2019 Annual Groundwater Monitoring and Corrective Action Report

Sandow Steam Electric Station AX Landfill - Milam County, Texas

Prepared for:

Luminant Generation Company LLC

Submitted by:

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January 31, 2020

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ACRONYMS AND ABBREVIATIONS

CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
GWPS	Groundwater Protection Standard
MCL	Maximum Concentration Level
mg/L	Milligrams per Liter
NA	Not Applicable
SSI	Statistically Significant Increase
SSL	Statistically Significant Levels
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

Golder Associates, Inc. (Golder) has prepared this report on behalf of Luminant Generation Company LLC (Luminant) to satisfy annual groundwater monitoring and corrective action reporting requirements of the Coal Combustion Residuals (CCR) Rule for the AX Landfill at the former Sandow Steam Electric Station in Milam County, Texas. The CCR units and CCR monitoring well network are shown on Figure 1.

The CCR Rule (40 CFR 257 Subpart D - *Standards for the Receipt of Coal Combustion Residuals in Landfills and Surface Impoundments*) has been promulgated by the United States Environmental Protection Agency (USEPA) to regulate the management and disposal of CCRs as solid waste under Resource Conservation and Recovery Act (RCRA) Subtitle D. For existing CCR landfills and surface impoundments, the CCR Rule requires that the owner or operator prepare an annual groundwater monitoring and corrective action report to document the status of the groundwater monitoring and corrective action program for the CCR unit for the previous calendar year. Per 40 CFR 257.90(e) of the CCR Rule, the report should contain the following information, to the extent available:

(1) A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;

(2) Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

(3) In addition to all the monitoring data obtained under §§ 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;

(4) A narrative discussion of any transition between monitoring programs (*e.g.,* the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and

(5) Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.

2.0 MONITORING AND CORRECTIVE ACTION PROGRAM STATUS

The AX Landfill CCR unit is currently in the Detection Monitoring Program. The initial Detection Monitoring Program groundwater samples were collected from the AX Landfill CCR monitoring well network in October 2017. Subsequent Detection Monitoring Program groundwater samples were collected on a semi-annual basis in 2018 and 2019. The data evaluation was completed using procedures described in the Statistical Analysis Plan (PBW, 2017) to identify statistically significant increases (SSIs) of Appendix III parameters over background concentrations. The Detection Monitoring Program sampling dates and parameters are summarized in the following table:

Detection Monitoring Program Summary

Sampling Dates	Parameters	SSIs	Assessment Monitoring Program Established
October 2017 March 2018 (re-samples)	Appendix III	Yes	No (Alternate Source Demonstration Completed)
March 2018 October 2018	Appendix III	Yes	No (Alternate Source Demonstration Completed)
June 2019 November 2019	Appendix III	Yes	To Be Determined (Alternate Source Currently Being Assessed)

The statistical background values and Appendix III analytical data are presented in Tables 1 and 2, respectively. SSIs of Appendix III parameters were identified for the 2017 and 2018 sampling events. An initial Alternate Source Demonstration was completed in 2018, which indicated that a source other than the CCR unit caused the SSIs observed in the 2017 sample data and 2018 re-sample data. A subsequent Alternate Source Demonstration was completed in 2019 based on the 2018 sample data. As such, AX Landfill has remained in the Detection Monitoring Program. A summary of the 2019 Alternate Source Demonstration is presented in Attachment 1.

Detection Monitoring Program groundwater samples were collected from the CCR groundwater monitoring network on a semi-annual basis in 2019, as required by the CCR Rule. The first 2019 semi-annual Detection Monitoring Program sampling event was conducted in June 2019. The second 2019 semi-annual Detection Monitoring Program sampling event was conducted in November 2019. The analytical data from the 2019 semi-annual Detection Monitoring Program sampling events were evaluated using procedures described in the Statistical Analysis Plan to identify SSIs of Appendix III parameters over background concentrations. SSIs of

Appendix III parameters over background concentrations were identified for several constituents for which SSIs had previously been attributed to alternate sources. Alternate sources for the SSIs identified in the 2019 sample data are being evaluated in accordance with 40 CFR § 257.94. If an alternate source is not identified to be the cause of the SSI, an Assessment Monitoring Program will be established in accordance with 40 CFR § 257.94(e)(2).

