

Annual Groundwater Monitoring Report

Southwestern Electric Power Company
John W. Turk Power Plant
Landfill CCR Management Unit
Fulton, Arkansas

January 31, 2022

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An **AEP** Company

BOUNDLESS ENERGY™

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Abbreviations:

- ASD - Alternate Source Demonstration
- CCR – Coal Combustion Residual
- GWPS - Groundwater protection standards
- SSI - Statistically Significant Increase
- SSL - Statistically Significant Level

I. Overview

This *Annual Groundwater Monitoring Report* (Report) has been prepared to report the status of activities for the preceding year at the Landfill (LF) Coal Combustion Residual (CCR) unit at Turk Power Plant. The Southwestern Electric Power Company is wholly-owned subsidiary of American Electric Power Company (AEP). The USEPA's CCR rules require that the Annual Groundwater Monitoring Report be posted to the operating record for the preceding year no later than January 31, 2022.

In general, the following activities were completed:

- At the start of the current annual reporting period, the LF was operating under the Detection monitoring program.
- At the end of the current annual reporting period, the LF was operating under the Detection monitoring program.
- Groundwater samples were collected and analyzed for Appendix III constituents, as specified in 40 CFR 257.94 *et seq.* and AEP's *Groundwater Sampling and Analysis Plan (2021)*.
- Groundwater data underwent various validation tests, including tests for completeness, valid values, transcription errors, and consistent units.
- There were no statistically significant increases (SSIs) determined for the 1st half 2021 groundwater sampling and analysis event.
- The 2nd semi-annual event (November 2021) data are still undergoing statistical analysis.
- The background data was re-established on January 2020.
- A statistical process in accordance with 40 CFR 257.93 to evaluate groundwater data was updated, certified, and posted to AEP's CCR website in 2021 titled: AEP's *Statistical Analysis Plan* (Geosyntec 2021). The statistical process was guided by USEPA's *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* ("Unified Guidance," USEPA, 2009).

The major components of this annual report, to the extent applicable at this time, are presented in sections that follow:

- A map, aerial photograph or a drawing showing the CCR management unit(s), all groundwater monitoring wells and monitoring well identification numbers;
- All of the monitoring data collected, including the rate and direction of groundwater flow, plus a summary showing the number of samples collected per monitoring well, the dates the samples were collected and whether the sample was collected as part of detection monitoring or assessment monitoring programs (Attached as **Appendix 1**);

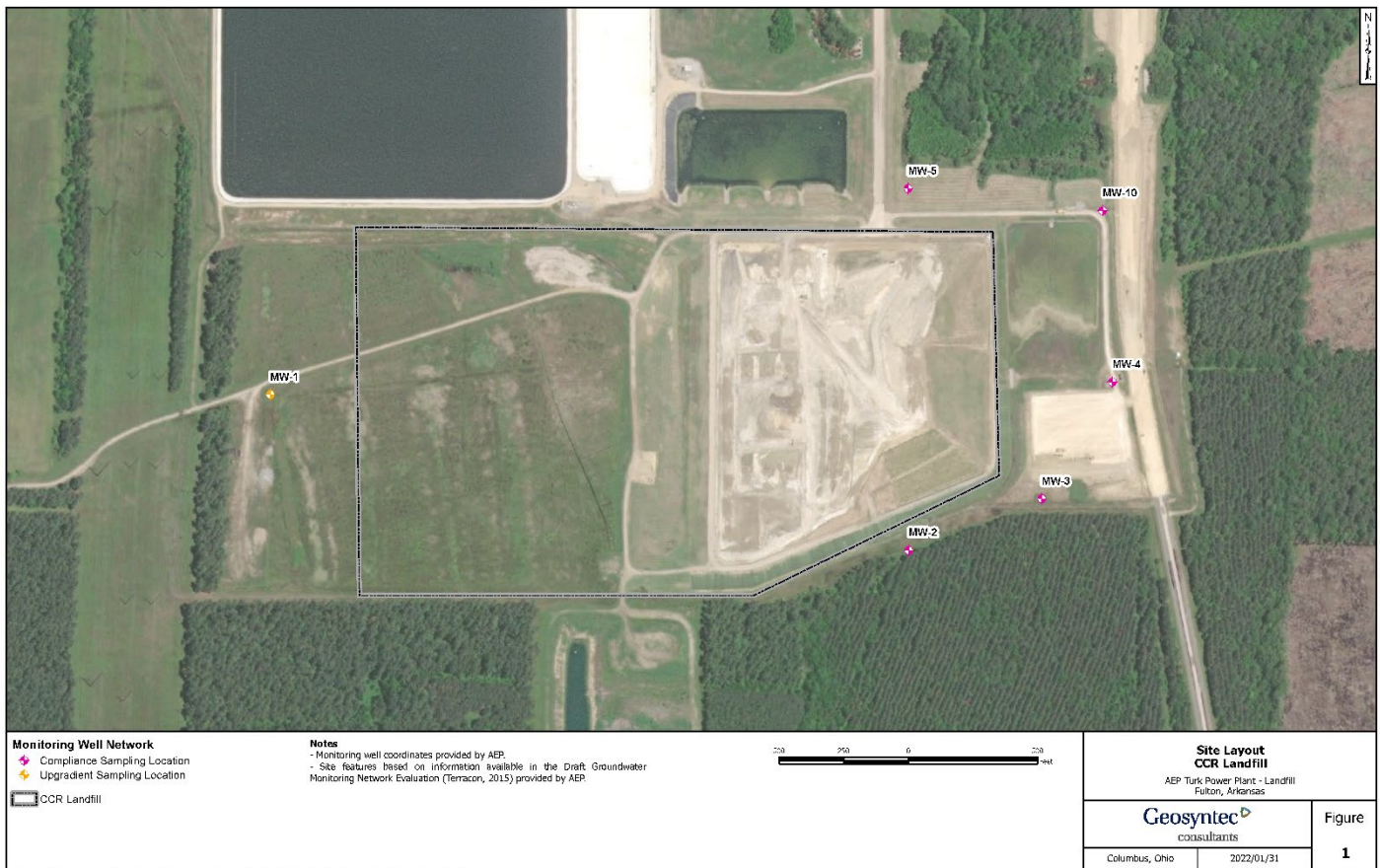
- Statistical comparison of monitoring data to determine if there have been SSI(s) (Attached as **Appendix 2**);
- A discussion of whether any alternate source demonstrations were performed, and the conclusions (where applicable Attached as **Appendix 3**);
- A summary of any transition between monitoring programs, or an alternate monitoring frequency, for example the date and circumstances for transitioning from detection monitoring to assessment monitoring, in addition to identifying the constituents detected at a SSI over background concentrations, if applicable;
- Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a statement as to why that happened, if applicable;
- Other information required to be included in the annual report such as assessment of corrective measures, if applicable.

