6.89	836	0.39	4.1	91.2	1.71	clear	no odor
1155	17.83	480	2.9	20.5	6.93	832	0.35	3.6	56.7	1.39	clear	no odor
1158	17.83	480	4.3	20.4	6.99	829	0.30	3.3	25.3	1.02	clear	no odor
Final Purge Values:		1158	4.3	20.4	6.99	829	0.30	3.3	25.3	1.02	clear	

TV 5/13/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	85
Ambient Air (°C):	23

Sample ID:	ALF-GW-ALF201A-20200513	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	Yes
Sample Date:	5/13/2020	*Field Blank ID:*	NA
Collection Time:	12:01	*Field Duplicate ID:*	ALF-GW-DUP01-20200513
Total Volume Purged (L):*	4.3	*Equipment Blank ID:*	NA
Sample Depth (feet):	126.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	12:11
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	120.3	**Bottom of Screen (ft. btoc):**	130.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
17.83	20.5	7.09	822	0.19	2.1	60.8	1.59	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/13/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/13/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/14/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/18/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	12.21
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	44.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	32.59 / 322.13
			**if water column is < 4.5 L contact Field Coordinator*
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	43.0
Well ID:	ALF-202	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1046	12.21	500	0	18.4	7.56	620	0.57	5.8	97.0	7.64	clear	no odor
1049	12.21	500	1.5	18.4	7.64	619	0.49	5.1	90.0	7.48	clear	no odor
1052	12.21	500	3.0	18.4	7.65	617	0.25	2.6	80.1	6.98	clear	no odor
1055	12.21	500	4.5	18.4	7.65	617	0.18	1.9	68.8	6.38	clear	no odor
1058	12.21	500	6.0	18.3	7.64	617	0.16	1.6	61.4	5.21	clear	no odor
1101	12.21	500	7.5	18.3	7.63	616	0.15	1.5	55.2	4.98	clear	no odor
1104	12.21	500	9.0	18.3	7.61	616	0.13	1.3	49.0	4.65	clear	no odor
1107	12.21	500	10.5	18.3	7.60	616	0.12	1.2	43.3	4.44	clear	no odor
Final Purge Values:		1107	10.5	18.3	7.60	616	0.12	1.2	43.3	4.44	clear	

5/19/20

TV

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	25
Ambient Air (°C):	18

Sample ID:	ALF-GW-ALF202-20200519	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/19/2020	*Field Blank ID:*	NA
Collection Time:	11:10	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	10.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	43.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:20
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	23.4	**Bottom of Screen (ft. btoc):**	44.6

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
12.21	18.4	7.61	615	0.32	3.3	106.4	4.32	**Odor:**	no odor

WL Meter Manufacturer:	~~Solonist~~ Heron MD 5/22/2020	**Model:**	~~101~~ Dipper-T MD 5/22/2020	**Serial No:**	~~123664~~ 3616-T MD 5/22/202
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/19/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/19/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/21/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/22/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	19.34
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	94.5
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	75.16 / 742.91
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.5
Well ID:	ALF-202B	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1232	19.34	400	0	18.4	6.77	617	0.42	4.3	43.5	3.80	clear	no odor
1235	19.34	400	1.2	18.4	6.87	617	0.37	3.7	3.0	4.30	clear	no odor
1238	19.34	400	2.4	18.4	6.94	617	0.31	3.1	-29.9	3.61	clear	no odor
1241	19.34	400	3.6	18.4	6.97	617	0.25	2.5	-46.9	3.44	clear	no odor
Final Purge Values:		1241	3.6	18.4	6.97	617	0.25	2.5	-46.9	3.44	clear	

TV 5/19/20

Final Controller Settings	
Setting ID:	105
Pressure (PSI):	50
Ambient Air (°C):	20

Sample ID:	ALF-GW-ALF202B-20200519	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/19/2020	*Field Blank ID:*	NA
Collection Time:	12:44	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.6	*Equipment Blank ID:*	ALF-GW-EB01-20200519
Sample Depth (feet):	89.5	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace Minneapolis Fill Date: 05/04/2020
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	12:54
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	84.1	**Bottom of Screen (ft. btoc):**	94.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
19.34	18.3	7.09	617	0.31	3.2	-2.9	1.98	**Odor:**	no odor

WL Meter Manufacturer:	~~Solonist~~ Heron MD 5/22/2020	**Model:**	~~101~~ Dipper-T MD 5/22/2020	**Serial No:**	~~123664~~ 3616-T MD 5/22/202
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/19/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/19/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/21/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/22/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	18.77
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	150.5
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	131.73 / 1302.08
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	145.5
Well ID:	ALF-202A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1136	18.77	325	0	18.4	6.85	621	0.41	4.2	28.1	3.51	clear	no odor
1139	18.77	325	1.0	18.4	6.88	622	0.40	4.1	5.7	3.48	clear	no odor
1142	18.77	325	2.0	18.4	6.91	623	0.30	3.1	-18.4	2.64	clear	no odor
1145	18.77	325	2.9	18.4	6.95	623	0.18	1.9	-43.4	2.13	clear	no odor
Final Purge Values:		1145	2.9	18.4	6.95	623	0.18	1.9	-43.4	2.13	clear	

TV 5/19/20

Final Controller Settings	
Setting ID:	107
Pressure (PSI):	75
Ambient Air (°C):	20

Sample ID:	ALF-GW-ALF202A-20200519	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/19/2020	*Field Blank ID:*	NA
Collection Time:	11:48	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.9	*Equipment Blank ID:*	NA
Sample Depth (feet):	145.5	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	11:58
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	140.1	**Bottom of Screen (ft. btoc):**	150.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
18.77	18.3	7.07	622	0.51	5.1	50.5	2.1	**Odor:**	no odor

WL Meter Manufacturer:	~~Solonist~~ Heron MD 5/22/2020	**Model:**	~~101~~ Dipper-T MD 5/22/2020	**Serial No:**	~~123664~~ 3616-T MD 5/22/202
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/19/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/19/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/21/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/22/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	14.44
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	54.1
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	39.66 / 392.02
			**if water column is < 4.5 L contact Field Coordinator*
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	52.0
Well ID:	ALF-203	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/14/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1058	14.45	150	0	20.0	9.82	977	0.49	4.9	141.9	5.20	amber	no odor
1101	14.46	150	0.5	19.9	9.86	975	0.51	5.2	121.2	3.83	amber	no odor
1104	14.46	150	0.9	19.7	9.89	972	0.25	2.5	100.2	2.39	amber	no odor
1107	14.46	150	1.4	19.7	9.89	972	0.25	2.5	80.8	2.24	amber	no odor
Final Purge Values:		1107	1.4	19.7	9.89	972	0.25	2.5	80.8	2.24	amber	

TV 5/14/20

Final Controller Settings	
Setting ID:	100
Pressure (PSI):	30
Ambient Air (°C):	26

Sample ID:	ALF-GW-ALF203-20200514	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/14/2020	*Field Blank ID:*	NA
Collection Time:	11:10	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	1.35	*Equipment Blank ID:*	NA
Sample Depth (feet):	52.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	~~Yes~~ No CS 5/18/20	*Sample on-Ice: Time:*	11:20
If No, Provide Explanation	DO not stable CS 5/18/20	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	33.1	**Bottom of Screen (ft. btoc):**	54.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	amber
14.46	20.3	9.82	983	0.48	4.9	82.5	3.98	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/14/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/14/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/18/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	16.05
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	94.1
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	78.05 / 771.48
			**if water column is < 4.5 L contact Field Coordinator*
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.0
Well ID:	ALF-203B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/14/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1305	16.05	450	0	18.1	6.99	442.1	0.45	4.6	83.2	2.19	clear	no odor
1308	16.05	450	1.4	17.9	7.01	438.5	0.30	3.1	15.3	0.81	clear	no odor
1311	16.05	450	2.7	17.9	7.05	437.9	0.27	2.9	-7.8	0.67	clear	no odor
1314	16.05	450	4.1	17.9	7.07	439.8	0.21	2.2	-38.3	0.63	clear	no odor
Final Purge Values:		1314	4.1	17.9	7.07	439.8	0.21	2.2	-38.3	0.63	clear	

TV 5/14/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	50
Ambient Air (°C):	27

Sample ID:	ALF-GW-ALF203B-20200514	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/14/2020	*Field Blank ID:*	NA
Collection Time:	13:17	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.05	*Equipment Blank ID:*	ALF-GW-EB01-20200514
Sample Depth (feet):	89.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace Minneapolis Fill Date: 05/04/2020
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	13:27
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	83.9	**Bottom of Screen (ft. btoc):**	93.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
16.05	17.8	7.20	441.2	0.44	4.5	41.8	0.95	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	~~1~~ 2 MD 5/19/2020	~~1~~ 2 MD 5/19/2020	~~2~~ 4 MD 5/19/2020	~~1~~ MD 5/19/2020	~~1~~ 2 MD 5/19/2020
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/14/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/14/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/18/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	15.88
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	120.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	104.82 / 1036.09
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	~~116~~ 118.0 CS 6/22/20
Well ID:	ALF-203A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/14/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1212	15.88	300	0	18.5	6.86	384.9	0.39	4.2	-33.1	2.36	clear	no odor
1215	15.88	300	0.9	18.5	6.88	388.1	0.33	3.4	-58.2	0.55	clear	no odor
1218	15.88	300	1.8	18.3	6.84	391.3	0.17	1.8	-64.3	0.79	clear	no odor
1221	15.88	300	2.7	18.4	6.85	393.5	0.17	1.8	-68.4	0.77	clear	no odor
Final Purge Values:		1221	2.7	18.4	6.85	393.5	0.17	1.8	-68.4	0.77	clear	

TV 5/14/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	70
Ambient Air (°C):	26

Sample ID:	ALF-GW-ALF203A-20200514	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/14/2020	*Field Blank ID:*	ALF-GW-FB01-20200514
Collection Time:	12:24	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.7	*Equipment Blank ID:*	NA
Sample Depth (feet):	118.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace Minneapolis Fill Date: 05/04/2020
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	12:34
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	112.3	**Bottom of Screen (ft. btoc):**	122.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
15.89	18.5	7.05	398.7	0.08	0.9	48.5	0.58	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	~~1~~ 2 MD 5/19/202	~~1~~ 2 MD 5/19/2020	~~2~~ 4 MD 5/19/2020	~~1~~ 2 MD 5/19/2020	~~1~~ 2 5 MD 5/19/2020
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/14/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/14/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/18/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	17.75
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	59.2
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	41.45 / 409.71
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	49.0
Well ID:	ALF-204	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0938	17.87	100	0	16.8	7.88	429.1	2.01	19.8	-131.4	8.75	Clear	No odor
0941	17.89	100	0.3	16.8	7.71	437.3	1.35	13.7	-141.2	6.69	Clear	No odor
0944	17.92	100	0.6	17.1	7.23	444.1	0.61	6.2	-190.7	6.82	Clear	No odor
0947	17.95	100	0.9	17.0	7.20	445.3	0.50	5.2	-199.9	7.76	Clear	No odor
0950	17.97	100	1.2	17.1	7.18	445.4	0.46	7.2	-210.0	5.46	Clear	No odor
0953	18.01	100	1.5	17.1	7.18	445.9	0.43	4.4	-213.9	3.92	Clear	No odor
0956	18.04	100	1.8	17.0	7.17	445.8	0.39	4.1	-216.4	3.52	Clear	No odor
0959	18.10	100	2.1	17.0	7.17	445.7	0.38	3.9	-219.6	2.79	Clear	No odor
Final Purge Values:		0959	2.1	17.0	7.17	445.7	0.38	3.9	-219.6	2.79	Clear	

5-19-20

Final Controller Settings	
Setting ID:	54
Pressure (PSI):	25
Ambient Air (°C):	19.4

Sample ID:	ALF-GW-ALF204-20200519	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/19/2020	*Field Blank ID:*	ALF-GW-FB02-20200519
Collection Time:	10:02	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.1	*Equipment Blank ID:*	NA
Sample Depth (feet):	49.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Analytical Minneapolis, Fill date: 05/04/20
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	NA	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:08
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	49.0	**Bottom of Screen (ft. btoc):**	59.2

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
18.2	16.2	7.11	446.9	0.2	2.1	-195.8	1.48	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/19/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	5/19/2020	**Signature:**	Emily Scheiben
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/21/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/22/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	17.69
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	94.1
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	76.41 / 755.27
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.0
Well ID:	ALF-204B	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1055	17.69	435	0	15.7	6.99	213.4	0.17	1.7	-168.5	1.06	Clear	No odor
1058	17.69	435	1.3	15.7	7.05	213.2	0.15	1.5	-198.4	2.11	Clear	No odor
1101	17.69	435	2.6	15.6	7.09	213.2	0.17	1.4	-237.4	1.86	Clear	No odor
1104	17.69	435	3.9	15.7	7.12	213.2	0.14	1.6	-243.1	0.96	Clear	No odor
Final Purge Values:		1104	3.9	15.7	7.12	213.2	0.14	1.6	-243.1	0.96	Clear	

5-19-20

Final Controller Settings	
Setting ID:	101
Pressure (PSI):	60
Ambient Air (°C):	18

Sample ID:	ALF-GW-ALF204B-20200519	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/19/2020	*Field Blank ID:*	NA
Collection Time:	11:07	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.9	*Equipment Blank ID:*	NA
Sample Depth (feet):	89.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	NA	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:11
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	83.7	**Bottom of Screen (ft. btoc):**	93.7

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
17.69	15.6	7.02	213.5	0.15	1.4	-165.7	1.46	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/19/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	5/19/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/21/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/22/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	17.61
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	120.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	103.09 / 1018.99
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	116.0
Well ID:	ALF-204A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1135	17.62	275	0	16.1	6.96	362.1	0.26	2.5	-162.4	4.75	Clear	No odor
1138	17.62	275	0.8	16.0	7.00	357.5	0.22	2.2	-211.6	0.47	Clear	No odor
1141	17.62	275	1.7	16.0	7.02	357.4	0.23	2.2	-218.3	0.43	Clear	No odor
1144	17.62	275	2.5	16.0	7.03	357.6	0.21	2.1	-223.6	0.49	Clear	No odor
Final Purge Values:		1144	2.5	16	7.03	357.6	0.21	2.1	-223.6	0.49	Clear	

5-19-20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	65
Ambient Air (°C):	18.5

Sample ID:	ALF-GW-ALF204A-20200519	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/19/2020	*Field Blank ID:*	NA
Collection Time:	11:47	*Field Duplicate ID:*	ALF-GW-DUP03-20200519
Total Volume Purged (L):*	2.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	116.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	NA	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:55
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	110.3	**Bottom of Screen (ft. btoc):**	120.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
17.65	16.0	7.00	357.1	0.22	2.3	-202.4	0.76	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/19/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	5/19/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/21/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/22/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	22.06
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	55.6
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	33.54 / 331.52
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	54.0
Well ID:	ALF-205	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/18/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1212	22.06	200	0	18.0	7.10	813	0.48	5.1	-226.9	1.44	Clear	No odor
1215	22.06	200	0.6	17.9	6.99	810	0.37	3.9	-242.6	1.69	Clear	No odor
1218	22.06	200	1.2	17.8	6.99	810	0.32	3.4	-253.2	1.72	Clear	No odor
1221	22.06	200	1.8	17.8	6.99	809	0.27	2.8	-262.7	1.07	Clear	No odor
Final Purge Values:		1221	1.8	17.8	6.99	809	0.27	2.8	-262.7	1.07	Clear	

5-18-20

Final Controller Settings	
Setting ID:	46
Pressure (PSI):	25
Ambient Air (°C):	23

Sample ID:	ALF-GW-ALF205-20200518	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB02-20200518
Sample Date:	5/18/2020	*Field Duplicate ID:*	NA
Collection Time:	12:24	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	1.8	*Filter Blank ID:*	NA
Sample Depth (feet):	54.0	*Tubing Blank ID:*	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Analytical Minneapolis, Fill Date: 05/04/20
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:30
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	34.5	**Bottom of Screen (ft. btoc):**	55.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
22.09	18.1	7.24	817	0.45	4.6	-115.6	1.46	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/18/2020	**Signature:**	
Sampler Name:	Emily Schieben	**Date:**	5/18/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/20/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	19.00
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	86.5
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	67.50 / 667.2
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	81.5
Well ID:	ALF-205B	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/18/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1112	19.15	480	0	16.5	6.34	281.7	0.27	2.6	-142.5	2.17	Clear	No odor
1115	19.15	480	1.4	16.4	6.44	281.8	0.27	3.6	-148.4	1.58	Clear	No odor
1118	19.15	480	2.9	16.4	6.51	281.9	0.37	3.0	-154.4	1.56	Clear	No odor
1121	19.15	480	4.3	16.4	6.55	282.1	0.35	4.0	-157.9	1.10	Clear	No odor
Final Purge Values:		1121	4.3	16.4	6.55	282.1	0.35	4.0	-157.9	1.10	Clear	

5-18-20

Final Controller Settings	
Setting ID:	99
Pressure (PSI):	80
Ambient Air (°C):	23

Sample ID:	ALF-GW-ALF205B-20200518	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/18/2020	*Field Blank ID:*	NA
Collection Time:	11:24	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.3	*Equipment Blank ID:*	NA
Sample Depth (feet):	81.5	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:28
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	76.1	**Bottom of Screen (ft. btoc):**	86.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
19.20	16.4	6.72	283.9	0.17	1.8	-165.8	1.39	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/18/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	5/18/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/20/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	15.90
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	112.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	96.50 / 953.85
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	107.0
Well ID:	ALF-205A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/18/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1309	18.92	500	0	16.4	6.80	294.0	0.25	2.6	-170.6	2.23	Clear	No odor
1312	18.92	500	1.5	16.4	6.77	295.1	0.21	2.1	-217.8	1.46	Clear	No odor
1315	18.92	500	3.0	16.3	6.81	295.3	0.19	1.9	-243.6	1.45	Clear	No odor
1318	18.92	500	4.5	16.2	6.86	295.8	0.21	2.1	-259.3	0.63	Clear	No odor
Final Purge Values:		1318	4.5	16.2	6.86	295.8	0.21	2.1	-259.3	0.63	Clear	

5-18-20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	75
Ambient Air (°C):	23

Sample ID:	ALF-GW-ALF205A-20200518	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/18/2020	*Field Blank ID:*	NA
Collection Time:	13:21	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	107.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:26
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	102.0	**Bottom of Screen (ft. btoc):**	112.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
18.94	16.2	6.92	295.7	0.21	2.1	-149.0	0.83	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/18/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	5/18/2020	**Signature:**	Emily Scheiben
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/20/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	25.11
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	64.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	39.29 / 388.36
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	54.0
Well ID:	ALF-206	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1237	25.13	500	0	15.8	7.15	269.9	0.32	3.1	-166.5	4.50	Clear	No odor
1240	25.13	500	1.5	15.8	7.14	270.2	0.19	1.9	-181.4	1.70	Clear	No odor
1243	25.13	500	3.0	15.7	7.17	271.2	0.17	1.6	-199.8	1.14	Clear	No odor
1246	25.13	500	4.5	15.7	7.20	271.9	0.12	1.2	-209.4	1.10	Clear	No odor
Final Purge Values:		1246	4.5	15.7	7.20	271.9	0.12	1.2	-209.4	1.10	Clear	

5-19-20

Final Controller Settings	
Setting ID:	100
Pressure (PSI):	65
Ambient Air (°C):	18.5

Sample ID:	ALF-GW-ALF206-20200519	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/19/2020	*Field Blank ID:*	NA
Collection Time:	12:49	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	54.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	NA	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:54
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	54.0	**Bottom of Screen (ft. btoc):**	64.2

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
25.13	15.6	7.10	292.1	0.19	1.8	-168.3	0.75	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/19/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	5/19/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/21/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/22/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	12.59
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	48.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	36.21 / 357.92
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	47.0
Well ID:	ALF-210	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/12/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1030	12.85	100	0	16.2	6.86	817	1.21	12.3	191.2	16.3	clear	no odor
1033	12.90	100	0.3	16.4	6.82	804	1.02	10.4	189.1	19.9	clear	no odor
1036	12.94	100	0.6	16.5	6.81	802	0.75	7.6	187.4	11.8	clear	no odor
1039	13.19	100	0.9	16.5	6.80	803	0.67	6.9	188.7	10.6	clear	no odor
1042	13.27	100	1.2	16.5	6.80	803	0.62	6.3	226.4	9.89	clear	no odor
1045	13.32	100	1.5	16.5	6.80	802	0.57	5.8	250.3	9.99	clear	no odor
1048	13.36	100	1.8	16.5	6.80	802	0.57	5.9	257.3	12.7	clear	no odor
1051	13.39	100	2.1	16.6	6.79	802	0.51	5.2	263.5	13.4	clear	no odor
1054	13.42	100	2.4	16.6	6.79	801	0.50	5.2	265.2	10.4	clear	no odor
1057	13.46	100	2.7	16.6	6.79	800	0.46	4.7	266.7	9.75	clear	no odor
1100	13.50	100	3.0	16.6	6.79	801	0.42	4.3	267.6	8.41	clear	no odor
1103	13.53	100	3.3	16.6	6.79	801	0.39	4.0	268.0	9.74	clear	no odor
1106	13.56	100	3.6	16.6	6.79	800	0.35	3.6	269.1	8.48	clear	no odor
1109	13.58	100	3.9	16.6	6.79	800	0.33	3.4	269.5	7.82	clear	no odor
1112	13.62	100	4.2	16.7	6.79	800	0.31	3.1	266.3	7.41	clear	no odor
1115	13.69	100	4.5	16.6	6.79	799	0.28	2.9	246.1	7.38	clear	no odor
1118	13.72	100	4.8	16.6	6.79	799	0.27	2.8	238.7	7.22	clear	no odor
1121	13.76	100	5.1	16.6	6.79	799	0.26	2.6	231.8	7.09	clear	no odor
1124	13.80	100	5.4	16.6	6.79	799	0.24	2.5	225.0	6.87	clear	no odor
1127	13.83	100	5.7	16.7	6.79	799	0.22	2.2	220.6	6.78	clear	no odor
1130	13.86	100	6.0	16.7	6.79	799	0.22	2.2	217.0	6.42	clear	no odor
1133	13.89	100	6.3	16.7	6.79	799	0.20	2.3	207.9	5.99	clear	no odor
1136	13.91	100	6.6	16.7	6.79	797	0.19	2.0	201.8	5.78	clear	no odor
1139	13.93	100	6.9	16.7	6.79	797	0.18	1.9	198.8	5.65	clear	no odor
1142	13.96	100	7.2	16.7	6.78	796	0.18	1.8	196.1	5.37	clear	no odor
1145	13.99	100	7.5	16.7	6.78	797	0.17	1.7	191.1	5.16	clear	no odor
1148	14.02	100	7.8	16.7	6.78	798	0.17	1.7	189.5	5.09	clear	no odor
1151	14.05	100	8.1	16.7	6.78	797	0.17	1.7	187.3	4.99	clear	no odor
1154	14.07	100	8.4	16.7	6.78	797	0.18	1.8	184.8	4.90	clear	no odor
1157	14.10	100	8.7	16.7	6.78	797	0.18	1.8	180.3	4.69	clear	no odor
		TV 5/12/20										
												Final Controller Settings
												Setting ID: 103
												Pressure (PSI): 22
Final Purge Values:		1157	8.7	16.7	6.78	797	0.18	1.8	180.3	4.69	clear	**Ambient Air (°C):** 13

Sample ID:	ALF-GW-ALF210-20200512	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/12/2020	*Field Blank ID:*	NA
Collection Time:	12:00	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	8.7	*Equipment Blank ID:*	NA
Sample Depth (feet):	47.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:10
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	27.2	**Bottom of Screen (ft. btoc):**	48.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
14.14	15.9	6.86	775	0.54	5.5	287.9	4.45	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/12/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/12/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/14/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/18/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	13.80
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	89.82
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	76.02 / 751.42
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	84.5
Well ID:	ALF-210B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/12/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1307	13.81	350	0	17.0	6.76	743.0	0.47	4.8	-6.0	3.30	clear	no odor
1310	13.81	350	1.1	17.1	6.84	744.0	0.46	4.7	-62.2	3.22	clear	no odor
1313	13.81	350	2.1	17.1	6.92	747.0	0.38	3.9	-88.6	2.90	clear	no odor
1316	13.81	350	3.2	17.2	6.95	748.0	0.32	3.3	-100.3	2.26	clear	no odor
Final Purge Values:		1316	3.2	17.2	6.95	748.0	0.32	3.3	-100.3	2.26	clear	

TV 5/12/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	50
Ambient Air (°C):	11

Sample ID:	ALF-GW-ALF210B-20200512	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/12/2020	*Field Blank ID:*	ALF-GW-FB01-20200512
Collection Time:	13:20	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.2	*Equipment Blank ID:*	NA
Sample Depth (feet):	84.5	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace Minneapolis Fill Date: 05/04/2020
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	13:30
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	79.6	**Bottom of Screen (ft. btoc):**	89.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
13.81	17.2	7.01	750	0.71	7.2	-55.7	3.20	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	~~1~~ 2 MD 5/18/2020	~~1~~ 2 MD 5/18/2020	~~2~~ 4 MD 5/18/2020	~~1~~ 2 MD 5/18/2020	~~1~~ 2 MD 5/18/2020
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/12/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/12/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/14/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/18/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	13.23
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	130.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	117.17 / 1158.16
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	125.0
Well ID:	ALF-210A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/12/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0930	13.23	300	0	17.3	6.88	1274	0.68	6.9	0.5	5.80	clear	no odor
0933	13.23	300	0.9	17.3	6.83	1269	0.65	6.6	-35.1	5.80	clear	no odor
0936	13.23	300	1.8	17.3	6.83	1269	0.64	6.5	-58.9	5.43	clear	no odor
0939	13.23	300	2.7	17.3	6.84	1268	0.38	3.9	-70.5	5.11	clear	no odor
0942	13.23	300	3.6	17.3	6.85	1267	0.28	2.9	-77.9	4.99	clear	no odor
0945	13.23	300	4.5	17.3	6.85	1269	0.19	1.9	-82.5	4.87	clear	no odor
0948	13.23	300	5.4	17.3	6.86	1269	0.15	1.5	-86.2	4.81	clear	no odor
Final Purge Values:		0948	5.4	17.3	6.86	1269	0.15	1.5	-86.2	4.81	clear	

TV 5/12/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	70
Ambient Air (°C):	12

Sample ID:	ALF-GW-ALF210A-20200512	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/12/2020	*Field Blank ID:*	NA
Collection Time:	9:53	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	5.4	*Equipment Blank ID:*	NA
Sample Depth (feet):	125.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:03
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	120.0	**Bottom of Screen (ft. btoc):**	130.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
13.23	17.3	6.86	1279	0.38	3.9	-86.0	4.90	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/12/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/12/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/14/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/18/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.10
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	67.9
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	34.80 / 343.98
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	67.00
Well ID:	ALF-212	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/13/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1207	33.10	450	0	19.2	6.82	669	0.76	7.7	-225.6	4.67	Clear	No odor
1210	33.10	450	1.4	19.2	6.88	669	0.31	3.4	-244.8	2.41	Clear	No odor
1213	33.10	450	2.7	19.2	6.92	668	0.19	2.4	-262.8	1.31	Clear	No odor
1216	33.10	450	4.1	19.2	6.93	667	0.19	2.0	-267.8	0.93	Clear	No odor; Final ORP revised 6/22/20 CS
Final Purge Values:		1216	4.1	19.2	6.93	667	0.19	2.0	-267.8	0.93	Clear	

5-13-20

Final Controller Settings	
Setting ID:	105
Pressure (PSI):	40
Ambient Air (°C):	26.6

Sample ID:	ALF-GW-ALF212-20200513	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/13/2020	*Field Blank ID:*	NA
Collection Time:	12:19	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.1	*Equipment Blank ID:*	NA
Sample Depth (feet):	67.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:23
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	51.8	**Bottom of Screen (ft. btoc):**	67.8

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
33.1	19.3	6.84	665	0.15	1.7	-235.7	0.79	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/13/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	5/13/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/15/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	35.43
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	169.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	134.37 / 1328.17
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	165.0
Well ID:	ALF-212A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/13/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1304	35.43	150	0	20.7	7.18	623	0.94	9.8	-198.0	0.79	Clear	No odor
1307	35.43	150	0.5	20.3	7.01	628	0.30	3.6	-226.8	0.60	Clear	No odor
1310	35.43	150	0.9	20.3	6.77	634	0.28	3.1	-235.2	0.44	Clear	No odor
1313	35.43	150	1.4	20.1	6.53	644	0.22	2.5	-239.1	1.25	Clear	No odor
1316	35.43	150	1.8	20.0	6.50	648	0.17	1.9	-245.9	0.76	Clear	No odor
1319	35.43	150	2.3	20.0	6.52	649	0.14	1.5	-249.7	0.63	Clear	No odor
Final Purge Values:		1319	2.3	20.0	6.52	649	0.14	1.5	-249.7	0.63	Clear	

5-13-20

Final Controller Settings	
Setting ID:	57
Pressure (PSI):	80
Ambient Air (°C):	27.1

Sample ID:	ALF-GW-ALF212A-20200513	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/13/2020	*Field Blank ID:*	NA
Collection Time:	13:22	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.3	*Equipment Blank ID:*	NA
Sample Depth (feet):	165.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	13:28
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	159.4	**Bottom of Screen (ft. btoc):**	169.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
35.43	19.8	6.90	659	0.69	7.2	-205.9	0.98	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/13/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	5/13/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/15/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	35.88
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	81.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	45.42 / 112.24
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	71.0
Well ID:	ALF-213	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0810	35.90	350	0	17.8	6.98	393.8	0.66	6.1	-252.9	3.03	Clear	No odor
0813	35.90	350	1.1	17.7	6.95	395.7	0.40	3.8	-262.8	1.99	Clear	No odor
0816	35.90	350	2.1	17.6	6.95	395.7	0.33	2.8	-266.9	0.90	Clear	No odor
0819	35.90	350	3.2	17.6	6.98	396.1	0.26	2.4	-271.0	0.70	Clear	No odor
Final Purge Values:		0819	3.2	17.6	6.98	396.1	0.26	2.4	-271.0	0.70	Clear	

5-15-20

Final Controller Settings	
Setting ID:	102
Pressure (PSI):	40
Ambient Air (°C):	24.2

Sample ID:	ALF-GW-ALF213-20200515	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/15/2020	*Field Blank ID:*	NA
Collection Time:	8:22	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.2	*Equipment Blank ID:*	NA
Sample Depth (feet):	71.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	8:27
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	71.0	**Bottom of Screen (ft. btoc):**	81.2

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
35.9	17.7	7.04	396.8	0.48	4.6	-237.9	0.64	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/15/2020	**Signature:**	
Sampler Name:	Emily Schieben	**Date:**	5/15/2020	**Signature:**	Emily Schieben
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/19/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	36.45
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	121.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	85.35 / 210.91
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	116.75
Well ID:	ALF-213B	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0857	36.46	200	0	18.5	7.37	796	2.74	27.2	-208.6	1.06	Clear	No odor
0900	36.46	200	0.6	18.5	7.19	808	0.65	6.9	-234.0	0.40	Clear	No odor
0903	36.46	200	1.2	18.5	6.99	805	0.58	6.2	-241.4	0.96	Clear	No odor
0906	36.46	200	1.8	18.4	6.81	775	0.44	4.7	-254.9	1.38	Clear	No odor
0909	36.46	200	2.4	18.4	6.87	767	0.37	4.0	-261.4	1.08	Clear	No odor
0912	36.46	200	3.0	18.4	6.94	763	0.32	3.0	-265.5	1.07	Clear	No odor
Final Purge Values:		0912	3.0	18.4	6.94	763	0.32	3.0	-265.5	1.07	Clear	

5-15-20

Final Controller Settings	
Setting ID:	54
Pressure (PSI):	75
Ambient Air (°C):	26.9

Sample ID:	ALF-GW-ALF213B-20200515	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/15/2020	*Field Blank ID:*	ALF-GW-FB02-20200515
Collection Time:	9:15	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.0	*Equipment Blank ID:*	NA
Sample Depth (feet):	116.75	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace Analytical Minneapolis, Fill Date: 05/04/20
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	9:21
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	111.4	**Bottom of Screen (ft. btoc):**	121.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
36.5	18.1	7.07	759	0.35	3.8	-236.3	0.90	Odor:	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/15/2020	**Signature:**	
Sampler Name:	Emily Schieben	**Date:**	5/15/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/19/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	36.44
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	162.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	126.36 / 312.25
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	157.75
Well ID:	ALF-213A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0957	36.44	375	0	17.5	6.76	328.5	0.14	2.0	-266.3	1.32	Clear	No odor
1000	36.44	375	1.1	17.5	6.86	328.2	0.16	2.0	-270.5	1.01	Clear	No odor
1003	36.44	375	2.3	17.4	6.89	328.5	0.17	2.1	-270.9	0.82	Clear	No odor
1006	36.44	375	3.4	17.4	6.91	328.5	0.18	1.3	-272.7	0.69	Clear	No odor
Final Purge Values:		1006	3.4	17.4	6.91	328.5	0.18	1.3	-272.7	0.69	Clear	

5-15-20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	80
Ambient Air (°C):	26.1

Sample ID:	ALF-GW-ALF213A-20200515	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/15/2020	*Field Blank ID:*	NA
Collection Time:	10:09	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.4	*Equipment Blank ID:*	NA
Sample Depth (feet):	157.75	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:14
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	152.4	**Bottom of Screen (ft. btoc):**	162.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
36.44	17.4	6.79	329.8	0.15	1.9	-216.0	0.48	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/15/2020	**Signature:**	
Sampler Name:	Emily Schieben	**Date:**	5/15/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/19/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	15.31
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	54.90
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	39.59 / 391.33
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	45.0
Well ID:	ALF-214	**Method of Purging:**	Dedicated bladder pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/13/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0848	15.31	325	0	18.2	7.05	536.6	0.45	4.8	-8.9	2.01	clear	no odor
0851	15.31	325	1.0	18.2	7.09	537.4	0.37	3.8	-3.6	2.01	clear	no odor
0854	15.31	325	2.0	18.2	7.12	538.4	0.34	3.5	-2.3	2.47	clear	no odor
0857	15.31	325	2.9	18.2	7.16	538.3	0.27	2.9	1.7	1.91	clear	no odor
Final Purge Values:		0857	2.9	18.2	7.16	538.3	0.27	2.9	1.7	1.91	clear	

5/13/20

Final Controller Settings	
Setting ID:	101
Pressure (PSI):	40
Ambient Air (°C):	16

Sample ID:	ALF-GW-ALF214-20200513	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/13/2020	*Field Blank ID:*	NA
Collection Time:	9:00	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.9	*Equipment Blank ID:*	NA
Sample Depth (feet):	45.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:10
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	34.5	**Bottom of Screen (ft. btoc):**	54.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
15.31	18.3	7.28	546.7	0.45	4.6	182.6	2.23	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/13/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/13/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/14/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/18/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	15.44
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	93.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	77.86 / 769.6
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	88.0
Well ID:	ALF-214B	**Method of Purging:**	Dedicated Sampling Well
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/13/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0810	15.44	500	0	17.9	6.67	915	0.70	7.1	-4.7	8.16	clear	no odor
0813	15.44	500	1.5	17.9	6.73	925	0.46	4.8	-41.0	4.11	clear	no odor
0816	15.44	500	3.0	17.9	6.77	929	0.32	3.3	-59.9	3.91	clear	no odor
0819	15.44	500	4.5	17.9	6.78	929	0.31	3.2	-65.6	3.87	clear	no odor
Final Purge Values:		0819	4.5	17.9	6.78	929	0.31	3.2	-65.6	3.87	clear	

TV 5/13/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	50
Ambient Air (°C):	14

Sample ID:	ALF-GW-ALF214B-20200513	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/13/2020	*Field Blank ID:*	NA
Collection Time:	8:22	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	88.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	8:32
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	82.9	**Bottom of Screen (ft. btoc):**	92.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
15.44	18.0	6.83	939	0.38	4.1	-41.8	1.86	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/13/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/13/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/14/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/18/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	15.57
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	133.0
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	117.43 / 1160.73
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	130.0
Well ID:	ALF-214A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/13/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0929	15.57	300	0	18.3	6.41	1041	0.49	4.9	95.4	3.03	clear	no odor
0932	15.57	300	0.9	18.2	6.43	1038	0.39	4.1	28.8	2.55	clear	no odor
0935	15.57	300	1.8	18.2	6.44	1038	0.34	3.5	17.4	2.99	clear	no odor
0938	15.57	300	2.7	18.2	6.42	1036	0.30	3.1	4.1	1.66	clear	no odor
Final Purge Values:		0938	2.7	18.2	6.42	1036	0.30	3.1	4.1	1.66	clear	

TVI 5/13/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	80
Ambient Air (°C):	18

Sample ID:	ALF-GW-ALF214A-20200513	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/13/2020	*Field Blank ID:*	NA
Collection Time:	9:41	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.7	*Equipment Blank ID:*	NA
Sample Depth (feet):	130.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	9:51
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	122.6	**Bottom of Screen (ft. btoc):**	136.2

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
15.57	18.7	6.52	1037	0.57	5.8	21.1	2.27	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/13/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/13/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/14/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/18/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	10.10
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	30.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	20.30 / 200.65
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	25.0
Well ID:	ALF-215	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/13/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0845	10.10	460	0	16.1	7.37	477.5	1.05	12.0	-218.3	2.04	Clear	No odor
0848	10.10	460	1.4	16.1	7.17	483.3	0.49	5.3	-241.7	1.89	Clear	No odor
0851	10.10	460	2.8	16.2	7.11	484.4	0.26	4.6	-257.6	1.71	Clear	No odor
0854	10.10	460	4.1	16.2	7.04	487.0	0.33	4.0	-255.8	1.62	Clear	No odor
Final Purge Values:		0854	4.1	16.2	7.04	487.0	0.33	4.0	-255.8	1.62	Clear	

5/13/20

Final Controller Settings	
Setting ID:	99
Pressure (PSI):	20
Ambient Air (°C):	20.8

Sample ID:	ALF-GW-ALF215-20200513	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/13/2020	*Field Blank ID:*	NA
Collection Time:	8:57	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.14	*Equipment Blank ID:*	NA
Sample Depth (feet):	25.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:01
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	20.0	**Bottom of Screen (ft. btoc):**	30.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
10.1	16.3	7.15	494.2	0.33	3.0	-201.6	1.40	Odor:	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/13/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	5/13/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/14/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	13.01
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	60.0
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	46.99 / 464.47
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	50.0
Well ID:	ALF-216	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/12/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0938	13.01	400	0	17.5	6.67	969	0.51	4.6	-199.9	11.5	Clear	No odor
0941	13.01	400	1.2	17.5	6.71	967	0.47	2.2	-248.2	12.8	Clear	No odor
0944	13.01	400	2.4	17.6	6.69	965	0.29	3.3	-265.2	9.96	Clear	No odor
0947	13.01	400	3.6	17.5	6.69	963	0.22	2.3	-270.1	10.5	Clear	No odor
0950	13.01	400	4.8	17.6	6.69	962	0.16	3.6	-271.4	9.80	Clear	No odor
0953	13.01	400	6.0	17.6	6.69	961	0.16	1.6	-275.1	7.64	Clear	No odor
0957	13.01	400	7.6	17.6	6.69	960	0.16	1.7	-275.7	7.81	Clear	No odor
1000	13.01	400	8.8	17.9	6.70	961	0.24	1.7	-277.1	6.98	Clear	No odor
1003	13.01	400	10.0	17.6	6.69	961	0.16	2.0	-278.5	6.02	Clear	No odor
1006	13.01	400	11.2	17.6	6.69	962	0.29	2.2	-279.2	5.37	Clear	No odor
1009	13.01	400	12.4	17.7	6.70	961	0.15	1.6	-280.2	5.87	Clear	No odor
1012	13.01	400	13.6	17.6	6.69	962	0.17	1.6	-281.3	4.72	Clear	No odor
1015	13.01	400	14.8	17.6	6.69	963	0.16	1.6	-285.2	4.73	Clear	No odor
1018	13.01	400	16.0	17.6	6.69	962	0.25	1.9	-286.8	4.30	Clear	No odor
Final Purge Values:		1018	16.0	17.6	6.69	962	0.25	1.9	-286.8	4.30	Clear	

5-12-20

Final Controller Settings	
Setting ID:	97
Pressure (PSI):	45
Ambient Air (°C):	12

Sample ID:	ALF-GW-ALF216-20200512	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/12/2020	*Field Blank ID:*	NA
Collection Time:	10:21	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	16	*Equipment Blank ID:*	NA
Sample Depth (feet):	50.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:26
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	39.6	**Bottom of Screen (ft. btoc):**	59.6

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
13.01	17.6	6.73	968	0.25	2.2	-229.1	3.34	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	17551

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/12/2020	**Signature:**	
Sampler Name:	Emily Schieben	**Date:**	5/12/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/13/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	27.45
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	71.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	44.35 / 438.38
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	60.75
Well ID:	ALF-217	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/14/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0756	27.45	140	0	18.3	6.71	753	0.50	5.3	140.2	4.13	clear	no odor
0759	27.49	140	0.4	18.3	6.76	748	0.46	4.9	108.2	3.06	clear	no odor
0802	27.49	140	0.8	18.3	6.80	749	0.44	4.6	49.5	1.73	clear	no odor
0805	27.49	140	1.3	18.3	6.85	748	0.37	4.0	1.8	1.39	clear	no odor
Final Purge Values:		0805	1.3	18.3	6.85	748	0.37	4.0	1.8	1.39	clear	

TV 5/14/20

Final Controller Settings	
Setting ID:	102
Pressure (PSI):	35
Ambient Air (°C):	19

Sample ID:	ALF-GW-ALF217-20200514	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/14/2020	*Field Blank ID:*	NA
Collection Time:	8:08	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	1.3	*Equipment Blank ID:*	NA
Sample Depth (feet):	60.75	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	8:18
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	49.4	**Bottom of Screen (ft. btoc):**	71.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
27.49	18.7	7.15	751	0.75	7.9	138.2	1.31	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/14/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/14/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/18/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	36.29
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	131.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	95.51 / 944.06
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	126.75
Well ID:	ALF-217B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/14/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0858	36.29	300	0	18.1	6.77	1039	0.48	5.1	24.1	2.40	clear	no odor
0901	36.29	300	0.9	18.0	6.79	1036	0.41	4.2	-39.5	2.35	clear	no odor
0904	36.29	300	1.8	18.1	6.75	1034	0.35	3.6	-56.7	1.17	clear	no odor
0907	36.29	300	2.7	18.0	6.75	1029	0.30	3.2	-75.4	1.12	clear	no odor
Final Purge Values:		0907	2.7	18.0	6.75	1029	0.30	3.2	-75.4	1.12	clear	

TV 5/14/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	75
Ambient Air (°C):	21

Sample ID:	ALF-GW-ALF217B-20200514	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/14/2020	*Field Blank ID:*	NA
Collection Time:	9:10	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.7	*Equipment Blank ID:*	NA
Sample Depth (feet):	126.75	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:20
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	121.4	**Bottom of Screen (ft. btoc):**	131.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
36.29	18.1	6.98	1031	0.79	8.3	25.0	2.78	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/14/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/14/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/18/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	36.46
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	192.80
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	156.34 / 1545.33
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	187.75
Well ID:	ALF-217A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/14/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0953	36.46	300	0	18.3	6.34	759	0.64	6.7	20.6	3.86	clear	no odor
0956	36.46	300	0.9	18.2	6.50	755	0.61	6.3	-4.0	3.70	clear	no odor
0959	36.46	300	1.8	18.2	6.57	754	0.39	4.1	-31.2	3.67	clear	no odor
1002	36.46	300	2.7	18.3	6.59	756	0.33	3.5	-45.2	3.60	clear	no odor
1005	36.46	300	3.6	18.3	6.62	758	0.28	2.9	-57.7	3.13	clear	no odor
Final Purge Values:		1005	3.6	18.3	6.62	758	0.28	2.9	-57.7	3.13	clear	

TV 5/14/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	80
Ambient Air (°C):	24

Sample ID:	ALF-GW-ALF217A-20200514	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/14/2020	*Field Blank ID:*	NA
Collection Time:	10:08	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.6	*Equipment Blank ID:*	NA
Sample Depth (feet):	187.75	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	10:18
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	182.4	**Bottom of Screen (ft. btoc):**	192.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
36.46	18.4	6.73	772	1.14	11.7	39.8	2.77	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/14/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/14/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/18/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	14.45
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	50.1
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	35.65 / 352.38
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	41.0
Well ID:	P-4S	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/18/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1225	14.45	500	0	14.4	6.87	439.4	0.14	1.4	112.3	4.18	clear	no odor
1228	14.45	500	1.5	14.1	6.93	419.1	0.13	1.3	113.7	4.57	clear	no odor
1231	14.45	500	3.0	14.1	6.96	417.6	0.21	2.1	111.2	4.52	clear	no odor
1234	14.45	500	4.5	14.1	6.98	414.7	0.27	2.7	103.5	4.41	clear	no odor
Final Purge Values:		1234	4.5	14.1	6.98	414.7	0.27	2.7	103.5	4.41	clear	

TU 5/18/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	35
Ambient Air (°C):	23

Sample ID:	ALF-GW-P4S-20200518	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/18/2020	*Field Blank ID:*	ALF-GW-FB01-20200518
Collection Time:	12:37	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	41.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace Minneapolis Fill Date: 05/04/2020
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	11:45
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	29.7	**Bottom of Screen (ft. btoc):**	49.7

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
20.61	13.9	7.00	414.4	0.10	1.0	133.4	4.21	**Odor:**	no odor

WL Meter Manufacturer:	~~Solonist~~ Heron MD 5/22/2020	**Model:**	~~101~~ Dipper-T MD 5/22/2020	**Serial No:**	~~123664~~ 3616-T MD 5/22/202
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	~~1~~ 2 MD 5/20/2020	~~1~~ 2 MD 5/20/2020	~~2~~ 4 MD 5/20/2020	~~1~~ 2 MD 5/20/2020	~~1~~ 2 MD 5/20/2020
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/18/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/18/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/20/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	20.61
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	81.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	61.19 / 604.83
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	77.0
Well ID:	P-4	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/18/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1123	20.61	500	0	16.4	6.68	292.0	0.15	1.5	97.1	4.92	clear	no odor
1126	20.61	500	1.5	16.4	6.63	289.6	0.19	1.9	82.0	3.02	clear	no odor
1129	20.61	500	3.0	16.3	6.64	289.7	0.06	0.6	28.5	1.98	clear	no odor
1132	20.61	500	4.5	16.2	6.65	290.4	0.14	1.4	-10.3	1.44	clear	no odor
Final Purge Values:		1132	4.5	16.2	6.65	290.4	0.14	1.4	-10.3	1.44	clear	

TV 5/18/20

Final Controller Settings	
Setting ID:	102
Pressure (PSI):	50
Ambient Air (°C):	22

Sample ID:	ALF-GW-P4-20200518	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	Yes
Sample Date:	5/18/2020	*Field Blank ID:*	NA
Collection Time:	11:35	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	77.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:45
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	71.7	**Bottom of Screen (ft. btoc):**	81.8

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
20.61	15.7	6.69	290.2	0.21	2.1	-1.9	4.38	**Odor:**	no odor

WL Meter Manufacturer:	~~Solonist~~ Heron MD 5/22/2020	**Model:**	~~101~~ Dipper-T MD 5/22/2020	**Serial No:**	~~123664~~ 3616-T MD 5/22/202
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	3	3	6	3	3
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/18/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/18/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/20/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	14.24
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	40.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	26.16 / 258.58
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	29.0
Well ID:	PMW-02A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0748	14.24	100	0	17.4	10.36	835	0.46	4.7	147.2	6.14	Amber tint	No odor
0751	14.24	100	0.3	17.4	10.47	835	0.44	4.7	128,7	5.66	Amber tint	No odor
0754	14.24	100	0.6	17.4	10.62	837	0.40	4.1	70.4	5.53	Amber tint	No odor
0757	14.24	100	0.9	17.4	10.68	838	0.37	3.9	19.9	5.49	Amber tint	No odor
0800	14.24	100	1.2	17.4	10.71	838	0.35	3.8	-18.5	5.60	Amber tint	No odor
0803	14.24	100	1.5	17.4	10.73	838	0.32	3.3	-56.7	5.43	Amber tint	No odor
0806	14.24	100	1.8	17.4	10.75	838	0.30	3.1	-58.6	5.75	Amber tint	No odor
0809	14.24	100	2.1	17.4	10.76	838	0.29	3.0	-64.5	5.59	Amber tint	No odor
0812	14.24	100	2.4	17.4	10.77	839	0.27	2.8	-75.8	5.49	Amber tint	No odor
0815	14.24	100	2.7	17.4	10.78	839	0.26	2.8	-87.3	5.56	Amber tint	No odor
0818	14.24	100	3.0	17.4	10.78	839	0.26	2.7	-105.1	5.72	Amber tint	No odor
0821	14.24	100	3.3	17.4	10.79	839	0.24	2.6	-126.5	5.50	Amber tint	No odor
0824	14.24	100	3.6	17.4	10.79	839	0.24	2.4	-174.9	5.56	Amber tint	No odor
0827	14.24	100	3.9	17.4	10.79	839	0.22	2.3	-217.5	5.56	Amber tint	No odor
0830	14.24	100	4.2	17.4	10.80	840	0.22	2.3	-235.3	5.67	Amber tint	No odor
												Final Controller Settings
												Setting ID: 43
												Pressure (PSI): 25
Final Purge Values:		0830	4.2	17.4	10.8	840	0.22	2.3	-235.3	5.67	Amber tint	**Ambient Air (°C):** 16.9

5-19-20

Sample ID:	ALF-GW-PMW02A-20200519	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/19/2020	*Field Blank ID:*	NA
Collection Time:	8:33	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.2	*Equipment Blank ID:*	NA
Sample Depth (feet):	29.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	Yes
Analysis:	RI	*Filter Lot #:*	H1826
		Filter Sample Metals:	Yes
Tubing Lot #:	NA	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	8:40
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	19.0	**Bottom of Screen (ft. btoc):**	40.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Amber tint
14.24	17.5	10.73	841	0.23	2.4	-202.8	6.13	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/19/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	5/19/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/21/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/22/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	19.91
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	58.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	38.89 / 384.41
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	54.0
Well ID:	PMW-02B	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0945	19.91	225	0	17.2	6.93	691	0.49	5.1	33.6	4.65	clear	no odor
0948	19.91	225	0.7	17.2	7.00	690	0.43	4.5	-11.1	4.64	clear	no odor
0951	19.91	225	1.4	17.3	7.03	690	0.34	3.5	-37.9	4.49	clear	no odor
0954	19.91	225	2.0	17.3	7.04	690	0.25	2.5	-55.8	4.36	clear	no odor
Final Purge Values:		0954	2.0	17.3	7.04	690	0.25	2.5	-55.8	4.36	clear	

TV 5/19/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	30
Ambient Air (°C):	18

Sample ID:	ALF-GW-PMW02B-20200519	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/19/2020	*Field Blank ID:*	ALF-GW-FB01-20200519
Collection Time:	9:57	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.0	*Equipment Blank ID:*	NA
Sample Depth (feet):	54.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Minneapolis Fill Date: 05/04/2020
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:07
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	48.4	**Bottom of Screen (ft. btoc):**	58.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
19.91	17.1	7.16	704	0.61	6.2	21.8	4.56	**Odor:**	no odor

WL Meter Manufacturer:	~~Solonist~~ Heron MD 5/22/2020	**Model:**	~~101~~ Dipper-T MD 5/22/2020	**Serial No:**	~~123664~~ 3616-T MD 5/22/202
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	~~1~~ 2 CS 5/21/20	~~1~~ 2 CS 5/21/20	~~2~~ 4 CS 5/21/20	~~1~~ 2 CS 5/21/20	~~1~~ 2 CS 5/21/20
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/19/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/19/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/21/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/22/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	18.88
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	129.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	110.82 / 1095.39
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	124.0
Well ID:	PMW-02C	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0834	18.88	400	0	16.7	6.54	390.0	0.49	4.9	94.4	4.50	clear	no odor
0837	18.88	400	1.2	16.6	6.57	382.0	0.44	4.4	81.5	3.44	clear	no odor
0840	18.88	400	2.4	16.6	6.64	378.1	0.37	3.8	48.0	2.70	clear	no odor
0843	18.88	400	3.6	16.6	6.72	378.6	0.26	2.6	5.1	3.14	clear	no odor
Final Purge Values:		0843	3.6	16.6	6.72	378.6	0.26	2.6	5.1	3.14	clear	

TV 5/19/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	80
Ambient Air (°C):	16

Sample ID:	ALF-GW-PMW02C-20200519	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	Yes
Sample Date:	5/19/2020	*Field Blank ID:*	NA
Collection Time:	8:46	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.6	*Equipment Blank ID:*	NA
Sample Depth (feet):	124.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	8:56
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	119.3	**Bottom of Screen (ft. btoc):**	129.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
18.88	16.5	7.08	382.7	0.41	4.1	34.1	3.99	**Odor:**	no odor

WL Meter Manufacturer:	~~Solonist~~ Heron MD 5/22/2020	**Model:**	~~101~~ Dipper-T MD 5/22/2020	**Serial No:**	~~123664~~ 3616-T MD 5/22/202
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	3	3	6	3	3
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/19/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/19/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/21/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/22/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	15.38
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	40.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	25.32 / 62.57
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	29.0
Well ID:	PMW-04A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0939	15.39	500	0	18.1	7.25	978	0.46	4.7	83.1	2.09	clear	no odor
0942	15.39	500	1.5	18.0	7.30	987	0.41	4.2	61.8	2.44	clear	no odor
0945	15.39	500	3.0	18.0	7.36	988	0.27	2.8	49.4	2.38	clear	no odor
0948	15.39	500	4.5	18.0	7.37	989	0.19	1.9	42.1	2.22	clear	no odor
Final Purge Values:		0948	4.5	18.0	7.37	989	0.19	1.9	42.1	2.22	clear	

TV 5/15/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	25
Ambient Air (°C):	22

Sample ID:	ALF-GW-PMW04A-20200515	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/15/2020	*Field Blank ID:*	NA
Collection Time:	9:51	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	29.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:01
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	19.3	**Bottom of Screen (ft. btoc):**	40.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
15.39	18.1	7.18	990	0.75	7.6	101.8	3.33	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/15/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/15/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/19/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	15.46
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	62.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	46.94 / 115.99
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	57.0
Well ID:	PMW-04B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0856	15.46	500	0	17.7	6.65	877	0.47	4.8	93.9	4.51	clear	no odor
0859	15.46	500	1.5	17.5	6.91	892	0.35	3.6	-12.4	3.87	clear	no odor
0902	15.46	500	3.0	17.5	6.96	895	0.28	2.9	-74.5	3.50	clear	no odor
0905	15.46	500	4.5	17.4	7.02	896	0.23	2.4	-101.1	2.25	clear	no odor
Final Purge Values:		0905	4.5	17.4	7.02	896	0.23	2.4	-101.1	2.25	clear	