3.0 KEY ACTIONS COMPLETED IN 2019

Semi-annual Detection Monitoring Program groundwater monitoring events were conducted in June and November 2019. The number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and the analytical results for the groundwater samples are summarized in Table 2. A map showing the CCR units and monitoring wells is provided as Figure 1.

No CCR wells were installed or decommissioned in 2019.

4.0 PROBLEMS ENCOUNTERED AND ACTIONS TO RESOLVE THE PROBLEMS

CCR well AX-25 could not be sampled during the second semi-annual Detection Monitoring event in 2019 because the well was found to be damaged. The dedicated sample tubing in the well was constricted by a blockage in the casing and a water level probe could not be lowered below the blockage point (approximately 17 feet below ground surface). It is assumed that the well casing has collapsed at the blockage point. Luminant intends to plug the damaged well and replace it with a new well located immediately adjacent to the damaged well in 2020.

5.0 KEY ACTIVITIES PLANNED FOR 2020

The following key activities are planned for 2020:

- Continue the Detection Monitoring Program in accordance with 40 CFR § 257.94.
- Complete evaluation of Appendix III analytical data and compare results to statistical background values to determine whether an SSI has occurred.
- If an SSI is identified, potential alternate sources (i.e., a source other than the CCR unit caused the SSI or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality) will be evaluated. If an alternate source is identified to be the cause of the SSI, a written demonstration will be completed within 90 days of SSI determination and included in the Annual Groundwater Monitoring and Corrective Action Report.
- If an alternate source is not identified to be the cause of the SSI, an Assessment Monitoring Program will be established in accordance with 40 CFR § 257.94(e)(2).
- Luminant intends to plug CCR well AX-25, which is damaged, and replace it with a new well located immediately adjacent to the damaged well.

6.0 REFERENCES

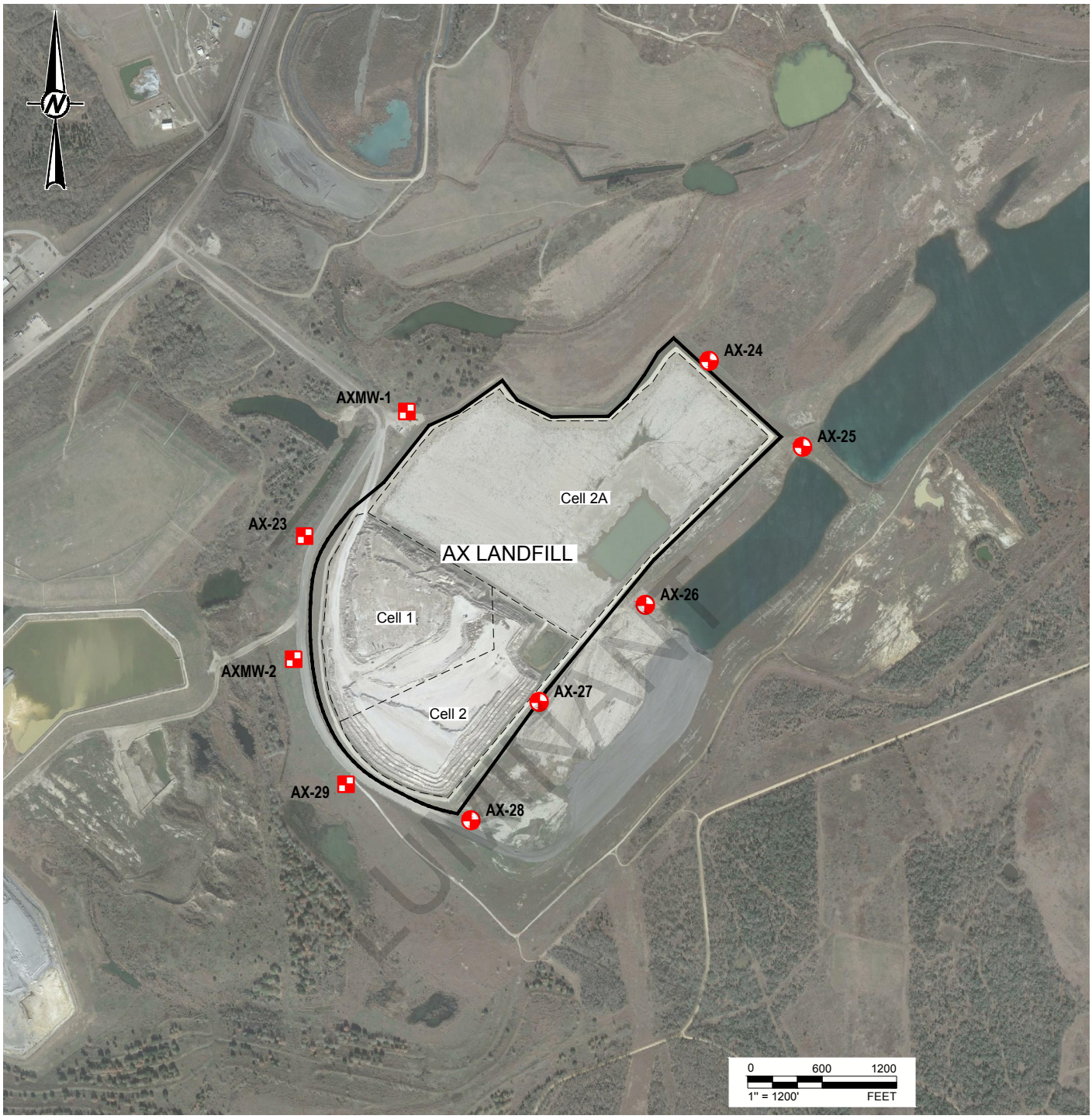
Pastor, Behling & Wheeler, LLC, 2017. Coal Combustion Residual Rule Statistical Analysis Plan, Sandow Steam Electric Station, AX Landfill, Rockdale, Texas.