In addition, this report summarizes key actions completed, and where applicable, describes any problems encountered and actions taken to resolve those problems. The report includes a projection of key activities for the upcoming year.

II. Groundwater Monitoring Well Locations and Identification Numbers

The figure that follows depicts the PE-certified groundwater monitoring network, the monitoring well locations and their corresponding identification numbers.

Landfill Monitoring Wells	
Up Gradient	Down Gradient
MW-1	MW-2
	MW-3
	MW-4
	MW-5
	MW-10



III. Monitoring Wells Installed or Decommissioned

There were no new groundwater monitoring wells installed or decommissioned during 2021. The network design is summarized in the *Groundwater Monitoring Network Design Report* (October

2016) and is posted at the CCR website for Turk Power Plant's LF. That network design report, viewable on the AEP CCR web site, discusses the facility location, the hydrogeological setting, the hydrostratigraphic units, the uppermost aquifer, downgradient monitoring well locations and the upgradient monitoring well locations.

IV. Groundwater Quality Data and Static Water Elevation Data, With Flow Rate and Direction and Discussion

Appendix 1 contains the groundwater velocity, groundwater flow direction, potentiometric maps developed after each sampling event and the groundwater quality data collected during this time period.

V. Groundwater Quality Data Statistical Analysis

Appendix 2 contains the statistical analysis reports available for this reporting period.

As required by the detection monitoring rules, 40 CFR 257.94, two rounds of sampling were conducted in June and November including all Appendix III parameters.

- There were no SSIs determined for the 1st half 2021 groundwater sampling and analysis event.
- The 2nd semi-annual event (November 2021) data are still undergoing statistical analysis.

VI. Alternate Source Demonstration

No alternate source demonstration were prepared in 2021.

VII. Discussion About Transition Between Monitoring Requirements or Alternate Monitoring Frequency

No transition was made during the reporting period and the CCR Unit remained in detection monitoring.

Detection monitoring will continue in 2022.

Regarding defining an alternate monitoring frequency, the groundwater velocity and monitoring well production are high enough at this facility that no modification to the semiannual assessment monitoring frequency is needed.

VIII. Other Information Required

The background data was re-established on January 2020.

IX. Description of Any Problems Encountered in 2021 and Actions Taken

No significant problems were encountered. The low flow sampling effort went smoothly and the schedule was met to support the annual groundwater report preparation covering the year 2021 groundwater monitoring activities.

X. A Projection of Key Activities for the Upcoming Year

Key activities for the next include:

- Detection monitoring on a twice per year schedule all constituents listed in Appendix III as required by 40 CFR 257.94;
- Complete the statistical evaluation of the second semi-annual groundwater monitoring event that took place in November 2021.
- Perform statistical analysis on the sampling results for the Appendix III parameters as required by 40 CFR 257.94.
- Evaluation of the detection monitoring results from a statistical analysis viewpoint, looking for any SSIs above background;
- Responding to any new data received in light of CCR rule requirements;
- Preparation of the next annual groundwater report.

APPENDIX 1- Groundwater Data Tables and Figures

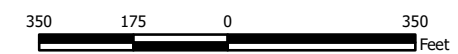
Figures and Tables follow, showing the groundwater monitoring data collected, the rate and direction of groundwater flow, and a summary showing the number of samples collected per monitoring well. The dates that the samples were collected also is shown.



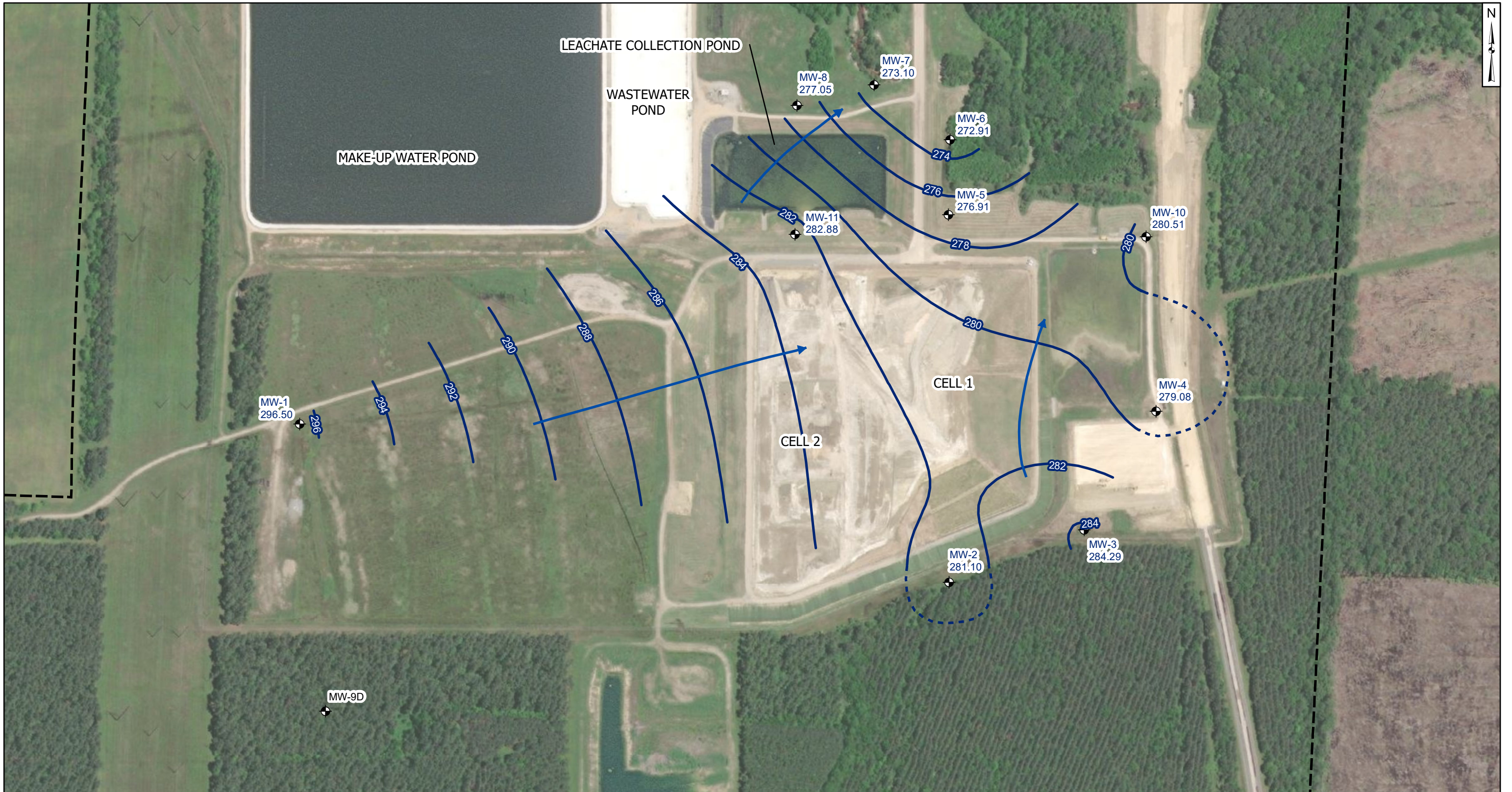
- Legend**
- ◆ Groundwater Monitoring Well
 - Groundwater Flow Direction
 - Groundwater Elevation Contour
 - - - Groundwater Elevation Contour (Inferred)
 - Property Boundary

