



2018 Annual Groundwater Monitoring and Corrective Action Report

Oak Grove Steam Electric Station Ash Landfill 1 - Robertson County, Texas

Prepared for:

Luminant Generation Company LLC

Submitted by:

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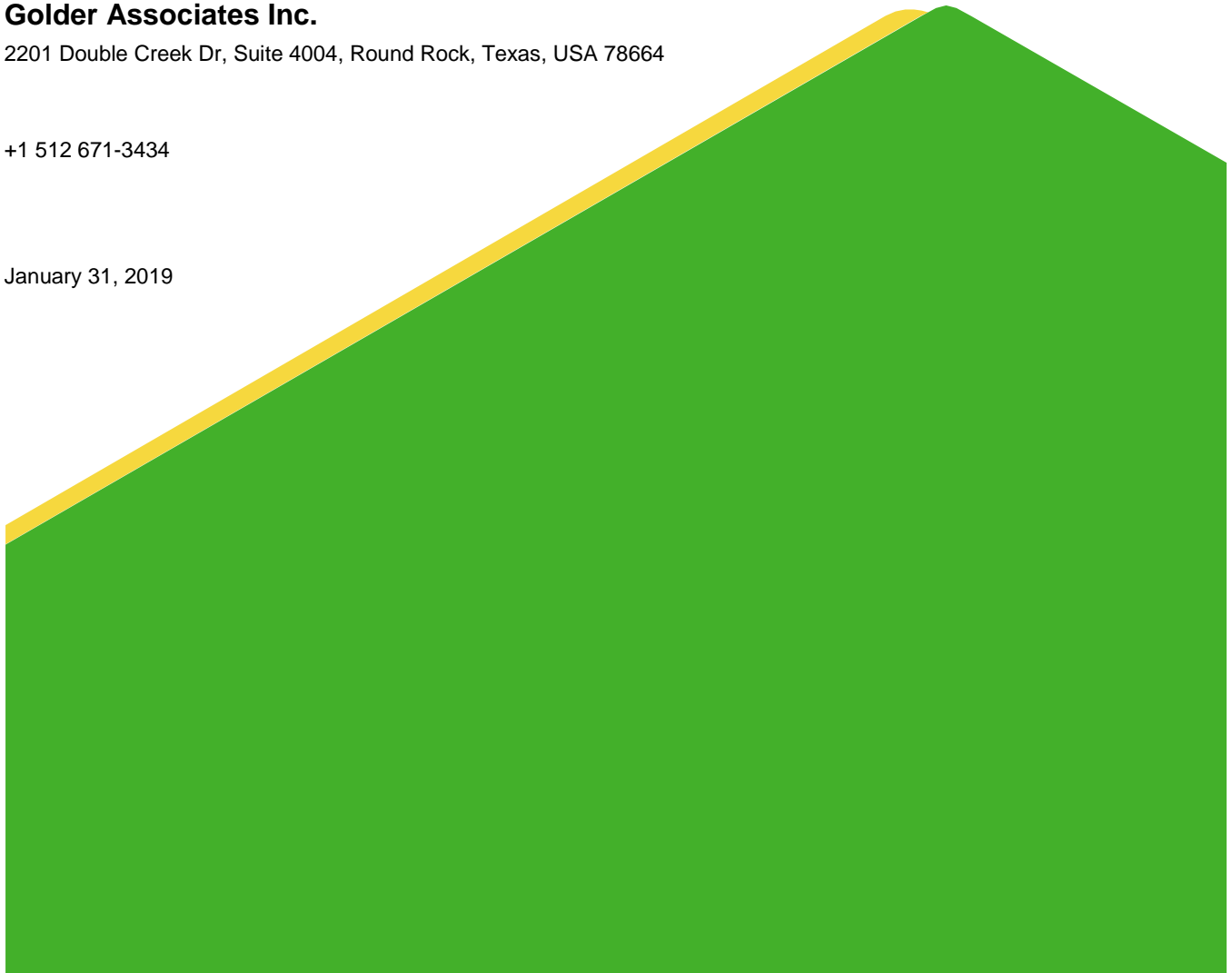


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ACRONYMS AND ABBREVIATIONS

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
OGSES	Oak Grove Steam Electric Station
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 Ash Landfill 1 at the Oak Grove Steam Electric Station (OGSES) in Robertson County, Texas. The CCR unit 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 Ash Landfill 1 is currently in the Detection Monitoring Program. Golder collected the initial Detection Monitoring Program groundwater samples from the Ash Landfill 1 CCR monitoring well network in October 2017. Detection groundwater samples were also collected from the CCR groundwater monitoring network on a semi-annual basis in 2018, as required by the CCR Rule. The first 2018 semi-annual Detection Monitoring Program sampling event was conducted in June 2018. The second 2018 semi-annual Detection Monitoring Program sampling event was conducted in September 2018. In accordance with procedures described in the Statistical Analysis Plan (PBW, 2017), verification re-samples were collected in November 2018 to verify the September 2018 sample results for several wells. All CCR groundwater monitoring wells were sampled for Appendix III constituents during the 2018 semi-annual sampling events. 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
10/02/2017	Appendix III	No	No
06/04-05/2018	Appendix III	Not Applicable	Not Applicable
09/06-07/2018 11/06/2018	Appendix III	To Be Determined	To Be Determined

The statistical background values and Appendix III analytical data are presented in Tables 1 and 2, respectively. There were no SSIs of Appendix III parameters in September 2017; therefore, the CCR units remained in Detection Monitoring in 2018. The analytical data from the 2018 Detection Monitoring sampling events were evaluated using procedures described in the Statistical Analysis Plan to identify SSIs of Appendix III parameters over background concentrations. Since the Detection Monitoring Program data evaluation was completed in January 2019, the results of that evaluation will be presented in the 2019 Annual Groundwater Monitoring and Corrective Action Report.