TV 5/15/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	35
Ambient Air (°C):	22

Sample ID:	ALF-GW-PMW04B-20200515	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/15/2020	*Field Blank ID:*	ALF-GW-FB01-20200515
Collection Time:	9:08	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	57.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Minneapolis Fill Date: 05/04/2020
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:18
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	52.0	**Bottom of Screen (ft. btoc):**	62.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
15.46	17.4	7.08	895	0.71	7.2	-25.0	4.53	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	~~1~~ 2 CS 5/19/20	~~1~~ 2 CS 5/19/20	~~2~~ 4 CS 5/19/20	~~1~~ 2 CS 5/19/20	~~1~~ 2 CS 5/19/20
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/15/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/15/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/19/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	15.20
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	129.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	114.50 / 282.94
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	124.0
Well ID:	PMW-04C	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0810	15.20	400	0	17.6	6.44	419.0	0.53	5.4	78.6	1.39	clear	no odor
0813	15.20	400	1.2	17.7	6.56	423.0	0.42	4.4	51.5	1.22	clear	no odor
0816	15.20	400	2.4	17.7	6.60	423.6	0.35	3.6	21.2	1.11	clear	no odor
0819	15.20	400	3.6	17.6	6.69	423.3	0.30	3.1	-2.4	1.18	clear	no odor
Final Purge Values:		0819	3.6	17.6	6.69	423.3	0.30	3.1	-2.4	1.18	clear	

TV 5/15/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	85
Ambient Air (°C):	19

Sample ID:	ALF-GW-PMW04C-20200515	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/15/2020	*Field Blank ID:*	NA
Collection Time:	8:22	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.6	*Equipment Blank ID:*	NA
Sample Depth (feet):	124.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	8:32
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	119.3	**Bottom of Screen (ft. btoc):**	129.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
15.2	17.6	7.14	421.1	0.74	7.6	72.8	1.44	**Odor:**	no odor

WL Meter Manufacturer:	Solonist	**Model:**	101	**Serial No:**	223664
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/15/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/15/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/19/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	9.72
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	29.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	19.58 / 193.54
			**if water column is < 4.5 L contact Field Coordinator*
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	24.0
Well ID:	PMW-07A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/18/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1326	9.72	450	0	18.4	9.50	1016	0.50	5.0	138.3	4.92	amber	no odor
1329	9.72	450	1.4	18.3	9.56	1006	0.33	3.3	112.6	2.10	amber	no odor
1332	9.72	450	2.7	18.2	9.58	1007	0.28	2.8	107.1	1.30	amber	no odor
1335	9.72	450	4.1	18.1	9.59	1006	0.25	2.6	98.8	1.26	amber	no odor
Final Purge Values:		1335	4.1	18.1	9.59	1006	0.25	2.6	98.8	1.26	amber	

TV 5/18/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	18
Ambient Air (°C):	23

Sample ID:	ALF-GW-PMW07A-20200518	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/18/2020	*Field Blank ID:*	NA
Collection Time:	13:38	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.1	*Equipment Blank ID:*	NA
Sample Depth (feet):	24.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:48
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	18.9	**Bottom of Screen (ft. btoc):**	28.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	amber
9.72	18.2	9.54	1009	0.98	9.9	100.4	1.12	**Odor:**	no odor

WL Meter Manufacturer:	~~Solonist~~ Heron MD 5/22/2020	**Model:**	~~101~~ Dipper-T MD 5/22/2020	**Serial No:**	~~123664~~ 3616-T MD 5/22/202
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/18/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/18/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/20/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	TVA TDEC Order	**Initial Depth to Water (feet):**	17.18
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	59.9
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	42.72 / 422.26
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	55.0
Well ID:	PMW-07B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/18/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1424	17.18	300	0	18.6	6.89	803	0.43	4.4	60.9	2.17	clear	no odor
1427	17.18	300	0.9	18.2	6.84	796	0.40	4.0	-33.2	1.12	clear	no odor
1430	17.18	300	1.8	18.0	6.87	799	0.28	2.9	-52.7	0.98	clear	no odor
1433	17.18	300	2.7	17.9	6.90	803	0.24	2.4	-58.9	0.82	clear	no odor
Final Purge Values:		1433	2.7	17.9	6.90	803	0.24	2.4	-58.9	0.82	clear	

TV 5/18/20

Final Controller Settings	
Setting ID:	104
Pressure (PSI):	30
Ambient Air (°C):	23

Sample ID:	ALF-GW-PMW07B-20200518	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/18/2020	*Field Blank ID:*	NA
Collection Time:	14:36	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.7	*Equipment Blank ID:*	NA
Sample Depth (feet):	55.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	14:46
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	49.5	**Bottom of Screen (ft. btoc):**	59.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
17.18	17.5	7.02	808	0.71	7.2	-2.7	0.80	**Odor:**	no odor

WL Meter Manufacturer:	~~Solonist~~ Heron MD 5/22/2020	**Model:**	~~101~~ Dipper-T MD 5/22/2020	**Serial No:**	~~123664~~ 3616-T MD 5/22/202
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/18/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/18/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/20/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	TVA TDEC Order	**Initial Depth to Water (feet):**	18.12
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	122.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	104.68 / 1034.7
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	117.0
Well ID:	PMW-07C	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/19/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0752	18.12	400	0	16.7	6.67	413.6	0.43	4.3	73.2	4.22	clear	no odor
0755	18.12	400	1.2	16.7	6.74	420.8	0.46	4.6	51.6	2.98	clear	no odor
0758	18.12	400	2.4	16.7	6.79	424.5	0.32	3.3	7.5	2.10	clear	no odor
0801	18.12	400	3.6	16.7	6.83	425.1	0.27	2.7	-17.4	2.34	clear	no odor
Final Purge Values:		0801	3.6	16.7	6.83	425.1	0.27	2.7	-17.4	2.34	clear	

TV 5/19/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	75
Ambient Air (°C):	16

Sample ID:	ALF-GW-PMW07C-20200519	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/19/2020	*Field Blank ID:*	NA
Collection Time:	8:04	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.6	*Equipment Blank ID:*	NA
Sample Depth (feet):	117.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	8:14
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	~~112.2~~ 112.5 CS 6/22/20	**Bottom of Screen (ft. btoc):**	~~122.2~~ 122.5 CS 6/22/20

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
18.12	16.6	7.12	425.4	0.7	7	57.8	1.87	**Odor:**	no odor

WL Meter Manufacturer:	~~Solonist~~ Heron MD 5/22/2020	**Model:**	~~101~~ Dipper-T MD 5/22/2020	**Serial No:**	~~223664~~ 3616-T MD 5/22/202
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1427

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	042020-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	5/19/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	5/19/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/21/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/22/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	13.65
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	44.0
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	30.35 / 299.99
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	32.0
Well ID:	PMW-10A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/13/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1120	13.65	500	0	18.5	7.40	486.5	0.20	2.1	-233.9	4.33	Clear	No odor
1123	13.65	500	1.5	18.5	7.38	484.3	0.25	0.8	-240.1	4.07	Clear	No odor
1126	13.65	500	3.0	18.5	7.38	484.8	0.05	2.1	-258.6	3.92	Clear	No odor
1129	13.65	500	4.5	18.4	7.38	485.1	0.24	1.5	-259.8	3.73	Clear	No odor
Final Purge Values:		1129	4.5	18.4	7.38	485.1	0.24	1.5	-259.8	3.73	Clear	

5-13-20

Final Controller Settings	
Setting ID:	100
Pressure (PSI):	35
Ambient Air (°C):	26.3

Sample ID:	ALF-GW-PMW10A-20200513	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/13/2020	*Field Blank ID:*	NA
Collection Time:	11:32	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	32.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:35
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	22.6	**Bottom of Screen (ft. btoc):**	43.6

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
13.65	18.5	7.48	489.9	0.27	2.8	-229.5	3.34	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/13/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	5/13/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/15/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	18.41
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	73.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	54.89 / 542.56
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	68.00
Well ID:	PMW-10B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/13/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1032	18.41	275	0	18.9	7.03	855	0.11	1.1	-263.9	12.3	Clear	No odor
1035	18.41	275	0.8	18.9	7.04	855	0.10	1.1	-269.0	7.70	Clear	No odor
1038	18.41	275	1.7	18.9	7.04	854	0.10	1.0	-275.6	4.53	Clear	No odor
1041	18.41	275	2.5	18.9	7.04	851	0.09	1.0	-279.2	3.62	Clear	No odor
1044	18.41	275	3.3	18.9	7.04	851	0.08	0.9	-280.1	3.19	Clear	No odor
Final Purge Values:		1044	3.3	18.9	7.04	851	0.08	0.9	-280.1	3.19	Clear	

5-13-20

Final Controller Settings	
Setting ID:	51
Pressure (PSI):	35
Ambient Air (°C):	26

Sample ID:	ALF-GW-PMW10B-20200513	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/13/2020	*Field Blank ID:*	ALF-GW-FB02-20200513
Collection Time:	10:47	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.3	*Equipment Blank ID:*	NA
Sample Depth (feet):	68.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace Analytical Minneapolis, Fill Date: 05/04/20
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	10:52
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	62.9	**Bottom of Screen (ft. btoc):**	72.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
18.41	19.2	7.27	835	0.52	5.1	-202.6	3.87	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/13/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	5/13/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/15/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	18.20
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	152.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	134.20 / 1326.49
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	148.00
Well ID:	PMW-10C	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/13/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0926	18.20	450	0	18.4	6.70	470.1	0.41	4.2	-228.9	2.13	Clear	No odor
0929	18.20	450	1.4	18.4	6.68	482.7	0.28	3.0	-257.9	2.13	Clear	No odor
0932	18.20	450	2.7	18.4	6.83	483.6	0.20	2.6	-277.5	1.06	Clear	No odor
0935	18.20	450	4.1	18.4	6.89	483.8	0.21	2.2	-285.8	0.64	Clear	No odor
0938	18.20	450	5.4	18.4	6.91	483.6	0.19	1.9	-287.5	0.24	Clear	No odor
Final Purge Values:		0938	5.4	18.4	6.91	483.6	0.19	1.9	-287.5	0.24	Clear	

5-13-20

Final Controller Settings	
Setting ID:	53
Pressure (PSI):	80
Ambient Air (°C):	22.2

Sample ID:	ALF-GW-PMW10C-20200513	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	Yes
Sample Date:	5/13/2020	*Field Blank ID:*	NA
Collection Time:	9:41	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	5.4	*Equipment Blank ID:*	NA
Sample Depth (feet):	148.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
Analysis:	RI	*DI water lot #:*	NA
Tubing Lot #:	N/A	*Filter purged for minimum 500 mL:*	No
Stability Reached (Y/N):	Yes	*Filter Lot #:*	NA
If No, Provide Explanation	NA	*Filter Sample Metals:*	No
		Other Filtered Samples Collected:	NA
		Sample on-Ice: Time:	9:55
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	142.0	**Bottom of Screen (ft. btoc):**	152.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
18.2	18.9	7.42	487.9	1.23	11.7	-190.7	0.44	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	3	3	6	3	3
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/13/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	5/13/2020	**Signature:**	Emily Scheiben
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/15/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	10.99
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	38.0
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	27.01 / 266.98
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	27.0
Well ID:	PMW-11A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/14/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1206	11.07	275	0	20.1	7.01	672	0.22	2.7	-222.5	29.6	Clear	No odor
1209	11.07	275	0.8	20.1	7.02	674	0.22	2.6	-230.4	25.8	Clear	No odor
1212	11.07	275	1.7	20.1	7.03	672	0.23	2.6	-236.1	23.4	Clear	No odor
1215	11.07	275	2.5	20.1	7.03	674	0.15	2.3	-237.9	23.8	Clear	No odor
1218	11.07	275	3.3	20.1	7.01	675	0.21	2.2	-242.3	21.9	Clear	No odor
1221	11.07	275	4.1	20.1	7.01	676	0.21	2.2	-246.6	19.5	Clear	No odor
1224	11.07	275	5.0	20.1	7.02	675	0.13	2.2	-250.1	18.4	Clear	No odor
1227	11.07	275	5.8	20.1	7.03	676	0.19	2.0	-253.2	16.5	Clear	No odor
1230	11.07	275	6.6	20.1	7.01	676	0.19	2.1	-254.2	16.1	Clear	No odor
1233	11.07	275	7.4	20.0	7.01	681	0.19	0.2	-255.0	15.2	Clear	No odor
1236	11.07	275	8.3	19.9	7.00	679	0.18	1.3	-256.8	14.6	Clear	No odor
1239	11.07	275	9.1	19.9	7.00	677	0.17	2.2	-257.6	13.8	Clear	No odor
1242	11.07	275	9.9	20.0	7.00	679	0.19	2.0	-258.1	13.6	Clear	No odor
1245	11.07	275	10.7	20.0	6.99	682	0.18	1.0	-258.1	12.5	Clear	No odor
1248	11.07	275	11.6	20.0	7.00	681	0.18	1.1	-259.4	12.0	Clear	No odor
1251	11.07	275	12.4	19.9	6.99	683	0.18	1.9	-256.2	11.6	Clear	No odor
1254	11.07	275	13.2	20.0	7.00	682	0.20	2.0	-257.4	11.1	Clear	No odor
1257	11.07	275	14.0	19.9	7.00	683	0.18	1.6	-258.3	10.5	Clear	No odor
1300	11.07	275	14.9	20.0	7.01	685	0.19	1.8	-262.0	10.2	Clear	No odor
1303	11.07	275	15.7	20.0	6.99	691	0.17	0.9	-262.5	10.5	Clear	No odor
1306	11.07	275	16.5	20.0	6.99	694	0.18	1.9	-265.5	10.2	Clear	No odor
1309	11.07	275	17.3	20.0	6.98	689	0.19	2.0	-267.1	9.67	Clear	No odor
1312	11.07	275	18.2	20.0	6.99	695	0.19	1.9	-269.6	8.89	Clear	No odor
1315	11.07	275	19.0	19.9	6.98	695	0.17	1.7	-270.6	8.46	Clear	No odor
1318	11.07	275	19.8	19.9	6.99	692	0.17	1.9	-271.9	8.63	Clear	No odor
1321	11.07	275	20.6	19.9	6.98	692	0.19	1.9	-272.8	8.33	Clear	No odor
1324	11.07	275	21.5	19.8	6.98	697	0.18	2.0	-274.2	7.96	Clear	No odor
1327	11.07	275	22.3	20.0	6.98	695	0.19	1.9	-275.0	7.88	Clear	No odor
1330	11.07	275	23.1	19.8	6.98	695	0.18	1.7	-277.5	7.36	Clear	No odor
1333	11.07	275	23.9	19.9	6.98	690	0.18	2.0	-277.9	7.20	Clear	No odor
1336	11.07	275	24.8	20.0	6.99	698	0.19	2.0	-279.5	7.42	Clear	No odor
1339	11.07	275	25.6	20.0	6.99	697	0.19	1.8	-280.0	6.93	Clear	No odor
1342	11.07	275	26.4	19.9	6.98	696	0.17	1.9	-280.1	7.16	Clear	No odor
1345	11.07	275	27.2	19.9	6.97	704	0.20	1.9	-281.0	6.87	Clear	No odor
1348	11.07	275	28.1	19.9	6.98	703	0.18	1.9	-282.4	6.56	Clear	No odor
1351	11.07	275	28.9	19.9	6.97	703	0.17	1.9	-282.8	6.44	Clear	No odor
1354	11.07	275	29.7	19.9	6.96	704	0.18	1.9	-283.0	6.51	Clear	No odor
1357	11.07	275	30.5	19.8	6.97	705	0.19	1.9	-284.0	6.27	Clear	No odor
1400	11.07	275	31.4	19.7	6.96	704	0.15	1.9	-285.1	6.08	Clear	No odor
1403	11.07	275	32.2	19.8	6.96	703	0.16	1.9	-285.6	6.07	Clear	No odor
1406	11.07	275	33.0	19.8	6.97	701	0.15	1.9	-286.3	5.82	Clear	No odor
												Final Controller Settings
												Setting ID: 100
						5-14-20						**Pressure (PSI):** 25
Final Purge Values:		1406	33.0	19.8	6.97	701	0.15	1.9	-286.3	5.82	Clear	**Ambient Air (°C):** 26

Sample ID:	ALF-GW-PMW11A-20200514	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/14/2020	*Field Blank ID:*	NA
Collection Time:	14:09	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	33.0	*Equipment Blank ID:*	ALF-GW-EB02-20200514
Sample Depth (feet):	27.0	*Filter Blank ID:*	ALF-GW-FLB02-20200514
		Tubing Blank ID:	ALF-GW-TUB02-20200514
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Analytical Minneapolis, Fill Date: 05/04/20
		Filter purged for minimum 500 mL:	Yes
Analysis:	RI	*Filter Lot #:*	H1826
		Filter Sample Metals:	Yes
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	14:17
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	16.6	**Bottom of Screen (ft. btoc):**	37.6

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
11.07	20.1	7.18	717	0.43	4.5	-219.6	5.31	Odor:	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	5	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/14/2020	**Signature:**	
Sampler Name:	Emily Schieben	**Date:**	5/14/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/18/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	14.16
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	67.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	53.54 / 529.21
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	63.0
Well ID:	PMW-11B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/14/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1128	14.17	425	0	20.1	6.94	737	0.12	1.4	-224.6	1.24	Clear	No odor
1131	14.17	425	1.3	20.0	6.95	735	0.11	1.2	-232.4	1.10	Clear	No odor
1134	14.17	425	2.6	20.0	6.96	735	0.11	2.3	-238.0	1.62	Clear	No odor
1137	14.17	425	3.8	20.0	6.96	734	0.22	2.0	-239.7	0.80	Clear	No odor
Final Purge Values:		1137	3.8	20.0	6.96	734	0.22	2.0	-239.7	0.80	Clear	

5-14-20

Final Controller Settings	
Setting ID:	97
Pressure (PSI):	75
Ambient Air (°C):	27

Sample ID:	ALF-GW-PMW11B-20200514	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/14/2020	*Field Blank ID:*	NA
Collection Time:	11:40	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.8	*Equipment Blank ID:*	NA
Sample Depth (feet):	63.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:45
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	57.3	**Bottom of Screen (ft. btoc):**	67.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
14.17	20.0	7.04	727	0.27	3.0	-196.5	1.83	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/14/2020	**Signature:**	
Sampler Name:	Emily Schieben	**Date:**	5/14/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/18/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	14.08
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	149.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	135.32 / 1337.56
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	144.0
Well ID:	PMW-11C	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/14/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1041	14.10	300	0	20.1	6.74	497.5	0.35	3.9	-208.0	2..22	Clear	No odor
1044	14.10	300	0.9	20.2	6.58	498.3	0.23	2.6	-216.0	1.04	Clear	No odor
1047	14.10	300	1.8	20.2	6.70	498.2	0.19	1.7	-228.4	1.17	Clear	No odor
1050	14.10	300	2.7	20.3	6.80	497.5	0.17	1.9	-238.6	1.10	Clear	No odor
1053	14.10	300	3.6	20.3	6.84	497.9	0.14	1.4	-245.2	0.98	Clear	No odor
Final Purge Values:		1053	3.6	20.3	6.84	497.9	0.14	1.4	-245.2	0.98	Clear	

5-14-20

Final Controller Settings	
Setting ID:	108
Pressure (PSI):	60
Ambient Air (°C):	26

Sample ID:	ALF-GW-PMW11C-20200514	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/14/2020	*Field Blank ID:*	NA
Collection Time:	10:56	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.6	*Equipment Blank ID:*	NA
Sample Depth (feet):	144.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:01
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	139.0	**Bottom of Screen (ft. btoc):**	149.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
14.1	20.4	6.99	499	0.36	4.1	-206.3	1.30	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/14/2020	**Signature:**	
Sampler Name:	Emily Schieben	**Date:**	5/14/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/18/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.59
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	59.9
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	28.31 / 279.83
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	49.0
Well ID:	PMW-14A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/14/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0756	31.50	460	0	18.8	6.67	710	0.28	2.8	-58.9	4.00	Clear	No odor
0759	31.50	460	1.4	18.0	6.77	710	0.26	2.9	-75.6	1.46	Clear	No odor
0802	31.50	460	2.8	18.8	6.76	710	0.25	2.8	-91.1	1.01	Clear	No odor
0805	31.50	460	4.1	18.8	6.83	711	0.25	2.0	-114.5	0.89	Clear	No odor
0808	31.50	460	5.5	18.8	6.85	710	0.27	2.9	-117.2	0.66	Clear	No odor
Final Purge Values:		0808	5.5	18.8	6.85	710	0.27	2.9	-117.2	0.66	Clear	

5-14-20

Final Controller Settings	
Setting ID:	101
Pressure (PSI):	35
Ambient Air (°C):	22

Sample ID:	ALF-GW-PMW14A-20200514	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/14/2020	*Field Blank ID:*	NA
Collection Time:	8:11	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	5.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	49.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	8:16
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	38.5	**Bottom of Screen (ft. btoc):**	59.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
31.5	18.8	7.00	710	0.34	3.2	-127.4	0.66	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/14/2020	**Signature:**	
Sampler Name:	Emily Schieben	**Date:**	5/14/2020	**Signature:**	Emily Schieben
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/18/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	36.50
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	89.9
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	53.40 / 527.83
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	85.0
Well ID:	PMW-14B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	5/14/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0835	36.50	425	0	18.4	7.36	737	0.25	3.0	-150.4	5.37	Clear	No odor
0838	36.50	425	1.3	18.4	6.70	739	0.28	2.4	-175.3	5.04	Clear	No odor
0841	36.50	425	2.6	18.4	6.76	740	0.21	1.2	-195.6	1.29	Clear	No odor
0844	36.50	425	3.8	18.4	6.80	740	0.09	0.9	-208.8	2.47	Clear	No odor
0847	36.50	425	5.1	18.5	6.81	739	0.10	1.0	-215.7	1.61	Clear	No odor
Final Purge Values:		0847	5.1	18.5	6.81	739	0.10	1.0	-215.7	1.61	Clear	

5-14-20

Final Controller Settings	
Setting ID:	99
Pressure (PSI):	70
Ambient Air (°C):	22

Sample ID:	ALF-GW-PMW14B-20200514	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/14/2020	*Field Blank ID:*	ALF-GW-FB02-20200514
Collection Time:	8:50	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	5.1	*Equipment Blank ID:*	NA
Sample Depth (feet):	85.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Analytical Minneapolis, Fill Date: 05/04/20
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	8:55
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	79.5	**Bottom of Screen (ft. btoc):**	89.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
36.5	18.2	6.87	735	0.29	4.4	-146.5	1.90	Odor:	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/14/2020	**Signature:**	
Sampler Name:	Emily Schieben	**Date:**	5/14/2020	**Signature:**	Emily Schieben
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/18/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	36.48
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	162.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	125.82 / 310.92
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	156.0
Well ID:	PMW-14C	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	2.0	**Date:**	5/14/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0927	36.48	400	0	18.2	6.57	422.9	0.55	5.4	-123.8	2.50	Clear	No odor
0930	36.48	400	1.2	18.1	6.36	428.8	0.32	3.4	-147.9	1.43	Clear	No odor
0933	36.48	400	2.4	18.2	6.44	428.9	0.23	2.5	-165.9	1.00	Clear	No odor
0936	36.48	400	3.6	18.1	6.58	428.7	0.09	1.3	-180.8	0.95	Clear	No odor
0939	36.48	400	4.8	18.2	6.69	432.5	0.10	1.5	-206.8	2.17	Clear	No odor
0942	36.48	400	6.0	18.2	6.74	429.9	0.14	1.3	-218.4	2.59	Clear	No odor
0945	36.48	400	7.2	18.3	6.78	431.9	0.12	1.2	-229.3	0.61	Clear	No odor
Final Purge Values:		0945	7.2	18.3	6.78	431.9	0.12	1.2	-229.3	0.61	Clear	

5-14-20

Final Controller Settings	
Setting ID:	55
Pressure (PSI):	80
Ambient Air (°C):	22

Sample ID:	ALF-GW-PMW14C-20200514	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	5/14/2020	*Field Blank ID:*	NA
Collection Time:	9:48	*Field Duplicate ID:*	ALF-GW-DUP02-20200514
Total Volume Purged (L):*	7.2	*Equipment Blank ID:*	NA
Sample Depth (feet):	156.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:56
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	151.9	**Bottom of Screen (ft. btoc):**	161.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
36.48	18.1	6.84	430.5	0.17	1.9	-203.6	2.74	**Odor:**	No odor

WL Meter Manufacturer:	Solinst	**Model:**	101	**Serial No:**	362352
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1126

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	033020-2EIZ	032320-2EIX	030920-2EEY	040620-2ADT	032320-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Bryan Pennell	**Date:**	5/14/2020	**Signature:**	
Sampler Name:	Emily Schieben	**Date:**	5/14/2020	**Signature:**	Emily Schieben
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	5/18/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	5/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	24.55
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	170.5
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	145.95 / 1442.63
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	165.5
Well ID:	ACC-1A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/2/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1210	24.55	400	0	20.1	6.38	539	0.63	6.4	-82.4	2.33	clear	no odor
1215	24.55	400	2.0	20.0	6.46	541	0.36	4.1	-87.3	2.91	clear	no odor
1220	24.55	400	4.0	19.9	6.50	540	0.29	3.2	-91.7	1.02	clear	no odor
1225	24.55	400	6.0	20.1	6.56	540	0.24	2.7	-97.8	1.42	clear	no odor
1230	24.55	400	8.0	20.1	6.58	549	0.23	2.4	-95.4	1.51	clear	no odor
												Final Controller Settings
												Setting ID: 113
						CK		9/2/20				**Pressure (PSI):** 80
Final Purge Values:		1230	8.0	20.1	6.58	549	0.23	2.4	-95.4	1.51	clear	**Ambient Air (°C):** 25

Sample ID:	ALF-GW-ACC1A-20200902	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/2/2020	*Field Duplicate ID:*	~~ALF_GW_DUP01_09022020~~ ALF-GW-DUP01-20200902 CS 9/8/20
Collection Time:	~~11:33~~ 12:33 CS 9/8/20	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	8	*Filter Blank ID:*	NA
Sample Depth (feet):	165.5	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:40
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	160.1	**Bottom of Screen (ft. btoc):**	170.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
24.55	20.1	6.54	537	0.49	5.0	-95.5	1.24	**Odor:**	no odor

WL Meter Manufacturer:	HERON	**Model:**	Dipper-t	**Serial No:**	32871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	42958

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	~~1~~ 2 CS 9/8/20	~~1~~ 2 CS 9/8/20	~~2~~ 4 CS 9/8/20	~~1~~ 2 CS 9/8/20	~~1~~ 2 CS 9/8/20
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	9/2/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	9/2/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/8/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	27.92
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	130.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	102.88 / 1016.91
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	126.0
Well ID:	ACC-3A	**Method of Purging:**	Dedicated bladder pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/2/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0945	27.94	400	0	19.6	6.66	798	0.65	6.9	-16.2	2.53	clear	no color
0950	27.95	400	2.0	19.2	6.95	801	0.46	5.1	-61.4	0.96	clear	no color
0955	27.96	400	4.0	19.2	7.02	800	0.49	5.3	-66.8	0.84	clear	no odor
1000	27.96	400	6.0	19.2	7.12	801	0.34	3.7	-72.8	1.51	clear	no odor
1005	27.96	400	8.0	19.2	7.20	802	0.42	4.3	-77.8	1.24	clear	no odor
												Final Controller Settings
												Setting ID: 103
							CK	9/2/20				**Pressure (PSI):** 75
Final Purge Values:		1005	8.0	19.2	7.2	802	0.42	4.3	-77.8	1.24	clear	**Ambient Air (°C):** 24

Sample ID:	ALF-GW-ACC3A-20200902	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB01-09022020
Sample Date:	9/2/2020	*Field Duplicate ID:*	NA
Collection Time:	~~0:00~~ 10:08 CS 9/8/20	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	8.0	*Filter Blank ID:*	NA
Sample Depth (feet):	126.0	*Tubing Blank ID:*	NA
		DI water lot #:	5042020
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:15
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	120.4	**Bottom of Screen (ft. btoc):**	130.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	**Color:**	clear
27.96	19.2	7.5	800	0.43	4.6	-66.7	1.44	**Odor:**	no odor

WL Meter Manufacturer:	HERON	**Model:**	Dipper-t	**Serial No:**	32871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	42958

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	~~1~~ 2 MD 9/14/2020	~~1~~ 2 MD 9/14/2020	~~2~~ 4 MD 9/14/2020	~~1~~ 2 MD 9/14/2020	~~1~~ 2 MD 9/14/2020
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	9/2/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	9/2/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/8/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	29.75
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	60.6
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	30.85 / 304.94
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	55.5
Well ID:	ACC-5B	**Method of Purging:**	Dedicated Sampling Well
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/1/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1200	29.76	400	0	20.4	7.26	875	0.53	5.9	-5.8	3.00	Clear	No Odor
1205	29.76	400	2.0	20.4	7.29	871	0.42	4.6	-17.6	4.37	Clear	No Odor
1210	29.76	400	4.0	20.4	7.30	869	0.48	5.4	-21.8	4.07	Clear	No Odor
1215	29.76	400	6.0	20.4	7.31	869	0.40	4.5	-23.4	3.58	Clear	No Odor
1220	29.76	400	8.0	20.4	7.30	868	0.44	4.4	-24.7	3.24	Clear	No Odor
1225	29.76	400	10.0	20.4	7.30	871	0.43	4.7	-26.7	3.67	Clear	No Odor
												Final Controller Settings
							CK 9/1/20					**Setting ID:** 105
												Pressure (PSI): 32
Final Purge Values:		1225	10.0	20.4	7.30	871	0.43	4.7	-26.7	3.67	Clear	**Ambient Air (°C):** 27

Sample ID:	ALF-GW-ACC5B-20200901	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB01-20200901
Sample Date:	9/1/2020	*Field Duplicate ID:*	NA
Collection Time:	12:28	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	10.0	*Filter Blank ID:*	NA
Sample Depth (feet):	55.5	*Tubing Blank ID:*	NA
		DI water lot #:	08202020
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:35
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	50.2	**Bottom of Screen (ft. btoc):**	60.2

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
26.76	20.7	7.33	864	0.49	5.0	-26.3	3.54	**Odor:**	No Odor

WL Meter Manufacturer:	HERON	**Model:**	Dipper-t	**Serial No:**	32871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	42958

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	9/1/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	9/1/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/8/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/11/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	29.76
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	143.9
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	114.14 / 1128.21
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	139.0
Well ID:	ACC-5A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/2/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1100	29.76	400	0	20.4	7.54	581	0.62	6.3	-28.9	1.15	clear	no odor
1105	29.76	400	2.0	20.4	7.47	580	0.40	4.1	-50.6	1.22	clear	no odor
1110	29.76	400	4.0	20.4	7.29	579	0.35	4.0	-61.5	1.59	clear	no odor
1115	29.76	400	6.0	20.4	7.21	580	0.30	3.3	-67.5	1.22	clear	no odor
1120	29.76	400	8.0	20.3	7.23	579	0.32	3.2	-71.3	1.24	clear	no odor
												Final Controller Settings
												Setting ID: 106
												Pressure (PSI): 78
Final Purge Values:		1120	8.0	20.3	7.23	579	0.32	3.2	-71.3	1.24	clear	**Ambient Air (°C):** 25

CK 9/2/20

Sample ID:	ALF-GW-ACC5A-20200902	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/2/2020	*Field Duplicate ID:*	NA
Collection Time:	~~0:00~~ 11:23 CS 9/8/20	*Equipment Blank ID:*	~~ALF_GW_EB01_09012020~~ ALF-GW-EB01-20200902 CS 9/8/20
Total Volume Purged (L):*	8	*Filter Blank ID:*	NA
Sample Depth (feet):	139.0	*Tubing Blank ID:*	NA
		DI water lot #:	5042020
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:30
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	~~133.6~~ 133.5 CS 10/23/20	**Bottom of Screen (ft. btoc):**	~~143.6~~ 143.5 CS 10/23/20

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
29.76	20.4	7.10	578	0.38	4.1	-73.7	1.52	**Odor:**	no odor

WL Meter Manufacturer:	HERON	**Model:**	Dipper-t	**Serial No:**	32871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	42958

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	~~1~~ 2 CS 9/8/20	~~1~~ 2 CS 9/8/20	~~2~~ 4 CS 9/8/20	~~1~~ 2 CS 9/8/20	~~1~~ 2 CS 9/8/20
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	9/2/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	9/2/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/8/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

Clear All Values

Print

Check and Submit

Program:	CCR	Project Number:	A820P107
Facility Name:	Allen Fossil Plant (ALF)	Well Type:	Monitoring Well
Well ID:	ALF-201	Date:	09/02/2020
Initial Depth to Water (feet):	31.31	Well Diameter (inches):	4
Total Depth of Well (feet):	50.70	Total Water Column (feet):	19.39
Method of Purging:	Low Flow	Pump Start Time:	07:34
Measuring Point (toc, tor, etc.):	Top of Casing	Pump Intake Depth (feet):	49.00

* If water column is < Sample Set Volume contact TVA Project Manager

Time	Water Level (feet)	Flow Rate mL/min	Temp. (°C)	pH (SU)	Specific Conductance mS/cm	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
0750	32.14	100	22.6	7.23	1.10	1.98	23.0	89.9	6.30	
0755	32.17	100	22.5	6.85	1.10	1.61	20.2	77.3	1.41	
0800	32.23	100	22.5	6.77	1.10	1.45	17.1	71.7	2.27	
0805	32.30	100	22.5	6.75	1.10	1.45	15.5	68.8	1.37	
0810	32.32	100	22.5	6.75	1.10	1.38	15.4	67.8	0.73	
Final Stabilization Values:		810	22.5	6.75	1.10	1.38	15.4	67.8	0.73	

BG 9/25/20

BG 9/25/20

Controller Mode/Setting ID:	98
Controller Pressure (PSI):	24
Discharge Interval (seconds):	2.5
Refill Interval (seconds):	12.5

	Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)
Post Sample Values:	0932	32.91	100	21.9	6.98	1.10	1.51	16.9	94.1	1.21

Sample ID: ALF-GW-005-09022020

Method of Sampling:	Low Flow
Sample Date:	09/02/2020
Collection Time:	08:15
Total Volume Purged (gal.):	0.5
Sample Depth (feet):	49.00
Heavy Equipment in Area:	Y
Post Metals Collection Turbidity (NTU):	1.08
Analysis:	CCR
Color:	CLEAR
Odor:	NO
Ambient Air (°C)	27.1
Stability Reached (Y/N):	Y
If No, Provide Explanation	NA
Top of Screen (ft. btoc):	23.30

QA/QC Sample Information Below:

MS/MSD/LD Collected (Y/N?):	N
Field Blank ID:	N
Field Duplicate ID:	N
Equipment Blank ID:	N
Filter Blank ID:	N
Tubing Blank ID:	N
Lab Supplied DI Water Lot #:	N
Tubing Lot #:	N
Filter Lot #:	N
Filter Sample Metals (Y/N?):	N
Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	NA
Sample on-Ice: Time:	08:17
Drawdown Stabilized ≤ 0.3 ft:	Y
Bottom of Screen (ft. btoc):	49.90

Depth to Water Meter Manufacturer:	Solinist	Model:	101	Serial No: 335976
Pump Controller Manufacturer:	QED	Model:	MP50	Serial No: 1917

Analytes:	Metals	Anions/pH	Radium 226/ 228	TDS	TSS
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B SM4500 H+B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D
Bottle Lot Number	022420-2EIZ	021020-2ADT	430820050	021020-2ADT	022420-2AED
Bottle Type:	HDPE	HDPE	HDPE	HDPE	HDPE
Bottle Volume:	250mL	250mL	1L	500mL	1L
Number of Bottles:	1	1	3	1	2
Preservative:	HNO3	unpreserved	HNO3	unpreserved	unpreserved

Lead Sampler Name:	KYLE FRAME	Date: 9/2/20	Signature:	Digitally signed by KYLE FRAME Date: 2020.09.02 08:27:40 -05'00'
Sampler Name:	WALKER BURROW	Date: 9/2/20	Signature:	Digitally signed by WALKER BURROW Date: 2020.09.02 08:27:15 -05'00'
Reviewed by:	MATT HOWARD	Date: 9/10/20	Signature:	Howard, Matthew T Digitally signed by Howard, Matthew T DN: cn=Howard, Matthew T, ou=General Users, email=Matt.Howard@terracon.com Date: 2020.09.10 11:32:34 -05'00'

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.23
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	94.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	61.07 / 603.64
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.0
Well ID:	ALF-201B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/3/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0759	33.23	500	0	20.9	6.58	752	0.43	4.7	-40.4	1.92	clear	no odor
0802	33.23	500	1.5	20.8	6.72	750	0.37	4.7	-88.7	1.44	clear	no odor
0805	33.23	500	3.0	20.8	6.77	748	0.30	3.1	-97.4	3.02	clear	no odor
0808	33.23	500	4.5	20.8	6.81	747	0.26	2.9	-103.2	2.09	clear	no odor
0811	33.23	500	6.0	20.8	6.82	747	0.23	2.3	-106.7	1.54	clear	no odor
CM 09/03/2020												**Final Controller Settings**
												Setting ID: 101
												Pressure (PSI): 65
Final Purge Values:		0811	6.0	20.8	6.82	747	0.23	2.3	-106.7	1.54	clear	**Ambient Air (°C):** 23.3

Sample ID:	ALF-GW-ALF201B-20200903	**QA/QC Sample Collected:**	Yes
Method of Sampling:	low flow	*MS/MSD/LD collected:*	No
Sample Date:	9/3/2020	*Field Blank ID:*	NA
Collection Time:	8:15	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	6.0	*Equipment Blank ID:*	ALF-GW-EB02-20200903
Sample Depth (feet):	89.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	Yes	*DI water lot #:*	Pace Analytical Minneapolis filld dat 08/20/20 and GEL Labs Charleston fill date 08/21/2020
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	-
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	8:22
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	83.9	**Bottom of Screen (ft. btoc):**	93.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
32.33	20.8	6.88	745	0.19	2.2	-83.3	1.78	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/3/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/3/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/10/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	32.98
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	130.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	97.72 / 965.91
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	126.0
Well ID:	ALF-201A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/3/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0847	33.02	500	0	21.0	6.66	796	1.07	11.4	26.7	2.02	clear	no odor
0850	33.02	500	1.5	20.8	6.89	807	0.35	3.9	-54.1	1.80	clear	no odor
0853	33.02	500	3.0	20.7	6.99	808	0.25	2.7	-79.4	1.42	clear	no odor
0856	33.02	500	4.5	20.7	7.01	806	0.15	2.1	-90.3	1.36	clear	no odor
0859	33.02	500	6.0	20.7	7.02	806	0.17	1.9	-92.5	2.05	clear	no odor
CM 09/03/2020												**Final Controller Settings**
												Setting ID: 103
												Pressure (PSI): 87
Final Purge Values:		0859	6.0	20.7	7.02	806	0.17	1.9	-92.5	2.05	clear	**Ambient Air (°C):** 25

Sample ID:	ALF-GW-ALF201A-20200903	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/3/2020	*Field Duplicate ID:*	NA
Collection Time:	9:05	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	6.0	*Filter Blank ID:*	NA
Sample Depth (feet):	126.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	Yes	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:11
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	120.3	**Bottom of Screen (ft. btoc):**	130.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
33.02	20.9	7.06	804	0.42	4.8	-66	2.49	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/3/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/3/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/10/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

Clear All Values

Print

Check and Submit

Program:	CCR	Project Number:	A820P107
Facility Name:	Allen Fossil Plant (ALF)	Well Type:	Monitoring Well
Well ID:	ALF-202	Date:	09/01/2020
Initial Depth to Water (feet):	18.41	Well Diameter (inches):	4
Total Depth of Well (feet):	44.80	Total Water Column (feet):	26.39
Method of Purging:	Low Flow	Pump Start Time:	11:56
Measuring Point (toc, tor, etc.):	Top of Casing	Pump Intake Depth (feet):	43.00

* If water column is < Sample Set Volume contact TVA Project Manager

Time	Water Level (feet)	Flow Rate mL/min	Temp. (°C)	pH (SU)	Specific Conductance mS/cm	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
1203	18.38	500	19.6	7.26	0.61	0.36	3.9	-113.0	0.54	
1206	18.36	500	19.5	7.32	0.61	0.26	2.6	-136.9	0.63	
1209	18.36	500	19.6	7.36	0.61	0.19	2.1	-146.5	0.56	
Final Stabilization Values:		1209	19.6	7.36	0.61	0.19	2.1	-146.5	0.56	

BG 9/25/20

BG 9/25/20

Controller Mode/Setting ID:	103
Controller Pressure (PSI):	25
Discharge Interval (seconds):	5.0
Refill Interval (seconds):	10.0

	Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)
Post Sample Values:	1247	18.35	500	19.9	7.36	0.61	0.18	2.0	-109.5	0.83

Sample ID: ALF-GW-006-09012020

Method of Sampling:	Low Flow
Sample Date:	09/01/2020
Collection Time:	12:15
Total Volume Purged (gal.):	2.5
Sample Depth (feet):	43.00
Heavy Equipment in Area:	N
Post Metals Collection Turbidity (NTU):	0.70
Analysis:	CCR
Color:	CLEAR
Odor:	NONE
Ambient Air (°C)	29.2
Stability Reached (Y/N):	Y
If No, Provide Explanation	NA
Top of Screen (ft. btoc):	23.40

QA/QC Sample Information Below:

MS/MSD/LD Collected (Y/N?):	N
Field Blank ID:	NA
Field Duplicate ID:	ALF-GW-903-09012020
Equipment Blank ID:	NA
Filter Blank ID:	NA
Tubing Blank ID:	NA
Lab Supplied DI Water Lot #:	NA
Tubing Lot #:	NA
Filter Lot #:	NA
Filter Sample Metals (Y/N?):	N
Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	N
Sample on-Ice: Time:	1219
Drawdown Stabilized ≤ 0.3 ft:	Y
Bottom of Screen (ft. btoc):	44.60

Depth to Water Meter Manufacturer:	Solinist	Model:	101	Serial No:	335976
Pump Controller Manufacturer:	QED	Model:	MP50	Serial No:	1917

Analytes:	Metals	Anions/pH	Radium 226/ 228	TDS	TSS
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B SM4500 H+B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D
Bottle Lot Number	022420-2EIZ	021020-2ADT	430820050	021020-2ADT	022420-2AED
Bottle Type:	HDPE	HDPE	HDPE	HDPE	HDPE
Bottle Volume:	250mL	250mL	1L	500mL	1L
Number of Bottles:	2	2	6	2	4
Preservative:	HNO3	unpreserved	HNO3	unpreserved	unpreserved

Lead Sampler Name:	KYLE FRAME	Date: 9/1/20	Signature:	Digitally signed by KYLE FRAME Date: 2020.09.01 16:11:56 -05'00'
Sampler Name:	WALKER BURROW	Date: 9/1/20	Signature:	Digitally signed by WALKER BURROW Date: 2020.09.01 16:18:15 -05'00'
Reviewed by:	MATT HOWARD	Date: 9/10/20	Signature:	Howard, Matthew T Digitally signed by Howard, Matthew T DN: cn=Howard, Matthew T, ou=General Users, email=Matt.Howard@terracon.com Date: 2020.09.10 11:48:27 -05'00'

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	30.79
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	94.5
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	63.71 / 629.74
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.5
Well ID:	ALF-202B	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/8/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1425	30.79	490	0	19.8	6.66	573	0.14	1.5	-110.6	1.31	Clear	No odor
1428	30.79	490	1.5	19.7	6.70	573	0.14	1.6	-117.4	1.28	Clear	No odor
1431	30.79	490	2.9	19.8	6.74	573	0.14	1.6	-123.3	1.54	Clear	No odor
1434	30.79	490	4.4	19.8	6.73	573	0.13	1.4	-124.4	1.65	Clear	No odor
Final Purge Values:		1434	4.4	19.8	6.73	573	0.13	1.4	-124.4	1.65	Clear	

ES 9/8/20

Final Controller Settings	
Setting ID:	100
Pressure (PSI):	80
Ambient Air (°C):	31

Sample ID:	ALF-GW-ALF202B-20200908	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	9/8/2020	*Field Blank ID:*	ALF-GW-FB01-20200908
Collection Time:	14:40	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.4	*Equipment Blank ID:*	NA
Sample Depth (feet):	89.5	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Minneapolis 08/19/2020
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	14:45
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	84.1	**Bottom of Screen (ft. btoc):**	94.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
30.79	19.8	6.86	572	0.14	1.6	-108.4	1.93	Odor:	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2595
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2129

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Trent VanEgtern	**Date:**	9/8/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	9/8/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/15/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	30.22
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	150.5
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	120.28 / 1188.9
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	145.5
Well ID:	ALF-202A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/8/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1328	30.25	200	0	21.1	7.21	568	0.41	4.5	-112.6	1.17	Clear	No odor
1331	30.25	200	0.6	20.8	6.74	570	0.26	3.0	-64.7	0.86	Clear	No odor
1334	30.25	200	1.2	20.8	6.48	578	0.23	2.6	-68.4	0.63	Clear	No odor
1337	30.25	200	1.8	20.9	6.45	583	0.23	2.6	-81.3	1.06	Clear	No odor
1340	30.25	200	2.4	21.0	6.48	588	0.29	3.3	-97.1	0.79	Clear	No odor
Final Purge Values:		1340	2.4	21.0	6.48	588	0.29	3.3	-97.1	0.79	Clear	

ES 9/8/20

Final Controller Settings	
Setting ID:	50
Pressure (PSI):	80
Ambient Air (°C):	30

Sample ID:	~~ALF-GW-ALF202B-20200908~~ ALF-GW-ALF202A-20200908 CS 9/15/20	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	9/8/2020	*Field Blank ID:*	NA
Collection Time:	13:45	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.4	*Equipment Blank ID:*	NA
Sample Depth (feet):	145.5	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:50
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	140.1	**Bottom of Screen (ft. btoc):**	150.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
30.25	20.6	6.78	586	0.84	9.1	-93.6	1.15	**Odor:**	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2595
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2129

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Trent VanEgtern	**Date:**	9/8/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	9/8/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/15/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA

Program:	CCR	**Project Number:**	A820P107
Facility Name:	Allen Fossil Plant (ALF)	**Well Type:**	Monitoring Well
Well ID:	ALF-203	**Date:**	09/02/2020
Initial Depth to Water (feet):	32.17	**Well Diameter (inches):**	4
Total Depth of Well (feet):	54.10	**Total Water Column (feet):**	21.93
Method of Purging:	Low Flow	**Pump Start Time:**	10:02
Measuring Point (toc, tor, etc.):	Top of Casing	**Pump Intake Depth (feet):**	52.00

*** If water column is < Sample Set Volume contact TVA Project Manager**

Clear All Values

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Time	Water Level (feet)	Flow Rate mL/min	Temp. (°C)	pH (SU)	Specific Conductance mS/cm	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
1015	32.54	100	22.8	9.60	1.03	1.77	20.6	73.1	8.96	
1020	32.60	100	22.5	9.91	1.04	0.81	9.0	26.2	3.58	
1025	32.65	100	22.6	9.97	1.04	0.77	8.9	0.6	1.81	
1030	32.71	100	22.6	9.97	1.04	0.71	7.5	-21.3	1.41	
										BG 9/25/20
					BG 9/25/20					
Final Stabilization Values:		1030	22.6	9.97	1.04	0.71	7.5	-21.3	1.41	

Controller Mode/Setting ID:	96
Controller Pressure (PSI):	31
Discharge Interval (seconds):	1.5
Refill Interval (seconds):	13.5

	Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)
Post Sample Values:	12:08	33.63	100	23.6	9.91	1.05	0.36	4.2	17.1	1.75

Sample ID: ALF-GW-007-09022020

Method of Sampling:	Low Flow	MS/MSD/LD Collected (Y/N?):	N
Sample Date:	09/02/2020	Field Blank ID:	ALF-AQ-900-09022020
Collection Time:	10:34	Field Duplicate ID:	N
Total Volume Purged (gal.):	0.5	Equipment Blank ID:	N
Sample Depth (feet):	52.00	Filter Blank ID:	N
Heavy Equipment in Area:	Y	Tubing Blank ID:	N
Post Metals Collection Turbidity (NTU):	1.88	Lab Supplied DI Water Lot #:	PACE:8/19/20 GEL:8/20/20
Analysis:	CCR	Tubing Lot #:	N
Color:	AMBER	Filter Lot #:	N
Odor:	NONE	Filter Sample Metals (Y/N?):	N
Ambient Air (°C)	27.5	Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	N
Stability Reached (Y/N):	Y	Sample on-Ice: Time:	10:40
If No, Provide Explanation	NA	Drawdown Stabilized ≤ 0.3 ft:	Y
Top of Screen (ft. btoc):	33.10	**Bottom of Screen (ft. btoc):**	54.10
Depth to Water Meter Manufacturer:	Solinist	**Model:** 101	**Serial No:** 335976
Pump Controller Manufacturer:	QED	**Model:** MP50	**Serial No:** 1917

QA/QC Sample Information Below:

Analytes:	**Metals**	**Anions/pH**	**Radium 226/ 228**	**TDS**	**TSS**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B SM4500 H+B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D
Bottle Lot Number	022420-2EIZ	021020-2ADT	430820050	021020-2ADT	022420-2AED
Bottle Type:	HDPE	HDPE	HDPE	HDPE	HDPE
Bottle Volume:	250mL	250mL	1L	500mL	1L
Number of Bottles:	2	2	6	2	4
Preservative:	HNO3	unpreserved	HNO3	unpreserved	unpreserved

Lead Sampler Name:	KYLE FRAME	**Date:** 9/2/20	**Signature:**	Digitally signed by KYLE FRAME Date: 2020.09.02 11:09:48 -05'00'
Sampler Name:	WALKER BURROW	**Date:** 9/2/20	**Signature:**	Digitally signed by WALKER BURROW Date: 2020.09.02 15:15:56 -05'00'
Reviewed by:	MATT HOWARD	**Date:** 9/10/20	**Signature:**	Howard, Matthew T Digitally signed by Howard, Matthew T DN: cn=Howard, Matthew T, ou=General Users, email=Matt.Howard@terracon.com Date: 2020.09.10 11:50:34 -05'00'

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.62
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	94.1
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	60.48 / 597.81
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.0
Well ID:	ALF-203B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0820	33.62	500	0	17.9	6.77	435.9	0.44	4.6	-17.3	6.52	Clear	No odor
0823	33.62	500	1.5	17.8	6.73	439.4	0.25	2.5	-70.7	1.97	Clear	No odor
0826	33.62	500	3.0	17.8	6.77	435.7	0.20	2.1	-93.1	1.43	Clear	No odor
0829	33.62	500	4.5	17.7	6.81	434.0	0.18	2.0	-101.3	1.27	Clear	No odor
Final Purge Values:		0829	4.5	17.7	6.81	434.0	0.18	2.0	-101.3	1.27	Clear	

ES 9/10/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	50
Ambient Air (°C):	23

Sample ID:	~~ALF-GW-ALF202B-20200910~~ ALF-GW-ALF203B-20200910 CS 9/16/20	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	9/10/2020	*Field Blank ID:*	NA
Collection Time:	8:35	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	89.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	8:40
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	83.9	**Bottom of Screen (ft. btoc):**	93.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
33.62	17.6	7.09	430.8	0.23	2.3	-93	1.29	**Odor:**	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2595
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2129

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	111819-2EIX	011320-2EEY	012020-2ADT	111819-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Trent VanEgtern	**Date:**	9/10/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	9/10/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.45
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	120.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	87.25 / 862.42
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	~~116~~ 118.0 CS 10/23/20
Well ID:	ALF-203A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1500	33.45	200	0	22.4	7.29	358.5	2.40	26.9	-60.3	2.44	Clear	No Odor
1503	33.45	200	0.6	21.0	6.45	343.5	0.71	8.0	10.0	1.67	Clear	No Odor
1506	33.45	200	1.2	20.8	6.38	340.6	0.57	6.3	4.2	0.95	Clear	No Odor
1509	33.45	200	1.8	20.8	6.46	339.6	0.45	5.0	-22.8	1.08	Clear	No Odor
1512	33.45	200	2.4	20.9	6.56	339.4	0.42	4.7	-39.2	0.85	Clear	No Odor
1515	33.45	200	3.0	20.8	6.59	339.2	0.39	4.4	-46.1	0.71	Clear	No Odor
												Final Controller Settings
												Setting ID: 103
												Pressure (PSI): 70
Final Purge Values:		1515	3.0	20.8	6.59	339.2	0.39	4.4	-46.1	0.71	Clear	**Ambient Air (°C):** 27

ES 9/9/20

Sample ID:	~~ALF-GW-ALF202B-20200909~~ ALF-GW-ALF203A-20200909 CS 9/16/20	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	9/9/2020	*Field Blank ID:*	NA
Collection Time:	15:20	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.0	*Equipment Blank ID:*	NA
Sample Depth (feet):	~~116.0~~ 118.0 CS 10/23/20	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	15:25
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	112.3	**Bottom of Screen (ft. btoc):**	122.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
33.45	19.8	6.91	340.3	3.32	35.3	-35.4	1.84	**Odor:**	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2595
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2129

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	111819-2EIX	012720-2EEY	012020-2ADT	111819-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Trent VanEgtern	**Date:**	9/9/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	9/9/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA

Program:	CCR	**Project Number:**	A820P107
Facility Name:	Allen Fossil Plant (ALF)	**Well Type:**	Monitoring Well
Well ID:	ALF-204	**Date:**	09/03/2020
Initial Depth to Water (feet):	32.35	**Well Diameter (inches):**	4
Total Depth of Well (feet):	59.20	**Total Water Column (feet):**	26.85
Method of Purging:	Low Flow	**Pump Start Time:**	07:30
Measuring Point (toc, tor, etc.):	Top of Casing	**Pump Intake Depth (feet):**	49.00

*** If water column is < Sample Set Volume contact TVA Project Manager**

Time	Water Level (feet)	Flow Rate mL/min	Temp. (°C)	pH (SU)	Specific Conductance mS/cm	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
0746	32.58	100	19.7	7.25	0.475	1.26	13.6	-15.1	20.0	
0751	32.60	100	19.7	7.04	0.472	0.90	9.8	-54.6	1.77	
0756	32.62	100	19.6	6.95	0.472	0.72	7.7	-72.8	1.21	
0801	32.63	100	19.6	6.91	0.474	0.61	7.0	-83.2	1.11	
0806	32.64	100	19.4	6.90	0.477	0.54	5.9	-89.2	1.29	
0811	32.66	100	19.4	6.90	0.479	0.55	5.9	-95.9	0.42	
0816	32.68	100	19.4	6.90	0.480	0.47	5.2	-97.9	1.57	
0821	32.65	100	19.5	6.91	0.482	0.39	4.2	-101.7	0.57	
0826	32.65	100	19.5	6.92	0.483	0.37	4.1	-103.4	0.54	
Final Stabilization Values:		826	19.5	6.92	0.483	0.37	4.1	-103.4	0.54	