Signature Page

Golder Associates Inc.

Pat Behling
Principal Engineer

FIGURES



LEGEND

- DOWNGRADIENT CCR MONITORING WELL
- UPGRADIENT CCR MONITORING WELL

NOTE(S)

1. WELL AX-25 IS DAMAGED AND COULD NOT BE SAMPLED DURING THE SECOND SEMI-ANNUAL SAMPLING EVENT IN 2019.

REFERENCE(S)

BASE MAP TAKEN FROM GOOGLE EARTH, IMAGERY DATED 1/7/18.

CLIENT
LUMINANT

PROJECT
SANDOW 5 GENERATING PLANT
ROCKDALE, TEXAS

TITLE
DETAILED SITE PLAN - AX LANDFILL

CONSULTANT
GOLDER

YYYY-MM-DD	2020-01-23
DESIGNED	AJD
PREPARED	AJD
REVIEWED	WFV
APPROVED	WFV

PROJECT NO.	REV.	FIGURE
19122262	0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

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Path: \\texarkanadata\Projects - Round Rock_2019\19122262 - Luminant\G - Sandow\ | File Name: FIG 1 - Detailed Site Plan (AX Landfill).dwg

TABLES

Table 1
Statistical Background Values
Sandow Steam Electric Station AX Landfill

Sample Location	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Field pH (s.u.)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
Upgradient Wells							
AXMW-1	0.681	569	491	0.4	5.49 7.09	2,660	5,820
AXMW-2	3.62	943	391	1.88	4.6 7.63	3,040	4,940
AX-23	1.1	475	313	0.4	3.24 7.95	1,030	3,090
AX-29	0.432	791	306	0.4	2.73 7.01	1,440	3,370
Downgradient Wells							
AX-24	0.311	273	580	0.4	3.89 9.38	1,010	2,520
AX-25	0.298	262	1,140	0.507	4.69 9.2	795	3,980
AX-26	0.446	915	3,040	0.4	5.07 8.14	1,200	8,300
AX-27	0.281	366	1,020	0.4	6.08 7.3	478	3,620
AX-28	0.393	633	756	0.4	4.67 8.55	2,280	3,790

