# 2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT SLURRY POND 3 & 4 WINYAH GENERATING STATION

**by Santee Cooper**
**Moncks Corner, South Carolina**

**January 2021**

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# 1. Annual Groundwater Monitoring Report Summary

The South Carolina Public Service Authority (Santee Cooper) has prepared this 2020 Annual Groundwater Monitoring Corrective Action Report for Slurry Pond 3 & 4 at the Winyah Generating Station (WGS). This 2020 Annual Report was prepared to comply with the United States Environmental Protection Agency (EPA) Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals (CCR) from Electric Utilities, 40 Code of Federal Regulations (CFR) Part 257, Subpart D dated April 17, 2015, (CCR Rule), specifically subsection § 257.90(e)(1) through (6).

In accordance with § 257.90(e)(6), an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit is provided below:

At the start of the current annual reporting period (January 1, 2020), Slurry Pond 3 & 4 continued to operate under an assessment monitoring program in accordance with § 257.95, which was initiated on July 16, 2018. As required by § 257.93(h)(2), the statistical analysis to determine if statistically significant levels (SSLs) of one or more Appendix IV constituent are present downgradient of Slurry Pond 3 & 4 identified SSLs above the groundwater protection standards (GWPS) for arsenic and lithium. The SSLs for arsenic and lithium were addressed through completion of a successful alternate source demonstration (ASD) prior to completing an assessment of corrective measures and conducting an evaluation of the nature and extent of arsenic and lithium. The assessment of corrective measures process was initiated per §257.95(g)(3) on April 15, 2019 and completed on September 12, 2019 with a successful ASD. The successful ASD, provided in the 2019 Annual Groundwater Report, allowed this CCR unit to remain in assessment monitoring. SSLs of Appendix IV constituents were not identified in downgradient monitoring wells for this unit during the semiannual monitoring events completed in 2020. Therefore, at the end of the current annual reporting period (December 31, 2020), Slurry Pond 3 & 4 remains in the assessment monitoring program. Because of the successful ASD identifying a source other than the CCR unit as being responsible for the SSLs of arsenic and lithium, completing an assessment of corrective measures, evaluating the nature and extent of contamination, holding a public meeting, selecting a remedy, and initiating remedial activities are not required.

To report on the activities conducted during the prior calendar year and document progress complying with the CCR Rule, the specific requirements listed in § 257.90(e)(1) through (5) are provided in the next section in bold/italic type followed by a short narrative stating how that specific requirement was met.

# 2. 40 CFR § 257.90 Applicability

## 2.1 40 CFR § 257.90(a)

***All CCR landfills, CCR surface impoundments, and lateral expansions of CCR units are subject to the groundwater monitoring and corrective action requirements under § 257.90 through § 257.98.***

The Slurry Pond 3 & 4 at Winyah Generating Station (WGS) is subject to the groundwater monitoring and corrective action requirements set forth by the Environmental Protection Agency (EPA) in the Code of Federal Regulations Title 40 (40 CFR) § 257.90 through § 257.98. This document satisfies the requirement under § 257.90(e) which requires the CCR Unit Owner/Operator to prepare an Annual Report.

## 2.2 40 CFR § 257.90(e) - SUMMARY

***Annual groundwater monitoring and corrective action report. For existing CCR landfills and existing CCR surface impoundments, no later than January 31, 2018, and annually thereafter, the owner or operator must prepore an annual groundwater monitoring and corrective action report. For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this section, the owner or operator has prepared the annual report when the report is placed in the facility's operating record as required by § 257.105(h)(1).***

This Annual Report documents the activities completed in 2020 for Slurry Pond 3 & 4 at WGS as required by the Groundwater Monitoring and Corrective Action regulations. Groundwater sampling and analysis was conducted per the requirements of § 257.93, and the status of the groundwater monitoring program, set forth in § 257.95, is provided in this report.

### 2.2.1 Status of the Groundwater Monitoring and Corrective Action Program

Statistically significant increases (SSI) of Appendix III constituents were identified downgradient of Slurry Pond 3 & 4, and the notification was provided on January 15, 2018. An alternate source demonstration (ASD) was conducted by Haley & Aldrich, Inc. and a report was provided to Santee Cooper in April 2018. Haley & Aldrich reviewed the field sampling and equipment calibration logs and the field indicator parameters and at that time, did not identify deviations or errors in sampling. They also conducted quality assurance/quality control reviews of the laboratory data and the statistical evaluation and did not identify any laboratory errors. The review by Haley & Aldrich did not identify errors or contributing sources that could serve as an ASD for the SSIs observed in the CCR well network for Slurry Pond 3 & 4. As a result, an Assessment Monitoring program was initiated as required by § 257.94(e)(2).

As required by § 257.93(h)(2), the statistical evaluation of the detected Appendix IV constituents determined there were statistically significant exceedances of groundwater protection standards (GWPS) for arsenic and lithium. Therefore, an assessment of corrective measures and nature and extent was initiated per §257.95(g)(3). Prior to completing the assessment of corrective measure and the evaluation of the nature and extent of arsenic and lithium, Haley & Aldrich documented naturally occurring conditions that exist within the uppermost shallow alluvial aquifer responsible for the mobilization of the naturally occurring arsenic and lithium. Additional details are documented in the ASD report provided as an appendix to the 2019 Annual Groundwater Report.

For the assessment monitoring events in 2020, SSLs of Appendix IV constituents above GWPS were not identified in groundwater downgradient of this unit. Therefore, this CCR unit will remain in assessment monitoring in 2021.

### 2.2.2 Key Actions Completed

The following key actions were completed in 2020:

- Prepared 2019 Annual Report including:
    - The Annual Report was placed in the facility's operating record pursuant to § 257.105(h)(1);

- Pursuant to § 257.106(h)(1), the notification was sent to the relevant State Director within 30 days of the Annual Report being placed in the facility's operating record [§ 257.106(d)];
- Pursuant to § 257.107(h)(1), the Annual Report was posted to the CCR Website within 30 days of the Annual Report being placed in the facility's operating record [§ 257.107(d)];

- Collected and analyzed two rounds of groundwater monitoring (February and June) (Table 1) in accordance with § 257.95(b) and § 257.95(d)(1) and recorded the concentrations in the facility's operating record as required by § 257.95(d)(1); and
- Completed statistical evaluation to determine if SSLs above GWPS were present for detected Appendix IV constituents in accordance with § 257.93(h)(2) (Appendix A).

### 2.2.3 Problems Encountered

Problems such as damaged wells or issues with sample collection or lack of sampling were not encountered at Slurry Pond 3 & 4 in 2020.

### 2.2.4 Actions to Resolve Problems

No problems needed resolution.

### 2.2.5 Project Key Activities for Upcoming Year

Key activities to be completed in 2021 include the following:

- Conduct semi-annual groundwater monitoring and subsequent statistical analysis as required by § 257.95.
- Statistical analysis of analytical data to determine if SSLs of the detected appendix IV constituents are present.
- Additional characterization of nature and extent as needed § 257.95(g)(1).
- Prepare the 2021 annual report; place it in the record as required by § 257.105(h)(1), notify the state [§ 257.106(d)]; and post to website [§ 257.107(d)].

## 2.3 40 CFR § 257.90(e) - INFORMATION

***At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:***

### 2.3.1 40 CFR § 257.90(e)(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;***

As required by § 257.90(e)(1), a map showing the locations of the CCR unit and associated upgradient and downgradient monitoring wells for Slurry Pond 3 & 4 is presented as Figure 1. In addition, this information is presented in the CCR Groundwater Monitoring Plan, which was placed in the facility's operating record by October 17, 2017, as required by § 257.105(h)(2).

### 2.3.2 40 CFR § 257.90(e)(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;***

Groundwater monitoring wells were not installed or decommissioned in 2020.

### 2.3.3 40 CFR § 257.90(e)(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;***

In accordance with § 257.95(b) and § 257.95(d)(1), two independent samples from each background and downgradient monitoring well were collected and analyzed. A summary table including the sample names, dates of sample collection, reason for sample collection, and monitoring data obtained for the groundwater monitoring program for Slurry Pond 3 & 4 is presented in Table 1 of this report. In addition, and in accordance with § 257.95(d)(3), Table 1 includes the groundwater protection standards established under § 257.95(d)(2).

### 2.3.4 40 CFR § 257.90(e)(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***

As required by § 257.93(h) a statistical analysis of the Appendix III constituents was completed by January 15, 2018. Baseline analytical data collected from background monitoring wells WBW-1 and WAP-1 were combined to develop Upper Tolerance Limits (UTLs). The UTLs for each Appendix III constituent were compared to the analytical results for the downgradient monitoring wells WAP-4, WAP-14, WAP-15, and WAP-16. Constituents with analytical results exceeding the UTLs were identified as SSIs over background for the respective Appendix III constituent. This statistical analysis determined that statistically significant increases of boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids were present downgradient of Slurry Pond 3 & 4. An evaluation of alternate sources for SSIs was initiated and completed on April 13, 2018 as provided in § 257.94(e)(2). A source causing the SSI over background levels other than the CCR unit was not identified at that time and an assessment monitoring program was initiated on July 16, 2018.

The assessment monitoring program has been established to meet the requirements of 40 CFR § 257.95. As required by § 257.95, the statistical evaluation of the detected Appendix IV constituents determined there were SSLs above GWPS for arsenic and lithium. Therefore, an assessment of corrective measures and a nature and extent was initiated per §257.95(g)(3) on April 15, 2019. However, prior to completing the assessment of corrective measure and the evaluation of the nature and extent of arsenic and lithium, Haley & Aldrich documented naturally occurring conditions that exist within the uppermost shallow alluvial aquifer responsible for the mobilization of the naturally occurring arsenic and lithium and completed a successful ASD on September 12, 2019. Based on the statistical evaluation for the 2020 data, there are no new SSLs identified (Appendix A). Therefore, at the end of the current annual reporting period (December 31, 2020), Slurry Pond 3 & 4 will remain in assessment monitoring in 2021.

### 2.3.5 40 CFR § 257.90(e)(5)

***Other information required to be included in the annual report as specified in § 257.90 through § 257.98.***

Other information including development of groundwater protection standards, recording groundwater monitoring results in the operating record, and an evaluation of alternate sources is discussed in preceding sections.