Notes

- Monitoring well coordinates and water level data (collected on June 29, 2021) provided by AEP.
- Site features based on information available in Report 1 - Groundwater Monitoring Network for CCR Compliance - John W. Turk, Jr. Power Plant Class 3N Landfill (Terracon, October 2016) provided by AEP.
- Groundwater elevation units are feet above mean sea level.
- MW-9D (Elevation = 257.49 ft amsl) is screened within the lower aquifer and excluded from the potentiometric surface calculations.



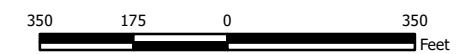
Groundwater Elevation Contour Map June 2021		Figure 1
AEP Turk Power Plant - Landfill Fulton, Arkansas		
Geosyntec consultants		
Columbus, Ohio	2021/08/09	



- Legend**
- Groundwater Monitoring Well
 - Groundwater Flow Direction
 - Groundwater Elevation Contour
 - Groundwater Elevation Contour (Inferred)
 - Property Boundary

Notes

- Monitoring well coordinates and water level data (collected on November 29, 2021) provided by AEP.
- Site features based on information available in Report 1 - Groundwater Monitoring Network for CCR Compliance - John W. Turk, Jr. Power Plant Class 3N Landfill (Terracon, October 2016) provided by AEP.
- Groundwater elevation units are feet above mean sea level.
- MW-9D (Elevation = 256.14 ft amsl) is screened within the lower aquifer and excluded from the potentiometric surface calculations.



**Groundwater Elevation Contour Map
November 2021**

AEP Turk Power Plant - Landfill
Fulton, Arkansas

		Figure 2
Columbus, Ohio	2022/01/19	

**Residence Time Calculation Summary Turk
Landfill**

Geosyntec Consultants, Inc.

CCR Management Unit	Monitoring Well	Well Diameter (inches)	2021-06		2021-11	
			Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)
Landfill	MW-1 ^[1]	2.0	15.8	3.9	18.3	3.3
	MW-2 ^[2]	2.0	14.2	4.3	14.1	4.3
	MW-3 ^[2]	2.0	16.6	3.7	23.5	2.6
	MW-4 ^[2]	2.0	15.7	3.9	23.6	2.6
	MW-5 ^[2]	2.0	37.6	1.6	25.3	2.4
	MW-10 ^[2]	2.0	16.1	3.8	19.7	3.1

Notes:

[1] - Background Well

[2] - Downgradient Well

Table 1 - Groundwater Data Summary: MW-1

Turk - LF

Appendix III Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/1/2016	Background	0.247	218	284	1.1734	7.0	478	1,752
7/25/2016	Background	0.274	247	294	0.7506 J1	6.5	767	2,245
9/1/2016	Background	0.258	251	271	1.0888	6.5	469	1,742
11/2/2016	Background	0.321	275	360	0.5629 J1	6.6	1,479	3,008
12/15/2016	Background	0.333	310	350	2	6.7	830	2,328
2/1/2017	Background	0.212	230	331	2	7.0	461	1,812
2/21/2017	Background	0.184	215	281	1.1213	7.0	407	1,660
5/2/2017	Background	0.137	176	230	1.23	7.4	334	1,020
6/29/2017	Background	0.135	177	202	1.1529	7.4	301	1,374
7/19/2017	Background	0.17	183	226	1.1435	6.7	407	1,504
8/10/2017	Detection	0.181	207	243	0.9589 J1	7.0	417	1,600
4/26/2018	Detection	0.126	153	166	1.657	7.3	294	1,220
9/5/2018	Detection	0.098	198	216	<0.083 U1	7.1	280	1,216
4/17/2019	Detection	0.120	160	197	1.51	7.5	317	1,188
9/19/2019	Detection	0.242	244	239	1.03	7.4	463	1,462
5/27/2020	Detection	0.109	157	172	1.37	8.1	269	1,120
11/9/2020	Detection	0.086	156	186	1.52	8.1	274	1,160
12/27/2020	Detection	--	--	--	--	7.3	--	--
6/29/2021	Detection	0.084	141	166	1.45	7.0	264	1,140
11/29/2021	Detection	0.25	289 M1, P3	227	1.07	7.0	774	1,970

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

M1: The associated matrix spike (MS) or matrix spike duplicate (MSD) recovery was outside acceptance limits.

P3: The precision on the matrix spike duplicate (MSD) was above acceptance limits.

**Table 1 - Groundwater Data Summary: MW-1
Turk - LF
Appendix IV Constituents**

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/1/2016	Background	< 0.93 U1	< 1.05 U1	38	0.0809225 J1	< 0.07 U1	1	1.08847 J1	--	1.1734	1.15566 J1	0.099	0.01991 J1	2.54209 J1	2.09098 J1	1.23972 J1
7/25/2016	Background	< 0.93 U1	< 1.05 U1	49	0.159579 J1	< 0.07 U1	1	1.25472 J1	--	0.7506 J1	< 0.68 U1	0.118	0.01078 J1	3.09725 J1	3.00699 J1	< 0.86 U1
9/1/2016	Background	1.45614 J1	< 1.05 U1	41	0.16559 J1	0.810967 J1	0.406151 J1	0.950716 J1	1.844	1.0888	< 0.68 U1	0.087	0.01003 J1	4.13353 J1	3.88471 J1	< 0.86 U1
11/2/2016	Background	3.5 J1	< 1.05 U1	42.76	< 0.02 U1	< 0.07 U1	0.9 J1	1.1 J1	1.287	0.5629 J1	< 0.68 U1	0.105	< 0.005 U1	1.57 J1	3.33 J1	< 0.86 U1
12/15/2016	Background	0.950637 J1	< 1.05 U1	39	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.605475 J1	2.076	2	< 0.68 U1	0.102	< 0.005 U1	1.57771 J1	< 0.99 U1	< 0.86 U1
2/1/2017	Background	< 0.93 U1	< 1.05 U1	32	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.688421 J1	1.203	2	< 0.68 U1	0.081	0.01216 J1	1.43338 J1	< 0.99 U1	< 0.86 U1
2/21/2017	Background	< 0.93 U1	< 1.05 U1	31	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.564016 J1	0.899	1.1213	< 0.68 U1	0.078	0.00711 J1	1.7175 J1	2.52261 J1	< 0.86 U1
5/2/2017	Background	< 0.93 U1	< 1.05 U1	29.84	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.57 J1	1.114	1.23	0.74 J1	0.06633	< 0.005 U1	2.15 J1	3.43 J1	< 0.86 U1
6/29/2017	Background	< 0.93 U1	< 1.05 U1	27.71	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.33 J1	4.687	1.1529	< 0.68 U1	0.05943	< 0.005 U1	1.68 J1	< 0.99 U1	< 0.86 U1
7/19/2017	Background	< 0.93 U1	< 1.05 U1	30.71	< 0.02 U1	< 0.07 U1	0.24 J1	0.78 J1	0.842	1.1435	0.71 J1	0.06479	< 0.005 U1	1.82 J1	< 0.99 U1	< 0.86 U1