BG 9/25/20

BG 9/25/20

Controller Mode/Setting ID:	97
Controller Pressure (PSI):	29
Discharge Interval (seconds):	2
Refill Interval (seconds):	13

	Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)
Post Sample Values:	09:36	32.63	100	19.4	7.01	0.484	3.83	40.6	-33.2	2.23

Sample ID: ALF-GW-008-09032020

Method of Sampling:	Low Flow	MS/MSD/LD Collected (Y/N?):	N
Sample Date:	09/03/2020	Field Blank ID:	N
Collection Time:	08:28	Field Duplicate ID:	N
Total Volume Purged (gal.):	1.5	Equipment Blank ID:	N
Sample Depth (feet):	49.00	Filter Blank ID:	N
Heavy Equipment in Area:	Y	Tubing Blank ID:	N
Post Metals Collection Turbidity (NTU):	0.92	Lab Supplied DI Water Lot #:	N
Analysis:	CCR	Tubing Lot #:	N
Color:	NONE	Filter Lot #:	N
Odor:	NONE	Filter Sample Metals (Y/N?):	N
Ambient Air (°C)	25.0	Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	N
Stability Reached (Y/N):	Y	Sample on-Ice: Time:	08:31
If No, Provide Explanation	NA	Drawdown Stabilized ≤ 0.3 ft:	Y
Top of Screen (ft. btoc):	49.00	**Bottom of Screen (ft. btoc):**	59.20

QA/QC Sample Information Below:

Depth to Water Meter Manufacturer:	Solinist	**Model:**	101	**Serial No:**	335976
Pump Controller Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1917

Analytes:	**Metals**	**Anions/pH**	**Radium 226/ 228**	**TDS**	**TSS**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B SM4500 H+B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D
Bottle Lot Number	022420-2EIZ	021020-2ADT	430820050	021020-2ADT	022420-2AED
Bottle Type:	HDPE	HDPE	HDPE	HDPE	HDPE
Bottle Volume:	250mL	250mL	1L	500mL	1L
Number of Bottles:	1	1	3	1	2
Preservative:	HNO3	unpreserved	HNO3	unpreserved	unpreserved

Lead Sampler Name:	KYLE FRAME	**Date:**	9/3/20	**Signature:**	Digitally signed by KYLE FRAME Date: 2020.09.03 09:38:29 -05'00'
Sampler Name:	WALKER BURROW	**Date:**	9/3/20	**Signature:**	Digitally signed by WALKER BURROW Date: 2020.09.03 09:38:08 -05'00'
Reviewed by:	MATT HOWARD	**Date:**	9/10/20	**Signature:**	Howard, Matthew T Digitally signed by Howard, Matthew T DN: cn=Howard, Matthew T, ou=General Users, email=Matt.Howard@terracon.com Date: 2020.09.10 11:07:26 -05'00'

Clear All Values

Print

Check and Submit

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	30.30
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	94.1
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	63.80 / 630.63
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.0
Well ID:	ALF-204B	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1405	30.30	460	0	17.0	6.94	318.4	0.78	7.8	17.8	4.82	clear	no odor
1408	30.30	460	1.4	16.8	7.01	321.5	0.35	3.5	-35.8	2.91	clear	no odor
1411	30.30	460	2.8	16.7	7.03	321.4	0.25	2.5	-61.0	2.74	clear	no odor
1414	30.30	460	4.1	16.6	7.05	320.2	0.20	2.0	-73.1	2.33	clear	no odor
CM 09/10/2020												**Final Controller Settings**
												Setting ID: 101
												Pressure (PSI): 60
Final Purge Values:		1414	4.1	16.6	7.05	320.2	0.20	2.0	-73.1	2.33	clear	**Ambient Air (°C):** 31.67

Sample ID:	ALF-GW-ALF204B-20200910	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/10/2020	*Field Duplicate ID:*	NA
Collection Time:	14:15	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	4.1	*Filter Blank ID:*	NA
Sample Depth (feet):	89.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	14:22
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	83.7	**Bottom of Screen (ft. btoc):**	93.7

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
30.3	16.7	7.06	300.2	0.27	2.4	-57.1	3.00	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP10	**Serial No:**	MP10-1742

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	081020-2EIZ	081020-2EIX	081720-2EEY	072720-2ADT	081020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/10/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/10/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	30.10
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	120.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	90.60 / 895.53
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	116.0
Well ID:	ALF-204A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1347	30.10	400	0	17.5	7.07	413.6	3.06	31.0	-39.1	2.43	Clear	No odor
1350	30.10	400	1.2	16.9	6.85	417.5	0.47	4.7	-51.9	3.29	Clear	No odor
1353	30.10	400	2.4	16.9	6.86	417.9	0.23	2.3	-69.6	1.86	Clear	No odor
1356	30.10	400	3.6	16.8	6.87	418.6	0.18	1.8	-79.9	1.83	Clear	No odor
Final Purge Values:		1356	3.6	16.8	6.87	418.6	0.18	1.8	-79.9	1.83	Clear	

ES 9/10/20

Final Controller Settings	
Setting ID:	108
Pressure (PSI):	60
Ambient Air (°C):	30

Sample ID:	~~ALF-GW-ALF205B-20200910~~ ALF-GW-ALF204A-20200910 CS 9/16/20	**QA/QC Sample Collected:**	~~No~~ Yes CS 9/16/20
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	9/10/2020	*Field Blank ID:*	NA
Collection Time:	14:00	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.6	*Equipment Blank ID:*	ALF-GW-EB01-20200910
Sample Depth (feet):	116.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Minneapolis 08/19/2020
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	14:05
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	110.3	**Bottom of Screen (ft. btoc):**	120.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
30.1	16.7	7.03	416.9	0.47	4.6	-91.7	2.28	**Odor:**	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2595
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2129

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	081020-2EIZ	052019-2ALL	081720-2EEY	072720-2ADT	052019-2ALL
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Trent VanEgtern	**Date:**	9/10/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	9/10/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA

Program:	CCR	**Project Number:**	A820P107
Facility Name:	Allen Fossil Plant (ALF)	**Well Type:**	Monitoring Well
Well ID:	ALF-205	**Date:**	09/03/2020
Initial Depth to Water (feet):	35.61	**Well Diameter (inches):**	4
Total Depth of Well (feet):	55.60	**Total Water Column (feet):**	19.99
Method of Purging:	Low Flow	**Pump Start Time:**	09:55
Measuring Point (toc, tor, etc.):	Top of Casing	**Pump Intake Depth (feet):**	54.00

*** If water column is < Sample Set Volume contact TVA Project Manager**

Time	Water Level (feet)	Flow Rate mL/min	Temp. (°C)	pH (SU)	Specific Conductance mS/cm	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
1005	36.25	100	20.0	6.88	0.93	2.66	29.1	36.7	42.2	
1010	36.35	100	19.9	6.92	0.93	1.97	21.8	38.0	95.8	
1015	36.40	100	19.9	6.90	0.93	1.80	19.3	40.6	166	
1020	36.45	100	19.9	6.90	0.93	1.65	17.9	44.5	99.3	
1025	36.50	100	20.0	6.89	0.93	1.59	17.9	46.5	89.3	
1030	36.55	100	19.9	6.89	0.94	1.57	17.7	46.3	33.4	
1035	36.57	100	19.9	6.89	0.94	1.53	17.6	46.7	13.9	
1040	36.61	100	20.0	6.89	0.94	1.50	16.8	51.7	9.51	
1045	36.63	100	20.0	6.89	0.93	1.47	16.1	51.8	17.2	
1050	36.65	100	20.0	6.89	0.93	1.47	15.2	51.6	9.85	
1055	36.66	100	20.0	6.90	0.93	1.42	15.6	51.5	9.89	BG 9/25/20
1100	36.68	100	20.0	6.90	0.93	1.36	15.7	51.4	7.85	
1105	36.69	100	20.0	6.90	0.93	1.38	15.3	51.5	15.3	
1110	36.71	100	20.0	6.90	0.93	1.36	15.0	51.6	10.2	
1115	36.71	100	20.0	6.90	0.93	1.35	15.0	51.8	9.69	
1120	36.72	100	20.0	6.90	0.93	1.28	14.1	52.3	20.3	
1125	36.73	100	20.0	6.90	0.93	1.26	14.2	52.4	10.5	
1130	36.73	100	20.0	6.90	0.93	1.26	13.9	52.5	6.02	
1135	36.73	100	20.2	6.90	0.93	1.21	13.3	52.5	6.19	
1140	36.73	100	20.1	6.90	0.93	1.18	12.9	52.3	4.77	
1145	36.73	100	20.1	6.90	0.93	1.17	12.9	52.2	6.23	
1150	36.73	100	20.1	6.90	0.93	1.20	13.3	52.4	5.96	
1155	36.73	100	20.1	6.90	0.93	1.15	12.7	52.6	4.86	
1200	36.73	100	20.1	6.90	0.93	1.17	13.2	52.5	3.54	
1205	36.73	100	20.1	6.90	0.93	1.16	12.9	52.6	2.63	
Final Stabilization Values:		1205	20.1	6.90	0.93	1.16	12.9	52.6	2.63	

Controller Mode/Setting ID:	97
Controller Pressure (PSI):	32
Discharge Interval (seconds):	2
Refill Interval (seconds):	13

	Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)
Post Sample Values:	1320	36.70	100	20.9	7.08	0.94	2.11	23.4	93.9	3.25

Sample ID: ALF-GW-009-09032020

QA/QC Sample Information Below:

Method of Sampling:	Low Flow	MS/MSD/LD Collected (Y/N?):	N
Sample Date:	09/03/2020	Field Blank ID:	ALF-AQ-900-09032020
Collection Time:	12:07	Field Duplicate ID:	N
Total Volume Purged (gal.):	4	Equipment Blank ID:	~~N~~ ALF-AQ-902A-09032020 BG 9/25/20
Sample Depth (feet):	54.00	Filter Blank ID:	N
Heavy Equipment in Area:	TRUCK	Tubing Blank ID:	N
Post Metals Collection Turbidity (NTU):	4.92	Lab Supplied DI Water Lot #:	PACE: 8/19/20 GEL:8/20/20
Analysis:	CCR	Tubing Lot #:	N
Color:	CLEAR	Filter Lot #:	NA
Odor:	NO	Filter Sample Metals (Y/N?):	N
Ambient Air (°C)	25.7C	Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	NA
Stability Reached (Y/N):	Y	Sample on-Ice: Time:	1210
If No, Provide Explanation	NA	Drawdown Stabilized ≤ 0.3 ft:	N
Top of Screen (ft. btoc):	34.50	**Bottom of Screen (ft. btoc):**	55.50
Depth to Water Meter Manufacturer:	Solinist	**Model:** 101	**Serial No:** 335976
Pump Controller Manufacturer:	QED	**Model:** MP50	**Serial No:** 1917

Analytes:	**Metals**	**Anions/pH**	**Radium 226/ 228**	**TDS**	**TSS**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B SM4500 H+B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D
Bottle Lot Number	022420-2EIZ	021020-2ADT	430820050	021020-2ADT	022420-2AED
Bottle Type:	HDPE	HDPE	HDPE	HDPE	HDPE
Bottle Volume:	250mL	250mL	1L	500mL	1L
Number of Bottles:	~~2~~ 3 BG 9/25/20	~~2~~ 3 BG 9/25/20	~~6~~ 9 BG 9/25/20	~~2~~ 3 BG 9/25/20	~~4~~ 6 BG 9/25/20
Preservative:	HNO3	unpreserved	HNO3	unpreserved	unpreserved

Lead Sampler Name:	KYLE FRAME	**Date:** 9/3/20	**Signature:**	Digitally signed by KYLE FRAME Date: 2020.09.03 13:23:57 -05'00'
Sampler Name:	WALKER BURROW	**Date:** 9/3/20	**Signature:**	Digitally signed by WALKER BURROW Date: 2020.09.03 13:23:42 -05'00'
Reviewed by:	MATT HOWARD	**Date:** 9/10/20	**Signature:**	Howard, Matthew T Digitally signed by Howard, Matthew T DN: cn=Howard, Matthew T, ou=General Users, email=Matt.Howard@terracon.com Date: 2020.09.10 10:58:23 -05'00'

Clear All Values

Print

Check and Submit

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	32.60
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	86.5
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	53.90 / 532.77
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	81.5
Well ID:	ALF-205B	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1320	32.60	500	0	17.3	7.24	340.7	0.75	7.2	-64.7	3.48	clear	no odor
1323	32.60	500	1.5	17.2	7.15	339.1	0.25	2.3	-98.8	2.81	clear	no odor
1326	32.60	500	3.0	17.2	7.10	338.5	0.16	1.5	-114.2	0.96	clear	no odor
1329	32.60	500	4.5	17.1	7.10	338.8	0.10	1.1	-119.3	1.72	clear	no odor
1332	32.60	500	6.0	17.1	7.09	338.3	0.15	1.5	-123.4	2.61	clear	no odor
CM 09/09/2020												**Final Controller Settings**
												Setting ID: 100
												Pressure (PSI): 65
Final Purge Values:		1332	6.0	17.1	7.09	338.3	0.15	1.5	-123.4	2.61	clear	**Ambient Air (°C):** 31.1

Sample ID:	ALF-GW-ALF205B-20200909	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/9/2020	*Field Duplicate ID:*	NA
Collection Time:	13:35	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	6.0	*Filter Blank ID:*	NA
Sample Depth (feet):	81.5	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:41
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	76.1	**Bottom of Screen (ft. btoc):**	86.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
32.6	17	7.02	339.5	0.4	3.9	-93.2	1.48	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	0323230-2EIX	042020-2EEY	040620-2ADT	0323230-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/9/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/9/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	32.24
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	112.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	80.16 / 792.34
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	107.0
Well ID:	ALF-205A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1400	32.24	500	0	17.2	6.42	337.5	0.46	4.7	26.0	4.14	clear	no odor
1403	32.24	500	1.5	16.9	6.69	338.4	0.25	2.4	-18.4	2.08	clear	no odor
1406	32.24	500	3.0	16.8	6.83	339.0	0.17	1.7	-59.5	3.10	clear	no odor
1409	32.24	500	4.5	16.8	6.89	339.1	0.15	1.3	-81.4	1.73	clear	no odor
1412	32.24	500	6.0	16.8	6.92	339.0	0.10	1.4	-93.5	1.72	clear	no odor
1415	32.24	500	7.5	16.8	6.94	338.7	0.13	1.4	-99.6	2.22	clear	no odor
CM 09/09/2020												**Final Controller Settings**
												Setting ID: 103
												Pressure (PSI): 75
Final Purge Values:		1415	7.5	16.8	6.94	338.7	0.13	1.4	-99.6	2.22	clear	**Ambient Air (°C):** 31.67

Sample ID:	ALF-GW-ALF205A-20200909	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/9/2020	*Field Duplicate ID:*	NA
Collection Time:	14:20	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	7.5	*Filter Blank ID:*	NA
Sample Depth (feet):	107.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	14:25
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	102.0	**Bottom of Screen (ft. btoc):**	112.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
32.24	16.8	6.92	339.3	0.32	3.2	-63.9	1.31	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	0323230-2EIX	042020-2EEY	040620-2ADT	0323230-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/9/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/9/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA

Program:	CCR	**Project Number:**	A820P107
Facility Name:	Allen Fossil Plant (ALF)	**Well Type:**	Monitoring Well
Well ID:	ALF-206	**Date:**	09/02/2020
Initial Depth to Water (feet):	39.73	**Well Diameter (inches):**	4
Total Depth of Well (feet):	64.40	**Total Water Column (feet):**	24.67
Method of Purging:	Low Flow	**Pump Start Time:**	12:31
Measuring Point (toc, tor, etc.):	Top of Casing	**Pump Intake Depth (feet):**	54.00

*** If water column is < Sample Set Volume contact TVA Project Manager**

Time	Water Level (feet)	Flow Rate mL/min	Temp. (°C)	pH (SU)	Specific Conductance mS/cm	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
1238	39.74	500	16.9	7.90	0.352	0.42	4.2	-100.5	0.88	
1241	39.74	500	16.8	7.76	0.357	0.37	3.8	-107.8	0.64	
1244	39.74	500	16.8	7.67	0.361	0.32	3.2	-117.9	0.52	
1247	39.74	500	16.8	7.50	0.363	0.26	2.8	-124.9	0.83	
1250	39.74	500	16.8	7.42	0.363	0.25	2.6	-129.6	1.07	
1253	39.74	500	16.8	7.37	0.363	0.25	2.6	-132.0	0.76	
Final Stabilization Values:		1253	16.8	7.37	0.363	0.25	2.6	-132.0	0.76	

BG 9/25/20

BG 9/25/20

Controller Mode/Setting ID:	100
Controller Pressure (PSI):	3.5
Discharge Interval (seconds):	11.5
Refill Interval (seconds):	35

	Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)
Post Sample Values:	1314	39.74	500	16.9	7.18	0.361	0.43	4.5	-66.9	3.39

Sample ID: ALF-GW-010-09022020

Method of Sampling:	Low Flow	MS/MSD/LD Collected (Y/N?):	N
Sample Date:	09/02/2020	Field Blank ID:	N
Collection Time:	12:54	Field Duplicate ID:	N
Total Volume Purged (gal.):	1	Equipment Blank ID:	N
Sample Depth (feet):	54.00	Filter Blank ID:	N
Heavy Equipment in Area:	Y	Tubing Blank ID:	N
Post Metals Collection Turbidity (NTU):	1.89	Lab Supplied DI Water Lot #:	NA
Analysis:	CCR	Tubing Lot #:	NA
Color:	CLEAR	Filter Lot #:	NA
Odor:	NO	Filter Sample Metals (Y/N?):	N
Ambient Air (°C)	28.3	Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	NA
Stability Reached (Y/N):	Y	Sample on-Ice: Time:	12:55
If No, Provide Explanation	NA	Drawdown Stabilized ≤ 0.3 ft:	Y
Top of Screen (ft. btoc):	54.00	**Bottom of Screen (ft. btoc):**	64.20

QA/QC Sample Information Below:

Depth to Water Meter Manufacturer:	Solinist	**Model:**	101	**Serial No:**	335976
Pump Controller Manufacturer:	QED	**Model:**	MP50	**Serial No:**	1917

Analytes:	**Metals**	**Anions/pH**	**Radium 226/ 228**	**TDS**	**TSS**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B SM4500 H+B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D
Bottle Lot Number	022420-2EIZ	021020-2ADT	430820050	021020-2ADT	022420-2AED
Bottle Type:	HDPE	HDPE	HDPE	HDPE	HDPE
Bottle Volume:	250mL	250mL	1L	500mL	1L
Number of Bottles:	1	1	3	1	2
Preservative:	HNO3	unpreserved	HNO3	unpreserved	unpreserved

Lead Sampler Name:	Kyle Frame	**Date:**	9/2/20	**Signature:**	Frame, Kyle J — Digitally signed by Frame, Kyle J DN: cn=Frame, Kyle J, ou=General Users, email=kyle.Frame@terracon.com Date: 2020.09.02 15:58:17 -05'00'
Sampler Name:	Walker Burrow	**Date:**	9/2/20	**Signature:**	Digitally signed by WALKER BURROW Date: 2020.09.02 15:16:29 -05'00'
Reviewed by:	MATT HOWARD	**Date:**	9/10/20	**Signature:**	Howard, Matthew T — Digitally signed by Howard, Matthew T DN: cn=Howard, Matthew T, ou=General Users, email=Matt.Howard@terracon.com Date: 2020.09.10 10:56:50 -05'00'

Clear All Values

Print

Check and Submit

TVA

Program:	CCR	**Project Number:**	A820P107
Facility Name:	Allen Fossil Plant (ALF)	**Well Type:**	Monitoring Well
Well ID:	ALF-210	**Date:**	09/01/2020
Initial Depth to Water (feet):	29.82	**Well Diameter (inches):**	4
Total Depth of Well (feet):	48.80	**Total Water Column (feet):**	18.98
Method of Purging:	Low Flow	**Pump Start Time:**	07:37
Measuring Point (toc, tor, etc.):	Top of Casing	**Pump Intake Depth (feet):**	47.00

*** If water column is < Sample Set Volume contact TVA Project Manager**

Clear All Values

Print

Check and Submit

Time	Water Level (feet)	Flow Rate mL/min	Temp. (°C)	pH (SU)	Specific Conductance mS/cm	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
7:47	30.18	100	21.2	7.22	0.79	1.65	18.1	89.4	71.2	
7:52	30.27	100	20.7	6.74	0.78	1.00	12.0	77.3	73.1	
7:57	30.33	100	20.7	6.64	0.78	0.82	9.2	70.0	79.6	
8:02	30.43	100	20.7	6.61	0.77	0.65	7.0	60.5	81.0	
8:07	30.54	100	20.8	6.60	0.77	0.61	6.7	52.7	47.2	
8:12	30.58	100	21.0	6.59	0.77	0.55	6.2	48.3	50.7	
8:17	30.67	100	21.0	6.56	0.77	1.40	14.6	47.2	35.3	
8:22	30.72	100	21.1	6.60	0.77	0.54	6.3	43.0	36.9	
8:27	30.78	100	21.1	6.60	0.77	0.48	5.4	40.0	31.7	
8:32	30.82	100	21.1	6.61	0.77	0.44	5.0	37.3	30.1	
8:37	30.88	100	21.1	6.60	0.77	0.43	4.7	34.9	27.8	BG 9/25/20
8:42	30.91	100	21.1	6.61	0.77	0.41	4.6	32.4	32.1	
8:47	30.95	100	21.1	6.61	0.77	0.42	4.6	30.9	26.8	
8:52	31.00	100	21.1	6.61	0.77	0.40	4.4	29.3	27.8	
8:57	31.03	100	21.1	6.55	0.77	0.56	6.0	27.5	26.3	
9:02	31.08	100	21.0	6.61	0.77	0.36	4.0	25.9	26.1	
9:07	31.12	100	21.0	6.61	0.77	0.33	3.8	24.2	25.1	
9:12	31.16	100	21.0	6.62	0.77	0.31	3.4	23.6	28.3	
9:17	31.20	100	21.1	6.62	0.77	0.34	3.9	22.6	24.9	
9:22	31.11	100	21.1	6.62	0.77	0.31	3.6	22.0	22.0	
9:27	31.24	100	21.2	6.62	0.77	0.32	3.5	21.4	23.1	
9:32	31.31	100	21.2	6.62	0.77	0.30	3.4	20.9	22.1	
9:37	31.31	100	21.1	6.62	0.77	0.30	3.3	20.4	23.8	
9:42	31.31	100	21.1	6.63	0.77	0.28	3.1	19.8	24.1	
9:47	31.31	100	21.1	6.63	0.77	0.28	3.1	19.2	22.9	
Final Stabilization Values:		9.47	21.1	6.63	0.77	0.28	3.1	19.2	22.9	

Controller Mode/Setting ID:	97
Controller Pressure (PSI):	24
Discharge Interval (seconds):	2
Refill Interval (seconds):	13

	Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)
Post Sample Values:	11:35	31.28	100	22.3	6.85	0.78	1.64	18.2	92.5	25.6

Sample ID: ALF-GW-014-09012020

Method of Sampling:	Low Flow
Sample Date:	09/01/2020
Collection Time:	09:59
Total Volume Purged (gal.):	5
Sample Depth (feet):	47.00
Heavy Equipment in Area:	YES
Post Metals Collection Turbidity (NTU):	24.2
Analysis:	CCR
Color:	none
Odor:	none
Ambient Air (°C)	27.2C
Stability Reached (Y/N):	Y
If No, Provide Explanation	WELL STABILIZED WITH TURBIDITY >5NTU AND 2 HOUR PURGE REACHED
Top of Screen (ft. btoc):	27.20
Depth to Water Meter Manufacturer:	Solinist
Pump Controller Manufacturer:	QED

QA/QC Sample Information Below:

MS/MSD/LD Collected (Y/N?):	N
Field Blank ID:	ALF-AQ-900-09012020
Field Duplicate ID:	NA
Equipment Blank ID:	ALF-AQ-902B-09012020
Filter Blank ID:	~~ALF-AQ-904-09012020~~ ALF-AQ-901-09012020 BG 9/25/20
Tubing Blank ID:	~~ALF-AQ-901-09012020~~ ALF-AQ-904-09012020 BG 9/25/20
Lab Supplied DI Water Lot #:	PACE: 8/19/20 GEL: 8/20/20
Tubing Lot #:	18323
Filter Lot #:	E1814
Filter Sample Metals (Y/N?):	Y
Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	Y
Sample on-Ice: Time:	10:05
Drawdown Stabilized ≤ 0.3 ft:	N
Bottom of Screen (ft. btoc):	48.10
Model:	101
Serial No:	~~335976~~ 321335 BG 9/25/20
Model:	MP50
Serial No:	1917

Analytes:	**Metals**	**Anions/pH**	**Radium 226/ 228**	**TDS**	**TSS**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B SM4500 H+B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D
Bottle Lot Number	022420-2EIZ	021020-2ADT	430820050	021020-2ADT	022420-2AED
Bottle Type:	HDPE	HDPE	HDPE	HDPE	HDPE
Bottle Volume:	250mL	250mL	1L	500mL	1L
Number of Bottles:	6	3	9	3	6
Preservative:	HNO3	unpreserved	HNO3	unpreserved	unpreserved

Lead Sampler Name:	KYE FRAME	**Date:**	9/1/20	**Signature:**	Digitally signed by KYLE FRAME Date: 2020.09.01 10:57:39 -05'00'
Sampler Name:	WALKER BURROW	**Date:**	9/1/20	**Signature:**	Digitally signed by WALKER BURROW Date: 2020.09.01 16:17:30 -05'00'
Reviewed by:	MATT HOWARD	**Date:**	9/10/20	**Signature:**	Howard, Matthew T Digitally signed by Howard, Matthew T DN: cn=Howard, Matthew T, ou=General Users, email=Matt.Howard@terracon.com Date: 2020.09.10 10:53:19 -05'00'

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	TVA TDEC Order	**Initial Depth to Water (feet):**	31.39
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	89.82
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	58.43 / 144.39
Project Number:	175568282		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	84.5
Well ID:	ALF-210B	**Method of Purging:**	Dedicated Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/2/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (uS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0955	31.41	415	0	19.5	6.74	834	0.49	4.9	-94.7	8.56	clear	no odor
0958	31.41	415	1.2	19.3	6.82	841	0.21	2.3	-130.9	6.46	clear	no odor
1001	31.41	415	2.5	19.3	6.87	843	0.21	2.6	-137.5	4.89	clear	no odor
1004	31.41	415	3.7	19.2	6.90	843	0.36	3.8	-140.6	2.70	clear	no odor
1007	31.41	415	5.0	19.2	6.91	842	0.26	2.7	-142.0	3.76	clear	no odor
CM 09/02/2020												**Final Controller Settings**
												Setting ID: 103
												Pressure (PSI): 50
Final Purge Values:		1007	5.0	19.2	6.91	842	0.26	2.7	-142.0	3.76	clear	**Ambient Air (°C):** 27.2

Sample ID:	ALF-GW-073-20200902	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	9/2/2020	*Field Blank ID:*	ALF-GW-FB02-20200902
Collection Time:	10:10	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	5.0	*Equipment Blank ID:*	ALF-GW-EB02-20200902
Sample Depth (feet):	84.5	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Analytical Minneapolis filld dat 08/20/20 and GEL Labs Charleston fill date 08/21/2020
		Filter purged for minimum 500 mL:	No
Analysis:	TDEC Order	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	NA	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	~~10:08~~ 10:18 (CR 9/24/2020)
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	79.6	**Bottom of Screen (ft. btoc):**	89.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
31.41	19.4	6.98	844	0.33	3.6	-118.1	3.86	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**
Method:	SW 846 6020A/7470A	SW 846 9056A, SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C
Bottle Lot Number	080320-2EIZ	072020-2ADT	430820050	072020-2ADT
Bottle Type:	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500
No. of Bottles Collected:	3	3	9	3
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/2/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/2/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Courtnae Ramser	**Date:**	9/24/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Christopher Kocka	**Date:**	10/8/2020	**Signature:**	Christopher Kocka

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	30.69
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	130.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	99.71 / 985.58
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	125.0
Well ID:	ALF-210A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/2/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1118	30.83	500	0	19.9	7.05	1074	0.52	5.4	-27.6	6.86	clear	no odor
1121	30.83	500	1.5	19.6	6.99	1054	0.17	1.8	-77.7	2.27	clear	no odor
1124	30.83	500	3.0	19.5	6.99	1052	0.13	1.4	-90.4	2.47	clear	no odor
1127	30.83	500	4.5	19.5	6.99	1055	0.13	1.2	-95.0	3.71	clear	no odor
CM 09/02/2020												**Final Controller Settings**
												Setting ID: 103
												Pressure (PSI): 75
Final Purge Values:		1127	4.5	19.5	6.99	1055	0.13	1.2	-95.0	3.71	clear	**Ambient Air (°C):** 28.3

Sample ID:	ALF-GW-ALF210A-20200902	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/2/2020	*Field Duplicate ID:*	NA
Collection Time:	11:30	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	4.5	*Filter Blank ID:*	NA
Sample Depth (feet):	125.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:35
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	120.0	**Bottom of Screen (ft. btoc):**	130.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	**Color:**	Clear
30.83	19.8	7.01	1072	0.32	3.5	-83.1	4.42	**Odor:**	No Odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/2/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/2/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/9/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA

Program:	CCR	**Project Number:**	A820P107
Facility Name:	Allen Fossil Plant (ALF)	**Well Type:**	Monitoring Well
Well ID:	ALF-212	**Date:**	09/01/2020
Initial Depth to Water (feet):	37.85	**Well Diameter (inches):**	4
Total Depth of Well (feet):	67.90	**Total Water Column (feet):**	30.05
Method of Purging:	Low Flow	**Pump Start Time:**	13:13
Measuring Point (toc, tor, etc.):	Top of Casing	**Pump Intake Depth (feet):**	67.00

*** If water column is < Sample Set Volume contact TVA Project Manager**

Time	Water Level (feet)	Flow Rate mL/min	Temp. (°C)	pH (SU)	Specific Conductance mS/cm	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
1325	38.08	290	20.8	6.89	0.68	0.44	4.9	-95.7	4.59	
1328	38.08	290	20.7	6.88	0.68	0.33	3.8	-107.7	1.21	
1331	38.08	290	20.6	6.88	0.68	0.28	3.1	-113.7	1.15	
Final Stabilization Values:		1331	20.6	6.88	0.68	0.28	3.1	-113.7	1.15	

BG 9/25/20

BG 9/25/20

Controller Mode/Setting ID:	99
Controller Pressure (PSI):	39
Discharge Interval (seconds):	3
Refill Interval (seconds):	12

	Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)
Post Sample Values:	14:33	38.09	290	20.9	7.09	0.68	0.60	6.6	-65.8	1.97

Sample ID: ALF-GW-016-09012020

Method of Sampling:	Low Flow	MS/MSD/LD Collected (Y/N?):	Y
Sample Date:	09/01/2020	Field Blank ID:	N
Collection Time:	13:35	Field Duplicate ID:	N
Total Volume Purged (gal.):	2	Equipment Blank ID:	N
Sample Depth (feet):	67.00	Filter Blank ID:	NA
Heavy Equipment in Area:	Y	Tubing Blank ID:	NA
Post Metals Collection Turbidity (NTU):	0.91	Lab Supplied DI Water Lot #:	NA
Analysis:	CCR	Tubing Lot #:	NA
Color:	CLEAR	Filter Lot #:	NA
Odor:	NO	Filter Sample Metals (Y/N?):	N
Ambient Air (°C)	30.2	Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	N
Stability Reached (Y/N):	Y	Sample on-Ice: Time:	13:40
If No, Provide Explanation	NA	Drawdown Stabilized ≤ 0.3 ft:	Y
Top of Screen (ft. btoc):	51.80	**Bottom of Screen (ft. btoc):**	67.80
Depth to Water Meter Manufacturer:	Solinist	**Model:** 101	**Serial No:** 335976
Pump Controller Manufacturer:	QED	**Model:** MP50	**Serial No:** 1917

QA/QC Sample Information Below:

Analytes:	**Metals**	**Anions/pH**	**Radium 226/ 228**	**TDS**	**TSS**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B SM4500 H+B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D
Bottle Lot Number	022420-2EIZ	021020-2ADT	430820050	021020-2ADT	022420-2AED
Bottle Type:	HDPE	HDPE	HDPE	HDPE	HDPE
Bottle Volume:	250mL	250mL	1L	500mL	1L
Number of Bottles:	3	3	6	2	4
Preservative:	HNO3	unpreserved	HNO3	unpreserved	unpreserved

Lead Sampler Name:	KYLE FRAME	**Date:** 9/1/20	**Signature:**	Digitally signed by KYLE FRAME Date: 2020.09.01 16:13:41 -05'00'
Sampler Name:	WALKER BURROW	**Date:** 9/1/20	**Signature:**	Digitally signed by WALKER BURROW Date: 2020.09.01 16:18:55 -05'00'
Reviewed by:	MATT HOWARD	**Date:** 9/10/20	**Signature:**	Howard, Matthew T Digitally signed by Howard, Matthew T DN: cn=Howard, Matthew T, ou=General Users, email=Matt.Howard@terracon.com Date: 2020.09.10 10:44:44 -05'00'

Clear All Values

Print

Check and Submit

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	50.92
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	169.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	118.88 / 1175.06
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	165.0
Well ID:	ALF-212A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/3/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1335	50.92	250	0	20.8	6.72	688	0.84	8.9	-51.1	2.07	clear	no odor
1338	50.92	250	0.8	20.2	6.52	740	0.32	3.5	-59.2	1.49	clear	no odor
1341	50.92	250	1.5	20.1	6.57	758	0.24	2.7	-74.6	1.07	clear	no odor
1344	50.92	250	2.3	19.8	6.64	764	0.20	2.1	-86.6	1.84	clear	no odor
CM 09/03/2020												**Final Controller Settings**
												Setting ID: 107
												Pressure (PSI): 90
Final Purge Values:		1344	2.3	19.8	6.64	764	0.20	2.1	-86.6	1.84	clear	**Ambient Air (°C):** 28.8

Sample ID:	ALF-GW-ALF212A-20200903	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/3/2020	*Field Duplicate ID:*	NA
Collection Time:	13:50	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	2.3	*Filter Blank ID:*	NA
Sample Depth (feet):	165.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	Yes	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:59
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	159.4	**Bottom of Screen (ft. btoc):**	169.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
50.92	20.5	6.77	774	0.48	5.2	-66.5	1.28	Odor:	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/3/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/3/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/14/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

Clear All Values

Print

Check and Submit

Program:	CCR	**Project Number:**	A820P107
Facility Name:	Allen Fossil Plant (ALF)	**Well Type:**	Monitoring Well
Well ID:	ALF-213	**Date:**	09/03/2020
Initial Depth to Water (feet):	52.64	**Well Diameter (inches):**	4
Total Depth of Well (feet):	81.30	**Total Water Column (feet):**	28.66
Method of Purging:	Low Flow	**Pump Start Time:**	13:38
Measuring Point (toc, tor, etc.):	Top of Casing	**Pump Intake Depth (feet):**	71.00

* If water column is < Sample Set Volume contact TVA Project Manager

Time	Water Level (feet)	Flow Rate mL/min	Temp. (°C)	pH (SU)	Specific Conductance mS/cm	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Comments/Observations During Purging (color, sediment, odor, etc.)
Stabilization Criteria			NA	± 0.1	± 3%	< 0.5 mg/L or ± 10%	NA	NA	± 10% or < 5 NTU	
1347	54.71	475	18.1	6.87	0.68	0.49	5.5	-76.2	2.29	
1350	54.71	475	18.1	6.86	0.69	0.38	4.1	-98.6	0.81	
1353	54.71	475	18.1	6.85	0.71	0.30	3.2	-113.2	1.61	
Final Stabilization Values:		1353	18.1	6.85	0.71	0.30	3.2	-113.2	1.61	

BG 9/25/20

BG 9/25/20

Controller Mode/Setting ID:	103
Controller Pressure (PSI):	40
Discharge Interval (seconds):	5
Refill Interval (seconds):	10

	Time	Water Level (feet)	Flow Rate (mL/min)	Temp. (°C)	pH (SU)	Specific Conductance (mS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)
Post Sample Values:	1412	54.71	475	18.8	6.90	0.72	0.80	8.2	-82.0	1.36

Sample ID: ALF-GW-017-09032020

Method of Sampling:	Low Flow	MS/MSD/LD Collected (Y/N?):	N
Sample Date:	09/03/2020	Field Blank ID:	N
Collection Time:	13:55	Field Duplicate ID:	N
Total Volume Purged (gal.):	2	Equipment Blank ID:	N
Sample Depth (feet):	71.00	Filter Blank ID:	N
Heavy Equipment in Area:	Y	Tubing Blank ID:	N
Post Metals Collection Turbidity (NTU):	1.30	Lab Supplied DI Water Lot #:	NA
Analysis:	CCR	Tubing Lot #:	NA
Color:	CLEAR	Filter Lot #:	NA
Odor:	NONE	Filter Sample Metals (Y/N?):	N
Ambient Air (°C)	29.3	Filter purged for a minimum of 500 mL, but no more than 750 mL prior to sample collection (Y/N?):	NA
Stability Reached (Y/N):	Y	Sample on-Ice: Time:	13:56
If No, Provide Explanation	NA	Drawdown Stabilized ≤ 0.3 ft:	Y
Top of Screen (ft. btoc):	71.00	**Bottom of Screen (ft. btoc):**	81.20
Depth to Water Meter Manufacturer:	Solinist	**Model:** 101	**Serial No:** 335976
Pump Controller Manufacturer:	QED	**Model:** MP50	**Serial No:** 1917

QA/QC Sample Information Below:

Analytes:	**Metals**	**Anions/pH**	**Radium 226/ 228**	**TDS**	**TSS**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B SM4500 H+B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	2540D
Bottle Lot Number	022420-2EIZ	021020-2ADT	430820050	021020-2ADT	022420-2AED
Bottle Type:	HDPE	HDPE	HDPE	HDPE	HDPE
Bottle Volume:	250mL	250mL	1L	500mL	1L
Number of Bottles:	1	1	3	1	2
Preservative:	HNO3	unpreserved	HNO3	unpreserved	unpreserved

Lead Sampler Name:	KYLE FRAME	**Date:** 9/3/20	**Signature:**	Digitally signed by KYLE FRAME Date: 2020.09.03 14:06:44 -05'00'
Sampler Name:	WALKER BURROW	**Date:** 9/3/20	**Signature:**	Digitally signed by WALKER BURROW Date: 2020.09.03 14:06:31 -05'00'
Reviewed by:	MATT HOWARD	**Date:** 9/10/20	**Signature:**	Howard, Matthew T Digitally signed by Howard, Matthew T DN: cn=Howard, Matthew T, ou=General Users, email=Matt.Howard@terracon.com Date: 2020.09.10 10:49:04 -05'00'

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	51.80
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	121.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	70.00 / 691.91
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	116.75
Well ID:	ALF-213B	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/8/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1434	51.89	300	0	21.9	6.89	760	1.57	17.2	-58.3	0.97	clear	no odor
1437	51.89	300	0.9	21.0	6.71	771	0.69	8.0	-78.5	1.67	clear	no odor
1440	51.89	300	1.8	20.7	6.64	823	0.55	6.1	-77.7	2.92	clear	no odor
1443	51.89	300	2.7	20.9	6.69	828	0.49	5.5	-88.0	4.06	clear	no odor
1446	51.89	300	3.6	21.2	6.76	831	0.41	4.5	-99.7	3.08	clear	no odor
1449	51.89	300	4.5	21.2	6.77	832	0.43	4.8	-103.3	3.03	clear	no odor
CM 09/08/2020												**Final Controller Settings**
												Setting ID: 103
												Pressure (PSI): 80
Final Purge Values:		1449	4.5	21.2	6.77	832	0.43	4.8	-103.3	3.03	clear	**Ambient Air (°C):** 31.67

Sample ID:	ALF-GW-ALF213B-20200908	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/8/2020	*Field Duplicate ID:*	ALF-GW-FB02-20200908
Collection Time:	14:55	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	4.5	*Filter Blank ID:*	NA
Sample Depth (feet):	116.75	*Tubing Blank ID:*	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Analytical Minneapolis filld dat 08/20/20 and GEL Labs Charleston fill date 08/21/2020
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	15:02
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	111.4	**Bottom of Screen (ft. btoc):**	121.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
51.89	22.2	6.92	830	0.49	5.6	-84.8	2.65	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/8/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/8/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/15/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	24.76
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	162.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	138.04 / 1364.45
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	157.75
Well ID:	ALF-213A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/8/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1325	24.76	480	0	18.4	6.07	326.6	0.73	7.2	31.3	3.54	clear	no odor
1328	24.76	480	1.4	18.2	6.42	330.5	0.31	3.2	-40.5	2.17	clear	no odor
1331	24.76	480	2.9	18.0	6.52	331.1	0.25	2.6	-65.7	1.79	clear	no odor
1334	24.76	480	4.3	18.0	6.63	331.3	0.22	2.3	-86.9	1.98	clear	no odor
1337	24.76	480	5.8	18.0	6.70	331.8	0.20	1.8	-102.1	1.30	clear	no odor
1340	24.76	480	7.2	17.9	6.76	332.5	0.15	1.7	-112.2	1.63	clear	no odor
CM 09/08/2020												**Final Controller Settings**
												Setting ID: 103
												Pressure (PSI): 90
Final Purge Values:		1340	7.2	17.9	6.76	332.5	0.15	1.7	-112.2	1.63	clear	**Ambient Air (°C):** 31.11

Sample ID:	ALF-GW-ALF213A-20200908	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/8/2020	*Field Duplicate ID:*	NA
Collection Time:	13:45	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	7.2	*Filter Blank ID:*	NA
Sample Depth (feet):	157.75	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:51
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	152.4	**Bottom of Screen (ft. btoc):**	162.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
24.76	18	6.82	335.5	0.19	2.1	-93.2	1.12	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/8/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/8/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/15/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.05
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	54.9
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	23.85 / 235.74
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	45.0
Well ID:	ALF-214	**Method of Purging:**	Dedicated bladder pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/2/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1234	31.12	500	0	19.6	7.47	582	0.61	6.7	163.8	3.63	clear	no odor
1237	31.12	500	1.5	19.4	7.33	578	0.31	3.5	150.6	2.04	clear	no odor
1240	31.12	500	3.0	19.3	7.30	577	0.25	2.8	141.6	1.02	clear	no odor
1243	31.12	500	4.5	19.3	7.28	577	0.22	2.4	136.0	2.10	clear	no odor
CM 09/02/2020												**Final Controller Settings**
												Setting ID: 101
												Pressure (PSI): 35
Final Purge Values:		1243	4.5	19.3	7.28	577	0.22	2.4	136.0	2.10	clear	**Ambient Air (°C):** 28.3

Sample ID:	ALF-GW-ALF214-20200902	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/2/2020	*Field Duplicate ID:*	~~ALF-GW-FD02-20200902~~ ALF-DUP02-20200902 CS 9/10/20
Collection Time:	12:45	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	4.5	*Filter Blank ID:*	NA
Sample Depth (feet):	45.0	*Tubing Blank ID:*	NA
Heavy Equipment in Area:	Yes	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:51
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	34.5	**Bottom of Screen (ft. btoc):**	54.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)		
31.12	19.4	7.33	577	0.23	2.5	191.2	3.28	**Color:**	clear
								Odor:	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/2/2020	**Signature:**	
Sampler Name:	Casey Mullet	**Date:**	9/2/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/10/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.14
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	93.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	62.16 / 614.42
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	88.0
Well ID:	ALF-214B	**Method of Purging:**	Dedicated Sampling Well
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/2/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1420	31.18	450	0	20.2	6.70	1032	0.98	10.0	10.4	13.9	clear	no odor
1423	31.18	450	1.4	19.6	6.79	1082	0.25	2.8	-71.9	7.95	clear	no odor
1426	31.18	450	2.7	19.5	6.82	1084	0.23	2.5	-87.9	3.59	clear	no odor
1429	31.18	450	4.1	19.5	6.85	1085	0.19	2.1	-95.5	3.43	clear	no odor
1432	31.18	450	5.4	19.5	6.85	1085	0.10	2.3	-100.1	4.18	clear	no odor
CM 09/02/2020												**Final Controller Settings**
												Setting ID: 103
												Pressure (PSI): 55
Final Purge Values:		1432	5.4	19.5	6.85	1085	0.10	2.3	-100.1	4.18	clear	**Ambient Air (°C):** 29.4

Sample ID:	ALF-GW-ALF214B-20200902	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB02-20200902
Sample Date:	9/2/2020	*Field Duplicate ID:*	NA
Collection Time:	14:35	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	5.4	*Filter Blank ID:*	NA
Sample Depth (feet):	88.0	*Tubing Blank ID:*	NA
Heavy Equipment in Area:	Yes	*DI water lot #:*	Pace Analytical Minneapolis filled date 08/20/20 and GEL Labs Charleston fill date 08/21/2020
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	14:42
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	82.9	**Bottom of Screen (ft. btoc):**	92.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
31.18	19.5	6.88	1086	0.31	3.6	-79.8	4.23	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/2/2020	**Signature:**	
Sampler Name:	Casey Mullet	**Date:**	9/2/2020	**Signature:**	Casey Mullet
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/10/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.28
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	133.0
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	101.72 / 1005.45
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	130.0
Well ID:	ALF-214A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/2/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1324	31.39	300	0	21.2	6.91	1081	1.22	13.0	4.7	2.99	clear	no odor
1327	31.39	300	0.9	20.4	6.60	1063	0.35	4.1	-30.2	3.67	clear	no odor
1330	31.39	300	1.8	20.2	6.58	1052	0.33	3.6	-34.0	2.32	clear	no odor
1333	31.39	300	2.7	20.1	6.57	1046	0.23	2.6	-37.8	1.91	clear	no odor
CM 09/02/2020												**Final Controller Settings**
												Setting ID: 102
												Pressure (PSI): 80
Final Purge Values:		1333	2.7	20.1	6.57	1046	0.23	2.6	-37.8	1.91	clear	**Ambient Air (°C):** 28.8

Sample ID:	ALF-GW-ALF214A-20200902	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/2/2020	*Field Duplicate ID:*	NA
Collection Time:	13:35	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	2.7	*Filter Blank ID:*	NA
Sample Depth (feet):	130.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	Yes	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:41
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	122.6	**Bottom of Screen (ft. btoc):**	~~136.2~~ 2.6 JWJ 11/12/2020

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
31.39	20.3	6.61	1034	0.28	2.9	-31.9	3.98	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/2/2020	**Signature:**	
Sampler Name:	Casey Mullet	**Date:**	9/2/2020	**Signature:**	Casey Mullet
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/10/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	14.89
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	30.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	15.51 / 153.31
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	25.0
Well ID:	ALF-215	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/2/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1340	14.91	350	0	20.6	6.85	458.7	1.19	12.3	44.9	~~4.385~~ Data recorded incorrectly CS 10/23/20	clear	no odor
1345	14.91	350	1.8	19.7	6.86	456.7	0.37	4.1	36.8	3.15	clear	no odor
1350	14.91	350	3.5	19.6	6.87	455.9	0.31	3.4	22.0	3.45	clear	no odor
1355	14.91	350	5.3	19.5	6.88	455.6	0.32	3.4	18.6	4.10	clear	no odor
1400	14.91	350	7.0	19.7	6.87	456.8	0.31	3.2	12.6	2.76	clear	no odor
												Final Controller Settings
												Setting ID: 100
							CK	9/2/20				**Pressure (PSI):** 20
Final Purge Values:		1400	7.0	19.7	6.87	456.8	0.31	3.2	12.6	2.76	clear	**Ambient Air (°C):** 25

Sample ID:	ALF-GW-ALF215-20200902	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/2/2020	*Field Duplicate ID:*	NA
Collection Time:	14:03	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	7.0	*Filter Blank ID:*	NA
Sample Depth (feet):	25.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	14:10
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	20.0	**Bottom of Screen (ft. btoc):**	30.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
14.91	~~350~~ Data recorded incorrectly CS 9/8/20	6.76	457.8	0.38	4.0	89.2	2.14	**Odor:**	no odor

WL Meter Manufacturer:	HERON	**Model:**	Dipper-t	**Serial No:**	32871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	42958

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	9/2/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	9/2/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/8/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	26.35
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	60.0
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	33.65 / 332.61
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	50.0
Well ID:	ALF-216	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/1/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1035	26.35	400	0	20.1	8.39	765	0.40	4.3	-96.2	12.3	clear	no odor
1040	26.35	400	2.0	20.1	8.36	765	0.37	4.0	-97.8	5.83	clear	no odor
1045	26.35	400	4.0	20.1	8.32	763	0.36	4.1	-103.0	3.71	clear	no odor
1050	26.35	400	6.0	20.1	8.03	761	0.29	3.1	-106.1	4.61	clear	no odor
1055	26.35	400	8.0	20.1	7.47	761	0.29	3.2	-107.5	4.28	clear	no odor
1100	26.35	400	10.0	20.1	7.49	761	0.30	3.1	-108.5	3.87	clear	no odor
1105	26.35	400	12.0	20.1	7.46	762	0.28	3.0	-109.2	4.05	clear	no odor
												Final Controller Settings
							EK	9/11/20				**Setting ID:** 103
												Pressure (PSI): 28
Final Purge Values:		1105	12.0	20.1	7.46	762	0.28	3.0	-109.2	4.05	clear	**Ambient Air (°C):** 27

Sample ID:	ALF-GW-ALF216-20200901	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/1/2020	*Field Duplicate ID:*	NA
Collection Time:	11:08	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	12.0	*Filter Blank ID:*	NA
Sample Depth (feet):	50.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:10
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	39.6	**Bottom of Screen (ft. btoc):**	59.6

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
26.35	20.1	7.47	763	0.58	5.0	-82.9	4.06	**Odor:**	no odor

WL Meter Manufacturer:	HERON	**Model:**	Dipper-t	**Serial No:**	32871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	42958

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	9/1/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	9/1/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/8/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/11/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	32.19
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	71.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	39.61 / 391.52
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	60.75
Well ID:	ALF-217	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0935	32.35	350	0	19.9	6.81	705	22.14	21.8	132.8	1.15	clear	no odor
0938	32.35	350	1.1	19.4	6.85	699	0.49	5.3	-64.8	0.74	clear	no odor
0941	32.35	350	2.1	19.4	6.86	700	0.36	3.8	-85.7	0.54	clear	no odor
0944	32.35	350	3.2	19.4	6.91	700	0.33	3.5	-97.9	0.65	clear	no odor
0947	32.35	350	4.2	19.4	6.97	700	0.28	3.1	-106.9	0.64	clear	no odor
CM 09/09/2020												**Final Controller Settings**
												Setting ID: 101
												Pressure (PSI): 36
Final Purge Values:		0947	4.2	19.4	6.97	700	0.28	3.1	-106.9	0.64	clear	**Ambient Air (°C):** 27.22

Sample ID:	ALF-GW-ALF217-20200909	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/9/2020	*Field Duplicate ID:*	NA
Collection Time:	9:50	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	4.2	*Filter Blank ID:*	NA
Sample Depth (feet):	60.75	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:57
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	49.4	**Bottom of Screen (ft. btoc):**	71.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
32.35	19.5	7.07	702	0.38	4.2	-79.3	0.59	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	0323230-2EIX	042020-2EEY	040620-2ADT	0323230-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/9/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/9/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	51.20
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	131.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	80.60 / 796.69
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	126.75
Well ID:	ALF-217B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1118	51.21	300	0	20.4	6.98	1005	0.93	10.1	-52.9	1.25	clear	no odor
1121	51.21	300	0.9	19.5	6.75	761	0.46	4.9	-66.7	2.12	clear	no odor
1124	51.21	300	1.8	19.2	6.78	738	0.32	3.5	-83.7	2.00	clear	no odor
1127	51.21	300	2.7	19.1	6.80	730	0.24	2.8	-94.2	1.71	clear	no odor
1130	51.21	300	3.6	19.1	6.83	726	0.20	2.2	-102.1	2.62	clear	no odor
1133	51.21	300	4.5	19.1	6.84	724	0.18	2.0	-107.1	1.38	clear	no odor
CM 09/09/2020												**Final Controller Settings**
												Setting ID: 103
												Pressure (PSI): 70
Final Purge Values:		1133	4.5	19.1	6.84	724	0.18	2.0	-107.1	1.38	clear	**Ambient Air (°C):** 29.4

Sample ID:	ALF-GW-ALF217B-20200909	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB02-20200909
Sample Date:	9/9/2020	*Field Duplicate ID:*	NA
Collection Time:	11:35	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	4.5	*Filter Blank ID:*	NA
Sample Depth (feet):	126.8	*Tubing Blank ID:*	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Analytical Minneapolis fill date 08/20/20
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:41
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	121.4	**Bottom of Screen (ft. btoc):**	131.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
51.21	19.1	6.88	734	0.33	3.5	-89.5	0.67	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	0323230-2EIX	042020-2EEY	040620-2ADT	0323230-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/9/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/9/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	51.30
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	192.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	141.50 / 1398.65
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	187.75
Well ID:	ALF-217A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1023	51.43	250	0	19.7	6.24	736	1.36	13.9	-4.6	1.15	clear	light egg-like smell
1026	51.43	250	0.8	19.3	6.34	744	0.39	4.1	-40.7	0.89	clear	light egg-like smell
1029	51.43	250	1.5	19.2	6.47	773	0.30	3.2	-67.7	0.74	clear	light egg-like smell
1032	51.43	250	2.3	19.2	6.51	779	0.26	2.8	-78.9	0.98	clear	light egg-like smell
1035	51.43	250	3.0	19.0	6.53	778	0.22	2.4	-83.9	1.22	clear	light egg-like smell
1038	51.43	250	3.8	19.0	6.54	778	0.20	2.2	-87.5	0.86	clear	light egg-like smell
CM 09/09/2020												**Final Controller Settings**
												Setting ID: 102
												Pressure (PSI): 75
Final Purge Values:		1038	3.8	19.0	6.54	778	0.20	2.2	-87.5	0.86	clear	**Ambient Air (°C):** 27.22

Sample ID:	ALF-GW-ALF217A-20200909	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/9/2020	*Field Duplicate ID:*	NA
Collection Time:	10:40	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	3.8	*Filter Blank ID:*	NA
Sample Depth (feet):	187.75	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:46
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	182.4	**Bottom of Screen (ft. btoc):**	192.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
51.43	19.4	6.62	788	0.25	2.7	-66.8	0.93	**Odor:**	light egg-like smell