# TABLES

# TABLE 1 - Summary of Analytical Results
# Winyah Generating Station Slurry Pond 3 and 4 Assessment Monitoring

| | | | | | Appendix III Constituents | | | | | | | Appendix IV Constituents | | | | | | | | | | | | | | | | Field Parameters | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well ID | Purpose | Date of Sample Event | Laboratory Sample ID Number | | Boron | Calcium | Chloride | Fluoride | Sulfate | Total Dissolved Solids | pH | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Fluoride | Lead | Lithium | Mercury | Molybdenum | Radium 226 | Radium 228 | Radium 226/Radium 228 Combined Calculation | Selenium | Thallium | Depth to Groundwater | Groundwater Elevation | pH | Specific Conductivity | Temperature | Oxidation Reduction Potential | Turbidity | Dissolved Oxygen |
| | | | | Unit | ug/L | mg/L | mg/L | mg/L | mg/L | mg/L | SU | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | mg/L | ug/L | ug/L | ug/L | ug/L | pCi/L | pCi/L | pCi/L | ug/L | ug/L | Feet (btoc) | Feet (msl) | SU | uS | C | mv | NTU | ppm |
| | | | | Method | EPA 6010D | EPA 6020B | EPA 300.0 | EPA 300.0 | EPA 300.0 | SM 2540C | | EPA 6020B | EPA 6020B | EPA 6020B | EPA 6020B | EPA 6020B | EPA 6020B | EPA 6020B | EPA 300.0 | EPA 6020B | EPA 6010D | EPA 7470 | EPA 6010D | EPA 903.1 Mod | EPA 904.0 | EPA 903.1 Mod | EPA 6020B | EPA 6020B | | | | | | SM2580 | | |
| | | | | GWPS/US EPA MCL/RSL | — | — | — | 4 | — | — | — | 6 | 10 | 2000 | 4 | 5 | 100 | 6 | 4 | 15 | 40 | 2 | 100 | — | — | 5 | 50 | 2 | — | — | — | — | — | — | — | — |
| **Site Background Wells** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WAP-1 | Background | 2/3/2020 | AE65493 | | 33 | 2.9 | 9.02 | <0.10 | 15 | 27.5 | 4.69 | <5.0 | <5.0 | 47.1 | <0.50 | <0.50 | <5.0 | <0.50 | <0.10 | <1.0 | <10 | <0.20 | <10 | 0.952 | <3.00 | 0.952 | <10.0 | <1.0 | 5.2 | 24.24 | 4.69 | 80.5 | 20.4 | -175 | 6.21 | 0.41 |
| WAP-1 | Background | 6/2/2020 | AE73494 | | 26 | 2.4 | 8.63 | <0.10 | 15.3 | 39.38 | 4.11 | <5.0 | <5.0 | 35.3 | <0.50 | <0.50 | <5.0 | <0.50 | <0.10 | <1.0 | <10 | <0.20 | <10 | 0.774 | 0.519 | 1.29 | <10.0 | <1.0 | 5.01 | 24.43 | 4.11 | 81 | 22.39 | 115 | 0 | 0.79 |
| **WAP-1** | **total samples** | | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| WBW-1 | Background | 2/3/2020 | AE65526 | | <15 | <0.50 | 3.12 | <0.10 | 5.34 | <25 | 4.55 | <5.0 | <5.0 | 7.2 | <0.50 | <0.50 | <5.0 | <0.50 | <0.10 | <1.0 | <10 | <0.20 | <10 | 0.291 | 1.15 | 1.45 | <10.0 | <1.0 | 5.37 | 26.6 | 4.55 | 35.6 | 18.4 | 431 | 6.29 | 0.47 |
| WBW-1 | Background | 6/1/2020 | AE73527 | | <15 | <0.50 | 4.34 | <0.10 | 5.18 | <25 | 3.97 | <5.0 | <5.0 | 12.9 | <0.50 | <0.50 | <5.0 | <0.50 | <0.10 | <1.0 | <10 | <0.20 | <10 | -0.0735 | 0.808 | <MDL | <10.0 | <1.0 | 4.95 | 27.02 | 3.97 | 42 | 25.9 | 219 | 0 | 0.78 |
| **WBW-1** | **total samples** | | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **Slurry Pond 3 & 4 Wells** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WAP-4 | Assessment | 2/6/2020 | AE65496 | | | 56.8 | 9.22 | <0.10 | 12.6 | 293.8 | 7.47 | <5.0 | <5.0 | 81.8 | <0.50 | <0.50 | 10 | 0.64 | <0.10 | 3.1 | 11 | <0.20 | <10 | 0.881 | <3.00 | 0.881 | <10.0 | <1.0 | 6.84 | 13.5 | 7.47 | 332 | 19.2 | 45.9 | 20.9 | 0.31 |
| WAP-4 | Assessment | 6/10/2020 | AE73497 | | 170 | 52.6 | 8.56 | 0.11 | 12.9 | 262.5 | 6.94 | | <5.0 | 49 | | <0.50 | <5.0 | <0.50 | 0.11 | <1.0 | <10 | | | 1.08 | -1.07 | 1.08 | <10.0 | | 7.4 | 12.94 | 6.94 | 396 | 24.91 | -92 | 23.4 | 0.71 |
| **WAP-4** | **total samples** | | | | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| WAP-14 | Assessment | 2/10/2020 | AE65508 | | 8100 | 920 | 1270 | 0.32 | 801 | 4346 | 7.33 | <5.0 | | 27.6 | 47.8 | <0.50 | <0.50 | <5.0 | <0.50 | 0.32 | <1.0 | <10 | <0.20 | <10 | 1.01 | <3.00 | 1.01 | <10.0 | <1.0 | 4.04 | 10.65 | 7.33 | 5204 | 19.1 | -392 | 6.66 | 0.42 |
| WAP-14 | **Duplicate** | 2/10/2020 | AE65509 | | 8400 | 899 | 1260 | 0.42 | 808 | 4030 | | <5.0 | | 33.3 | 48.1 | <0.50 | <0.50 | <5.0 | <0.50 | 0.42 | <1.0 | <10 | <0.20 | <10 | 0.855 | 0.958 | 1.81 | <10.0 | <1.0 | | | | | | | | |
| WAP-14 | Assessment | 6/11/2020 | AE73509 | | 8400 | 880 | 1340 | 0.4 | 890 | 5085 | 7.33 | | | 17.1 | 54.4 | | | <5.0 | <0.50 | 0.4 | <1.0 | <10 | | | 0.829 | 1.2 | 2.03 | | | 4.88 | 9.81 | 7.33 | 6220 | 22.57 | -374 | 0 | 0.48 |
| WAP-14 | **Duplicate** | 6/11/2020 | AE73510 | | 8400 | 994 | 1320 | 0.49 | 871 | 5120 | | | | 19 | 54.3 | | | <5.0 | <0.50 | 0.49 | <1.0 | <10 | | | 0.937 | 0.262 | 1.2 | | | | | | | | | | |
| **WAP-14** | **total samples** | | | | 4 | 4 | 4 | 4 | 4 | 4 | 2 | 2 | 4 | 4 | 2 | 2 | 4 | 4 | 4 | 4 | 4 | 2 | 2 | 4 | 4 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| WAP-14A | CMA/NE | 2/10/2020 | AE65510 | | | | | | | | 6.97 | | <5.0 | | | | | | | | 35 | | | | | | | | 2.53 | 11.42 | 6.97 | 4380 | 18.4 | -362 | 6.12 | 0.23 |
| WAP-14A | CMA/NE | 6/11/2020 | AE73511 | | | | | | | | 6.91 | | <5.0 | | | | | | | | 39 | | | | | | | | 3.37 | 10.58 | 6.91 | 5270 | 22.06 | -348 | 2.3 | 0.68 |
| **WAP-14A** | **total samples** | | | | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| WAP-14B | CMA/NE | 2/10/2020 | AE65511 | | | | | | | | 6.78 | | 11.5 | | | | | | | | 14 | | | | | | | | 4.71 | 4.52 | 6.78 | 3279 | 25.9 | -253 | 5.88 | 0.17 |
| WAP-14B | CMA/NE | 6/11/2020 | AE73512 | | | | | | | | 6.61 | | <5.0 | | | | | | | | 12 | | | | | | | | 5.28 | 3.95 | 6.61 | 3890 | 27.67 | -395 | 6 | 0.62 |
| **WAP-14B** | **total samples** | | | | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| WAP-14C | CMA/NE | 2/10/2020 | AE65512 | | | | | | | | 7.33 | | <5.0 | | | | | | | | <10 | | | | | | | | 9.05 | 4.83 | 7.33 | 1107 | 19.6 | -198 | 6.12 | 0.38 |
| WAP-14C | CMA/NE | 6/11/2020 | AE73513 | | | | | | | | 6.81 | | <5.0 | | | | | | | | <10 | | | | | | | | 10.08 | 3.8 | 6.81 | 1160 | 22.67 | -141 | 0 | 0.72 |
| **WAP-14C** | **total samples** | | | | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| WAP-15 | Assessment | 2/6/2020 | AE65513 | | 430 | 37.3 | 50 | <0.10 | 47.9 | 260 | 6.13 | <5.0 | | 8.4 | 69 | <0.50 | <0.50 | <5.0 | 4.7 | <0.10 | <1.0 | <10 | <0.20 | <10 | 0.863 | 3.01 | 3.88 | <10.0 | <1.0 | 6.69 | 13.72 | 6.13 | 300 | 19.4 | 43.1 | 9.37 | 0.28 |
| WAP-15 | Assessment | 6/6/2020 | AE73514 | | 610 | 55.8 | 89.2 | 0.11 | 32.5 | 387.5 | 6.09 | | <5.0 | 138 | | | <5.0 | <0.50 | 0.11 | <1.0 | <10 | | | 1.24 | 0.0031 | 1.24 | | | 7.24 | 13.17 | 6.09 | 411 | 23.98 | -48 | 0 | 0.7 |
| **WAP-15** | **total samples** | | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| WAP-16 | Assessment | 2/6/2020 | AE65514 | | 1600 | 204 | 191 | 0.17 | 163 | 1026 | 6.62 | <5.0 | <5.0 | 94.5 | <0.50 | <0.50 | <5.0 | <0.50 | 0.17 | <1.0 | <10 | <0.20 | <10 | 1.84 | 0.832 | 2.67 | <10.0 | <1.0 | 6.82 | 18.26 | 6.62 | 1591 | 20.8 | -94.3 | 9.22 | 0.45 |
| WAP-16 | Assessment | 6/6/2020 | AE73515 | | 1700 | 207 | 180 | <0.10 | 196 | 1001 | 6.74 | | <5.0 | 73.6 | | | <5.0 | <0.50 | <0.10 | <1.0 | <10 | | | 0.979 | 0.13 | 1.11 | | | 6.92 | 18.16 | 6.74 | 1460 | 25.89 | -76 | 0 | 0.64 |
| **WAP-16** | **total samples** | | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

All groundwaler samples collected from the monitoring wells for Assessment Monitoring in 2020 for the constituents listed in Appendix III and Appendix IV of the EPA CCR Rule (40 CFR) were analyzed by South Carolina Certified laboratories: Sanlee Cooper Analytical Services (Certification # 08552), GEL Laboratories, LLC (Certification # 10120), Test America Laboratories Inc. Savannah (Certification # 98001), Test America Laboratories Inc. Pensacola (Certification #96026), Rogers & Callcot, Inc. (Certification # 23105001), and Pace Analytical Services LLC (Certification #99030).

