Annual Groundwater Monitoring Report

Southwestern Electric Power Company
Welsh Power Plant

Primary Bottom Ash Pond CN 602843245; RN100213370 Registration No: CCR 110

> 1187 Country Road 4865 Titus County Pittsburg, Texas

> > January 2024

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Appendix 1: Groundwater Data Tables and Figures

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Abbreviations:

ASD - Alternate Source Demonstration

CCR – Coal Combustion Residual

GWPS - Groundwater protection standards

PBAP – Primary Bottom Ash Pond

SSI - Statistically Significant Increase

SSL – Statistically Significant Level

TCEQ – Texas Commission on Environmental Quality

I. Overview

This Annual Groundwater Monitoring Report (Report) has been prepared to report the status of activities for the preceding year for an existing Coal Combustion Residual (CCR) unit at Southwestern Electric Power Company's, a wholly owned subsidiary of American Electric Power Company (AEP), Welsh Power Plant. The Texas Commission on Environmental Quality's (TCEQ's) CCR rule requires that the Annual Groundwater Monitoring Report be posted to the operating record for the preceding year no later than January 31, 2024.

In general, the following activities were completed:

- At the start of the current annual reporting period, the PBAP was operating under the Assessment monitoring program.
- At the end of the current annual reporting period, the PBAP was operating under the Assessment monitoring program.
- The PBAP initiated an assessment monitoring program on April 13, 2018.
- Groundwater samples and elevations were collected for AD-1, AD-5, AD-17, AD-8, AD-9, and AD-15 and analyzed for Appendix III and IV constituents, as specified in 30 TAC §352.951et seq. and AEP's Groundwater Sampling and Analysis Plan (2021).
- Groundwater data underwent various validation tests, including tests for completeness, valid values, transcription errors, and consistent units.
- Data and statistical analysis not available for the previous reporting period indicated that during the 2nd semi-annual 2022 sampling event (October 2022):
 - Potential Statistically Significant Increases (SSIs) above background were identified for:
 - Boron at AD-8
 - pH at AD-15
 - No potential Statistically Significant Levels (SSLs) above the groundwater protection standards (GWPS) were identified.
- Annual groundwater sampling was conducted in February 2023;
- The 1st semi-annual groundwater sampling event was conducted in June 2023;
 - o Potential SSIs above background were identified for:
 - Boron at AD-8
 - pH at AD-15
 - o No potential SSLs above GWPS were identified.
- The 2nd semi-annual groundwater sampling event was conducted in October 2023;
 - o Potential SSIs above background were identified for:
 - Boron at AD-8

o No potential SSLs above GWPS were identified.

The major components of this annual report, to the extent applicable at this time, are presented in sections that follow:

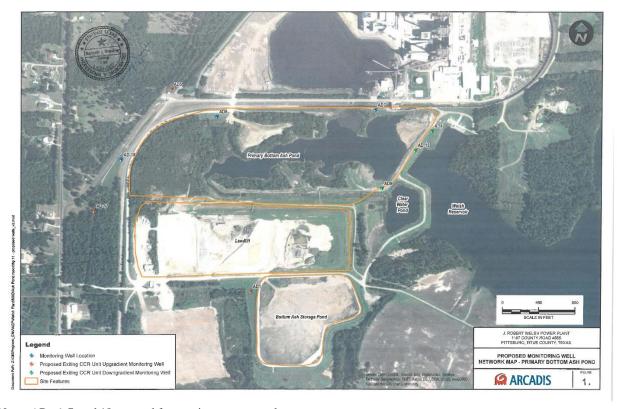
- A map, aerial photograph or a drawing showing the PBAP CCR management unit, all groundwater monitoring wells and monitoring well identification numbers;
- All of the monitoring data collected, including the rate and direction of groundwater flow, plus a summary showing the number of samples collected per monitoring well, the dates the samples were collected and whether the sample was collected as part of assessment monitoring programs is included in Appendix 1;
- Statistical comparison of monitoring data to determine if there have been SSI(s) and SSLs, where applicable (Appendix 2);
- A discussion of whether any alternate source demonstrations were performed, and the conclusions, where applicable (Appendix 3);
- A summary of any transition between monitoring programs or an alternate monitoring frequency, if applicable (Appendix 4).
- Identification of any monitoring wells that were installed, or decommissioned during the preceding year, along with a statement as to why that happened, where applicable (Appendix 5,); and
- Other information required to be included in the annual report, field sheets, analytical reports, etc. (Appendix 6)

In addition, this report summarizes key actions completed, and where applicable, describes any problems encountered and actions taken to resolve those problems. The report includes a projection of key activities for the upcoming year.

II. Groundwater Monitoring Well Locations and Identification Numbers

The figure that follows depicts the PE-certified groundwater monitoring network, the monitoring well locations and their corresponding identification numbers.

| Primary Bottom Ash Pond Monitoring Wells | | | | | | | | |
|--|---------------|--|--|--|--|--|--|--|
| Background | Down Gradient | | | | | | | |
| AD-1 | AD-8 | | | | | | | |
| AD-5 | AD-9 | | | | | | | |
| AD-17 | AD-15 | | | | | | | |



Note: ADs 6, 7, and 18 are used for gauging purposes only

III. Monitoring Wells Installed or Decommissioned

There were no groundwater monitoring wells installed or decommissioned during this reporting period.

IV. <u>Groundwater Quality Data and Static Water Elevation Data, With Flow Rate and Direction and Discussion</u>

Groundwater samples and elevations were collected for AD-1, AD-5, AD-17, AD-8, AD-9, and AD-15 and analyzed for Appendix III and IV constituents, as specified in §352.951et seq. and AEP's Groundwater Sampling and Analysis Plan (2021).

Appendix 1 contains potentiometric maps with the static water elevation, groundwater flow direction for each monitoring event, tables showing groundwater velocity, and all the groundwater quality data collected to date under 30 TAC 352.951.

V. <u>Groundwater Quality Data Statistical Analysis</u>

Appendix 2 contains the statistical analysis reports available for this reporting period.

Data and statistical analysis not available for the previous reporting period indicated that during the 2nd semi-annual 2022 sampling event (October 31, 2022 and certified March 19, 2023):

- o Potential SSIs above background were identified for:
 - Boron at AD-8
 - pH at AD-15
- No potential SSLs above GWPS were identified.

The annual sampling event for the compliance wells for the Appendix III and IV parameters was conducted February 6, 2023 and satisfies the requirement of 30 TAC 352.951.

The 1st semi-annual groundwater sampling event was conducted June 5-6, 2023 with statistical evaluation certified October 3, 2023;

- o Protentional SSIs above background were identified for:
 - Boron at AD-8
 - pH at AD-9
- o No potential SSLs above GWPS were identified

The 2nd semi-annual groundwater sampling event was conducted October 3, 2023 with statistical evaluation certified January 24, 2024;

- o Protentional SSIs above background were identified for:
 - Boron at AD-8
- o No potential SSLs above GWPS were identified

VI. Alternate Source Demonstrations

No ASDs were conducted for this reporting period.

VII. <u>Discussion About Transition Between Monitoring Requirements or Alternate</u> <u>Monitoring Frequency</u>

As of this annual groundwater report, the CCR Unit remains in assessment monitoring and will be sampled on a semi-annual basis.

VIII. Other Information Required

Field sheets and laboratory reports are in Appendix 6.

Appendix 2 contains a memorandum that explains the reissuance of select analytical laboratory reports to correct laboratory equipment data quality assurance/quality control issues.

IX. <u>Description of Any Problems Encountered and Actions Taken</u>

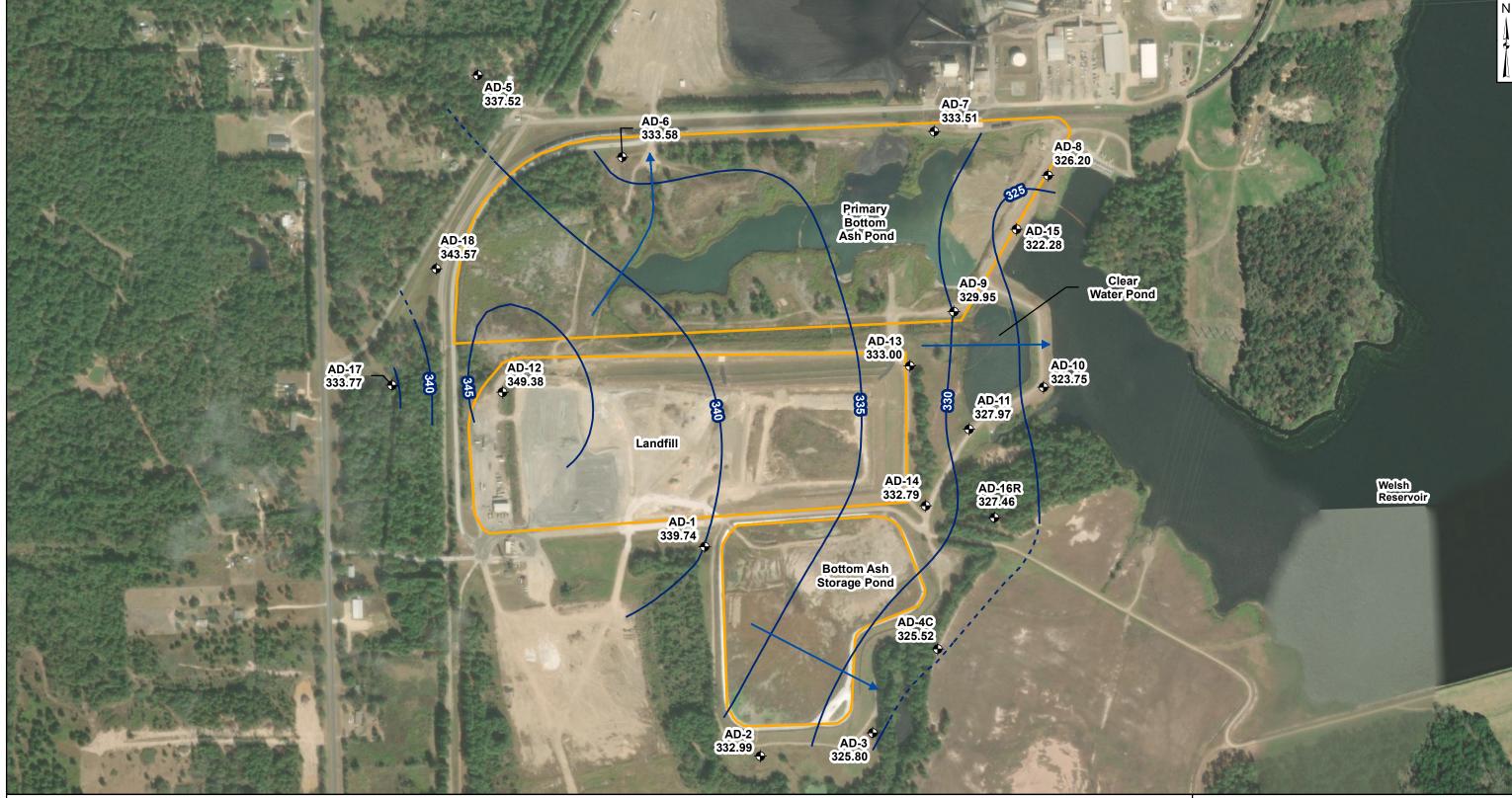
No significant problems were encountered.

X. A Projection of Key Activities for the Upcoming Year

- Conducted the annual groundwater sampling event for all constituents listed in 30 TAC 352 Appendix III and IV;
- Assessment monitoring will continue on a semiannual groundwater sampling schedule for 30 TAC 352 Appendix III and IV constituents;
- Evaluation of the assessment monitoring results from a statistical analysis viewpoint, looking for SSIs above background and SSLs above GWPS;
- If needed, ASDs will be conducted to evaluate if the unit can remain in assessment monitoring or the unit will move to an assessment of corrective measures;
- Responding to any new data received considering TCEQ's CCR rule requirements; and
- Preparation of the next annual groundwater report.

APPENDIX 1

Potentiometric maps and Tables that follow show the groundwater monitoring data collected, the rate and direction of groundwater flow, and a summary showing the number of samples collected per monitoring well. The dates that the samples were collected also is shown.



Legend

- ◆ Groundwater Monitoring Well
- Groundwater Elevation Contour
- - Groundwater Elevation Contour (Inferred)
- → Approximate Groundwater Flow Direction
- CCR Units

- Monitoring well coordinates and water level data (collected on February 6 and 7, 2023) provided by AEP.
 Site features based on information available in CCR Groundwater Monitoring Well Network Evaluation (Arcadis 2022).
- 3. Groundwater elevation units are feet above mean sea level.
- 4. Satellite imagery provided by ESRI.



Groundwater Potentiometric Map February 2023

AEP Welsh Power Plant Cason, Texas

| Geosy | mtec [©] | Figure |
|----------------|-------------------|--------|
| con | sultants | 4 |
| Columbus, Ohio | | |

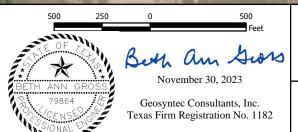


Legend

- Groundwater Monitoring Well
- Groundwater Elevation Contour
- - Groundwater Elevation Contour (Inferred)
- → Approximate Groundwater Flow Direction
- CCR Units

Notes

- Monitoring well coordinates and water level data (collected on June 6, 2023) provided by AEP.
 AD-12 was not gauged during the June 2023 event.
 Site features based on information available in CCR Groundwater Monitoring Well Network Evaluation
- 4. Groundwater elevation units are feet above mean sea level.
- 5 Satellite imagery provided by ESRI.



Groundwater Potentiometric Map June 2023

AEP Welsh Power Plant Cason, Texas

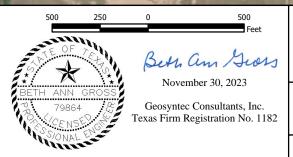
| Geosy | Figure | | | | | | | |
|----------------|-------------|--|--|--|--|--|--|--|
| con | consultants | | | | | | | |
| Columbus, Ohio | ۷ | | | | | | | |



Legend

- Groundwater Monitoring Well
- Groundwater Elevation Contour
- - Groundwater Elevation Contour (Inferred)
- → Approximate Groundwater Flow Direction
- CCR Units

- Monitoring well coordinates and water level data (collected on October 3 and 4, 2023) provided by AEP.
 Site features based on information available in CCR Groundwater Monitoring Well Network Evaluation (Arcadis 2022).
- 3. Groundwater elevation units are feet above mean sea level.
- 4. Satellite imagery provided by ESRI.



Groundwater Potentiometric Map October 2023

AEP Welsh Power Plant Cason, Texas

| Geosy | Figure | |
|----------------|----------|---|
| con | sultants | 2 |
| Columbus, Ohio | | |

Table 1. Groundwater Elevation Data Summary Welsh Power Plant

| Unit | | All Units | | Botto | om Ash Storage | Pond | Prima | ary Bottom Asl | Pond | | Landfill | |
|----------|--------|------------|--------|--------|----------------|---------|--------|----------------|--------|--------|--------------|--------|
| Gradient | | Background | | | Downgradient | | | Downgradient | | | Downgradient | |
| Well | AD-1 | AD-5 | AD-17 | AD-3 | AD-4C | AD-16R* | AD-8 | AD-9 | AD-15 | AD-11 | AD-13 | AD-14 |
| Mar-2016 | 342.83 | 338.04 | 334.64 | 325.12 | 326.19 | 337.09 | 325.70 | 329.74 | 322.14 | 328.13 | 334.76 | 334.83 |
| May-2016 | 344.89 | 337.62 | 334.26 | 312.97 | 325.89 | 335.84 | 325.68 | 329.28 | 321.93 | 328.39 | 334.54 | 334.51 |
| Jul-2016 | 342.89 | 337.24 | 334.30 | 323.70 | 324.01 | 332.14 | 325.05 | 329.53 | 321.28 | 328.14 | 332.93 | 331.71 |
| Sep-2016 | 341.42 | 337.51 | 334.45 | 323.63 | 324.00 | 326.52 | 325.49 | 329.11 | 321.42 | 327.99 | 332.65 | 331.17 |
| Oct-2016 | 341.23 | 337.74 | 334.64 | 323.47 | 323.76 | 331.43 | 325.29 | 328.92 | 321.71 | 327.87 | 332.39 | 330.94 |
| Dec-2016 | 340.58 | 337.01 | 334.05 | 323.78 | 325.07 | 330.96 | 325.92 | 329.31 | 321.64 | 328.20 | 332.84 | 330.79 |
| Jan-2017 | 341.18 | 338.34 | 333.94 | 325.04 | 326.39 | 330.71 | 326.76 | 330.50 | 322.81 | 328.90 | 334.54 | 332.63 |
| Feb-2017 | 339.74 | 336.17 | 333.94 | 324.92 | 324.89 | | 324.27 | 328.05 | 321.93 | 328.25 | 331.83 | 330.87 |
| May-2018 | 340.31 | 335.56 | 332.85 | 321.79 | 324.54 | 328.72 | 325.72 | 329.32 | 320.26 | 326.36 | 330.38 | 330.57 |
| Aug-2018 | 339.16 | 336.37 | 333.95 | 323.02 | 323.43 | 326.91 | 325.84 | 329.58 | 321.57 | 327.67 | 331.01 | 329.38 |
| Nov-2018 | - | | | 325.51 | 326.24 | 327.20 | | | | | | |
| Feb-2019 | 341.95 | 338.15 | 334.86 | 325.97 | 326.50 | 331.39 | 326.37 | 330.03 | 322.60 | 328.80 | 333.60 | 334.25 |
| Apr-2019 | - | | | 325.37 | 326.28 | 335.76 | 326.20 | 330.00 | | 328.16 | 333.29 | 334.59 |
| May-2019 | 345.68 | 337.54 | 335.13 | 325.65 | 326.15 | 339.02 | 326.09 | 329.83 | 322.03 | 328.08 | 333.46 | 334.77 |
| Jul-2019 | 343.95 | 336.89 | 334.94 | 324.72 | 324.73 | 332.17 | 325.80 | 329.57 | 321.43 | 327.97 | 332.23 | 331.85 |
| Feb-2020 | 341.88 | 338.56 | 334.94 | | | | 326.04 | 329.58 | 322.12 | 328.10 | 333.38 | 333.44 |
| May-2020 | 344.09 | 337.79 | 335.10 | 325.38 | 326.20 | 330.42 | 326.32 | 329.75 | 322.17 | 328.33 | 333.29 | 333.97 |
| Oct-2020 | 340.56 | 337.35 | 334.69 | 323.57 | 324.19 | 327.67 | 325.36 | 328.60 | 321.12 | 327.49 | 330.97 | 330.04 |
| Dec-2020 | 340.04 | 337.61 | 334.63 | 323.51 | 325.17 | 327.12 | | | | | | |
| Feb-2021 | 341.68 | 338.16 | 334.72 | | | | 326.38 | 329.55 | 322.20 | 328.46 | 333.35 | 333.73 |
| Jun-2021 | 345.82 | 337.15 | 334.93 | 326.36 | 326.87 | 330.59 | 326.77 | 329.92 | 322.45 | 328.70 | 334.69 | 335.88 |
| Jul-2021 | ŀ | | | | 325.45 | | | | | | | |
| Oct-2021 | 340.54 | 336.75 | 334.53 | 322.86 | 323.58 | 327.58 | 325.23 | 328.51 | 320.33 | 327.08 | 330.94 | 329.73 |
| Mar-2022 | 339.58 | 337.12 | 333.92 | 323.80 | 325.62 | 326.17 | DRY | DRY | DRY | DRY | DRY | DRY |
| Jun-2022 | 338.86 | 335.94 | 333.48 | 323.11 | 323.46 | 326.44 | 324.65 | 328.45 | 320.27 | 327.03 | 330.56 | 329.18 |
| Aug-2022 | 339.01 | 336.02 | 333.48 | 322.80 | 324.21 | 325.87 | | | | | | |
| Oct-2022 | - | | | | | | 324.90 | 328.75 | 321.19 | 327.16 | 330.50 | 329.17 |
| Nov-2022 | 338.17 | 336.41 | 333.31 | 323.12 | 324.46 | 325.74 | | | | | | |
| Feb-2023 | | | | 325.80 | 325.52 | 327.52 | 326.20 | 329.95 | 322.28 | 327.97 | 333.00 | 332.79 |
| Jun-2023 | 339.19 | 336.58 | 333.87 | 324.06 | 324.44 | 327.57 | 325.51 | 328.86 | 321.42 | 327.60 | 330.98 | 330.04 |
| Jul-2023 | | | | | 324.76 | | | | | | | |
| Oct-2023 | 338.51 | 336.62 | 333.95 | 322.97 | 323.28 | 326.78 | 325.44 | 328.98 | 320.82 | 327.03 | 330.46 | 329.12 |
| Dec-2023 | | | | 323.85 | 325.01 | 326.04 | | | | | | |

Notes:

^{1.} Groundwater elevation measured in feet above mean sea level.