Table 2
Appendix III Results
Sandow Steam Electric Station AX Landfill

Sample Location	Date Sampled	B (mg/L)	Ca (mg/L)	Cl (mg/L)	F (mg/L)	Field pH (s.u.)	SO_4 (mg/L)	TDS (mg/L)
Upgradient Wells								
AXMW-1	10/3/17	0.46	477	348	<0.1	5.75	1990	3620
	3/21/18	0.50	425	267	0.122 J	5.89	2050	3680
	10/9/18	0.51	473	229	0.37	6.31	2260	3730
	6/27/19	0.80	371	242	0.37	5.10	1720	2810
	11/12/19	1.14	362	138	0.115 J	5.33	1540	2800
AXMW-2	10/3/17	2.14	644	207	<0.1	5.93	1990	3640
	3/21/18	2.64	628	218	1.18	5.80	2280	4050
	10/9/18	1.47	562	179	0.84	6.66	1960	3280
	6/27/19	1.75	578	203	1.39	5.87	1720	3280
	11/12/19	0.88	483	147	0.228 J	6.14	1160	2480
AX-23	10/3/17	0.31	316	184	<0.1	6.43	631	1620
	3/23/18	0.31	309	193	0.77	6.09	655	1730
	10/9/18	0.38	305	210	0.45	7.00	636	1700
	6/27/19	0.31	335	224	0.49	6.19	652	1760
	11/12/19	0.34	304	183	0.186 J	6.28	590	1640
AX-29	10/3/17	0.32	392	276	<0.1	6.20	1110	2480
	3/23/18	0.30	356	285	0.81	5.89	1160	2450
	10/9/18	0.36	339	274	0.45	6.99	1060	2390
	6/27/19	0.31	352	275	<1.00	5.85	1110	2460
	11/13/19	0.47	449	281	<0.100	5.80	1210	2850
Downgradient Wells								
AX-24	10/2/17	0.13	252	307	<0.1	6.12	632	1810
	3/26/18	0.13	254	309	0.279 J	5.82	762	1880
	10/8/18	0.18	260	283	0.59	6.82	759	1840
	7/2/19	0.14	325	244	0.49	5.80	887	2060
	11/13/19	0.20	319	226	<0.100	5.91	752	2040
AX-25	10/3/17	0.21	325	586	<0.1	6.37	504	2400
	3/16/18	--	302	--	--	--	--	--
	3/26/18	0.20	281	583	0.75	6.38	526	2420
	10/8/18	0.23	324	586	1.01	7.09	492	2360
	7/2/19	0.20	384	616	0.87	6.26	608	2590
	11/12/19	Well Damaged. Could Not Be Sampled.						

Table 2
Appendix III Results
Sandow Steam Electric Station AX Landfill

Sample Location	Date Sampled	B (mg/L)	Ca (mg/L)	Cl (mg/L)	F (mg/L)	Field pH (s.u.)	SO_4 (mg/L)	TDS (mg/L)
AX-26	10/2/17	0.35	666	1100	<0.1	6.38	945	3740
	3/26/18	0.34	912	1820	<0.1	6.41	1300	4980
	10/8/18	0.40	905	1720	<0.1	7.09	1220	4680
	7/2/19	0.36	409	465	0.45	6.14	643	2380
	11/13/19	0.39	651	1010	<0.100	5.91	853	3350
AX-27	10/2/17	0.21	462	652	<0.1	6.19	569	2490
	3/16/18	--	453	--	--	--	659	--
	3/16/2018 dup	--	456	--	--	--	648	--
	3/26/18	0.21	438	584	<0.1	6.29	661	2350
	10/8/18	0.25	422	540	0.14	7.17	554	2220
	7/2/19	0.21	379	459	0.59	6.05	520	2090
	11/13/19	0.26	395	465	<0.100	6.05	480	2050
AX-28	10/2/17	0.21	664	384	<0.1	6.25	1670	3350
	3/16/18	--	634	--	--	--	--	--
	3/23/18	0.20	621	354	<0.1	6.17	1720	3430
	10/8/18	0.31	578	230	0.47	6.87	1710	3300
	10/8/18 dup	0.32	577	233	0.51		1780	3370
	6/27/19	0.30	585	146	0.15	5.87	1870	3320
	11/13/19	0.23	616	235	<0.100	5.57	1820	3560

Notes:
1. "--" - not analyzed
2. J - concentration detected below method quantitation limit; result is an estimate.