# FIGURES


**LEGEND**

- BACKGROUND WELL
- SLURRY POND WELLS
- CCR UNIT BOUNDARY
- PROPERTY BOUNDARY

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: ESRI

N

0 1,100 2,200

SCALE IN FEET

SANTEE COOPER
WINYAH GENERATING STATION
GEORGETOWN, SOUTH CAROLINA

# LOCATION OF SLURRY POND 3 & 4 GROUNDWATER MONITORING WELLS FOR CCR COMPLIANCE

DECEMBER 2020

FIGURE 1

# Appendix A – Statistical Analysis

HALEY & ALDRICH, INC.
400 Augusta Street
Suite 130
Greenville, SC 29601
864.214.8750

**TECHNICAL MEMORANDUM**

June 18, 2020
File No. 132892-016

SUBJECT: 2020 Semi-annual Groundwater Assessment Monitoring Data
Statistical Evaluation
Winyah Generating Station
Slurry Pond 3 & 4

Pursuant to Title 40 Code of Federal Regulations (40 CFR) § 257.93 and 257.95 (Rule), this memorandum summarizes the statistical evaluation of the analytical results for the February 2020 semi-annual assessment monitoring groundwater sampling event for the Winyah Generating Station (WGS) Slurry Pond 3 & 4. The statistical evaluation discussed in this memorandum was conducted to determine if Appendix IV groundwater monitoring constituents have been detected in downgradient wells at concentrations that represent a statistically significant level (SSL) above background or upgradient wells consistent with the requirements in 40 CFR § 257.95.

Utilizing interwell and intrawell evaluations, data from the groundwater sampling events for the downgradient monitoring wells were compared to the Groundwater Protection Standard (GWPS) established from the background dataset for the upgradient monitoring well (WAP-1 and WBW-1) for detected Appendix IV constituents. GWPS for each of the Appendix IV constituents have been set equal to the highest value of the maximum contaminant level, regional screening level, or background concentration. The Rule requires statistical evaluation of groundwater monitoring data to determine whether or not there is a statistically significant increase (SSI) above background values for each Appendix IV constituent and if one or more constituents are detected at SSLs above the GWPS. The results of the groundwater assessment monitoring statistical evaluation are discussed below and provided in Table I.

## Statistical Evaluation of Appendix IV Constituents

The Rule provides four specific options for statistical evaluation of groundwater quality data collected at a coal combustion residual (CCR) unit (40 CFR §257.93(f) (1-4)). The statistical method used for these evaluations, tolerance limit (TL), was certified by Haley & Aldrich, Inc. on October 14, 2017. The TL method, as determined applicable for this sampling event, was used to evaluate potential SSLs above background. Background levels for each constituent listed in Appendix IV were computed as upper tolerance limits (UTL), and a minimum 95 percent confidence coefficient and 95 percent coverage. The most recent groundwater sampling event from each compliance well was compared to the corresponding background UTL to determine if a SSL existed.

## STATISTICAL EVALUATION

Either an interwell or intrawell evaluation was used to determine SSLs. A successful alternate source demonstration was completed for arsenic (WAP-14) and lithium (WAP-15). As a result, an intrawell evaluation was used for these constituents at these locations. Interwell evaluations were performed for the other Appendix IV constituents detected downgradient of Slurry Pond 3 & 4. Interwell evaluation compares the most recent values from downgradient compliance wells against a background dataset composed of upgradient well data, and the intrawell evaluation compares the most recent values from each compliance well against a background dataset composed of its own historical data. Because the CCR unit has transitioned into assessment monitoring, no statistical evaluations were conducted on Appendix III (detection monitoring) semi-annual assessment monitoring data.

The parametric TL methods were used to complete statistical evaluations of the referenced dataset. The TL procedure is one in which a concentration limit for each constituent is established from the distribution of the background data, with a minimum 95 percent confidence level. The upper endpoint of a tolerance interval is called the UTL. Depending on the data distribution, parametric or non-parametric TL procedures are used to evaluate groundwater monitoring data using this method. Parametric TLs 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 TL. If all the background data are non-detect, a maximum reporting limit may serve as an appropriate UTL.

These statistical evaluations were conducted using a background dataset for all detected Appendix IV constituents using parametric TL. If an Appendix IV constituent concentration from the February 2020 sampling event was above the GWPS, the lower confidence limit (LCL) for the downgradient well constituent was used to evaluate if a SSL was present. The LCL is the lower end of the confident interval range, which is an estimated concentration range intended to contain the true mean or median of the population from which the sample is drawn. The confidence interval range is designed to locate the true population mean or median with a high degree of statistical confidence, or conversely, with a low probability of error.

The UTLs were calculated from the background well dataset using Chemstat software after testing for outlier sample results that would warrant removal from the dataset based on likely error in sampling or measurement. Both visual and statistical outlier tests for the background data were performed using Chemstat and U.S. Environmental Protection Agency's ProUCL 5.1 software, and a visual inspection of the data was performed using box plots and distribution plots for the downgradient sample data. No sample data were identified as outliers that warranted removal from the dataset.

## BACKGROUND DISTRIBUTIONS

The groundwater analytical results for each sampling event from the background sample location (WAP-1 and WBW-1) were combined to calculate the UTL for each detected Appendix IV constituent. The variability and distribution of the pooled dataset was evaluated to determine the method for UTL

calculation. Per the document *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, March 2009,* background concentrations were updated for the February 2020 semi-annual sampling event based on statistical evaluation of analytical results collected through February 2020.

## RESULTS OF APPENDIX IV DOWNGRADIENT STATISTICAL COMPARISONS

The sample concentrations from the downgradient wells for each of the detected Appendix IV constituents from the February 2020 assessment monitoring event were compared to their respective background UTLs and GWPS (Table I). A sample concentration greater than the GWPS is considered to represent a SSL. Based on previous compliance sampling event, statistical evaluations, and associated alternative source demonstrations, an intrawell comparison is utilized for WAP-14 and WAP-15 for arsenic and lithium respectively. Interwell comparisons are being utilized for all other well and constituent evaluations. Based on this statistical evaluation no SSLs above GWPS were identified at the WGS Slurry Pond 3&4.

Tables:

Table I – Summary of Assessment Monitoring Statistical Evaluation – February 2020