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	0323230-2EIX	042020-2EEY	040620-2ADT	0323230-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/9/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/9/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	28.00
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	50.1
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	22.10 / 218.45
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	41.0
Well ID:	P-4S	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1017	28.00	440	0	19.1	6.94	527.0	1.63	13.4	-16.7	6.70	Clear	No Odor
1020	28.00	440	1.3	19.0	6.93	526.7	0.29	3.1	-19.7	4.74	Clear	No Odor
1023	28.00	440	2.6	19.0	6.92	526.8	0.22	2.3	-21.4	2.98	Clear	No Odor
1026	28.00	440	4.0	19.0	6.92	526.0	0.15	1.7	-23.1	1.41	Clear	No Odor
1029	28.00	440	5.3	18.9	6.92	526.4	0.13	1.3	-25.7	1.84	Clear	No Odor
Final Purge Values:		1029	5.3	18.9	6.92	526.4	0.13	1.3	-25.7	1.84	Clear	

ES 9/9/20

Final Controller Settings	
Setting ID:	50
Pressure (PSI):	40
Ambient Air (°C):	27

Sample ID:	~~ALF-GW-ALF202B-20200909~~ ALF-GW-ALFP4S-20200909 CS 9/15/20	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	9/9/2020	*Field Blank ID:*	NA
Collection Time:	10:35	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	5.3	*Equipment Blank ID:*	NA
Sample Depth (feet):	41.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:40
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	29.7	**Bottom of Screen (ft. btoc):**	49.7

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
28	19	7.01	523.7	0.22	2.3	-9	3.98	Odor:	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2595
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2129

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2E1Z	110419-2EIX	11819-2EEY	102119-2ADT	110419-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Trent VanEgtern	**Date:**	9/9/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	9/9/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/15/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	34.14
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	81.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	47.66 / 117.77
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	77.0
Well ID:	P-4	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	2.0	**Date:**	9/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0930	34.15	500	0	17.6	6.47	341.8	0.29	2.8	-75.9	1.54	Clear	No odor
0933	34.15	500	1.5	17.4	6.65	339.2	0.15	1.5	-93.7	1.36	Clear	No odor
0936	34.15	500	3.0	17.4	6.70	338.0	0.13	1.3	-97.7	1.10	Clear	No odor
0939	34.15	500	4.5	17.4	6.75	337.7	0.12	1.3	-100.4	0.97	Clear	No odor
Final Purge Values:		0939	4.5	17.4	6.75	337.7	0.12	1.3	-100.4	0.97	Clear	

ES 9/9/20

Final Controller Settings	
Setting ID:	99
Pressure (PSI):	80
Ambient Air (°C):	26

Sample ID:	~~ALF-GW-ALF202B-20200909~~ ALF-GW-ALFP4-20200909 CS 9/15/20	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	9/9/2020	*Field Blank ID:*	NA
Collection Time:	9:45	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	77.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:50
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	71.7	**Bottom of Screen (ft. btoc):**	81.8

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
34.15	17.5	6.93	178.4	0.25	2.5	-81.9	0.86	**Odor:**	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2595
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2129

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	111819-2EIUX	011320-2EEY	012020-2ADT	111819-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Trent VanEgtern	**Date:**	9/9/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	9/9/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/15/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	26.48
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	40.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	13.92 / 137.59
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	29.0
Well ID:	PMW-02A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1130	26.48	100	0	22.1	10.10	1104	0.57	6.5	-65.6	10.1	Clear	No odor
1133	26.51	100	0.3	22.4	10.13	1105	0.52	6.1	-74.5	8.42	Clear	No odor
1136	26.57	100	0.6	22.5	10.16	1106	0.54	6.2	-81.7	8.58	Clear	No odor
1139	26.60	100	0.9	22.3	10.16	1106	0.50	5.7	-86.9	8.67	Clear	No odor
1142	26.68	100	1.2	22.3	10.17	1107	0.52	5.7	-92.9	8.96	Clear	No odor
1145	26.65	100	1.5	22.3	10.17	1109	0.50	5.7	-98.0	9.16	Clear	No odor
1148	26.67	100	1.8	22.3	10.18	1107	0.47	7.0	-100.7	9.40	Clear	No odor
Final Purge Values:		1148	1.8	22.3	10.18	1107	0.47	7.0	-100.7	9.40	Clear	

ES 9/9/20

Final Controller Settings	
Setting ID:	42
Pressure (PSI):	25
Ambient Air (°C):	27

Sample ID:	~~ALF-GW-ALF202B-20200909~~ ALF-GW-PMW02A-20200909 CS 9/16/20	**QA/QC Sample Collected:**	~~No~~ Yes CS 9/16/20
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	9/9/2020	*Field Blank ID:*	NA
Collection Time:	11:55	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	1.8	*Equipment Blank ID:*	NA
Sample Depth (feet):	29.0	*Filter Blank ID:*	~~NA~~ ALF-GW-FLB01-20200909 CS 9/16/20
Heavy Equipment in Area:	No	*Tubing Blank ID:*	~~NA~~ ALF-GW-TUB01-20200909 CS 9/16/20
		DI water lot #:	~~NA~~ Pace Minneapolis 08/19/2020 CS 9/16/20
Analysis:	RI	*Filter purged for minimum 500 mL:*	Yes
Tubing Lot #:	N/A	*Filter Lot #:*	H1826
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	Yes
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	12:05
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	19.0	**Bottom of Screen (ft. btoc):**	40.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
26.83	23.4	9.96	1118	10.07	117.2	58.2	10.6	**Odor:**	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2595
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2129

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2E1Z	111819-2EIX	012720-EEY	012020-2ADT	111819-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	~~2~~ 4 MAD 9/16/2020	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Trent VanEgtern	**Date:**	9/9/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	9/9/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.12
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	58.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	27.68 / 273.6
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	54.0
Well ID:	PMW-02B	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1250	31.55	100	0	19.7	7.09	626	0.56	6.4	-69.2	2.31	Clear	No odor
1253	31.62	100	0.3	20.5	7.02	616	0.50	5.6	-94.6	1.16	Clear	No odor
1256	31.65	100	0.6	20.4	6.93	621	0.44	4.9	-93.0	1.14	Clear	No odor
1259	31.71	100	0.9	20.4	6.89	625	0.41	4.4	-98.2	1.25	Clear	No odor
Final Purge Values:		1259	0.9	20.4	6.89	625	0.41	4.4	-98.2	1.25	Clear	

ES 9/9/20

Final Controller Settings	
Setting ID:	98
Pressure (PSI):	30
Ambient Air (°C):	28

Sample ID:	~~ALF-GW-ALF202B-20200909~~ ALF-GW-PMW02B-20200909 CS 9/16/20	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	9/9/2020	*Field Blank ID:*	ALF-GW-FB01-20200909
Collection Time:	13:05	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	0.9	*Equipment Blank ID:*	NA
Sample Depth (feet):	54.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Minneapolis 08/19/2020
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:15
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	48.4	**Bottom of Screen (ft. btoc):**	58.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
31.8	21.3	7.14	655	0.93	10.7	-105.7	1.06	Odor:	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2595
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2129

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	111819-2EIX	0127202EEY	012020-2ADT	111819-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Trent VanEgtern	**Date:**	9/9/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	9/9/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.28
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	129.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	98.42 / 972.83
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	124.0
Well ID:	PMW-02C	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1349	31.28	400	0	18.9	7.40	345.7	18.00	16.3	-75.3	22.8	Clear	No odor
1352	31.28	400	1.2	17.8	6.75	327.7	0.26	2.7	-40.1	2.36	Clear	No odor
1355	31.28	400	2.4	17.9	6.75	328.5	0.24	2.5	-46.5	1.09	Clear	No odor
1358	31.28	400	3.6	17.9	6.75	329.2	0.22	2.3	-51.6	0.84	Clear	No odor
Final Purge Values:		1358	3.6	17.9	6.75	329.2	0.22	2.3	-51.6	0.84	Clear	

ES 9/9/20

Final Controller Settings	
Setting ID:	107
Pressure (PSI):	70
Ambient Air (°C):	28

Sample ID:	~~ALF-GW-ALF202B-20200909~~ ALF-GW-PMW02C-20200909 CS 9/16/20	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	Yes
Sample Date:	9/9/2020	*Field Blank ID:*	NA
Collection Time:	14:05	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.6	*Equipment Blank ID:*	NA
Sample Depth (feet):	124.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	14:10
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	119.3	**Bottom of Screen (ft. btoc):**	129.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
31.28	17.8	7.02	340.6	0.24	26	-62	1.84	**Odor:**	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2595
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2129

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	111819-2EIX	0127202EEY	012020-2ADT	111819-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	3	3	6	3	3
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Trent VanEgtern	**Date:**	9/9/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	9/9/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	25.40
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	40.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	15.30 / 151.23
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	29.0
Well ID:	PMW-04A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0905	25.68	500	0	19.0	7.47	832	0.29	3.2	-14.2	2.69	Clear	No odor
0908	25.68	500	1.5	19.0	7.52	832	0.23	2.5	-14.8	2.49	Clear	No odor
0911	25.68	500	3.0	19.1	7.54	834	0.18	2.0	-14.1	2.13	Clear	No odor
0914	25.68	500	4.5	19.1	7.55	835	0.18	1.9	-13.9	2.20	Clear	No odor
Final Purge Values:		0914	4.5	19.1	7.55	835	0.18	1.9	-13.9	2.20	Clear	

ES 9/10/20

Final Controller Settings	
Setting ID:	105
Pressure (PSI):	25
Ambient Air (°C):	26

Sample ID:	~~ALF-GW-ALF202B-20200910~~ ALF-GW-PMW04A-20200910 CS 9/16/20	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	9/10/2020	*Field Blank ID:*	NA
Collection Time:	9:20	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	29.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:30
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	19.3	**Bottom of Screen (ft. btoc):**	40.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
25.68	19.1	7.54	835	0.35	3.7	16.9	2.88	**Odor:**	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2595
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2129

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	032320-2eix	042020-2EEY	040620-2ADT	032320-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Trent VanEgtern	**Date:**	9/10/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	9/10/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	34.38
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	62.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	28.02 / 276.96
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	57.0
Well ID:	PMW-04B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1153	34.40	350	0	19.0	6.98	808	0.46	4.9	-101.6	4.36	Clear	No odor
1156	34.40	350	1.1	18.8	6.93	806	0.26	2.9	-116.5	3.94	Clear	No odor
1159	34.40	350	2.1	18.4	6.91	805	0.19	1.9	-123.9	2.63	Clear	No odor
1202	34.40	350	3.2	18.4	6.90	804	0.17	1.9	-125.6	2.01	Clear	No odor
Final Purge Values:		1202	3.2	18.4	6.90	804	0.17	1.9	-125.6	2.01	Clear	

ES 9/10/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	30
Ambient Air (°C):	29

Sample ID:	~~ALF-GW-ALF202B-20200910~~ ALF-GW-PMW04B-20200910 CS 9/16/20	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	9/10/2020	*Field Blank ID:*	NA
Collection Time:	12:10	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.15	*Equipment Blank ID:*	NA
Sample Depth (feet):	57.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	12:15
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	52.0	**Bottom of Screen (ft. btoc):**	62.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
34.4	18.3	7.01	785	0.12	1.4	-27.2	3.27	**Odor:**	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2595
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2129

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	081020-2EIZ	052019-2ALL	081720-2EEY	072720-2ADT	052019-2ALL
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Trent VanEgtern	**Date:**	9/10/2020	**Signature:**	
Sampler Name:	Emily Scheiben	**Date:**	9/10/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	32.28
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	129.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	97.42 / 962.94
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	124.0
Well ID:	PMW-04C	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1233	32.30	400	0	19.5	7.37	370.5	2.40	25.6	-61.9	2.00	Clear	No odor
1236	32.30	400	1.2	18.5	6.82	339.7	0.41	4.2	-8.9	1.87	Clear	No odor
1239	32.30	400	2.4	18.3	6.76	333.1	0.29	3.1	-21.8	2.07	Clear	No odor
1242	32.30	400	3.6	18.4	6.78	332.6	0.26	2.8	-38.0	2.43	Clear	No odor
1245	32.30	400	4.8	18.4	6.87	333.6	0.21	2.2	-60.5	2.16	Clear	No odor
Final Purge Values:		1245	4.8	18.4	6.87	333.6	0.21	2.2	-60.5	2.16	Clear	

ES 9/10/20

Final Controller Settings	
Setting ID:	105
Pressure (PSI):	70
Ambient Air (°C):	30

Sample ID:	~~ALF-GW-ALF202B-20200910~~ ALF-GW-PMW04C-20200910 CS 9/16/20	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	9/10/2020	*Field Blank ID:*	ALF-GW-FB01-20200910
Collection Time:	12:50	*Field Duplicate ID:*	ALF-GW-DUP01-20200910
Total Volume Purged (L):*	4.8	*Equipment Blank ID:*	NA
Sample Depth (feet):	124.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace Minneapolis 08/19/2020
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	12:55
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	119.3	**Bottom of Screen (ft. btoc):**	129.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	Clear
32.3	18.2	7.01	351.2	0.25	2.7	-65.3	1.55	**Odor:**	No odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	2595
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2129

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	081020-2EIZ	052019-2ALL	081720-2EEY	072720-2ADT	052019-2ALL
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	~~2~~ 3 CS 9/16/20	~~2~~ 3 CS 9/16/20	~~4~~ 6 CS 9/16/20	~~2~~ 3 CS 9/16/20	~~2~~ 3 CS 9/16/20
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Trent VanEgtern	**Date:**	9/10/2020	**Signature:**	
Sampler Name:	Emily scheiben	**Date:**	9/10/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	18.68
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	29.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	10.62 / 104.97
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	24.0
Well ID:	PMW-07A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0944	18.72	350	0	20.1	8.74	950	0.74	8.0	67.1	3.62	tan	no odor
0947	18.72	350	1.1	19.9	9.30	943	0.35	3.9	32.7	2.86	tan	no odor
0950	18.72	350	2.1	19.9	9.37	943	0.27	3.0	20.1	2.92	tan	no odor
0953	18.72	350	3.2	19.9	9.44	945	0.22	2.4	4.7	2.36	tan	no odor
0956	18.72	350	4.2	20.0	9.47	945	0.19	2.1	0.4	2.71	tan	no odor
0959	18.72	350	5.3	20.0	9.50	946	0.18	2.1	-8.9	2.59	tan	no odor
CM 09/10/2020												**Final Controller Settings**
												Setting ID: 100
												Pressure (PSI): 18
Final Purge Values:		0959	5.3	20.0	9.50	946	0.18	2.1	-8.9	2.59	tan	**Ambient Air (°C):** 27.22

Sample ID:	ALF-GW-PMW07A-20200910	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB02-20200910
Sample Date:	9/10/2020	*Field Duplicate ID:*	NA
Collection Time:	10:00	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	5.3	*Filter Blank ID:*	NA
Sample Depth (feet):	24.0	*Tubing Blank ID:*	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Analytical Minneapolis fill date 09/03/20
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:06
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	18.9	**Bottom of Screen (ft. btoc):**	28.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	tan
18.72	20.3	9.31	958	0.22	2.3	49.2	2.77	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	052020-2EIX (field blank, 032320-2EIX)	072020-2EEY (field blank, 042020-2EEY)	072720-2ADT (field	052020-2EIX (field blank, 032320-2EIX)
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/10/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/10/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	TVA ~~TDEC~~ RI Order MD 9/16/2020	**Initial Depth to Water (feet):**	30.85
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	59.9
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	29.05 / 287.14
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	55.0
Well ID:	PMW-07B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1152	30.92	300	0	20.0	7.65	745	1.49	15.7	-46.7	2.30	clear	no odor
1155	30.92	300	0.9	19.4	7.07	720	0.34	3.7	-95.9	1.95	clear	no odor
1158	30.92	300	1.8	19.3	7.00	721	0.32	3.4	-99.5	1.64	clear	no odor
1201	30.92	300	2.7	19.0	6.98	722	0.24	2.8	-102.9	1.65	clear	no odor
1204	30.92	300	3.6	19.1	6.96	722	0.25	2.6	-106.6	3.04	clear	no odor
CM 09/10/2020												**Final Controller Settings**
												Setting ID: 101
												Pressure (PSI): 32
Final Purge Values:		1204	3.6	19.1	6.96	722	0.25	2.6	-106.6	3.04	clear	**Ambient Air (°C):** 31.1

Sample ID:	ALF-GW-PMW07B-20200910	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/10/2020	*Field Duplicate ID:*	ALF-GW-EB02-20200910
Collection Time:	12:05	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	3.6	*Filter Blank ID:*	NA
Sample Depth (feet):	55.0	*Tubing Blank ID:*	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Analytical Minneapolis fill date 09/03/20
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:11
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	49.5	**Bottom of Screen (ft. btoc):**	59.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
30.92	19	7.02	734	0.34	3.6	-68.9	1.89	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP10	**Serial No:**	MP10-1742

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	081020-2EIZ	081020-2EIX	081720-2EEY	072720-2ADT	081020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/10/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/10/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	TVA ~~TDEC~~ RI Order MD 9/16/2020	**Initial Depth to Water (feet):**	30.74
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	122.8
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	92.06 / 909.96
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	117.0
Well ID:	PMW-07C	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1252	30.79	500	0	17.7	6.83	329.9	0.29	3.0	9.5	2.63	clear	no odor
1255	30.79	500	1.5	17.7	6.91	326.5	0.17	1.8	-28.8	1.61	clear	no odor
1258	30.79	500	3.0	17.6	6.96	326.6	0.13	1.3	-48.9	1.56	clear	no odor
1301	30.79	500	4.5	17.6	7.01	329.6	0.10	1.3	-68.9	4.00	clear	no odor
1304	30.79	500	6.0	17.6	7.03	331.3	0.11	1.1	-77.5	1.23	clear	no odor
CM 09/10/2020												**Final Controller Settings**
												Setting ID: 103
												Pressure (PSI): 75
Final Purge Values:		1304	6.0	17.6	7.03	331.3	0.11	1.1	-77.5	1.23	clear	**Ambient Air (°C):** 31.1

Sample ID:	ALF-GW-PMW07C-20200910	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	Yes
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/10/2020	*Field Duplicate ID:*	NA
Collection Time:	13:10	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	6.0	*Filter Blank ID:*	NA
Sample Depth (feet):	117.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:19
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	~~112.2~~ 112.5 MD 9/16/2020	**Bottom of Screen (ft. btoc):**	~~122.2~~ 122.5 MD 9/16/2020

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
30.79	17.5	7.14	337.3	0.29	3.1	-38.8	3.42	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP10	**Serial No:**	MP10-1742

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	081020-2EIZ	081020-2EIX	081720-2EEY	072720-2ADT	081020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	3	3	6	3	3
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/10/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/10/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	20.65
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	44.0
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	23.35 / 230.8
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	32.0
Well ID:	PMW-10A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/3/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1335	20.68	300	0	20.5	7.73	510.2	1.05	11.4	-42.3	0.83	clear	no odor
1340	20.68	300	1.5	20.3	7.48	504.7	0.55	6.0	-70.2	1.18	clear	no odor
1345	20.68	300	3.0	20.2	7.42	505.3	0.47	5.2	-81.7	1.45	clear	no odor
1350	20.68	300	4.5	20.3	7.30	504.4	0.32	3.5	-99.1	0.64	clear	no odor
1355	20.68	300	6.0	20.3	7.32	505.1	0.31	3.5	-100.8	1.53	clear	no odor
1400	20.68	300	7.5	20.3	7.31	504.5	0.30	3.4	-100.9	0.94	clear	no odor
												Final Controller Settings
								CK	9/3/20			**Setting ID:** 102
												Pressure (PSI): 25
Final Purge Values:		1400	7.5	20.3	7.31	504.5	0.30	3.4	-100.9	0.94	clear	**Ambient Air (°C):** 24

Sample ID:	ALF-GW-PMW10A-20200903	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	9/3/2020	*Field Blank ID:*	NA
Collection Time:	14:03	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	7.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	32.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	14:10
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	~~38.5~~ 22.6 MD 9/16/20	**Bottom of Screen (ft. btoc):**	~~59.5~~ 43.6 MD 9/16/20

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
~~5~~ Value recorded incorrectly CS 9/16/20	20.68	7.49	508.3	0.49	5.3	-96.3	0.59	**Odor:**	no odor

WL Meter Manufacturer:	HERON	**Model:**	Dipper-t	**Serial No:**	32871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	42958

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	9/3/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	9/3/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.14
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	73.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	40.16 / 396.96
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	68.0
Well ID:	PMW-10B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/3/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1245	33.49	200	0	20.8	6.88	824	0.60	6.5	-114.2	1.45	clear	no odor
1250	33.49	200	1.0	20.7	6.91	826	0.66	7.3	-121.3	1.37	clear	no odor
1255	33.49	200	2.0	20.8	6.94	827	0.50	6.3	-130.4	2.84	clear	no odor
1300	33.49	200	3.0	20.9	6.97	829	0.48	5.3	-138.3	1.94	clear	no odor
1305	33.49	200	4.0	20.8	6.99	829	0.46	5.1	-140.3	2.28	clear	no odor
												Final Controller Settings
												Setting ID: 102
												Pressure (PSI): 40
Final Purge Values:		1305	4.0	20.8	6.99	829	0.46	5.1	-140.3	2.28	clear	**Ambient Air (°C):** 25

CK 9/3/20

Sample ID:	ALF-GW-PMW10B-20200903	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/3/2020	*Field Duplicate ID:*	NA
Collection Time:	13:08	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	4.0	*Filter Blank ID:*	NA
Sample Depth (feet):	68.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:15
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	~~79.5~~ 62.9 MD 9/16/20	**Bottom of Screen (ft. btoc):**	~~89.5~~ 72.9 MD 9/16/20

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
33.51	20.7	7.11	768	0.39	4.3	-118.3	1.06	**Odor:**	no odor

WL Meter Manufacturer:	HERON	**Model:**	Dipper-t	**Serial No:**	32871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	42958

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	9/3/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	9/3/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.16
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	152.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	119.24 / 294.66
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	148.0
Well ID:	PMW-10C	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	2.0	**Date:**	9/3/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1200	33.19	450	0	19.7	6.66	536.3	0.37	4.0	-39.4	4.18	clear	no odor
1205	33.19	450	2.3	19.6	6.66	540.2	0.29	3.2	-57.1	4.29	clear	no odor
1210	33.19	450	4.5	19.9	6.79	554.0	0.48	5.1	-94.3	0.65	clear	no odor
1215	33.19	450	6.8	19.8	6.77	548.2	0.48	5.1	-93.0	0.71	clear	no odor
1220	33.19	450	9.0	19.7	6.79	548.9	0.39	4.2	-102.3	1.24	clear	no odor
												Final Controller Settings
												Setting ID: 102
												Pressure (PSI): 75
Final Purge Values:		1220	9.0	19.7	6.79	548.9	0.39	4.2	-102.3	1.24	clear	**Ambient Air (°C):** 25

9-3-20 CK

Sample ID:	ALF-GW-PMW10C-20200903	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	9/3/2020	*Field Blank ID:*	NA
Collection Time:	~~0:00~~ 12:23 CS 9/16/20	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	9.0	*Equipment Blank ID:*	NA
Sample Depth (feet):	148.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:30
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	~~151.9~~ 142 MD 9/16/20	**Bottom of Screen (ft. btoc):**	~~161.9~~ 152 MD 9/16/20

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
33.19	20.4	7.09	555	0.42	5.1	-47.5	1.87	**Odor:**	no odor

WL Meter Manufacturer:	HERON	**Model:**	Dipper-t	**Serial No:**	32871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	42958

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	9/3/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	9/3/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	17.05
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	38.0
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	20.95 / 207.08
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	27.0
Well ID:	PMW-11A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/3/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0900	17.08	350	0	21.1	7.21	686	0.62	7.1	-60.3	1.18	clear	no odor
0905	17.08	350	1.8	21.1	7.20	688	0.48	5.2	-76.4	0.80	clear	no odor
0910	17.08	350	3.5	21.1	7.18	680	0.48	5.2	-82.3	0.79	clear	no odor
0915	17.08	350	5.3	21.0	7.17	677	0.44	5.1	-90.1	1.19	clear	no odor
0920	17.08	350	7.0	21.0	7.08	677	0.42	4.4	-72.1	0.97	clear	no odor
												Final Controller Settings
												Setting ID: 98
							CK	9/31 20				**Pressure (PSI):** 24
Final Purge Values:		0920	7.0	21.0	7.08	677	0.42	4.4	-72.1	0.97	clear	**Ambient Air (°C):** 24

Sample ID:	ALF-GW-PMW11A-20200903	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	~~ALF_GW_FB01_09032020~~ ALF-GW-FB01-20200903 CS 9/16/20
Sample Date:	9/3/2020	*Field Duplicate ID:*	NA
Collection Time:	9:23	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	7.0	*Filter Blank ID:*	NA
Sample Depth (feet):	27.0	*Tubing Blank ID:*	NA
		DI water lot #:	Pace Minneapolis CS 9/16/20 5042020
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:30
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	~~22.6~~ 16.6 MD 9/16/20	**Bottom of Screen (ft. btoc):**	~~43.6~~ 37.6 MD 9/16/20

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
17.08	21	7.2	668	0.42	5.1	-55.3	1.84	**Odor:**	no odor

WL Meter Manufacturer:	HERON	**Model:**	Dipper-t	**Serial No:**	32871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	42958

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	~~1~~ 2 CS 9/16/20	~~1~~ 2 CS 9/16/20	~~2~~ 4 CS 9/16/20	~~1~~ 2 CS 9/16/20	~~1~~ 2 CS 9/16/20
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	9/3/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	9/3/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	28.65
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	67.7
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	39.05 / 385.99
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	63.00
Well ID:	PMW-11B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/3/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0750	28.66	400	0	20.5	7.25	567	0.39	4.2	-63.0	4.75	clear	no odor
0755	28.66	400	2.0	20.3	7.23	572	0.36	3.9	-57.8	3.12	clear	no odor
0800	28.66	400	4.0	20.3	7.38	579	0.27	2.9	-89.7	3.41	clear	no odor
0805	28.66	400	6.0	20.2	7.31	587	0.24	2.6	-106.4	3.58	clear	no odor
0810	28.66	400	8.0	20.2	7.22	598	0.28	2.9	-106.2	0.98	clear	no odor
0815	28.66	400	10.0	20.3	7.24	601	0.24	2.6	-107.7	0.48	clear	no odor
												Final Controller Settings
												Setting ID: 103
							CK 9/31/20					**Pressure (PSI):** 40
Final Purge Values:		0815	10.0	20.3	7.24	601	0.24	2.6	-107.7	0.48	clear	**Ambient Air (°C):** 24

Sample ID:	ALF-GW-PMW11B-20200903	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	Yes
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/3/2020	*Field Duplicate ID:*	NA
Collection Time:	8:18	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	10.0	*Filter Blank ID:*	NA
Sample Depth (feet):	63.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	8:25
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	~~62.9~~ 57.3 MD 9/16/20	**Bottom of Screen (ft. btoc):**	~~72.9~~ 67.3 MD 9/16/20

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
28.66	20.4	7.17	612	0.47	0.51	-90.3	2.41	**Odor:**	no odor

WL Meter Manufacturer:	HERON	**Model:**	Dipper-t	**Serial No:**	32871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	42958

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	~~1~~ 3 CS 9/16/20	~~1~~ 3 CS 9/16/20	~~2~~ 6 CS 9/16/20	~~1~~ 3 CS 9/16/20	~~1~~ 3 CS 9/16/20
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	9/3/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	9/3/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	28.74
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	149.4
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	120.66 / 1192.66
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	144.00
Well ID:	PMW-11C	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/3/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1025	28.97	340	0	20.0	7.45	615	0.49	4.6	-89.4	1.62	clear	no odor
1030	28.97	340	1.7	20.5	7.21	611	0.37	4.1	-99.4	1.03	clear	no odor
1035	28.97	340	3.4	20.6	7.34	612	0.30	3.4	-107.7	1.42	clear	no odor
1040	28.97	340	5.1	20.6	7.22	611	0.28	3.2	-101.5	2.53	clear	no odor
1045	28.97	340	6.8	20.6	7.21	610	0.26	3.0	-84.7	2.22	clear	no odor
1050	28.97	340	8.5	20.6	7.32	610	0.42	3.4	-88.2	1.84	clear	no odor
1055	28.97	340	10.2	20.5	7.32	609	0.26	3.3	-120.1	2.05	clear	no odor
1100	28.97	340	11.9	20.5	7.32	601	0.42	4.5	-94.4	1.85	clear	no odor
												Final Controller Settings
								CK 9/3/20				**Setting ID:** 102
												Pressure (PSI): 75
Final Purge Values:		1100	11.9	20.5	7.32	601	0.42	4.5	-94.4	1.85	clear	**Ambient Air (°C):** 24

Sample ID:	ALF-GW-PMW11C-20200903	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/3/2020	*Field Duplicate ID:*	NA
Collection Time:	11:03	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	11.9	*Filter Blank ID:*	NA
Sample Depth (feet):	144.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:10
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	~~142~~ 139 MD 9/16/20	**Bottom of Screen (ft. btoc):**	~~152~~ 149 MD 9/16/2020

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
28.97	20.8	7.11	600	0.35	3.6	-44.3	1.48	**Odor:**	no odor

WL Meter Manufacturer:	HERON	**Model:**	Dipper-t	**Serial No:**	32871
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	42958

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	080320-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	9/3/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	9/3/2020	**Signature:**	
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	37.52
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	59.9
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	22.38 / 221.21
Project Number:	175578046		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	49.0
Well ID:	PMW-14A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/3/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0943	37.89	480	0	19.4	7.10	726	1.22	13.1	-64.0	3.00	clear	no odor
0946	37.89	480	1.4	19.3	7.02	722	0.24	3.6	-115.1	1.43	clear	no odor
0949	37.89	480	2.9	19.6	7.01	721	0.32	3.5	-122.2	0.98	clear	no odor
0952	37.89	480	4.3	20.1	7.00	715	0.48	5.8	-127.1	1.18	clear	no odor
0955	37.89	480	5.8	19.9	7.01	725	0.39	4.1	-127.8	1.53	clear	no odor
CM 09/03/2020												**Final Controller Settings**
												Setting ID: 100
												Pressure (PSI): 35
Final Purge Values:		0955	5.8	19.9	7.01	725	0.39	4.1	-127.8	1.53	clear	**Ambient Air (°C):** 25

Sample ID:	ALF-GW-PMW14A-20200903	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/3/2020	*Field Duplicate ID:*	NA
Collection Time:	10:00	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	5.8	*Filter Blank ID:*	NA
Sample Depth (feet):	49.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:08
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	38.5	**Bottom of Screen (ft. btoc):**	59.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	**Color:**	clear
37.89	19.4	7.04	722	0.32	3.3	-81.4	0.97	**Odor:**	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/3/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/3/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/10/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	51.42
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	89.9
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	38.48 / 380.35
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	85.0
Well ID:	PMW-14B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	9/3/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1023	42.47	450	0	18.9	6.96	739	0.53	5.6	-94.2	6.99	clear	no odor
1026	42.47	450	1.4	18.7	6.92	745	0.15	1.5	131.9	4.13	clear	no odor
1029	42.47	450	2.7	18.7	6.94	746	0.09	1.1	142.9	2.78	clear	no odor
1032	42.47	450	4.1	18.7	6.95	747	0.12	1.2	-147.5	2.64	clear	no odor
CM 09/03/2020												**Final Controller Settings**
												Setting ID: 99
												Pressure (PSI): 70
Final Purge Values:		1032	4.1	18.7	6.95	747	0.12	1.2	-147.5	2.64	clear	**Ambient Air (°C):** 25

Sample ID:	ALF-GW-PMW14B-20200903	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	9/3/2020	*Field Duplicate ID:*	NA
Collection Time:	10:35	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	4.1	*Filter Blank ID:*	NA
Sample Depth (feet):	85.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:42
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	79.5	**Bottom of Screen (ft. btoc):**	89.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
42.47	18.7	6.95	745	0.48	5.1	-127.9	2.41	Odor:	no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/3/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/3/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/10/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	51.39
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	162.3
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	110.91 / 274.07
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578046		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	156.0
Well ID:	PMW-14C	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	2.0	**Date:**	9/3/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1155	51.43	400	0	19.2	7.13	433.3	0.77	8.2	19.8	7.32	clear	no odor
1158	51.43	400	1.2	18.9	6.93	417.9	0.22	2.3	-86.8	4.16	clear	no odor
1201	51.43	400	2.4	18.9	6.95	418.5	0.18	1.9	-99.2	1.33	clear	no odor
1204	51.43	400	3.6	19.2	6.96	418.7	0.16	1.6	-110.1	1.96	clear	no odor
CM 09/03/2020												**Final Controller Settings**
												Setting ID: 107
												Pressure (PSI): 90
Final Purge Values:		1204	3.6	19.2	6.96	418.7	0.16	1.6	-110.1	1.96	clear	**Ambient Air (°C):** 26.7

Sample ID:	~~ALF-GW-PWM14C-20200903~~ ALF-GW-PMW14C-20200903 CS 10/23/20	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB02-20200903
Sample Date:	9/3/2020	*Field Duplicate ID:*	NA
Collection Time:	12:10	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	3.6	*Filter Blank ID:*	NA
Sample Depth (feet):	156.0	*Tubing Blank ID:*	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace Analytical Minneapolis filld dat 08/20/20 and GEL Labs Charleston fill date 08/21/2020
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:17
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	151.9	**Bottom of Screen (ft. btoc):**	161.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
51.43	19.2	6.94	419.6	0.17	1.8	-82	0.92		no odor

WL Meter Manufacturer:	Solinst	**Model:**	Model-101	**Serial No:**	280883
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	MP50-2084

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/3/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/3/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/14/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	unknown
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	unknown
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	unknown / unknown
Project Number:	175578046		*if water column is < 4.5 L contact Field Coordinator
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	unknown
Well ID:	PROD-1	**Method of Purging:**	installed pump run by ACC plant
Well Type:	Production Well	**Measuring Point (toc, tor, etc.):**	NA
Well Diameter (inches):	unknown	**Date:**	9/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0804	NA	>1000	unknown	19.5	6.33	198.7	2.50	23.9	231.7	16.2	clear	TVA pump, sampling from spigot, do not control flow, no odor
0807	NA	>1000	unknown	19.5	6.50	187.2	0.72	7.8	84.1	8.02	clear	TVA pump, sampling from spigot, do not control flow, no odor
0810	NA	>1000	unknown	19.6	6.52	182.9	1.18	12.9	47.9	7.62	clear	TVA pump, sampling from spigot, do not control flow, no odor
0813	NA	>1000	unknown	19.5	6.52	181.4	0.82	8.9	29.9	3.79	clear	TVA pump, sampling from spigot, do not control flow, no odor
0816	NA	>1000	unknown	20.2	6.51	180.0	0.54	5.9	20.5	4.06	clear	TVA pump, sampling from spigot, do not control flow, no odor
0819	NA	>1000	unknown	19.5	6.54	179.7	1.61	17.5	17.8	3.47	clear	TVA pump, sampling from spigot, do not control flow, no odor
CM 09/10/2020												**Final Controller Settings**
												Setting ID: NA
												Pressure (PSI): NA
Final Purge Values:		0819	unknown	19.5	6.54	179.7	1.61	17.5	17.8	3.47	clear	**Ambient Air (°C):** 23.3

Sample ID:	ALF-GW-PROD1-20200910	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	spigot sampling	*Field Blank ID:*	NA
Sample Date:	9/10/2020	*Field Duplicate ID:*	NA
Collection Time:	8:20	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	unknown	*Filter Blank ID:*	NA
Sample Depth (feet):	unknown	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	No	*Sample on-Ice: Time:*	8:25
If No, Provide Explanation	30 minute time-restraint	*Drawdown Stabilized < 0.3 ft:*	NA
Top of Screen (ft. btoc):	120.4	**Bottom of Screen (ft. btoc):**	130.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	NA
NA	NA	NA	NA	NA	NA	NA	NA	**Odor:**	NA

WL Meter Manufacturer:	NA	**Model:**	NA	**Serial No:**	NA
Controller Unit Manufacturer:	NA	**Model:**	NA	**Serial No:**	NA

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	072720-2EIZ	052020-2EIX	072020-2EEY	072720-2ADT	052020-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Kevin Nguyen	**Date:**	9/10/2020	**Signature:**	
Sampler Name:	Casey Mullett	**Date:**	9/10/2020	**Signature:**	Casey Mullett
FTL/Designee Review by:	Cassidy Sutherland	**Date:**	9/16/2020	**Signature:**	Cassidy Sutherland
DL/SME Review by:	Matthew Dower	**Date:**	9/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	25.90
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	170.50
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	144.60 / 357.32
Project Number:	175578049		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	165.5
Well ID:	ACC-1A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/8/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1045	25.90	300	0	18.0	6.42	602	0.58	6.1	-73.5	3.27	clear	pump started
1050	25.90	300	1.5	18.2	6.68	604	0.54	5.4	-75.1	2.62	clear	no odor
1055	25.90	300	3.0	18.1	6.66	604	0.48	4.9	-76.3	2.72	clear	no odor
1100	25.90	300	4.5	18.1	6.75	614	0.45	4.8	-82.7	2.32	clear	no odor
1105	25.90	300	6.0	18.1	6.74	614	0.42	0.4	-82.8	2.46	clear	no odor
												Final Controller Settings
							CK	12/8/20				**Setting ID:** 103
												Pressure (PSI): 80
Final Purge Values:		1105	6.0	18.1	6.74	614	0.42	0.43	-82.8	2.46	clear	**Ambient Air (°C):** 8

Sample ID:	ALF-GW-ACC1A-20201208	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB02-20201208
Sample Date:	12/8/2020	*Field Duplicate ID:*	NA
Collection Time:	11:08	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	6.0	*Filter Blank ID:*	NA
Sample Depth (feet):	165.5	*Tubing Blank ID:*	NA
		DI water lot #:	Pace fill date: 12/2/2020
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:15
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	160.1	**Bottom of Screen (ft. btoc):**	170.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	**Color:**	clear
25.90	18.2	6.73	615	0.62	6.5	-85.9	1.19	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/8/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/8/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	29.74
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	130.80
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	101.06 / 249.73
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	126.0
Well ID:	ACC-3A	**Method of Purging:**	Dedicated bladder pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/8/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1145	29.74	400	0	18.1	7.12	886	0.73	7.5	-121.3	1.20	clear	no odor
1150	29.74	400	2.0	17.9	6.63	863	0.53	5.6	-62.9	0.96	clear	no odor
1155	29.74	400	4.0	17.9	6.72	878	0.56	7.2	-68.2	1.02	clear	no odor
1200	29.74	400	6.0	17.9	6.70	877	0.58	6.1	-73.9	0.89	clear	no odor
												Final Controller Settings
							CK	12/8/20				**Setting ID:** 103
												Pressure (PSI): 75
Final Purge Values:		1200	6.0	17.9	6.70	877	0.58	6.1	-73.9	0.89	clear	**Ambient Air (°C):** 10

Sample ID:	ALF-GW-ACC3A-20201208	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	12/8/2020	*Field Duplicate ID:*	ALF-GW-~~DUP02-20201208~~ -DUP01-20201208 (CR 12/11/2020)
Collection Time:	12:03	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	6.0	*Filter Blank ID:*	NA
Sample Depth (feet):	126.0	*Tubing Blank ID:*	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:12
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	120.4	**Bottom of Screen (ft. btoc):**	130.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	**Color:**	clear
29.74	17.9	7.78	876	0.46	4.7	-74.9	1.21	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/8/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/8/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.09
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	60.60
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	29.51 / 72.92
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	55.5
Well ID:	ACC-5B	**Method of Purging:**	Dedicated Sampling Well
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/8/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1255	31.09	400	0	19.2	6.86	926	0.93	10.1	-61.1	4.95	clear	no odor
1300	31.04	400	2.0	19.2	6.86	925	0.84	9.0	-62.7	4.75	clear	no odor
1305	31.04	400	4.0	19.1	6.88	923	0.52	5.4	-66.1	4.45	clear	no odor
1310	31.04	400	6.0	19.1	6.83	920	0.50	5.1	-66.0	4.27	clear	no odor
1315	31.04	400	8.0	19.2	6.84	921	0.46	5.0	-63.2	4.54	clear	no odor
												Final Controller Settings
							CK	12/8/20				**Setting ID:** 105
												Pressure (PSI): 32
Final Purge Values:		1315	8.0	19.2	6.84	921	0.46	5.0	-63.2	4.54	clear	**Ambient Air (°C):** 10

Sample ID:	ALF-GW-ACC5B-20201208	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	Yes
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	12/8/2020	*Field Duplicate ID:*	NA
Collection Time:	13:18	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	8.0	*Filter Blank ID:*	NA
Sample Depth (feet):	55.5	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:25
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	50.2	**Bottom of Screen (ft. btoc):**	60.2

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
31.06	19.0	6.79	911	0.28	3.0	-48.1	2.62	Odor:	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	3	3	6	3	3
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/8/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/8/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	29.99
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	143.90
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	113.91 / 281.48
Project Number:	175578049		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	139.0
Well ID:	ACC-5A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/8/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1350	29.99	400	0	19.4	7.42	641	0.82	9.0	-27.3	1.29	clear	no odor
1355	31.03	400	2.0	19.1	6.52	628	0.44	4.7	-25.6	1.21	clear	no odor
1400	31.02	400	4.0	19.0	6.63	625	0.38	4.2	-45.3	1.19	clear	no odor
1405	31.02	400	6.0	19.0	6.64	624	0.35	3.8	-49.9	1.34	clear	no odor
1410	31.02	400	8.0	19.1	6.65	624	0.32	3.5	-50.3	0.96	clear	no odor
												Final Controller Settings
												Setting ID: 105
							CK 12/8/20					**Pressure (PSI):** 79
Final Purge Values:		1410	8.0	19.1	6.65	624	0.32	3.5	-50.3	0.96	clear	**Ambient Air (°C):** 11

Sample ID:	ALF-GW-ACC5A-20201208	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	12/8/2020	*Field Duplicate ID:*	NA
Collection Time:	14:13	*Equipment Blank ID:*	ALF-GW-EB01-20201208
Total Volume Purged (L):*	8.0	*Filter Blank ID:*	NA
Sample Depth (feet):	139.0	*Tubing Blank ID:*	NA
		DI water lot #:	Pace fill date: 12/2/2020
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	14:20
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	133.5	**Bottom of Screen (ft. btoc):**	143.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	**Color:**	clear
31.02	19.1	6.69	624	0.35	3.80	-43.7	1.02	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/8/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/8/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	32.75
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	50.70
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	17.95 / 44.36
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	49.0
Well ID:	ALF-201	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1005	32.91	140	0	19.8	6.96	795	1.19	13.1	-14.4	1.56	clear	no odor
1008	32.94	140	0.4	19.8	6.98	788	0.76	8.2	-9.0	1.44	clear	no odor
1011	32.97	140	0.8	19.8	6.92	787	0.77	8.4	-8.3	1.88	clear	no odor
1014	33.02	140	1.3	19.8	6.93	786	0.62	6.9	-6.9	1.12	clear	no odor
1017	33.05	140	1.7	19.9	6.93	784	0.49	5.2	-3.2	1.51	clear	no odor
1020	33.07	140	2.1	19.9	6.91	783	0.43	4.7	-2.1	1.05	clear	no odor
1023	33.10	140	2.5	19.9	6.92	781	0.37	4.0	4.5	1.02	clear	no odor
							TV 12/9/20					
Final Purge Values:			1023	2.5	19.9	6.92	781	0.37	4.0	4.5	1.02	clear

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	23
Ambient Air (°C):	12

Sample ID:	ALF-GW-ALF201-20201209	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB01-20201209
Sample Date:	12/9/2020	*Field Duplicate ID:*	NA
Collection Time:	10:30	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	2.5	*Filter Blank ID:*	NA
Sample Depth (feet):	49.0	*Tubing Blank ID:*	NA
		DI water lot #:	Pace MN: Fill date 12-01-20
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	N/A
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:40
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	23.3	**Bottom of Screen (ft. btoc):**	49.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
33.19	20.0	6.94	780	0.51	5.6	19.7	0.88	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	~~27612~~ 30926 (CR 12/15/2020)
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/9/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/9/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.68
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	94.30
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	60.62 / 149.8
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.0
Well ID:	ALF-201B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1228	33.69	425	0	20.2	6.88	707	0.36	3.8	-71.1	3.22	clear	no odor
1231	33.69	425	1.3	20.2	6.92	706	0.29	3.2	-83.2	3.43	clear	no odor
1234	33.69	425	2.6	20.2	6.94	704	0.19	2.0	-90.8	2.52	clear	no odor
1237	33.69	425	3.8	20.2	6.99	704	0.15	1.7	-95.4	2.49	clear	no odor
							TV 12/9/20					
Final Purge Values:		1237	3.8	20.2	6.99	704	0.15	1.7	-95.4	2.49	clear	

Final Controller Settings	
Setting ID:	101
Pressure (PSI):	60
Ambient Air (°C):	15

Sample ID:	ALF-GW-ALF201B-2020~~0509~~1209 (CR 12/11/2020)	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/9/2020	*Field Blank ID:*	NA
Collection Time:	12:45	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.825	*Equipment Blank ID:*	NA
Sample Depth (feet):	89.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	12:55
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	83.9	**Bottom of Screen (ft. btoc):**	93.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
33.69	20.2	6.97	704	0.49	5.2	-89.8	3.01	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	~~27612~~30926 (CR 12/15/2020)
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/9/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/9/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.37
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	130.70
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	97.33 / 240.51
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	126.0
Well ID:	ALF-201A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1121	33.39	400	0	20.1	6.68	777	0.46	4.9	-52.3	4.50	clear	no odor
1124	33.39	400	1.2	20.1	6.89	776	0.44	4.6	-71.0	4.39	clear	no odor
1127	33.40	400	2.4	20.1	7.03	773	0.30	3.0	-88.4	4.86	clear	no odor
1130	33.40	400	3.6	20.1	7.02	771	0.24	2.5	-91.7	4.87	clear	no odor
1133	33.40	400	4.8	20.1	7.05	768	0.19	2.1	-94.4	4.80	clear	no odor
							TV 12/9/20					
Final Purge Values:		1133	4.8	20.1	7.05	768	0.19	2.1	-94.4	4.80	clear	

Final Controller Settings	
Setting ID:	104
Pressure (PSI):	80
Ambient Air (°C):	13

Sample ID:	ALF-GW-ALF201A-20201209	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/9/2020	*Field Blank ID:*	NA
Collection Time:	11:40	*Field Duplicate ID:*	ALF-GW-DUP01-20201209
Total Volume Purged (L):*	4.8	*Equipment Blank ID:*	NA
Sample Depth (feet):	126.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	11:50
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	120.3	**Bottom of Screen (ft. btoc):**	130.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
33.41	20.2	7.05	733	0.38	3.9	-92.9	1.84	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	~~27612~~ 30926 (CR 12/15/2020)
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/9/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/9/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	19.70
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	44.80
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	25.10 / 62.02
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	43.0
Well ID:	ALF-202	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/16/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1144	19.72	500	0	17.5	7.81	563.9	0.23	2.3	-138.7	0.90	clear	No odor, drilling nearby
1147	19.72	500	1.5	17.6	7.83	554.5	0.15	1.5	-151.4	0.86	clear	No odor, drilling nearby
1150	19.72	500	3.0	17.6	7.77	556.9	0.09	0.9	-160.1	0.77	clear	No odor, drilling nearby
1153	19.72	500	4.5	17.8	7.82	566.8	0.08	0.8	-162.1	0.65	clear	No odor, drilling nearby
							TV 12/16/20					
Final Purge Values:		1153	4.5	17.8	7.82	566.8	0.08	0.8	-162.1	0.65	clear	

Final Controller Settings	
Setting ID:	102
Pressure (PSI):	28
Ambient Air (°C):	4

Sample ID:	ALF-GW-ALF202-20201216	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/16/2020	*Field Blank ID:*	NA
Collection Time:	11:55	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	43.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	Yes	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
		Filter Lot #:	NA
Tubing Lot #:	N/A	*Filter Sample Metals:*	No
Stability Reached (Y/N):	Yes	*Other Filtered Samples Collected:*	NA
If No, Provide Explanation	NA	*Sample on-Ice: Time:*	12:05
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	23.4	**Bottom of Screen (ft. btoc):**	44.6

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
19.72	17.5	7.83	560.2	0.13	1.4	-127.9	0.97	Odor:	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	30926
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	092820-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/16/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/16/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/18/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	32.63
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	94.50
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	61.87 / 152.89
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.5
Well ID:	ALF-202B	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/16/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1400	32.63	500	0	17.3	6.99	628	0.13	1.4	-86.4	1.79	clear	no odor
1403	32.63	500	1.5	17.4	7.06	625	0.12	1.1	-112.9	1.51	clear	no odor
1406	32.63	500	3.0	17.5	7.06	623	0.06	0.6	-123.2	1.11	clear	no odor
1409	32.63	500	4.5	17.5	7.07	622	0.04	0.4	-126.8	0.87	clear	no odor
							TV 12/17/20					
Final Purge Values:		1409	4.5	17.5	7.07	622	0.04	0.4	-126.8	0.87	clear	

Final Controller Settings	
Setting ID:	100
Pressure (PSI):	80
Ambient Air (°C):	3

Sample ID:	ALF-GW-ALF202B-20201216	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/16/2020	*Field Blank ID:*	NA
Collection Time:	14:12	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	ALF-GW-EB01-20201216
Sample Depth (feet):	89.5	*Filter Blank ID:*	NA
Heavy Equipment in Area:	Yes	*Tubing Blank ID:*	NA
		DI water lot #:	Pace MN: Fill date 12-01-20
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	14:22
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	84.1	**Bottom of Screen (ft. btoc):**	94.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
32.63	17.5	7.11	623	0.14	1.3	-128.7	1.02	Odor:	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	30926
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	092820-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/16/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/16/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/18/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	32.04
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	150.50
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	118.46 / 292.73
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	145.5
Well ID:	ALF-202A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/16/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1237	32.04	200	0	13.6	7.36	545.0	0.69	6.4	-105.6	0.83	clear	no odor
1240	32.04	200	0.6	13.5	7.33	532.7	0.50	4.8	-108.1	0.80	clear	no odor
1243	32.04	200	1.2	13.8	7.04	524.5	0.42	4.0	-103.1	0.66	clear	no odor
1246	32.04	200	1.8	14.1	6.69	528.7	0.38	3.8	-71.2	0.61	clear	no odor
1249	32.04	200	2.4	14.5	6.53	542.4	0.39	4.0	-42.1	0.54	clear	no odor
1252	32.04	200	3.0	14.9	6.60	542.8	0.25	2.3	-49.1	0.59	clear	no odor
1255	32.04	200	3.6	15.2	6.68	541.8	0.23	2.2	-55.9	0.69	clear	no odor
							TV 12/16/20					
Final Purge Values:		1255	3.6	15.2	6.68	541.8	0.23	2.2	-55.9	0.69	clear	

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	80
Ambient Air (°C):	4

Sample ID:	ALF-GW-ALF202A-20201216	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/16/2020	*Field Blank ID:*	NA
Collection Time:	13:00	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.6	*Equipment Blank ID:*	NA
Sample Depth (feet):	145.5	*Filter Blank ID:*	NA
Heavy Equipment in Area:	Yes	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	13:10
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	140.1	**Bottom of Screen (ft. btoc):**	150.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
32.04	14.9	6.65	545.3	0.22	2.1	-51.1	0.98	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	30926
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	092820-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/16/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/16/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/18/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	30.98
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	54.10
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	23.12 / 57.13
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	52.0
Well ID:	ALF-203	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1030	31.04	100	0	18.3	10.49	1015	0.92	9.7	-101.5	1.50	clear	no odor
1033	31.06	100	0.3	18.4	10.55	1028	0.57	0.6	-121.4	1.08	clear	no odor
1036	31.08	100	0.6	18.4	10.50	1029	0.50	5.1	-131.5	0.95	clear	no odor
1039	31.10	100	0.9	18.4	10.50	1033	0.38	3.8	-141.9	0.93	clear	no odor
1042	31.12	100	1.2	18.4	10.53	1034	0.32	3.4	-146.7	0.90	clear	no odor
							TV 12/10/20					
Final Purge Values:		1042	1.2	18.4	10.53	1034	0.32	3.4	-146.7	0.90	clear	

Final Controller Settings	
Setting ID:	104
Pressure (PSI):	26
Ambient Air (°C):	9

Sample ID:	ALF-GW-ALF203-20201210	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/10/2020	*Field Blank ID:*	NA
Collection Time:	10:45	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	1.2	*Equipment Blank ID:*	NA
Sample Depth (feet):	52.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	~~Yes~~ No (CR 1/26/21)	*Filter Sample Metals:*	No
If No, Provide Explanation	~~NA~~ Last 3 consecutive DO values were not below 0.5 mg/L. (CR 1/26/21)	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	10:55
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	33.1	**Bottom of Screen (ft. btoc):**	54.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
31.21	18.7	10.51	1039	0.44	4.6	-100.1	0.90	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	~~27612~~ 30926 (CR 12/15/2020)
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/10/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/10/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/14/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.31
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	~~94.10~~ 94.3 (CR 1/26/21)
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	60.99 / 150.71
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.0
Well ID:	ALF-203B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1222	33.33	500	0	17.2	7.18	465.2	0.27	2.7	-33.5	1.41	clear	no odor
1225	33.33	500	1.5	17.1	7.23	469.0	0.12	1.2	-101.7	1.60	clear	no odor
1228	33.33	500	3.0	17.1	7.21	468.3	0.10	1.1	-126.5	2.23	clear	no odor
1231	33.33	500	4.5	17.4	7.26	467.2	0.07	0.8	-130.8	1.95	clear	no odor
							TV 12/10/20					
Final Purge Values:		1231	4.5	17.4	7.26	467.2	0.07	0.8	-130.8	1.95	clear	

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	40
Ambient Air (°C):	19

Sample ID:	ALF-GW-ALF203B-20201210	**QA/QC Sample Collected:**	~~No~~ Yes (CR 1/26/21)
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/10/2020	*Field Blank ID:*	NA
Collection Time:	12:40	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	ALF-GW-EB01-20201210
Sample Depth (feet):	89.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace MN: Fill date 12-01-20
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	12:50
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	83.9	**Bottom of Screen (ft. btoc):**	93.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
33.33	17.3	7.21	470.1	0.13	1.2	-107.3	2.21	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	~~27612~~ 30926 (CR 12/15/2020)
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/10/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/10/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/14/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.30
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	~~120.70~~ 122.7 (CR 1/26/21)
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	89.40 / 220.92
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	~~116~~ 118 MD 12/16/2020
Well ID:	ALF-203A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1134	33.30	200	0	18.2	6.44	355.6	0.50	5.2	-3.6	2.68	clear	no odor
1137	33.30	200	0.6	18.1	6.48	385.1	0.47	4.9	-28.9	2.07	clear	no odor
1140	33.30	200	1.2	18.1	6.51	390.1	0.38	3.9	-39.1	2.79	clear	no odor
1143	33.30	200	1.8	18.1	6.56	393.1	0.31	3.2	-52.1	2.44	clear	no odor
							TV 12/10/20					
Final Purge Values:		1143	1.8	18.1	6.56	393.1	0.31	3.2	-52.1	2.44	clear	

