

EAST KENTUCKY POWER COOPERATIVE, INC.
SPURLOCK LANDFILL
SELECTION OF STATISTICAL PROCEDURES

Pursuant to 40 CFR §257.93(f)(6), I certify that the selected statistical method described herein is appropriate for evaluating the groundwater monitoring data for the CCR management area for **SPURLOCK LANDFILL**. This certification and the underlying evaluation to select a statistical procedure were conducted under my direction or supervision according to a system designed to assure that qualified personnel selected the statistical procedure pursuant to 40 CFR §257.93. The certification submitted is, to the best of my knowledge, accurate and complete.

East Kentucky Power Cooperative, Inc. (EKPC) provided Haley & Aldrich with groundwater monitoring data collected from a groundwater monitoring system that has been designed and constructed by others with the intent of meeting the requirements of 40 CFR §257.91 (i.e., the EKPC groundwater monitoring program is certified by others). Based on this certification, background groundwater monitoring data for Appendix III constituents (boron, calcium, chloride, fluoride, sulfate, total dissolved solids and pH) for **SPURLOCK LANDFILL** were evaluated and were found to exhibit ranges of sampling frequency, data distribution and frequency of results less than the limits of detection that support the selection of upper tolerance limits (UTL) (§257.93(f)(3)) as an appropriate statistical method to evaluate the groundwater data for each Appendix III parameter at each downgradient monitoring location for **SPURLOCK LANDFILL**.

A tolerance interval is a concentration range, with a specified confidence level, designed to contain a pre-specified proportion (e.g., 99 percent) of the underlying population from which the statistical sample is drawn (background). The upper endpoint of a tolerance interval is called the upper tolerance limit or UTL. Depending on the data distribution, parametric or non-parametric tolerance limits procedures are used to evaluate groundwater monitoring data using this method. Parametric tolerance limits utilize normally distributed data or normalized data via a transformation of the sample background data used to construct the limit. If the data are non-normal and a transformation is not indicated, non-parametric procedures (order statistics or bootstrap methods) are used to calculate the tolerance limit. If all the background data are non-detect, a reporting limit (RL) may serve as an approximate upper tolerance limit.

The data distribution (§257.93(g)(1)) and frequency of data measured below detection limits (§257.93(g)(5)) for the groundwater data from **SPURLOCK LANDFILL** indicates that calculating a UTL for each Appendix III constituent in the background data for the upgradient monitoring locations is appropriate. The UTLs calculated from the background data are then estimated to represent the 95th UTL with 99% coverage. These UTLs are used for comparison to data from each compliance well. As required by §257.93(g)(4), the confidence level and the percentage of the population that the tolerance interval will contain make this statistical method at least as effective as any other statistical approach outlined in §257.93(f) and (g).

HALEY & ALDRICH, INC.



Signature

October 10, 2017

Date

Alexander D. Smith

Name

KY - 23088

Professional Engineer Registration Number