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

pCi/L: picocuries per liter

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

Table 1 - Groundwater Data Summary: MW-2

Turk - LF

Appendix III Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/1/2016	Background	0.07	57.4	12	0.5064 J1	7.9	42	343
7/25/2016	Background	0.152	120	10	0.4781 J1	6.9	121	486
9/1/2016	Background	0.128	109	15	0.4811 J1	6.9	108	514
11/2/2016	Background	0.369	398	25	0.493 J1	6.9	346	960
12/15/2016	Background	0.109	95.2	47	0.5233 J1	7.0	79	562
2/1/2017	Background	0.05	38.9	9	0.5086 J1	7.5	28	248
2/21/2017	Background	0.05	40.8	10	< 0.083 U1	7.9	33	252
5/2/2017	Background	0.04823	51.2	5	0.52 J1	7.9	19	208
6/29/2017	Background	0.05514	59.6	7	0.4428 J1	7.9	48	336
7/19/2017	Background	0.08324	65.5	8	0.4694 J1	7.5	44	332
8/10/2017	Detection	0.07471	62.9	10	0.451 J1	7.5	25	304
4/26/2018	Detection	0.04343	51.8	6	< 0.083 U1	7.6	22	264
9/5/2018	Detection	0.098	111	13	< 0.083 U1	7.4	66	348
4/17/2019	Detection	0.037	76.8	5.86	0.34	7.9	18.6	310
9/19/2019	Detection	0.098	113	10.1	0.30	8.0	76.8	416
5/27/2020	Detection	0.051	75.7	6.17	0.28	8.5	17.2	311
7/14/2020	Detection	--	--	--	--	7.9	--	--
11/9/2020	Detection	0.059	89.9	7.55	0.34	8.5	52.9	332
12/22/2020	Detection	--	--	--	--	7.8	--	--
6/29/2021	Detection	0.034 J1	75.1	3.26	0.30	7.4	15.5	320
11/29/2021	Detection	0.045 J1	89.3	13.9	0.29	7.5	40.9	340

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

**Table 1 - Groundwater Data Summary: MW-2
Turk - LF
Appendix IV Constituents**

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/1/2016	Background	< 0.93 U1	1.75982 J1	120	0.122549 J1	< 0.07 U1	2	0.904166 J1	--	0.5064 J1	2.01553 J1	0.015	0.01145 J1	2.82795 J1	1.14538 J1	< 0.86 U1
7/25/2016	Background	< 0.93 U1	1.39254 J1	152	0.131235 J1	< 0.07 U1	0.862157 J1	1.21412 J1	--	0.4781 J1	< 0.68 U1	0.048	0.00701 J1	4.69255 J1	< 0.99 U1	< 0.86 U1
9/1/2016	Background	5	< 1.05 U1	162	0.141798 J1	< 0.07 U1	3	1.1267 J1	3.045	0.4811 J1	1.22736 J1	0.031	0.01382 J1	6	3.91967 J1	< 0.86 U1
11/2/2016	Background	1.91737 J1	< 1.05 U1	107	0.0819 J1	< 0.07 U1	3	1.53886 J1	1.939	0.493 J1	1.26945 J1	0.088	0.00947 J1	5	1.45298 J1	< 0.86 U1
12/15/2016	Background	1.7294 J1	< 1.05 U1	158	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.355698 J1	1.919	0.5233 J1	< 0.68 U1	0.028	< 0.005 U1	2.15202 J1	1.67636 J1	< 0.86 U1
2/1/2017	Background	< 0.93 U1	< 1.05 U1	80	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.217505 J1	0.933	0.5086 J1	< 0.68 U1	0.011	< 0.005 U1	2.91607 J1	< 0.99 U1	< 0.86 U1
2/21/2017	Background	< 0.93 U1	< 1.05 U1	83	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.233088 J1	1.335	< 0.083 U1	< 0.68 U1	0.012	< 0.005 U1	2.62555 J1	< 0.99 U1	< 0.86 U1
5/2/2017	Background	1.46 J1	1.37 J1	93	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.32 J1	1.935	0.52 J1	< 0.68 U1	0.00925	< 0.005 U1	1.08 J1	1.32 J1	< 0.86 U1
6/29/2017	Background	< 0.93 U1	< 1.05 U1	101	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.58 J1	3.373	0.4428 J1	< 0.68 U1	0.01089	< 0.005 U1	0.87 J1	< 0.99 U1	< 0.86 U1
7/19/2017	Background	< 0.93 U1	< 1.05 U1	97.5	0.02 J1	< 0.07 U1	0.76 J1	0.71 J1	2.712	0.4694 J1	1.14 J1	0.01387	0.005 J1	1.18 J1	< 0.99 U1	< 0.86 U1