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	63
Ambient Air (°C):	17

Sample ID:	ALF-GW-ALF203A-20201210	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB01-20201210
Sample Date:	12/10/2020	*Field Duplicate ID:*	NA
Collection Time:	11:46	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	1.8	*Filter Blank ID:*	NA
Sample Depth (feet):	118 MD 12/16/2020	*Tubing Blank ID:*	NA
		DI water lot #:	Pace MN: Fill date 12-01-20
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:56
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	112.3	**Bottom of Screen (ft. btoc):**	122.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
33.3	18.5	6.60	398.2	0.52	5.4	-79.2	2.43	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	~~27612~~ 30926 (CR 12/15/2020)
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/10/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/10/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/14/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.45
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	59.20
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	27.75 / 68.57
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	49.0
Well ID:	ALF-204	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/16/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0915	31.64	100	0	13.9	7.19	462.5	1.70	17.2	-60.3	7.88	clear	no odor
0920	31.72	100	0.5	13.9	7.20	463.7	1.30	13.0	-69.3	6.18	clear	no odor
0925	31.83	100	1.0	13.9	7.29	463.5	0.96	10.2	-83.7	2.89	clear	no odor
0930	31.86	100	1.5	13.9	7.31	461.3	0.67	9.8	-93.4	3.23	clear	no odor
0935	31.88	100	2.0	14.0	7.30	464.8	0.54	6.9	-103.4	3.02	clear	no odor
0940	31.88	100	2.5	13.9	7.28	464.7	0.48	4.9	-106.3	2.86	clear	no odor
0945	31.88	100	3.0	13.9	7.28	463.2	0.48	4.8	-106.6	2.67	clear	no odor
0950	31.88	100	3.5	13.9	7.26	463.8	0.44	4.5	-105.3	2.69	clear	no odor
												Final Controller Settings
												Setting ID: 100
												Pressure (PSI): 25
Final Purge Values:		0950	3.5	13.9	7.26	463.8	0.44	4.5	-105.3	2.69	clear	**Ambient Air (°C):** 1

CK 12/16/20

Sample ID:	ALF-GW-ALF204-20201216	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB02-20201216
Sample Date:	12/16/2020	*Field Duplicate ID:*	NA
Collection Time:	9:53	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	3.5	*Filter Blank ID:*	NA
Sample Depth (feet):	49.0	*Tubing Blank ID:*	NA
		DI water lot #:	Pace fill date: 12/1/2020
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:03
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	49.0	**Bottom of Screen (ft. btoc):**	59.2

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
31.88	14.0	7.28	464.1	0.45	5.6	-68.3	1.79	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/16/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/16/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/18/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/21/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.27
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	94.10
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	62.83 / 155.26
Project Number:	175578049		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	89.0
Well ID:	ALF-204B	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/16/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0755	31.36	480	0	14.6	6.60	304.4	2.23	19.5	70.7	3.26	clear	no odor
0800	31.51	480	2.4	14.5	6.90	304.0	0.21	5.2	34.1	3.15	clear	no odor
0805	31.51	480	4.8	14.5	7.14	302.4	0.43	4.3	-7.1	2.56	clear	no odor
0810	31.51	480	7.2	14.5	7.16	301.3	0.39	3.7	-30.4	2.63	clear	no odor
0815	31.51	480	9.6	14.5	7.20	300.2	0.29	2.9	-39.6	2.38	clear	no odor
												Final Controller Settings
								CK 12/16/20				**Setting ID:** 101
												Pressure (PSI): 60
Final Purge Values:		0815	9.6	14.5	7.20 (CR 1/26/21)	300.2	0.29	2.9	-39.6	2.38	clear	**Ambient Air (°C):** 1

Sample ID:	ALF-GW-ALF204B-20201216	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/16/2020	*Field Blank ID:*	NA
Collection Time:	8:18	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	9.6	*Equipment Blank ID:*	NA
Sample Depth (feet):	89.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	8:25
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	83.7	**Bottom of Screen (ft. btoc):**	93.7

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
31.51	15.4	7.17	297.8	0.42	4.3	-47.5	2.52	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/16/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/16/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/18/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	12/21/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.42
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	120.70
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	89.28 / 220.62
Project Number:	175578049		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	116.0
Well ID:	ALF-204A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/16/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0830	31.46	400	0	14.5	7.21	416.6	0.67	6.7	-48.4	2.58	clear	no odor
0835	31.46	400	2.0	14.3	6.93	424.9	0.44	4.3	-37.9	4.87	clear	no odor
0840	31.46	400	4.0	14.3	7.09	428.3	0.30	3.2	-54.7	4.92	clear	no odor
0845	31.46	400	6.0	14.3	7.12	428.3	0.38	3.8	-61.0	4.53	clear	no odor
0850	31.46	400	8.0	14.3	7.16	428.3	0.26	2.6	-69.5	4.23	clear	no odor
												Final Controller Settings
												Setting ID: 108
												Pressure (PSI): 60
Final Purge Values:		0850	8.0	14.3	7.16	428.3	0.26	2.6	-69.5	4.23	clear	**Ambient Air (°C):** 1

CK 12/16/20

Sample ID:	ALF-GW-ALF204A-20201216	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/16/2020	*Field Blank ID:*	NA
Collection Time:	8:53	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	8.0	*Equipment Blank ID:*	NA
Sample Depth (feet):	116.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:05
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	110.3	**Bottom of Screen (ft. btoc):**	120.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	**Color:**	clear
31.46	14.23	7.20	414.7	0.27	2.7	-67.0	3.75	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/16/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/16/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/18/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	12/21/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	34.56
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	55.60
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	21.04 / 51.99
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	54.0
Well ID:	ALF-205	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1225	35.38	100	0	15.5	7.17	773	0.93	9.3	-53.2	38.6	clear	no odor
1230	35.38	100	0.5	15.1	7.19	770	0.81	8.2	-50.1	22.9	clear	no odor
1235	35.41	100	1.0	14.8	7.21	768	0.63	6.3	-48.3	10.4	clear	no odor
1240	35.53	100	1.5	14.8	7.17	773	0.50	4.9	-45.5	9.59	clear	no odor
1245	35.63	100	2.0	14.7	7.15	772	0.46	4.6	-42.9	7.07	clear	no odor
1250	35.68	100	2.5	14.7	7.17	773	0.45	4.5	-40.9	6.01	clear	no odor
1255	35.74	100	3.0	15.0	7.17	774	0.40	4.0	-38.3	5.31	clear	no odor
1300	35.84	100	3.5	15.0	7.18	774	0.38	3.8	-36.6	4.97	clear	no odor
1305	35.88	100	4.0	15.0	7.17	775	0.36	3.6	-34.0	4.61	clear	no odor
1310	35.95	100	4.5	15.0	7.16	776	0.37	3.7	-33.5	4.33	clear	no odor
												Final Controller Settings
									CK 12/15/20			**Setting ID:** 103
												Pressure (PSI): 25
Final Purge Values:		1310	4.5	15.0	7.16	776	0.37	3.7	-33.5	4.33	clear	**Ambient Air (°C):** 2

Sample ID:	ALF-GW-ALF205-20201215	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/15/2020	*Field Blank ID:*	NA
Collection Time:	13:13	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	54.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	~~NS~~ NA (CR 12/17/2020)
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:25
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	~~Yes~~ No (CR 12/16/2020)
Top of Screen (ft. btoc):	34.5	**Bottom of Screen (ft. btoc):**	55.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
35.70	15.0	7.15	774	0.48	4.9	-35.2	4.38	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/15/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/15/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/17/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	12/21/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.68
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	86.50
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	52.82 / 130.52
Project Number:	175578049		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	81.5
Well ID:	ALF-205B	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1120	33.74	500	0	15.5	6.93	295.6	0.91	9.1	1.5	10.2	clear	no odor
1125	33.74	500	2.5	15.5	7.08	293.1	0.46	4.6	-17.8	3.81	clear	no odor
1130	33.74	500	5.0	15.4	7.28	292.7	0.28	2.8	-51.8	3.67	clear	no odor
1135	33.74	500	7.5	15.4	7.34	292.4	0.25	2.6	-67.8	3.64	clear	no odor
1140	33.74	500	10.0	15.4	7.32	292.5	0.22	2.2	-82.7	3.34	clear	no odor
												Final Controller Settings
									CK 12/15/20			**Setting ID:** 100
												Pressure (PSI): 65
Final Purge Values:		1140	10.0	15.4	7.32	292.5	0.22	2.2	-82.7	3.34	clear	**Ambient Air (°C):** 2

Sample ID:	ALF-GW-ALF205B-20201215	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	12/15/2020	*Field Duplicate ID:*	ALF-GW-DUP01-20201215
Collection Time:	11:43	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	10.0	*Filter Blank ID:*	NA
Sample Depth (feet):	81.5	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:55
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	76.1	**Bottom of Screen (ft. btoc):**	86.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	**Color:**	clear
33.74	15.5	7.33	292.1	0.14	1.4	-117.3	3.02	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/15/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/15/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/17/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/21/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.37
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	112.40
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	79.03 / 195.29
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	107.0
Well ID:	ALF-205A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1350	33.40	400	0	15.4	6.99	333.3	0.78	7.8	-16.2	3.56	clear	no odor
1353	33.40	400	1.2	15.2	6.84	328.1	0.59	6.5	-11.9	3.11	clear	no odor
1356	33.40	400	2.4	15.2	6.88	327.6	0.55	5.4	-14.2	2.68	clear	no odor
1359	33.40	400	3.6	15.2	6.94	326.9	0.50	5.0	18.3	2.12	clear	no odor
												Final Controller Settings
												Setting ID: 103
												Pressure (PSI): 75
Final Purge Values:		1359	3.6	15.2	6.94	326.9	0.50 (CR 1/26/21)	5.0 (CR 1/26/21)	18.3	2.12	clear	**Ambient Air (°C):** 2

CK 12/15/20

Sample ID:	ALF-GW-ALF205A-20201215	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	12/15/2020	*Field Duplicate ID:*	NA
Collection Time:	14:02	*Equipment Blank ID:*	ALF-GW-EB01-20201215
Total Volume Purged (L):*	3.6	*Filter Blank ID:*	NA
Sample Depth (feet):	107.0	*Tubing Blank ID:*	NA
		DI water lot #:	Pace fill date: 12/01/2020
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	14:15
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	102.0	**Bottom of Screen (ft. btoc):**	112.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
33.40	15.2	7.14	326.3	0.23	2.3	-88.1	1.90	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/15/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/15/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/17/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	12/21/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	37.01
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	64.40
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	27.39 / 67.68
Project Number:	175578049		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	54.0
Well ID:	ALF-206	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1115	37.00	400	0	17.2	7.21	308.2	5.96	60.2	2.8	2.91	clear	no odor
1120	36.98	400	2.0	16.2	7.37	325.3	2.40	25.0	-80.6	3.24	clear	no odor
1125	36.98	400	4.0	16.1	7.39	325.2	0.45	4.5	-96.1	1.65	clear	no odor
1130	36.98	400	6.0	16.2	7.39	325.9	0.42	4.3	-101.9	1.05	clear	no odor
1135	36.98	400	8.0	16.3	7.40	325.4	0.37	3.8	-112.6	1.12	clear	no odor
												Final Controller Settings
												Setting ID: 103
							CK 12/10/20					**Pressure (PSI):** 30
Final Purge Values:		1135	8.0	16.3	7.40	325.4	0.37	3.8	-112.6	1.12	clear	**Ambient Air (°C):** 14

Sample ID:	ALF-GW-ALF206-20201210	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	12/10/2020	*Field Duplicate ID:*	NA
Collection Time:	11:38	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	8.0	*Filter Blank ID:*	NA
Sample Depth (feet):	54.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:49
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	54.0	**Bottom of Screen (ft. btoc):**	64.2

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)		
36.98	16.1	7.38	325.9	0.46	4.8	-112.4	0.95	**Color:**	clear
								Odor:	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/10/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/10/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/15/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	12/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	30.55
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	48.80
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	18.25 / 45.1
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	47.0
Well ID:	ALF-210	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/8/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1018	30.81	100	0	17.3	6.82	720	5.12	53.1	3.1	109	cloudy	no odor
1021	30.78	100	0.3	17.2	6.82	719	4.81	50.0	-2.9	105	cloudy	no odor
1024	30.77	100	0.6	17.2	6.78	717	4.00	41.4	-9.1	97.7	cloudy	no odor
1027	30.79	100	0.9	17.2	6.79	716	3.66	38.2	-12.6	96.2	cloudy	no odor
1030	30.81	100	1.2	17.1	6.83	715	3.33	34.5	-14.2	75.5	cloudy	no odor
1033	30.83	100	1.5	17.2	6.79	714	3.00	31.2	-14.8	71.3	cloudy	no odor
1036	30.84	100	1.8	17.2	6.82	714	2.98	31.0	-15.2	68.9	cloudy	no odor
1039	30.85	100	2.1	17.2	6.77	713	2.67	27.4	-15.6	61.5	cloudy	no odor
1042	30.87	100	2.4	17.2	6.78	712	2.65	27.5	-15.5	59.5	cloudy	no odor
1045	30.88	100	2.7	17.2	6.79	711	2.36	24.5	-15.9	57.9	cloudy	no odor
1050	30.90	100	3.2	17.2	6.78	711	2.09	21.7	-14.3	58.1	cloudy	no odor
1055	30.93	100	3.7	17.3	6.77	710	1.82	19.0	-13.3	55.2	cloudy	no odor
1100	30.95	100	4.2	17.3	6.77	710	1.57	16.4	-11.5	50.6	cloudy	no odor
1105	30.97	100	4.7	17.2	6.79	708	1.49	15.3	-10.8	49.6	cloudy	no odor
1110	30.99	100	5.2	17.3	6.78	708	1.35	14.2	-10.6	48.1	cloudy	no odor
1115	31.01	100	5.7	17.3	6.81	708	1.15	11.7	-10.5	45.1	cloudy	no odor
1120	31.04	100	6.2	17.3	6.76	707	1.10	11.2	-9.8	46.0	cloudy	no odor
1125	31.06	100	6.7	17.3	6.77	707	1.00	10.1	-10.4	42.2	cloudy	no odor
1130	31.07	100	7.2	17.5	6.80	708	0.96	9.9	-10.0	42.7	cloudy	no odor
1135	31.09	100	7.7	17.5	6.78	707	0.91	9.4	-10.3	43.5	cloudy	no odor
1140	31.11	100	8.2	17.6	6.83	707	0.86	8.7	-10.0	45.1	cloudy	no odor
												Final Controller Settings
							TV 12-8-20					**Setting ID:** 103
												Pressure (PSI): 21
Final Purge Values:		1140	8.2	17.6	6.83	707	0.86	8.7	-10.0	45.1	cloudy	**Ambient Air (°C):** 8

Sample ID:	ALF-GW-ALF210-20201208	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/8/2020	*Field Blank ID:*	ALF-GW-FB01-20201208
Collection Time:	11:55	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	8.2	*Equipment Blank ID:*	NA
Sample Depth (feet):	47.0	*Filter Blank ID:*	ALF-GW-FLB01-20201208
		Tubing Blank ID:	ALF-GW-TUB01-20201208
Heavy Equipment in Area:	No	*DI water lot #:*	Pace MN: Fill date 12-01-20
		Filter purged for minimum 500 mL:	Yes
Analysis:	RI	*Filter Lot #:*	H-1826
		Filter Sample Metals:	Yes
Tubing Lot #:	Not Listed	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	No	*Sample on-Ice: Time:*	12:00
If No, Provide Explanation	Turbidity not ~~stabilized~~ below 5 NTU (CR 12/11/2020), Filtered sample collected.	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	27.2	**Bottom of Screen (ft. btoc):**	48.1

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	cloudy
31.39	17.7	6.75	707	0.34	3.40	-11.9	41.8	**Odor:**	clear

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	~~27612~~ 30926 (CR 12/15/2020)
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	5	~~3~~ 2 (CR 1/26/21)	6	~~3~~ 2 (CR 1/26/21)	~~3~~ 2 (CR 1/26/21)
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/8/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/8/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.30
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	89.82
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	58.52 / 144.61
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	84.5
Well ID:	ALF-210B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/8/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0924	31.29	400	0	17.4	6.86	867	0.59	6.1	-101.8	2.07	clear	no odor
0927	31.30	400	1.2	17.4	6.84	871	0.56	5.8	-118.0	2.03	clear	no odor
0930	31.30	400	2.4	17.5	6.92	869	0.26	2.5	-129.9	1.80	clear	no odor
0933	31.29	400	3.6	17.6	6.98	868	0.19	1.9	-133.2	2.07	clear	no odor
0936	31.29	400	4.8	17.6	6.93	868	0.17	1.6	-137.2	1.78	clear	no odor
												TV 12/8/20
Final Purge Values:			0936	4.8	17.6	6.93	868	0.17	1.6	-137.2	1.78	clear

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	50
Ambient Air (°C):	6

Sample ID:	ALF-GW-ALF210B-20201208	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/8/2020	*Field Blank ID:*	NA
Collection Time:	9:45	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.8	*Equipment Blank ID:*	NA
Sample Depth (feet):	84.5	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	9:55
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	79.6	**Bottom of Screen (ft. btoc):**	89.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
31.29	17.7	6.92	865	0.21	2.20	-122.4	0.95	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	~~27612~~ 30926 (CR 12/15/2020)
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/8/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/8/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/14/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	30.62
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	130.40
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	99.78 / 246.57
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	125.0
Well ID:	ALF-210A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/8/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1332	30.67	500	0	18.3	6.79	1079	0.49	4.90	-92.2	4.24	clear	no odor
1335	30.67	500	1.5	18.3	6.83	1082	0.38	4.00	-97.1	3.85	clear	no odor
1338	30.68	500	3.0	18.3	6.84	1088	0.29	3.00	-102.7	3.68	clear	no odor
1341	30.69	500	4.5	18.3	6.85	1094	0.20	2.10	-106.3	3.45	clear	no odor
							TV 12/8/20					
Final Purge Values:		1341	4.5	18.3	6.85	1094	0.20	2.10	-106.3	3.45	clear	

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	80
Ambient Air (°C):	13

Sample ID:	ALF-GW-ALF210A-20201208	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/8/2020	*Field Blank ID:*	NA
Collection Time:	13:45	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	125.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	N/A
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:55
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	120.0	**Bottom of Screen (ft. btoc):**	130.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
30.71	18.3	6.90	1110	0.17	1.70	-99.7	3.60	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	~~27612~~ 30926 (CR 12/15/2020)
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/8/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/8/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	38.86
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	67.90
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	29.04 / 71.76
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	67.00
Well ID:	ALF-212	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1305	39.05	200	0	19.4	7.36	611	1.43	15.3	-56.3	8.50	clear	no odor
1310	39.05	200	1.0	19.2	7.34	609	0.82	9.0	-65.4	5.83	clear	no odor
1315	39.05	200	2.0	19.2	7.20	609	0.71	7.7	-110.7	2.78	clear	no odor
1320	39.05	200	3.0	19.2	7.17	610	0.45	4.8	-116.9	2.55	clear	no odor
1325	39.05	200	4.0	19.2	7.19	610	0.40	4.4	-121.9	2.30	clear	no odor
1330	39.05	200	5.0	19.2	7.19	611	0.38	4.1	-122.7	2.24	clear	no odor
												Final Controller Settings
							CK	12/9/20				**Setting ID:** 103
												Pressure (PSI): 37
Final Purge Values:		1330	5.0	19.2	7.19	611	0.38	4.1	-122.7	2.24	clear	**Ambient Air (°C):** 16

Sample ID:	ALF-GW-ALF212-20201209	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	12/9/2020	*Field Duplicate ID:*	NA
Collection Time:	13:33	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	5.0	*Filter Blank ID:*	NA
Sample Depth (feet):	67.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:45
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	51.8	**Bottom of Screen (ft. btoc):**	67.8

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
39.05	19.1	7.18	613	0.45	5.0	-112.4	1.29	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/9/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/9/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	49.74
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	169.80
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	120.06 / 296.68
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	165.0
Well ID:	ALF-212A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1150	49.74	240	0	19.1	7.36	726	2.50	25.2	-98.5	1.66	clear	no odor
1155	49.74	240	1.2	18.5	7.15	745	0.83	6.7	-112.2	1.78	clear	no odor
1200	49.74	240	2.4	18.4	6.75	670	0.47	5.0	-78.3	1.31	clear	no odor
1205	49.74	240	3.6	18.3	6.89	658	0.40	4.2	-94.2	1.22	clear	no odor
1210	49.74	240	4.8	18.3	6.94	657	0.35	3.6	-102.9	1.07	clear	no odor
1215	49.74	240	6.0	18.2	6.92	657	0.34	3.7	-104.7	1.19	clear	no odor
												Final Controller Settings
												Setting ID: 107
							EK	12/9/20				**Pressure (PSI):** 90
Final Purge Values:		1215	6.0	18.2	6.92	657	0.34	3.7	-104.7	1.19	clear	**Ambient Air (°C):** 16

Sample ID:	ALF-GW-ALF212A-20201209	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	12/9/2020	*Field Duplicate ID:*	NA
Collection Time:	12:18	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	6.0	*Filter Blank ID:*	NA
Sample Depth (feet):	165.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:26
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	159.4	**Bottom of Screen (ft. btoc):**	169.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
49.74	18.6	6.92	668	0.45	4.8	-66.2	1.12	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/9/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/9/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	52.40
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	81.30
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	28.90 / 71.42
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	71.0
Well ID:	ALF-213	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0825	52.44	400	0	15.6	7.13	532.7	1.09	10.7	-28.4	5.15	clear	no odor
0830	52.44	400	2.0	15.7	7.15	525.3	0.48	4.9	-91.8	4.98	clear	no odor
0835	52.44	400	4.0	15.8	7.21	522.3	0.33	3.6	-123.7	5.08	clear	no odor
0840	52.44	400	6.0	15.7	7.19	519.3	0.30	3.1	-128.2	4.76	clear	no odor
0845	52.44	400	8.0	15.7	7.20	520.8	0.26	2.6	-134.3	4.21	clear	no odor
0850	52.44	400	10.0	15.7	7.18	520.3	0.21	2.2	-135.0	3.24	clear	no odor
												Final Controller Settings
												Setting ID: 103
												Pressure (PSI): 40
Final Purge Values:		0850	10.0	15.7	7.18	520.3	0.21	2.2	-135.0 (CR 1/26/21)	3.24	clear	**Ambient Air (°C):** 0

CK 12/15/20

Sample ID:	ALF-GW-ALF213-20201215	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	12/15/2020	*Field Duplicate ID:*	NA
Collection Time:	8:53	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	10.0	*Filter Blank ID:*	NA
Sample Depth (feet):	71.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:00
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	~~152.4~~ 71.0 (CR 12/16/2020)	**Bottom of Screen (ft. btoc):**	~~162.4~~ 81.2 (CR 12/16/2020)

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
52.44	14.4	7.20	510	0.30	2.9	-98.7	1.46	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/15/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/15/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/16/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/21/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	53.06
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	121.80
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	68.74 / 169.86
Project Number:	175578049		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	116.~~8~~ 75 (CR 12/16/2020)
Well ID:	ALF-213B	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0930	53.12	450	0	15.6	6.79	747	0.46	4.8	-61.5	9.60	clear	no odor
0935	53.12	450	2.3	15.5	7.02	735	0.36	3.6	-78.8	5.68	clear	no odor
0940	53.12	450	4.5	15.6	7.09	748	0.31	3.0	-93.3	4.78	clear	no odor
0945	53.12	450	6.8	15.5	7.14	752	0.25	2.6	-107.3	3.69	clear	no odor
0950	53.12	450	9.0	15.5	7.11	752	0.26	2.7	-109.2	3.55	clear	no odor
												Final Controller Settings
									CK 12/15/20			**Setting ID:** 106
												Pressure (PSI): 90
Final Purge Values:		0950	9.0	15.5	7.11	752	0.26	2.7	-109.2	3.55	clear	**Ambient Air (°C):** 1

Sample ID:	ALF-GW-ALF213B-20201215	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	~~Yes~~ No (CR 12/16/2020)
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB02-20201215
Sample Date:	12/15/2020	*Field Duplicate ID:*	NA
Collection Time:	9:53	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	9.0	*Filter Blank ID:*	NA
Sample Depth (feet):	116.~~8~~ 75 (CR 12/16/2020)	*Tubing Blank ID:*	NA
		DI water lot #:	Pace fill date: 12/01/2020
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:00
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	~~152.4~~ 111.4 (CR 12/16/2020)	**Bottom of Screen (ft. btoc):**	~~162.4~~ 121.4 (CR 12/16/2020)

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
53.12	15.5	7.11	750	0.26	2.6	-111.5	3.68	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/15/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/15/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/16/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/21/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	53.02
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	162.80
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	109.78 / 271.28
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	157.75
Well ID:	ALF-213A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1015	53.04	500	0	15.7	6.94	332.3	0.29	2.9	-73.4	8.37	clear	no odor
1020	53.04	500	2.5	15.7	6.94	332.2	0.27	2.7	-80.2	4.22	clear	no odor
1025	53.04	500	5.0	15.7	7.14	333.6	0.23	2.4	-93.5	4.01	clear	no odor
1030	53.04	500	7.5	15.7	7.16	334.0	0.23	2.3	-97.3	4.12	clear	no odor
1035	53.04	500	10.0	15.7	7.19	333.0	0.20	2.1	-105.7	3.79	clear	no odor
Final Purge Values:		1035	10.0	15.7	7.19	333.0 (CR 1/26/21)	0.20 (CR 1/26/21)	2.1	-105.7	3.79	clear	

CK 12/15/20

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	90
Ambient Air (°C):	1

Sample ID:	ALF-GW-ALF213A-20201215	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/15/2020	*Field Blank ID:*	NA
Collection Time:	10:38	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	10.0	*Equipment Blank ID:*	NA
Sample Depth (feet):	157.75	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:45
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	~~111.4~~ 152.4 (CR 12/16/2020)	**Bottom of Screen (ft. btoc):**	~~121.4~~ 162.4 (CR 12/16/2020)

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
53.04	15.6	7.13	332.6	0.23	2.3	-68.7	3.51	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/15/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/15/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/16/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/21/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.75
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	54.90
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	23.15 / 57.21
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	45.0
Well ID:	ALF-214	**Method of Purging:**	Dedicated bladder pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/8/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1425	31.77	500	0	19.1	6.87	763	0.47	4.9	86.2	2.08	clear	no odor
1428	31.77	500	1.5	19.2	6.86	768	0.36	3.7	86.3	1.27	clear	no odor
1431	31.78	500	3.0	19.1	6.88	769	0.27	3.0	86.6	0.91	clear	no odor
1434	31.78	500	4.5	19.2	6.90	768	0.21	2.3	86.6	0.79	clear	no odor
							TV 12/8/20					
Final Purge Values:		1434	4.5	19.2	6.90 (CR 1/26/21)	768	0.21	2.3	86.6	0.79	clear	

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	31
Ambient Air (°C):	13

Sample ID:	ALF-GW-ALF214-20201208	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/8/2020	*Field Blank ID:*	NA
Collection Time:	14:40	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	45.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	14:50
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	34.5	**Bottom of Screen (ft. btoc):**	54.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
31.79	19.2	6.92	768	0.31	3.20	118.8	0.84	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	~~27612~~ 30926 (CR 12/15/2020)
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/8/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/8/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.80
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	93.30
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	61.50 / 151.97
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	88.0
Well ID:	ALF-214B	**Method of Purging:**	Dedicated Sampling Well
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0907	31.81	450	0	18.1	6.74	1010	0.54	5.6	-89.1	3.83	clear	no odor
0910	31.81	450	1.4	18.1	6.77	1010	0.29	3.0	-100.9	3.73	clear	no odor
0913	31.81	450	2.7	18.1	6.78	1010	0.17	1.9	-105.7	2.91	clear	no odor
0916	31.81	450	4.1	18.1	6.75	1010	0.12	1.3	-108.1	2.06	clear	no odor
							TV 12/9/20					
Final Purge Values:			0916	4.1	18.1	6.75	1010	0.12	1.3	-108.1	2.06	clear

Final Controller Settings	
Setting ID:	102
Pressure (PSI):	55
Ambient Air (°C):	7

Sample ID:	ALF-GW-ALF214B-20201209	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/9/2020	*Field Blank ID:*	NA
Collection Time:	9:20	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.1	*Equipment Blank ID:*	NA
Sample Depth (feet):	88.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	9:30
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	82.9	**Bottom of Screen (ft. btoc):**	92.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
31.81	18.2	6.85	1009	0.30	3.1	-98.2	1.25	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	~~27612~~ 30926 (CR 12/15/2020)
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/9/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/9/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	31.91
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	133.00
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	101.09 / 249.8
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	130.0
Well ID:	ALF-214A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0816	31.91	225	0	17.7	6.38	951	0.66	6.9	-35.9	1.63	clear	no odor
0819	31.91	225	0.7	18.1	6.36	1009	0.42	4.4	-59.2	1.55	clear	no odor
0822	31.91	225	1.4	18.1	6.38	1015	0.31	3.3	-69.0	2.25	clear	no odor
0825	31.91	225	2.0	18.3	6.42	1019	0.22	2.4	-75.8	2.53	clear	no odor
							TV 12/9/20					
Final Purge Values:		0825	2.0	18.3	6.42	1019	0.22	2.4	-75.8	2.53	clear	

Final Controller Settings	
Setting ID:	102
Pressure (PSI):	80
Ambient Air (°C):	6

Sample ID:	ALF-GW-ALF214A-20201209	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/9/2020	*Field Blank ID:*	NA
Collection Time:	8:30	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.0	*Equipment Blank ID:*	NA
Sample Depth (feet):	130.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	N/A
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	8:40
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	122.6	**Bottom of Screen (ft. btoc):**	~~136.2~~ 132.6 MD 12/15/2020

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
31.94	18.4	6.49	984	0.43	4.5	-46.7	1.53	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	~~27612~~ 30926 (CR 12/15/2020)
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/9/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/9/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	16.38
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	30.40
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	14.02 / 34.64
Project Number:	175578049		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	25.0
Well ID:	ALF-215	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0815	16.46	400	0	17.9	7.16	456.9	2.74	27.7	-26.1	67.1	clear	no odor
0820	16.46	400	2.0	18.0	7.24	452.1	1.25	12.7	-42.7	1.98	clear	no odor
0825	16.46	400	4.0	18.1	7.07	443.8	0.45	4.80	-63.3	1.13	clear	no odor
0830	16.46	400	6.0	18.1	7.09	443.0	0.38	4.00	-64.8	1.32	clear	no odor
0835	16.46	400	8.0	18.1	7.08	442.6	0.35	3.90	-64.9	1.16	clear	no odor
												Final Controller Settings
												Setting ID: 100
												Pressure (PSI): 20
Final Purge Values:		0835	8.0	18.1	7.08	442.6	0.35	3.90	-64.9	1.16	clear	**Ambient Air (°C):** 4

CK 12/9/20

Sample ID:	ALF-GW-ALF215-20201209	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/9/2020	*Field Blank ID:*	NA
Collection Time:	8:38	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	8	*Equipment Blank ID:*	NA
Sample Depth (feet):	25.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	8:45
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	20.0	**Bottom of Screen (ft. btoc):**	30.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	**Color:**	clear
16.46	18.2	7.08	439.9	0.32	3.4	-47.4	1.17	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/9/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/9/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	28.24
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	60.00
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	31.76 / 78.48
Project Number:	175578049		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	50.0
Well ID:	ALF-216	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/8/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1450	28.24	400	0	18.5	6.84	820	0.79	8.0	-66.0	9.20	clear	no odor
1455	28.30	400	2.0	18.5	6.89	832	0.56	5.9	-77.4	5.87	clear	no odor
1500	28.30	400	4.0	18.4	6.81	833	0.49	5.1	-85.6	4.18	clear	no odor
1505	28.30	400	6.0	18.5	6.80	834	0.47	4.8	-96.0	2.45	clear	no odor
1510	28.30	400	8.0	18.5	6.80	833	0.40	4.2	-96.4	2.64	clear	no odor
												Final Controller Settings
												Setting ID: 103
							CK	12/8/20				**Pressure (PSI):** 28
Final Purge Values:		1510	8.0	18.5	6.80	833	0.40	4.2	-96.4	2.64	clear	**Ambient Air (°C):** 14

Sample ID:	ALF-GW-ALF216-20201208	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	12/8/2020	*Field Duplicate ID:*	NA
Collection Time:	15:13	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	8.0	*Filter Blank ID:*	NA
Sample Depth (feet):	50.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	15:20
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	39.6	**Bottom of Screen (ft. btoc):**	59.6

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	**Color:**	clear
28.30	18.5	6.79	838	0.50	5.4	-67.9	1.24	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/8/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/8/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/10/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	32.40
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	71.80
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	39.40 / 97.36
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	60.75
Well ID:	ALF-217	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1329	32.42	350	0	18.0	6.99	673	0.67	7.3	-88.7	0.70	clear	no odor
1332	32.42	350	1.1	18.0	7.03	671	0.41	4.4	-101.4	0.84	clear	no odor
1335	32.42	350	2.1	18.0	7.08	670	0.38	4.2	-113.8	0.88	clear	no odor
1338	32.42	350	3.2	18.0	7.13	669	0.32	3.8	-119.0	0.40	clear	no odor
							TV 12/9/20					
Final Purge Values:		1338	3.2	18.0	7.13	669	0.32	3.8	-119.0 (CR 1/26/21)	0.40	clear	**Ambient Air (°C):** 18

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	35

Sample ID:	ALF-GW-ALF217-20201209	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/9/2020	*Field Blank ID:*	NA
Collection Time:	13:41	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.2	*Equipment Blank ID:*	NA
Sample Depth (feet):	~~60.8~~ 60.75 (CR 2/1/21)	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	13:51
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	49.4	**Bottom of Screen (ft. btoc):**	71.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
32.43	18.0	7.17	669	0.69	7.1	-115.3	0.50	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	~~27612~~ 30926 (CR 12/15/2020)
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/9/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/9/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	51.80
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	131.80
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	80.00 / 197.69
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	126.75
Well ID:	ALF-217B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0818	51.81	300	0	16.6	6.64	701	0.40	3.9	-71.1	6.28	clear	no odor
0821	51.81	300	0.9	16.5	6.81	703	0.22	2.2	-95.1	6.00	clear	no odor
0824	51.81	300	1.8	16.5	6.84	700	0.19	1.8	-100.4	5.28	clear	no odor
0827	51.81	300	2.7	16.5	6.87	699	0.16	1.6	-104.0	4.00	clear	no odor
0830	51.81	300	3.6	16.6	6.88	697	0.12	1.2	-112.1	2.71	clear	no odor
0833	51.81	300	4.5	16.6	6.93	695	0.10	1.1	-117.7	2.06	clear	no odor
							TV 12/10/20					
Final Purge Values:			0833	4.5	16.6	6.93	695	0.10 (CR 1/26/21)	1.1	-117.7	2.06	clear

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	70
Ambient Air (°C):	8

Sample ID:	ALF-GW-ALF217B-20201210	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/10/2020	*Field Blank ID:*	NA
Collection Time:	8:36	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	126.75	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	8:46
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	121.4	**Bottom of Screen (ft. btoc):**	131.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
51.81	16.7	6.97	688	0.23	2.4	-118.9	2.26	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	~~27612~~ 30926 (CR 12/15/2020)
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/10/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/10/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/14/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	51.94
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	192.80
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	140.86 / 348.08
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	187.75
Well ID:	ALF-217A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0910	52.04	250	0	17.0	6.49	736	0.42	4.4	-27.0	1.06	clear	no odor
0913	52.07	250	0.8	17.0	6.52	749	0.20	2.1	-56.1	1.63	clear	no odor
0916	52.09	250	1.5	17.0	6.54	763	0.12	1.2	-89.5	1.37	clear	no odor
0919	52.11	250	2.3	17.0	6.57	764	0.12	1.2	-92.7	1.62	clear	no odor
							TV 12/10/20					
Final Purge Values:		0919	2.3	17.0	6.57	764	0.12	1.2	-92.7	1.62	clear	

Final Controller Settings	
Setting ID:	102
Pressure (PSI):	75
Ambient Air (°C):	8

Sample ID:	ALF-GW-ALF217A-20201210	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/10/2020	*Field Blank ID:*	NA
Collection Time:	9:24	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.3	*Equipment Blank ID:*	NA
Sample Depth (feet):	187.75	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	9:34
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	182.4	**Bottom of Screen (ft. btoc):**	192.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
52.14	17.0	6.62	764	0.44	4.5	-85.5	2.63	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	~~27612~~ 30926 (CR 12/15/2020)
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/10/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/10/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/14/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	29.91
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	50.10
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	20.19 / 49.89
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	41.0
Well ID:	P-4S	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0931	29.91	440	0	18.1	6.86	620	0.81	8.7	54.8	4.59	clear	no odor
0934	29.91	440	1.3	18.1	6.91	631	0.63	6.6	56.4	1.21	clear	no odor
0937	29.91	440	2.6	18.1	6.92	635	0.49	5.4	57.1	1.15	clear	no odor
0940	29.91	440	4.0	18.1	6.93	638	0.44	4.7	57.6	1.09	clear	no odor
0943	29.91	440	5.3	18.2	6.93	641	0.39	4.1	57.4	0.89	clear	no odor
							TV 12/15/20					
Final Purge Values:		0943	5.28	18.2	6.93	641	0.39	4.1	57.4	0.89	clear	

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	20
Ambient Air (°C):	1

Sample ID:	ALF-GW-P4S-20201215	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/15/2020	*Field Blank ID:*	NA
Collection Time:	9:48	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	5.3	*Equipment Blank ID:*	NA
Sample Depth (feet):	41.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:58
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	29.7	**Bottom of Screen (ft. btoc):**	49.7

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
29.91	18.1	6.97	656	0.26	2.7	64.7	0.92	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	30926
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/15/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/15/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/17/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	35.00
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	81.80
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	46.80 / 28.91
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	77.0
Well ID:	P-4	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	2.0	**Date:**	12/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0807	35.00	450	0	16.9	6.89	352.1	0.71	7.3	5.8	3.81	clear	no odor
0810	35.00	450	1.4	16.6	6.92	361.0	0.42	4.4	-47.8	3.27	clear	no odor
0813	35.00	450	2.7	16.7	6.97	364.2	0.32	3.3	-65.7	1.90	clear	no odor
0816	35.00	450	4.1	16.6	7.02	365.9	0.25	2.5	-76.7	1.22	clear	no odor
							TV 12/15/20					
Final Purge Values:		0816	4.1	16.6	7.02	365.9	0.25	2.5	-76.7	1.22	clear	

Final Controller Settings	
Setting ID:	99
Pressure (PSI):	50
Ambient Air (°C):	1

Sample ID:	ALF-GW-P4-20201215	**QA/QC Sample Collected:**	~~No~~ Yes (CR 12/17/2020)
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	Yes
Sample Date:	12/15/2020	*Field Blank ID:*	NA
Collection Time:	8:20	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.1	*Equipment Blank ID:*	NA
Sample Depth (feet):	77.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	8:30
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	71.7	**Bottom of Screen (ft. btoc):**	81.8

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
35.00	16.3	7.16	367.9	0.10	1.2	-92.6	0.97	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	30926
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	3	3	6	3	3
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/15/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/15/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/17/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	28.51
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	40.40
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	11.89 / 29.38
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	29.0
Well ID:	PMW-02A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1330	28.52	100	0	15.0	7.84	771	0.55	5.4	-48.8	3.72	clear	no odor
1333	28.53	100	0.3	15.0	7.93	792	0.34	3.4	-54.4	2.62	clear	no odor
1336	28.53	100	0.6	15.0	7.98	799	0.30	3.0	-55.3	2.45	clear	no odor
1339	28.54	100	0.9	15.0	8.00	802	0.28	2.9	-54.9	2.69	clear	no odor
							TV 12/15/20					
Final Purge Values:		1339	0.9	15.0	8.00	802	0.28	2.9	-54.9	2.69	clear	

Final Controller Settings	
Setting ID:	101
Pressure (PSI):	15
Ambient Air (°C):	3

Sample ID:	ALF-GW-PMW02A-20201215	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/15/2020	*Field Blank ID:*	NA
Collection Time:	13:45	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	0.9	*Equipment Blank ID:*	NA
Sample Depth (feet):	29.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:55
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	19.0	**Bottom of Screen (ft. btoc):**	40.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
28.59	15.0	8.12	772	0.48	4.9	37.4	2.11	Odor:	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	30926
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/15/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/15/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/17/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	32.24
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	58.80
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	26.56 / 65.63
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	54.0
Well ID:	PMW-02B	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1217	32.26	100	0	15.0	7.21	637	0.61	6.1	-81.1	4.32	clear	no odor
1220	32.27	100	0.3	15.1	7.27	637	0.58	5.8	-82.9	4.00	clear	no odor
1223	32.29	100	0.6	15.1	7.30	638	0.55	5.6	-87.4	3.23	clear	no odor
1226	32.30	100	0.9	15.2	7.31	640	0.50	5.1	-99.2	3.09	clear	no odor
							TV 12/15/20					
Final Purge Values:		1226	0.9	15.2	7.31	640	0.50 (CR 1/26/21)	5.1	-99.2	3.09	clear	

Final Controller Settings	
Setting ID:	99
Pressure (PSI):	30
Ambient Air (°C):	2

Sample ID:	ALF-GW-PMW02B-20201215	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/15/2020	*Field Blank ID:*	NA
Collection Time:	12:30	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	0.9	*Equipment Blank ID:*	NA
Sample Depth (feet):	54.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:40
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	48.4	**Bottom of Screen (ft. btoc):**	58.4

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
32.34	14.9	7.32	642	0.28	2.8	-112.7	2.11	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	30926
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/15/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/15/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/17/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	32.38
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	129.70
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	97.32 / 240.49
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	124.0
Well ID:	PMW-02C	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/15/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1037	32.38	450	0	15.0	7.10	320.1	0.25	2.6	-36.5	3.26	clear	no odor
1040	32.38	450	1.4	15.1	7.12	321.4	0.13	1.5	-80.4	3.19	clear	no odor
1043	32.38	450	2.7	15.0	7.19	321.6	0.09	0.8	-92.2	2.83	clear	no odor
1046	32.38	450	4.1	15.1	7.24	322.4	0.07	0.7	-99.2	2.65	clear	no odor
							TV 12/15/20					
Final Purge Values:		1046	4.1	15.1	7.24	322.4	0.07	0.7	-99.2	2.65	clear	

Final Controller Settings	
Setting ID:	107
Pressure (PSI):	60
Ambient Air (°C):	1

Sample ID:	ALF-GW-PMW02C-20201215	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	Yes
Sample Date:	12/15/2020	*Field Blank ID:*	ALF-GW-FB01-20201215
Collection Time:	10:50	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.1	*Equipment Blank ID:*	NA
Sample Depth (feet):	124.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace MN: Fill date 12-01-20
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:00
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	119.3	**Bottom of Screen (ft. btoc):**	129.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
32.38	15.1	7.25	336.2	0.01	0.1	-105.7	0.98	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	30926
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	4	4	8	4	4
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/15/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/15/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/17/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	26.79
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	40.70
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	13.91 / 34.37
			**if water column is < 4.5 L contact Field Coordinator*
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	29.0
Well ID:	PMW-04A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/14/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1252	26.80	400	0	17.2	7.27	765	0.45	4.6	121.8	2.36	clear	no odor
1255	26.80	400	1.2	17.2	7.29	767	0.38	3.9	107.2	1.26	clear	no odor
1258	26.80	400	2.4	17.1	7.26	768	0.30	3.0	94.6	1.14	clear	no odor
1301	26.80	400	3.6	17.1	7.26	770	0.30	3.1	84.4	0.91	clear	no odor
							TV 12/14/20					
Final Purge Values:		1301	3.6	17.1	7.26	770	0.30 (CR 1/26/21)	3.1	84.4	0.91	clear	

Final Controller Settings	
Setting ID:	105
Pressure (PSI):	30
Ambient Air (°C):	2

Sample ID:	ALF-GW-PMW04A-20201214	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/14/2020	*Field Blank ID:*	NA
Collection Time:	13:05	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.6	*Equipment Blank ID:*	NA
Sample Depth (feet):	29.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:15
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	19.3	**Bottom of Screen (ft. btoc):**	40.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
26.8	16.2	7.29	768	0.49	4.9	99.5	0.88	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	30926
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/14/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/14/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/17/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	32.92
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	62.40
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	29.48 / 72.85
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	57.0
Well ID:	PMW-04B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/14/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1335	32.94	350	0	15.9	6.97	705	0.33	3.5	-102.3	4.28	clear	no odor
1338	32.94	350	1.1	15.9	7.02	695	0.26	2.7	-125.7	2.17	clear	no odor
1341	32.94	350	2.1	15.9	7.02	686	0.24	2.6	-134.7	2.11	clear	no odor
1344	32.94	350	3.2	15.8	7.06	679	0.15	1.6	-139.2	1.87	clear	no odor
							TV 12/14/20					
Final Purge Values:		1344	3.2	15.8	7.06	679	0.15	1.6	-139.2	1.87	clear	

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	30
Ambient Air (°C):	2

Sample ID:	ALF-GW-PMW04B-20201214	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/14/2020	*Field Blank ID:*	NA
Collection Time:	13:47	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	3.2	*Equipment Blank ID:*	NA
Sample Depth (feet):	57.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:57
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	52.0	**Bottom of Screen (ft. btoc):**	62.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
32.94	15.8	7.11	663	0.11	1.1	-133.4	1.01	Odor:	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	30926
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/14/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/14/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/17/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	32.80
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	129.70
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	96.90 / 239.45
			**if water column is < 4.5 L contact Field Coordinator*
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	124.0
Well ID:	PMW-04C	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/14/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1416	32.82	500	0	15.3	6.89	370.6	0.28	3.0	-22.9	1.71	clear	no odor
1419	32.82	500	1.5	15.4	6.91	375.1	0.19	2.1	-62.1	1.44	clear	no odor
1422	32.82	500	3.0	15.6	6.96	377.6	0.17	1.9	-82.0	1.32	clear	no odor
1425	32.82	500	4.5	15.6	7.01	381.2	0.14	1.5	-99.5	0.99	clear	no odor
							TV 12/14/20					
Final Purge Values:		1425	4.5	15.6	7.01	381.2	0.14	1.5	-99.5	0.99	clear	

Final Controller Settings	
Setting ID:	105
Pressure (PSI):	70
Ambient Air (°C):	2

Sample ID:	ALF-GW-PMW04C-20201214	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/14/2020	*Field Blank ID:*	ALF-GW-FB01-20201214
Collection Time:	14:28	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	4.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	124.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	Pace MN: Fill date 12-01-20
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	14:38
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	119.3	**Bottom of Screen (ft. btoc):**	129.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
32.82	15.3	7.09	378.9	0.14	1.6	-84.7	1.24	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	30926
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/14/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/14/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/17/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/19/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	21.30
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	29.30
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	8.00 / 19.77
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	24.0
Well ID:	PMW-07A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/16/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0815	21.41	100	0	16.1	8.53	962	0.53	5.4	89.6	4.57	clear	no odor
0818	21.43	100	0.3	16.2	9.06	972	0.47	4.8	78.0	3.99	clear	no odor
0821	21.44	100	0.6	16.2	9.25	976	0.34	3.6	70.1	4.21	clear	no odor
0824	21.44	100	0.9	16.3	9.30	978	0.33	3.4	67.7	4.46	clear	no odor
0827	21.45	100	1.2	16.3	9.40	980	0.25	2.6	59.6	4.37	clear	no odor
							TV 12/16/20					
Final Purge Values:		0827	1.2	16.3	9.40 (CR 1/26/21)	980	0.25	2.6	59.6	4.37	clear	

Final Controller Settings	
Setting ID:	100
Pressure (PSI):	15
Ambient Air (°C):	1

Sample ID:	ALF-GW-PMW07A-20201216	**QA/QC Sample Collected:**	Yes
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/16/2020	*Field Blank ID:*	ALF-GW-FB01-20201216
Collection Time:	8:30	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	1.2	*Equipment Blank ID:*	NA
Sample Depth (feet):	24.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	No	*DI water lot #:*	Pace MN: Fill date 12-01-20
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	8:40
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	18.9	**Bottom of Screen (ft. btoc):**	28.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
21.45	15.5	9.74	949	0.18	1.9	52.6	4.44	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	30926
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	~~1~~ 2 (CR 12/18/2020)	~~1~~ 2 (CR 12/18/2020)	~~2~~ 4 (CR 12/18/2020)	~~1~~ 2 (CR 12/18/2020)	~~1~~ 2 (CR 12/18/2020)
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/16/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/16/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/18/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	TVA TDEC Order	**Initial Depth to Water (feet):**	31.93
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	59.90
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	27.97 / 69.12
			**if water column is < 4.5 L contact Field Coordinator*
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	55.0
Well ID:	PMW-07B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/16/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0938	31.97	250	0	15.2	6.76	750	0.28	2.9	-59.9	2.74	clear	no odor
0941	31.98	250	0.8	15.2	6.87	747	0.23	2.4	-79.8	2.45	clear	no odor
0944	31.99	250	1.5	15.3	6.93	743	0.24	2.5	-91.8	2.37	clear	no odor
0947	32.01	250	2.3	15.4	7.00	737	0.15	1.6	-102.4	2.15	clear	no odor
							TV 12/16/20					
Final Purge Values:		0947	2.3	15.4	7.00	737	0.15	1.6	-102.4	2.15	clear	

Final Controller Settings	
Setting ID:	101
Pressure (PSI):	35
Ambient Air (°C):	2

Sample ID:	ALF-GW-PMW07B-20201216	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/16/2020	*Field Blank ID:*	NA
Collection Time:	9:50	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	2.3	*Equipment Blank ID:*	NA
Sample Depth (feet):	55.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	10:00
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	49.5	**Bottom of Screen (ft. btoc):**	59.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
32.04	15.1	7.07	723	0.16	1.6	-89.9	2.71	Odor:	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	30926
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/16/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/16/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/18/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	TVA TDEC Order	**Initial Depth to Water (feet):**	32.00
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	122.80
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	90.80 / 224.38
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	117.0
Well ID:	PMW-07C	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/16/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1026	32.03	500	0	15.4	6.52	330.7	0.27	2.9	-12.9	4.27	clear	no odor
1029	32.04	500	1.5	15.4	6.73	330.9	0.21	2.1	-35.9	4.21	clear	no odor
1032	32.04	500	3.0	15.4	6.94	331.4	0.16	1.6	-62.8	4.09	clear	no odor
1035	32.04	500	4.5	15.4	7.00	331.0	0.13	1.3	-72.6	3.89	clear	no odor
1038	32.04	500	6.0	15.4	7.07	331.1	0.09	0.9	-84.0	2.99	clear	no odor
							TV 12/16/20					
Final Purge Values:		1038	6.0	15.4	7.07	331.1	0.09	0.9	-84.0	2.99	clear	

Final Controller Settings	
Setting ID:	103
Pressure (PSI):	70
Ambient Air (°C):	3

Sample ID:	ALF-GW-PMW07C-20201216	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/16/2020	*Field Blank ID:*	NA
Collection Time:	10:43	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	6.0	*Equipment Blank ID:*	NA
Sample Depth (feet):	117.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	10:53
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	~~112.2~~ 112.5 MD 12/20/2020	**Bottom of Screen (ft. btoc):**	~~122.2~~ 122.5 MD 12/20/2020

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
32.05	15.4	7.12	332.4	0.12	1.3	-94.3	2.48	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	30926
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	2130

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2EIZ	101920-2EIX	111620-2EEY	101920-2ADT	101920-2EIX
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	John Myer	**Date:**	12/16/2020	**Signature:**	John Myer
Sampler Name:	Trent VanEgtern	**Date:**	12/16/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/18/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/20/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	22.66
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	44.00
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	21.34 / 52.73
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	32.0
Well ID:	PMW-10A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1055	22.70	460	0	19.0	7.60	517.3	0.31	3.4	-123.9	1.07	clear	no odor
1100	22.70	460	2.3	19.1	7.59	518.3	0.25	2.7	-122.9	1.18	clear	no odor
1105	22.70	460	4.6	19.1	7.58	519.3	0.19	2.0	-115.7	1.24	clear	no odor
1110	22.70	460	6.9	19.2	7.59	520.7	0.18	1.9	-122.5	1.03	clear	no odor
												Final Controller Settings
							EK	12/9/20				**Setting ID:** 103
												Pressure (PSI): 75
Final Purge Values:		1110	6.9	19.2	7.59	520.7	0.18	1.9	-122.5	1.03	clear	**Ambient Air (°C):** 13

Sample ID:	ALF-GW-PMW10A-20201209	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	12/9/2020	*Field Duplicate ID:*	NA
Collection Time:	11:13	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	6.9	*Filter Blank ID:*	NA
Sample Depth (feet):	32.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	Yes	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	11:25
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	22.6	**Bottom of Screen (ft. btoc):**	43.6

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	**Color:**	clear
22.70	19.3	7.51	521	0.33	3.5	-64.7	1.11	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/9/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/9/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.42
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	73.30
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	39.88 / 98.55
Project Number:	175578049		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	68.0
Well ID:	PMW-10B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1000	33.64	400	0	18.4	6.93	784	0.64	6.8	-76.0	2.22	clear	no odor
1005	33.90	400	2.0	18.3	7.29	805	0.33	3.6	-123.7	2.81	clear	no odor
1010	34.09	380	3.9	18.4	7.18	807	0.36	3.8	-147.3	2.42	clear	no odor
1015	34.14	380	5.8	18.4	7.12	795	0.26	2.9	-157.6	2.10	clear	no odor
1020	34.14	380	7.7	18.4	7.18	789	0.26	2.8	-148.3	2.08	clear	no odor
												Final Controller Settings
												Setting ID: 103
												Pressure (PSI): 40
Final Purge Values:		1020	7.7	18.4	7.18	789	0.26	2.8	-148.3	2.08	clear	**Ambient Air (°C):** 12