ATTACHMENT 1

ALTERNATE SOURCE DEMONSTRATION REPORT

ALTERNATE SOURCE DEMONSTRATION SUMMARY

SANDOW STEAM ELECTRIC STATION – AX LANDFILL

Introduction

This Alternative Source Demonstration Summary was prepared to document that a source other than the AX Landfill (the Site) caused the statistically significant increases (SSIs) over background levels observed during the 2018 Detection Monitoring Program sampling events as required by 40 CFR 257.94(e)(2). A detailed Site plan of the Coal Combustion Residual (CCR) groundwater monitoring network is shown on Figure 1. The Detection Monitoring Program groundwater data are summarized in Table 1.

Description of the AX Landfill

The AX Landfill is constructed within highly heterogeneous overburden spoil material that was previously excavated and backfilled during lignite mining operations at the Sandow Lignite Mine. The uppermost aquifer at the Site occurs under unconfined conditions within the overburden spoil and extends to the base of the spoil, where lignite and/or clay confining units are encountered. An average linear flow velocity of 0.15 feet/day was calculated for the AX Landfill based on aquifer characteristics presented in the Groundwater Monitoring System Certification for the Site (PBW, 2017a).

The AX Landfill consists of Cells 1 and 2 and covers an area of approximately 70 acres (Figure 1). Cell 2A of the AX Landfill was constructed adjacent to Cells 1 and 2, but was never used. Construction of Cell 1 was completed in July 2013 and construction of Cell 2 was completed in October 2015. Placement of Unit No. 5 CCR began in Cell 1 in May 2015 and Cell 2 in September 2016. CCR has never been placed in Cell 2A.

Initial Detection Monitoring Results

The initial Detection Monitoring Program groundwater samples were collected from the AX Landfill in October 2017. SSIs were observed during the initial sampling event for calcium in wells AX-25, AX-27, and AX-28 and sulfate in well AX-27. In accordance with the Statistical Analysis Plan (PBW, 2017b), re-samples were collected on March 16, 2018 from each of the wells where SSIs had been observed. SSIs were also observed in the re-samples. An initial Alternate Source Demonstration Report (PBW, 2018) was prepared after the re-samples were collected. The initial Alternate Source Demonstration Report attributed the SSIs to natural variation in groundwater quality due to the heterogeneity of the spoil groundwater system based on: (1) Concentrations of the constituents with SSIs were higher in groundwater samples from other Site wells, including from wells upgradient from the AX Landfill, and (2) Theoretically affected water from the active landfill cells could not have reached the wells where prediction limit exceedances were observed based on the average linear groundwater flow velocities for the unit.

Based on the initial Alternate Source Demonstration, the AX Landfill remained in the Detection Monitoring Program in 2018.

2018 Semi-Annual Detection Monitoring Results and Discussion

Detection Monitoring Program groundwater samples were collected on a semi-annual basis from the AX Landfill CCR monitoring well network in 2018 in accordance with 40 CFR 257.94. SSIs were observed during the 2018 semi-annual groundwater sampling events for calcium in wells AX-25 and AX-27, sulfate in wells AX-26 and AX-27, and fluoride in wells AX-23, AX-24, AX-25, AX-28, and AX-29. The wells where SSIs were observed include two upgradient wells (AX-23 and AX-29) and four downgradient wells (AX-25, AX-26, AX-27, and AX-28). The

2018 semi-annual sampling results were generally similar to previous results, with the exception of fluoride, which increased in both upgradient wells (AX-23 and AX-29) and downgradient wells (AX-24, AX-25, and AX-28).

Data variability across the CCR monitoring network is very high. Calcium, fluoride, and sulfate concentrations in wells where SSIs were indicated have consistently been lower than other wells where SSIs were not indicated. For example, calcium concentrations in downgradient wells AX-25 and AX-27 (where SSIs were indicated) are similar to or lower than those in downgradient well AX-26 and upgradient well AXMW-2 (where SSIs were not indicated). Similarly, concentrations of fluoride and sulfate in the wells where SSIs were indicated have consistently been lower than the concentrations in wells where SSIs were not indicated, including in upgradient well AXMW-2 for fluoride and in upgradient wells AXMW-1 and AXMW-2 for sulfate. Based on the high Site-wide variability in calcium, fluoride, and sulfate concentrations in wells upgradient and downgradient of the AX Landfill, the SSIs observed during the 2018 semi-annual monitoring events are attributed to natural variation in groundwater quality related to heterogeneity of the mine spoil rather than a suspected release from the AX Landfill.