^{*}AD-16 prior to February 2017.

Table 1: Residence Time Calculation Summary Welsh Primary Bottom Ash Pond

| | | | 202. | 3-02 | 202. | 3-06 | 2023-10 | | |
|---------------------------|----------------------|------------------------|--------------------------------------|---|--------------------------------|---|--------------------------------|---|--|
| CCR Management Unit | Monitoring Well | Well Diameter (inches) | Groundwater Velocity (ft/year) | Groundwater Residence Time (days) | Groundwater Velocity (ft/year) | Groundwater Residence Time (days) | Groundwater Velocity (ft/year) | Groundwater Residence Time (days) | |
| | AD-1 ^[1] | 2.0 | 2.6 | 23.2 | 3.1 | 19.8 | 2.0 | 31.0 | |
| | AD-5 [1] | 2.0 | 2.5 | 24.6 | 4.4 | 13.8 | 1.2 | 52.7 | |
| Primary Bottom | AD-8 ^[2] | 2.0 | 4.2 | 14.4 | 3.1 | 19.6 | 3.2 | 18.8 | |
| Ash Pond | AD-9 ^[2] | 2.0 | 4.7 | 13.0 | 2.6 | 23.7 | 2.2 | 27.5 | |
| | AD-15 ^[2] | 2.0 | 6.7 | 9.1 | 6.3 | 9.7 | 6.8 | 8.9 | |
| | AD-17 ^[1] | 2.0 | 8.6 | 7.1 | 3.7 | 16.6 | 7.6 | 8.0 | |

Notes:

- [1] Upgradient Well
- [2] Downgradient Well

Table 1. Groundwater Data Summary: AD-1 Welsh - PBAP Appendix III Constituents

| Collection Date | Monitoring Program | Boron | Calcium | Chloride | Fluoride | pН | Sulfate | Total Dissolved Solids |
|-----------------|-----------------------|-------|---------|----------|------------|-----|---------|------------------------------|
| | | mg/L | mg/L | mg/L | mg/L | SU | mg/L | mg/L |
| 5/26/2016 | Background | 0.346 | 36.5 | 5 | < 0.083 U1 | 5.9 | 42 | 252 |
| 7/27/2016 | Background | 0.35 | 39.6 | 4 | < 0.083 U1 | 5.3 | 36 | 239 |
| 9/30/2016 | Background | 0.332 | 15 | 5 | < 0.083 U1 | 5.4 | 35 | 173 |
| 10/19/2016 | Background | 0.398 | 19.1 | 4 | < 0.083 U1 | 5.2 | 42 | 192 |
| 12/12/2016 | Background | 0.394 | 8.74 | 4 | < 0.083 U1 | 5.2 | 40 | 200 |
| 1/17/2017 | Background | 0.656 | 129 | 4 | < 0.083 U1 | 7.1 | 68 | 538 |
| 2/23/2017 | Background | 0.7 | 147 | 9 | < 0.083 U1 | 6.9 | 68 | 612 |
| 6/7/2017 | Background | 0.449 | 15.1 | 4 | < 0.083 U1 | 5.1 | 42 | 176 |
| 10/6/2017 | Detection | 0.453 | 14.3 | 4 | < 0.083 U1 | 5.3 | 40 | 160 |
| 5/24/2018 | Assessment | 0.345 | 10.2 | 4 | < 0.083 U1 | 5.2 | 43 | 150 |
| 8/14/2018 | Assessment | 0.443 | 5.95 | 5 | < 0.083 U1 | 5.2 | 44 | 160 |
| 2/20/2019 | Assessment | 0.504 | 142 | 2.82 | 0.24 | 7.3 | 49.2 | 522 |
| 5/30/2019 | Assessment | 0.689 | 138 | 1.59 | 0.29 | 6.7 | 43.3 | 588 |
| 7/24/2019 | Assessment | 0.644 | 62.7 | 2 | 0.106 J1 | 6.0 | 58 | 180 |
| 2/17/2020 | Assessment | 0.626 | 115 | 3.41 | 0.31 | 5.8 | 56.3 | 488 |
| 5/20/2020 | Assessment | 0.801 | 126 | 1.83 | 0.20 | 7.2 | 51.4 | 508 |
| 10/14/2020 | Assessment | 0.670 | 3.88 | 2.16 | 0.25 | 4.5 | 66.9 | 183 |
| 2/23/2021 | Assessment | 0.617 | 113 | | 0.31 | 6.6 | | |
| 6/2/2021 | Assessment | 0.786 | 97.1 | 2.26 | 0.30 | 6.2 | 61.4 | 400 |
| 10/20/2021 | Assessment | 0.732 | 4.8 | 2.21 | 0.22 | 4.4 | 72.4 | 190 |
| 6/28/2022 | Assessment | 0.768 | 6.76 | 2.32 | 0.22 | 4.9 | 74.7 | 180 |
| 11/1/2022 | Assessment | 0.586 | 7.87 | 2.70 | 0.14 | 4.8 | 61.3 | 170 |
| 6/6/2023 | Assessment | 0.729 | 6.59 | 3.03 | 0.24 | 4.9 | 91.1 | 210 |
| 10/4/2023 | Assessment | 0.901 | 6.56 | 3.03 | 0.2 | 5.3 | 80.7 | 200 |

Table 1. Groundwater Data Summary: AD-1 Welsh - PBAP Appendix IV Constituents

| Collection Date | Monitoring | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Combined Radium | Fluoride | Lead | Lithium | Mercury | Molybdenum | Selenium | Thallium |
|------------------------|------------|-----------|------------|--------|--------------|--------------|-------------|-------------|--------------------|------------|------------|----------------|------------|------------|------------|-------------|
| | Program | μg/L | μg/L | μg/L | μg/L | μg/L | μg/L | μg/L | pCi/L | mg/L | μg/L | mg/L | μg/L | μg/L | μg/L | μg/L |
| 5/26/2016 | Background | < 0.93 U1 | 1.39361 J1 | 191 | 0.271453 J1 | 0.213294 J1 | 0.240267 J1 | 1.15339 J1 | 1.184 | < 0.083 U1 | < 0.68 U1 | 0.01 | 0.033 | 0.53149 J1 | 1.74922 J1 | 0.959865 J1 |
| 7/27/2016 | Background | < 0.93 U1 | < 1.05 U1 | 191 | 0.315631 J1 | 0.0940357 J1 | < 0.23 U1 | 0.615933 J1 | 0.9952 | < 0.083 U1 | < 0.68 U1 | 0.019 | 0.00793 J1 | < 0.29 U1 | 1.81763 J1 | < 0.86 U1 |
| 9/30/2016 | Background | < 0.93 U1 | 2.96797 J1 | 141 | 0.382874 J1 | < 0.07 U1 | 5 | 0.850408 J1 | 1.38 | < 0.083 U1 | 3.38434 J1 | 0.014 | 0.01773 J1 | < 0.29 U1 | 1.02629 J1 | < 0.86 U1 |
| 10/19/2016 | Background | < 0.93 U1 | < 1.05 U1 | 114 | 0.311247 J1 | < 0.07 U1 | 0.412131 J1 | 0.649606 J1 | 1.141 | < 0.083 U1 | < 0.68 U1 | 0.008 | 0.00534 J1 | 1.39872 J1 | 2.03168 J1 | 1.25062 J1 |
| 12/12/2016 | Background | < 0.93 U1 | < 1.05 U1 | 72 | 0.34133 J1 | < 0.07 U1 | < 0.23 U1 | 0.424105 J1 | 0.719 | < 0.083 U1 | < 0.68 U1 | 0.008 | 0.01521 J1 | < 0.29 U1 | 1.85825 J1 | < 0.86 U1 |
| 1/17/2017 | Background | < 0.93 U1 | < 1.05 U1 | 410 | 0.0366913 J1 | < 0.07 U1 | < 0.23 U1 | 0.480125 J1 | 3.009 | < 0.083 U1 | < 0.68 U1 | 0.000275956 J1 | < 0.005 U1 | < 0.29 U1 | 4.04737 J1 | < 0.86 U1 |
| 2/23/2017 | Background | < 0.93 U1 | < 1.05 U1 | 488 | < 0.02 U1 | < 0.07 U1 | < 0.23 U1 | 0.765099 J1 | 4.309 | < 0.083 U1 | < 0.68 U1 | 0.001 | < 0.005 U1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 6/7/2017 | Background | < 0.93 U1 | 1.14 J1 | 93.46 | 0.37 J1 | < 0.07 U1 | 0.66 J1 | 0.77 J1 | 0.676 | < 0.083 U1 | < 0.68 U1 | 0.00902 | 0.007 J1 | < 0.29 U1 | 2.1 J1 | < 0.86 U1 |
| 5/24/2018 | Assessment | 3.17 J1 | < 1.05 U1 | 79.9 | 0.39 J1 | < 0.07 U1 | < 0.23 U1 | 0.35 J1 | 1.983 | < 0.083 U1 | < 0.68 U1 | 0.00814 | 0.006 J1 | < 0.29 U1 | 1.38 J1 | < 0.86 U1 |
| 8/14/2018 | Assessment | 0.03 J1 | 0.21 | 63.0 | 0.482 | 0.02 | 0.160 | 0.797 | 1.102 | < 0.083 U1 | 0.238 | 0.00708 | 0.013 J1 | 0.21 | 1.7 | 0.03 J1 |
| 2/20/2019 | Assessment | 0.16 | 0.46 | 457 | 0.09 J1 | 0.01 J1 | 0.306 | 0.399 | 3.159 | 0.24 | 0.124 | 0.00155 | < 0.005 U1 | 1 J1 | 0.7 | < 0.1 U1 |
| 5/30/2019 | Assessment | 0.16 | 0.60 | 512 | 0.244 | 0.01 J1 | 0.1 J1 | 0.756 | 2.717 | 0.29 | 0.197 | < 0.009 U1 | < 0.005 U1 | 2.43 | 1.4 | < 0.1 U1 |
| 7/24/2019 | Assessment | 0.08 J1 | 0.39 | 245 | 0.540 | 0.02 J1 | 0.1 J1 | 0.789 | 1.819 | 0.106 J1 | 0.1 J1 | 0.00557 | < 0.005 U1 | 2 J1 | 3.4 | < 0.1 U1 |
| 2/17/2020 | Assessment | 0.33 | 0.49 | 303 | 0.07 J1 | 0.02 J1 | 0.1 J1 | 0.28 | 2.665 | 0.31 | 0.1 J1 | 0.00105 | < 0.002 U1 | 1 J1 | 2.3 | < 0.1 U1 |
| 5/20/2020 | Assessment | 0.15 | 0.53 | 394 | 0.270 | 0.02 J1 | 0.1 J1 | 0.490 | 2.312 | 0.20 | 0.1 J1 | 0.00301 | < 0.002 U1 | 2 J1 | 2.8 | < 0.1 U1 |
| 10/14/2020 | Assessment | < 0.1 U1 | 0.3 J1 | 84.7 | 0.984 | < 0.05 U1 | 0.9 J1 | 2.12 | 1.552 | 0.25 | 0.3 J1 | 0.00932 | 0.003 J1 | < 2 U1 | 5.3 | < 0.5 U1 |
| 2/23/2021 | Assessment | 0.24 | 0.74 | 338 | 0.136 | 0.03 J1 | 0.338 | 0.477 | 1.737 | 0.31 | 0.852 | 0.00155 | < 0.002 U1 | 1 J1 | 2.5 | < 0.1 U1 |
| 6/2/2021 | Assessment | 0.18 | 0.66 | 349 | 0.088 | 0.01 J1 | 0.32 | 0.474 | 2.15 | 0.30 | 0.09 J1 | 0.00052 | 0.002 J1 | 4.8 | 1.26 | < 0.04 U1 |
| 10/20/2021 | Assessment | 0.04 J1 | 0.20 | 86.1 | 0.932 | 0.026 | 0.33 | 2.44 | 0.99 | 0.22 | 0.23 | 0.00756 | 0.003 J1 | < 0.1 U1 | 7.39 | < 0.04 U1 |
| 6/28/2022 | Assessment | 0.03 J1 | 0.26 | 85.4 | 0.995 | 0.030 | 0.37 | 2.34 | 3.69 | 0.22 | 0.33 | 0.00855 | 0.002 J1 | < 0.1 U1 | 8.35 | 0.05 J1 |
| 11/1/2022 | Assessment | 0.03 J1 | 0.19 | 78.9 | 0.620 | 0.024 | 0.35 | 1.17 | 2.01 | 0.14 | 0.13 J1 | 0.00818 | 0.002 J1 | < 0.1 U1 | 5.51 | < 0.04 U1 |
| 6/6/2023 | Assessment | 0.041 J1 | 0.21 | 83.4 | 1.11 | 0.034 | 0.35 | 2.67 | 0.95 | 0.24 | 0.37 | 0.00805 | 0.002 J1 | < 0.1 U1 | 10.1 | 0.04 J1 |
| 10/4/2023 | Assessment | 0.029 J1 | 0.19 | 80.0 | 1.06 | 0.027 | 0.38 | 2.25 | 1.86 | 0.2 | 0.44 | 0.0103 | 0.002 J1 | < 0.1 U1 | 9.26 | 0.05 J1 |

Table 1. Groundwater Data Summary: AD-5 Welsh - PBAP Appendix III Constituents

| Collection Date | Monitoring Program | Boron | Calcium | Chloride | Fluoride | pН | Sulfate | Total Dissolved Solids |
|------------------------|-----------------------|----------|---------|----------|------------|-----|---------|------------------------------|
| | | mg/L | mg/L | mg/L | mg/L | SU | mg/L | mg/L |
| 5/31/2016 | Background | 0.03 | 36.9 | 15 | 0.3469 J1 | 6.4 | 123 | 337 |
| 7/28/2016 | Background | 0.04 | 44.7 | 16 | < 0.083 U1 | 5.4 | 163 | 360 |
| 9/30/2016 | Background | 0.04 | 46.3 | 15 | 0.2436 J1 | 5.3 | 190 | 416 |
| 10/20/2016 | Background | 0.05 | 50.7 | 14 | < 0.083 U1 | 5.9 | 267 | 448 |
| 12/13/2016 | Background | 0.05 | 49.6 | 13 | < 0.083 U1 | 6.2 | 233 | 484 |
| 1/17/2017 | Background | 0.04 | 49.8 | 14 | < 0.083 U1 | 6.3 | 234 | 438 |
| 2/23/2017 | Background | 0.04 | 33 | 15 | < 0.083 U1 | 5.5 | 127 | 286 |
| 6/7/2017 | Background | 0.05281 | 49.7 | 14 | < 0.083 U1 | 6.0 | 82 | 300 |
| 10/6/2017 | Detection | 0.04322 | 33.1 | 16 | < 0.083 U1 | 5.6 | 82 | 258 |
| 5/24/2018 | Assessment | 0.05007 | 28.1 | 22 | < 0.083 U1 | 6.2 | 60 | 242 |
| 8/15/2018 | Assessment | 0.050 | 40.5 | 19 | < 0.083 U1 | 6.2 | 240 | 428 |
| 2/21/2019 | Assessment | 0.033 | 33.9 | 24.7 | 0.21 | 5.4 | 46.5 | 220 |
| 5/30/2019 | Assessment | 0.03 J1 | 30.0 | 22.3 | 0.29 | 6.3 | 51.3 | 238 |
| 7/24/2019 | Assessment | 0.04 J1 | 41.1 | 18 | 0.112 J1 | 6.3 | 90 | 354 |
| 2/17/2020 | Assessment | 0.03 J1 | 39.8 | 19.8 | 0.22 | 5.5 | 43.7 | 248 |
| 5/20/2020 | Assessment | 0.03 J1 | 40.2 | 22.3 | 0.18 | 6.8 | 55.5 | 264 |
| 10/14/2020 | Assessment | 0.04 J1 | 36.6 | 18.8 | 0.18 | 6.5 | 148 | 338 |
| 2/23/2021 | Assessment | 0.03 J1 | 30.9 | | 0.23 | 6.0 | | |
| 6/2/2021 | Assessment | 0.027 J1 | 24.4 | 19.6 | 0.21 | 5.8 | 53.8 | 220 |
| 10/20/2021 | Assessment | 0.038 J1 | 38.4 | 17.4 | 0.17 | 5.6 | 155 | 370 |
| 6/28/2022 | Assessment | 0.048 J1 | 32.9 | 15.3 | 0.15 | 5.9 | 146 | 310 |
| 11/1/2022 | Assessment | 0.041 J1 | 38.6 | 16.9 | 0.16 | 5.9 | 185 | 380 |
| 6/6/2023 | Assessment | 0.030 J1 | 26.5 | 16.1 | 0.15 | 5.8 | 114 | 280 |
| 10/4/2023 | Assessment | 0.042 J1 | 35.2 | 17.5 | 0.17 | 6.6 | 132 | 290 |