EK 12/9/20

Sample ID:	ALF-GW-PMW10B-20201209	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	12/9/2020	*Field Duplicate ID:*	NA
Collection Time:	10:23	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	7.7	*Filter Blank ID:*	NA
Sample Depth (feet):	68.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:30
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	~~Yes~~ No (CR 1/26/21)
Top of Screen (ft. btoc):	62.9	**Bottom of Screen (ft. btoc):**	72.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
34.14	18.4	7.18	765	0.47	5.0	-116.5	1.95	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/9/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/9/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	33.39
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	152.40
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	119.01 / 294.09
Project Number:	175578049		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	148.0
Well ID:	PMW-10C	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/9/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0915	33.45	400	0	18.0	7.11	530.7	2.00	19.9	-101.5	2.17	clear	no odor
0920	33.45	400	2.0	18.0	6.58	538.7	0.75	7.7	-45.7	1.90	clear	no odor
0925	33.45	400	4.0	18.0	7.00	547.7	0.40	4.2	-100.1	1.56	clear	no odor
0930	33.45	400	6.0	18.1	7.05	545.8	0.42	4.5	-105.8	1.32	clear	no odor
0935	33.45	400	8.0	18.1	7.04	546.4	0.42	4.5	-107.1	1.65	clear	no odor
												Final Controller Settings
							CK	12/9/20				**Setting ID:** 102
												Pressure (PSI): 90
Final Purge Values:		0935	8.0	18.1	7.04	546.4	0.42	4.5	-107.1	1.65	clear	**Ambient Air (°C):** 10

Sample ID:	ALF-GW-PMW10C-20201209	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB02-20201209
Sample Date:	12/9/2020	*Field Duplicate ID:*	NA
Collection Time:	9:38	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	8.0	*Filter Blank ID:*	NA
Sample Depth (feet):	148.0	*Tubing Blank ID:*	NA
		DI water lot #:	Pace fill date: 12/2/2020
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:45
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	142.0	**Bottom of Screen (ft. btoc):**	152.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	**Color:**	clear
33.45	18.2	7.09	547.1	0.76	7.4	-86.2	1.52	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/9/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/9/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	18.82
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	38.00
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	19.18 / 47.4
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	27.0
Well ID:	PMW-11A	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/16/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1230	18.83	320	0	18.3	6.98	696	1.14	12.4	-47.7	12.3	clear	no odor
1235	18.83	320	1.6	18.7	7.09	697	0.52	5.5	-57.7	8.77	clear	no odor
1240	18.83	320	3.2	18.8	7.13	698	0.42	4.4	-62.8	7.42	clear	no odor
1245	18.83	320	4.8	18.6	7.17	697	0.31	3.2	-73.1	3.38	clear	no odor
1250	18.83	320	6.4	18.8	7.17	699	0.24	2.6	-85.7	3.09	clear	no odor
1255	18.83	320	8.0	18.7	7.19	695	0.23	2.5	-87.5	2.96	clear	no odor
												Final Controller Settings
								CK	12/16/20			**Setting ID:** 88
												Pressure (PSI): 25
Final Purge Values:		1255	8.0	18.7	7.19	695	0.23	2.5	-87.5	2.96	clear	**Ambient Air (°C):** 2

Sample ID:	ALF-GW-PMW11A-20201216	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	12/16/2020	*Field Duplicate ID:*	NA
Collection Time:	12:58	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	8.0	*Filter Blank ID:*	NA
Sample Depth (feet):	27.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	Yes	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	13:10
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	16.6	**Bottom of Screen (ft. btoc):**	37.6

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
18.83	18.4	7.17	700	0.21	2.1	-78.3	3.05	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/16/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/16/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/18/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/21/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	29.70
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	67.70
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	38.00 / 93.9
Project Number:	175578049		**if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	63.0
Well ID:	PMW-11B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/16/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1145	29.72	440	0	18.2	7.06	532.8	0.93	9.7	-48.3	3.13	clear	no odor
1150	29.72	440	2.2	18.2	7.15	532.7	0.50	5.1	-56.3	3.05	clear	no odor
1155	29.72	440	4.4	18.2	7.32	532.9	0.36	3.8	-76.3	3.26	clear	no odor
1200	29.72	440	6.6	18.3	7.36	533.7	0.31	3.3	-85.1	2.98	clear	no odor
1205	29.72	440	8.8	18.3	7.45	541.0	0.20	2.1	-127.7	2.90	clear	no odor
												Final Controller Settings
												Setting ID: 103
												Pressure (PSI): 35
Final Purge Values:		1205	8.8	18.3	7.45	541.0	0.20 (CR 1/26/21)	2.1	-127.7	2.90	clear	**Ambient Air (°C):** 2

CK 12/16/20

Sample ID:	ALF-GW-PMW11B-20201216	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/16/2020	*Field Blank ID:*	NA
Collection Time:	12:08	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	8.8	*Equipment Blank ID:*	NA
Sample Depth (feet):	63.0	*Filter Blank ID:*	NA
		Tubing Blank ID:	NA
Heavy Equipment in Area:	Yes	*DI water lot #:*	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	12:20
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	57.3	**Bottom of Screen (ft. btoc):**	67.3

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
29.72	18.2	7.35	567.2	0.48	4.9	-110.7	2.96	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/16/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/16/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/18/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/21/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	29.76
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	149.40
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	119.64 / 295.64
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	144.0
Well ID:	PMW-11C	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/16/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1055	29.95	340	0	17.9	6.87	581.0	1.29	13.2	-37.8	2.15	clear	no odor
1100	30.04	340	1.7	18.0	6.84	560.8	0.47	4.9	-38.1	2.24	clear	no odor
1105	30.05	340	3.4	18.0	6.98	559.0	0.37	3.8	-49.9	1.98	clear	no odor
1110	30.05	340	5.1	18.0	7.12	559.0	0.33	3.4	-71.3	2.06	clear	no odor
1115	30.05	340	6.8	18.0	7.14	558.9	0.30	3.1	-73.2	2.25	clear	no odor
1120	30.05	340	8.5	18.0	7.17	557.6	0.29	3.0	-80.2	2.12	clear	no odor
Final Purge Values:		1120	8.5	18.0	7.17	557.6	0.29	3.0	-80.2	2.12	clear	

CK 12/16/20

Final Controller Settings	
Setting ID:	102
Pressure (PSI):	75
Ambient Air (°C):	2

Sample ID:	ALF-GW-PMW11C-20201216	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/16/2020	*Field Blank ID:*	NA
Collection Time:	11:23	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	8.5	*Equipment Blank ID:*	NA
Sample Depth (feet):	144.0	*Filter Blank ID:*	NA
Heavy Equipment in Area:	Yes	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Analysis:	RI	*Filter purged for minimum 500 mL:*	No
Tubing Lot #:	N/A	*Filter Lot #:*	NA
Stability Reached (Y/N):	Yes	*Filter Sample Metals:*	No
If No, Provide Explanation	NA	*Other Filtered Samples Collected:*	NA
		Sample on-Ice: Time:	11:35
		Drawdown Stabilized < 0.3 ft:	Yes
Top of Screen (ft. btoc):	139.0	**Bottom of Screen (ft. btoc):**	149.0

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	**Color:**	clear
30.05	17.9	7.19	552.6	0.5	5.0	-53.4	2.07	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/16/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/16/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/18/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/21/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	39.10
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	59.90
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	20.80 / 51.4
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	49.0
Well ID:	PMW-14A	**Method of Purging:**	Dedicated Sampling Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	12/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0825	39.35	400	0	17.5	6.88	714	2.08	21.0	-22.1	3.01	clear	no odor
0830	39.35	400	2.0	17.5	7.13	705	0.48	5.0	-91.3	2.95	clear	no odor
0835	39.35	400	4.0	17.6	7.13	707	0.47	4.9	-93.3	2.70	clear	no odor
0840	39.35	400	6.0	17.6	7.13	707	0.43	4.6	-96.3	2.88	clear	no odor
												Final Controller Settings
							CK	12/10/20				**Setting ID:** 100
												Pressure (PSI): 35
Final Purge Values:		0840	6.0	17.6	7.13	707	0.43	4.6	-96.3	2.88	clear	**Ambient Air (°C):** 9

Sample ID:	ALF-GW-PMW14A-20201210	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	12/10/2020	*Field Duplicate ID:*	NA
Collection Time:	8:43	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	6.0	*Filter Blank ID:*	NA
Sample Depth (feet):	49.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	8:55
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	38.5	**Bottom of Screen (ft. btoc):**	59.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
39.35	17.7	7.16	701	0.45	4.9	-85.3	2.45	Odor:	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/10/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/10/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/15/2020	**Signature:**	Courtnae Ramser
DL/SME Review by:	Matthew Dower	**Date:**	12/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	51.62
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	89.90
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	38.28 / 94.59
			if water column is < 4.5 L contact Field Coordinator
Project Number:	175578049		
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	85.0
Well ID:	PMW-14B	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	4.0	**Date:**	~~12/20/2020~~ 12/10/2020 (CR 1/26/21)

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0910	51.60	400	0	17.3	6.95	716	0.35	3.5	-89.6	5.59	clear	no odor, metal like specs in matrix
0915	51.60	400	2.0	17.4	7.09	720	0.28	2.7	-125.1	5.42	clear	no odor, metal like specs in matrix
0920	51.60	400	4.0	17.4	7.11	719	0.21	2.2	-138.7	5.20	clear	no odor, metal like specs in matrix
0925	51.60	400	6.0	17.4	7.14	713	0.19	3.1	-145.5	5.12	clear	no odor, metal like specs in matrix
0930	51.60	400	8.0	17.4	7.12	718	0.20	2.0	-146.3	5.03	clear	no odor, metal like specs in matrix
0935	51.60	400	10.0	17.4	7.11	717	0.19	2.0	-145.8	4.90	clear	no odor, metal like specs in matrix
												Final Controller Settings
							CK 12/10/20					**Setting ID:** 99
												Pressure (PSI): 70
Final Purge Values:		0935	10.0	17.4	7.11	717	0.19	2.0	-145.8	4.90	clear	**Ambient Air (°C):** 11

Sample ID:	ALF-GW-PMW14B-20201210	**QA/QC Sample Collected:**	Yes
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	ALF-GW-FB02-20201210
Sample Date:	~~12/20/2020~~ 12/10/2020 (CR 1/27/21)	*Field Duplicate ID:*	NA
Collection Time:	9:38	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	10.0	*Filter Blank ID:*	NA
Sample Depth (feet):	85.0	*Tubing Blank ID:*	NA
		DI water lot #:	Pace Fill Date: 12/02/2020
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:45
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	79.5	**Bottom of Screen (ft. btoc):**	89.5

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	no odor
51.60	17.5	7.11	713	0.38	4.0	-135.7	3.43	**Odor:**	no odor, metal like specs in matrix

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	2	2	4	2	2
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	~~12/20/2020~~ 12/10/2020 (CR 1/26/21)	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	~~12/20/2020~~ 12/10/2020 (CR 1/26/21)	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/15/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	12/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	51.65
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	162.30
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	110.65 / 273.43
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	156.0
Well ID:	PMW-14C	**Method of Purging:**	Dedicated Bladder Pump
Well Type:	MW	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	~~2.0~~ 4.0 (CR 1/26/21)	**Date:**	12/10/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
1010	51.70	400	0	17.5	6.52	395.5	4.11	42.0	-47.5	2.30	clear	no odor
1015	51.70	400	2.0	17.5	6.80	393.0	0.91	9.3	-30.3	3.83	clear	no odor
1020	51.70	400	4.0	17.5	6.96	394.2	0.43	4.4	-38.7	3.50	clear	no odor
1025	51.70	400	6.0	17.4	7.05	395.1	0.21	2.1	-97.3	3.45	clear	no odor
1030	51.70	400	8.0	17.5	7.11	394.9	0.20	2.0	-104.9	4.73	clear	no odor
1035	51.70	400	10.0	17.5	7.10	394.5	0.20	2.0	-107.3	4.38	clear	no odor
												Final Controller Settings
												Setting ID: 107
							CK 12/10/20					**Pressure (PSI):** 85
Final Purge Values:		1035	10.0	17.5	7.10	394.5	0.20	2.0	-107.3	4.38	clear	**Ambient Air (°C):** 14

Sample ID:	ALF-GW-PMW14C-20201210	**QA/QC Sample Collected:**	No
		MS/MSD/LD collected:	No
Method of Sampling:	Low Flow	*Field Blank ID:*	NA
Sample Date:	12/10/2020	*Field Duplicate ID:*	NA
Collection Time:	10:38	*Equipment Blank ID:*	NA
Total Volume Purged (L):*	10.0	*Filter Blank ID:*	NA
Sample Depth (feet):	156.0	*Tubing Blank ID:*	NA
		DI water lot #:	NA
Heavy Equipment in Area:	No	*Filter purged for minimum 500 mL:*	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	No
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	10:46
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	Yes
Top of Screen (ft. btoc):	151.9	**Bottom of Screen (ft. btoc):**	161.9

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
51.70	17.4	7.10	394.2	0.44	4.6	-100.2	3.56	**Odor:**	no odor

WL Meter Manufacturer:	Heron	**Model:**	Dipper-T	**Serial No:**	904346
Controller Unit Manufacturer:	QED	**Model:**	MP50	**Serial No:**	mp50-2076

Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

Lead Sampler Name:	Stone McCoy	**Date:**	12/10/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/10/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/15/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	12/16/2020	**Signature:**	

*Does not include volume purged during establishment of stable flow rate

TVA TDEC ORDER GROUNDWATER SAMPLING FORM

Project Name:	ALF RI Order	**Initial Depth to Water (feet):**	unknown
Plant Name:	Allen Fossil Plant ALF	**Total Depth of Well (feet):**	unknown
Plant Address:	2574 Steam Plant Rd, Memphis, TN 38109	**Total Water Column (feet) / (L)*:**	unknown / unknown
Project Number:	175578049		*if water column is < 4.5 L contact Field Coordinator*
Goal/Task:	Groundwater Investigation	**Pump Intake Depth (feet):**	unknown
Well ID:	PROD-1	**Method of Purging:**	Installed Pump Run by ACC plant
Well Type:	Produtcion Well	**Measuring Point (toc, tor, etc.):**	TOC
Well Diameter (inches):	Unknown	**Date:**	12/8/2020

Time	Depth to Water (ft btoc)	Flow Rate (mL/min)	Volume (L)*	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color (visual)	Comments/Observations During Purging (sediment, odor, etc.)
Stabilization Criteria			*NA*	*NA*	*± 0.1*	*± 3%*	*< 0.5 mg/L or ± 10%*	*NA*	*NA*	*± 10% or < 5 NTU*	*NA*	
0925	na	500	0	1.2	7.39	246.8	1.90	28.8	11.2	4.12	clear	TVA pump, sampling from spigot, do not control flow, no odor
0928	na	500	1.5	17.6	7.40	234.8	2.21	22.6	-109.0	2.10	clear	TVA pump, sampling from spigot, do not control flow, no odor
0931	na	500	3.0	18.2	6.69	192.4	0.79	8.3	-62.7	4.54	clear	TVA pump, sampling from spigot, do not control flow, no odor
0934	na	500	4.5	18.3	6.73	186.3	0.85	9.0	-39.9	4.28	clear	TVA pump, sampling from spigot, do not control flow, no odor
0937	na	500	6.0	18.6	6.75	185.5	0.94	10.0	-44.8	4.38	clear	TVA pump, sampling from spigot, do not control flow, no odor
0940	na	500	7.5	18.7	6.82	182.9	0.90	9.6	-38.1	3.24	clear	TVA pump, sampling from spigot, do not control flow, no odor
0943	na	500	9.0	18.2	6.82	180.6	0.90	9.6	-36.9	3.10	clear	TVA pump, sampling from spigot, do not control flow, no odor
												Final Controller Settings
												Setting ID: NA
							CK 12/8/20					**Pressure (PSI):** NA
Final Purge Values:		0943	9.0	18.2	6.82	180.6	0.90	9.6	-36.9	3.10	clear	**Ambient Air (°C):** 8 ~~C~~ (CR 12/11/2020)

Sample ID:	ALF-GW-PROD1-20201208	**QA/QC Sample Collected:**	No
Method of Sampling:	Low Flow	*MS/MSD/LD collected:*	No
Sample Date:	12/8/2020	*Field Blank ID:*	NA
Collection Time:	9:45	*Field Duplicate ID:*	NA
Total Volume Purged (L):*	9.0	*Equipment Blank ID:*	NA
Sample Depth (feet):	NA	*Filter Blank ID:*	NA
Heavy Equipment in Area:	No	*Tubing Blank ID:*	NA
		DI water lot #:	NA
		Filter purged for minimum 500 mL:	No
Analysis:	RI	*Filter Lot #:*	NA
		Filter Sample Metals:	Yes
Tubing Lot #:	N/A	*Other Filtered Samples Collected:*	NA
Stability Reached (Y/N):	Yes	*Sample on-Ice: Time:*	9:55
If No, Provide Explanation	NA	*Drawdown Stabilized < 0.3 ft:*	NA
Top of Screen (ft. btoc):	~~160.1~~ 503 MD 12/15/20	**Bottom of Screen (ft. btoc):**	~~170.1~~ 603 MD 12/15/2020

Post-sampling Parameters

Depth to Water (ft btoc)	Temp. (°C)	pH (SU)	Specific Conductance (µS/cm)	DO (mg/L)	DO (%)	ORP (mV)	Turbidity (NTU)	Color:	clear
NA	18.5	6.81	184.4	0.76	7.9	-26.4	0.67	Odor:	no odor

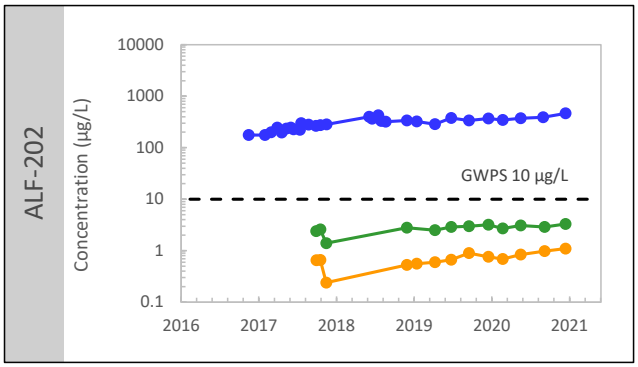
WL Meter Manufacturer:	NA	**Model:**	NA	**Serial No:**	NA
Controller Unit Manufacturer:	NA	**Model:**	NA	**Serial No:**	NA

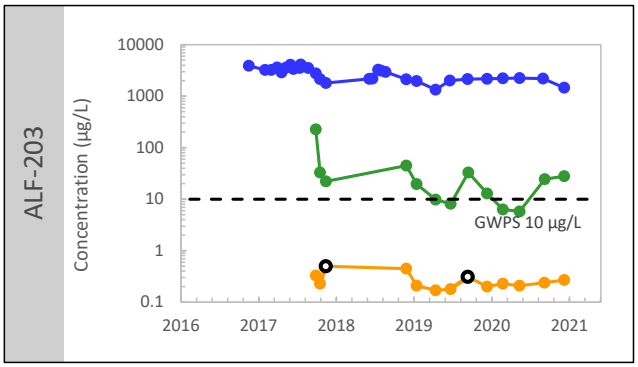
Analytes:	**Metals**	**Anions**	**Radium 226/ 228**	**TDS**	**Alkalinity**
Method:	SW 846 6020A/7470A	SW 846 9056A SM2320B	EPA 903.0/904.0 (21-day ingrowth)	SM 2540C	SM2320B
Bottle Lot Number	102620-2eiz	101920-2eix	111620-2eey	101920-2adt	101920-2eix
Bottle Type:	Plastic	Plastic	Plastic	Plastic	Plastic
Volume (mL):	250	250	1000	500	250
No. of Bottles Collected:	1	1	2	1	1
Preservative:	HNO_3	Unpreserved	HNO_3	Unpreserved	Unpreserved

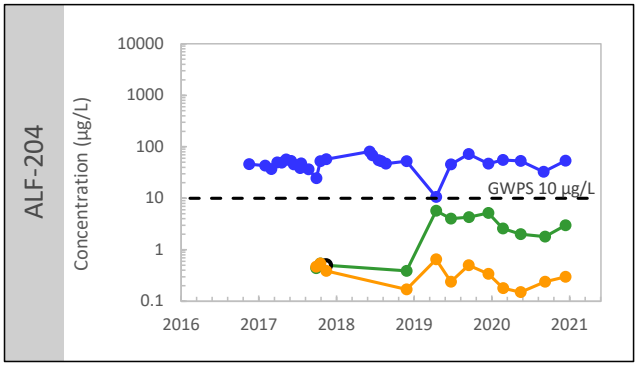
Lead Sampler Name:	Stone McCoy	**Date:**	12/8/2020	**Signature:**	
Sampler Name:	Chris Knabel	**Date:**	12/8/2020	**Signature:**	
FTL/Designee Review by:	Courtnae Ramser	**Date:**	12/11/2020	**Signature:**	
DL/SME Review by:	Matthew Dower	**Date:**	12/15/2020	**Signature:**	

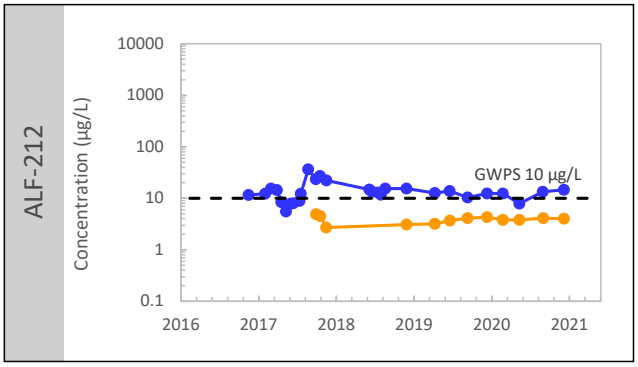
*Does not include volume purged during establishment of stable flow rate

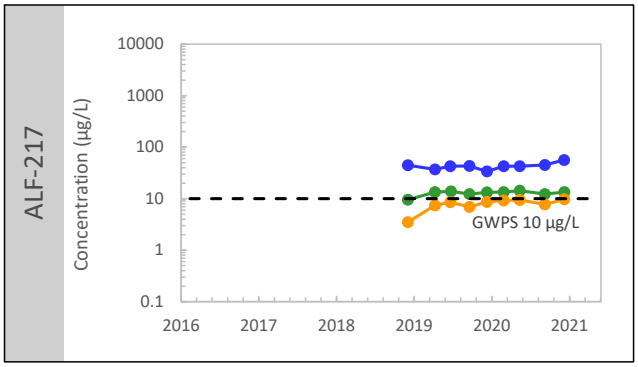
APPENDIX C
TVA ALLEN GROUNDWATER COC
TREND GRAPHS

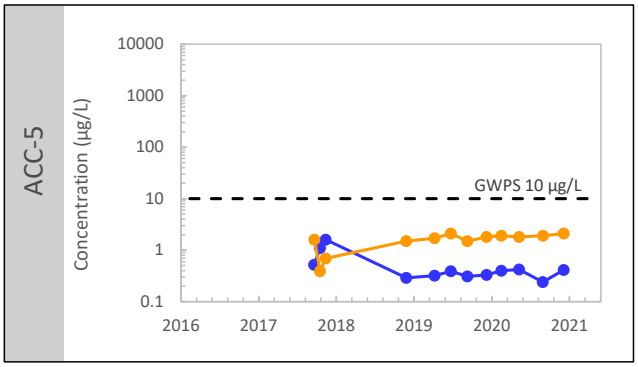












Legend

- Shallow Well
- Intermediate Well
- Deep Well
- Non-detectable Concentration
- GWPS - Groundwater Protection Standard
  Arsenic MCL = 10 µg/L

Stantec

Project/Location
Allen Fossil Plant (ALF)

Client/Project
TENNESSEE VALLEY AUTHORITY
Allen Fossil Plant (ALF)

Figure Number
1

Title
Arsenic Concentration Trend Graphs: Alluvial Aquifer Wells ALF-202, ALF-203, ALF-204, ALF-212, ALF-217, ACC-5

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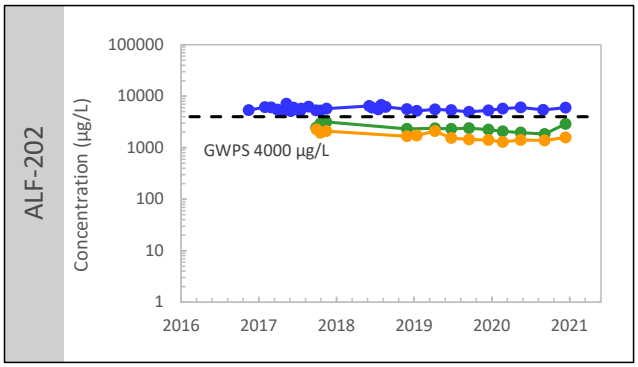

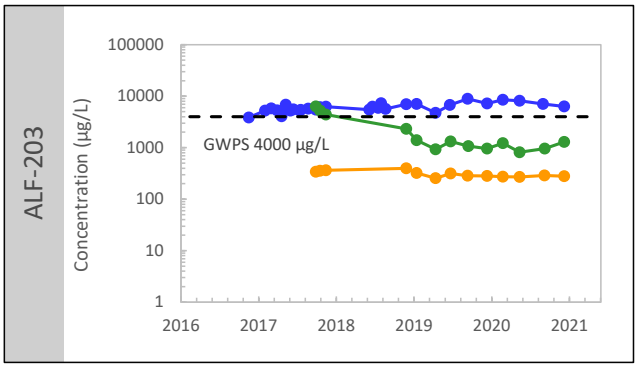

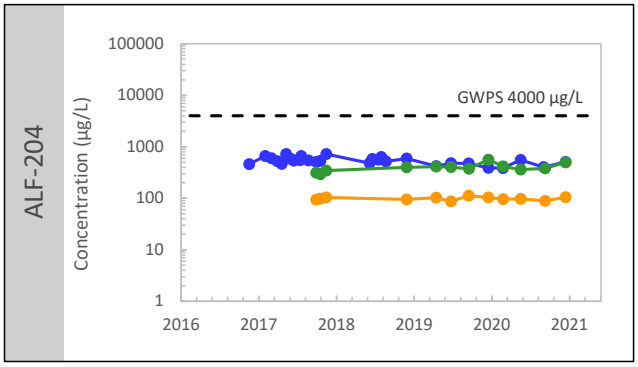

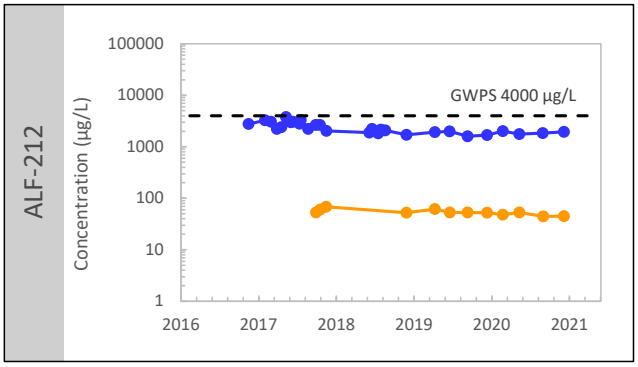

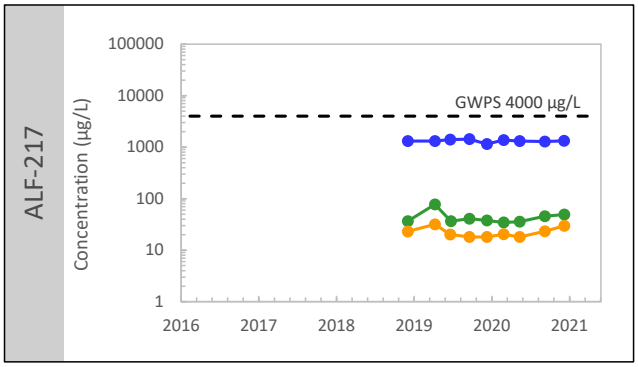

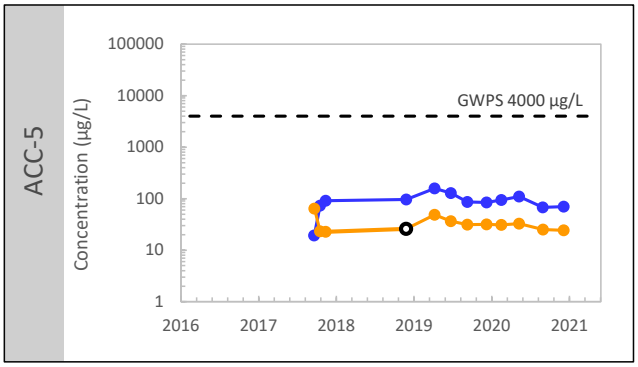

Legend

- Shallow Well
- Intermediate Well
- Deep Well
- Non-detectable Concentration
- GWPS - Groundwater Protection Standard Boron RSL = 4000 µg/L

Stantec

Project/Location
Allen Fossil Plant (ALF)

Client/Project
TENNESSEE VALLEY AUTHORITY
Allen Fossil Plant (ALF)

Figure Number
2

Title
Boron Concentration Trend Graphs: Alluvial Aquifer Wells ALF-202, ALF-203, ALF-204, ALF-212, ALF-217, ACC-5

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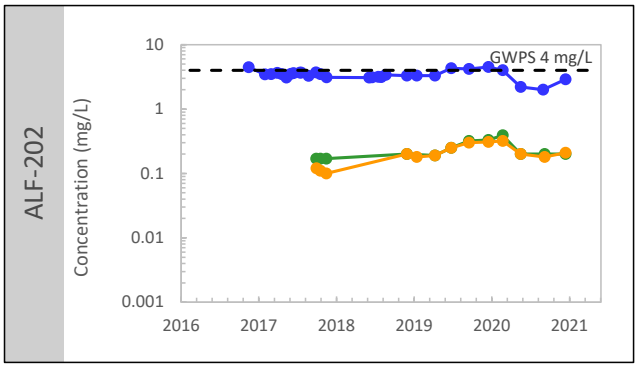

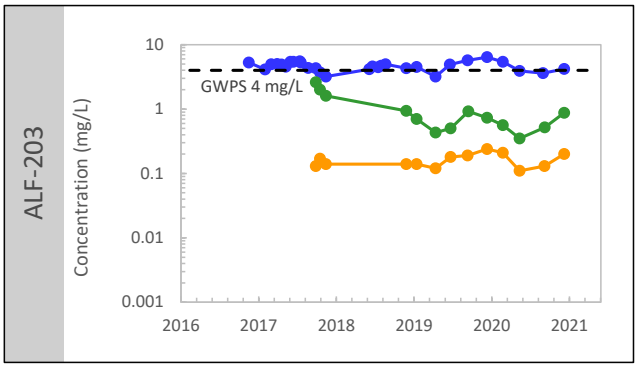

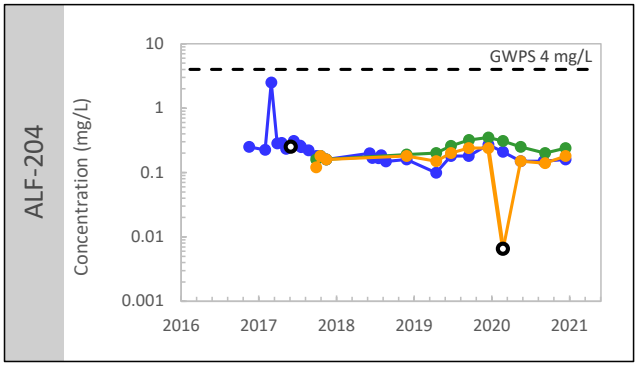

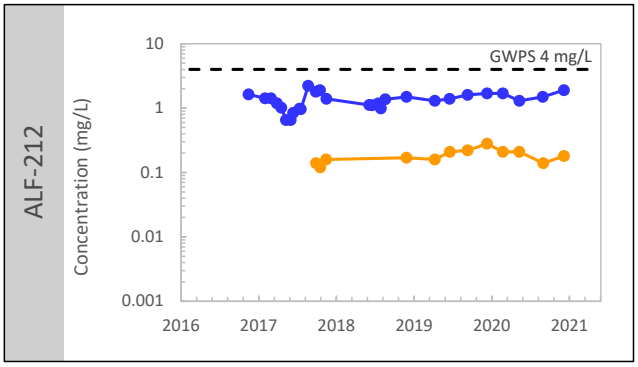

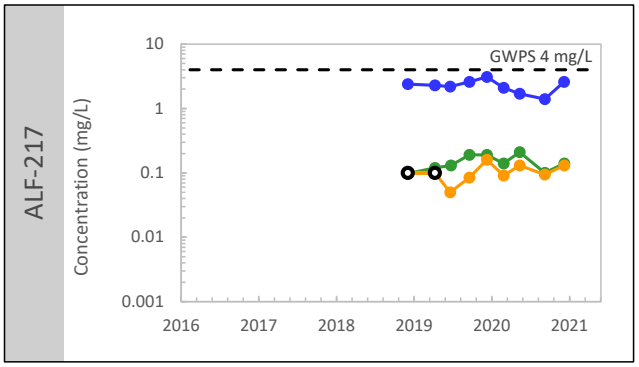

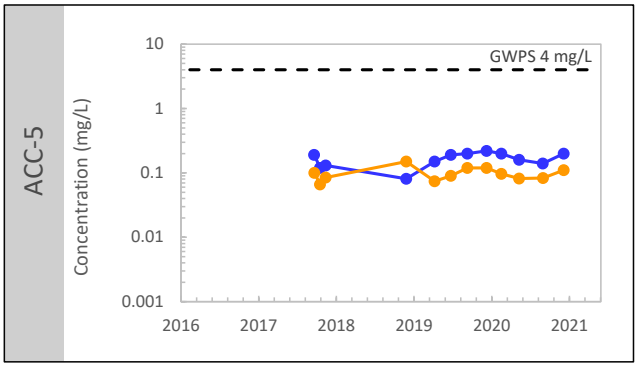

Legend

- Shallow Well
- Intermediate Well
- Deep Well
- Non-detectable Concentration
- GWPS - Groundwater Protection Standard Fluoride MCL = 4 mg/L

Stantec

Project/Location
Allen Fossil Plant (ALF)

Client/Project
TENNESSEE VALLEY AUTHORITY
Allen Fossil Plant (ALF)

Figure Number
3

Title
Fluoride Concentration Trend Graphs: Alluvial Aquifer Wells ALF-202, ALF-203, ALF-204, ALF-212, ALF-217, ACC-5

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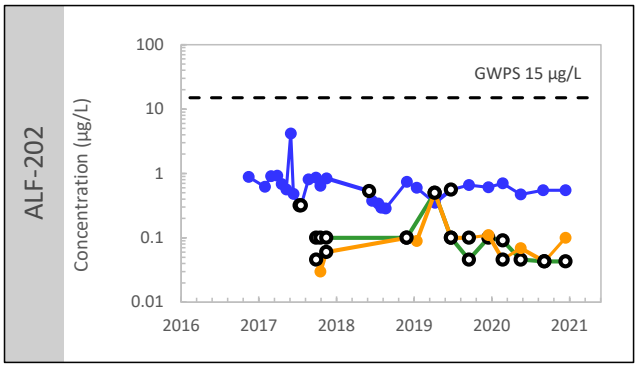

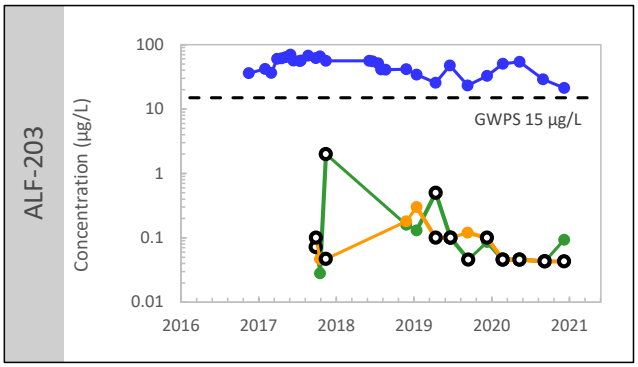

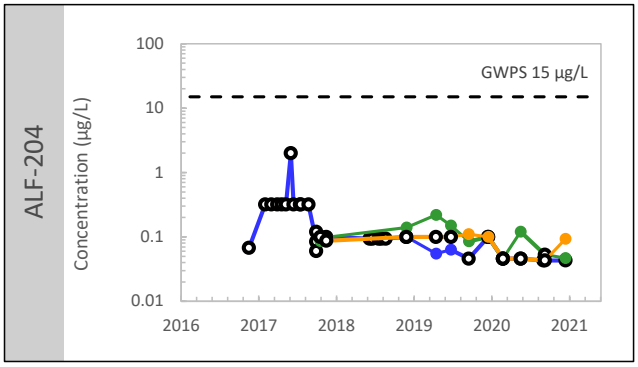

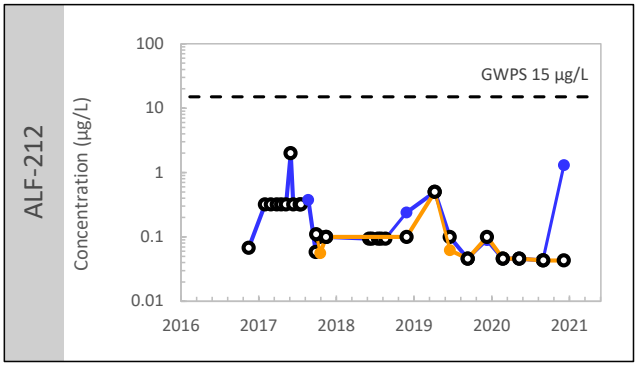

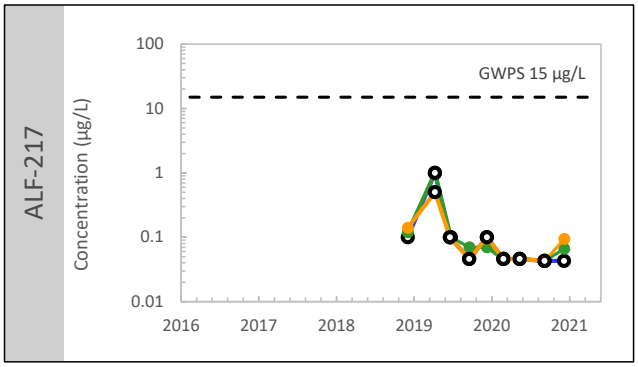

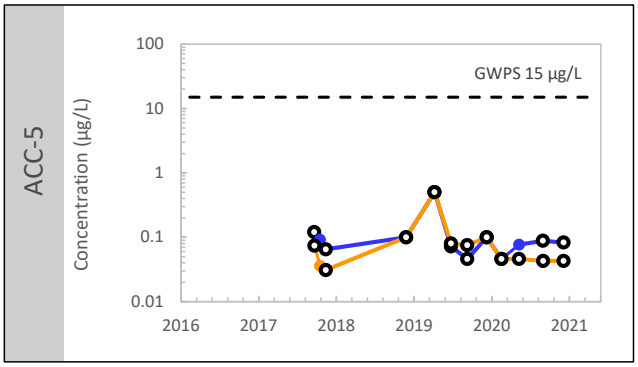

Legend

- Shallow Well
- Intermediate Well
- Deep Well
- Non-detectable Concentration
- GWPS - Groundwater Protection Standard
  Lead MCL = 15 µg/L

Stantec

Project/Location
Allen Fossil Plant (ALF)

Client/Project
TENNESSEE VALLEY AUTHORITY
Allen Fossil Plant (ALF)

Figure Number
4

Title
Lead Concentration Trend Graphs:
Alluvial Aquifer Wells ALF-202, ALF-203, ALF-204, ALF-212, ALF-217, ACC-5

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APPENDIX D
2020 BACKGROUND ANALYSIS REPORT FOR ALLEN FOSSIL PLANT

Stantec

2020 Background Analysis Report for Allen Fossil Plant

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2021-02-18

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1 Introduction

This report describes the methodology used to compute background-based statistics at the Tennessee Valley Authority (TVA) Allen Fossil Plant (ALF). A set of background groundwater limits were constructed, known as background threshold values (BTVs). BTVs estimate the magnitude and range of the background concentration distribution.

At the ALF RI network, the sampling results used to compute the background statistics were obtained from a set of designated background wells (ACC-1A, ACC-3A, ACC-5A, ACC-5B, ALF-216) using data collected from September 2017 until December 2020. Groundwater samples were analyzed for 30 distinct constituents (listed in **Table 1**). Only non-filtered sample results were utilized for the statistical analysis.

Table 1: ALF RI Monitored Constituents

Monitored	Constituents
Alkalinity	Magnesium
Antimony	Mercury
Arsenic	Molybdenum
Barium	Nickel
Beryllium	pH
Boron	Potassium
Cadmium	Selenium
Calcium	Silver
Chloride	Sodium
Chromium	Sulfate
Cobalt	TDS
Copper	Thallium
Fluoride	Total Radium
Lead	Vanadium
Lithium	Zinc

The background limits were computed using the combined measurements from 5 well locations for each constituent. All computations were done with the 'R' Statistical Analysis package (www.r-project.org) in conjunction with R-Studio (www.rstudio.com) (both popular public domain software products) and other analytical tools in the production of the statistical values and graphs. ProUCL data dumps from TVA's EQuIS Professional and Enterprise Database were used to populate the R-based statistical analyses.

2 Developing Background Threshold Values (BTVs)

Background Threshold Values (BTVs) are fixed, concentration-based numerical limits designed to represent an upper bound on typical background levels. USEPA guidance (USEPA 2009) recommends setting site-specific BTVs, since remediating groundwater to below background is often either impossible or a conceptual non-starter. It is thus necessary to estimate upper limits on background for all contaminants of concern (COCs).

In cases where a background limit is computed, USEPA's *Unified Guidance* ((USEPA 2009), Section 7.5) recommends different strategies for computing a background-based standard. One of these

strategies — a 95% confidence, 95% coverage upper tolerance limit (UTL) on background — was selected and used to compute the BTV on site-specific background data for each parameter.

To compute each upper tolerance limit (UTL), the following steps were taken:

1. The data were first summarized and modeled.

The background data from the 5 background well locations were initially examined and graphed. Time series plots of each well-constituent pair display the individual measurement results, while side-by-side boxplots allow visual comparisons between the background wells.

2. All the background data from 2017 to 2020 were grouped and checked for possible outliers.

Outlier screening was performed visually on time series plots of the data, as well as systematically via a modified version of Tukey's boxplot rule. In a boxplot, the length of the box is the range of the central 50% of the sorted measurements. Tukey's original outlier rule states that any observation more than 1.5 box lengths above or below the edges of the boxplot classifies as a possible outlier. For stable, symmetric data distributions, Tukey's rule often works well.

Groundwater data are often skewed instead of symmetric, and may exhibit shorter (i.e., localized) or longer-term (non-linear) trends. Because of this reality, a modified version of Tukey's rule is generally needed to avoid classifying too many possible outliers. The modification consists of two parts: a) a possible outlier is only flagged if flagged both on the nominal scale of measurement as well as on the log-scale (i.e., when each observation is first mathematically transformed by taking a logarithm); and b) an outlier is only flagged if more than 3 box lengths above the edges of the boxplot. Together, these modifications better account for data skewness and localized trends in the background observations.

If any possible outliers are flagged, they are visually compared against observations at other well locations. If similar patterns or measurement ranges are common, the suspect values are kept in the data. If not, the suspected outliers are formally assessed using Rosner's outlier test. Any confirmed outliers were excluded from the UTL computations.

Any final background outliers are listed in **Table 2** below. These values were excluded from the BTV calculations.

Table 2: Confirmed and Excluded Background Outliers

COI	Well	Date	Result	Outlier
Calcium	ACC-5A	2017-09-21	143	TRUE
Calcium	ACC-5B	2017-09-20	61.9	TRUE
Copper	ACC-3A	2019-12-11	0.0066	TRUE
Lithium	ACC-5B	2017-09-20	0.006	TRUE
Lithium	ACC-5A	2017-09-21	0.0198	TRUE
Molybdenum	ACC-5B	2017-09-20	0.0033	TRUE
pH	ACC-5B	2017-11-13	8.1	TRUE
TDS	ALF-216	2017-09-28	1070	TRUE
Zinc	ACC-5B	2017-09-20	0.0522	TRUE

3. The grouped baseline data — excluding any confirmed outliers — were analyzed to determine whether they could be fit to a known statistical model. If so, a parametric UTL was computed; if not, a nonparametric UTL was constructed. Note that for pH, both a lower tolerance limit (LTL) and an upper tolerance limit (UTL) were constructed, leading to lower and upper BTVs for that parameter.

To fit potential statistical models, a series of normalizing mathematical transformations was applied to each baseline dataset. These transformations are known as power transformations, since they raise each observation to a mathematical power. The goal is to find, if possible, a transformation that normalizes the data on the transformed scale. Models tested ranged from the tenth root to the tenth power, and included the null transformation (power = 1), which assumes the data are normally distributed without transformation, the logarithm, which models the lognormal distribution, and the cube root, which closely mimics the gamma distribution.

The transformation which most nearly normalized the data was then formally tested using Filliben's probability plot correlation coefficient test. Filliben's test checks for normality of the transformed measurements by computing the correlation between the data and matched quantiles (i.e., z-scores) from a standard normal distribution. The process parallels fitting a line on a normal probability plot of the (transformed) data. The closer to a linear fit, the higher the correlation; the further from a linear fit, the smaller the correlation. Filliben's test formally assesses the strength of the correlation to determine whether it is high enough to declare that the data are consistent with a normal distributional model.

Filliben's test yields a p-value measuring the statistical significance of the result. A p-value no less than 0.01 was judged as sufficient to assume normality of the (transformed) observations, while data with a Filliben's test p-value less than 0.01 were judged significantly non-normal. Datasets passing Filliben's test were assumed to have a parametric model corresponding to the transformation employed, e.g., data tested on the log-scale were assumed consistent with the lognormal distribution; data tested on the square root scale were assumed consistent with the square-root normal distribution, and so on.

Datasets which could not be sufficiently normalized, thus failing Filliben's test, were analyzed by nonparametric means. In many instances, this occurs when the data includes a large fraction of non-detects.

4. The final statistical model for each constituent was used to compute an upper tolerance limit (UTL) with 95% coverage and 95% confidence.

When a parametric model is appropriate, on the normalized scale, a UTL is computed using the standard normal theory equation:

$$UTL = \bar{x} + \kappa s$$

where $\bar{x}$ and s represent the mean and standard deviation of the (transformed) observations, and κ is a multiplier which depends on the number of baseline measurements, as well as the desired coverage and confidence levels. If the data have been transformed, the final UTL is derived by back-transforming the scaled UTL, e.g, for a log transformation, the result is exponentiated; for a square-root transformation, the result is squared, etc.

For nonparametric models, the normal theory equation does not apply. Instead, the UTL is selected as one of the largest of the sample values, typically the maximum. Because there is no multiplier as in the parametric case, the confidence level associated with a nonparametric UTL is computed

'after the fact,' based on the sample size and desired coverage level: the smaller the sample size, the lower the confidence; the bigger the sample size, the higher the confidence level.

Since nonparametric UTLs do not assume a known statistical model, unless the sample size is fairly large (e.g., ~80-90), the achieved confidence level can be lower than the target of 95%. When this happens, the computed UTL may not be highly accurate. A more accurate UTL would likely be larger than the one computed from the available sample data.

For the ALF RI network, **Table 3** lists the calculated BTVs established for this monitoring network. **Appendix A** displays plots of the BTVs, stacked against the observed background data.