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

pCi/L: picocuries per liter

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

Table 1 - Groundwater Data Summary: MW-3

Turk - LF

Appendix III Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/1/2016	Background	0.04	93.9	3	0.3926 J1	7.6	17	357
7/25/2016	Background	0.168	393	37	0.4403 J1	7.4	699	1,612
9/1/2016	Background	0.09	149	14	0.4288 J1	7.3	119	564
11/2/2016	Background	0.151	264	48	0.5852 J1	7.4	424	1,188
12/15/2016	Background	0.06	67.8	15	0.6047 J1	7.4	43	408
2/1/2017	Background	0.03	53	7	< 0.083 U1	7.4	19	220
2/21/2017	Background	0.05	81.5	12	< 0.083 U1	7.6	76	340
5/2/2017	Background	0.04375	77.3	6	0.37 J1	7.6	27	328
6/29/2017	Background	0.05282	95.6	6	0.3475 J1	7.6	32	332
7/19/2017	Background	0.09178	122	15	< 0.083 U1	7.2	95	510
8/10/2017	Detection	0.09788	160	23	0.438 J1	7.5	190	716
4/26/2018	Detection	0.03713	61.3	4	< 0.083 U1	7.4	28	278
9/5/2018	Detection	0.073	160	58	< 0.083 U1	7.3	554	1,234
1/22/2019	Detection	--	--	7.3	--	--	--	--
4/17/2019	Detection	0.035	81.1	3.70	0.21	7.5	13.7	364
9/19/2019	Detection	0.074	143	27.3	0.22	7.9	148	612
5/27/2020	Detection	0.053	82.0	11.3	0.22	8.2	11.7	370
7/14/2020	Detection	--	--	--	--	7.9	--	--
11/9/2020	Detection	0.056	85.6	28.8	0.29	8.1	12.9	402
12/22/2020	Detection	--	--	--	--	7.3	--	--
6/29/2021	Detection	0.067	118	88.8	0.29	7.2	92.0	670
11/29/2021	Detection	0.07 J1	225	263	0.25	7.0	193	1,040

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

**Table 1 - Groundwater Data Summary: MW-3
Turk - LF
Appendix IV Constituents**

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/1/2016	Background	< 0.93 U1	< 1.05 U1	73	0.194411 J1	< 0.07 U1	1	0.664792 J1	--	0.3926 J1	0.940276 J1	0.01	0.01506 J1	0.949404 J1	< 0.99 U1	< 0.86 U1
7/25/2016	Background	< 0.93 U1	< 1.05 U1	238	0.137503 J1	< 0.07 U1	0.493284 J1	0.785774 J1	--	0.4403 J1	< 0.68 U1	0.075	< 0.005 U1	1.16782 J1	< 0.99 U1	< 0.86 U1
9/1/2016	Background	1.90159 J1	< 1.05 U1	81	0.185901 J1	< 0.07 U1	0.955367 J1	0.803817 J1	3.55	0.4288 J1	< 0.68 U1	0.014	< 0.005 U1	1.14299 J1	1.25976 J1	< 0.86 U1
11/2/2016	Background	1.9135 J1	2.32209 J1	160	0.0958 J1	< 0.07 U1	0.571016 J1	1.33502 J1	2.83	0.5852 J1	1.51713 J1	0.03	< 0.005 U1	1.68622 J1	< 0.99 U1	< 0.86 U1
12/15/2016	Background	1.36647 J1	1.8418 J1	55	0.261831 J1	< 0.07 U1	0.471105 J1	0.395502 J1	1.92	0.6047 J1	< 0.68 U1	0.009	< 0.005 U1	0.30882 J1	< 0.99 U1	< 0.86 U1
2/1/2017	Background	1.38687 J1	< 1.05 U1	55	0.157528 J1	< 0.07 U1	0.906786 J1	0.761635 J1	0.942	< 0.083 U1	< 0.68 U1	0.003	0.00701 J1	1.02923 J1	< 0.99 U1	< 0.86 U1
2/21/2017	Background	1.75888 J1	< 1.05 U1	66	0.239409 J1	< 0.07 U1	4	1.21066 J1	1.156	< 0.083 U1	2.18988 J1	0.008	0.00692 J1	0.551231 J1	< 0.99 U1	0.918887 J1
5/2/2017	Background	< 0.93 U1	2.37 J1	47.28	0.1 J1	< 0.07 U1	0.31 J1	0.35 J1	2.8	0.37 J1	< 0.68 U1	0.00679	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
6/29/2017	Background	< 0.93 U1	< 1.05 U1	63.01	0.13 J1	< 0.07 U1	1.64	0.89 J1	1.894	0.3475 J1	1.12 J1	0.00836	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
7/19/2017	Background	< 0.93 U1	< 1.05 U1	79.28	0.15 J1	< 0.07 U1	0.58 J1	0.72 J1	3.43	< 0.083 U1	< 0.68 U1	0.01353	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

pCi/L: picocuries per liter

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

Table 1 - Groundwater Data Summary: MW-4

Turk - LF

Appendix III Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/1/2016	Background	0.36	391	653	0.6203 J1	7.2	190	2,352
7/25/2016	Background	0.455	729	1,055	< 0.083 U1	7.4	694	4,084
9/1/2016	Background	0.402	569	1,065	0.5614 J1	7.1	671	3,500
11/2/2016	Background	0.393	513	993	0.374 J1	7.4	538	3,450
12/15/2016	Background	0.305	280	930	0.3995 J1	7.3	434	2,980
2/1/2017	Background	0.445	669	1,159	< 0.083 U1	6.8	747	3,720
2/21/2017	Background	0.365	439	730	< 0.083 U1	7.2	186	2,404
5/2/2017	Background	0.376	496	1,024	0.44 J1	6.9	572	3,370
6/29/2017	Background	0.264	264	659	0.4605 J1	7.0	157	2,276
7/19/2017	Background	0.296	306	1,052	< 0.083 U1	6.9	557	3,120
8/10/2017	Detection	0.429	648	1,105	0.512 J1	7.0	692	3,788
4/26/2018	Detection	0.347	383	1,140	< 0.083 U1	7.0	557	3,654
9/5/2018	Detection	0.255	516	1,241	< 0.083 U1	6.8	748	5,442
12/20/2018	Detection	--	--	110	--	--	--	2,792
4/17/2019	Detection	0.261	452	1,000	0.38	7.0	164	2,798
9/19/2019	Detection	0.330	573	895	0.34	7.0	157	2,780
5/27/2020	Detection	0.206	328	831	0.27	7.5	246	2,390
11/9/2020	Detection	0.384	664	1,150	0.26	7.5	634	3,150
12/22/2020	Detection	--	--	--	--	6.4	--	--
6/29/2021	Detection	0.390	458	895	0.32	6.8	351	2,630
11/29/2021	Detection	0.49	692	1,020	0.22	6.7	496	2,900