Table 1. Groundwater Data Summary: AD-5 Welsh - PBAP Appendix IV Constituents

| Collection Date | Monitoring | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Combined Radium | Fluoride | Lead | Lithium | Mercury | Molybdenum | Selenium | Thallium |
|------------------------|------------|------------|------------|--------|--------------|--------------|-------------|--------|--------------------|------------|-----------|-----------|------------|------------|------------|-----------|
| | Program | μg/L | μg/L | μg/L | μg/L | μg/L | μg/L | μg/L | pCi/L | mg/L | μg/L | mg/L | μg/L | μg/L | μg/L | μg/L |
| 5/31/2016 | Background | < 0.93 U1 | < 1.05 U1 | 57 | 0.149801 J1 | 0.0765156 J1 | 0.555038 J1 | 14 | 1.634 | 0.3469 J1 | < 0.68 U1 | 0.135 | 0.01135 J1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 7/28/2016 | Background | 2.05116 J1 | 2.90819 J1 | 93 | 0.518653 J1 | 0.502155 J1 | 0.411466 J1 | 15 | 4.75 | < 0.083 U1 | < 0.68 U1 | 0.191 | 0.01516 J1 | < 0.29 U1 | 1.08901 J1 | < 0.86 U1 |
| 9/30/2016 | Background | < 0.93 U1 | 4.7609 J1 | 87 | 0.251584 J1 | < 0.07 U1 | 0.90676 J1 | 14 | 3.33 | 0.2436 J1 | < 0.68 U1 | 0.186 | < 0.005 U1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 10/20/2016 | Background | < 0.93 U1 | < 1.05 U1 | 70 | 0.08781 J1 | 0.107488 J1 | 0.248085 J1 | 9 | 2.319 | < 0.083 U1 | < 0.68 U1 | 0.225 | < 0.005 U1 | 1.36984 J1 | < 0.99 U1 | < 0.86 U1 |
| 12/13/2016 | Background | < 0.93 U1 | 1.15381 J1 | 53 | 0.164529 J1 | 0.203546 J1 | 0.747921 J1 | 13 | 2.182 | < 0.083 U1 | < 0.68 U1 | 0.199 | 0.00802 J1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 1/17/2017 | Background | < 0.93 U1 | < 1.05 U1 | 47 | 0.0574718 J1 | 0.180502 J1 | < 0.23 U1 | 12 | 1.023 | < 0.083 U1 | < 0.68 U1 | 0.239 | < 0.005 U1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 2/23/2017 | Background | < 0.93 U1 | < 1.05 U1 | 42 | 0.0306858 J1 | < 0.07 U1 | < 0.23 U1 | 13 | 1.788 | < 0.083 U1 | < 0.68 U1 | 0.166 | < 0.005 U1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 6/7/2017 | Background | < 0.93 U1 | 3.85 J1 | 87.7 | 0.08 J1 | 0.39 J1 | 0.28 J1 | 11.93 | 2.32 | < 0.083 U1 | < 0.68 U1 | 0.124 | < 0.005 U1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 5/24/2018 | Assessment | < 0.93 U1 | < 1.05 U1 | 71.16 | < 0.02 U1 | 0.23 J1 | 0.8 J1 | 14.24 | 1.946 | < 0.083 U1 | < 0.68 U1 | 0.121 | < 0.005 U1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 8/15/2018 | Assessment | 0.01 J1 | 1.69 | 63.7 | 0.055 | 0.008 J1 | 0.072 | 11.4 | 0.316 | < 0.083 U1 | 0.079 | 0.147 | < 0.005 U1 | 0.13 | 0.08 J1 | < 10 U1 |
| 2/21/2019 | Assessment | 0.02 J1 | 1.59 | 69.4 | 0.08 J1 | < 0.01 U1 | 0.432 | 8.58 | 1.267 | 0.21 | 0.147 | 0.0807 | < 0.005 U1 | < 0.4 U1 | 0.1 J1 | < 0.1 U1 |
| 5/30/2019 | Assessment | < 0.02 U1 | 3.05 | 60.5 | 0.08 J1 | < 0.01 U1 | 0.06 J1 | 11.8 | 1.431 | 0.29 | 0.05 J1 | 0.104 | 0.006 J1 | < 0.4 U1 | 0.05 J1 | < 0.1 U1 |
| 7/24/2019 | Assessment | < 0.02 U1 | 2.48 | 77.4 | 0.05 J1 | < 0.01 U1 | 0.05 J1 | 8.38 | 2.533 | 0.112 J1 | < 0.05 U1 | 0.108 | < 0.005 U1 | < 0.4 U1 | 0.06 J1 | < 0.1 U1 |
| 2/17/2020 | Assessment | 0.03 J1 | 2.17 | 109 | 0.09 J1 | 0.02 J1 | 0.336 | 4.52 | 2.393 | 0.22 | 0.227 | 0.0732 | < 0.002 U1 | 0.9 J1 | 0.2 | < 0.1 U1 |
| 5/20/2020 | Assessment | < 0.02 U1 | 1.78 | 93.1 | 0.05 J1 | 0.01 J1 | 0.1 J1 | 7.65 | 1.612 | 0.18 | 0.07 J1 | 0.0740 | < 0.002 U1 | < 0.4 U1 | 0.09 J1 | < 0.1 U1 |
| 10/14/2020 | Assessment | < 0.02 U1 | 6.28 | 71.7 | 0.09 J1 | < 0.01 U1 | 0.09 J1 | 14.9 | 2.7 | 0.18 | 0.05 J1 | 0.134 | < 0.002 U1 | < 0.4 U1 | 0.1 J1 | < 0.1 U1 |
| 2/23/2021 | Assessment | < 0.02 U1 | 2.06 | 68.3 | 0.03 J1 | < 0.01 U1 | 0.1 J1 | 6.31 | 1.397 | 0.23 | < 0.05 U1 | 0.0705 | < 0.002 U1 | < 0.4 U1 | 0.03 J1 | < 0.1 U1 |
| 6/2/2021 | Assessment | < 0.02 U1 | 1.72 | 49.3 | 0.018 M1, J1 | < 0.004 U1 | 0.26 | 10.5 | 2.47 | 0.21 | < 0.05 U1 | 0.0764 M1 | < 0.002 U1 | 0.1 J1 | < 0.09 U1 | < 0.04 U1 |
| 10/20/2021 | Assessment | < 0.02 U1 | 1.44 | 53.2 | 0.018 J1 | < 0.004 U1 | 0.23 | 6.85 | 2.68 | 0.17 | < 0.05 U1 | 0.133 M1 | < 0.002 U1 | < 0.1 U1 | < 0.09 U1 | < 0.04 U1 |
| 6/28/2022 | Assessment | < 0.02 U1 | 3.01 | 51.8 | 0.032 J1 | < 0.004 U1 | 0.22 | 12.8 | 2.06 | 0.15 | < 0.05 U1 | 0.161 | < 0.002 U1 | 0.1 J1 | < 0.09 U1 | 0.05 J1 |
| 11/1/2022 | Assessment | < 0.02 U1 | 2.77 | 63.2 | 0.046 J1 | < 0.004 U1 | 0.43 | 15.1 | 3.88 | 0.16 | < 0.05 U1 | 0.174 | < 0.002 U1 | < 0.1 U1 | < 0.09 U1 | < 0.04 U1 |
| 6/6/2023 | Assessment | 0.010 J1 | 4.30 | 45.5 | 0.055 | < 0.004 U1 | 0.24 J1 | 9.47 | 1.72 | 0.15 | < 0.05 U1 | 0.106 | < 0.002 U1 | < 0.1 U1 | 0.06 J1 | < 0.02 U1 |
| 10/4/2023 | Assessment | < 0.008 U1 | 2.94 | 63.9 | 0.049 J1 | < 0.004 U1 | 0.30 | 12.8 | 3.57 | 0.17 | < 0.05 U1 | 0.143 | < 0.002 U1 | < 0.1 U1 | 0.05 J1 | < 0.02 U1 |

Table 1. Groundwater Data Summary: AD-8 Welsh - PBAP Appendix III Constituents

| Collection Date | Monitoring Program | Boron | Calcium | Chloride | Fluoride | рН | Sulfate | Total Dissolved Solids |
|------------------------|-----------------------|-------|---------|----------|------------|-----|---------|------------------------------|
| | | mg/L | mg/L | mg/L | mg/L | SU | mg/L | mg/L |
| 5/31/2016 | Background | 1.46 | 32.6 | 36 | 0.6507 J1 | 6.9 | 217 | 524 |
| 7/28/2016 | Background | 1.44 | 25.9 | 26 | 0.485 J1 | 5.4 | 202 | 469 |
| 9/29/2016 | Background | 1.51 | 24.3 | 28 | 0.4912 J1 | 7.7 | 186 | 432 |
| 10/20/2016 | Background | 1.54 | 25.9 | 30 | 0.6234 J1 | 6.1 | 184 | 424 |
| 12/12/2016 | Background | 1.53 | 23.6 | 27 | 0.5355 J1 | 5.6 | 168 | 442 |
| 1/19/2017 | Background | 1.53 | 18.7 | 24 | 0.5574 J1 | 6.2 | 153 | 352 |
| 2/22/2017 | Background | 1.67 | 19.3 | 22 | < 0.083 U1 | 6.8 | 163 | 356 |
| 6/6/2017 | Background | 1.39 | 17.4 | 22 | 0.6628 J1 | 5.6 | 151 | 368 |
| 10/5/2017 | Detection | 1.49 | 14.9 | 20 | < 0.083 U1 | 6.7 | 128 | 284 |
| 1/4/2018 | Detection | 1.47 | | | | | | |
| 5/23/2018 | Assessment | | | | 0.501 J1 | 6.2 | | |
| 8/15/2018 | Assessment | | | | | 6.8 | | |
| 9/17/2018 | Assessment | 1.30 | 15.0 | 24 | | | 122 | 288 |
| 2/5/2019 | Assessment | 2.55 | 19.7 | 22.8 | 0.72 | 5.4 | 153 | |
| 2/21/2019 | Assessment | 1.47 | 17.6 | 23.2 | 0.66 | 6.4 | 163 | 352 |
| 4/30/2019 | Assessment | 1.21 | | | | 6.9 | | |
| 5/29/2019 | Assessment | 1.07 | 16.9 | 19.5 | 0.89 | 5.5 | 150 | 324 |
| 7/23/2019 | Assessment | 1.21 | 20.8 | 15 | 0.559 J1 | 6.6 | 145 | 392 |
| 2/17/2020 | Assessment | 1.25 | 14.6 | 17.0 | 0.67 | 6.5 | 159 | 344 |
| 5/19/2020 | Assessment | 1.23 | 15.1 | 16.5 | 0.66 | 6.4 | 149 | 336 |
| 7/22/2020 | Assessment | 1.14 | | | | 6.6 | | |
| 10/12/2020 | Assessment | 1.10 | 17.2 | 13.6 | 0.88 | 6.8 | 138 | 298 |
| 2/23/2021 | Assessment | 1.18 | 14.8 | | 0.69 | 6.1 | | |
| 6/1/2021 | Assessment | 1.10 | 15.3 | 14.8 | 0.73 | 5.3 | 162 | 330 |
| 10/19/2021 | Assessment | 1.10 | 17.2 | 13.7 | 0.9 | 5.5 | 139 | 300 |
| 3/1/2022 | Assessment | 1.16 | 18.7 | 15.9 | 0.97 | 5.9 | 138 | 260 |
| 6/27/2022 | Assessment | 1.15 | 19.5 | 15.9 | 0.82 | 5.9 | 156 | 330 |
| 10/31/2022 | Assessment | 1.08 | 22.3 | 20.9 | 0.93 | 6.1 | 141 | 280 |
| 2/6/2023 | Assessment | 1.16 | 24.6 M1 | 19.5 | 0.72 | 6.3 | 182 | 370 |
| 6/5/2023 | Assessment | 0.932 | 19.3 | 21.1 | 0.86 | 6.1 | 155 | 300 |
| 10/3/2023 | Assessment | 1.06 | 18.9 | 21.5 | 0.94 | 6.7 | 137 | 310 |

Table 1. Groundwater Data Summary: AD-8 Welsh - PBAP Appendix IV Constituents

| Collection Date | Monitoring | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Combined Radium | Fluoride | Lead | Lithium | Mercury | Molybdenum | Selenium | Thallium |
|------------------------|------------|------------|------------|--------|-------------|-----------|-------------|---------|--------------------|------------|-----------|---------|----------------|-------------|------------|------------|
| Concetion Date | Program | μg/L | μg/L | μg/L | μg/L | μg/L | μg/L | μg/L | pCi/L | mg/L | μg/L | mg/L | μg/L | μg/L | μg/L | μg/L |
| 5/31/2016 | Background | < 0.93 U1 | 1.06251 J1 | 34 | 0.114491 J1 | < 0.07 U1 | 2 | 7 | 1.046 | 0.6507 J1 | < 0.68 U1 | 0.122 | 0.02103 J1 | 1.01326 J1 | 1.37017 J1 | 1.18455 J1 |
| 7/28/2016 | Background | 1.46141 J1 | < 1.05 U1 | 26 | 0.171642 J1 | < 0.07 U1 | 0.751164 J1 | 9 | 1.584 | 0.485 J1 | < 0.68 U1 | 0.098 | 0.00859 J1 | 1.48301 J1 | 1.96333 J1 | < 0.86 U1 |
| 9/29/2016 | Background | < 0.93 U1 | < 1.05 U1 | 23 | < 0.02 U1 | < 0.07 U1 | 0.51348 J1 | 7 | 6.3 | 0.4912 J1 | < 0.68 U1 | 0.111 | < 0.005 U1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 10/20/2016 | Background | < 0.93 U1 | < 1.05 U1 | 24 | 0.028758 J1 | < 0.07 U1 | 0.617826 J1 | 7 | 0.3449 | 0.6234 J1 | < 0.68 U1 | 0.135 | < 0.005 U1 | 0.838863 J1 | < 0.99 U1 | 1.64377 J1 |
| 12/12/2016 | Background | < 0.93 U1 | < 1.05 U1 | 21 | < 0.02 U1 | < 0.07 U1 | < 0.23 U1 | 7 | 1.083 | 0.5355 J1 | < 0.68 U1 | 0.11 | 0.01007 J1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 1/19/2017 | Background | < 0.93 U1 | < 1.05 U1 | 20 | < 0.02 U1 | < 0.07 U1 | < 0.23 U1 | 6 | 0.823 | 0.5574 J1 | < 0.68 U1 | 0.094 | < 0.005 U1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 2/22/2017 | Background | < 0.93 U1 | < 1.05 U1 | 19 | < 0.02 U1 | < 0.07 U1 | < 0.23 U1 | 6 | 0.536 | < 0.083 U1 | < 0.68 U1 | 0.092 | < 0.005 U1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 6/6/2017 | Background | < 0.93 U1 | < 1.05 U1 | 19.08 | < 0.02 U1 | < 0.07 U1 | < 0.23 U1 | 3.86 J1 | 1.0735 | 0.6628 J1 | < 0.68 U1 | 0.09491 | 0.008 J1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 5/23/2018 | Assessment | 3.19 J1 | < 1.05 U1 | 22.12 | < 0.02 U1 | < 0.07 U1 | < 0.23 U1 | 3.19 J1 | 0.3366 | 0.501 J1 | < 0.68 U1 | 0.0956 | < 0.005 U1 | < 0.29 U1 | 1.75 J1 | < 0.86 U1 |
| 8/15/2018 | Assessment | 0.01 J1 | 0.31 | 21.2 | 0.008 J1 | 0.02 J1 | 0.050 | 5.36 | 3.44 | | 0.039 | 0.0555 | | 0.16 | 0.07 J1 | 0.129 |
| 2/21/2019 | Assessment | < 0.02 U1 | 0.57 | 28.1 | 0.03 J1 | 0.03 J1 | 0.456 | 2.88 | 0.417 | 0.66 | 0.223 | 0.0911 | < 0.005 U1 | < 0.4 U1 | 0.1 J1 | < 0.1 U1 |
| 5/29/2019 | Assessment | < 0.02 U1 | 0.37 | 30.3 | < 0.02 U1 | 0.02 J1 | 0.1 J1 | 6.03 | 0.911 | 0.89 | 0.07 J1 | 0.067 | < 0.005 U1 | < 0.4 U1 | 0.06 J1 | 0.1 J1 |
| 7/23/2019 | Assessment | < 0.02 U1 | 0.41 | 31.0 | < 0.02 U1 | 0.02 J1 | 0.09 J1 | 7.07 | 0.72 | 0.559 J1 | 0.08 J1 | 0.0641 | < 0.005 U1 | < 0.4 U1 | 0.08 J1 | 0.1 J1 |
| 2/17/2020 | Assessment | < 0.02 U1 | 0.55 | 38.9 | < 0.02 U1 | 0.05 J1 | 0.244 | 1.02 | 1.257 | 0.67 | 0.1 J1 | 0.124 | < 0.002 U1 | < 0.4 U1 | 0.08 J1 | < 0.1 U1 |
| 5/19/2020 | Assessment | < 0.02 U1 | 0.27 | 21.1 | < 0.02 U1 | 0.04 J1 | 0.2 J1 | 1.17 | 0.344 | 0.66 | < 0.05 U1 | 0.0872 | < 0.002 U1 | < 0.4 U1 | 0.07 J1 | < 0.1 U1 |
| 10/12/2020 | Assessment | < 0.02 U1 | 0.30 | 25.9 | < 0.02 U1 | 0.04 J1 | 0.06 J1 | 5.71 | 0.267 | 0.88 | 0.06 J1 | 0.0615 | < 0.002 U1 | < 0.4 U1 | 0.08 J1 | 0.1 J1 |
| 2/23/2021 | Assessment | < 0.02 U1 | 0.31 | 24.2 | < 0.1 U1 | 0.03 J1 | 0.1 J1 | 0.899 | 0.544 | 0.69 | 0.06 J1 | 0.104 | < 0.002 U1 | < 0.4 U1 | < 0.03 U1 | < 0.1 U1 |
| 6/1/2021 | Assessment | < 0.02 U1 | 0.37 | 47.9 | 0.01 J1 | 0.029 | 0.28 | 1.04 | 0.69 | 0.73 | 0.07 J1 | 0.0818 | < 0.002 U1 | < 0.1 U1 | < 0.09 U1 | 0.05 J1 |
| 10/19/2021 | Assessment | < 0.02 U1 | 0.25 | 23.3 | < 0.01 U1 | 0.021 | 0.27 | 4.13 | 1.15 | 0.9 | < 0.05 U1 | 0.0690 | < 0.002 U1 | < 0.1 U1 | < 0.09 U1 | 0.11 J1 |
| 3/1/2022 | Assessment | < 0.02 U1 | 0.27 | 23.6 | < 0.04 U1 | 0.018 J1 | 0.23 | 5.10 | 1.31 | 0.97 | < 0.05 U1 | 0.0654 | < 0.002 Q1, U1 | < 0.1 U1 | < 0.09 U1 | 0.13 J1 |
| 6/27/2022 | Assessment | < 0.02 U1 | 0.25 | 26.1 | < 0.007 U1 | 0.018 J1 | 0.41 | 3.15 | 1.39 | 0.82 | 0.07 J1 | 0.0777 | < 0.002 U1 | < 0.1 U1 | < 0.09 U1 | 0.11 J1 |
| 10/31/2022 | Assessment | < 0.02 U1 | 0.25 | 27.8 | 0.01 J1 | 0.038 | 0.31 | 8.92 | 1.1 | 0.93 | < 0.05 U1 | 0.0559 | < 0.002 U1 | 0.2 J1 | < 0.09 U1 | 0.15 J1 |
| 2/6/2023 | Assessment | < 0.02 U1 | 0.28 | 32.5 | 0.021 J1 | 0.031 | 0.23 | 5.08 | 3.47 | 0.72 | 0.05 J1 | 0.0821 | < 0.002 U1 | < 0.1 U1 | < 0.09 U1 | 0.10 J1 |
| 6/5/2023 | Assessment | 0.012 J1 | 0.24 | 25.9 | 0.011 J1 | 0.020 | 0.27 J1 | 3.65 | 0.68 | 0.86 | 0.12 J1 | 0.0664 | < 0.002 U1 | < 0.1 U1 | 0.07 J1 | 0.10 J1 |
| 10/3/2023 | Assessment | 0.009 J1 | 0.21 | 24.2 | < 0.007 U1 | 0.020 | 0.40 | 3.95 | 1.24 | 0.94 | < 0.05 U1 | 0.0732 | < 0.002 U1 | < 0.1 U1 | 0.05 J1 | 0.10 J1 |