# TABLES

**Winyah Slurry Pond 3&4**

**Assessment Monitoring Statistical Analysis Summary**

**Prepared: June 14, 2020**

| | | | | | | | | | | | | | | | | | | | Inter-well Analysis | | | Intra-well Analysis | | GWPS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location Id | Frequency of Detection | Percent Non-Detects | Range of Non-Detect | Mean | 50th Percentile (Median) | 95th Percentile | Maximum Detect | Variance | Standard Deviation | Coefficient of Variance | CCR MCL/RSL | Report Result Unit | Detection Exceedances (Y/N) | Number of Detection Exceedances | Number of Non-Detection Exceedances | Outlier Presence | Outlier Removed | Trend | Distribution Well* | February 2020 Concentration | Detect? | Upper Tolerance Limit | Exceedance above Background at Individual Well (SSI) | Upper Prediction Limits | Exceedance above Background at Individual Well | GWPS (Higher of MCL/RSL or Background Limit) | Exceedance above GWPS (SSL) | SSL |
| **CCR Appendix-IV: Antimony, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/11 | 100% | 0.005-0.025 | 0.00682 | 0.005 | 0.015 | | 0.00003636 | 0.00603 | 0.8844 | 0.006 | mg/L | N | 0 | 1 | NA | NA | NA | NA | | | 0.025 | | | | 0.025 | | |
| WAP-01 | 0/11 | 100% | 0.005-0.025 | 0.00682 | 0.005 | 0.015 | | 0.00003636 | 0.00603 | 0.8844 | 0.006 | mg/L | N | 0 | 1 | NA | NA | NA | | | | | | | | | | |
| WAP-04 | 0/12 | 100% | 0.002-0.025 | 0.00642 | 0.005 | 0.014 | | 0.00003499 | 0.005915 | 0.9219 | 0.006 | mg/L | N | 0 | 1 | NA | NA | NA | NA | 0.005 | N | | N | | | | N | FALSE |
| WAP-14 | 1/12 | 92% | 0.005-0.025 | 0.00642 | 0.005 | 0.014 | 0.002 | 0.00003499 | 0.005915 | 0.9219 | 0.006 | mg/L | N | 0 | 1 | NA | NA | NA | NA | 0.005 | N | | N | | | | N | FALSE |
| WAP-15 | 0/12 | 100% | 0.002-0.025 | 0.00642 | 0.005 | 0.014 | | 0.00003499 | 0.005915 | 0.9219 | 0.006 | mg/L | N | 0 | 1 | NA | NA | NA | NA | 0.005 | N | | N | | | | N | FALSE |
| WAP-16 | 0/12 | 100% | 0.002-0.025 | 0.00642 | 0.005 | 0.014 | | 0.00003499 | 0.005915 | 0.9219 | 0.006 | mg/L | N | 0 | 1 | NA | NA | NA | NA | 0.005 | N | | N | | | | N | FALSE |
| **CCR Appendix-IV: Arsenic, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/13 | 100% | 0.003-0.005 | 0.00469 | 0.005 | 0.005 | | 5.641E-07 | 0.0007511 | 0.1601 | 0.01 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.005 | | | | | | |
| WAP-01 | 0/15 | 100% | 0.003-0.005 | 0.00473 | 0.005 | 0.005 | | 4.952E-07 | 0.0007037 | 0.1487 | 0.01 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | |
| WAP-04 | 1/16 | 94% | 0.003-0.005 | 0.00446 | 0.005 | 0.005 | 0.00044 | 0.000001614 | 0.001271 | 0.2846 | 0.01 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.005 | N | | N | 0.005 | N | 0.010 | N | FALSE |
| WAP-14 | 12/14 | 14% | 0.003-0.005 | 0.0201 | 0.01722 | 0.04718 | 0.0475 | 0.0001791 | 0.01338 | 0.6655 | 0.01 | mg/L | Y | 11 | 0 | Yes | No | Stable | Normal | 0.028 | Y | | Y | 0.079 | N | 0.079 | N | FALSE |
| WAP-15 | 7/14 | 50% | 0.005-0.005 | 0.00548 | 0.005 | 0.00697 | 0.0084 | 0.000001307 | 0.001143 | 0.2084 | 0.01 | mg/L | N | 0 | 0 | Yes | No | Stable | Normal | 0.008 | Y | | Y | 0.009 | N | 0.010 | N | FALSE |
| WAP-16 | 1/14 | 93% | 0.003-0.005 | 0.0044 | 0.005 | 0.005 | 0.00063 | 0.000001696 | 0.001304 | 0.2961 | 0.01 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.005 | N | | N | 0.005 | N | 0.010 | N | FALSE |
| **CCR Appendix-IV: Barium, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 13/13 | 0% | - | 0.0128 | 0.0147 | 0.0157 | 0.016 | 0.000009504 | 0.003083 | 0.24 | 2 | mg/L | N | 0 | 0 | No | No | Stable | Non-parametric | | | 0.094 | | | | 2.000 | | |
| WAP-01 | 15/15 | 0% | - | 0.0297 | 0.0232 | 0.0667 | 0.094 | 0.0006045 | 0.02459 | 0.8271 | 2 | mg/L | N | 0 | 0 | Yes | No | Stable | | | | | | | | | | |
| WAP-04 | 16/16 | 0% | - | 0.0479 | 0.04495 | 0.0677 | 0.0818 | 0.0001203 | 0.01097 | 0.2291 | 2 | mg/L | N | 0 | 0 | Yes | No | Stable | Normal | 0.082 | Y | | N | | | | N | FALSE |
| WAP-14 | 14/14 | 0% | - | 0.0594 | 0.05325 | 0.08455 | 0.093 | 0.0001838 | 0.01356 | 0.2283 | 2 | mg/L | N | 0 | 0 | No | No | Stable | Normal | 0.048 | Y | | N | | | | N | FALSE |
| WAP-15 | 14/14 | 0% | - | 0.245 | 0.2725 | 0.3318 | 0.335 | 0.006674 | 0.08169 | 0.3339 | 2 | mg/L | N | 0 | 0 | No | No | Stable | Normal | 0.069 | Y | | N | | | | N | FALSE |
| WAP-16 | 14/14 | 0% | - | 0.126 | 0.123 | 0.18 | 0.18 | 0.001401 | 0.03743 | 0.2961 | 2 | mg/L | N | 0 | 0 | No | No | Decreasing | Normal | 0.095 | Y | | Y | | | | N | FALSE |
| **CCR Appendix-IV: Beryllium, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/11 | 100% | 0.0005-0.0005 | 0.0005 | 0.0005 | 0.0005 | | 0 | 0 | 0 | 0.004 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.0005 | | | | 0.004 | | |
| WAP-01 | 0/11 | 100% | 0.0005-0.0005 | 0.0005 | 0.0005 | 0.0005 | | 0 | 0 | 0 | 0.004 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | |
| WAP-04 | 0/12 | 100% | 0.0005-0.001 | 0.000542 | 0.0005 | 0.000725 | | 2.083E-08 | 0.0001443 | 0.2665 | 0.004 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0005 | N | | N | | | | N | FALSE |
| WAP-14 | 0/12 | 100% | 0.0005-0.001 | 0.000542 | 0.0005 | 0.000725 | | 2.083E-08 | 0.0001443 | 0.2665 | 0.004 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0005 | N | | N | | | | N | FALSE |
| WAP-15 | 4/12 | 67% | 0.0005-0.0005 | 0.000979 | 0.0005 | 0.002998 | 0.00351 | 0.000001045 | 0.001022 | 1.044 | 0.004 | mg/L | N | 0 | 0 | No | No | Stable | Non-parametric | 0.0005 | N | | N | | | | N | FALSE |
| WAP-16 | 0/12 | 100% | 0.0005-0.001 | 0.000542 | 0.0005 | 0.000725 | | 2.083E-08 | 0.0001443 | 0.2665 | 0.004 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0005 | N | | N | | | | N | FALSE |
| **CCR Appendix-IV: Cadmium, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WAP-01 | 0/14 | 100% | 0.0005-0.0005 | 0.0005 | 0.0005 | 0.0005 | | 0 | 0 | 0 | 0.005 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.0005 | | | | 0.005 | | |
| WAP-04 | 0/15 | 100% | 0.0005-0.002 | 0.000633 | 0.0005 | 0.0013 | | 1.595E-07 | 0.0003994 | 0.6306 | 0.005 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | |
| WAP-14 | 0/12 | 100% | 0.0005-0.001 | 0.000542 | 0.0005 | 0.000725 | | 2.083E-08 | 0.0001443 | 0.2665 | 0.005 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0005 | N | | N | | | | N | FALSE |
| WAP-15 | 0/12 | 100% | 0.0005-0.001 | 0.000542 | 0.0005 | 0.000725 | | 2.083E-08 | 0.0001443 | 0.2665 | 0.005 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0005 | N | | N | | | | N | FALSE |
| WAP-16 | 0/12 | 100% | 0.0005-0.001 | 0.000542 | 0.0005 | 0.000725 | | 2.083E-08 | 0.0001443 | 0.2665 | 0.005 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0005 | N | | N | | | | N | FALSE |
| WBW-1 | 0/12 | 100% | 0.0005-0.0005 | 0.0005 | 0.0005 | 0.0005 | | 0 | 0 | 0 | 0.005 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0005 | N | | N | | | | N | FALSE |
| **CCR Appendix-IV: Chromium, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WAP-01 | 0/14 | 100% | 0.005-0.005 | 0.005 | 0.005 | 0.005 | | 1.251E-20 | 1.118E-10 | 2.237E-08 | 0.1 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.0050 | | | | 0.100 | | |
| WAP-04 | 2/15 | 87% | 0.005-0.01 | 0.00541 | 0.005 | 0.01 | 0.01 | 0.00000442 | 0.002102 | 0.3884 | 0.1 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | |
| WAP-14 | 1/12 | 92% | 0.005-0.005 | 0.00484 | 0.005 | 0.005 | 0.0031 | 3.008E-07 | 0.0005485 | 0.1133 | 0.1 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.010 | Y | | Y | | | | N | FALSE |
| WAP-15 | 1/12 | 92% | 0.005-0.005 | 0.00471 | 0.005 | 0.005 | 0.0015 | 0.000001021 | 0.00101 | 0.2146 | 0.1 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.005 | N | | N | | | | N | FALSE |
| WAP-16 | 1/12 | 92% | 0.005-0.005 | 0.00474 | 0.005 | 0.005 | 0.0019 | 8.008E-07 | 0.0008949 | 0.1887 | 0.1 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.005 | N | | N | | | | N | FALSE |
| WBW-1 | 0/12 | 100% | 0.005-0.005 | 0.005 | 0.005 | 0.005 | | 1.478E-20 | 1.216E-10 | 2.432E-08 | 0.1 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.005 | N | | N | | | | N | FALSE |
| **CCR Appendix-IV: Cobalt, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/13 | 100% | 0.0005-0.0005 | 0.0005 | 0.0005 | 0.0005 | | 0 | 0 | 0 | 0.006 | mg/L | N | 0 | 0 | NA | NA | NA | Non-parametric | | | 0.0006 | | | | 0.006 | | |
| WAP-01 | 1/13 | 92% | 0.0005-0.0005 | 0.000507 | 0.0005 | 0.000536 | 0.00059 | 6.231E-10 | 0.00002496 | 0.04924 | 0.006 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | |
| WAP-04 | 1/13 | 92% | 0.0005-0.0005 | 0.000511 | 0.0005 | 0.000556 | 0.00064 | 1.508E-09 | 0.00003883 | 0.07602 | 0.006 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0006 | Y | | Y | | | | N | FALSE |
| WAP-14 | 2/13 | 85% | 0.0005-0.0005 | 0.000548 | 0.0005 | 0.000792 | 0.00093 | 1.62E-08 | 0.0001273 | 0.232 | 0.006 | mg/L | N | 0 | 0 | Yes | No | NA | Non-parametric | 0.0005 | N | | N | | | | N | FALSE |
| WAP-15 | 6/14 | 57% | 0.0005-0.01 | 0.00208 | 0.0005 | 0.00779 | 0.0066 | 0.000009011 | 0.003002 | 1.445 | 0.006 | mg/L | Y | 1 | 1 | Yes | No | Stable | Non-parametric | 0.0047 | Y | | Y | | | | N | FALSE |
| WAP-16 | 4/13 | 69% | 0.0005-0.0005 | 0.000482 | 0.0005 | 0.00053 | 0.00056 | 7.986E-09 | 0.00008936 | 0.1853 | 0.006 | mg/L | N | 0 | 0 | Yes | No | Stable | Non-parametric | 0.0005 | N | | N | | | | N | FALSE |
| **CCR Appendix-IV: Fluoride (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 1/14 | 93% | 0.1-0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 2.135E-18 | 1.461E-09 | 1.461E-08 | 4 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | | | 0.140 | | | | 4.00 | | |
| WAP-01 | 2/14 | 80% | 0.1-0.1 | 0.105 | 0.1 | 0.1335 | 0.14 | 0.0001654 | 0.01286 | 0.1225 | 4 | mg/L | N | 0 | 0 | No | No | NA | | | | | | | | | | |
| WAP-04 | 7/15 | 53% | 0.1-0.1 | 0.103 | 0.1 | 0.123 | 0.13 | 0.0004761 | 0.02182 | 0.2121 | 4 | mg/L | N | 0 | 0 | Yes | No | Stable | Non-parametric | 0.100 | N | | N | | | | N | FALSE |
| WAP-14 | 14/15 | 7% | 0.1-0.1 | 0.559 | 0.59 | 0.916 | 1 | 0.07086 | 0.2662 | 0.4759 | 4 | mg/L | N | 0 | 0 | No | No | Stable | Normal | 0.320 | Y | | Y | | | | N | FALSE |
| WAP-15 | 12/15 | 20% | 0.1-0.1 | 0.181 | 0.19 | 0.283 | 0.29 | 0.004007 | 0.0633 | 0.3504 | 4 | mg/L | N | 0 | 0 | No | No | Stable | Normal | 0.100 | N | | N | | | | N | FALSE |
| WAP-16 | 13/14 | 7% | 0.1-0.1 | 0.162 | 0.16 | 0.2435 | 0.25 | 0.001818 | 0.04264 | 0.263 | 4 | mg/L | N | 0 | 0 | No | No | Stable | Normal | 0.170 | Y | | Y | | | | N | FALSE |
| **CCR Appendix-IV: Lead, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/12 | 100% | 0.001-0.01 | 0.002 | 0.001 | 0.005875 | | 0.000006682 | 0.002585 | 1.292 | 0.015 | mg/L | N | 0 | 0 | NA | NA | NA | Non-parametric | | | 0.0100 | | | | 0.015 | | |
| WAP-01 | 4/14 | 71% | 0.001-0.01 | 0.0022 | 0.001145 | 0.006464 | 0.00456 | 0.000006043 | 0.002458 | 1.116 | 0.015 | mg/L | N | 0 | 0 | Yes | No | Stable | | | | | | | | | | |
| WAP-04 | 1/15 | 93% | 0.001-0.0025 | 0.00141 | 0.001 | 0.00268 | 0.0031 | 5.307E-07 | 0.0007285 | 0.5179 | 0.015 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0031 | Y | | N | | | | N | FALSE |
| WAP-14 | 1/13 | 92% | 0.001-0.0025 | 0.00126 | 0.001 | 0.0025 | 0.00039 | 4.157E-07 | 0.0006447 | 0.5114 | 0.015 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.0010 | N | | N | | | | N | FALSE |
| WAP-15 | 0/13 | 100% | 0.001-0.0025 | 0.00131 | 0.001 | 0.0025 | | 3.558E-07 | 0.0005965 | 0.4561 | 0.015 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0010 | N | | N | | | | N | FALSE |
| WAP-16 | 1/13 | 92% | 0.001-0.0025 | 0.00132 | 0.001 | 0.0025 | 0.0012 | 3.486E-07 | 0.0005904 | 0.4462 | 0.015 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0010 | N | | N | | | | N | FALSE |
| **CCR Appendix-IV: Lithium, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/13 | 100% | 0.01-0.01 | 0.01 | 0.01 | 0.01 | | 7.228E-20 | 2.688E-10 | 2.688E-08 | 0.04 | mg/L | N | 0 | 0 | NA | NA | NA | Non-parametric | | | 0.012 | | | | 0.040 | | |
| WAP-01 | 1/13 | 92% | 0.01-0.01 | 0.0101 | 0.01 | 0.01064 | 0.0116 | 1.969E-07 | 0.0004438 | 0.04384 | 0.04 | mg/L | N | 0 | 0 | No | No | NA | | | | | | | | | | |
| WAP-04 | 10/14 | 29% | 0.01-0.01 | 0.0138 | 0.01245 | 0.02158 | 0.031 | 0.00003009 | 0.005485 | 0.3966 | 0.04 | mg/L | N | 0 | 0 | Yes | No | Decreasing | Non-parametric | 0.011 | Y | | N | 0.023 | N | | N | FALSE |
| WAP-14 | 2/14 | 80% | 0.01-0.05 | 0.0316 | 0.01 | 0.127 | 0.27 | 0.004822 | 0.06944 | 2.198 | 0.04 | mg/L | Y | 1 | 1 | Yes | No | NA | Non-parametric | 0.010 | N | | N | 0.050 | N | | N | FALSE |
| WAP-15 | 13/14 | 7% | 0.01-0.01 | 0.0521 | 0.0428 | 0.1115 | 0.22 | 0.00246 | 0.0496 | 0.9522 | 0.04 | mg/L | Y | 9 | 0 | Yes | No | Stable | Non-parametric | 0.010 | N | | N | 0.071 | N | | N | FALSE |
| WAP-16 | 0/14 | 100% | 0.01-0.25 | 0.0271 | 0.01 | 0.082 | | 0.00384 | 0.06197 | 2.383 | 0.04 | mg/L | N | 0 | 1 | NA | NA | NA | NA | 0.010 | N | | N | 0.010 | N | | N | FALSE |
| **CCR Appendix-IV: Mercury, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/11 | 100% | 0.0002-0.0002 | 0.0002 | 0.0002 | 0.0002 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.0002 | | | | 0.0020 | | |
| WAP-01 | 0/11 | 100% | 0.0002-0.0002 | 0.0002 | 0.0002 | 0.0002 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | |
| WAP-04 | 0/12 | 100% | 0.0002-0.0002 | 0.0002 | 0.0002 | 0.0002 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0002 | N | | N | | | | N | FALSE |
| WAP-14 | 0/12 | 100% | 0.0002-0.0002 | 0.0002 | 0.0002 | 0.0002 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0002 | N | | N | | | | N | FALSE |
| WAP-15 | 0/12 | 100% | 0.0002-0.0002 | 0.0002 | 0.0002 | 0.0002 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0002 | N | | N | | | | N | FALSE |
| WAP-16 | 0/12 | 100% | 0.0002-0.0002 | 0.0002 | 0.0002 | 0.0002 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0002 | N | | N | | | | N | FALSE |
| **CCR Appendix-IV: Molybdenum, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/13 | 100% | 0.01-0.05 | 0.0131 | 0.01 | 0.026 | | 0.0001231 | 0.01109 | 0.8484 | 0.1 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.050 | | | | 0.10 | | |
| WAP-01 | 0/13 | 100% | 0.01-0.01 | 0.01 | 0.01 | 0.01 | | 7.228E-20 | 2.688E-10 | 2.688E-08 | 0.1 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | |
| WAP-04 | 0/12 | 100% | 0.01-0.04 | 0.0125 | 0.01 | 0.0235 | | 0.000075 | 0.00866 | 0.6928 | 0.1 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.010 | N | | N | | | | N | FALSE |
| WAP-14 | 0/12 | 100% | 0.01-0.4 | 0.0425 | 0.01 | 0.1855 | | 0.01268 | 0.1126 | 2.649 | 0.1 | mg/L | N | 0 | 1 | NA | NA | NA | NA | 0.010 | N | | N | | | | N | FALSE |
| WAP-15 | 0/13 | 100% | 0.01-0.4 | 0.0431 | 0.01 | 0.19 | | 0.01162 | 0.1078 | 2.503 | 0.1 | mg/L | N | 0 | 1 | NA | NA | NA | NA | 0.010 | N | | N | | | | N | FALSE |
| WAP-16 | 0/12 | 100% | 0.01-0.2 | 0.0258 | 0.01 | 0.0955 | | 0.003008 | 0.05485 | 2.123 | 0.1 | mg/L | N | 0 | 1 | NA | NA | NA | NA | 0.010 | N | | N | | | | N | FALSE |