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

**Table 1 - Groundwater Data Summary: MW-4
Turk - LF
Appendix IV Constituents**

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/1/2016	Background	< 0.93 U1	1.83781 J1	69	0.23746 J1	< 0.07 U1	7	3.34813 J1	--	0.6203 J1	1.47143 J1	0.131	0.01634 J1	2.98754 J1	6	< 0.86 U1
7/25/2016	Background	< 0.93 U1	< 1.05 U1	110	0.454281 J1	< 0.07 U1	19	8	--	< 0.083 U1	4.81995 J1	0.162	0.01917 J1	1.38966 J1	3.81662 J1	< 0.86 U1
9/1/2016	Background	1.44388 J1	1.75655 J1	144	0.506995 J1	< 0.07 U1	23	9	1.909	0.5614 J1	6	0.098	0.028	3.08827 J1	13	< 0.86 U1
11/2/2016	Background	2.65159 J1	1.40633 J1	56	0.0976 J1	< 0.07 U1	4	2.56138 J1	1.195	0.374 J1	2.26641 J1	0.105	< 0.005 U1	1.80188 J1	13	< 0.86 U1
12/15/2016	Background	< 0.93 U1	2.20107 J1	63	0.0334569 J1	< 0.07 U1	0.630135 J1	0.943538 J1	2.64	0.3995 J1	< 0.68 U1	0.125	< 0.005 U1	3.76575 J1	< 0.99 U1	< 0.86 U1
2/1/2017	Background	1.15118 J1	< 1.05 U1	29	< 0.02 U1	< 0.07 U1	0.266332 J1	0.771837 J1	0.913	< 0.083 U1	< 0.68 U1	0.072	0.00591 J1	0.342891 J1	11	< 0.86 U1
2/21/2017	Background	0.987123 J1	< 1.05 U1	78	0.170596 J1	< 0.07 U1	9	4.18392 J1	4.46	< 0.083 U1	2.76588 J1	0.104	0.01482 J1	2.52827 J1	7	< 0.86 U1
5/2/2017	Background	2.26 J1	< 1.05 U1	41.07	0.03 J1	< 0.07 U1	0.33 J1	1.02 J1	4.274	0.44 J1	< 0.68 U1	0.09813	0.006 J1	1.41 J1	4.09 J1	< 0.86 U1
6/29/2017	Background	< 0.93 U1	< 1.05 U1	65.4	0.05 J1	< 0.07 U1	1.05	1.64 J1	13.21	0.4605 J1	< 0.68 U1	0.116	< 0.005 U1	2.65 J1	< 0.99 U1	< 0.86 U1
7/19/2017	Background	< 0.93 U1	2.44 J1	64.91	0.07 J1	< 0.07 U1	1.4	1.64 J1	3.521	< 0.083 U1	1.34 J1	0.133	0.013 J1	3.06 J1	1.18 J1	< 0.86 U1

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

pCi/L: picocuries per liter

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

Table 1 - Groundwater Data Summary: MW-5

Turk - LF

Appendix III Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/1/2016	Background	0.06	284	100	0.4866 J1	7.7	329	1,272
7/25/2016	Background	0.04	491	188	0.4938 J1	7.7	465	1,694
9/1/2016	Background	0.05	251	96	0.408 J1	7.5	319	1,250
11/2/2016	Background	0.06	234	80	0.5023 J1	7.6	281	1,034
12/15/2016	Background	0.03	217	55	0.2941 J1	7.7	220	1,036
2/1/2017	Background	0.05	272	78	0.7224 J1	6.8	265	1,092
2/21/2017	Background	0.06	270	80	< 0.083 U1	7.7	273	1,156
5/2/2017	Background	0.06152	275	91	0.54 J1	7.1	287	1,192
6/29/2017	Background	0.04842	248	73	< 0.083 U1	7.0	228	1,104
7/19/2017	Background	0.04983	208	66	< 0.083 U1	6.6	216	932
8/10/2017	Detection	0.06474	267	70	< 0.083 U1	6.8	233	1,052
4/26/2018	Detection	0.08795	310	105	< 0.083 U1	7.0	303	1,408
9/5/2018	Detection	0.086	380	134	< 0.083 U1	6.4	273	1,502
4/17/2019	Detection	0.082	290	138	0.30	7.2	343	1,292
9/19/2019	Detection	0.075	306	110	0.27	6.8	275	1,326
5/27/2020	Detection	0.078	301	114	0.28	7.4	319	1,320
11/9/2020	Detection	0.060	240	75.2	0.30	7.5	273	1,080
12/22/2020	Detection	--	--	--	--	6.5	--	--
6/29/2021	Detection	0.095	284	140	0.33	6.8	339	1,400
11/29/2021	Detection	0.16 J1	419	155	0.30	6.7	371	1,430

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

**Table 1 - Groundwater Data Summary: MW-5
Turk - LF
Appendix IV Constituents**

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/1/2016	Background	< 0.93 U1	< 1.05 U1	40	0.0620377 J1	< 0.07 U1	0.662999 J1	0.611001 J1	--	0.4866 J1	< 0.68 U1	0.049	0.02124 J1	1.45446 J1	2.29756 J1	< 0.86 U1
7/25/2016	Background	4.2029 J1	< 1.05 U1	42	0.165141 J1	< 0.07 U1	2	1.38215 J1	--	0.4938 J1	1.36311 J1	0.164	0.01234 J1	4.13266 J1	8	< 0.86 U1
9/1/2016	Background	0.948881 J1	< 1.05 U1	41	0.141298 J1	< 0.07 U1	0.560473 J1	0.970337 J1	1.411	0.408 J1	< 0.68 U1	0.024	0.01038 J1	3.3054 J1	1.06126 J1	< 0.86 U1
11/2/2016	Background	< 0.93 U1	< 1.05 U1	38	< 0.02 U1	< 0.07 U1	0.37232 J1	0.68278 J1	3.11	0.5023 J1	< 0.68 U1	0.024	< 0.005 U1	0.760667 J1	1.57137 J1	< 0.86 U1
12/15/2016	Background	< 0.93 U1	< 1.05 U1	35	< 0.02 U1	< 0.07 U1	0.558695 J1	0.494922 J1	1.159	0.2941 J1	< 0.68 U1	0.015	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
2/1/2017	Background	< 0.93 U1	< 1.05 U1	43	< 0.02 U1	< 0.07 U1	0.86197 J1	0.547445 J1	0.632	0.7224 J1	< 0.68 U1	0.018	0.01495 J1	0.862299 J1	< 0.99 U1	< 0.86 U1
2/21/2017	Background	< 0.93 U1	< 1.05 U1	43	< 0.02 U1	< 0.07 U1	1	0.733647 J1	0.747	< 0.083 U1	< 0.68 U1	0.021	0.00912 J1	0.957474 J1	< 0.99 U1	< 0.86 U1
5/2/2017	Background	1.2 J1	< 1.05 U1	38.42	< 0.02 U1	< 0.07 U1	0.42 J1	0.6 J1	4.45	0.54 J1	< 0.68 U1	0.02349	0.016 J1	1.11 J1	< 0.99 U1	< 0.86 U1
6/29/2017	Background	< 0.93 U1	< 1.05 U1	35.21	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.68 J1	5.057	< 0.083 U1	< 0.68 U1	0.01696	0.011 J1	2.2 J1	< 0.99 U1	< 0.86 U1
7/19/2017	Background	< 0.93 U1	< 1.05 U1	35.22	< 0.02 U1	< 0.07 U1	0.46 J1	0.81 J1	1.381	< 0.083 U1	0.95 J1	0.01583	0.026	0.97 J1	< 0.99 U1	< 0.86 U1