Table 1. Groundwater Data Summary: AD-9 Welsh - PBAP Appendix III Constituents

| Collection Date | Monitoring Program | Boron | Calcium | Chloride | Fluoride | pН | Sulfate | Total Dissolved Solids |
|------------------------|-----------------------|---------|---------|----------|------------|-----|---------|------------------------------|
| | | mg/L | mg/L | mg/L | mg/L | SU | mg/L | mg/L |
| 5/31/2016 | Background | 0.12 | 229 | 88 | 0.4191 J1 | 6.3 | 1,352 | 2,541 |
| 7/28/2016 | Background | 0.105 | 255 | 98 | 0.4339 J1 | 5.0 | 1,464 | 2,564 |
| 9/29/2016 | Background | 0.115 | 220 | 86 | 0.304 J1 | 4.7 | 1,301 | 2,448 |
| 10/19/2016 | Background | 0.109 | 228 | 76 | 0.6227 J1 | 5.2 | 1,350 | 2,494 |
| 12/12/2016 | Background | 0.108 | 250 | 92 | < 0.083 U1 | 5.7 | 1,639 | 2,667 |
| 1/19/2017 | Background | 0.312 | 91.1 | 54 | < 0.083 U1 | 5.4 | 884 | 1,360 |
| 2/22/2017 | Background | 0.1 | 258 | 86 | < 0.083 U1 | 5.8 | 1,774 | 2,662 |
| 6/6/2017 | Background | 0.146 | 191 | 19 | < 0.083 U1 | 4.6 | 105 | 308 |
| 10/5/2017 | Detection | 0.129 | 9.64 | 20 | < 0.083 U1 | 5.8 | 86 | 248 |
| 5/23/2018 | Assessment | | | | < 0.083 U1 | 5.3 | | |
| 8/15/2018 | Assessment | | | | | 5.0 | | |
| 9/17/2018 | Assessment | 0.198 | 230 | 103 | | | 1,910 | 2,694 |
| 2/5/2019 | Assessment | 0.096 | 133 | 27.9 | 0.16 | 4.2 | 181 | |
| 2/21/2019 | Assessment | 1.39 | 211 | 89 | 0.19 | 5.0 | 1,350 | 2,240 |
| 4/30/2019 | Assessment | 0.07 | | | | 4.5 | | |
| 5/29/2019 | Assessment | 0.06 J1 | 10.1 | 44.0 | 0.16 | 3.6 | 503 | 1,758 |
| 7/23/2019 | Assessment | 0.081 | 222 | 77 | 0.5736 J1 | 6.3 | 1,701 | 2,460 |
| 2/17/2020 | Assessment | 0.12 | 11.5 | 19.9 | 0.15 | 6.0 | 100 | 282 |
| 5/19/2020 | Assessment | 0.066 | 11.3 | 44.8 | 0.1 J1 | 4.9 | 536 | 902 |
| 10/12/2020 | Assessment | 0.100 | 11.8 | 18.8 | 0.19 | 4.8 | 100 | 296 |
| 2/23/2021 | Assessment | 0.219 | 11.6 | | 0.21 | 4.7 | | |
| 6/1/2021 | Assessment | 0.221 | 12.5 | 16.7 | 0.19 | 4.4 | 118 | 300 |
| 10/19/2021 | Assessment | 0.226 | 11.9 | 31.8 | 0.19 | 4.3 | 374 | 700 |
| 3/1/2022 | Assessment | 0.148 | 12.0 | 18.3 | 0.15 | 4.8 | 109 | 300 |
| 6/27/2022 | Assessment | 0.174 | 109 | 59.8 | 0.09 J1 | 4.8 | 933 | 1,460 |
| 10/31/2022 | Assessment | 0.109 | 12.4 | 16.8 | 0.17 | 5.0 | 122 | 300 |
| 2/6/2023 | Assessment | 0.337 | 12.4 | 15.5 | 0.17 | 4.9 | 137 | 340 |
| 6/6/2023 | Assessment | 0.083 | 164 | 78.3 | 0.17 | 5.1 | 1,230 | 1,950 |
| 10/3/2023 | Assessment | 0.168 | 168 | 75.4 | 0.1 | 5.8 | 1,200 | 1,910 |

Table 1. Groundwater Data Summary: AD-9 Welsh - PBAP Appendix IV Constituents

| Collection Date | Monitoring | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Combined Radium | Fluoride | Lead | Lithium | Mercury | Molybdenum | Selenium | Thallium |
|------------------------|------------|------------|-----------|--------|-------------|-------------|-------------|--------|--------------------|------------|-----------|----------|--------------|------------|------------|------------|
| | Program | μg/L | μg/L | μg/L | μg/L | μg/L | μg/L | μg/L | pCi/L | mg/L | μg/L | mg/L | μg/L | μg/L | μg/L | μg/L |
| 5/31/2016 | Background | < 0.93 U1 | < 1.05 U1 | 51 | 0.999439 J1 | 1 | < 0.23 U1 | 27 | 2.945 | 0.4191 J1 | < 0.68 U1 | 1.32 | 0.0194 J1 | < 0.29 U1 | 1.04175 J1 | < 0.86 U1 |
| 7/28/2016 | Background | < 0.93 U1 | < 1.05 U1 | 31 | 0.726564 J1 | 2 | 0.262163 J1 | 22 | 1.447 | 0.4339 J1 | < 0.68 U1 | 1.38 | 0.045 | < 0.29 U1 | 8 | < 0.86 U1 |
| 9/29/2016 | Background | < 0.93 U1 | < 1.05 U1 | 33 | 0.582852 J1 | 0.187457 J1 | < 0.23 U1 | 12 | 3.199 | 0.304 J1 | < 0.68 U1 | 1.17 | 0.00739 J1 | < 0.29 U1 | 3.52832 J1 | < 0.86 U1 |
| 10/19/2016 | Background | < 0.93 U1 | < 1.05 U1 | 26 | 0.478576 J1 | 0.965032 J1 | < 0.23 U1 | 16 | 1.311 | 0.6227 J1 | < 0.68 U1 | 1.44 | < 0.005 U1 | < 0.29 U1 | 3.09028 J1 | < 0.86 U1 |
| 12/12/2016 | Background | < 0.93 U1 | < 1.05 U1 | 27 | 0.481339 J1 | 2 | < 0.23 U1 | 24 | 3 | < 0.083 U1 | < 0.68 U1 | 1.33 | 0.02123 J1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 1/19/2017 | Background | < 0.93 U1 | < 1.05 U1 | 98 | 2 | 0.693618 J1 | < 0.23 U1 | 42 | 2.349 | < 0.083 U1 | < 0.68 U1 | 0.634 | 0.00717 J1 | < 0.29 U1 | < 0.99 U1 | 1.7755 J1 |
| 2/22/2017 | Background | < 0.93 U1 | < 1.05 U1 | 22 | 0.301057 J1 | 0.680144 J1 | < 0.23 U1 | 24 | 2.32 | < 0.083 U1 | < 0.68 U1 | 1.41 | < 0.005 U1 | < 0.29 U1 | 1.06022 J1 | 1.45295 J1 |
| 6/6/2017 | Background | < 0.93 U1 | < 1.05 U1 | 42.27 | 0.77 J1 | 2.22 | < 0.23 U1 | 24.16 | 1.586 | < 0.083 U1 | < 0.68 U1 | 1 | 0.006 J1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 5/23/2018 | Assessment | < 0.93 U1 | < 1.05 U1 | 30.45 | 0.32 J1 | 2.88 | < 0.23 U1 | 26.7 | 2.556 | < 0.083 U1 | < 0.68 U1 | 1.2 | < 0.005 U1 | < 0.29 U1 | < 0.99 U1 | 8.46 |
| 8/15/2018 | Assessment | < 10 U1 | 1.68 | 24.2 | 0.268 | 0.06 | 0.420 | 11.1 | 1.864 | | 0.262 | 0.851 | | 0.11 | 0.3 | 0.062 |
| 2/21/2019 | Assessment | < 0.02 U1 | 1.18 | 52.4 | 0.474 | 0.09 | 0.313 | 14.8 | 2.51 | 0.19 | 0.08 J1 | 1.12 | 0.01 J1 | < 0.4 U1 | 0.3 | 0.1 J1 |
| 5/29/2019 | Assessment | < 0.02 U1 | 0.20 | 49.7 | 0.941 | 0.21 | 0.346 | 15.9 | 1.36 | 0.16 | 0.07 J1 | 0.225 | < 0.005 U1 | < 0.4 U1 | 0.2 | 0.2 J1 |
| 7/23/2019 | Assessment | < 0.02 U1 | 1.39 | 32.1 | 0.361 | 0.06 | 0.2 J1 | 12.7 | 1.689 | 0.5736 J1 | 0.2 J1 | 1.11 | < 0.005 U1 | < 0.4 U1 | 0.4 | < 0.1 U1 |
| 2/17/2020 | Assessment | < 0.02 U1 | 0.33 | 52.8 | 0.979 | 0.24 | 0.608 | 17.7 | 1.938 | 0.15 | 0.2 J1 | 0.218 | 0.002 J1 | < 0.4 U1 | 0.3 | 0.2 J1 |
| 5/19/2020 | Assessment | < 0.02 U1 | 0.25 | 51.6 | 0.933 | 0.24 | 0.458 | 16.5 | 1.854 | 0.1 J1 | 0.07 J1 | 0.160 | 0.003 J1 | < 0.4 U1 | 0.4 | 0.2 J1 |
| 10/12/2020 | Assessment | < 0.02 U1 | 0.72 | 55.3 | 1.27 | 0.22 | 0.471 | 18.6 | 2.838 | 0.19 | 0.349 | 0.194 | 0.003 J1 | < 0.4 U1 | 0.3 | 0.2 J1 |
| 2/23/2021 | Assessment | < 0.02 U1 | 0.27 | 54.9 | 1.51 | 0.33 | 0.373 | 21.7 | 1.557 | 0.21 | 0.1 J1 | 0.189 | 0.003 J1 | < 0.4 U1 | 0.4 | 0.2 J1 |
| 6/1/2021 | Assessment | < 0.02 U1 | 0.21 | 51.6 | 1.15 | 0.353 | 0.59 | 20.6 | 1.74 | 0.19 | 0.08 J1 | 0.141 | 0.003 J1 | < 0.1 U1 | 0.31 J1 | 0.22 |
| 10/19/2021 | Assessment | < 0.02 U1 | 0.30 | 50.3 | 1.36 | 0.315 | 0.68 | 20.6 | 1.74 | 0.19 | 0.1 J1 | 0.184 P3 | 0.003 J1 | < 0.1 U1 | 0.34 J1 | 0.23 |
| 3/1/2022 | Assessment | < 0.02 U1 | 0.24 | 55.3 | 1.20 | 0.266 | 0.74 | 19.1 | 3.35 | 0.15 | 0.08 J1 | 0.205 | 0.003 Q1, J1 | < 0.1 U1 | 0.26 J1 | 0.22 |
| 6/27/2022 | Assessment | < 0.02 U1 | 0.87 | 49.7 | 0.780 | 0.244 | 0.59 | 19.5 | 3.52 | 0.09 J1 | 0.27 | 0.539 | < 0.002 U1 | < 0.1 U1 | 0.46 J1 | 0.22 |
| 10/31/2022 | Assessment | < 0.02 U1 | 0.21 | 52.0 | 1.14 | 0.199 | 1.23 | 17.1 | 1.06 | 0.17 | 0.08 J1 | 0.231 | 0.004 J1 | < 0.1 U1 | 0.27 J1 | 0.22 |
| 2/6/2023 | Assessment | < 0.02 U1 | 0.33 | 49.0 | 1.60 | 0.379 | 0.58 | 22.1 | 3.05 | 0.17 | 0.18 J1 | 0.181 | 0.003 J1 | 0.1 J1 | 0.46 J1 | 0.28 |
| 6/6/2023 | Assessment | 0.008 J1 | 1.15 | 39.8 | 0.502 | 0.135 | 0.33 | 15.8 | 1.86 | 0.17 | 0.12 J1 | 0.661 | < 0.002 U1 | < 0.1 U1 | 0.51 | 0.14 J1 |
| 10/3/2023 | Assessment | < 0.008 U1 | 1.57 | 37.0 | 0.788 | 0.195 | 0.48 | 17.4 | 2.11 | 0.1 | 0.47 | 0.777 | < 0.002 U1 | < 0.1 U1 | 0.44 J1 | 0.16 J1 |

Table 1. Groundwater Data Summary: AD-15 Welsh - PBAP Appendix III Constituents

| Collection Date Monitoring Program | | Boron | Calcium | Chloride | Fluoride | pН | Sulfate | Total Dissolved Solids |
|------------------------------------|------------|-----------|---------|----------|------------|-----|---------|------------------------------|
| | | mg/L | mg/L | mg/L | mg/L | SU | mg/L | mg/L |
| 5/31/2016 | Background | 0.329 | 5.09 | 30 | < 0.083 U1 | 5.6 | 24 | 188 |
| 7/28/2016 | Background | 0.407 | 3.83 | 34 | < 0.083 U1 | 4.8 | 28 | 196 |
| 9/29/2016 | Background | 0.36 | 13.7 | 28 | 0.2621 J1 | 4.6 | 23 | 367 |
| 10/19/2016 | Background | 0.152 | 4.57 | 26 | < 0.083 U1 | 4.4 | 17 | 152 |
| 12/12/2016 | Background | 0.334 | 3.6 | 26 | < 0.083 U1 | 4.7 | 19 | 204 |
| 1/19/2017 | Background | 0.413 | 3.35 | 32 | < 0.083 U1 | 5.8 | 25 | 176 |
| 2/22/2017 | Background | 0.1 | 4.21 | 20 | < 0.083 U1 | 4.6 | 8 | 88 |
| 6/6/2017 | Background | 0.321 | 3.57 | 27 | < 0.083 U1 | 4.8 | 19 | 184 |
| 10/5/2017 | Detection | 0.395 | 3.08 | 30 | < 0.083 U1 | 5.9 | 21 | 200 |
| 5/23/2018 | Assessment | | | | < 0.083 U1 | 4.8 | | |
| 8/15/2018 | Assessment | | | | | 4.6 | | |
| 9/17/2018 | Assessment | 0.341 | 3.04 | 37 | | | 24 | 174 |
| 2/5/2019 | Assessment | 0.03 J1 | 2.18 | 20.6 | 0.06 | 3.9 | 0.2 J1 | |
| 2/21/2019 | Assessment | 0.169 | 2.67 | 28.2 | 0.09 | 5.0 | 10.6 | 150 |
| 5/29/2019 | Assessment | < 0.02 U1 | 2.97 | 21.4 | 0.06 J1 | 4.9 | 2.1 | 34 |
| 7/23/2019 | Assessment | 0.306 | 3.45 | 28 | 0.086 J1 | 3.2 | 18 | 214 |
| 2/17/2020 | Assessment | 0.419 | 3.64 | 34.3 | 0.11 | 4.5 | 21.5 | 234 |
| 5/19/2020 | Assessment | 0.376 | 3.37 | 34.1 | 0.07 | 5.3 | 19.0 | 216 |
| 10/12/2020 | Assessment | 0.334 | 2.99 | 30.4 | 0.10 | 5.1 | 17.1 | 170 |
| 2/23/2021 | Assessment | 0.03 J1 | 2.30 | | 0.08 | 4.4 | | |
| 6/1/2021 | Assessment | 0.213 | 3.0 | 28.4 | 0.10 | 4.4 | 11.4 | 150 |
| 10/19/2021 | Assessment | 0.218 | 2.7 | 28.0 | 0.09 | 4.4 | 10.3 | 140 |
| 3/1/2022 | Assessment | 0.076 | 2.63 | 25.0 | 0.05 J1 | 4.4 | 4.29 | 80 |
| 6/27/2022 | Assessment | 0.329 | 3.25 | 30.9 | 0.09 | 4.5 | 18.9 | 170 |
| 10/31/2022 | Assessment | 0.093 | 2.57 | 26.2 | 0.07 | 4.4 | 4.62 | 90 |
| 2/6/2023 | Assessment | 0.174 | 2.70 | 27.5 | 0.06 | 4.3 | 9.85 | 130 |
| 6/5/2023 | Assessment | 0.194 | 2.92 | 28.6 | 0.08 | 4.3 | 12.4 | 140 |
| 10/3/2023 | Assessment | 0.179 | 2.47 | 27.5 | 0.06 | 4.9 | 9.9 | 140 |