**Winyah Slurry Pond 38.4**

**Assessment Monitoring Statistical Analysis Summary**

**Prepared: June 14, 2020**

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CCR Appendix-IV: Radium-226 & 228 (pCi/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 7/13 | 46% | 4-4 | 3.41 | 4 | 4.306 | 4.33 | 1.724 | 1.313 | 0.3848 | 5 | pCi/L | N | 0 | 0 | NA | NA | NA | Non-parametric | | | 6.0 | | | | 6.0 | | |
| WAP-01 | 8/13 | 38% | 4-4 | 3.72 | 4 | 5.832 | 5.97 | 2.316 | 1.522 | 0.4089 | 5 | pCi/L | Y | 2 | 0 | Yes | No | Stable | | | | | | | | | | |
| WAP-04 | 11/14 | 21% | 4-4 | 3.76 | 4.03 | 5.769 | 5.99 | 2.456 | 1.567 | 0.4165 | 5 | pCi/L | Y | 3 | 0 | Yes | No | Stable | Normal | 0.881 | Y | | N | | | | N | FALSE |
| WAP-14 | 12/14 | 14% | 4-4 | 4.17 | 4.36 | 6.412 | 7.4 | 2.996 | 1.731 | 0.4149 | 5 | pCi/L | Y | 4 | 0 | No | No | Stable | Normal | 1.010 | Y | | N | | | | N | FALSE |
| WAP-15 | 14/14 | 0% | - | 5.03 | 4.85 | 6.699 | 6.92 | 1.148 | 1.072 | 0.2132 | 5 | pCi/L | Y | 6 | 0 | Yes | No | Stable | Normal | 3.880 | Y | | N | | | | N | FALSE |
| WAP-16 | 13/14 | 7% | 4-4 | 4.59 | 4.685 | 7.451 | 8.4 | 3.767 | 1.941 | 0.4229 | 5 | pCi/L | Y | 6 | 0 | No | No | Stable | Normal | 2.670 | Y | | N | | | | N | FALSE |
| **CCR Appendix-IV: Selenium, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/12 | 100% | 0.01-0.02 | 0.0117 | 0.01 | 0.02 | | 0.00001515 | 0.003892 | 0.3336 | 0.05 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.020 | | | | 0.050 | | |
| WAP-01 | 0/14 | 100% | 0.01-0.02 | 0.0114 | 0.01 | 0.02 | | 0.00001319 | 0.003631 | 0.3177 | 0.05 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | |
| WAP-04 | 0/15 | 100% | 0.005-0.02 | 0.0107 | 0.01 | 0.02 | | 0.00001738 | 0.004169 | 0.3908 | 0.05 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.010 | N | | N | | | | N | FALSE |
| WAP-14 | 1/12 | 92% | 0.01-0.02 | 0.011 | 0.01 | 0.02 | 0.0021 | 0.00002275 | 0.004769 | 0.4332 | 0.05 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.010 | N | | N | | | | N | FALSE |
| WAP-15 | 1/12 | 92% | 0.01-0.02 | 0.0109 | 0.01 | 0.02 | 0.00095 | 0.00002472 | 0.004972 | 0.4556 | 0.05 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.010 | N | | N | | | | N | FALSE |
| WAP-16 | 0/12 | 100% | 0.005-0.02 | 0.0112 | 0.01 | 0.02 | | 0.00001875 | 0.00433 | 0.3849 | 0.05 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.010 | N | | N | | | | N | FALSE |
| **CCR Appendix-IV: Thallium, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/11 | 100% | 0.001-0.001 | 0.001 | 0.001 | 0.001 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.001 | | | | 0.002 | | |
| WAP-01 | 0/11 | 100% | 0.0001-0.001 | 0.000918 | 0.001 | 0.001 | | 7.364E-08 | 0.0002714 | 0.2955 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | |
| WAP-04 | 0/12 | 100% | 0.001-0.001 | 0.001 | 0.001 | 0.001 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.001 | N | | N | | | | N | FALSE |
| WAP-14 | 0/12 | 100% | 0.001-0.001 | 0.001 | 0.001 | 0.001 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.001 | N | | N | | | | N | FALSE |
| WAP-15 | 0/12 | 100% | 0.001-0.001 | 0.001 | 0.001 | 0.001 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.001 | N | | N | | | | N | FALSE |
| WAP-16 | 0/12 | 100% | 0.001-0.001 | 0.001 | 0.001 | 0.001 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.001 | N | | N | | | | N | FALSE |

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**TECHNICAL MEMORANDUM**

October 21, 2020
File No. 132892-016

SUBJECT: 2020 Semi-annual Groundwater Assessment Monitoring Data
Statistical Evaluation
Winyah Generating Station
Slurry Pond 3 & 4

Pursuant to Title 40 Code of Federal Regulations (40 CFR) § 257.93 and 257.95 (Rule), this memorandum summarizes the statistical evaluation of the analytical results for the June 2020 semi-annual assessment monitoring groundwater sampling event for the Winyah Generating Station (WGS) Slurry Pond 3 & 4. The statistical evaluation discussed in this memorandum was conducted to determine if Appendix IV groundwater monitoring constituents have been detected in downgradient wells at concentrations that represent a statistically significant level (SSL) above background or upgradient wells consistent with the requirements in 40 CFR § 257.95.

