

SCS ENGINEERS

October 11, 2017
File No. 25216073.17

Mr. Rob Saunders
Ottumwa Generating Station
20775 Power Plant Road
Ottumwa, IA 52501

Subject: Groundwater Monitoring Statistical Method Certification
Ottumwa-Midland Landfill, Ottumwa, Iowa

Dear Mr. Saunders:

This letter documents the selection of a statistical method for evaluating data from the groundwater monitoring system at the Ottumwa-Midland Landfill (OML) in accordance with the requirements of 40 CFR 257.93(f). The selected statistical method is appropriate for evaluating the groundwater monitoring data for the coal combustion residue (CCR) management area.

Groundwater monitoring data for the OML CCR units will be evaluated in accordance with 40 CFR 257.93(f)(3), using a tolerance or prediction interval procedure, in which an interval for each constituent is established from the distribution of the background data and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

A narrative description of the selected statistical method is provided below.

Groundwater Monitoring System Information

The groundwater monitoring system at OML is a multiunit system. The OML includes two existing CCR units which are contiguous:

- OML Existing Landfill
- OML Expansion Phase 1

The groundwater monitoring system consists of two upgradient and three downgradient monitoring wells.

Narrative Description of Statistical Method

For evaluation of groundwater monitoring results under detection monitoring or assessment monitoring, statistical analysis will be conducted to evaluate whether or not there is a statistically significant increase (SSI) over background values for each required constituent. The statistical analysis will use a prediction interval approach as recommended for detection monitoring in the March 2009 United States Environmental Protection Agency Unified Guidance for Statistical





Analysis of Groundwater Monitoring Data at RCRA Facilities. The approach will meet the statistical method requirements of 40 CFR 257.93(g).

For the prediction interval evaluation, interwell or intrawell testing will be selected based on the considerations outlined in Chapter 6 of the Unified Guidance. Background data for each parameter will be analyzed to assess whether the data fit a normal distribution or can be transformed to fit a normal distribution (e.g., lognormal). The calculation of the prediction limit(s) for each parameter will be appropriate for the distribution (parametric, parametric with transformed data, or non-parametric).

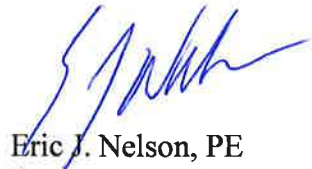
Monitoring results from the compliance wells will be compared to the upper prediction limits to evaluate whether an SSI over background has occurred. Assessment monitoring results will also be compared to the site-specific groundwater protection standards developed in accordance with 40 CFR 257.95(h).

PE Certification

	I, Eric J. Nelson, hereby certify that that the selected statistical method for the Ottumwa-Midland Landfill is appropriate for evaluating the groundwater monitoring data for the CCR management area in accordance with the requirements of 40 CFR 257.93(f)(6). I am a duly licensed Professional Engineer under the laws of the State of Iowa.	
		10/11/2017
	(signature)	(date)
	ERIC J. NELSON (printed or typed name)	
	License number <u>23136</u>	
My license renewal date is December 31, <u>2018</u> .		
Pages or sheets covered by this seal: <u>STATISTICAL METHOD CERTIFICATION (3 PAGES)</u>		

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Sincerely,



Eric J. Nelson, PE
Senior Project Manager
SCS ENGINEERS



Thomas J. Karwoski
Senior Project Manager
SCS ENGINEERS

SC/lmh/TK/EN

cc: Matt Hanson, Ottumwa Generating Station
Jeff Maxted, Alliant Energy

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