Table 1. Groundwater Data Summary: AD-15 Welsh - PBAP Appendix IV Constituents

| Collection Date | Monitoring | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Combined Radium | Fluoride | Lead | Lithium | Mercury | Molybdenum | Selenium | Thallium |
|------------------------|------------|-----------|---------|--------|-------------|-------------|----------|---------|--------------------|------------|------------|---------|--------------|-------------|------------|------------|
| | Program | μg/L | μg/L | μg/L | μg/L | μg/L | μg/L | μg/L | pCi/L | mg/L | μg/L | mg/L | μg/L | μg/L | μg/L | μg/L |
| 5/31/2016 | Background | < 0.93 U1 | 12 | 215 | 0.959793 J1 | 0.351465 J1 | 17 | 11 | 2.284 | < 0.083 U1 | 7 | 0.017 | 0.054 | 1.77432 J1 | 3.46337 J1 | < 0.86 U1 |
| 7/28/2016 | Background | < 0.93 U1 | 6 | 124 | 0.362598 J1 | 0.111427 J1 | 4 | 6 | 1.322 | < 0.083 U1 | < 0.68 U1 | 0.021 | 0.01646 J1 | 0.586779 J1 | 1.19442 J1 | < 0.86 U1 |
| 9/29/2016 | Background | < 0.93 U1 | 131 | 1,930 | 15 | 7 | 280 | 134 | 9.92 | 0.2621 J1 | 161 | 0.149 | 0.707 | 3.60313 J1 | 14 | < 0.86 U1 |
| 10/19/2016 | Background | < 0.93 U1 | 23 | 415 | 2 | 0.575938 J1 | 54 | 19 | 3.567 | < 0.083 U1 | 22 | 0.036 | 0.1 | 1.54555 J1 | 1.17613 J1 | 1.55993 J1 |
| 12/12/2016 | Background | < 0.93 U1 | 6 | 184 | 0.695316 J1 | 0.246456 J1 | 15 | 10 | 3.36 | < 0.083 U1 | 3.96087 J1 | 0.013 | 0.026 | 0.463544 J1 | 1.32943 J1 | < 0.86 U1 |
| 1/19/2017 | Background | < 0.93 U1 | 6 | 153 | 0.449612 J1 | < 0.07 U1 | 9 | 7 | 2.386 | < 0.083 U1 | 2.87518 J1 | 0.008 | 0.01932 J1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 2/22/2017 | Background | < 0.93 U1 | 20 | 353 | 2 | 0.319406 J1 | 49 | 20 | 2.261 | < 0.083 U1 | 19 | 0.025 | 0.058 | 1.42695 J1 | < 0.99 U1 | < 0.86 U1 |
| 6/6/2017 | Background | < 0.93 U1 | 8.54 | 166 | 0.61 J1 | 0.48 J1 | 12.35 | 8.44 | 2.491 | < 0.083 U1 | 2.98 J1 | 0.0108 | 0.022 J1 | < 0.29 U1 | 2.71 J1 | < 0.86 U1 |
| 5/23/2018 | Assessment | < 0.93 U1 | 2.56 J1 | 102 | 0.03 J1 | 0.1 J1 | 2.63 | 4.74 J1 | 1.46 | < 0.083 U1 | < 0.68 U1 | 0.00562 | < 0.005 U1 | < 0.29 U1 | 1.54 J1 | 1.37 J1 |
| 8/15/2018 | Assessment | 0.03 J1 | 3.26 | 85.2 | 0.116 | 0.01 J1 | 0.481 | 3.71 | 1.076 | - | 0.438 | 0.00338 | | 0.05 J1 | 0.9 | 0.090 |
| 2/21/2019 | Assessment | < 0.02 U1 | 2.21 | 76.6 | 0.208 | 0.01 J1 | 0.225 | 2.9 | 0.841 | 0.09 | 0.104 | 0.00294 | < 0.005 U1 | < 0.4 U1 | 0.4 | < 0.1 U1 |
| 5/29/2019 | Assessment | 0.05 J1 | 2.95 | 203 | 1.50 | 0.08 | 9.31 | 5.49 | 3.55 | 0.06 J1 | 9.85 | 0.01 J1 | 0.081 | < 0.4 U1 | 5.1 | 0.1 J1 |
| 7/23/2019 | Assessment | 0.03 J1 | 2.10 | 113 | 0.573 | 0.04 J1 | 2.26 | 5.41 | 2.245 | 0.086 J1 | 2.87 | 0.00414 | 0.025 | < 0.4 U1 | 1.6 | < 0.1 U1 |
| 2/17/2020 | Assessment | 0.09 J1 | 9.12 | 115 | 0.39 | 0.02 J1 | 6.01 | 4.08 | 2.546 | 0.11 | 4.8 | 0.00509 | 0.013 | 3.32 | 1.7 | 0.1 J1 |
| 5/19/2020 | Assessment | 0.02 J1 | 3.94 | 80.3 | 0.09 J1 | 0.01 J1 | 0.2 J1 | 3.28 | 1.115 | 0.07 | 0.09 J1 | 0.00383 | < 0.002 U1 | < 0.4 U1 | 0.7 | < 0.1 U1 |
| 10/12/2020 | Assessment | 0.03 J1 | 4.90 | 83.4 | 0.146 | 0.01 J1 | 0.425 | 3.93 | 1.604 | 0.10 | 0.417 | 0.00393 | 0.003 J1 | < 0.4 U1 | 0.7 | < 0.1 U1 |
| 2/23/2021 | Assessment | < 0.02 U1 | 1.39 | 72.4 | 0.190 | 0.02 J1 | 0.1 J1 | 2.61 | 1.021 | 0.08 | 0.08 J1 | 0.00167 | < 0.002 U1 | < 0.4 U1 | 0.2 | < 0.1 U1 |
| 6/1/2021 | Assessment | < 0.02 U1 | 3.04 | 76.9 | 0.138 | 0.015 J1 | 0.31 | 2.73 | 1.45 | 0.10 | < 0.05 U1 | 0.00330 | < 0.002 U1 | < 0.1 U1 | 0.43 J1 | 0.05 J1 |
| 10/19/2021 | Assessment | < 0.02 U1 | 3.72 | 73.1 | 0.143 | 0.009 J1 | 0.31 | 2.84 | 2.02 | 0.09 | 0.07 J1 | 0.00435 | < 0.002 U1 | < 0.1 U1 | 0.55 | 0.06 J1 |
| 3/1/2022 | Assessment | < 0.02 U1 | 1.89 | 75.1 | 0.207 | 0.011 J1 | 0.55 | 2.76 | 2.01 | 0.05 J1 | 0.09 J1 | 0.00208 | 0.003 Q1, J1 | < 0.1 U1 | 0.29 J1 | 0.05 J1 |
| 6/27/2022 | Assessment | < 0.02 U1 | 3.03 | 78.5 | 0.088 | 0.015 J1 | 0.38 | 3.54 | 2.15 | 0.09 | 0.05 J1 | 0.00573 | < 0.002 U1 | < 0.1 U1 | 0.63 | 0.07 J1 |
| 10/31/2022 | Assessment | < 0.02 U1 | 2.55 | 75.3 | 0.187 | 0.015 J1 | 0.41 | 2.94 | 1.67 | 0.07 | 0.12 J1 | 0.00235 | < 0.002 U1 | < 0.1 U1 | 0.38 J1 | 0.05 J1 |
| 2/6/2023 | Assessment | < 0.02 U1 | 3.26 | 73.9 | 0.162 | 0.019 J1 | 0.33 | 2.77 | 1.77 | 0.06 | 0.15 J1 | 0.00373 | < 0.002 U1 | < 0.1 U1 | 0.45 J1 | 0.07 J1 |
| 6/5/2023 | Assessment | 0.056 J1 | 7.67 | 86.9 | 0.237 | 0.024 | 2.27 | 3.49 | 1.37 | 0.08 | 1.94 | 0.00423 | 0.006 | 0.1 J1 | 1.23 | 0.08 J1 |
| 10/3/2023 | Assessment | 0.014 J1 | 3.01 | 69.8 | 0.139 | 0.013 J1 | 0.37 | 3.06 | 2.1 | 0.06 | 0.08 J1 | 0.00398 | < 0.002 U1 | < 0.1 U1 | 0.54 | 0.06 J1 |

Table 1. Groundwater Data Summary: AD-17 Welsh - PBAP Appendix III Constituents

| Collection Date | Monitoring Program | Boron | Calcium | Chloride | Fluoride | pН | Sulfate | Total Dissolved Solids |
|------------------------|-----------------------|---------|---------|----------|------------|-----|---------|------------------------------|
| | | mg/L | mg/L | mg/L | mg/L | SU | mg/L | mg/L |
| 5/26/2016 | Background | 0.121 | 200 | 43 | 0.4023 J1 | 7.2 | 1,166 | 1,810 |
| 7/27/2016 | Background | 0.119 | 195 | 32 | 0.4135 J1 | 5.7 | 1,005 | 1,576 |
| 9/30/2016 | Background | 0.111 | 191 | 36 | 0.3055 J1 | 6.2 | 1,055 | 1,663 |
| 10/20/2016 | Background | 0.124 | 194 | 32 | 0.583 J1 | 6.1 | 1,163 | 1,612 |
| 12/13/2016 | Background | 0.135 | 196 | 31 | 0.5399 J1 | 6.0 | 1,096 | 1,560 |
| 1/17/2017 | Background | 0.101 | 196 | 33 | < 0.083 U1 | 5.9 | 1,445 | 1,686 |
| 2/22/2017 | Background | 0.135 | 189 | 30 | < 0.083 U1 | 5.7 | 1,055 | 1,628 |
| 6/6/2017 | Background | 0.121 | 188 | 30 | < 0.083 U1 | 5.8 | 1,105 | 1,578 |
| 10/6/2017 | Detection | 0.183 | 183 | 31 | < 0.083 U1 | 5.9 | 1,090 | 1,548 |
| 5/24/2018 | Assessment | 0.239 | 193 | 39 | < 0.083 U1 | 6.3 | 1,067 | 1,836 |
| 8/15/2018 | Assessment | 0.118 | 187 | 40 | < 0.083 U1 | 5.6 | 1,168 | 1,748 |
| 2/21/2019 | Assessment | 0.151 | 207 | 43.2 | 0.18 | 6.9 | 1,060 | 1,722 |
| 5/30/2019 | Assessment | 0.158 | 202 | 41.7 | < 0.04 U1 | 6.1 | 1,120 | 1,546 |
| 7/24/2019 | Assessment | 0.113 | 216 | 37 | 0.085 J1 | 6.0 | 1,127 | 1,864 |
| 2/17/2020 | Assessment | 0.104 | 184 | 36.0 | 0.16 | 5.9 | 1,070 | 1,750 |
| 5/20/2020 | Assessment | 0.115 | 250 | 47.7 | 0.15 | 5.7 | 1,190 | 1,890 |
| 10/14/2020 | Assessment | 0.100 | 185 | 35.7 | 0.17 | 5.4 | 1,060 | 1,720 |
| 2/23/2021 | Assessment | 0.098 | 168 | | 0.17 | 5.6 | | |
| 6/2/2021 | Assessment | 0.124 | 233 | 44.9 | 0.31 | 5.7 | 1,210 | 1,890 |
| 10/20/2021 | Assessment | 0.104 | 164 | 37.3 | 0.16 | 5.1 | 1,040 | 1,710 |
| 6/28/2022 | Assessment | 0.112 | 167 | 37.0 | 0.09 J1 | 5.2 | 1,050 | 1,740 |
| 11/1/2022 | Assessment | 0.097 | 165 | 40.3 | 0.09 J1 | 5.7 | 1,110 | 1,690 |
| 6/6/2023 | Assessment | 0.10 J1 | 150 | 35.6 | < 0.05 U1 | 5.3 | 1,190 | 1,510 |
| 10/4/2023 | Assessment | 0.14 J1 | 176 M1 | 37.9 | 0.06 J1 | 5.8 | 1,180 | 1,520 |

Table 1. Groundwater Data Summary: AD-17 Welsh - PBAP Appendix IV Constituents

| Collection Date | Monitoring | Antimony | Arsenic | Barium | Beryllium | Cadmium | Chromium | Cobalt | Combined Radium | Fluoride | Lead | Lithium | Mercury | Molybdenum | Selenium | Thallium |
|------------------------|------------|------------|------------|--------|--------------|-------------|-------------|--------|--------------------|------------|-----------|----------|------------|-------------|------------|-----------|
| | Program | μg/L | μg/L | μg/L | μg/L | μg/L | μg/L | μg/L | pCi/L | mg/L | μg/L | mg/L | μg/L | μg/L | μg/L | μg/L |
| 5/26/2016 | Background | < 0.93 U1 | 1.37501 J1 | 21 | 0.173275 J1 | 2 | 1 | 63 | 1.525 | 0.4023 J1 | < 0.68 U1 | 0.37 | 0.032 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 7/27/2016 | Background | 1.13716 J1 | < 1.05 U1 | 20 | 0.307264 J1 | 4 | 1 | 68 | 2.78 | 0.4135 J1 | < 0.68 U1 | 0.374 | 0.02133 J1 | 1.04115 J1 | 4.56733 J1 | < 0.86 U1 |
| 9/30/2016 | Background | < 0.93 U1 | < 1.05 U1 | 31 | 0.175474 J1 | 0.848199 J1 | 3 | 58 | 2.358 | 0.3055 J1 | < 0.68 U1 | 0.354 | < 0.005 U1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 10/20/2016 | Background | < 0.93 U1 | < 1.05 U1 | 34 | 0.200656 J1 | 2 | 4 | 65 | 2.224 | 0.583 J1 | < 0.68 U1 | 0.394 | < 0.005 U1 | 0.322249 J1 | 3.34422 J1 | < 0.86 U1 |
| 12/13/2016 | Background | < 0.93 U1 | < 1.05 U1 | 17 | 0.0498325 J1 | 3 | 0.816224 J1 | 68 | 2.384 | 0.5399 J1 | < 0.68 U1 | 0.323 | 0.01485 J1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 1/17/2017 | Background | < 0.93 U1 | < 1.05 U1 | 14 | 0.0319852 J1 | 3 | 68 | 68 | 2.436 | < 0.083 U1 | < 0.68 U1 | 0.341 | < 0.005 U1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 2/22/2017 | Background | < 0.93 U1 | < 1.05 U1 | 20 | 0.0665729 J1 | 2 | 1 | 73 | 2.288 | < 0.083 U1 | < 0.68 U1 | 0.331 | < 0.005 U1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 6/6/2017 | Background | < 0.93 U1 | < 1.05 U1 | 10.33 | < 0.02 U1 | 6.06 | < 0.23 U1 | 74.8 | 1.598 | < 0.083 U1 | < 0.68 U1 | 0.329 | 0.013 J1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 5/24/2018 | Assessment | < 0.93 U1 | < 1.05 U1 | 9.65 | < 0.02 U1 | 6.46 | < 0.23 U1 | 71.73 | 1.939 | < 0.083 U1 | < 0.68 U1 | 0.308 | < 0.005 U1 | < 0.29 U1 | < 0.99 U1 | < 0.86 U1 |
| 8/15/2018 | Assessment | 0.02 J1 | 1.83 | 12.8 | 0.069 | 0.25 | 0.604 | 43.5 | 2.35 | < 0.083 U1 | 1.10 | 0.243 | 0.011 J1 | 0.35 | 0.3 | 0.074 |
| 2/21/2019 | Assessment | 0.08 J1 | 2.51 | 120 | 0.24 | 0.27 | 3.34 | 64.5 | 2.657 | 0.18 | 2.49 | 0.268 | 0.007 J1 | 0.7 J1 | 0.8 | < 0.1 U1 |
| 5/30/2019 | Assessment | < 0.02 U1 | 0.41 | 19.6 | 0.02 J1 | 0.03 J1 | 0.246 | 51.1 | 2.508 | < 0.04 U1 | 0.03 J1 | 0.341 | < 0.005 U1 | < 0.4 U1 | 0.06 J1 | < 0.1 U1 |
| 7/24/2019 | Assessment | < 0.02 U1 | 1.07 | 14.3 | 0.130 | 0.03 J1 | 0.228 | 57.7 | 3.45 | 0.085 J1 | 0.263 | 0.283 | < 0.005 U1 | < 0.4 U1 | 0.1 J1 | < 0.1 U1 |
| 2/17/2020 | Assessment | < 0.02 U1 | 0.72 | 9.6 | 0.04 J1 | < 0.01 U1 | 0.08 J1 | 42.3 | 3.46 | 0.16 | < 0.05 U1 | 0.273 | < 0.004 U1 | < 0.4 U1 | < 0.03 U1 | < 0.1 U1 |
| 5/20/2020 | Assessment | < 0.02 U1 | 0.86 | 11.4 | 0.07 J1 | 0.02 J1 | 0.231 | 70.0 | 2.76 | 0.15 | 0.08 J1 | 0.302 | < 0.002 U1 | < 0.4 U1 | 0.09 J1 | < 0.1 U1 |
| 10/14/2020 | Assessment | < 0.02 U1 | 0.84 | 10.9 | 0.04 J1 | 0.01 J1 | 0.327 | 45.4 | 2.169 | 0.17 | 0.2 J1 | 0.274 | < 0.002 U1 | < 0.4 U1 | 0.06 J1 | < 0.1 U1 |
| 2/23/2021 | Assessment | < 0.02 U1 | 0.61 | 10.6 | 0.03 J1 | 0.03 J1 | 0.1 J1 | 41.1 | 1.433 | 0.17 | 0.08 J1 | 0.249 | < 0.002 U1 | < 0.4 U1 | 0.04 J1 | < 0.1 U1 |
| 6/2/2021 | Assessment | < 0.02 U1 | 0.84 | 10.9 | 0.066 | 0.026 | 0.38 | 72.9 | 2.4 | 0.31 | 0.09 J1 | 0.311 | < 0.002 U1 | 0.2 J1 | < 0.09 U1 | < 0.04 U1 |
| 10/20/2021 | Assessment | < 0.02 U1 | 0.57 | 10.2 | 0.035 J1 | 0.019 J1 | 0.38 | 42.9 | 1.73 | 0.16 | 0.07 J1 | 0.250 | < 0.002 U1 | < 0.1 U1 | < 0.09 U1 | 0.05 J1 |
| 6/28/2022 | Assessment | < 0.02 U1 | 0.53 | 12.6 | 0.040 J1 | 0.011 J1 | 0.40 | 41.3 | 6.54 | 0.09 J1 | 0.12 J1 | 0.267 | 0.003 J1 | 0.1 J1 | < 0.09 U1 | < 0.04 U1 |
| 11/1/2022 | Assessment | 0.02 J1 | 0.62 | 12.7 | 0.073 | 0.019 J1 | 0.96 | 41.9 | 3.81 | 0.09 J1 | 0.27 | 0.278 | 0.004 J1 | < 0.1 U1 | < 0.09 U1 | < 0.04 U1 |
| 6/6/2023 | Assessment | < 0.08 U1 | 1.1 | 19.6 | 0.11 J1 | < 0.04 U1 | 1.1 J1 | 36.8 | 1.42 | < 0.05 U1 | 0.7 J1 | 0.254 | 0.003 J1 | < 1 U1 | 0.5 J1 | < 0.2 U1 |
| 10/4/2023 | Assessment | < 0.08 U1 | 0.5 J1 | 11.8 | < 0.07 U1 | < 0.04 U1 | 1.3 J1 | 41.2 | 2.05 | 0.06 J1 | < 0.5 U1 | 0.305 M1 | < 0.002 U1 | < 1 U1 | < 0.4 U1 | < 0.2 U1 |

Table 1. Groundwater Data Summary Welsh - PBAP

Notes:

- -: Not analyzed

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

M1: The associated matrix spike (MS) or matrix spike duplicate (MSD) recovery was outside acceptance limits.

mg/L: milligrams per liter

P3: The precision on the matrix spike duplicate (MSD) was above acceptance limits.

pCi/L: picocuries per liter

Q1: Sample received in inappropriate sample container.

SU: standard unit

μg/L: micrograms per liter

APPENDIX 2

Where applicable, shown in this appendix the are results from statistical analyses, and a description of the statistical analysis method chosen. These statistical analyses are conducted separately for each constituent in each monitoring well.