Utilizing interwell and intrawell evaluations, data from the groundwater sampling events for the downgradient monitoring wells were compared to the Groundwater Protection Standard (GWPS) established from the background dataset for the upgradient monitoring well (WAP-1 and WBW-1) for detected Appendix IV constituents. GWPS for each of the Appendix IV constituents have been set equal to the highest value of the maximum contaminant level, regional screening level, or background concentration. The Rule requires statistical evaluation of groundwater monitoring data to determine whether or not there is a statistically significant increase (SSI) above background values for each Appendix IV constituent and if one or more constituents are detected at SSLs above the GWPS. The results of the groundwater assessment monitoring statistical evaluation are discussed below and provided in Table I.

## Statistical Evaluation of Appendix IV Constituents

The Rule provides four specific options for statistical evaluation of groundwater quality data collected at a coal combustion residual (CCR) unit (40 CFR §257.93(f) (1-4)). The statistical method used for these evaluations, tolerance limit (TL), was certified by Haley & Aldrich, Inc. on October 14, 2017. The TL method, as determined applicable for this sampling event, was used to evaluate potential SSLs above background. Background levels for each constituent listed in Appendix IV were computed as upper tolerance limits (UTL), and a minimum 95 percent confidence coefficient and 95 percent coverage. The most recent groundwater sampling event from each compliance well was compared to the corresponding background UTL to determine if a SSL existed.

## STATISTICAL EVALUATION

Either an interwell or intrawell evaluation was used to determine SSLs. A successful alternate source demonstration was completed for arsenic (WAP-14) and lithium (WAP-15). As a result, an intrawell evaluation was used for these constituents at these locations. Interwell evaluations were performed for the other Appendix IV constituents detected downgradient of Slurry Pond 3 & 4. Interwell evaluation compares the most recent values from downgradient compliance wells against a background dataset composed of upgradient well data, and the intrawell evaluation compares the most recent values from each compliance well against a background dataset composed of its own historical data. Because the CCR unit has transitioned into assessment monitoring, no statistical evaluations were conducted on Appendix III (detection monitoring) semi-annual assessment monitoring data.

The parametric TL methods were used to complete statistical evaluations of the referenced dataset. The TL procedure is one in which a concentration limit for each constituent is established from the distribution of the background data, with a minimum 95 percent confidence level. The upper endpoint of a tolerance interval is called the UTL. Depending on the data distribution, parametric or non-parametric TL procedures are used to evaluate groundwater monitoring data using this method. Parametric TLs 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 TL. If all the background data are non-detect, a maximum reporting limit may serve as an appropriate UTL.

These statistical evaluations were conducted using a background dataset for all detected Appendix IV constituents using parametric TL. If an Appendix IV constituent concentration from the June 2020 sampling event was above the GWPS, the lower confidence limit (LCL) for the downgradient well constituent was used to evaluate if a SSL was present. The LCL is the lower end of the confident interval range, which is an estimated concentration range intended to contain the true mean or median of the population from which the sample is drawn. The confidence interval range is designed to locate the true population mean or median with a high degree of statistical confidence, or conversely, with a low probability of error.

The UTLs were calculated from the background well dataset using Chemstat software after testing for outlier sample results that would warrant removal from the dataset based on likely error in sampling or measurement. Both visual and statistical outlier tests for the background data were performed using Chemstat and U.S. Environmental Protection Agency's ProUCL 5.1 software, and a visual inspection of the data was performed using box plots and distribution plots for the downgradient sample data. No sample data were identified as outliers that warranted removal from the dataset.

## BACKGROUND DISTRIBUTIONS

The groundwater analytical results for each sampling event from the background sample location (WAP-1 and WBW-1) were combined to calculate the UTL for each detected Appendix IV constituent. The variability and distribution of the pooled dataset was evaluated to determine the method for UTL

calculation. Per the document *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, March 2009,* background concentrations were updated for the February 2020 semi-annual sampling event based on statistical evaluation of analytical results collected through February 2020.

## RESULTS OF APPENDIX IV DOWNGRADIENT STATISTICAL COMPARISONS

The sample concentrations from the downgradient wells for each of the detected Appendix IV constituents from the June 2020 assessment monitoring event were compared to their respective background UTLs and GWPS (Table I). A sample concentration greater than the GWPS is considered to represent a SSL. Based on previous compliance sampling event, statistical evaluations, and associated alternative source demonstrations, an intrawell comparison is utilized for WAP-14 and WAP-15 for arsenic and lithium respectively. Interwell comparisons are being utilized for all other well and constituent evaluations. Based on this statistical evaluation SSLs above GWPS were not identified at the WGS Slurry Pond 3&4 and Slurry Pond 3/4 will remain in assessment monitoring.

Tables:

Table I – Summary of Assessment Monitoring Statistical Evaluation – June 2020

# TABLES

**Winyah Slurry Pond 38.4**

**Assessment Monitoring Statistical Analysis Summary**

**Prepared: October 1, 2020**

| | | | | | | | | | | | | | | | | | | | Inter-well Analysis | | | | Intra-well Analysis | | | GWPS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location Id | Frequency of Detection | Percent Non-Detects | Range of Non-Detect | Mean | 50th Percentile (Median) | 95th Percentile | Maximum Detect | Variance | Standard Deviation | Coefficient of Variance | CCR MCL/RSL | Report Result Unit | Detection Exceedances (Y/N) | Number of Detection Exceedances | Number of Non-Detection Exceedances | Outlier Presence | Outlier Removed | Trend | Distribution Well* | June 2020 Concentration | Detect? | Upper Tolerance Limit (mg/L) | Exceedance above Background at Individual Well (SSI) | Upper Prediction Limits (mg/L) | Upper Prediction Limits (ug/L) | Exceedance above Background at Individual Well | GWPS (Higher of MCL/RSL or Background Limit) (mg/L) | Exceedance above GWPS (SSL) | SSL |
| **CCR Appendix-IV: Antimony, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/12 | 100% | 0.005-0.025 | 0.00667 | 0.005 | 0.014 | | 0.00003333 | 0.005774 | 0.866 | 0.006 | mg/L | N | 0 | 1 | NA | NA | NA | NA | | | 0.025 | | | | | 0.025 | | |
| WAP-01 | 0/12 | 100% | 0.005-0.025 | 0.00667 | 0.005 | 0.014 | | 0.00003333 | 0.005774 | 0.866 | 0.006 | mg/L | N | 0 | 1 | NA | NA | NA | | | | | | | | | | | |
| WAP-04 | 0/12 | 100% | 0.002-0.025 | 0.00642 | 0.005 | 0.014 | | 0.00003499 | 0.005915 | 0.9219 | 0.006 | mg/L | N | 0 | 1 | NA | NA | NA | NA | NS | N | | Y | | | | | Y | FALSE |
| WAP-14 | 1/12 | 92% | 0.005-0.025 | 0.00642 | 0.005 | 0.014 | 0.002 | 0.00003499 | 0.005915 | 0.9219 | 0.006 | mg/L | N | 0 | 1 | NA | NA | NA | NA | NS | N | | Y | | | | | Y | FALSE |
| WAP-15 | 0/12 | 100% | 0.002-0.025 | 0.00642 | 0.005 | 0.014 | | 0.00003499 | 0.005915 | 0.9219 | 0.006 | mg/L | N | 0 | 1 | NA | NA | NA | NA | NS | N | | Y | | | | | Y | FALSE |
| WAP-16 | 0/12 | 100% | 0.002-0.025 | 0.00642 | 0.005 | 0.014 | | 0.00003499 | 0.005915 | 0.9219 | 0.006 | mg/L | N | 0 | 1 | NA | NA | NA | NA | NS | N | | Y | | | | | Y | FALSE |
| **CCR Appendix-IV: Arsenic, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/14 | 100% | 0.003-0.005 | 0.00471 | 0.005 | 0.005 | | 5.275E-07 | 0.0007263 | 0.1541 | 0.01 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.005 | | | | | | | |
| WAP-01 | 0/16 | 100% | 0.003-0.005 | 0.00475 | 0.005 | 0.005 | | 4.667E-07 | 0.0006831 | 0.1438 | 0.01 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | | |
| WAP-04 | 1/17 | 94% | 0.003-0.005 | 0.0045 | 0.005 | 0.005 | 0.00044 | 0.00000153 | 0.001237 | 0.2751 | 0.01 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.005 | N | | N | 0.005 | 5 | N | 0.010 | N | FALSE |
| WAP-14 | 13/15 | 13% | 0.003-0.005 | 0.0199 | 0.0171 | 0.04715 | 0.0475 | 0.0001669 | 0.01292 | 0.6489 | 0.01 | mg/L | Y | 12 | 0 | Yes | No | Stable | Normal | 0.017 | Y | | Y | 0.079 | 78.6458 | N | 0.079 | N | FALSE |
| WAP-15 | 7/15 | 53% | 0.005-0.005 | 0.00545 | 0.005 | 0.00686 | 0.0084 | 0.000001229 | 0.001109 | 0.2033 | 0.01 | mg/L | N | 0 | 0 | Yes | No | Stable | Normal | 0.005 | N | | N | 0.009 | 8.56691 | N | 0.010 | N | FALSE |
| WAP-16 | 1/15 | 93% | 0.003-0.005 | 0.00444 | 0.005 | 0.005 | 0.00063 | 0.000001602 | 0.001266 | 0.2849 | 0.01 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.005 | N | | N | 0.005 | 5 | N | 0.010 | N | FALSE |
| **CCR Appendix-IV: Barium, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 14/14 | 0% | - | 0.0129 | 0.01385 | 0.01568 | 0.016 | 0.000008773 | 0.002962 | 0.2305 | 2 | mg/L | N | 0 | 0 | No | No | Stable | Non-parametric | | | 0.094 | | | | | 2.000 | | |
| WAP-01 | 16/16 | 0% | - | 0.0301 | 0.0241 | 0.06475 | 0.094 | 0.0005661 | 0.02379 | 0.7911 | 2 | mg/L | N | 0 | 0 | Yes | No | Stable | | | | | | | | | | | |
| WAP-04 | 17/17 | 0% | - | 0.048 | 0.045 | 0.06676 | 0.0818 | 0.0001129 | 0.01063 | 0.2216 | 2 | mg/L | N | 0 | 0 | Yes | No | Stable | Normal | 0.049 | Y | | N | | | | | N | FALSE |
| WAP-14 | 15/15 | 0% | - | 0.059 | 0.0534 | 0.0839 | 0.093 | 0.0001723 | 0.01313 | 0.2223 | 2 | mg/L | N | 0 | 0 | No | No | Stable | Normal | 0.054 | Y | | N | | | | | N | FALSE |
| WAP-15 | 15/15 | 0% | - | 0.238 | 0.265 | 0.3315 | 0.335 | 0.006955 | 0.0834 | 0.3511 | 2 | mg/L | N | 0 | 0 | No | No | Stable | Normal | 0.138 | Y | | Y | | | | | N | FALSE |
| WAP-16 | 15/15 | 0% | - | 0.123 | 0.116 | 0.18 | 0.18 | 0.001487 | 0.03856 | 0.3138 | 2 | mg/L | N | 0 | 0 | No | No | Decreasing | Normal | 0.074 | Y | | N | | | | | N | FALSE |
| **CCR Appendix-IV: Beryllium, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/12 | 100% | 0.0005-0.0005 | 0.0005 | 0.0005 | 0.0005 | | 0 | 0 | 0 | 0.004 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.0005 | | | | | 0.004 | | |
| WAP-01 | 0/12 | 100% | 0.0005-0.0005 | 0.0005 | 0.0005 | 0.0005 | | 0 | 0 | 0 | 0.004 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | | |
| WAP-04 | 0/12 | 100% | 0.0005-0.001 | 0.000542 | 0.0005 | 0.000725 | | 2.083E-08 | 0.0001443 | 0.2665 | 0.004 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | Y | FALSE |
| WAP-14 | 0/12 | 100% | 0.0005-0.001 | 0.000542 | 0.0005 | 0.000725 | | 2.083E-08 | 0.0001443 | 0.2665 | 0.004 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | Y | FALSE |
| WAP-15 | 4/12 | 67% | 0.0005-0.0005 | 0.000979 | 0.0005 | 0.002998 | 0.00351 | 0.000001045 | 0.001022 | 1.044 | 0.004 | mg/L | N | 0 | 0 | No | No | Stable | Non-parametric | NS | N | | Y | | | | | Y | FALSE |
| WAP-16 | 0/12 | 100% | 0.0005-0.001 | 0.000542 | 0.0005 | 0.000725 | | 2.083E-08 | 0.0001443 | 0.2665 | 0.004 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | Y | FALSE |
| **CCR Appendix-IV: Cadmium, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/13 | 100% | 0.0005-0.0005 | 0.0005 | 0.0005 | 0.0005 | | 0 | 0 | 0 | 0.005 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.0005 | | | | | 0.005 | | |
| WAP-01 | 0/15 | 100% | 0.0005-0.0005 | 0.0005 | 0.0005 | 0.0005 | | 0 | 0 | 0 | 0.005 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | | |
| WAP-04 | 0/16 | 100% | 0.0005-0.002 | 0.000625 | 0.0005 | 0.00125 | | 0.00000015 | 0.0003873 | 0.6197 | 0.005 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | Y | FALSE |
| WAP-14 | 0/12 | 100% | 0.0005-0.001 | 0.000542 | 0.0005 | 0.000725 | | 2.083E-08 | 0.0001443 | 0.2665 | 0.005 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | Y | FALSE |
| WAP-15 | 0/12 | 100% | 0.0005-0.001 | 0.000542 | 0.0005 | 0.000725 | | 2.083E-08 | 0.0001443 | 0.2665 | 0.005 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | Y | FALSE |
| WAP-16 | 0/12 | 100% | 0.0005-0.001 | 0.000542 | 0.0005 | 0.000725 | | 2.083E-08 | 0.0001443 | 0.2665 | 0.005 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | Y | FALSE |
| **CCR Appendix-IV: Chromium, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/13 | 100% | 0.005-0.005 | 0.005 | 0.005 | 0.005 | | 1.807E-20 | 1.344E-10 | 2.688E-08 | 0.1 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.0050 | | | | | 0.100 | | |
| WAP-01 | 0/15 | 100% | 0.005-0.005 | 0.005 | 0.005 | 0.005 | | 7.744E-21 | 8.8E-11 | 1.76E-08 | 0.1 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | | |
| WAP-04 | 2/16 | 88% | 0.005-0.01 | 0.00539 | 0.005 | 0.01 | 0.01 | 0.000004136 | 0.002034 | 0.3775 | 0.1 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.005 | N | | N | | | | | N | FALSE |
| WAP-14 | 1/13 | 92% | 0.005-0.005 | 0.00485 | 0.005 | 0.005 | 0.0031 | 2.777E-07 | 0.000527 | 0.1086 | 0.1 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.005 | N | | N | | | | | N | FALSE |
| WAP-15 | 1/13 | 92% | 0.005-0.005 | 0.00473 | 0.005 | 0.005 | 0.0015 | 9.423E-07 | 0.0009707 | 0.2052 | 0.1 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.005 | N | | N | | | | | N | FALSE |
| WAP-16 | 1/13 | 92% | 0.005-0.005 | 0.00476 | 0.005 | 0.005 | 0.0019 | 7.392E-07 | 0.0008598 | 0.1806 | 0.1 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.005 | N | | N | | | | | N | FALSE |
| **CCR Appendix-IV: Cobalt, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/14 | 100% | 0.0005-0.0005 | 0.0005 | 0.0005 | 0.0005 | | 0 | 0 | 0 | 0.006 | mg/L | N | 0 | 0 | NA | NA | NA | Non-parametric | | | 0.0006 | | | | | 0.006 | | |
| WAP-01 | 1/14 | 93% | 0.0005-0.0005 | 0.000506 | 0.0005 | 0.0005315 | 0.00059 | 5.786E-10 | 0.00002405 | 0.0475 | 0.006 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | | |
| WAP-04 | 1/14 | 93% | 0.0005-0.0005 | 0.00051 | 0.0005 | 0.000549 | 0.00064 | 1.4E-09 | 0.00003742 | 0.07337 | 0.006 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0005 | N | | N | | | | | N | FALSE |
| WAP-14 | 2/14 | 86% | 0.0005-0.0005 | 0.000545 | 0.0005 | 0.0007805 | 0.00093 | 1.512E-08 | 0.000123 | 0.2256 | 0.006 | mg/L | N | 0 | 0 | Yes | No | NA | Non-parametric | 0.0005 | N | | N | | | | | N | FALSE |
| WAP-15 | 6/15 | 60% | 0.0005-0.01 | 0.00197 | 0.0005 | 0.00762 | 0.0066 | 0.000008533 | 0.002921 | 1.481 | 0.006 | mg/L | Y | 1 | 1 | Yes | No | Stable | Non-parametric | 0.0005 | N | | N | | | | | N | FALSE |
| WAP-16 | 4/14 | 71% | 0.0005-0.0005 | 0.000484 | 0.0005 | 0.0005275 | 0.00056 | 7.394E-09 | 0.00008599 | 0.1778 | 0.006 | mg/L | N | 0 | 0 | Yes | No | Stable | Non-parametric | 0.0005 | N | | N | | | | | N | FALSE |
| **CCR Appendix-IV: Fluoride (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 1/15 | 93% | 0.1-0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 1.983E-18 | 1.408E-09 | 1.408E-08 | 4 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | | | 0.140 | | | | | 4.00 | | |
| WAP-01 | 2/15 | 87% | 0.1-0.1 | 0.105 | 0.1 | 0.133 | 0.14 | 0.0001552 | 0.01246 | 0.119 | 4 | mg/L | N | 0 | 0 | No | No | NA | | | | | | | | | | | |
| WAP-04 | 8/16 | 50% | 0.1-0.1 | 0.103 | 0.1 | 0.1225 | 0.13 | 0.0004476 | 0.02116 | 0.2048 | 4 | mg/L | N | 0 | 0 | Yes | No | Stable | Non-parametric | 0.110 | Y | | N | | | | | N | FALSE |
| WAP-14 | 15/16 | 6% | 0.1-0.1 | 0.549 | 0.565 | 0.91 | 1 | 0.06773 | 0.2602 | 0.4737 | 4 | mg/L | N | 0 | 0 | No | No | Stable | Normal | 0.400 | Y | | Y | | | | | N | FALSE |
| WAP-15 | 13/16 | 19% | 0.1-0.1 | 0.176 | 0.19 | 0.2825 | 0.29 | 0.004052 | 0.06365 | 0.3612 | 4 | mg/L | N | 0 | 0 | No | No | Stable | Normal | 0.110 | Y | | N | | | | | N | FALSE |
| WAP-16 | 13/15 | 13% | 0.1-0.1 | 0.158 | 0.16 | 0.243 | 0.25 | 0.001946 | 0.04411 | 0.2792 | 4 | mg/L | N | 0 | 0 | No | No | Stable | Normal | 0.100 | N | | N | | | | | N | FALSE |
| **CCR Appendix-IV: Lead, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/13 | 100% | 0.001-0.01 | 0.00192 | 0.001 | 0.0055 | | 0.000006202 | 0.00249 | 1.295 | 0.015 | mg/L | N | 0 | 0 | NA | NA | NA | Non-parametric | | | 0.0100 | | | | | 0.015 | | |
| WAP-01 | 4/15 | 73% | 0.001-0.01 | 0.00212 | 0.001 | 0.006192 | 0.00456 | 0.000005708 | 0.002389 | 1.125 | 0.015 | mg/L | N | 0 | 0 | Yes | No | Stable | | | | | | | | | | | |
| WAP-04 | 1/16 | 94% | 0.001-0.0025 | 0.00138 | 0.001 | 0.00265 | 0.0031 | 5.056E-07 | 0.0007111 | 0.5148 | 0.015 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0010 | N | | N | | | | | N | FALSE |
| WAP-14 | 1/14 | 93% | 0.001-0.0025 | 0.00124 | 0.001 | 0.0025 | 0.00039 | 3.886E-07 | 0.0006233 | 0.5018 | 0.015 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | 0.0010 | N | | N | | | | | N | FALSE |
| WAP-15 | 0/14 | 100% | 0.001-0.0025 | 0.00129 | 0.001 | 0.0025 | | 3.352E-07 | 0.0005789 | 0.4503 | 0.015 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0010 | N | | N | | | | | N | FALSE |
| WAP-16 | 1/14 | 93% | 0.001-0.0025 | 0.0013 | 0.001 | 0.0025 | 0.0012 | 3.292E-07 | 0.0005738 | 0.4414 | 0.015 | mg/L | N | 0 | 0 | NA | NA | NA | NA | 0.0010 | N | | N | | | | | N | FALSE |
| **CCR Appendix-IV: Lithium, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/14 | 100% | 0.01-0.01 | 0.01 | 0.01 | 0.01 | | 5.004E-20 | 2.237E-10 | 2.237E-08 | 0.04 | mg/L | N | 0 | 0 | NA | NA | NA | Non-parametric | | | 0.012 | | | | | 0.040 | | |
| WAP-01 | 1/14 | 93% | 0.01-0.01 | 0.0101 | 0.01 | 0.01056 | 0.0116 | 1.829E-07 | 0.0004276 | 0.04228 | 0.04 | mg/L | N | 0 | 0 | No | No | NA | | | | | | | | | | | |
| WAP-04 | 10/15 | 33% | 0.01-0.01 | 0.0136 | 0.012 | 0.02085 | 0.031 | 0.00002891 | 0.005377 | 0.3962 | 0.04 | mg/L | N | 0 | 0 | Yes | No | Decreasing | Non-parametric | 0.010 | N | | N | 0.031 | 31 | N | | N | FALSE |
| WAP-14 | 2/15 | 87% | 0.01-0.05 | 0.0301 | 0.01 | 0.116 | 0.27 | 0.004508 | 0.06714 | 2.227 | 0.04 | mg/L | Y | 1 | 1 | Yes | No | NA | Non-parametric | 0.010 | N | | N | 0.270 | 270 | N | | N | FALSE |
| WAP-15 | 13/15 | 13% | 0.01-0.01 | 0.0493 | 0.0426 | 0.1031 | 0.22 | 0.002402 | 0.04901 | 0.9946 | 0.04 | mg/L | Y | 9 | 0 | Yes | No | Increasing | Non-parametric | 0.010 | N | | N | 0.220 | 220 | N | | N | FALSE |
| WAP-16 | 0/15 | 100% | 0.01-0.25 | 0.026 | 0.01 | 0.07 | | 0.0036 | 0.06 | 2.4 | 0.04 | mg/L | N | 0 | 1 | NA | NA | NA | NA | 0.010 | N | | N | 0.250 | 250 | N | | N | FALSE |
| **CCR Appendix-IV: Mercury, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/12 | 100% | 0.0002-0.0002 | 0.0002 | 0.0002 | 0.0002 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.0002 | | | | | 0.0020 | | |
| WAP-01 | 0/12 | 100% | 0.0002-0.0002 | 0.0002 | 0.0002 | 0.0002 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | | |
| WAP-04 | 0/12 | 100% | 0.0002-0.0002 | 0.0002 | 0.0002 | 0.0002 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | Y | FALSE |
| WAP-14 | 0/12 | 100% | 0.0002-0.0002 | 0.0002 | 0.0002 | 0.0002 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | Y | FALSE |
| WAP-15 | 0/12 | 100% | 0.0002-0.0002 | 0.0002 | 0.0002 | 0.0002 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | Y | FALSE |
| WAP-16 | 0/12 | 100% | 0.0002-0.0002 | 0.0002 | 0.0002 | 0.0002 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | Y | FALSE |