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

pCi/L: picocuries per liter

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

Table 1 - Groundwater Data Summary: MW-10

Turk - LF

Appendix III Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/1/2016	Background	0.07	245	509	0.5264 J1	7.8	582	2,252
7/25/2016	Background	0.07	348	680	0.4623 J1	6.7	960	2,936
9/1/2016	Background	0.08	349	400	0.5157 J1	6.6	444	1,896
11/2/2016	Background	0.09	407	378	0.373 J1	6.8	499	1,916
12/15/2016	Background	0.05	363	514	0.3419 J1	6.3	559	2,298
2/1/2017	Background	0.05	369	53	1.2456	6.0	62	2,280
2/21/2017	Background	0.177	673	762	< 0.083 U1	7.8	1,452	3,814
5/2/2017	Background	0.08024	213	305	0.52 J1	5.8	371	1,618
6/29/2017	Background	0.08018	256	277	1.1688	5.8	389	1,666
7/19/2017	Background	0.0858	454	470	3.17	6.3	560	2,146
8/10/2017	Detection	0.07623	392	544	0.37 J1	6.2	619	2,252
4/26/2018	Detection	0.06224	298	326	0.9038 J1	7.3	452	1,826
9/5/2018	Detection	0.074	410	405	< 0.083 U1	7.5	484	1,872
4/17/2019	Detection	0.046	313	431	0.21	7.4	554	2,002
9/19/2019	Detection	0.05 J1	339	365	0.21	6.6	481	1,900
5/27/2020	Detection	0.04 J1	389	378	0.19	7.6	487	1,780
11/9/2020	Detection	0.04 J1	264	282	0.24	6.4	366	1,610
6/29/2021	Detection	0.033 J1	254	320	0.24	6.2	420	1,720
11/29/2021	Detection	0.03 J1	222	240	0.18	6.4	278	1,430

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

Table 1 - Groundwater Data Summary: MW-10

Turk - LF

Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/1/2016	Background	< 0.93 U1	< 1.05 U1	68	0.0420664 J1	< 0.07 U1	2	0.608593 J1	--	0.5264 J1	< 0.68 U1	0.039	0.01929 J1	0.808299 J1	1.28039 J1	< 0.86 U1
7/25/2016	Background	< 0.93 U1	< 1.05 U1	57	0.0790461 J1	< 0.07 U1	0.841449 J1	0.890358 J1	--	0.4623 J1	< 0.68 U1	0.073	0.00766 J1	1.38895 J1	1.70224 J1	0.912736 J1
9/1/2016	Background	< 0.93 U1	< 1.05 U1	55	0.0599978 J1	< 0.07 U1	1	0.876633 J1	0.525	0.5157 J1	< 0.68 U1	0.029	0.00756 J1	1.18242 J1	< 0.99 U1	< 0.86 U1
11/2/2016	Background	1.07709 J1	< 1.05 U1	51	< 0.02 U1	< 0.07 U1	0.843928 J1	0.995858 J1	0.658	0.373 J1	0.773158 J1	0.042	< 0.005 U1	1.02999 J1	< 0.99 U1	< 0.86 U1
12/15/2016	Background	< 0.93 U1	< 1.05 U1	51	< 0.02 U1	< 0.07 U1	1	0.642068 J1	0.951	0.3419 J1	< 0.68 U1	0.017	< 0.005 U1	0.729956 J1	< 0.99 U1	< 0.86 U1
2/1/2017	Background	< 0.93 U1	< 1.05 U1	60	< 0.02 U1	< 0.07 U1	1	0.67122 J1	0.344	1.2456	< 0.68 U1	0.02	0.00911 J1	0.7751 J1	< 0.99 U1	< 0.86 U1
2/21/2017	Background	< 0.93 U1	< 1.05 U1	47	< 0.02 U1	< 0.07 U1	2	0.951093 J1	0.63	< 0.083 U1	0.870989 J1	0.095	0.01349 J1	2.06399 J1	< 0.99 U1	< 0.86 U1
5/2/2017	Background	< 0.93 U1	< 1.05 U1	58.09	< 0.02 U1	< 0.07 U1	1.43	0.74 J1	1.4731	0.52 J1	< 0.68 U1	0.01559	< 0.005 U1	0.59 J1	< 0.99 U1	< 0.86 U1
6/29/2017	Background	< 0.93 U1	< 1.05 U1	52.23	< 0.02 U1	< 0.07 U1	1.24	0.61 J1	2.112	1.1688	0.83 J1	0.01916	< 0.005 U1	0.59 J1	< 0.99 U1	< 0.86 U1
7/19/2017	Background	< 0.93 U1	< 1.05 U1	48.43	< 0.02 U1	< 0.07 U1	1.9	0.77 J1	3.154	3.17	1.1 J1	0.0401	0.007 J1	0.87 J1	< 0.99 U1	< 0.86 U1

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

pCi/L: picocuries per liter

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

APPENDIX 2- Statistical Analyses

The reports summarizing the statistical evaluation follow.

Memorandum

Date: August 10, 2021
To: David Miller (AEP)
Copies to: Leslie Fuershbach (AEP)
From: Allison Kreinberg (Geosyntec)
Subject: Evaluation of Detection Monitoring Data at Turk Plant's Landfill (LF)

In accordance with the United States Environmental Protection Agency's (USEPA's) regulations regarding the disposal of coal combustion residuals (CCR) in landfills and surface impoundments (40 CFR 257 Subpart D, "CCR rule"), the first semi-annual detection monitoring event of 2021 at the Landfill (LF), an existing CCR unit at the Turk Power Plant located in Fulton, Arkansas, was completed on June 29, 2021.

Background values for the Turk LF were previously calculated in December 2017. After a minimum of four detection monitoring events, the results of those events were compared to the existing background and the dataset was updated as appropriate. Revised upper prediction limits (UPLs) were calculated for each Appendix III parameter to represent background values. Lower prediction limits (LPLs) were also calculated for pH. Details on the calculation of these revised background values are described in Geosyntec's *Statistical Analysis Summary* report, dated January 8, 2020.