This conclusion is further supported by the location of the wells where SSIs were identified relative to Cells 1 and 2. Two of the wells where an SSI was identified for fluoride are upgradient wells (AX-23 and AX-29). Also, based on the timing of ash placement in the AX Landfill and the average linear groundwater velocity (0.15 feet/day), wells AX-25, AX-26, and AX-28 are all located sufficiently far from Cells 1 and 2 that affected water in contact with the cells would not have reached any of the wells during the time that the 2018 Detection Monitoring Program groundwater samples were collected. Cell 2 is the closest active cell to AX-25, AX-26, and AX-28. Ash was first placed in Cell 2 in September 2016. Using the conservative assumptions that the wells are all located directly downgradient of Cell 2 and that chemical adsorption is negligible, the amount of time it would take groundwater in contact with Cell 2 to reach AX-28 (approximately 260 feet from Cell 2) is 4.7 years, AX-26 (approximately 600 feet from Cell 2) is 11 years, and AX-25 (approximately 2,400 feet from Cell 2) is 44 years. The year equivalents for the calculated groundwater travel times would be 2020 for AX-28, 2027 for AX-26, and 2060 for AX-25. Cell 1 is located an even greater distance from wells AX-25, AX-26, and AX-28, so the groundwater travel time from Cell 1 to these wells would be significantly greater.

The other downgradient well where an SSI was identified was AX-27 (for calcium and sulfate only). The theoretical amount of time it would take groundwater in contact with Cell 2 to reach AX-27 (approximately 70 feet from Cell 2) is 1.3 years. Theoretically, groundwater in contact with Cell 2 could have reached AX-27 before the 2018 semi-annual groundwater samples were collected; however, the calcium and sulfate concentrations observed in the 2018 samples from well AX-27 are similar to those observed prior to 2018 (Table 1), before groundwater from Cell 2 would have theoretically reached AX-27. As such, the SSIs identified at AX-27 are not indications of a release from the AX Landfill.

Conclusion

SSIs were identified for calcium, fluoride, and sulfate in one or more wells during the 2018 Detection Monitroing Program semi-annual groundwater sampling events at the AX Landfill. Because other Site wells where SSIs were not indicated exhibited similar or higher concentrations of these constituents, and because theoretically affected water from the active landfill cells could not have reached the wells where SSIs were observed based on the average linear groundwater flow velocities for the aquifer (or the results were similar to previous sampling events where that was the case), all observed SSIs are attributed to natural variation in groundwater quality due to the heterogeneity of the spoil groundwater system and are not considered evidence of a release from the CCR unit. In accordance with Section 257.94(e)(2), Luminant should continue the Detection Monitoring Program at the unit. Initiation of an Assessment Monitoring Program is not required at this time.

References

Pastor, Behling & Wheeler, LLC (PBW), 2017a. Coal Combustion Residual Rule, Groundwater Monitoring System Certification, Sandow 5 Generating Plant, AX Landfill, Rockdale, Texas. October 16, 2017.

Pastor, Behling & Wheeler, LLC (PBW), 2017b. Coal Combustion Residual Rule, Statistical Analysis Plan, Sandow 5 Generating Plant, AX Landfill, Rockdale, Texas. October 11, 2017.

Pastor, Behling & Wheeler, LLC (PBW), 2018. Coal Combustion Residual Rule, Alternate Source Demonstration Report, Sandow 5 Generating Plant, AX Landfill, Rockdale, Texas. April 15, 2018.

PROFESSIONAL CERTIFICATION

This document and all attachments were prepared by Golder Associates Inc. under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I hereby certify that the alternative source demonstration at the referenced facility meets the requirements of Section 257.94(e)(2) of the CCR Rule.

Patrick J. Behling, P.E.