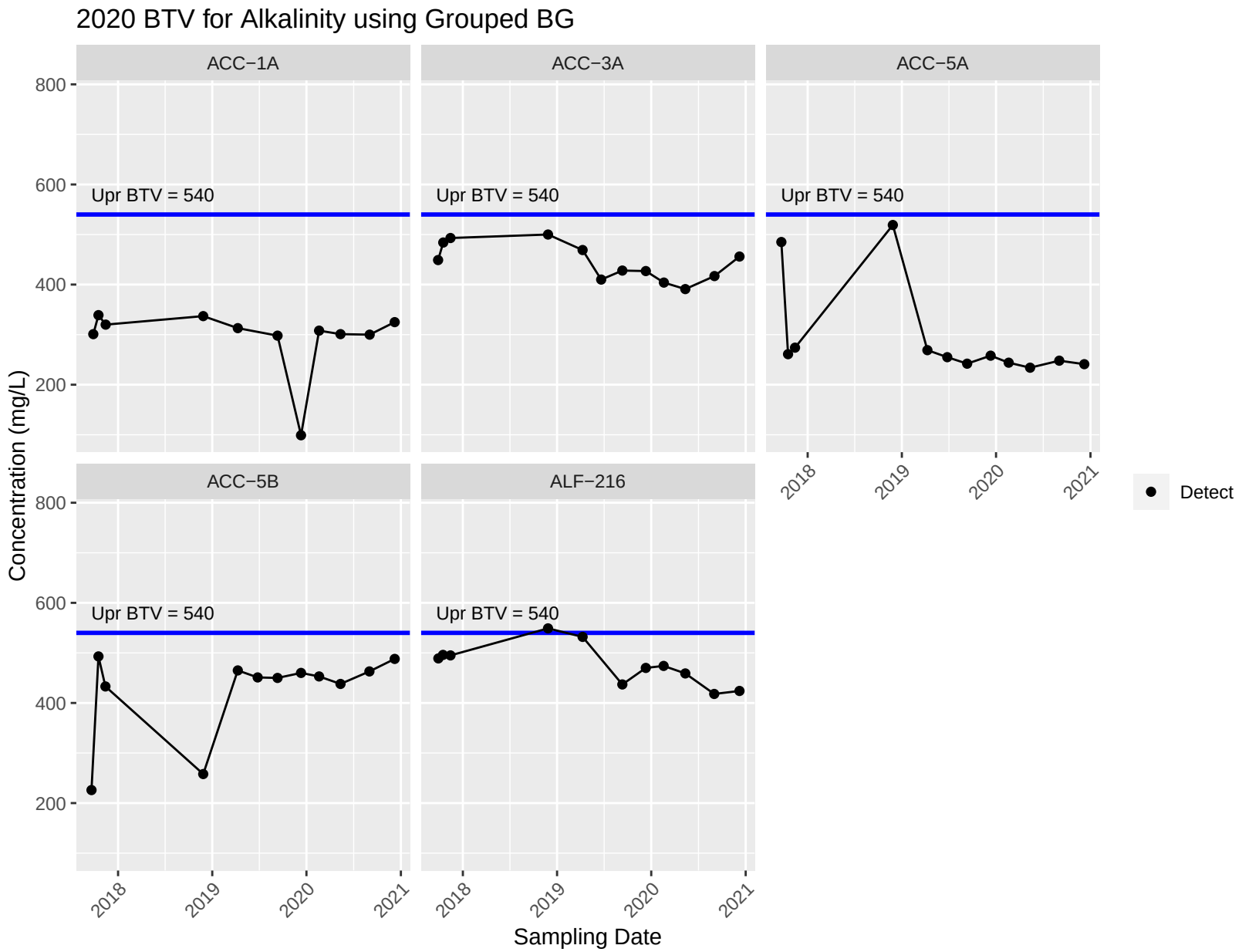
Table 3: ALF Background Threshold Values (BTVs)

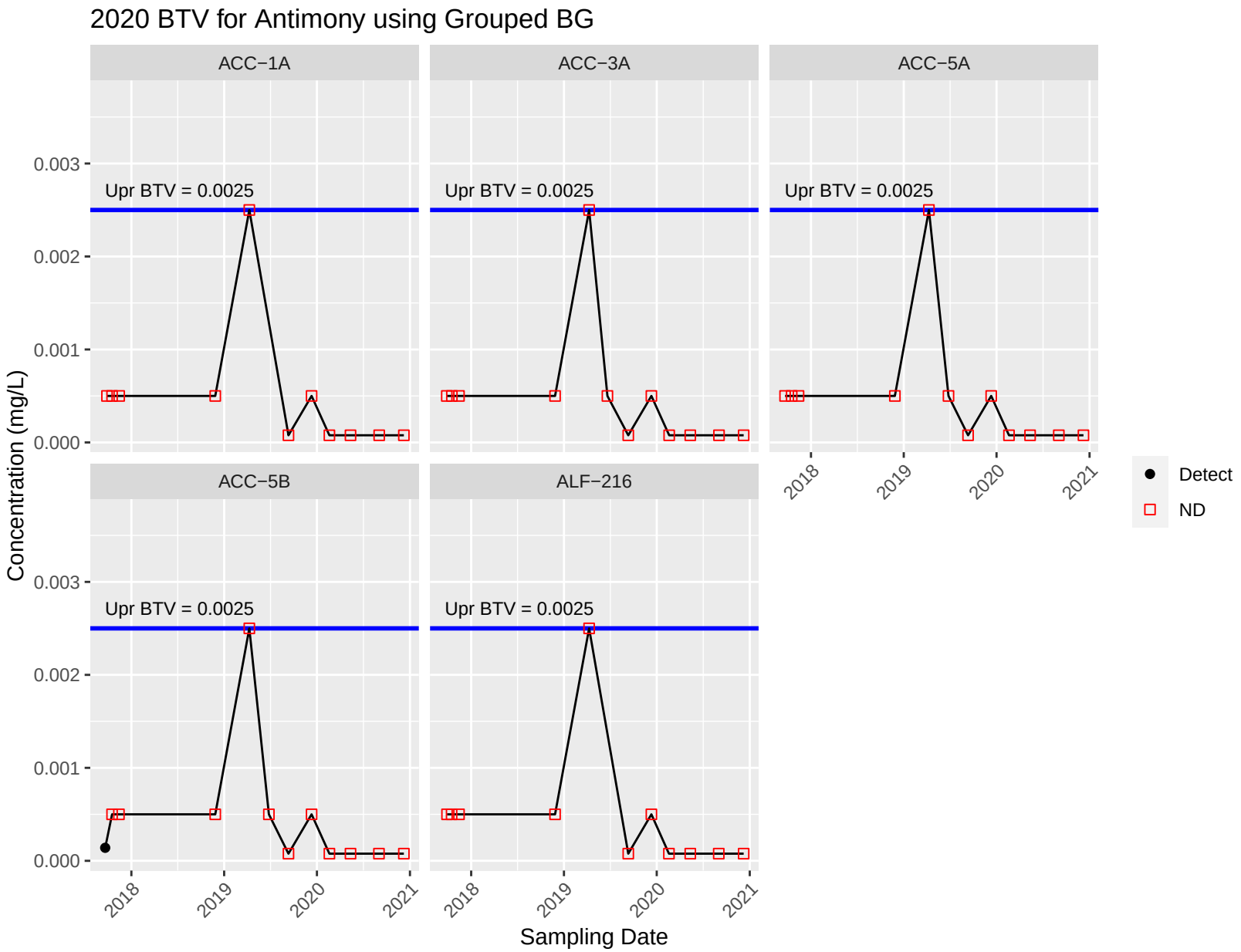
COC	N	Model	Units	Lwr.BTV	Upr.BTV
Alkalinity	58	Cube	mg/L	NA	540
Antimony	58	NP	mg/L	NA	0.0025
Arsenic	58	NP	mg/L	NA	0.0061
Barium	58	NP	mg/L	NA	1.03
Beryllium	58	NP	mg/L	NA	5e-04
Boron	58	Square Root	mg/L	NA	0.338
Cadmium	58	NP	mg/L	NA	4e-04
Calcium	56	NP	mg/L	NA	156
Chloride	58	Log	mg/L	NA	23
Chromium	58	NP	mg/L	NA	0.0025
Cobalt	58	NP	mg/L	NA	0.0038
Copper	57	Log	mg/L	NA	0.00102
Fluoride	58	Log	mg/L	NA	0.222
Lead	58	Tenth Root	mg/L	NA	7.48e-05
Lithium	56	NP	mg/L	NA	0.0203
Magnesium	58	Normal	mg/L	NA	44.6
Mercury	58	NP	mg/L	NA	2e-04
Molybdenum	57	Log	mg/L	NA	0.00102
Nickel	58	Log	mg/L	NA	0.0107
pH	57	Log	SU	6.25	7.45
Potassium	58	Square	mg/L	NA	3.43
Selenium	58	NP	mg/L	NA	0.0025
Silver	58	NP	mg/L	NA	0.002
Sodium	58	Log	mg/L	NA	18.4
Sulfate	58	Normal	mg/L	NA	102
TDS	57	Square	mg/L	NA	611
Thallium	58	NP	mg/L	NA	5e-04
Total Radium	40	Fourth Root	pCi/L	NA	3.49
Vanadium	58	NP	mg/L	NA	0.0015
Zinc	57	Cube Root	mg/L	NA	0.00783

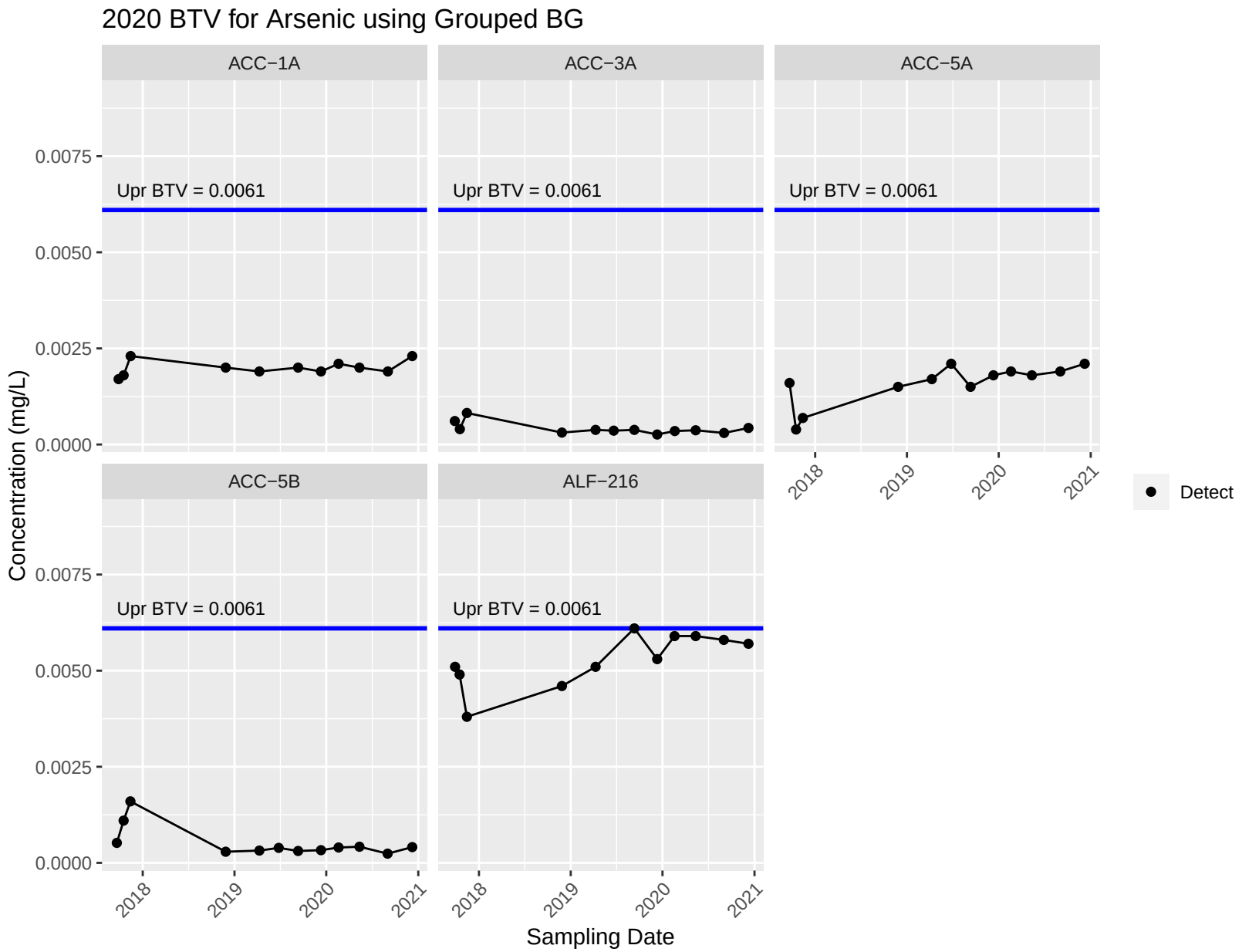
3 References

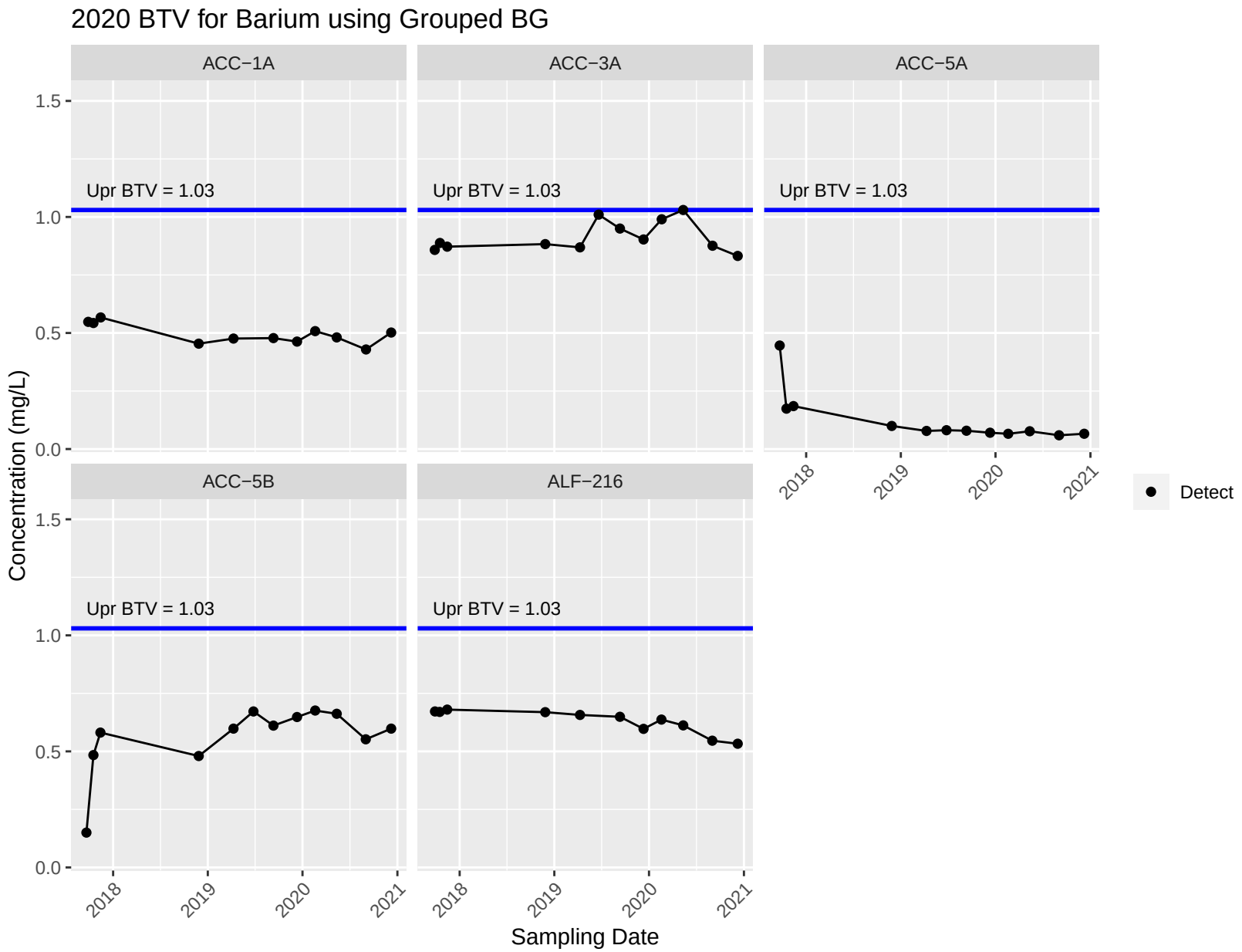
USEPA. 2009. "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities: Unified Guidance." USEPA: Office of Resource Conservation & Recovery, EPA 530-R-09-007.

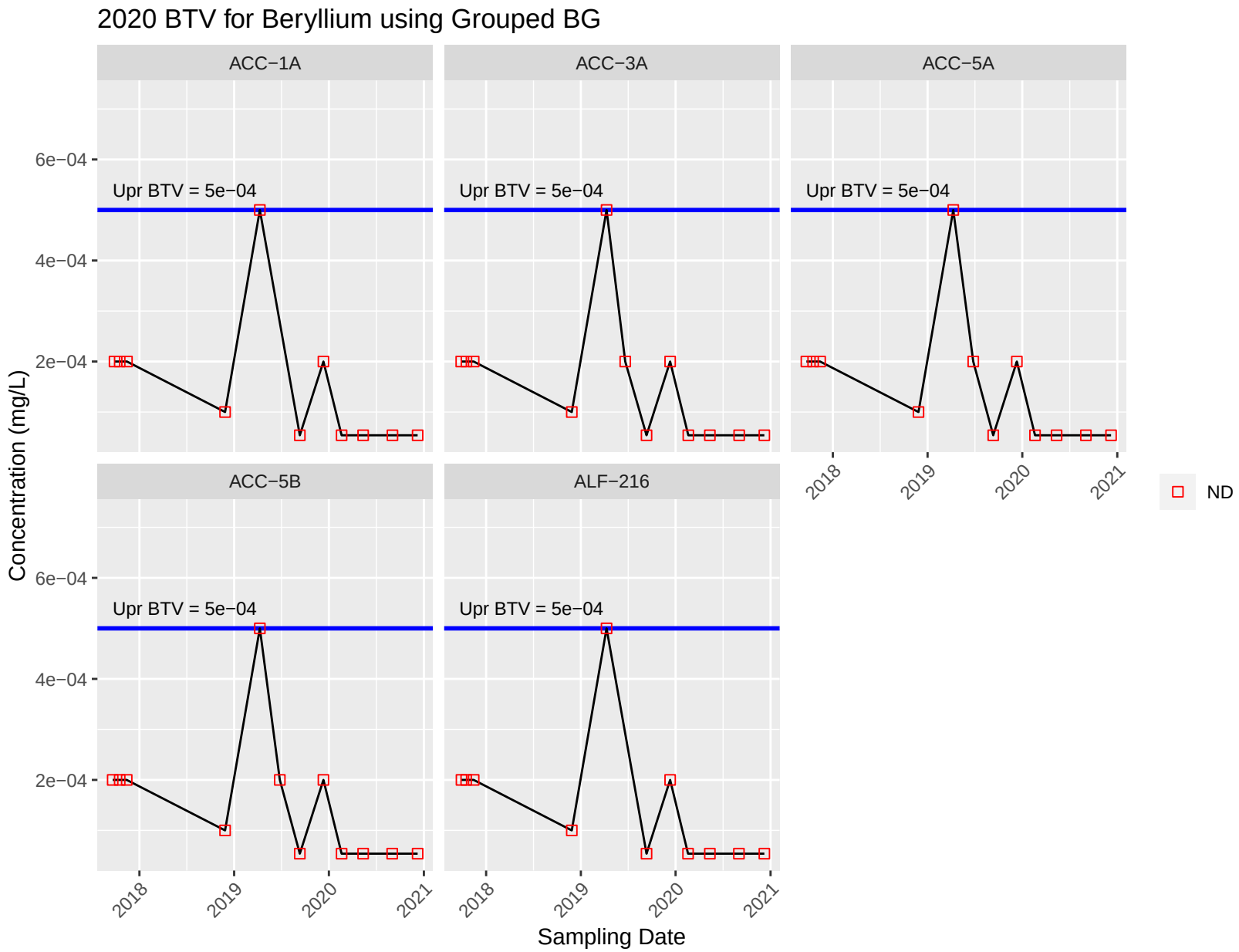
Appendix A: BTV Plots

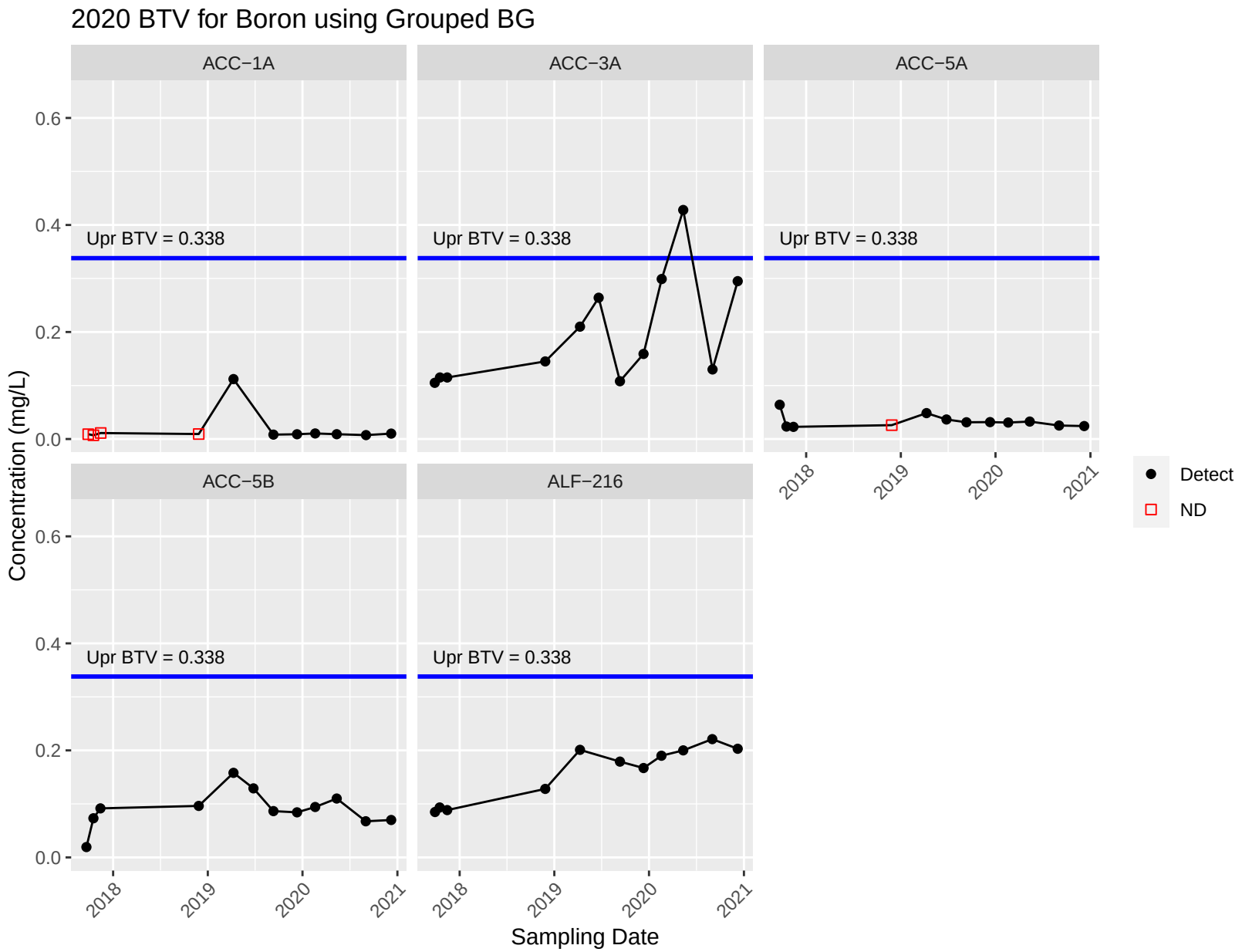

2020 BTV for Alkalinity using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 540
Concentration (mg/L)
800
600
400
200
2018
2019
2020
2021
Sampling Date
Detect

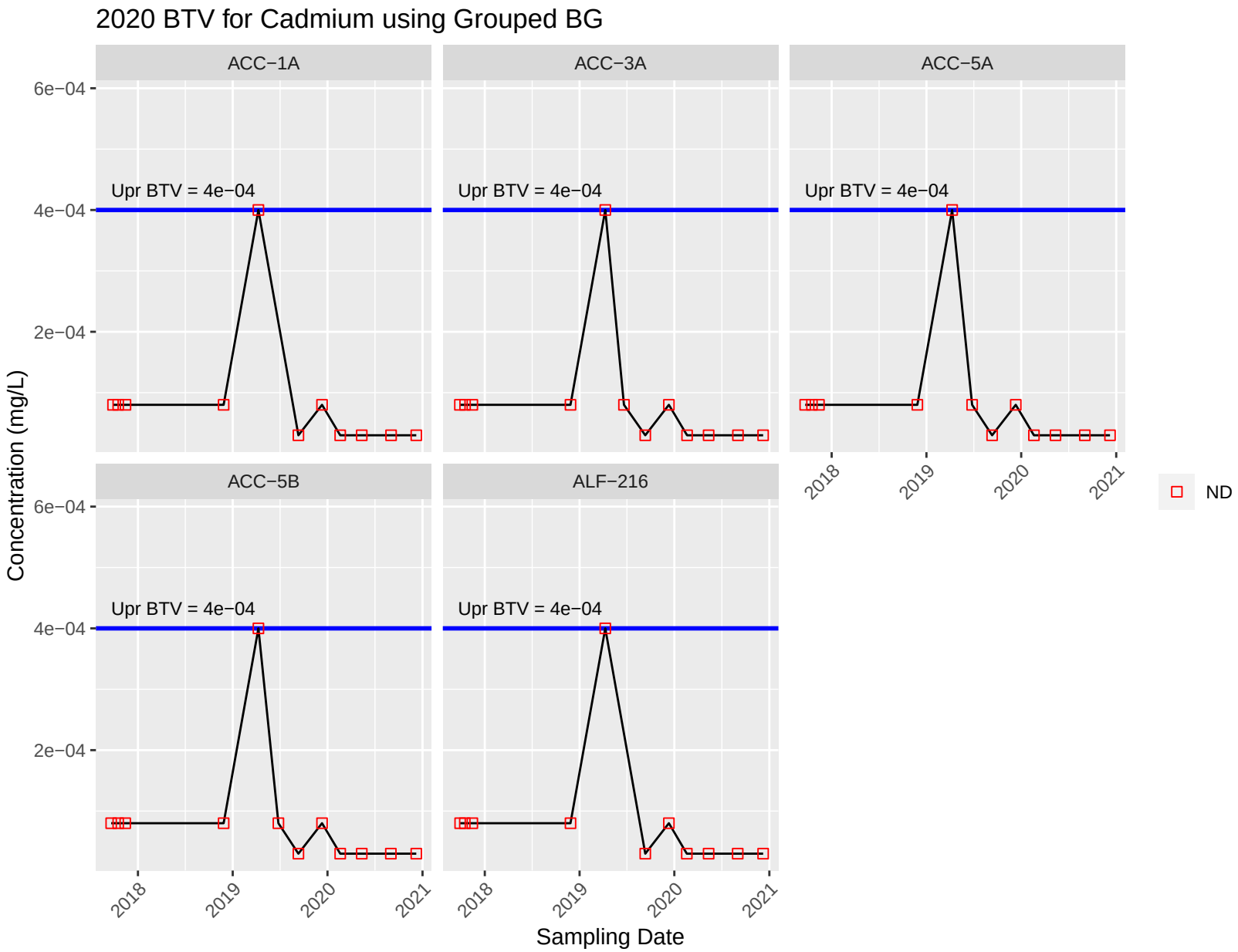

2020 BTV for Antimony using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 0.0025
Concentration (mg/L)
0.003
0.002
0.001
0.000
2018
2019
2020
2021
Sampling Date
Detect
ND

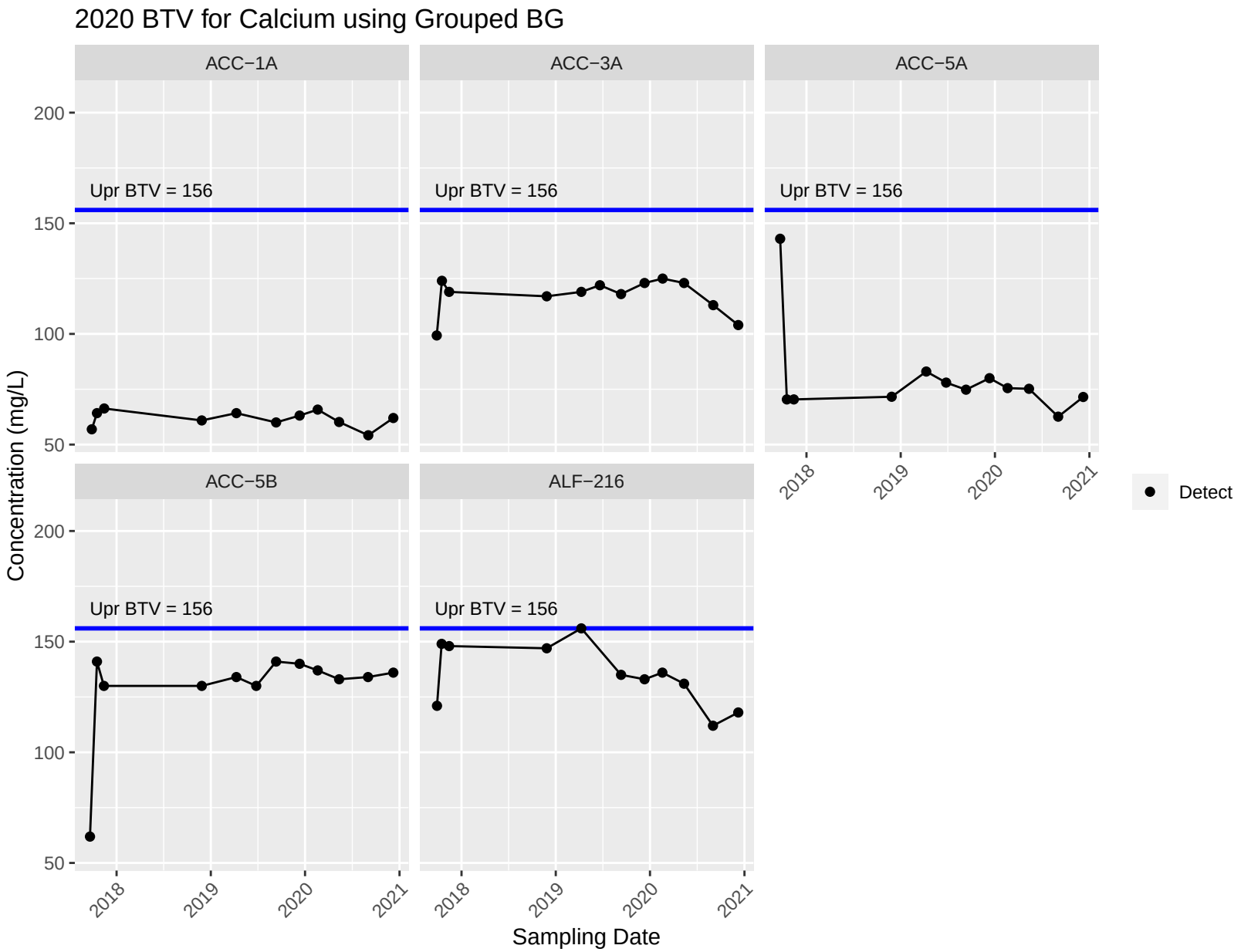

2020 BTV for Arsenic using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 0.0061
0.0075
0.0050
0.0025
0.0000
Concentration (mg/L)
2018
2019
2020
2021
Sampling Date
Detect

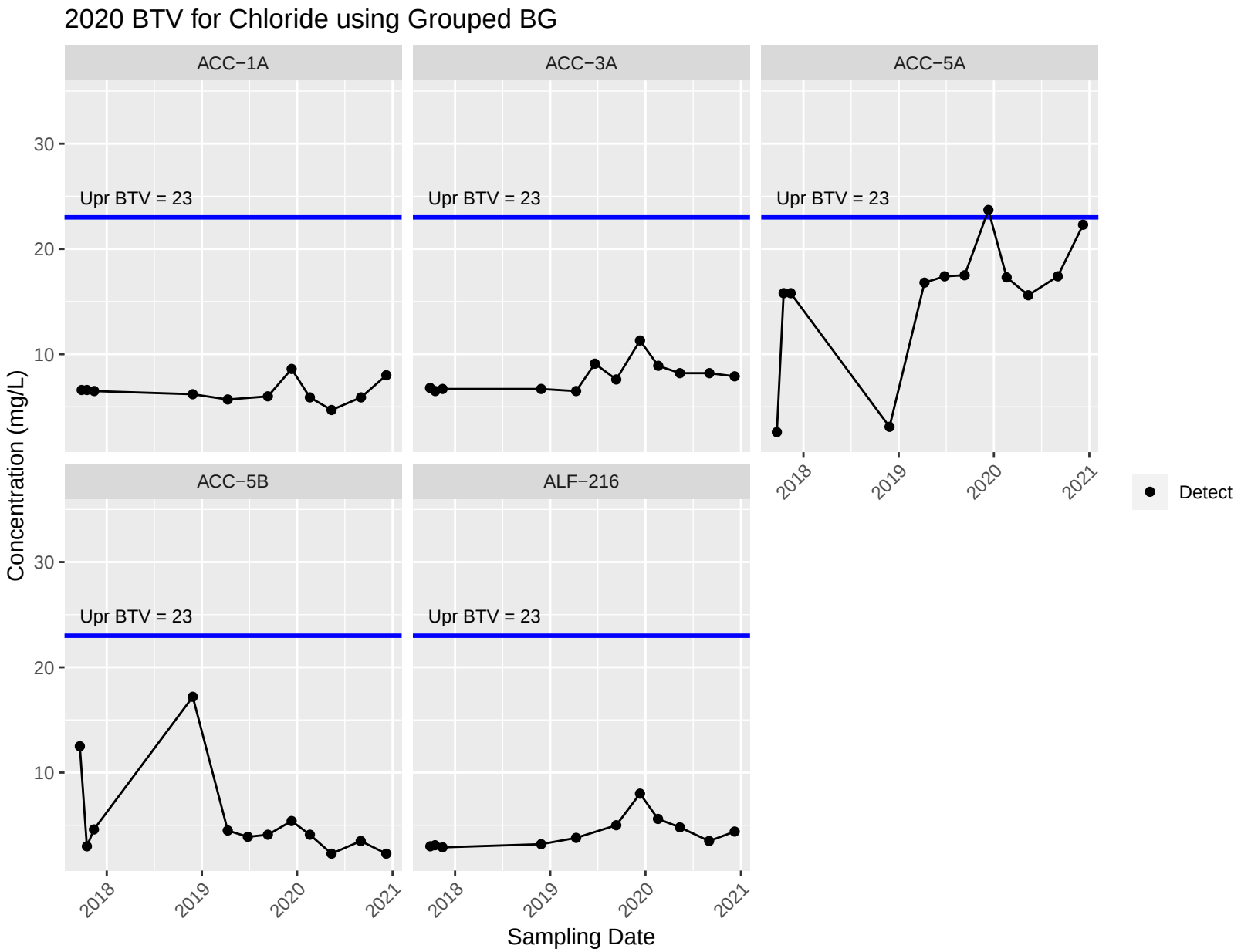

2020 BTV for Barium using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 1.03
Concentration (mg/L)
1.5
1.0
0.5
0.0
2018
2019
2020
2021
Sampling Date
Detect

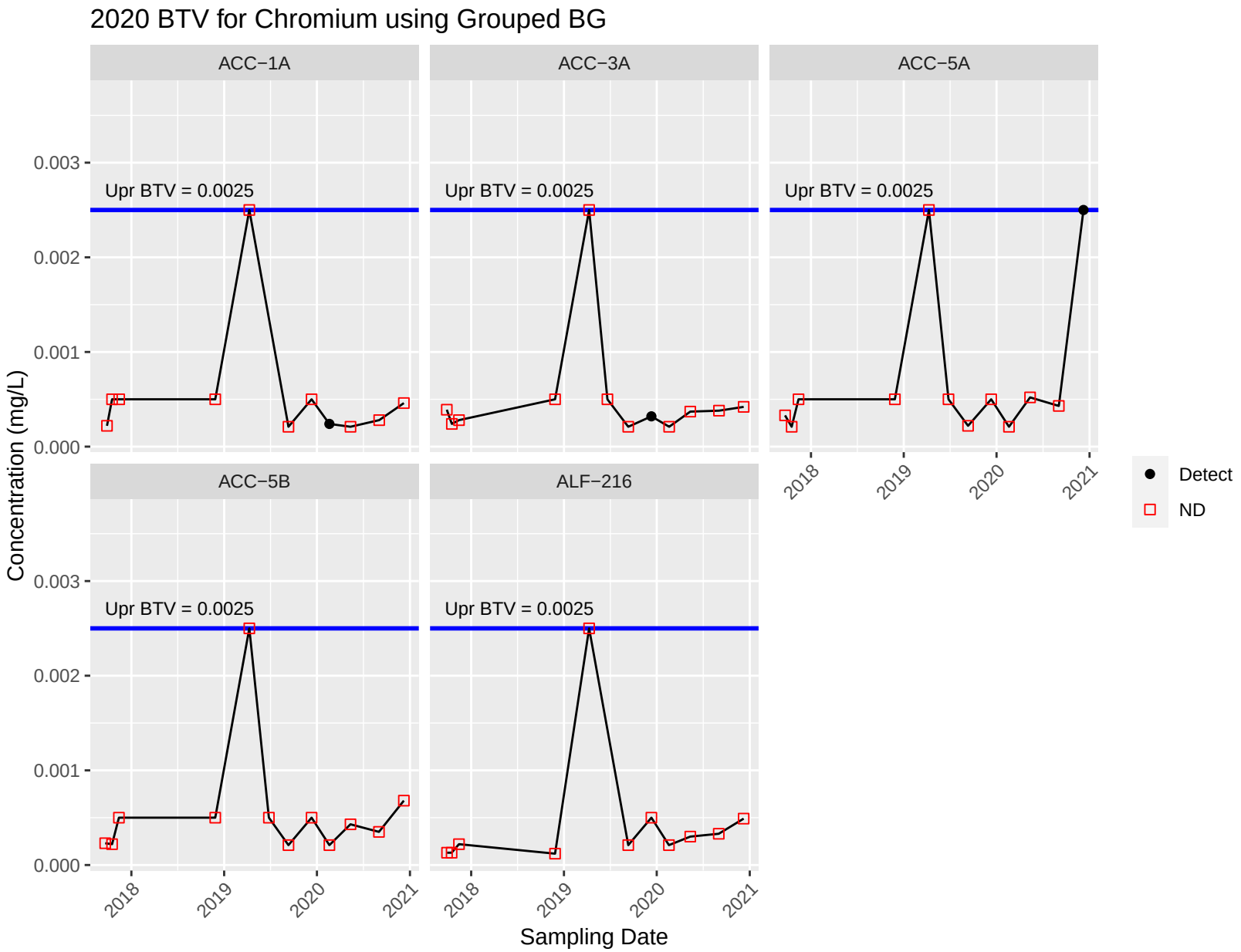

2020 BTV for Beryllium using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 5e−04
6e−04
4e−04
2e−04
Concentration (mg/L)
2018
2019
2020
2021
Sampling Date
ND

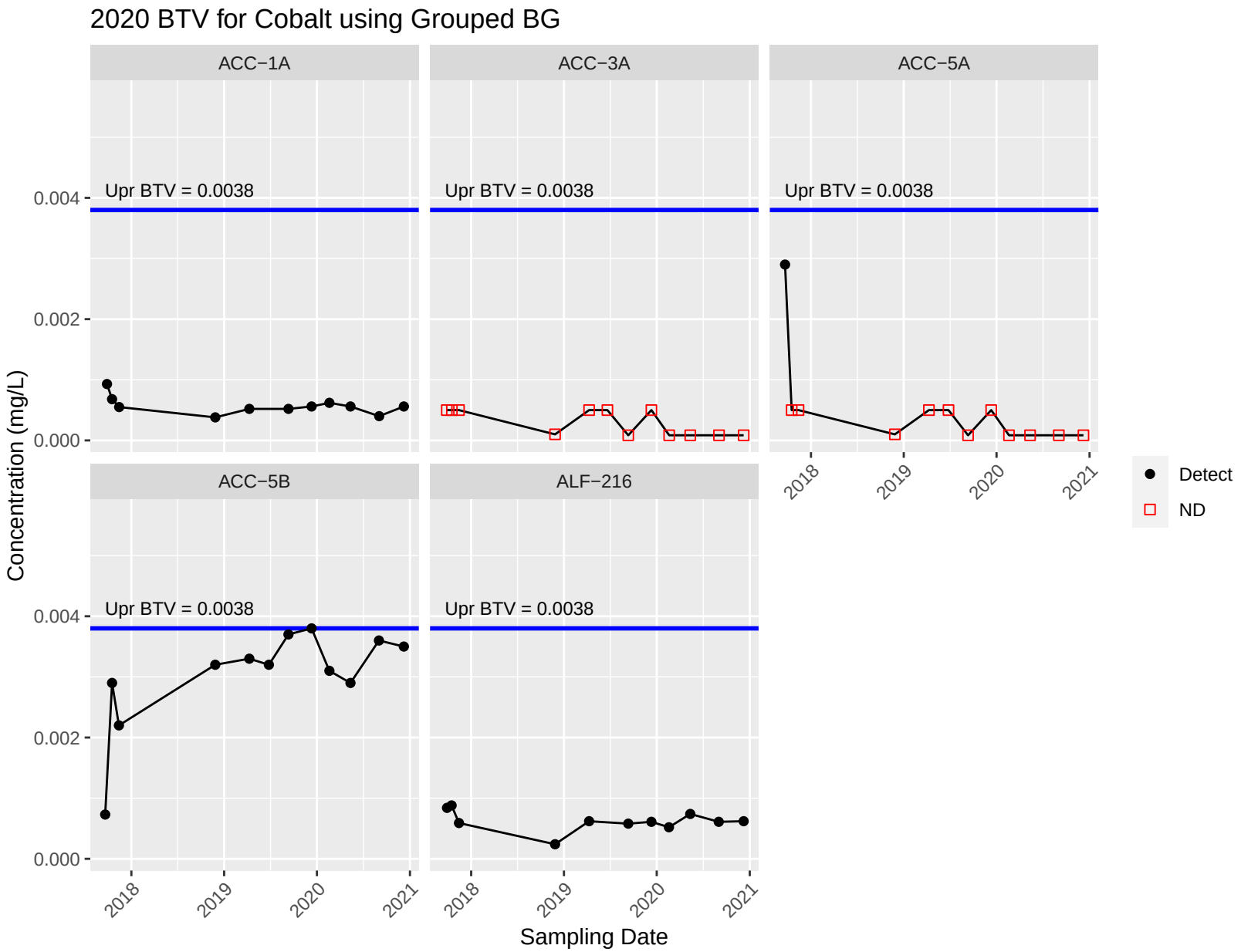

2020 BTV for Boron using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 0.338
Concentration (mg/L)
0.0
0.2
0.4
0.6
2018
2019
2020
2021
Sampling Date
Detect
ND

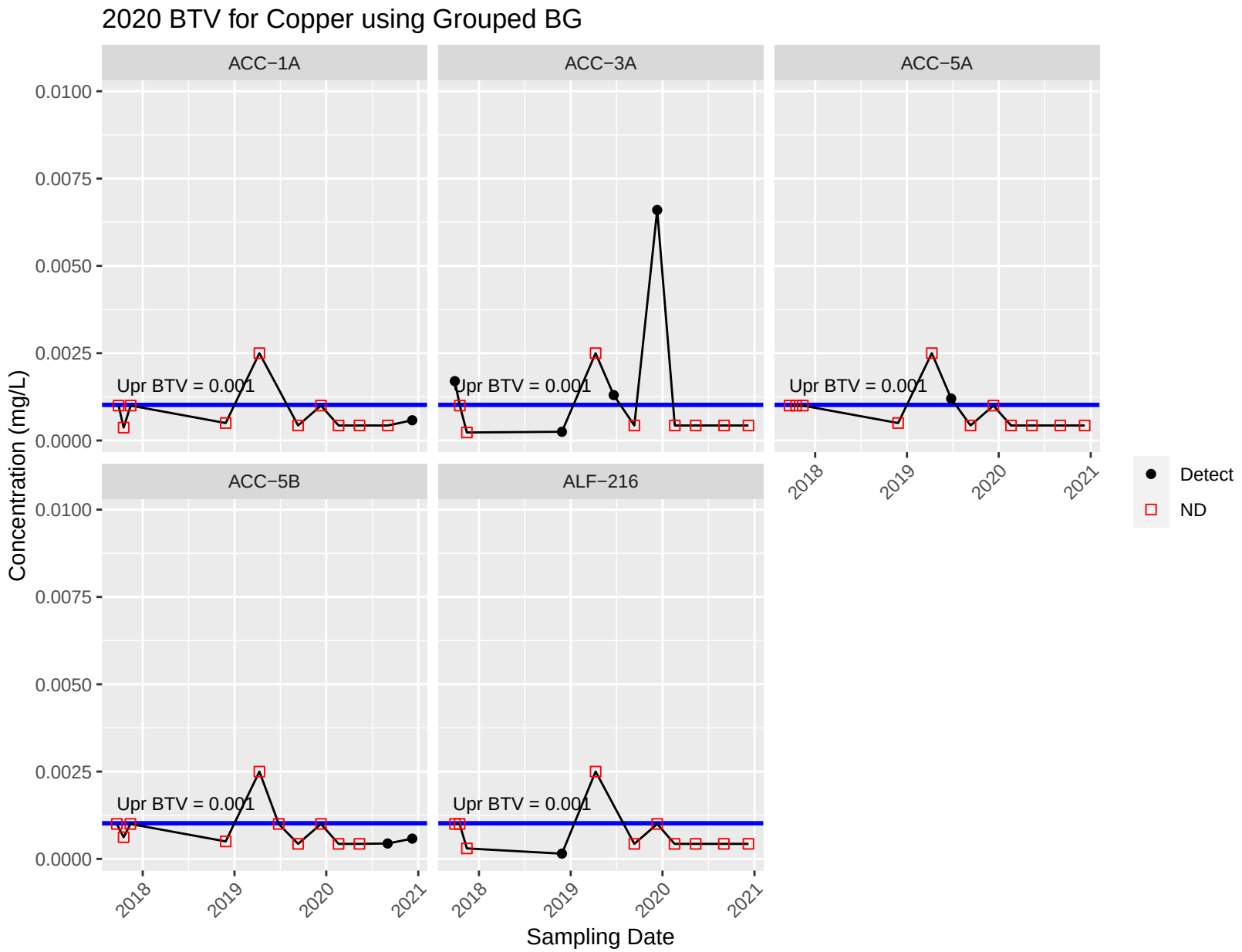

2020 BTV for Cadmium using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 4e−04
6e−04
4e−04
2e−04
Concentration (mg/L)
2018
2019
2020
2021
Sampling Date
ND

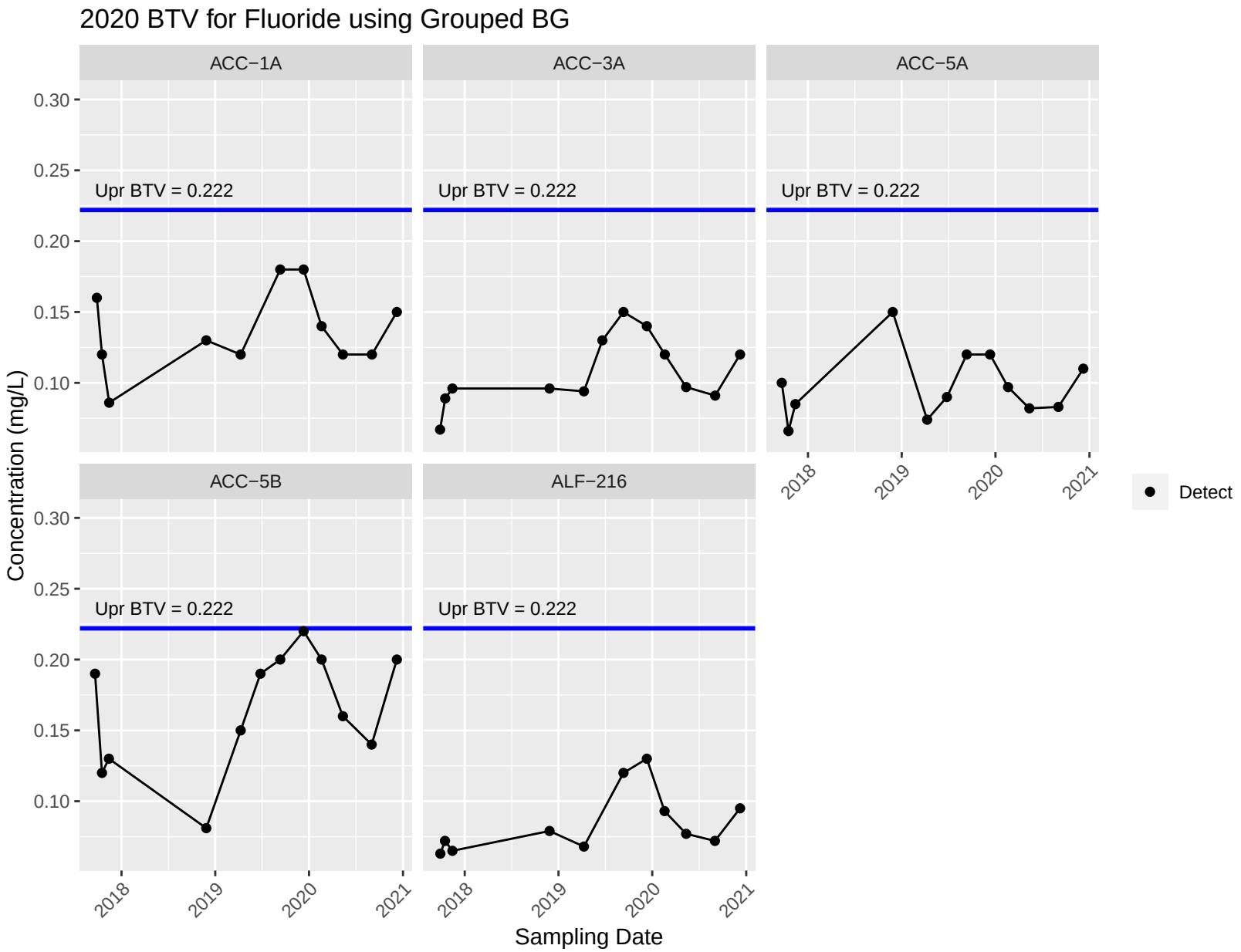

2020 BTV for Calcium using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 156
Concentration (mg/L)
200
150
100
50
2018
2019
2020
2021
Sampling Date
Detect

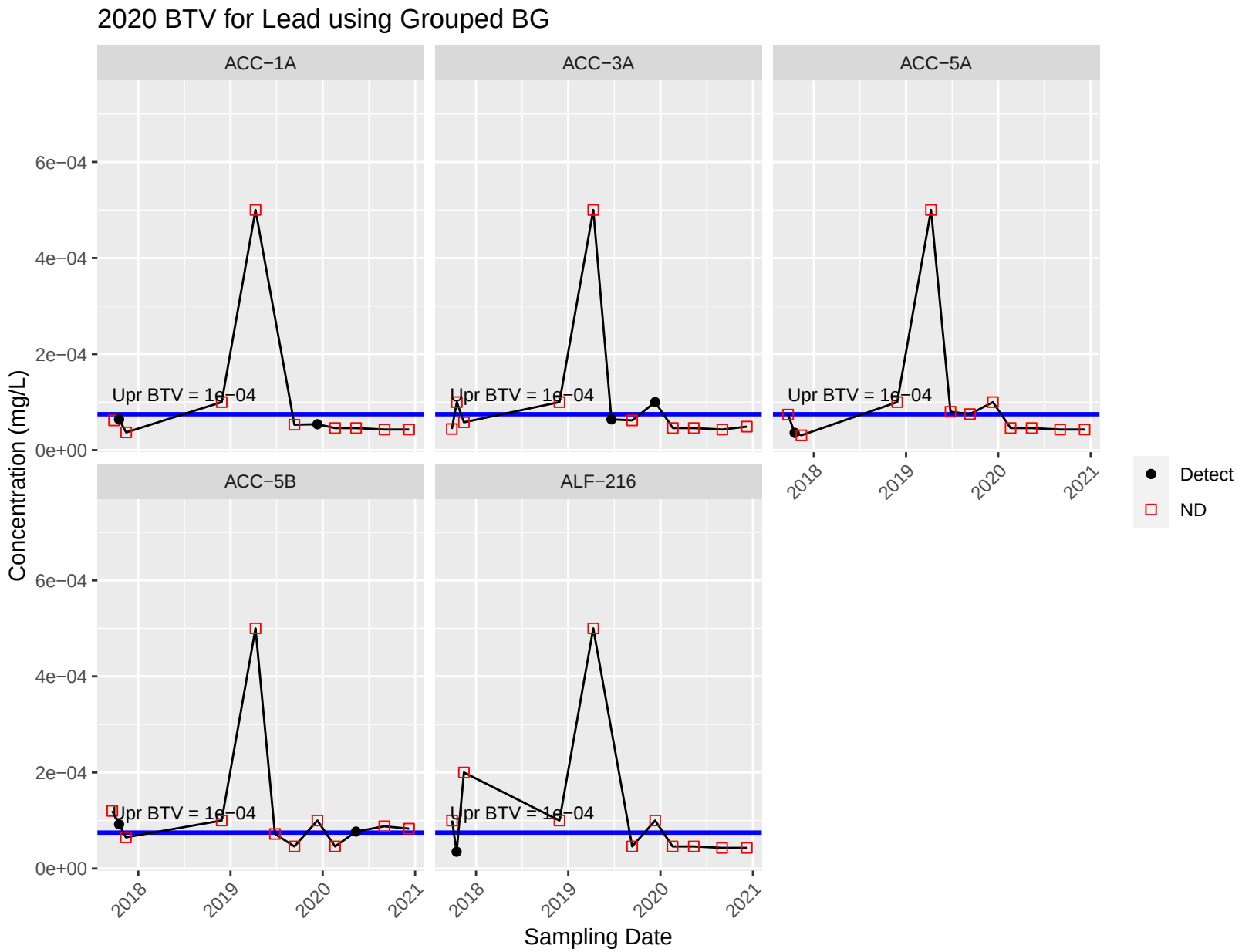

2020 BTV for Chloride using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 23
Concentration (mg/L)
30
20
10
2018
2019
2020
2021
Sampling Date
Detect

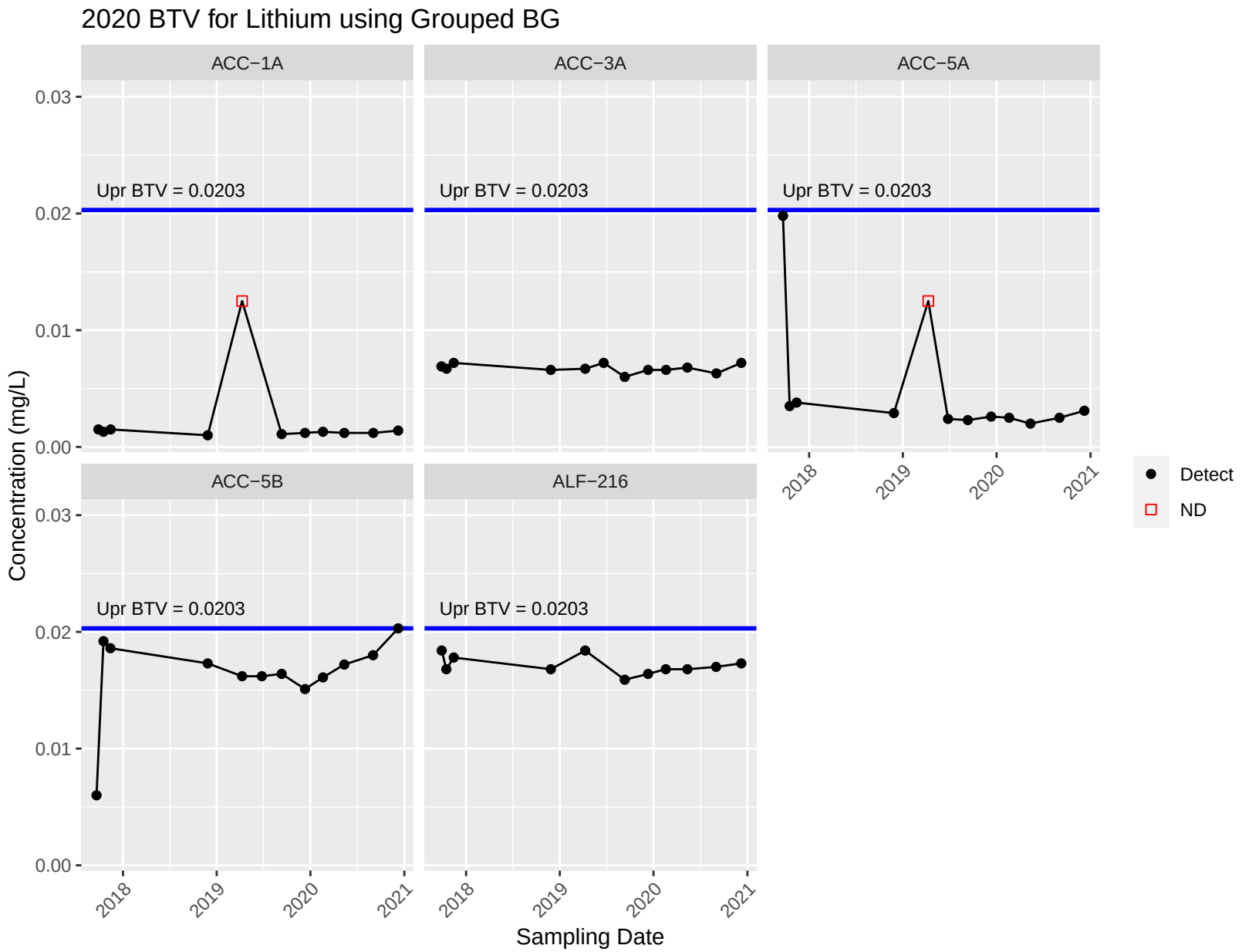

2020 BTV for Chromium using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 0.0025
Concentration (mg/L)
0.003
0.002
0.001
0.000
2018
2019
2020
2021
Sampling Date
Detect
ND

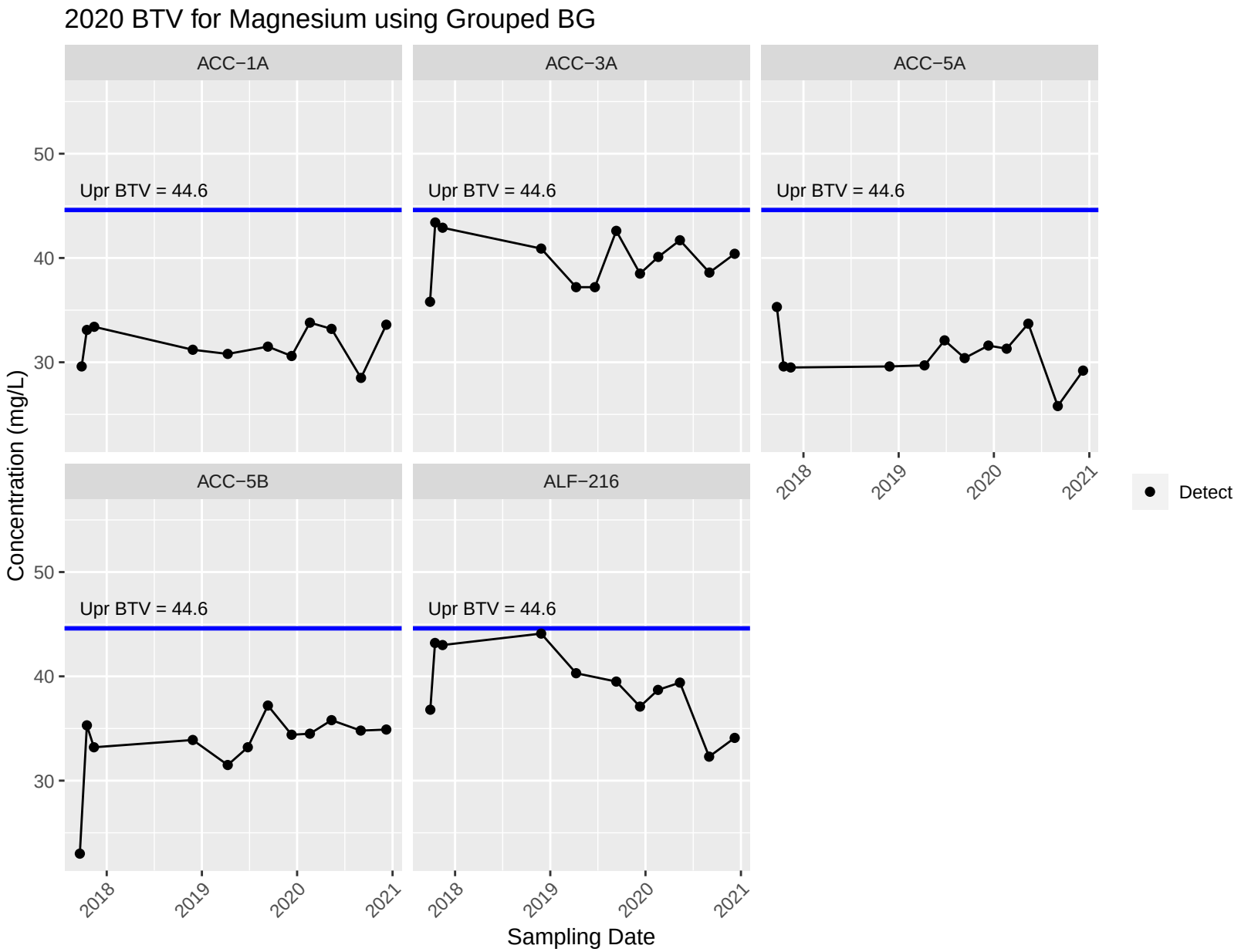

2020 BTV for Cobalt using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 0.0038
Concentration (mg/L)
0.004
0.002
0.000
2018
2019
2020
2021
Sampling Date
Detect
ND