3.0 KEY ACTIONS COMPLETED IN 2018

Detection Monitoring Program groundwater monitoring events were completed in June and September 2018. Verification re-samples were also collected in November 2018 to verify results of the September 2018 sampling event in accordance with procedures described in the Statistical Analysis Plan (PBW, 2017). Statistical background values for the Appendix III parameters are summarized in Table 1 and analytical results for the groundwater samples collected in 2018 are summarized in Table 2. A map showing the CCR units and all upgradient and downgradient monitoring wells for the CCR units is provided as Figure 1.

No CCR wells were installed or decommissioned in 2018.

4.0 PROBLEMS ENCOUNTERED AND ACTIONS TO RESOLVE THE PROBLEMS

No problems were encountered with the CCR groundwater monitoring program in 2018.

5.0 KEY ACTIVITIES PLANNED FOR 2019

The following key activities are planned for 2019:

- Continue the Detection Monitoring Program in accordance with 40 CFR § 257.94.
- Complete evaluation of Appendix III analytical data from the downgradient wells 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 2019 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).


6.0 REFERENCES

Pastor, Behling & Wheeler, LLC, 2017. Coal Combustion Residual Rule Statistical Analysis Plan, Oak Grove Steam Electric Station, Ash Landfill, Robertson County, Texas.

FIGURES



LEGEND

 CCR MONITORING WELL

CLIENT
LUMINANT

PROJECT
**OAK GROVE STEAM ELECTRIC STATION
ROBERTSON COUNTY, TEXAS**

TITLE
DETAILED SITE PLAN

CONSULTANT	YYYY-MM-DD	2019-01-29
	DESIGNED	AJD
	PREPARED	AJD
	REVIEWED	WV
	APPROVED	PJB



REFERENCE(S)

BASE MAP TAKEN FROM GOOGLE EARTH, IMAGERY DATED 10/30/14.

PROJECT NO.
30405440-D

REV.
0

FIGURE
1

TABLES

Table 1
Statistical Background Value
OGSES Ash Landfill I

Parameter	Statistical Background Value
Boron (mg/L)	0.124
Calcium (mg/L)	74.9
Chloride (mg/L)	353
Fluoride (mg/L)	0.4
field pH (s.u.)	6.31 7.09
Sulfate (mg/L)	97.4
Total Dissolved Solids (mg/L)	948

Table 2
Appendix III Analytical Results
OGSES Ash Landfill I

Sample Location	Date Sampled	B	Ca	Cl	Fl	field pH	SO ₄	TDS
Upgradient Wells								
AL-10	10/02/17	0.0973	27	50.6	0.120 J	6.85	12.2	398
	06/04/18	0.0875	21.9	62.1	0.183 J	6.67	11.6	362
	09/06/18	0.113	21.9	56.7	0.260 J	6.66	11.8	371
MW-02	10/02/17	0.0567	22.2	42.4	<0.100	6.68	9.67	310
	06/04/18	0.144	82.4	275	0.139 J	6.28	121	740
	09/06/18	0.148	70.9	259	0.221 J	6.02	116	872
Downgradient Wells								
MW-05	10/02/17	0.0665	17.5	58.6	0.295 J	6.89	10.4	246
	06/05/18	0.0739	16.8	60	0.391 J	6.43	12.1	253
	09/07/18	0.077	15.8	63.3	0.392 J	6.11	10.6	249
MW-07	10/02/17	0.0733	13.9	15.8	0.178 J	6.59	38.4	298
	06/05/18	0.105	17.5	15.7	0.169 J	5.98	61.1	316
	09/07/18	0.151	19.7	21.5	0.250 J	6.18	80.3	357
	11/06/18	0.154	NA	NA	NA	NA	NA	NA
MW-08R	10/02/17	0.061	13.1	14.4	<0.100	6.63	28.7	243
	06/05/18	0.082	18.9	53.9	0.138 J	6.37	9.66	302
	09/07/18	0.0921	106	504	0.242 J	5.84	96.9	1,550
	11/06/18	NA	15.7	19	NA	NA	NA	268
MW-09	10/02/17	0.106	58.2	140	<0.100	6.76	95.3	433
	06/04/18	0.091	21.7	6.48	0.162 J	6.28	6.08	135
	09/06/18	0.0999	49.8	186	0.134 J	5.61	104	704
	11/06/18	NA	NA	NA	NA	NA	58.6	NA

Notes:

1. All concentrations in mg/L except pH, which is in standard units.
2. J - concentration is below sample quantitation limit; result is an estimate.



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