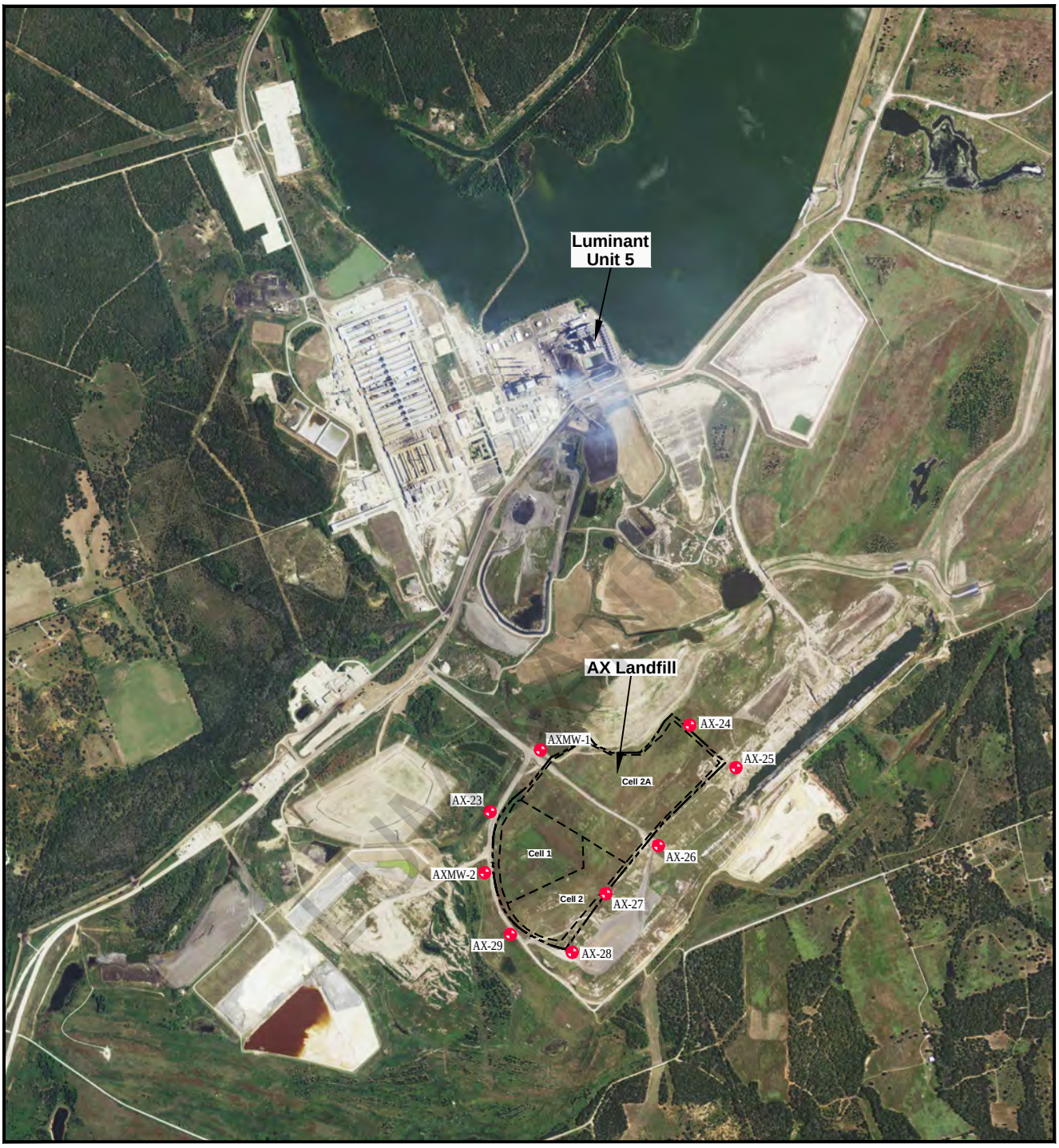
Principal Engineer

GOLDER ASSOCIATES INC.

