

## Memorandum

Date: January 11, 2019  
To: David Miller (AEP)  
Copies to: Jill Parker-Witt (AEP)  
From: Allison Kreinberg and Bruce Sass, Ph.D. (Geosyntec)  
Subject: Evaluation of Detection Monitoring Data at  
Welsh Plant's Bottom Ash Storage Pond (BASP)

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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 257.90-257.98, "CCR rule"), the first semi-annual detection monitoring event detection at the Bottom Ash Storage Pond (BASP), an existing CCR unit at the Welsh Power Plant located in Pittsburg, Texas, was completed on May 24, 2018. Based on the results, a two-of-two verification sampling was completed on August 14, 2018.

Eight background monitoring events were conducted at the Welsh BASP prior to these detection monitoring events, and 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 background values are described in Geosyntec's *Statistical Analysis Summary* report, dated January 15, 2018. An alternative source demonstration (ASD) was certified on April 14, 2018 which resulted in a revision to the calculated prediction limits.

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. In practice, if the initial result did not exceed the UPL, a second sample was not collected or analyzed.

Detection monitoring results and the relevant background values are compared in Table 1 and noted exceedances are described in the list below.

Evaluation of Detection Monitoring Data – Welsh BASP

January 11, 2019

Page 2

- Chloride concentrations exceeded the intrawell UPL of 12.6 mg/L in both the initial (14 mg/L) and second (15 mg/L) samples collected at AD-4C. Therefore, an SSI over background is concluded for chloride at AD-4C.

No other exceedances of UPLs were observed during these detection monitoring events.

The statistical analysis was conducted within 90 days of completion of sampling and analysis in accordance with 40 CFR 257.93(h)(2). Within 90 days of identification of the above-listed SSIs, a written demonstration that a source other than the Welsh BASP caused the increases was completed in accordance with 40 CFR 257.94(e)(2). Thus, the Welsh BASP will remain in detection monitoring.

A certification of these statistics by a qualified professional engineer is provided in Attachment A.

**Table 1: Detection Monitoring Data Evaluation  
Welsh Plant - Bottom Ash Storage Pond**

*Geosyntec Consultants, Inc.*

Parameter	Units	Description	AD-3	AD-4C		AD-16R	
			5/24/2018	5/24/2018	8/14/2018	5/23/2018	8/14/2018
Boron	mg/L	Intrawell Background Value (UPL)	0.0333	0.0571		0.0700	
		Detection Monitoring Data	0.0069 J	0.0251	--	0.0320	--
Calcium	mg/L	Intrawell Background Value (UPL)	1.541	0.962		3.069	
		Detection Monitoring Data	0.545	0.434	--	2.53	--
Chloride	mg/L	Intrawell Background Value (UPL)	9	12.6		8.3	
		Detection Monitoring Data	8	<b>14</b>	<b>15</b>	6	--
Fluoride	mg/L	Intrawell Background Value (UPL)	1	1		1	
		Detection Monitoring Data	<0.083	<0.083	--	<0.083	--
pH	SU	Intrawell Background Value (UPL)	7.63	5.91		4.4	
		Intrawell Background Value (LPL)	2.43	3.95		2.61	
		Detection Monitoring Data	4.38	5.17	--	3.79	--
Sulfate	mg/L	Intrawell Background Value (UPL)	12.4	49.0		64.1	
		Detection Monitoring Data	3	42	--	67	44
TDS	mg/L	Intrawell Background Value (UPL)	156	263		214	
		Detection Monitoring Data	98	224	--	204	--

**Notes**

UPL: Upper prediction limit

LPL: Lower prediction limit

TDS: Total dissolved solids

J: Estimated value

<: Indicates the parameter was not detected

**Bold values exceed the background value.**

Background values are shaded gray.

--: sample was not collected

**ATTACHMENT A**  
**Certification by Qualified Professional Engineer**

**CERTIFICATION BY QUALIFIED PROFESSIONAL ENGINEER**

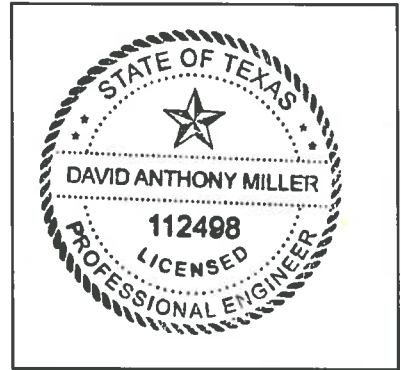
I certify that the selected statistical method, described above and in the January 15, 2018 *Statistical Analysis Summary* report, is appropriate for evaluating the groundwater monitoring data for the Welsh BASP CCR management area and that the requirements of 40 CFR 257.93(f) have been met.

DAVID ANTHONY MILLER

Printed Name of Licensed Professional Engineer

David Anthony Miller

Signature



112498

License Number

TEXAS

Licensing State

01.17.19

Date