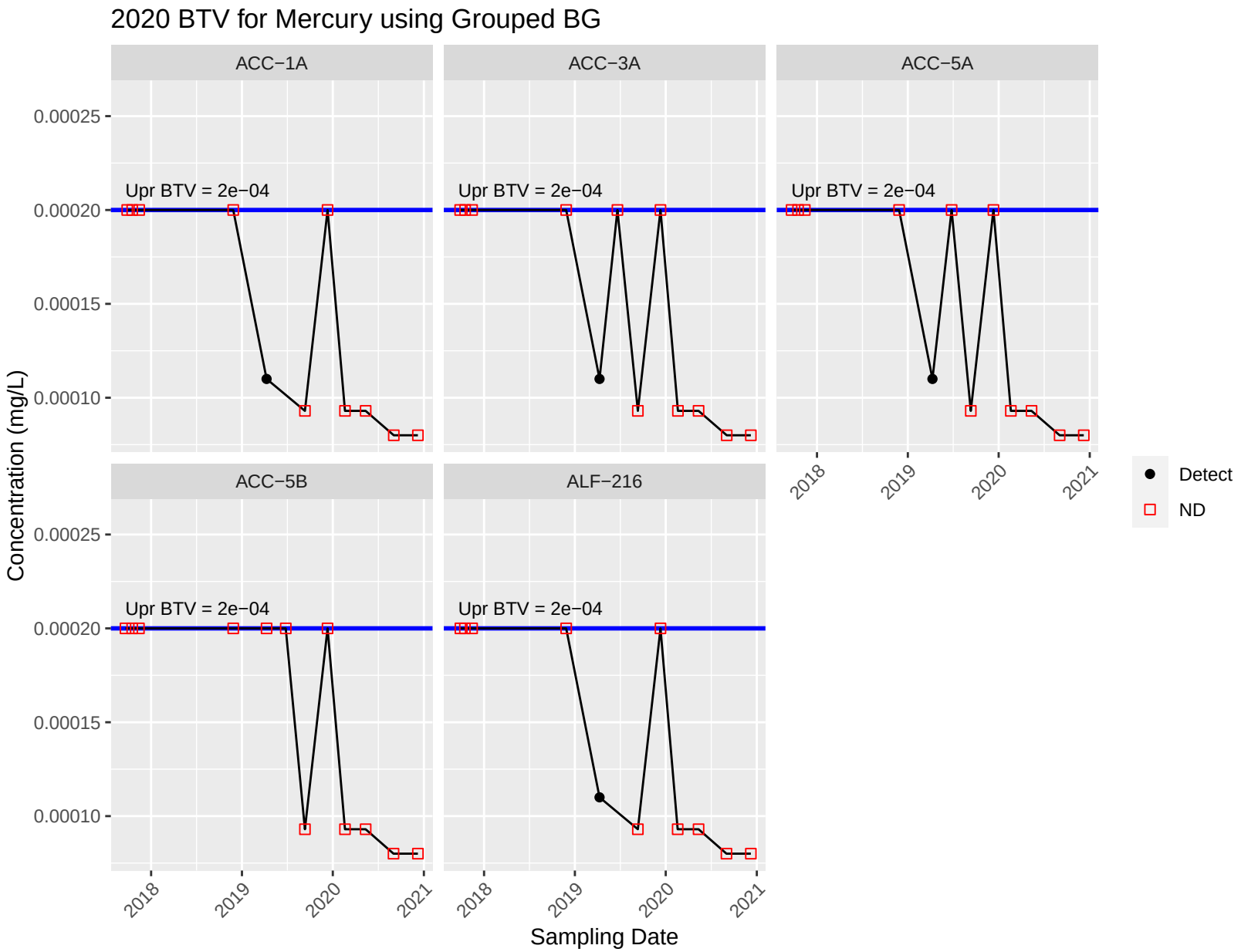

2020 BTV for Copper using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 0.001
Concentration (mg/L)
0.0100
0.0075
0.0050
0.0025
0.0000
2018
2019
2020
2021
Sampling Date
Detect
ND

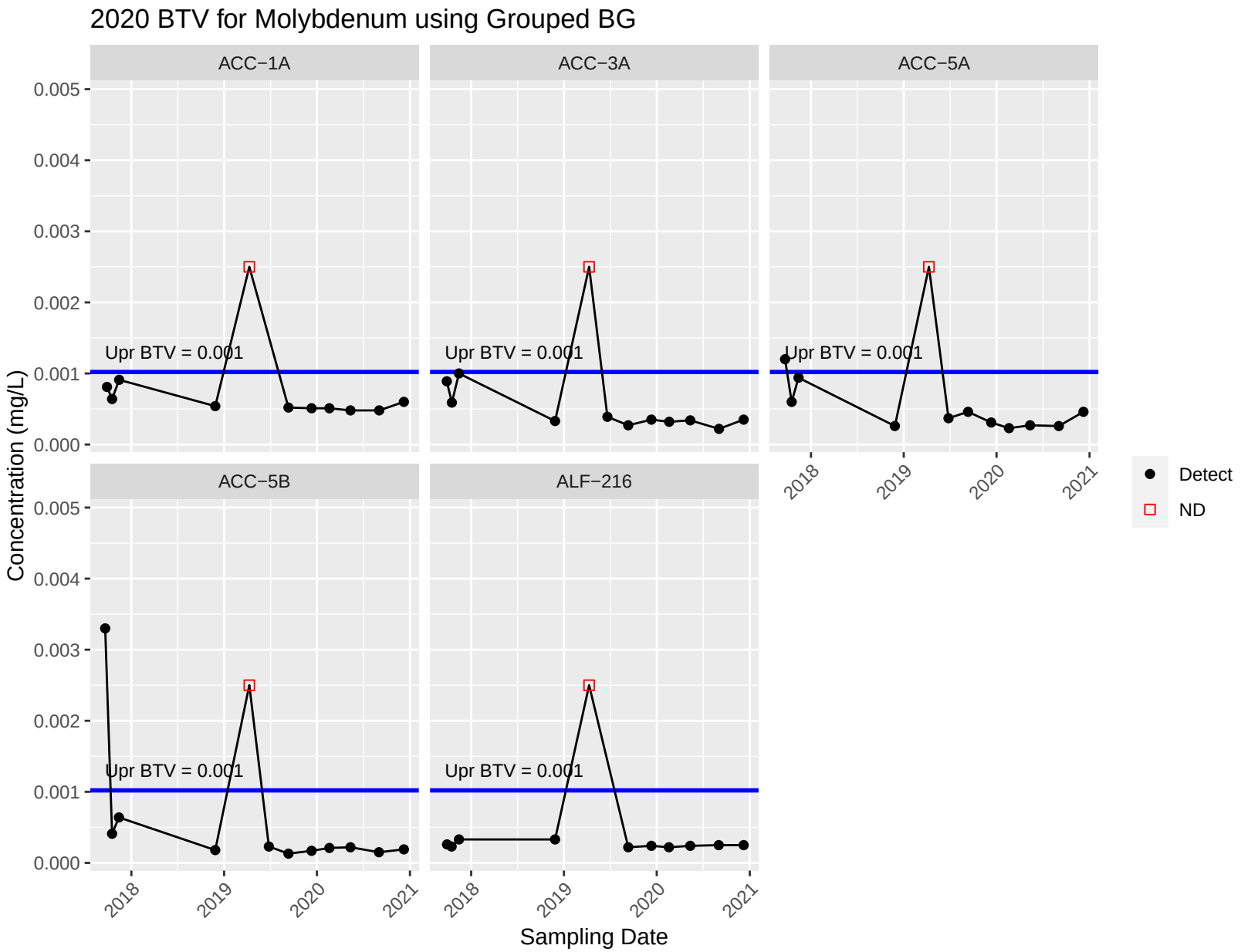

2020 BTV for Fluoride using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 0.222
Concentration (mg/L)
0.30
0.25
0.20
0.15
0.10
2018
2019
2020
2021
Sampling Date
Detect

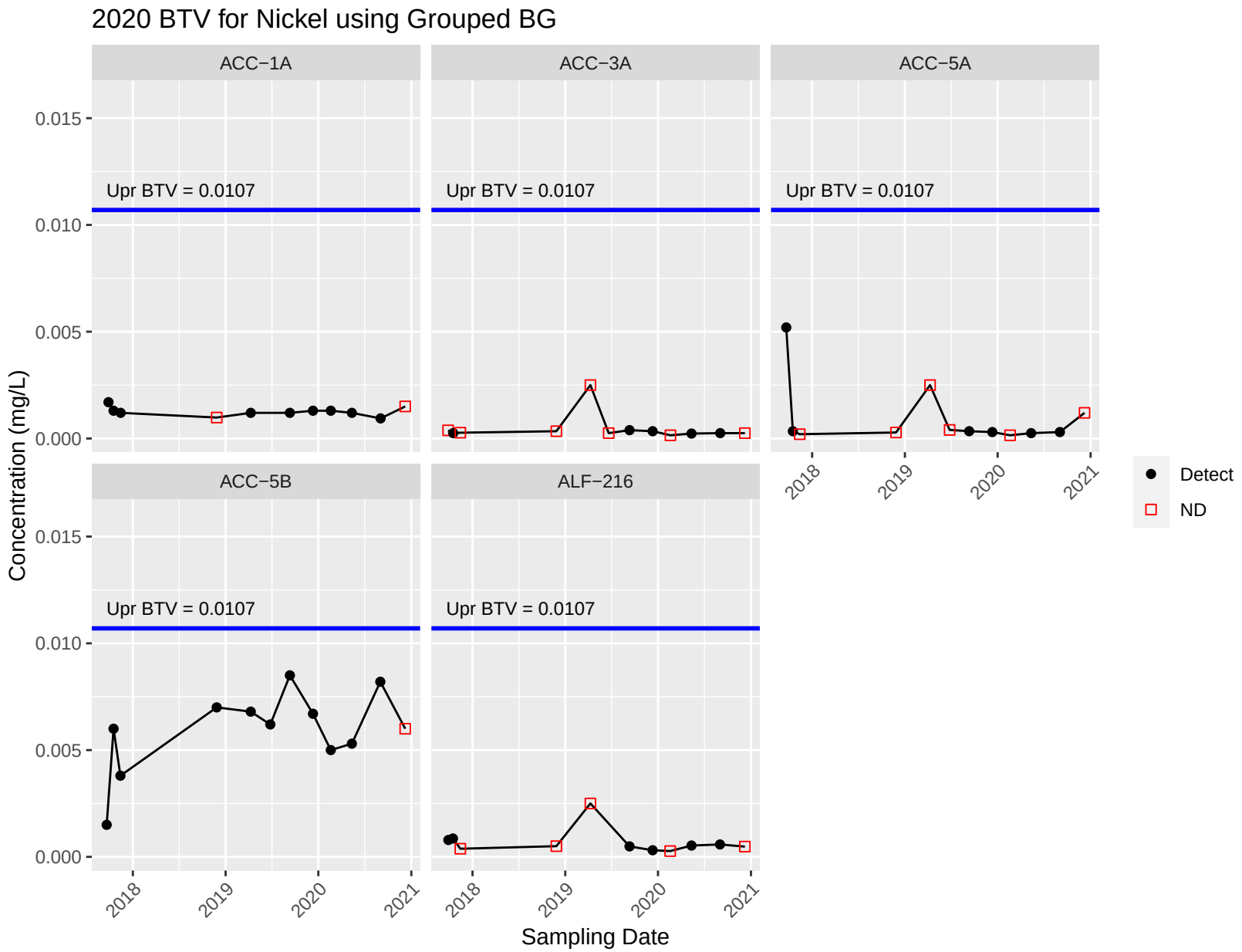

2020 BTV for Lead using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 1e−04
Concentration (mg/L)
6e−04
4e−04
2e−04
0e+00
2018
2019
2020
2021
Sampling Date
Detect
ND

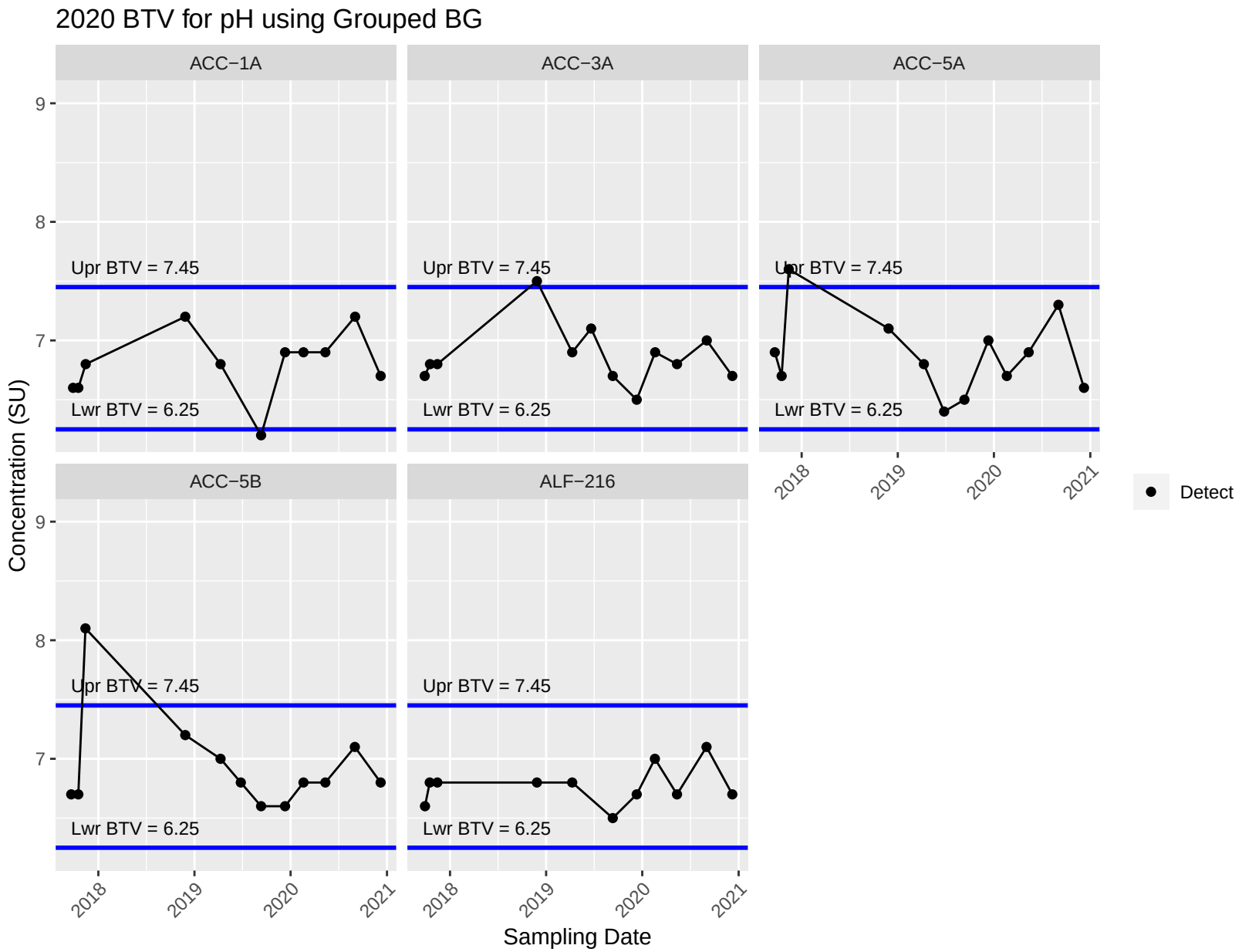

2020 BTV for Lithium using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 0.0203
Concentration (mg/L)
0.03
0.02
0.01
0.00
2018
2019
2020
2021
Sampling Date
Detect
ND

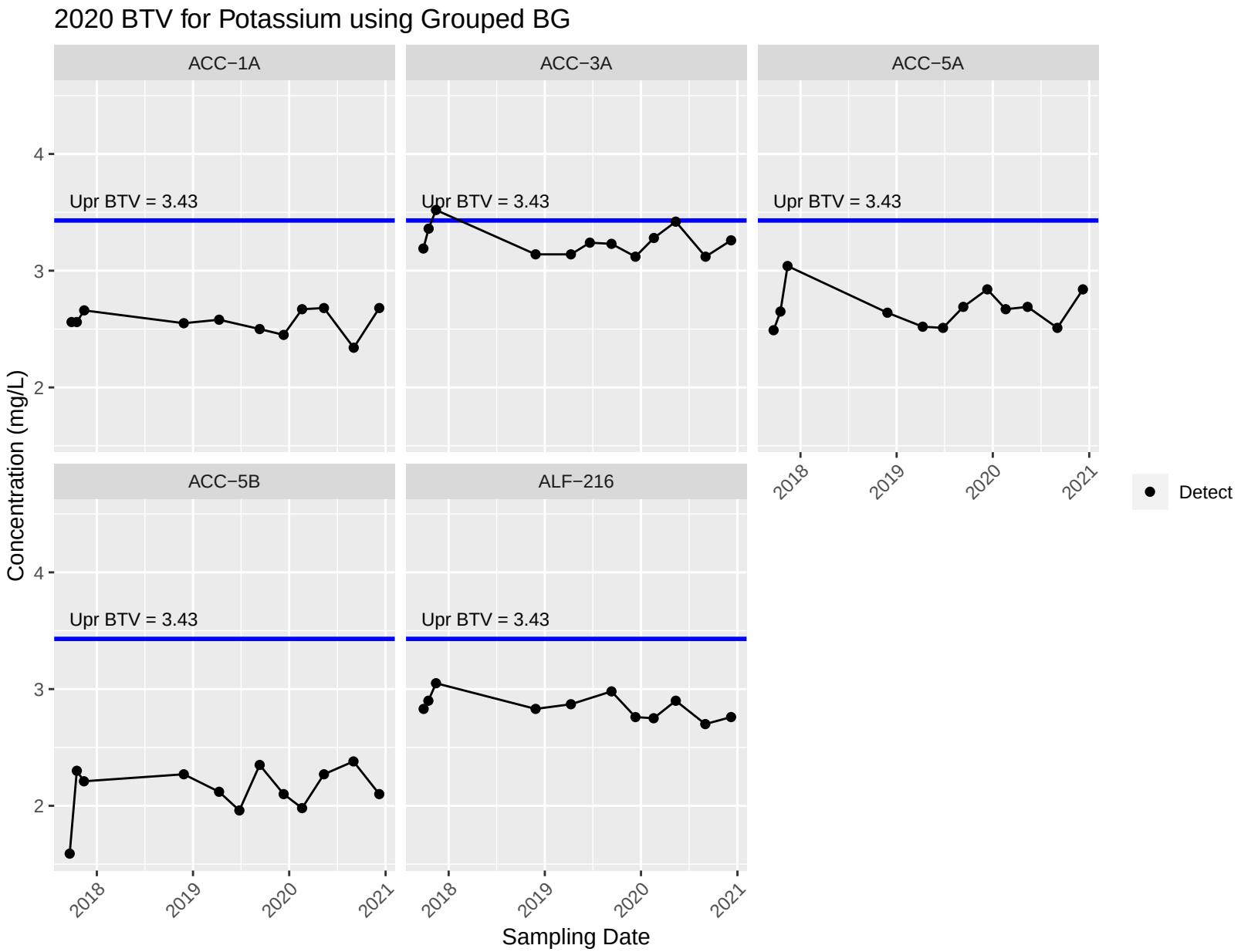

2020 BTV for Magnesium using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 44.6
Concentration (mg/L)
50
40
30
2018
2019
2020
2021
Sampling Date
Detect

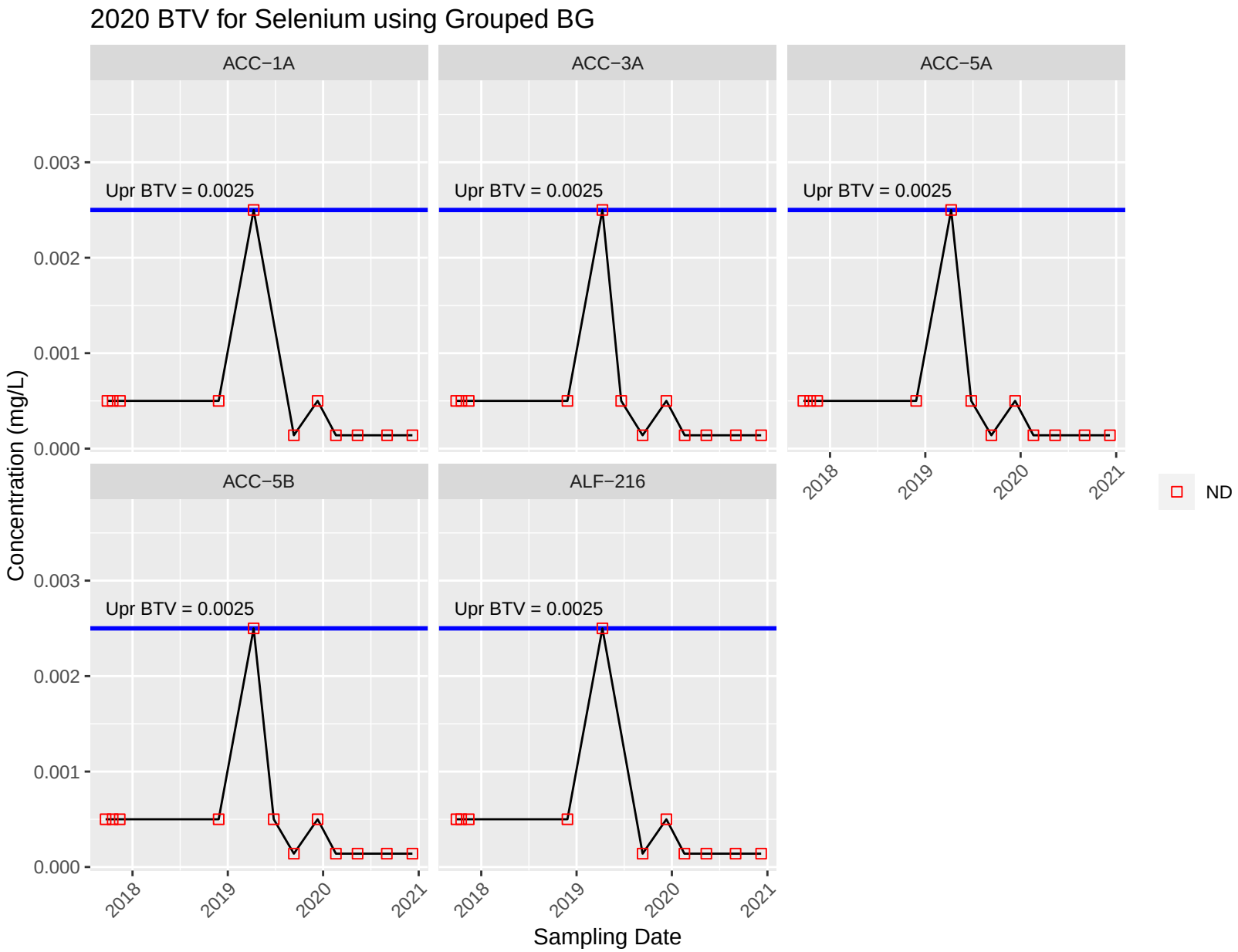

2020 BTV for Mercury using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 2e−04
0.00025
0.00020
0.00015
0.00010
Concentration (mg/L)
2018
2019
2020
2021
Sampling Date
Detect
ND

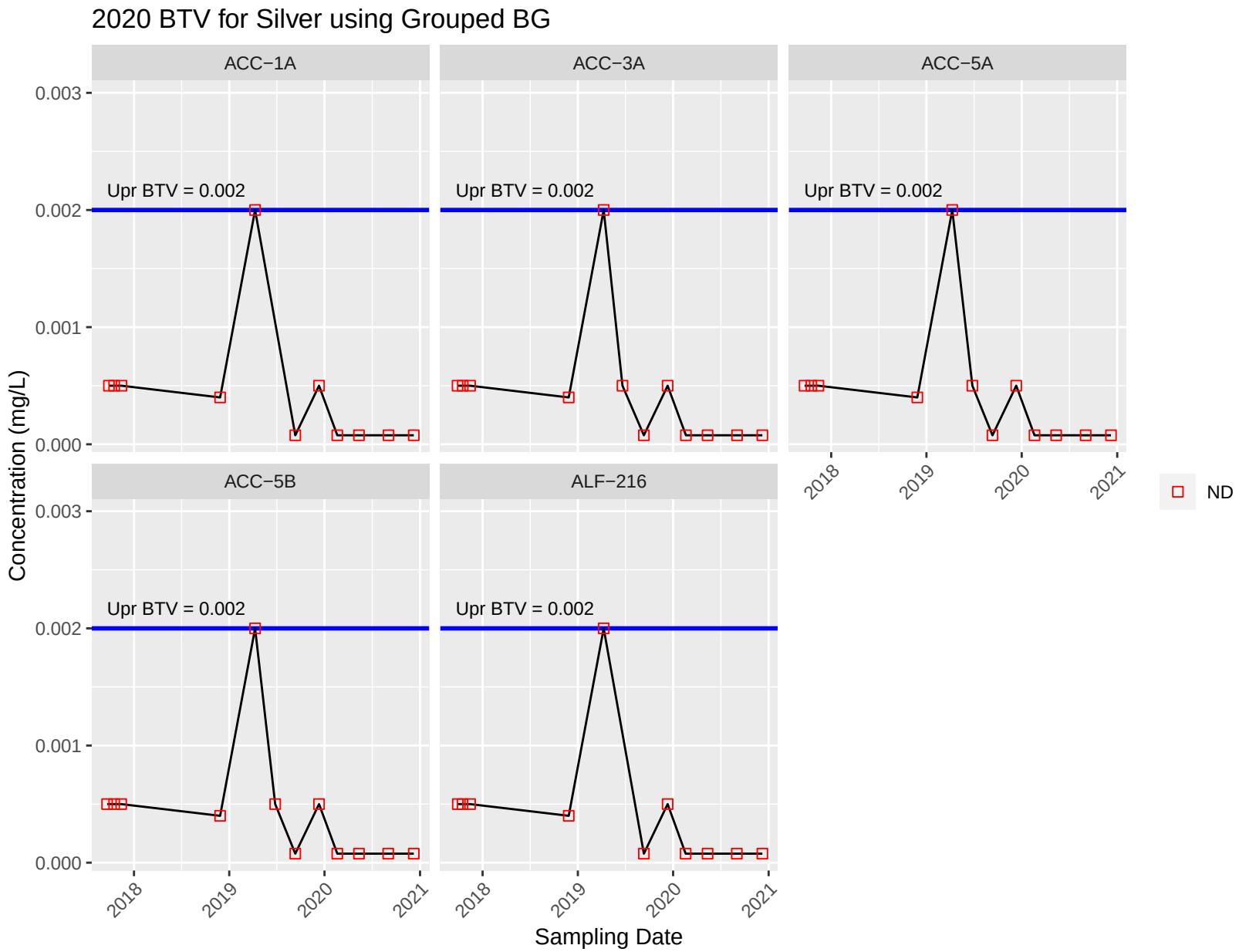

2020 BTV for Molybdenum using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 0.001
Concentration (mg/L)
0.005
0.004
0.003
0.002
0.001
0.000
2018
2019
2020
2021
Sampling Date
Detect
ND

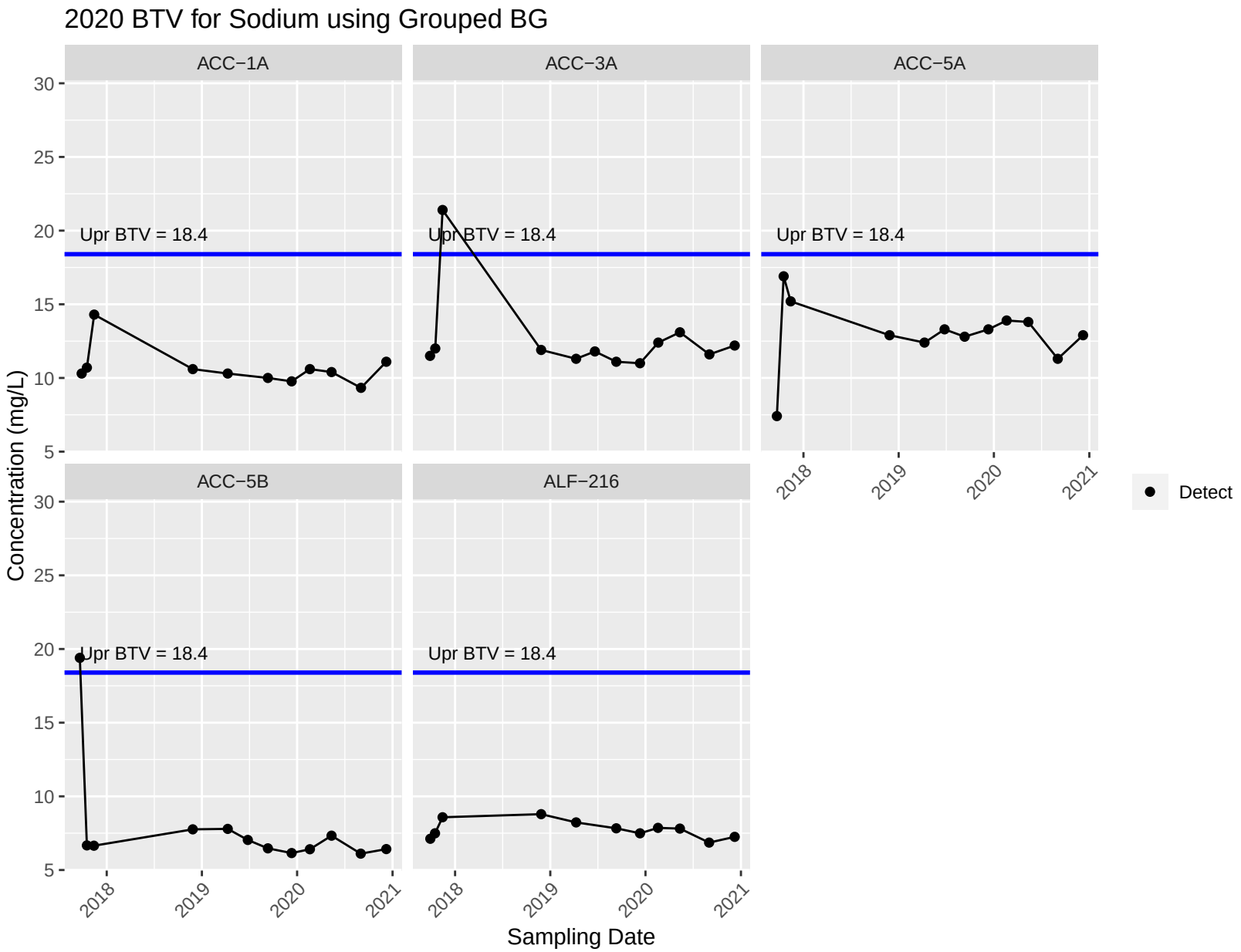

2020 BTV for Nickel using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 0.0107
Concentration (mg/L)
0.015
0.010
0.005
0.000
2018
2019
2020
2021
Sampling Date
Detect
ND

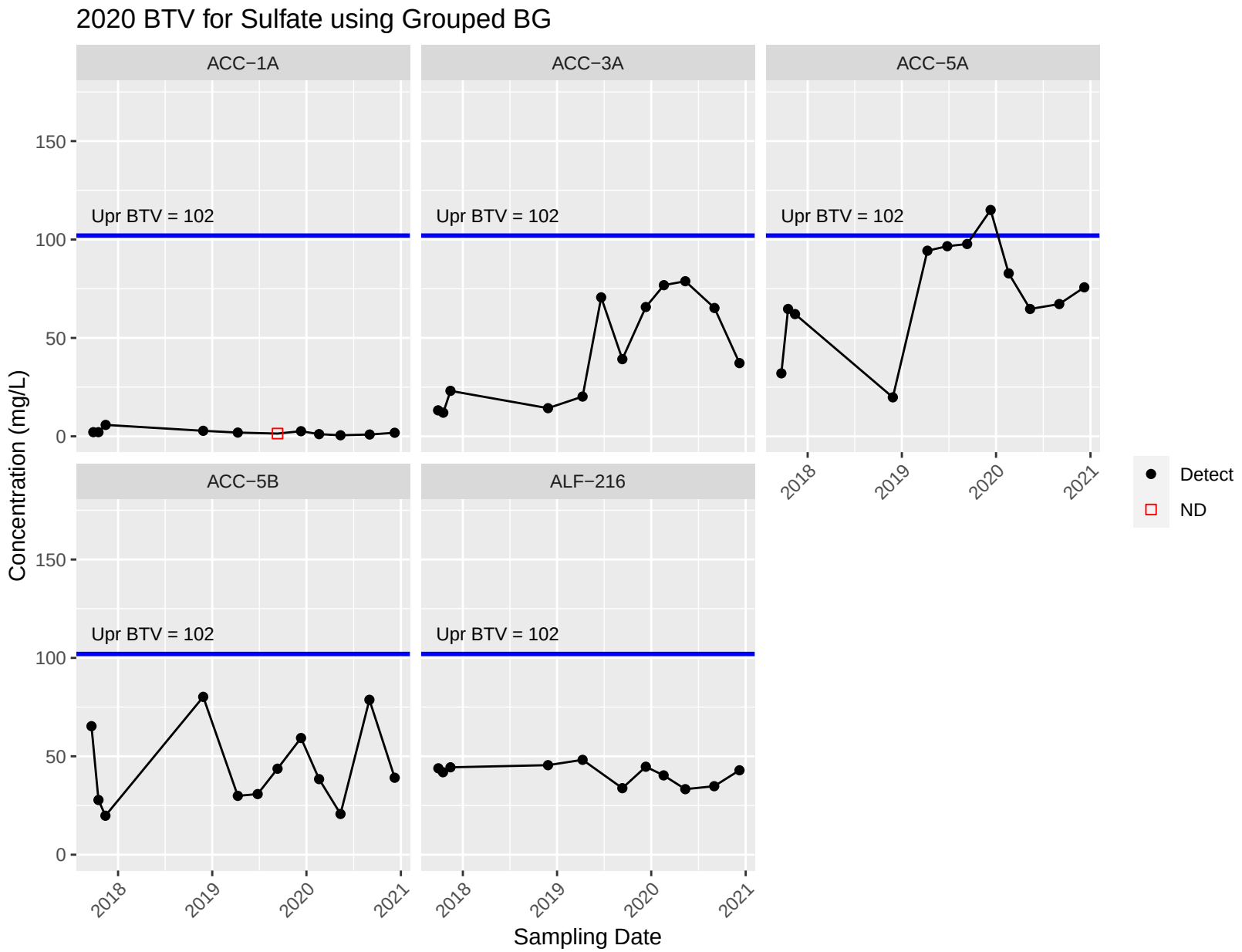

2020 BTV for pH using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 7.45
Lwr BTV = 6.25
Concentration (SU)
Sampling Date
2018
2019
2020
2021
Detect

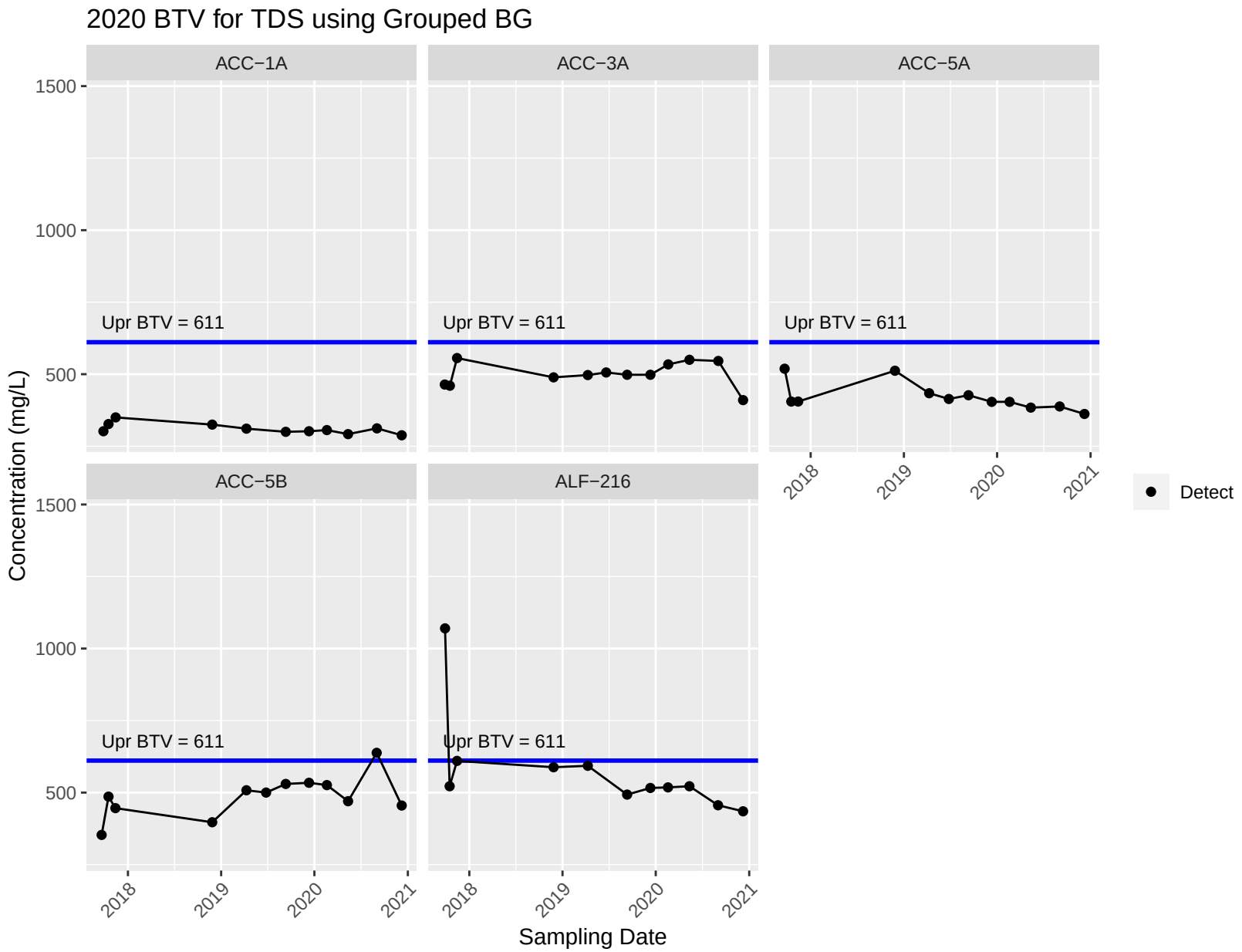

2020 BTV for Potassium using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 3.43
Concentration (mg/L)
Sampling Date
2018
2019
2020
2021
Detect

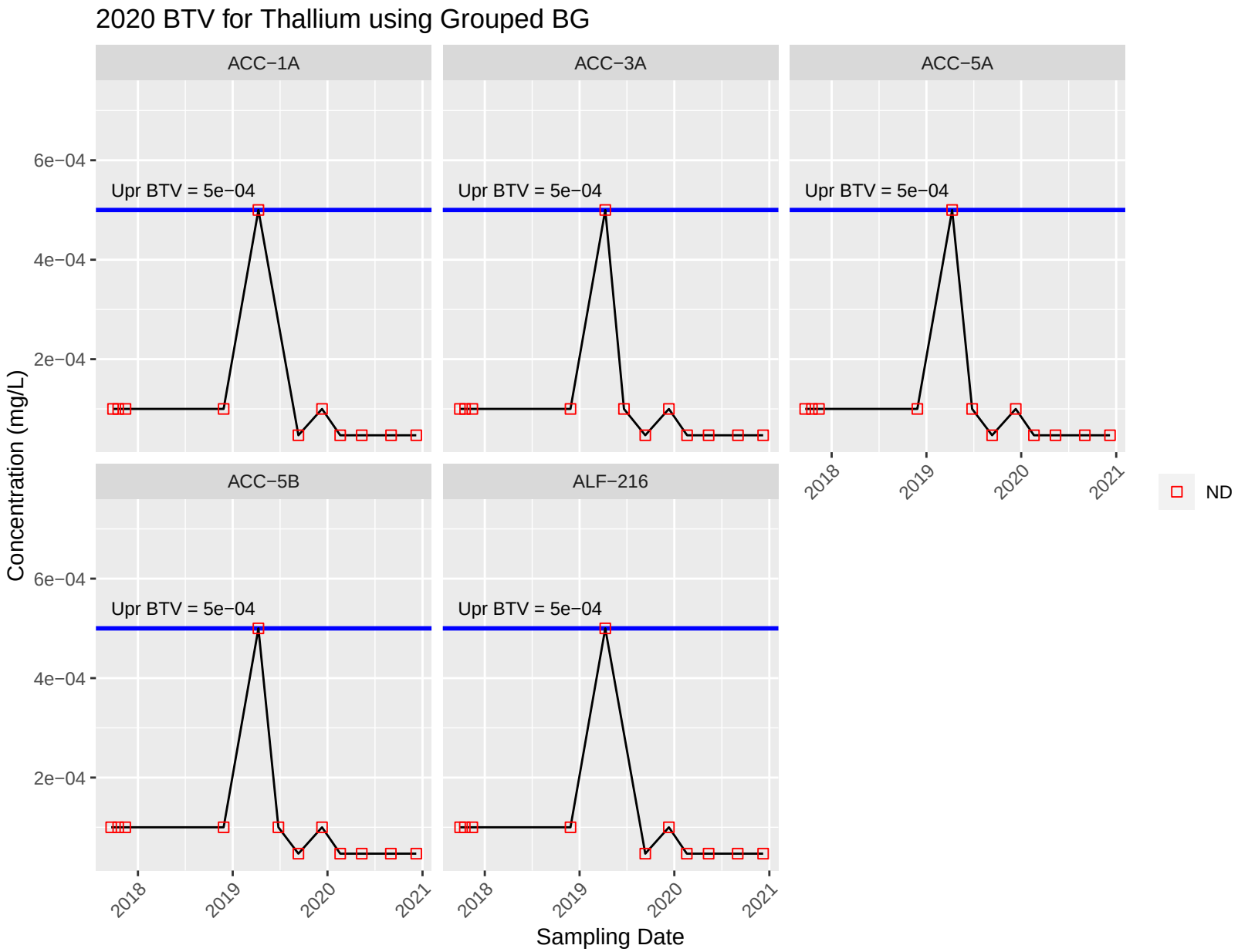

2020 BTV for Selenium using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 0.0025
Concentration (mg/L)
0.000
0.001
0.002
0.003
2018
2019
2020
2021
Sampling Date
ND

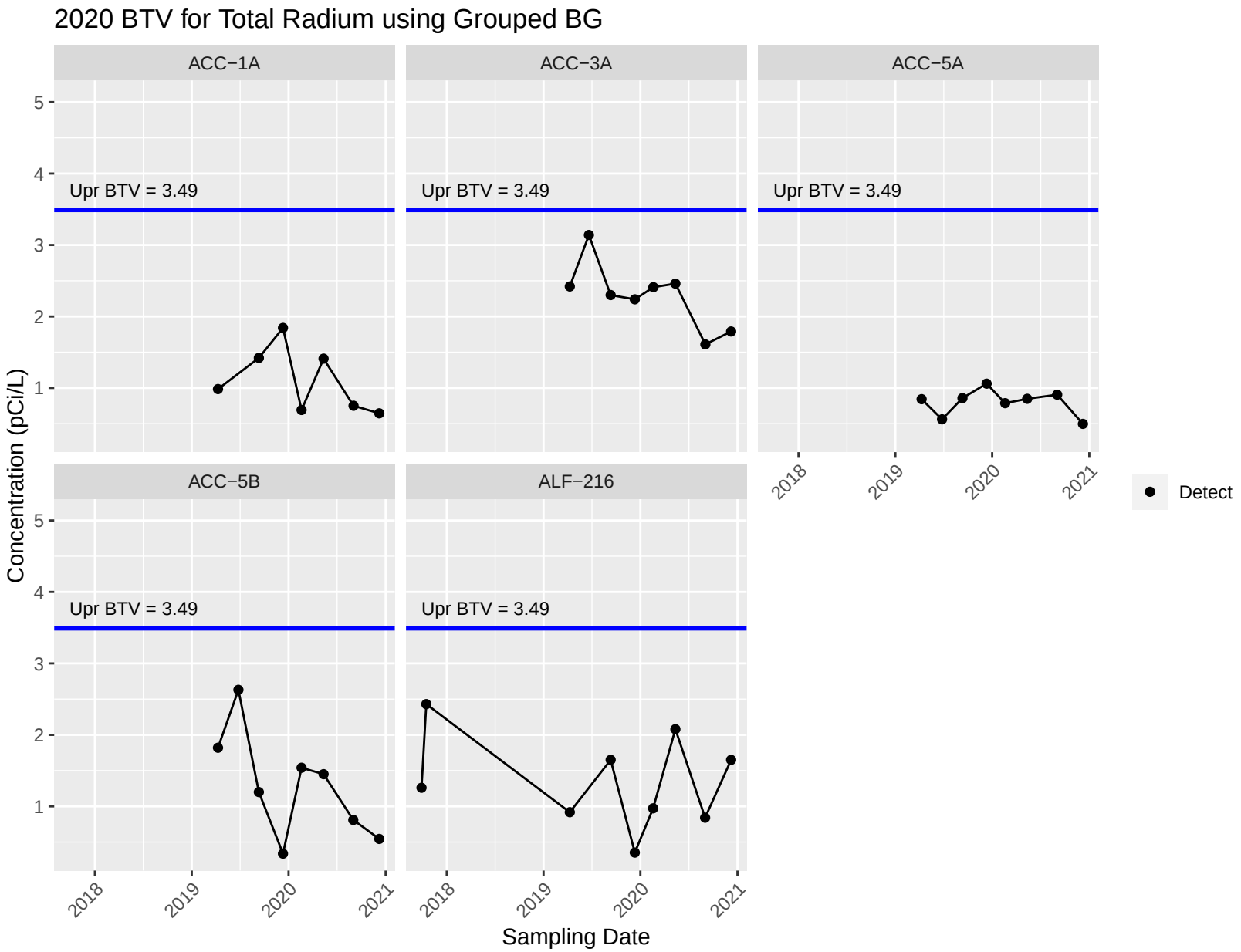

2020 BTV for Silver using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 0.002
0.003
0.002
0.001
0.000
Concentration (mg/L)
2018
2019
2020
2021
Sampling Date
ND

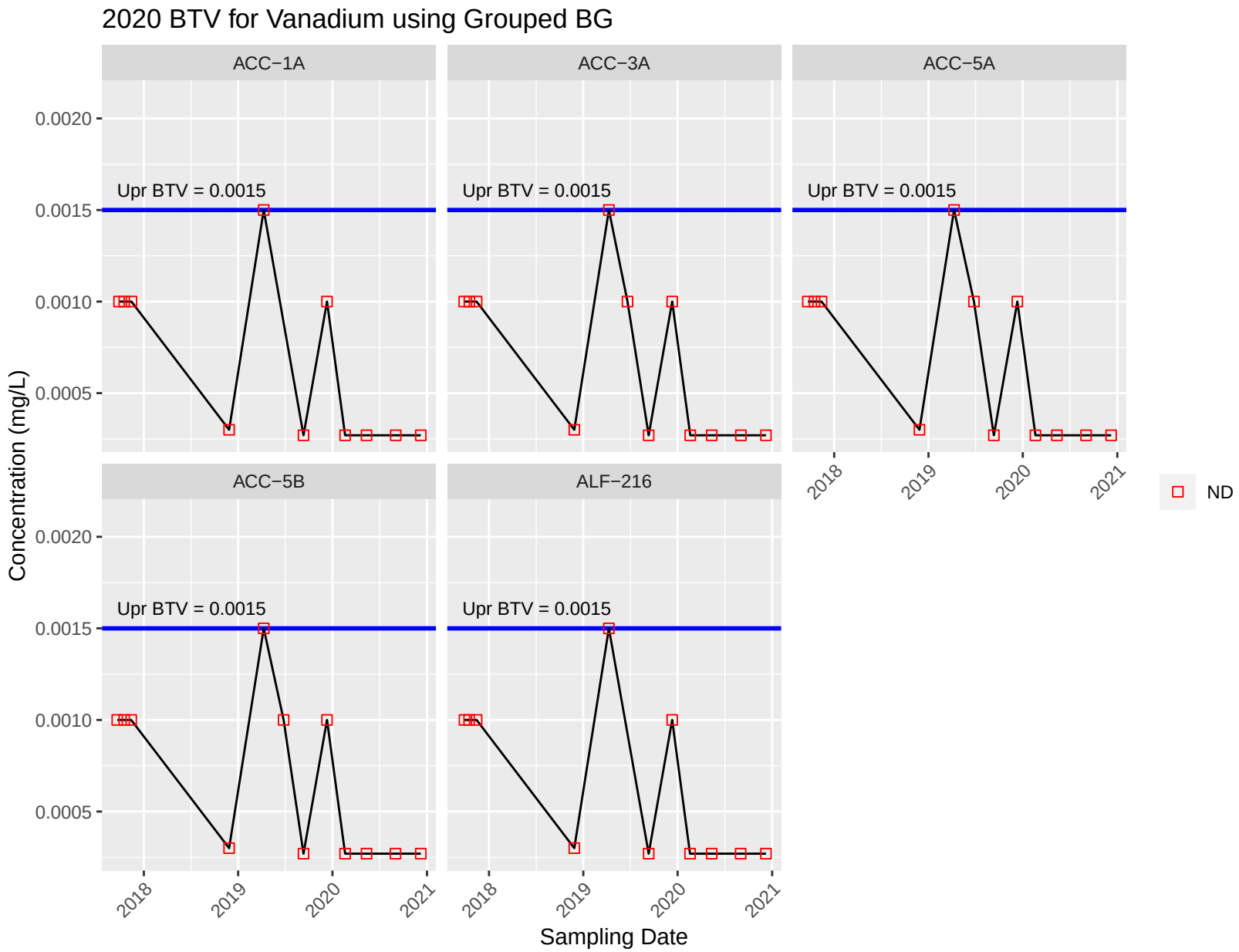

2020 BTV for Sodium using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 18.4
Concentration (mg/L)
Sampling Date
Detect
30
25
20
15
10
5
2018
2019
2020
2021

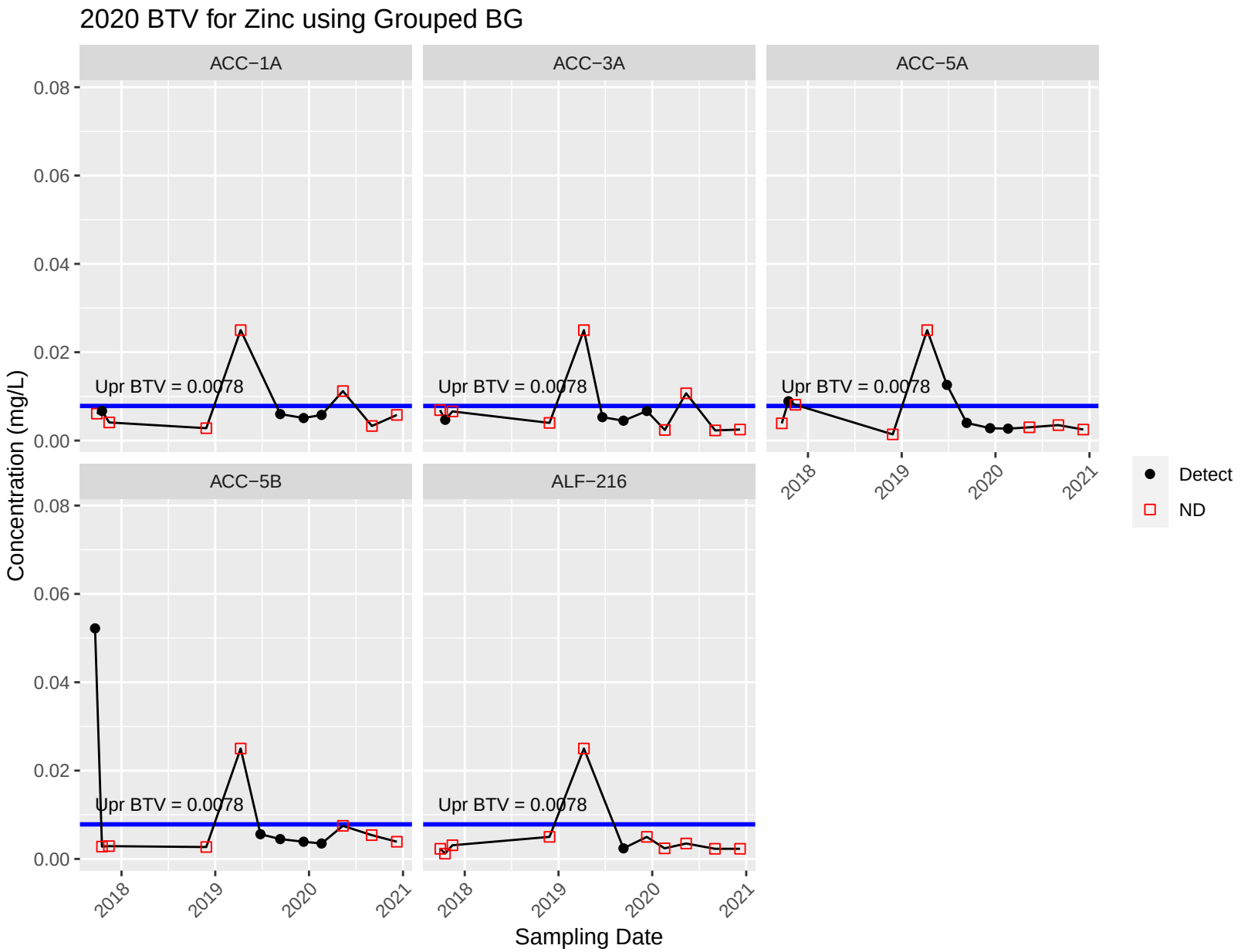

2020 BTV for Sulfate using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 102
Concentration (mg/L)
Sampling Date
Detect
ND


2020 BTV for TDS using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 611
1500
1000
500
Concentration (mg/L)
2018
2019
2020
2021
Sampling Date
Detect


2020 BTV for Thallium using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 5e−04
6e−04
4e−04
2e−04
Concentration (mg/L)
2018
2019
2020
2021
Sampling Date
ND


2020 BTV for Total Radium using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 3.49
Concentration (pCi/L)
Sampling Date
2018
2019
2020
2021
Detect


2020 BTV for Vanadium using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 0.0015
0.0020
0.0015
0.0010
0.0005
Concentration (mg/L)
2018
2019
2020
2021
Sampling Date
ND


2020 BTV for Zinc using Grouped BG
ACC−1A
ACC−3A
ACC−5A
ACC−5B
ALF−216
Upr BTV = 0.0078
Concentration (mg/L)
0.08
0.06
0.04
0.02
0.00
2018
2019
2020
2021
Sampling Date
Detect
ND