Memorandum

Date: January 17, 2024

To: Rebecca Jones (AEP)

Copies to: Brian Newton (AEP)

From: Allison Kreinberg (Geosyntec)

Subject: Evaluation of 2023 Reissued Analytical Laboratory Data for

J. Robert Welsh Plant's Primary Bottom Ash Pond

In accordance with Texas Commission on Environmental Quality (TCEQ) regulations regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Title 30 Chapter 352, "CCR rule") groundwater sampling was completed in 2023 to support assessment monitoring at the Primary Bottom Ash Pond, an existing CCR unit at the J. Robert Welsh Plant in Pittsburg, Texas. After the statistical evaluation was completed using data from the first semiannual assessment monitoring event, select analytical laboratory reports were reissued to correct an inconsistent number of significant figures in electronic data deliverables and the published laboratory reports.

A review of the reissued analytical laboratory reports identified reported lithium results that had the number of significant figures changed (Table 1). The site-specific background value for lithium was not updated as part of the first semiannual assessment monitoring event; therefore, the lithium result at background location AD-1 was not used in the statistical evaluation before the reissued analytical laboratory reports were reviewed. Both the initial reported lithium value and the revised lithium value at downgradient location AD-15 were below the site-specific groundwater protection standard of 0.394 milligrams per liter, and no statistically significant levels of lithium were identified during the first semiannual assessment monitoring event. Therefore, no changes to the statistical outcome of the first semiannual assessment monitoring event would occur.

The revised lithium values in the reissued laboratory analytical reports will be used in future reporting and statistical evaluations.

¹ Geosyntec. 2023. Statistical Analysis Summary – Primary Bottom Ash Pond. J. Robert Welsh Plant, Pittsburg, Texas. Geosyntec Consultants, Inc. October.

Table 1. 2023 Revised Analytical Results Welsh Plant - Primary Bottom Ash Pond

| Sample Date | Well ID | Well Location | Constituent | Units | Initial Reported Value | Revised Value |
|-------------|---------|---------------|-------------|-------|---------------------------|---------------|
| 6/6/2023 | AD-1 | Background | Lithium | mg/L | 0.0081 | 0.00805 |
| 6/5/2023 | AD-15 | Downgradient | Lithium | mg/L | 0.0042 | 0.00423 |

Notes:

1. All results are shown in milligrams per liter (mg/L).





engineers | scientists | innovators

STATISTICAL ANALYSIS SUMMARY, PRIMARY BOTTOM ASH POND

J. Robert Welsh Plant Pittsburg, Texas

Prepared for

American Electric Power

1 Riverside Plaza Columbus, Ohio 43215

Prepared by

Geosyntec Consultants, Inc. 500 West Wilson Bridge Road, Suite 250 Worthington, Ohio 43085

Project Number: CHA8500B

March 19, 2023



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Table 1: Groundwater Data Summary

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Table 3: Appendix III Data Summary

LIST OF ATTACHMENTS

Attachment A: Certification by Qualified Professional Engineer

Attachment B: Data Quality Review Memorandum

Attachment C: Statistical Analysis Output



ACRONYMS AND ABBREVIATIONS

CCR coal combustion residuals

GWPS groundwater protection standard

LPL lower prediction limit

MDL method detection limit

mg/L milligram per liter

PBAP Primary Bottom Ash Pond PQL practical quantitation limit

QA/QC quality assurance/quality control
SSI statistically significant increase
SSL statistically significant level

SU standard units

TCEQ Texas Commission on Environmental Quality

TDS total dissolved solids
UPL upper prediction limit



1. EXECUTIVE SUMMARY

In accordance with Texas Commission on Environmental Quality's (TCEQ) regulations regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Title 30 Chapter 352, "CCR rule"), groundwater monitoring has been conducted at the Primary Bottom Ash Pond (PBAP), an existing CCR unit at the Welsh Power Plant in Pittsburg, Texas. Recent groundwater monitoring results were compared to site-specific groundwater protection standards (GWPSs) to identify potential exceedances for CCR units in assessment monitoring.

Based on detection monitoring conducted in 2017 and 2018, statistically significant increases (SSIs) over background were concluded for boron at the PBAP. An alternative source was not identified at the time, so assessment monitoring was initiated and GWPSs were set in accordance with § 352.951(b) (Geosyntec 2018). During 2022, as required by § 352.951(a), an annual sampling event for Appendix III and Appendix IV parameters was completed in March, and semiannual sampling events for both Appendix III parameters and Appendix IV parameters were completed in June and October. During the March and June 2022 assessment monitoring events, no statistically significant levels (SSLs) were observed. However, concentration of Appendix III parameters remained above background values (Geosyntec 2022). Thus, the unit remained in assessment monitoring. The results of the October 2022 assessment event are documented in this report.

The monitoring data were submitted to Groundwater Stats Consulting, LLC for statistical analysis. GWPSs were reestablished for the Appendix IV parameters. Confidence intervals were calculated for Appendix IV parameters at the compliance wells to assess whether SSLs of Appendix IV parameters were present at the GWPS. No SSLs were identified during the October 2022 event. However, concentrations of Appendix III parameters remained above background. Thus, the unit will remain in assessment monitoring. Certification of the selected statistical methods by a qualified professional engineer is documented in Attachment A.



2. BOTTOM ASH POND EVALUATION

2.1 Data Validation and QA/QC

During the October 2022 assessment monitoring event, one set of samples was collected for analysis from each background and compliance well. Samples from October 2022 were analyzed for all Appendix III and Appendix IV parameters. A summary of data collected during this assessment monitoring event may be found in Table 1.

Chemical analysis was completed by an analytical laboratory certified by the National Environmental Laboratory Accreditation Program. Quality assurance and quality control (QA/QC) samples completed by the analytical laboratory included the use of laboratory reagent blanks, continuing calibration verification samples, and laboratory fortified blanks.

A data quality review was completed to assess whether the data met the objectives outlined in TCEQ Draft Technical Guidance No. 32 related to groundwater sampling and analysis (TCEQ 2020). As noted in the review memorandum (Attachment B), the data were determined usable for supporting project objectives. The analytical data were imported into a Microsoft Access database, where checks were completed to assess the accuracy of sample location identification and analyte identification. Where necessary, unit conversions were applied to standardize reported units across all sampling events. Exported data files were created for use with the SanitasTM v.9.6.36 statistics software. The export file was checked against the analytical data for transcription errors and completeness.

2.2 Statistical Analysis

Statistical analyses for the PBAP were conducted in accordance with the October 2020 Statistical Analysis Plan (Geosyntec 2020), except where noted below. Time series plots and results for all completed statistical tests are provided in Attachment C.

The data obtained in October 2022 were screened for potential outliers. The results for fluoride at background well AD-1 and mercury at background well AD-17 were identified as low outliers. However, these results were estimated results under the reporting limit (practical quantitation limit [PQL]) but above the method detection limit (MDL)—that is, "J-flagged" data—and were retained in the data set.

2.2.1 Establishment of GWPSs

A GWPS was established for each Appendix IV parameter in accordance with § 352.951(b) and the Statistical Analysis Plan (Geosyntec 2020). The established GWPS was set to whichever was greater of the background concentration and the maximum contaminant level for each Appendix IV parameter. To determine background concentrations, an upper tolerance limit was calculated using data that were pooled from the background wells collected during the background monitoring and assessment monitoring events. Tolerance limits were calculated parametrically with 95% coverage and 95% confidence for barium, beryllium, chromium, and combined radium. Nonparametric tolerance limits were calculated for arsenic, cadmium, cobalt, fluoride, lithium, and selenium, due to apparent nonnormal distributions, and for antimony, lead, mercury, molybdenum,



and thallium, due to a high nondetect frequency. Upper tolerance limits and the final GWPSs are summarized in Table 2.

2.2.2 Evaluation of Potential Appendix IV SSLs

A confidence interval was constructed for each Appendix IV parameter at each compliance well. Confidence limits were generally calculated parametrically ($\alpha = 0.01$), but nonparametric confidence limits were calculated in some cases (e.g., when the data did not appear to be normally distributed or when the nondetect frequency was too high). An SSL was concluded if the lower confidence limit was above the GWPS (i.e., if the entire confidence interval was above the GWPS). Calculated confidence limits are shown in Attachment C.

No SSLs were identified at the PBAP.

2.2.3 Establishment of Appendix III Prediction Limits

Upper prediction limits (UPLs) were previously established for all Appendix III parameters following the background monitoring period (Geosyntec 2018). Intrawell tests were used to evaluate potential SSIs for calcium, chloride, fluoride, sulfate, and total dissolved solids (TDS). Interwell tests were used to evaluate potential SSIs for boron and pH. Interwell and intrawell prediction limits are updated periodically during the assessment monitoring period as sufficient data become available.

Mann-Whitney tests (Wilcoxon rank-sum tests) were performed to determine whether the newer data are affected by a release from the PBAP. Because the interwell Appendix III limits and the Appendix IV GWPSs are based on data from upgradient wells, which were not expected to have been impacted by a release, these tests were used for intrawell Appendix III tests only. Mann-Whitney tests were used to compare the medians of historical data (May 2016–May 2020) with the new compliance samples (June 2020–June 2022) for calcium, chloride, fluoride, sulfate, and TDS. Results were evaluated to determine whether the medians of the two groups were similar at the 99% confidence level. Where no significant difference was found, the new compliance data were added to the background data set. Where a statistically significant difference was found between the medians of the two groups, the data were reviewed to evaluate the cause of the difference and to determine whether adding newer data to the background data set, replacing the background data set with the newer data, or continuing to use the existing background data set was most appropriate. If the differences appeared to have been caused by a release, then the previous background data set would have been used as before.

The complete Mann-Whitney test results and a summary of the significant findings can be found in Attachment C. Statistically significant differences were found between the two groups for chloride, fluoride, and sulfate at select wells. However, the recent data were mostly within range of historic concentrations. Thus, the background data sets were updated to include all available data through June 2022.

Prediction limits for the interwell tests were calculated using data collected through the October 2022 assessment monitoring event. New background well data were tested for outliers before being added to the background data set. Background well data were also evaluated for statistically significant trends using the Sen's Slope/Mann-Kendall trend test, and the results are included in



Attachment C. The boron and pH prediction limits were calculated using a one-of-two retesting procedure, as during detection monitoring.

After the revised background set was established, a parametric or nonparametric analysis was selected based on the distribution of the data and the frequency of nondetect data. Estimated results under the reporting limit (i.e., PQL) but above the MDL (i.e., "J-flagged" data) were considered detections and the estimated results were used in the statistical analyses. Nonparametric analyses were selected for data sets with at least 50% nondetect data or data sets that could not be normalized. Parametric analyses were selected for data sets (either transformed or untransformed) that passed the Shapiro-Wilk/Shapiro-Francía test for normality. The Kaplan-Meier nondetect adjustment was applied to data sets with between 15% and 50% nondetect data. For data sets with fewer than 15% nondetect data, nondetect data were replaced with one half of the PQL. The selected analysis (i.e., parametric or nonparametric) and transformation (where applicable) for each background data set are shown in Attachment C.

Interwell UPLs were updated for boron and pH, and lower prediction limits (LPLs) were also updated for pH using historical data through October 2022. The updated prediction limits are summarized in Table 3. Intrawell UPLs were updated for calcium, chloride, fluoride, sulfate, and TDS using the historical data through June 2022. The prediction limits were calculated for a one-of-two retesting procedure: If at least one sample in a series of two is not above the UPL (or, in the case of pH, is neither less than the LPL nor greater than the UPL), then it can be concluded that an SSI has not occurred. In practice, where the initial result is not above the UPL (or, in the case of pH, is neither under the LPL nor above the UPL), a second sample will not be collected. The retesting procedures allowed for an acceptably high statistical power that could detect changes at compliance wells for constituents evaluated using intrawell prediction limits.

2.2.4 Evaluation of Potential Appendix III SSIs

A review of the Appendix III results was also completed to assess whether concentrations of Appendix III parameters at the compliance wells were above background concentrations. Data collected during the October 2022 assessment monitoring event from each compliance well were compared to previously established prediction limits to evaluate results above background values. The results from this event and the prediction limits are summarized in Table 3. The following were detected above the UPLs, or, in the case of pH, below the LPLs:

- Boron concentrations were detected above the interwell UPL of 0.801 milligrams per liter (mg/L) at AD-8 (1.08 mg/L).
- The reported pH values were below the interwell LPL of 4.8 standard units (SU) at AD-15 (4.4 SU).

While the prediction limits were calculated for a one-of-two retesting procedure, SSIs were conservatively assumed if the initial (October 2022) sample was above the UPL or below the LPL. Based on these results, concentrations of boron appear to be above background concentrations, and pH values appear to be below background values. Therefore, the unit will remain in assessment monitoring.



2.3 Conclusions

A semiannual assessment monitoring event was conducted in accordance with the CCR Rule. The laboratory and field data were reviewed prior to statistical analysis, with no QA/QC issues identified that prevented data usage. No outliers were removed from the October 2022 data. GWPSs were reestablished for the Appendix IV parameters. A confidence interval was constructed at each compliance well for each Appendix IV parameter; SSLs were concluded if the entire confidence interval was above the GWPS. No SSLs were identified.

The interwell prediction limits for boron and pH and the intrawell prediction limits for calcium, chloride, fluoride, sulfate, and TDS were updated to incorporate more recent data. Appendix III results were compared to established prediction limits, with values above the UPL detected for boron and with results below the LPL for pH.

Based on this evaluation, the PBAP CCR unit will remain in assessment monitoring.



3. REFERENCES

- Geosyntec. 2018. Statistical Analysis Summary Primary Bottom Ash Pond, J. Robert Welsh Plant, Pittsburg, Texas. Geosyntec Consultants, Inc. January.
- Geosyntec. 2022. Statistical Analysis Summary Primary Bottom Ash Pond, J. Robert Welsh Plant. Geosyntec Consultants, Inc. October.
- TCEQ. 2020. Draft Technical Guidance No. 32. Coal Combustion Residuals Groundwater Monitoring and Corrective Action. Texas Commission on Environmental Quality. May.



Table 1. Groundwater Data Summary Statistical Analysis Summary Welsh Plant - Primary Bottom Ash Pond

| Well ID | | AD-1 | AD-5 | AD-8 | AD-9 | AD-15 | AD-17 |
|------------------------|-------|------------|------------|------------|------------|------------|------------|
| Well Classification | | Background | Background | Compliance | Compliance | Compliance | Background |
| Parameter | Unit | 11/1/2022 | 11/1/2022 | 10/31/2022 | 10/31/2022 | 10/31/2022 | 11/1/2022 |
| Antimony | μg/L | 0.03 J1 | 0.1 U1 | 0.1 U1 | 0.1 U1 | 0.1 U1 | 0.02 J1 |
| Arsenic | μg/L | 0.19 | 2.77 | 0.25 | 0.21 | 2.55 | 0.62 |
| Barium | μg/L | 78.9 | 63.2 | 27.8 | 52.0 | 75.3 | 12.7 |
| Beryllium | μg/L | 0.620 | 0.046 J1 | 0.01 J1 | 1.14 | 0.187 | 0.073 |
| Boron | mg/L | 0.586 | 0.041 J1 | 1.08 | 0.109 | 0.093 | 0.097 |
| Cadmium | μg/L | 0.024 | 0.02 U1 | 0.038 | 0.199 | 0.015 J1 | 0.019 J1 |
| Calcium | mg/L | 7.87 | 38.6 | 22.3 | 12.4 | 2.57 | 165 |
| Chloride | mg/L | 2.70 | 16.9 | 20.9 | 16.8 | 26.2 | 40.3 |
| Chromium | μg/L | 0.35 | 0.43 | 0.31 | 1.23 | 0.41 | 0.96 |
| Cobalt | μg/L | 1.17 | 15.1 | 8.92 | 17.1 | 2.94 | 41.9 |
| Combined Radium | pCi/L | 2.01 | 3.88 | 1.1 | 1.06 | 1.67 | 3.81 |
| Fluoride | mg/L | 0.14 | 0.16 | 0.93 | 0.17 | 0.07 | 0.09 J1 |
| Lead | μg/L | 0.13 J1 | 0.2 U1 | 0.2 U1 | 0.08 J1 | 0.12 J1 | 0.27 |
| Lithium | mg/L | 0.00818 | 0.174 | 0.0559 | 0.231 | 0.00235 | 0.278 |
| Mercury | μg/L | 0.002 J1 | 0.005 U1 | 0.005 U1 | 0.004 J1 | 0.005 U1 | 0.004 J1 |
| Molybdenum | μg/L | 0.5 U1 | 0.5 U1 | 0.2 J1 | 0.5 U1 | 0.5 U1 | 0.5 U1 |
| Selenium | μg/L | 5.51 | 0.5 U1 | 0.5 U1 | 0.27 J1 | 0.38 J1 | 0.5 U1 |
| Sulfate | mg/L | 61.3 | 185 | 141 | 122 | 4.62 | 1,110 |
| Thallium | μg/L | 0.2 U1 | 0.2 U1 | 0.15 J1 | 0.22 | 0.05 J1 | 0.2 U1 |
| Total Dissolved Solids | mg/L | 170 | 380 | 280 | 300 | 90 | 1,690 |
| рН | SU | 4.75 | 5.87 | 6.09 | 5.03 | 4.39 | 5.68 |

Notes:

μg/L: Micrograms per Liter mg/L: Milligrams per Liter pCi/L: Picocuries per Liter

SU: Standard Unit

U1: Not detected at or above method detection limit (MDL). For statistical analysis, parameters which were not detected were replaced with the reporting limit.

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

Table 2. Appendix IV Groundwater Protection Standards Statistical Analysis Summary

Welsh Plant - Primary Bottom Ash Pond

| Constituent Name | MCL | Calculated UTL | GWPS |
|--------------------------------|---------|----------------|---------|
| Antimony, Total (mg/L) | 0.00600 | 0.00317 | 0.00600 |
| Arsenic, Total (mg/L) | 0.0100 | 0.00628 | 0.0100 |
| Barium, Total (mg/L) | 2.00 | 0.564 | 2.00 |
| Beryllium, Total (mg/L) | 0.00400 | 0.00112 | 0.00400 |
| Cadmium, Total (mg/L) | 0.00500 | 0.00400 | 0.00500 |
| Chromium, Total (mg/L) | 0.100 | 0.00233 | 0.100 |
| Cobalt, Total (mg/L) | n/a | 0.0748 | 0.0748 |
| Combined Radium, Total (pCi/L) | 5.00 | 4.61 | 5.00 |
| Fluoride, Total (mg/L) | 4.00 | 0.583 | 4.00 |
| Lead, Total (mg/L) | n/a | 0.00338 | 0.00338 |
| Lithium, Total (mg/L) | n/a | 0.394 | 0.394 |
| Mercury, Total (mg/L) | 0.00200 | 0.0000330 | 0.00200 |
| Molybdenum, Total (mg/L) | n/a | 0.00243 | 0.00243 |
| Selenium, Total (mg/L) | 0.0500 | 0.00835 | 0.0500 |
| Thallium, Total (mg/L) | 0.00200 | 0.00125 | 0.00200 |

Notes:

MCL: Maximum Contaminant Level GWPS: Groundwater Protection Standard

mg/L: Milligrams per Liter pCi/L: Picocuries per Liter

Calculated UTL (Upper Tolerance Limit) represents site-specific background values.

Grey cells indicate the GWPS is based on the calculated UTL. Either the UTL is higher than the MCL or an MCL does not exist.