To achieve an acceptably high statistical power while maintaining a site-wide false-positive rate (SWFPR) of 10% per year or less, prediction limits were calculated based on a one-of-two retesting procedure. With this procedure, a statistically significant increase (SSI) is only concluded if both samples in a series of two exceeds the UPL (or are below the LPL for pH).

Detection monitoring results and the relevant background values are summarized in Table 1. No SSIs were observed at the Turk LF CCR unit, and as a result the Turk LF will remain in detection monitoring. The statistical analysis was conducted within 90 days of completion of sampling and analysis in accordance with 40 CFR 257.93(h)(2). A certification of these statistics by a qualified professional engineer is provided in Attachment A.

Table 1: Detection Monitoring Data Summary
Turk Plant - Landfill

Analyte	Unit	Description	MW-2	MW-3	MW-4	MW-5	MW-10
			6/29/2021	6/29/2021	6/29/2021	6/29/2021	6/29/2021
Boron	mg/L	Intrawell Background Value (UPL)	1.40	1.30	0.609	0.504	0.430
		Analytical Result	0.034	0.067	0.390	0.095	0.033
Calcium	mg/L	Intrawell Background Value (UPL)	135	246	799	451	615
		Analytical Result	75.1	118	458	284	254
Chloride	mg/L	Intrawell Background Value (UPL)	140	660	1,240	708	1,180
		Analytical Result	3.26	88.8	895	140	320
Fluoride	mg/L	Intrawell Background Value (UPL)	1.40	1.03	0.620	0.584	0.908
		Analytical Result	0.30	0.29	0.32	0.33	0.24
pH	SU	Intrawell Background Value (UPL)	8.1	7.8	7.5	7.8	7.7
		Intrawell Background Value (LPL)	6.3	6.4	6.4	6.1	5.7
		Analytical Result	7.4	7.2	6.8	6.8	6.2
Sulfate	mg/L	Intrawell Background Value (UPL)	1,900	2,300	971	1,180	1,800
		Analytical Result	15.5	92.0	351	339	420
Total Dissolved Solids	mg/L	Intrawell Background Value (UPL)	3,800	4,800	4,880	3,360	5,240
		Analytical Result	320	670	2,630	1,400	1,720

Notes:

UPL: Upper prediction limit

LPL: Lower prediction limit

Bold values exceed the background value.

Background values are shaded gray.

ATTACHMENT A

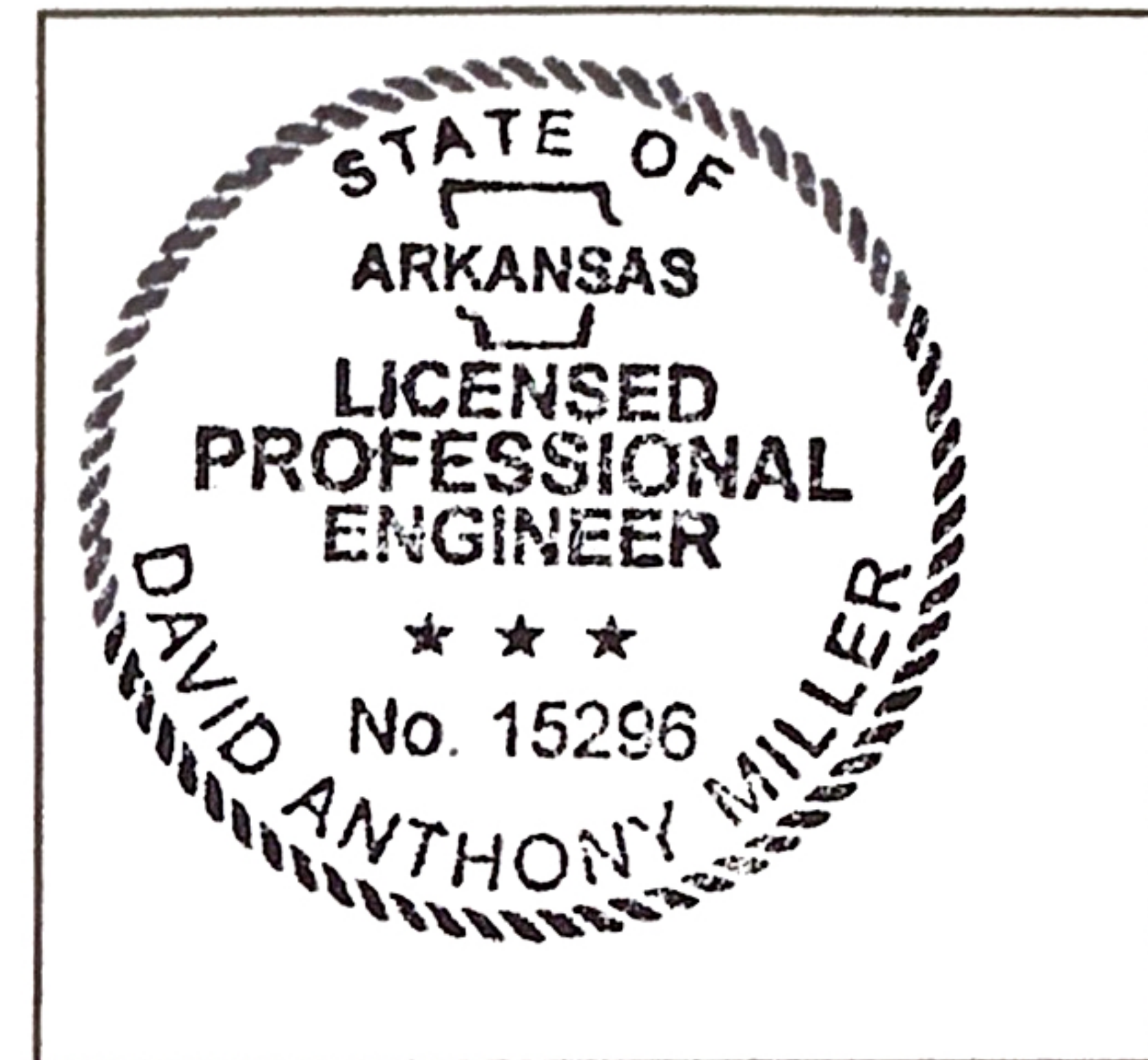
Certification by a Qualified Professional Engineer

CERTIFICATION BY QUALIFIED PROFESSIONAL ENGINEER

I certify that the selected statistical method, described above and in the January 8, 2020 *Statistical Analysis Summary* report, is appropriate for evaluating the groundwater monitoring data for the Turk LF CCR management area and that the requirements of 40 CFR 257.93(f) have been met.

DAVID ANTHONY MILLER

Printed Name of Licensed Professional Engineer



David Anthony Miller

Signature

15296
License Number

ARKANSAS
Licensing State

08.10.21
Date