**October 4, 2017**

### Certification of Appropriateness of Selected Statistical Method (40 CFR §257.93(f)(6))

**Northern Indiana Public Service Company**
**Bailly Generating Station**
**Chesterton, Indiana**

**CCR Management Area including Boiler Slag Pond, Primary #1, Primary #2, and Secondary #1**

I, Daniel Sullivan, being a Professional Engineer in accordance with the laws of the State of Indiana, and having experience in the collection and interpretation of information from groundwater monitoring systems at surface impoundments and landfills, do hereby state that I am qualified in the subject matter of statistical analysis of CCR groundwater monitoring data. I have personally examined and am familiar with the statistical methods selected for evaluation of groundwater monitoring information for the Northern Indiana Public Service Company (NIPSCO) Bailly Generating Station CCR management area, prepared by Golder Associates Inc. and dated October 2017. Based on an inquiry of those individuals immediately responsible for selecting the statistical approach, I believe that the selected statistical methods, a narrative of which is provided herein, are appropriate for the applications outlined below.

NIPSCO has selected statistical methods that were developed in accordance with the requirements of 40 CFR §257.93 using methodology presented in Statistical Analysis of Groundwater Data at RCRA Facilities, Unified Guidance, March 2009, EPA 530/R-09-007 (Unified Guidance). The statistical evaluation techniques described in the following narrative will be used for detection and, if needed, assessment monitoring.

Statistical Methodology

a) Outlier Testing

Testing for outliers will be completed using time series plots, Dixon's Test, and/or Rosner's Test. An outlier will not be removed from the data set unless it is documented as erroneous or the removal establishes statistical limits that are regulatory conservative.

b) Reporting of Low or Zero Values

For concentrations detected between the method detection limit (MDL) and the practical quantitation limit (PQL), the estimated (J-qualified) concentration will be utilized in the statistical calculations described in

the following sections. For non-detect (ND) concentrations, concentrations not detected above the MDL, the values will be managed and utilized as follows:

- If <15% ND, substitute ½ the PQL;
- If between 15% to 50% ND, use the Kaplan-Meier or robust regression on ordered statistics to estimate the mean and standard deviation;
- If >50% but less than 100% ND, use a non-parametric test; or
- If 100% ND, use the Double Quantification Rule.

c) Data Distribution

Prior to completing statistical calculations to establish compliance limits, the data distribution will be evaluated using the Shapiro-Wilk/Shapiro-Francia testing methods for the CCR management area. If the data are normally or transform-normally distributed, parametric testing methods will be used. If the data are non-normally distributed, non-parametric testing techniques will be used.

d) Detection Monitoring

Results from the upgradient wells will be pooled to calculate the upper prediction limit (UPL), and lower prediction limit (LPL) for pH, for each Appendix III parameter. A statistically significant increase (SSI) occurs when a verified concentration (using a 1-of-2 resampling strategy) of any Appendix III constituent in a downgradient/compliance well exceeds the UPL. A statistically significant decrease (SSD) occurs when a verified reading for pH is lower than the LPL). Unless an alternate source demonstration (ASD) can be provided to contradict the SSI, the CCR unit will enter Assessment Monitoring.

e) Assessment Monitoring

Confidence limits will be based on a minimum of four historical values for each constituent in each well. Results from the downgradient monitoring wells will be evaluated by comparing the lower confidence limit (LCL) to the CCR unit-specific ground water protection standard (GWPS) for each Appendix IV analyte at each well. The GWPS will be the maximum contaminant level (MCL) (if a MCL exists) or the impoundment-specific background concentration for each analyte based on a tolerance/prediction limit procedure. If the LCL exceeds the GWPS, there is statistical evidence of a statistically significant level (SSL), which will trigger additional response activities, potentially including Corrective Action.

f) Corrective Action Monitoring

If at some future date it is determined that corrective action is required, an updated statistical plan, including appropriate statistical methodologies consistent with the Unified Guidance, and an updated certification will be prepared in accordance with applicable CCR Final Rule and corresponding State of Indiana requirements.

In consideration of the above and in accordance with 40 CFR §257.93(f)(6) and corresponding State of Indiana requirements, I certify to the best of my knowledge, information, and belief that the statistical methodologies described herein are appropriate for evaluating the groundwater monitoring data for the CCR management area that is comprised of the Boiler Slag Pond, Primary #1, Primary #2, and Secondary #1.
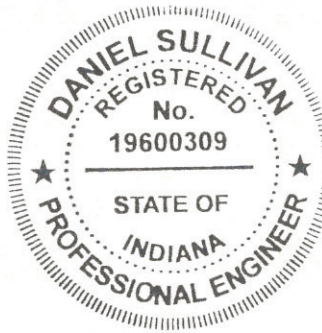
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Date