Table 3. Appendix III Data Summary Statistical Analysis Summary Welsh - Primary Bottom Ash Pond

| Analyte Unit | | Description | AD-8 | AD-9 | AD-15 |
|------------------------|-------|--------------------------------------|------------|------------|------------|
| Analyte | Oiiit | Description | 10/31/2022 | 10/31/2022 | 10/31/2022 |
| Boron | | Interwell Background Value (UPL) | 0.801 | | |
| DOIOII | mg/L | Analytical Result | 1.08 | 0.109 | 0.093 |
| Calcium | mg/L | Intrawell Background Value (UPL) | 28.1 | 258 | 4.65 |
| Calcium | | Analytical Result | 22.3 | 12.4 | 2.57 |
| Chloride | mg/L | Intrawell Background Value (UPL) | 26.1 | 117 | 36.9 |
| Cilioride | | Analytical Result | 20.9 | 16.8 | 26.2 |
| Fluoride | mg/L | Intrawell Background Value (UPL) | 0.949 | 0.685 | 1.00 |
| | | Analytical Result | 0.93 | 0.17 | 0.07 |
| рН | SU | Interwell Background Value (UPL) 6.9 | | | |
| | | Interwell Background Value (LPL) | 4.8 | | |
| | | Analytical Result | 6.1 | 5.0 | 4.4 |
| Sulfate | mg/L | Intrawell Background Value (UPL) | 204 | 2145 | 30.5 |
| | | Analytical Result | 141 | 122 | 4.62 |
| Total Dissolved Solids | mg/L | Intrawell Background Value (UPL) | 489 | 2690 | 261 |
| | | Analytical Result | 280 | 300 | 90 |

Notes:

UPL: Upper prediction limit LPL: Lower prediction limit mg/L: Milligrams per Liter

SU: Standard Units

Bold values exceed the background value.

Background values are shaded gray.

ATTACHMENT A Certification by Qualified Professional Engineer

Certification by Qualified Professional Engineer

I certify that selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the Mountaineer Bottom Ash Pond CCR management area and that the requirements of 40 CFR 257.93(f) have been met.

| David Anthony Mil | STATE OF TELO | STATE OF TELL | | |
|------------------------|---------------------------|-----------------------------|--------|--|
| Printed Name of Licens | sed Professional Engineer | DAVID ANTHONY MILLER 112498 | 111111 | |
| David Anth | ony Miller | SO/ONAL ENGINEER | | |
| Signature | | | | |
| 112498 | Texas | 03.20.2023 | | |
| License Number | Licensing State | Date | | |

ATTACHMENT B Data Quality Review Memorandum



500 West Wilson Bridge Road, Suite 250 Worthington, Ohio 43085 PH 614.468.0415 FAX 614.468.0416 www.geosyntec.com

Memorandum

Date: January 18, 2023

To: David Miller (AEP)

Copies to: Jill Parker-Witt (AEP)

From: Allison Kreinberg (Geosyntec)

Subject: Data Quality Review – Welsh Power Plant

October-November 2022 Sampling Event

This memorandum summarizes the findings of a data quality review for groundwater samples collected at the Welsh Power Plant, located in Pittsburg, Texas in October and November 2022. The groundwater samples were collected to comply with the Texas Commission on Environmental Quality's (TCEQ's) regulations regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Title 30 Chapter 352, "CCR Rule"). 40 CFR 257 Appendix III and IV constituents were analyzed.

The following sample data groups (SDGs) were associated with the twenty-one (21) groundwater samples collected during the October and November 2022 sampling event and are reviewed in this memorandum:

- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 223477
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 223481
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 223483
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 223484
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 223509
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 223510
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 223511
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 223515

Data Quality Review – Welsh November 2022 Data January 18, 2023 Page 2

The data included in these SDGs were reviewed to assess if they met the objectives outlined in TCEQ Draft Technical Guideline No. 32¹ prior to submittal of this data to TCEQ.

The following data quality issues were identified:

- As reported in SDG 223509, chromium and cobalt were detected in the equipment blank sample "EQUIPMENT BLANK BASP" collected on 11/1/2022. The detected chromium concentration in the equipment blank (0.53 μg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results. The detected cobalt concentration in the equipment blank (0.145 μg/L) was more than 10% of the detected value in sample AD-4C (0.757 μg/L), which could result in high bias in the AD-4C cobalt results.
- As reported in SDG 222510, barium, boron, chromium, cobalt, lithium, and molybdenum were detected in the equipment blank sample "EB Background" collected on 11/1/2022. The detected boron concentration in the equipment blank (0.01 mg/L) was more than 10% of the detected value in samples AD-5 (0.041 mg/L) and AD-17 (0.097 mg/L), which could result in high bias in the AD-5 and AD-17 boron results. Likewise, the detected chromium concentration in the equipment blank (0.52 μg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results. The detected cobalt concentration in the equipment blank (0.161 μg/L) was more than 10% of the detected value in samples AD-1 (1.17 μg/L) and "Dup-Background" (1.17 μg/L), which could result in high bias in the AD-1 and duplicate cobalt results. All other equipment blank detections were less than 10% of the detected values in groundwater and would not result in a high bias.
- As reported in SDG 223511, chromium, cobalt, lithium, and molybdenum were detected in the equipment blank sample "EQUIPMENT BLANK PBAP" collected on 10/31/2022. The detected chromium concentration in the equipment blank (0.53 μg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results. The estimated molybdenum concentration in the equipment blank (0.2 μg/L) was more than 10% of the estimated value in sample AD-8 (0.2 μg/L), which could result in high bias in the AD-8 molybdenum results. All other equipment blank detections were less than 10% of the detected values in groundwater and would not result in a high bias.

-

¹ TCEQ. Topic: Coal Combustion Residuals (CCR) Groundwater Monitoring and Corrective Action: Technical Guidance No. 32. May 2020.

Data Quality Review – Welsh November 2022 Data January 18, 2023 Page 3

- As reported in SDG 223513, chromium, cobalt, lithium, and molybdenum were detected in the equipment blank sample "EQUIPMENT BLANK LF" collected on 10/31/2022. The detected chromium concentration in the equipment blank (0.7 μg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results. The estimated molybdenum concentration in the equipment blank (0.3 μg/L) was more than 10% of the estimated value in samples AD-13 (0.2 μg/L) and AD-14 (0.4 μg/L), which could result in high bias in the AD-13 and AD-14 molybdenum results. All other equipment blank detections were less than 10% of the detected values in groundwater and would not result in a high bias.
- As reported in SDG 223510, the relative percent difference (RPD) for chromium concentrations from parent sample "AD-1" and duplicate sample "Dup Background" was 41%. The AD-1 chromium results should be considered estimated.
- As reported in SDG 223510, the RPD for radium-226 (77.1%) in the laboratory duplicate was above the acceptable limit of 25%. The "AD-1" radium-226 results should be considered estimated.
- As reported in SDG 223509, the matrix spike (MS) recovery (47.8%) and matrix spike duplicate (MSD) recovery (35.3%) for lithium were below the acceptable range of 75-125%. The associated sample (AD-3) was flagged M1: the associated MS or MSD recovery was outside acceptance limits. The AD-3 lithium results should be considered estimated.

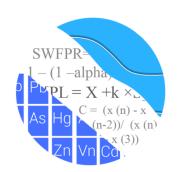
Based on these findings, the majority of the data reported in these SDGs are considered accurate and complete. Although the QC failures mentioned above will result in some limitations of data use since the affected results are considered estimated or have elevated reporting limits, the data are considered usable for supporting project objectives.

ATTACHMENT C Statistical Analysis Output

GROUNDWATER STATS CONSULTING

February 9, 2023

Geosyntec Consultants Attn: Ms. Allison Kreinberg 500 W. Wilson Bridge Road, Suite 250 Worthington, OH 43085



Re: Welsh PBAP - Assessment Monitoring Event & Background Update 2022

Dear Ms. Kreinberg,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the statistical analysis and background update of 2022 groundwater data for American Electric Power Inc.'s Welsh PBAP. The analysis complies with the Texas Commission of Environmental Quality Rule 30 TAC 352 as well as with the United States Environmental Protection Agency (USEPA) Unified Guidance (2009).

Sampling began at the site for the Coal Combustion Residuals (CCR) program in 2016. The monitoring well network, as provided by Geosyntec Consultants, consists of the following:

o **Upgradient wells:** AD-1, AD-5, and AD-17

o **Downgradient wells:** AD-8, AD-9, and AD-15

Data were sent electronically, and the statistical analysis was reviewed by Andrew Collins, Project Manager of Groundwater Stats Consulting. The analysis was conducted according to the Statistical Analysis Plan prepared by GSC and approved by Dr. Cameron, PhD Statistician with MacStat Consulting, primary author of the USEPA Unified Guidance, and Senior Advisor to GSC.

The CCR program consists of the following constituents:

 Appendix III (Detection Monitoring) - boron, calcium, chloride, fluoride, pH, sulfate, and TDS Appendix IV (Assessment Monitoring) – antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, combined radium 226 + 228, fluoride, lead, lithium, mercury, molybdenum, selenium, and thallium

Time series plots for Appendix III and IV parameters are provided for all wells and constituents, and are used to evaluate concentrations over the entire record (Figure A). Additionally, box plots are included for all constituents at upgradient and downgradient wells (Figure B). The time series plots are used to initially screen for suspected outliers and trends, while the box plots provide visual representation of variation within individual wells and between all wells. Values flagged as outliers may be seen in the Outlier Summary following this letter (Figure C) and are plotted in a lighter font and disconnected symbol on the time series graphs.

Summary of Statistical Methods

- 1) Intrawell prediction limits, combined with a 1-of-2 resample plan for calcium, chloride, fluoride, sulfate, and TDS
- 2) Interwell prediction limits combined with a 1-of-2 resample plan for boron and pH

In the event of an initial exceedance of compliance well data, the 1-of-2 resample plan allows for collection of an additional sample to determine whether the initial exceedance is confirmed. When the resample confirms the initial exceedance, a statistically significant increase (SSI) is identified and further research would be required to identify the cause of the exceedance (i.e., impact from the site, natural variation, or an off-site source). If the resample falls within the statistical limit, the initial exceedance is considered to be a false positive result and, therefore, no further action is necessary.

Parametric prediction limits are utilized when the screened historical data follow a normal or transformed-normal distribution. When data cannot be normalized or the majority of data are non-detects, a nonparametric test is utilized. The distribution of data is tested using the Shapiro-Wilk/Shapiro-Francia test for normality. After testing for normality and performing any adjustments as discussed below (US EPA, 2009), data are analyzed using either parametric or non-parametric prediction limits.

- No statistical analyses are required on wells and analytes containing 100% nondetects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain <15% non-detects, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for non-detects is the most recent practical quantification limit (PQL) as reported by the laboratory.

- When data contain between 15-50% non-detects, the Kaplan-Meier non-detect adjustment is applied to the background data. This technique adjusts the mean and standard deviation of the historical concentrations to account for concentrations below the reporting limit.
- Nonparametric prediction limits are used on data containing greater than 50% non-detects.

Natural systems continuously evolve due to physical changes made to the environment. Examples include capping a landfill, paving areas near a well, or lining a drainage channel to prevent erosion. Periodic updating of background statistical limits will be necessary to accommodate these types of changes. In the interwell case, newer data may be included in background during each sample event after screening the upgradient well data for any new outliers. Data will also be periodically evaluated for statistically significant trends, and earlier data may be deselected prior to construction of statistical limits so that limits represent-day conditions.

In the intrawell case, data for all wells and constituents are re-evaluated when a minimum of 4 new data points are available to determine whether earlier concentrations are representative of present-day groundwater quality. In some cases, the earlier portion of data are deselected prior to construction of limits in order to provide sensitive limits that will rapidly detect changes in groundwater quality. Even though the data are excluded from the calculation, the values will continue to be reported and shown in tables and graphs.

Summary of Background Screening Conducted in December 2017

Outlier Evaluation

Time series plots were used to identify suspected outliers, or extreme values that would result in limits that are not conservative from a regulatory perspective, in proposed background data. Suspected outliers at all wells for Appendix III and Appendix IV parameters were formally tested using Tukey's box plot method and, when identified, flagged in the computer database with "o" and deselected prior to construction of statistical limits.

Tukey's outlier test noted a few outliers that were flagged as outliers and a summary of those values was submitted with the screening. The outliers identified by Tukey's test for TDS in well AD-15, however, were not flagged as these values were not unusual to the data set at the time and were similar to observations reported in neighboring wells. However, the measured concentrations of most metals for September 30, 2016 at well

AD-15 are high compared to the rest of the observations, which suggests a possible laboratory problem. These values were flagged as outliers as they do not appear to represent the population at this well. Flagged values may be seen in a lighter font on the time series graphs. Note that reporting limits have recently decreased; therefore, no non-detect substitution was made for the data. During the next background update, the more historical and higher reporting limits may be deselected providing there are sufficient samples to construct statistical limits.

<u>Seasonality</u>

No true seasonal patterns were observed on the time series plots for any of the detected data; therefore, no deseasonalizing adjustments were made to the data. When seasonal patterns are observed, data may be deseasonalized so that the resulting limits will correctly account for the seasonality as a predictable pattern rather than random variation or a release. It was noted that for each constituent evaluated, the highest concentrations are reported in the upgradient wells.

Trend Test Evaluation

While trends may be visual, a quantification of the trend and its significance is needed. The Sen's Slope/Mann Kendall trend test was used to evaluate all data at each well to identify statistically significant increasing or decreasing trends. In the absence of suspected contamination, significant trending data are typically not included as part of the background data used for construction of prediction limits. This step serves to eliminate the trend and, thus, reduce variation in background. When statistically significant decreasing trends are present, earlier data are evaluated to determine whether earlier concentration levels are significantly different than current reported concentrations and will be deselected as necessary. When the historical records of data are truncated for the reasons above, a summary report will be provided to show the date ranges used in construction of the statistical limits.

The results of the trend analyses showed a couple statistically significant decreasing trends that were relatively low in magnitude when compared to average concentrations; therefore, no adjustments were required.

<u>Appendix III – Determination of Spatial Variation</u>

The Analysis of Variance (ANOVA) was used to statistically evaluate differences in average concentrations among upgradient wells, which assists in identifying the most appropriate statistical approach. Interwell tests, which compare downgradient well data to statistical

limits constructed from pooled upgradient well data, are appropriate when average concentrations are similar across upgradient wells. Intrawell tests, which compare compliance data from a single well to screened historical data within the same well, are appropriate when upgradient wells exhibit spatial variation; when statistical limits constructed from upgradient wells would not be conservative from a regulatory perspective; and when downgradient water quality is unimpacted compared to upgradient water quality for the same parameter.

As a result of the screening, intrawell prediction limits were determined to be most appropriate for calcium, fluoride, sulfate, and TDS while interwell prediction limits were appropriate for boron and pH. A summary of those findings was included with the report.

Appendix III Background Update Summaries

December 2020

Prior to updating background data for the 2020 analysis, data were evaluated using Tukey's outlier test and visual screening for updating background limits through May 2020 on all wells for parameters that use intrawell prediction limits (calcium, chloride, fluoride, sulfate, and TDS) and through October 2020 on upgradient wells for parameters that use interwell prediction limits (boron and pH). Tukey's test did not identify any new outliers except for calcium at upgradient well AD-17. This value was not flagged as an outlier as the value appears similar to the surrounding population.

For constituents requiring intrawell prediction limits, the Mann-Whitney (Wilcoxon Rank Sum) test was used to compare the medians of historical data through February 2019 to the new compliance samples at each well through May 2020 to evaluate whether the groups are statistically different at the 99% confidence level, in which case background data may not be updated with more recent compliance data. Statistically significant differences were found for chloride in upgradient well AD-1 and downgradient well AD-8, as well as all fluoride in all upgradient wells and downgradient well AD-15. All well/constituent pairs for parameters using intrawell prediction limits were updated with compliance samples to use all historical data through May 2020, with the exception of chloride in downgradient well AD-8 and fluoride in downgradient well AD-17. These well/constituent pairs were truncated to use measurements from January 2017 through May 2020.

The Sen's Slope/Mann Kendall trend test was used to evaluate data at upgradient wells for boron and pH to identify statistically significant increasing or decreasing trends. The results of the trend analyses showed a statistically significant increasing trend for boron

in upgradient well AD-1. However, the magnitude of the trend was low relative to the average concentrations in this well. Therefore, no adjustment was required at this time. All well/constituent pairs for parameters using interwell prediction limits were updated to use all historical data through November 2022. A summary of the background update results was included in the December 2020 report.

February 2022

Outlier Analysis

Tukey's outlier test and visual screening were used to re-evaluate data through October 2021 at all upgradient wells for parameters utilizing interwell prediction limits (boron and pH). Tukey's outlier test did not identify any values as potential outliers; therefore, no new values were flagged as outliers and no changes were made to previously flagged outliers for these constituents.

For parameters which use intrawell prediction limits (calcium, chloride, fluoride, sulfate, and TDS), values were not re-evaluated for new outliers as these records had insufficient samples for updating background during this evaluation period. However, a value of 9 mg/L for chloride in upgradient well AD-1 was flagged during this analysis in order to be consistent with the shared upgradient well network among Welsh sites.

Intrawell – Prediction Limits

Intrawell prediction limits, combined with a 1-of-2 resample plan, are constructed using historical data through May 2020 (except for chloride at well AD-8 and fluoride at well AD-17 as discussed above) for calcium, chloride, fluoride, sulfate, and TDS. Background data sets for all parameters utilizing intrawell prediction limits will be updated after the Fall 2022 sample event when a minimum of 4 compliance samples are available.

Interwell – Trend Test Evaluation

The Sen's Slope/Mann Kendall trend test was used to evaluate data at upgradient wells for boron and pH to identify statistically significant increasing or decreasing trends. The results of the trend analyses showed a statistically significant increasing trend for boron in upgradient well AD-1 as well as a decreasing trend for pH in upgradient well AD-17. However, the magnitude of the trends was low relative to the average concentrations in this well; therefore, no adjustment was required at the time.

<u>Interwell – Prediction Limits</u>

Interwell prediction limits, combined with a 1-of-2 resample plan, were updated using all available data from upgradient wells through October 2021 for boron and pH. Interwell prediction limits pool upgradient well data to establish a background limit for an individual constituent.

February 2023

Outlier Analysis

Prior to updating background for the 2023 analysis, data were evaluated using Tukey's outlier test and visual screening for updating background limits through June 2022 on all wells for constituents that use intrawell prediction limits (calcium, chloride, fluoride, sulfate, and TDS) and through November 2022 on pooled upgradient well data from upgradient wells for constituents that use interwell prediction limits (boron and pH). Results of the outlier tests follows this report (Figure C).

Tukey's outlier test on all wells for calcium, chloride, fluoride, sulfate, and TDS identified the highest values for calcium and TDS among downgradient well AD-15 that were flagged in previous analyses. Most of previously flagged outliers were confirmed through Tukey's outlier test and visual screening; therefore, no new values were flagged. Note that the previously flagged concentration of 9.0 mg/L for chloride at upgradient well AD-1 was unflagged during this analysis. While this this measurement was previously flagged as it was slightly different than remaining measurements within this well, after further evaluation it was determined that all low-level chloride concentrations within the record represent naturally occurring groundwater quality upgradient of the site. This step resulted in an intrawell prediction limit of 6.989 mg/L compared to the previously established limit of 5.876 mg/L.