**Winyah Slurry Pond 38.4**

**Assessment Monitoring Statistical Analysis Summary**

**Prepared: October 1, 2020**

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| **CCR Appendix-IV: Molybdenum, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/14 | 100% | 0.01-0.05 | 0.0129 | 0.01 | 0.024 | | 0.0001343 | 0.01069 | 0.8315 | 0.1 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.050 | | | | | | 0.10 | | |
| WAP-01 | 0/14 | 100% | 0.01-0.01 | 0.01 | 0.01 | 0.01 | | 5.004E-20 | 2.237E-10 | 2.237E-08 | 0.1 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | | | |
| WAP-04 | 0/12 | 100% | 0.01-0.04 | 0.0125 | 0.01 | 0.0235 | | 0.000075 | 0.00866 | 0.6928 | 0.1 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | | Y | FALSE |
| WAP-14 | 0/12 | 100% | 0.01-0.4 | 0.0425 | 0.01 | 0.1855 | | 0.01268 | 0.1126 | 2.649 | 0.1 | mg/L | N | 0 | 1 | NA | NA | NA | NA | NS | N | | Y | | | | | | Y | FALSE |
| WAP-15 | 0/13 | 100% | 0.01-0.4 | 0.0431 | 0.01 | 0.19 | | 0.01162 | 0.1078 | 2.503 | 0.1 | mg/L | N | 0 | 1 | NA | NA | NA | NA | NS | N | | Y | | | | | | Y | FALSE |
| WAP-16 | 0/12 | 100% | 0.01-0.2 | 0.0258 | 0.01 | 0.0955 | | 0.003008 | 0.05485 | 2.123 | 0.1 | mg/L | N | 0 | 1 | NA | NA | NA | NA | NS | N | | Y | | | | | | Y | FALSE |
| **CCR Appendix-IV: Radium-226 & 228 (pCi/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 7/14 | 50% | 0-4 | 3.17 | 4 | 4.304 | 4.33 | 2.423 | 1.557 | 0.4913 | 5 | pCi/L | N | 0 | 0 | NA | NA | NA | Non-parametric | | | 6.0 | | | | | | 6.0 | | |
| WAP-01 | 9/14 | 36% | 4-4 | 3.55 | 4 | 5.82 | 5.97 | 2.561 | 1.6 | 0.4509 | 5 | pCi/L | Y | 2 | 0 | Yes | No | Stable | | | | | | | | | | | | |
| WAP-04 | 12/15 | 20% | 4-4 | 3.58 | 4 | 5.752 | 5.99 | 2.76 | 1.661 | 0.4635 | 5 | pCi/L | Y | 3 | 0 | Yes | No | Stable | Normal | 1.080 | Y | | N | | | | | | N | FALSE |
| WAP-14 | 13/15 | 13% | 4-4 | 4.03 | 4.33 | 6.336 | 7.4 | 3.087 | 1.757 | 0.4362 | 5 | pCi/L | Y | 4 | 0 | No | No | Stable | Normal | 2.030 | Y | | N | | | | | | N | FALSE |
| WAP-15 | 15/15 | 0% | - | 4.77 | 4.74 | 6.682 | 6.92 | 2.022 | 1.422 | 0.2979 | 5 | pCi/L | Y | 6 | 0 | Yes | No | Stable | Normal | 1.240 | Y | | N | | | | | | N | FALSE |
| WAP-16 | 14/15 | 7% | 4-4 | 4.36 | 4.38 | 7.378 | 8.4 | 4.305 | 2.075 | 0.4762 | 5 | pCi/L | Y | 6 | 0 | No | No | Stable | Normal | 1.110 | Y | | N | | | | | | N | FALSE |
| **CCR Appendix-IV: Selenium, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/13 | 100% | 0.01-0.02 | 0.0115 | 0.01 | 0.02 | | 0.0000141 | 0.003755 | 0.3255 | 0.05 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.020 | | | | | | 0.050 | | |
| WAP-01 | 0/15 | 100% | 0.01-0.02 | 0.0113 | 0.01 | 0.02 | | 0.0000123B | 0.003519 | 0.3105 | 0.05 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | | | |
| WAP-04 | 0/16 | 100% | 0.005-0.02 | 0.0106 | 0.01 | 0.02 | | 0.00001625 | 0.004031 | 0.3794 | 0.05 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | | Y | FALSE |
| WAP-14 | 1/12 | 92% | 0.01-0.02 | 0.011 | 0.01 | 0.02 | 0.0021 | 0.00002275 | 0.004769 | 0.4332 | 0.05 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | NS | N | | Y | | | | | | Y | FALSE |
| WAP-15 | 1/12 | 92% | 0.01-0.02 | 0.0109 | 0.01 | 0.02 | 0.00095 | 0.00002472 | 0.004972 | 0.4556 | 0.05 | mg/L | N | 0 | 0 | No | No | NA | Non-parametric | NS | N | | Y | | | | | | Y | FALSE |
| WAP-16 | 0/12 | 100% | 0.005-0.02 | 0.0112 | 0.01 | 0.02 | | 0.00001875 | 0.00433 | 0.3849 | 0.05 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | | Y | FALSE |
| **CCR Appendix-IV: Thallium, Total (mg/L)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WBW-1 | 0/12 | 100% | 0.001-0.001 | 0.001 | 0.001 | 0.001 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | | | 0.001 | | | | | | 0.002 | | |
| WAP-01 | 0/12 | 100% | 0.0001-0.001 | 0.000925 | 0.001 | 0.001 | | 6.75E-08 | 0.0002598 | 0.2809 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | | | | | | | | | | | | |
| WAP-04 | 0/12 | 100% | 0.001-0.001 | 0.001 | 0.001 | 0.001 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | | Y | FALSE |
| WAP-14 | 0/12 | 100% | 0.001-0.001 | 0.001 | 0.001 | 0.001 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | | Y | FALSE |
| WAP-15 | 0/12 | 100% | 0.001-0.001 | 0.001 | 0.001 | 0.001 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | | Y | FALSE |
| WAP-16 | 0/12 | 100% | 0.001-0.001 | 0.001 | 0.001 | 0.001 | | 0 | 0 | 0 | 0.002 | mg/L | N | 0 | 0 | NA | NA | NA | NA | NS | N | | Y | | | | | | Y | FALSE |

NS= Not Sampled