Table 1
CCR Groundwater Detection Monitoring Data Summary
AX Landfill
Sandow Steam Electric Station

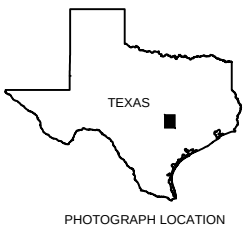
Sample Location	Date Sampled	B		Ca		Cl		Fl		Field pH		SO_4		TDS	
		Prediction Limit	Sample Data	Prediction Limit	Sample Data	Prediction Limit	Sample Data	Prediction Limit	Sample Data	Prediction Limit	Sample Data	Prediction Limit	Sample Data	Prediction Limit	Sample Data
Upgradient Wells															
AXMW-1	10/3/17	0.681	0.463	569	477	491	348	0.4	<0.1	5.49 7.09	5.75	2,660	1,990	5,820	3,620
	3/21/18		0.497		425		267		0.122 J		5.89		2,050		3,680
	10/9/18		0.512		473		229		0.371		6.31		2,260		3,730
AXMW-2	10/3/17	3.62	2.140	943	644	391	207	1.88	<0.1	4.6 7.63	5.93	3,040	1,990	4,940	3,640
	3/21/18		2.640		628		218		1.18		5.80		2,280		4,050
	10/9/18		1.470		562		179		0.84		6.66		1,960		3,280
AX-23	10/3/17	1.1	0.314	475	316	313	184	0.4	<0.1	3.24 7.95	6.43	1,030	631	3,090	1,620
	3/23/18		0.312		309		193		**0.768**		6.09		655		1,730
	10/9/18		0.381		305		210		**0.449**		7.00		636		1,700
AX-29	10/3/17	0.432	0.316	791	392	306	276	0.4	<0.1	2.73 7.01	6.2	1,440	1,110	3,370	2,480
	3/23/18		0.301		356		285		**0.806**		5.89		1,160		2,450
	10/9/18		0.361		339		274		**0.446**		6.99		1,060		2,390
Downgradient Wells															
AX-24	10/2/17	0.311	0.129	273	252	580	307	0.4	<0.1	3.89 9.38	6.12	1,010	632	2,520	1,810
	3/26/18		0.134		254		309		0.279 J		5.82		762		1,880
	10/8/18		0.178		260		283		**0.593**		6.82		759		1,840
AX-25	10/3/17	0.298	0.205	262	**325**	1,140	586	0.507	<0.1	4.69 9.2	6.37	795	504	3,980	2,400
	3/16/18		--		**302**		--		--		--		--		--
	3/26/18		0.199		**281**		583		**0.748**		6.38		526		2,420
	10/8/18		0.231		**324**		586		**1.01**		7.09		492		2,360
AX-26	10/2/17	0.446	0.352	915	666	3,040	1,100	0.4	<0.1	5.07 8.14	6.38	1,200	945	8,300	3,740
	3/26/18		0.342		912		1,820		<0.1		6.41		**1,300**		4,980
	10/8/18		0.403		905		1,720		<0.1		7.09		**1,220**		4,680
AX-27	10/2/17	0.281	0.206	366	**462**	1,020	652	0.4	<0.1	6.08 7.3	6.19	478	**569**	3,620	2,490
	3/16/18		--		**453**		--		--		--		**659**		--
	3/16/2018 dup		--		**456**		--		--		--		**648**		--
	3/26/18		0.209		**438**		584		<0.1		6.29		**661**		2,350
	10/8/18		0.247		**422**		540		0.144		7.17		**554**		2,220
AX-28	10/2/17	0.393	0.207	633	**664**	756	384	0.4	<0.1	4.67 8.55	6.25	2,280	1,670	3,790	3,350
	3/16/18		--		**634**		--		--		--		--		--
	3/23/18		0.204		621		354		<0.1		6.17		1,720		3,430
	10/8/18		0.305		578		230		**0.465**		6.87		1,710		3,300
	10/8/18 dup		0.316		577		233		**0.505**				1,780		3,370

Notes:
1. All concentrations in mg/L. pH in standard units.
2. Highlighted sample results exceed the prediction limit.

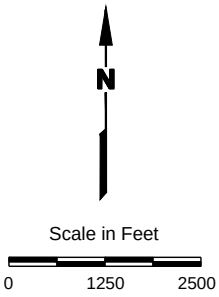


EXPLANATION

CCR Monitoring Well Location



PHOTOGRAPH LOCATION



SOURCE:
Imagery from www.tnris.gov, Alcoa Lake, aerial photographs, 2012.

SANDOW STEAM ELECTRIC STATION

AX LANDFILL

Figure 1

SITE PLAN

PROJECT: 5164E	BY: AJD	REVISIONS
DATE: SEPT., 2017	CHECKED: PJB	

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