Tukey's outlier test on pooled upgradient well data identified both high and low values for fluoride as outliers, but these values were also similar to remaining observations within their respective records; therefore, the values were not flagged in the database. No additional values were flagged as outliers. A list of all flagged values follows this report (Figure C).

<u>Intrawell – Mann-Whitney Test</u>

For pH which is tested using intrawell prediction limits, the Mann-Whitney (Wilcoxon Rank Sum) test was used to compare the medians of historical data through May 2020 to the

new compliance samples at each well through June 2022 to evaluate whether the groups are statistically different at the 99% confidence level, in which case background data may be updated with compliance data (Figure D). Statistically significant differences were identified for the following well/constituent pairs:

• Chloride: AD-8

• Fluoride: AD-5 (upgradient) and AD-8

• Sulfate: AD-1 (upgradient)

AD-8 and sulfate at upgradient well AD-1, the majority of compliance observations were within the range of historic concentrations within each respective well and were below historic concentrations identified upgradient of the facility; therefore, the record for these well/constituent pair were updated. Regarding cases with statistically significant decreases in medians, the records for chloride at AD-8 and fluoride at upgradient well AD-5 were updated because compliance data were within the range of historic concentrations and result in statistical limits within the range of or slightly higher than those reported historically. Therefore, all data sets were updated with compliance samples through June 2022.

Intrawell – Prediction Limits

Intrawell prediction limits, combined with a 1-of-2 resample plan, are constructed using historical data through June 2022 for calcium, chloride, fluoride sulfate, and TDS. A summary of the limits follows this letter (Figure E). No comparison of the October/November 2022 observation was performed in this analysis.

Interwell – Trend Test Evaluation

The Sen's Slope/Mann Kendall trend test was used to evaluate data at upgradient wells for boron and pH to identify statistically significant increasing or decreasing trends at the 99% confidence level (Figure F). Statistically significant trends were identified for the following well/constituent pairs:

Increasing

• Boron: AD-1

Decreasing

• pH: AD-17

However, the magnitude of the trends was low relative to the average concentrations in this well; therefore, no adjustments were required at this time.

<u>Interwell – Prediction Limits</u>

Interwell prediction limits, combined with a 1-of-2 resample plan, were updated using all available data from upgradient wells through October/November 2022 for boron and pH (Figure G). Interwell prediction limits pool upgradient well data to establish a background limit for an individual constituent. A summary table of the updated limits may be found following this letter in the Prediction Limit Summary Tables. No comparison of the October/November 2022 compliance observations was performed in this analysis.

Evaluation of Appendix IV Parameters – October/November 2022

Prior to evaluating Appendix IV parameters, upgradient well data are screened through both visual screening and Tukey's outlier test for potential outliers and extreme trending patterns that would lead to artificially elevated statistical limits. All flagged values may be seen on the Outlier Summary following this letter (Figure C) and no changes to previously flagged outliers for Appendix IV parameters were made.

For the current analysis, Tukey's outlier test on pooled upgradient well data through October/November 2022 identified outliers for chromium, fluoride, lead, and mercury. The values identified by Tukey's test, with the exception of the highest value for chromium at AD-17, were either similar to concentrations upgradient of the facility or were lower than the respective Maximum Contaminant Level (MCL); therefore, these values were not flagged as outliers.

Previously flagged values were confirmed by visual screening and Tukey's outlier test. The highest value for chromium at upgradient well AD-17, molybdenum in upgradient well AD-1, and two highest values for cadmium in upgradient well AD-17 remain flagged in order to maintain statistical limits that are conservative (i.e., lower) from a regulatory perspective.

Additionally, downgradient well data through October/November 2022 were screened through visual screening using time series graphs. Since the downgradient well data are used to construct confidence intervals, a regulatory conservative approach is taken in that values that are marginally high relative to the rest of the data are retained unless there is particular justification for excluding them. No additional outliers among downgradient wells were flagged during this analysis. All flagged values may be seen on the Outlier Summary following this letter (Figure C).

Interwell Upper Tolerance Limits

Upper tolerance limits were used to calculate background limits from pooled upgradient well data through October/November 2022 for Appendix IV parameters (Figure H). For parametric limits a target of 95% confidence and 95% coverage is used. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples.

Groundwater Protection Standards

These background limits were compared to the Maximum Contaminant Levels (MCLs) as shown in the Groundwater Protection Standard (GWPS) table following this letter to determine the highest limit for use as the GWPS in the confidence interval comparisons (Figure I).

Confidence Intervals

Confidence intervals were then constructed using data through October/November 2022 on downgradient wells for each of the Appendix IV parameters and compared to the GWPS, (i.e., the highest limit of the MCL or background limit as discussed above). Only when the entire confidence interval is above a GWPS is the well/constituent pair considered to exceed its respective standard. Complete graphical results of the confidence intervals follow this letter (Figure J). No statistical exceedances were identified.

Thank you for the opportunity to assist you in the statistical analysis of groundwater quality for the Welsh PBAP. If you have any questions or comments, please feel free to contact us.

For Groundwater Stats Consulting,

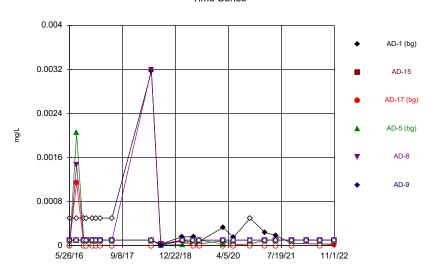
Abdul Diane

Groundwater Analyst

Andrew T. Collins Project Manager

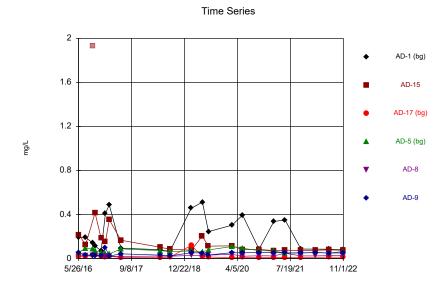
FIGURE A Time Series





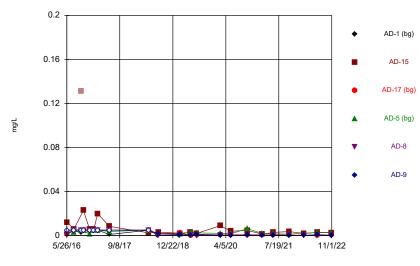
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Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG



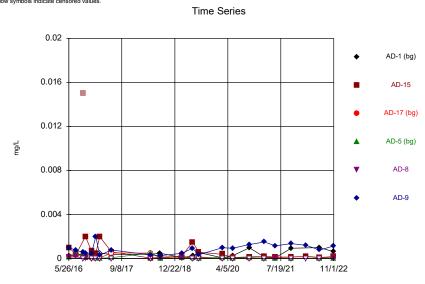
Constituent: Barium, total Analysis Run 2/7/2023 2:21 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Time Series



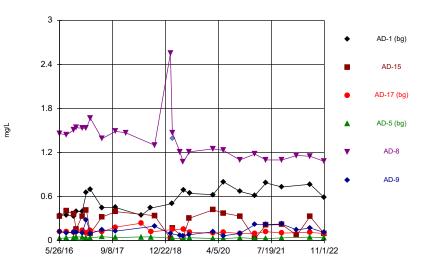
Constituent: Arsenic, total Analysis Run 2/7/2023 2:21 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG Hollow symbols indicate censored values.



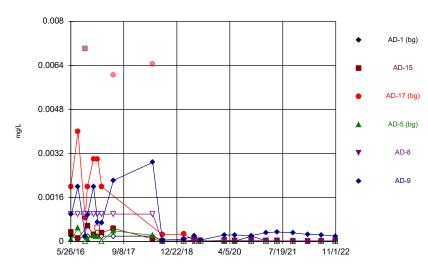
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Welsh PBAP Client: Geosyntec Data: Welsh PBAP





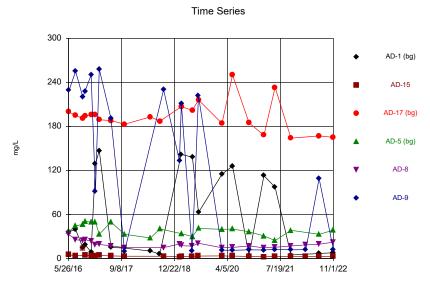
Constituent: Boron, total Analysis Run 2/7/2023 2:22 PM View: Constituents View Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Time Series



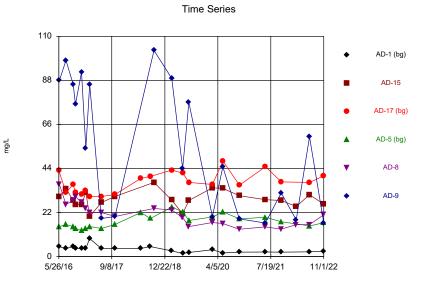
Constituent: Cadmium, total Analysis Run 2/7/2023 2:22 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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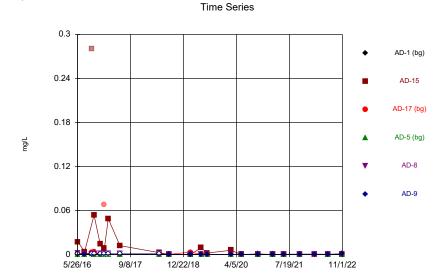


Constituent: Calcium, total Analysis Run 2/7/2023 2:22 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

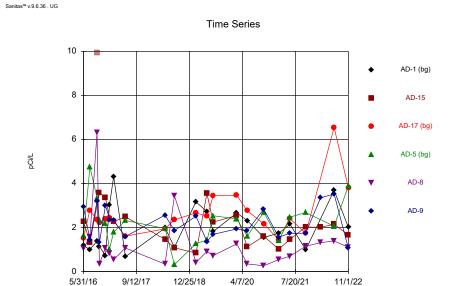
Sanitas™ v.9.6.36 . UG



Constituent: Chloride, total Analysis Run 2/7/2023 2:22 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

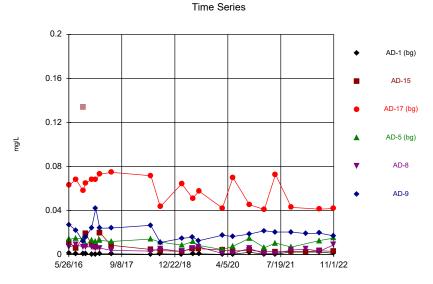


Constituent: Chromium, total Analysis Run 2/7/2023 2:22 PM View: Constituents View Welsh PBAP Client: Geosyntec Data: Welsh PBAP

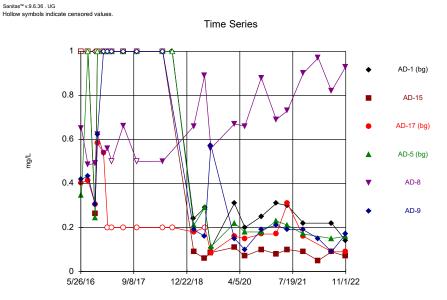


Constituent: Combined Radium 226 + 228 Analysis Run 2/7/2023 2:22 PM View: Constituents View

Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Cobalt, total Analysis Run 2/7/2023 2:22 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

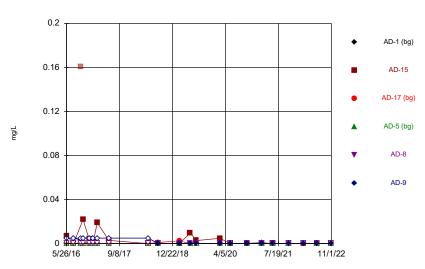


Constituent: Fluoride, total Analysis Run 2/7/2023 2:22 PM View: Constituents View

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

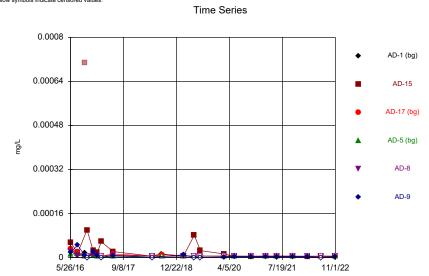
Sanitas™ v.9.6.36 . UG Hollow symbols indicate censored values





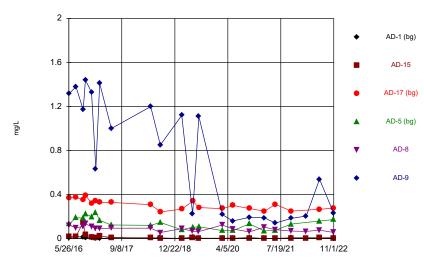
Constituent: Lead, total Analysis Run 2/7/2023 2:22 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG Hollow symbols indicate censored values



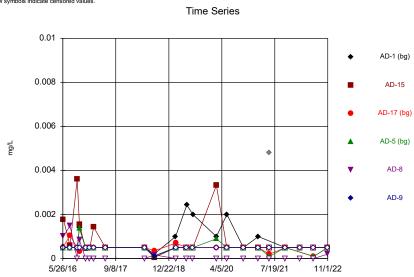
Constituent: Mercury, total Analysis Run 2/7/2023 2:22 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Time Series



Constituent: Lithium, total Analysis Run 2/7/2023 2:22 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

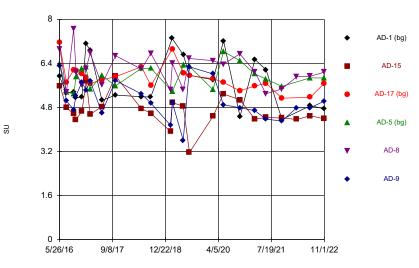
Sanitas™ v.9.6.36 . UG Hollow symbols indicate censored values.



Constituent: Molybdenum, total Analysis Run 2/7/2023 2:22 PM View: Constituents View

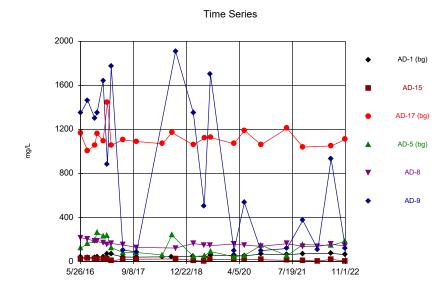
Welsh PBAP Client: Geosyntec Data: Welsh PBAP





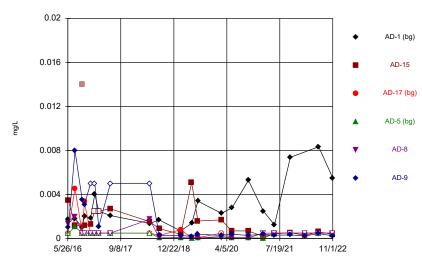
Constituent: pH, field Analysis Run 2/7/2023 2:22 PM View: Constituents View Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG



Constituent: Sulfate, total Analysis Run 2/7/2023 2:22 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP





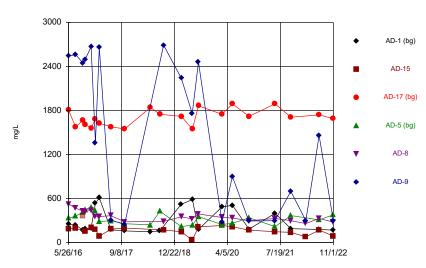
Constituent: Selenium, total Analysis Run 2/7/2023 2:22 PM View: Constituents View Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG Hollow symbols indicate censored values.

Time Series 0.009 AD-1 (bg) 0.0072 AD-15 AD-17 (bg) 0.0054 AD-5 (bg) 0.0036 AD-8 AD-9 0.0018 5/26/16 9/8/17 12/22/18 4/5/20 7/19/21 11/1/22

Constituent: Thallium, total Analysis Run 2/7/2023 2:22 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

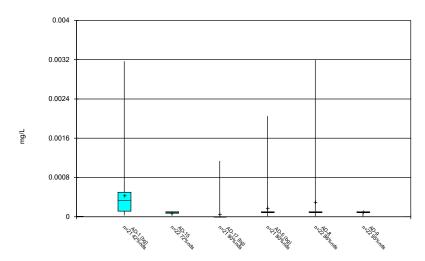
Time Series



Constituent: Total Dissolved Solids Analysis Run 2/7/2023 2:22 PM View: Constituents View Welsh PBAP Client: Geosyntec Data: Welsh PBAP

FIGURE B Box Plots

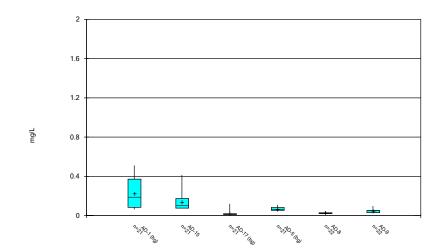




Constituent: Antimony, total Analysis Run 2/7/2023 2:19 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

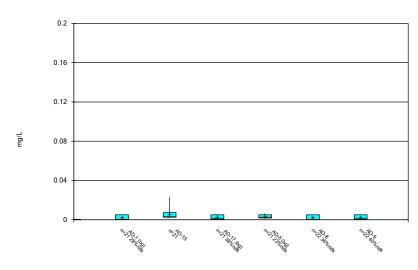
Sanitas™ v.9.6.36 . UG

Box & Whiskers Plot



Constituent: Barium, total Analysis Run 2/7/2023 2:19 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

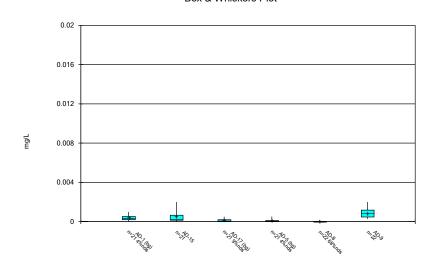
Box & Whiskers Plot



Constituent: Arsenic, total Analysis Run 2/7/2023 2:19 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

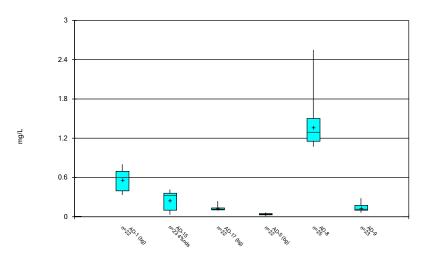
Sanitas™ v.9.6.36 . UG

Box & Whiskers Plot



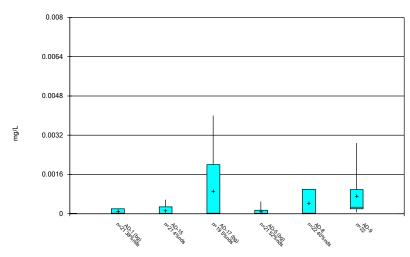
Constituent: Beryllium, total Analysis Run 2/7/2023 2:19 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Box & Whiskers Plot



Constituent: Boron, total Analysis Run 2/7/2023 2:19 PM View: Constituents View Welsh PBAP Client: Geosyntec Data: Welsh PBAP

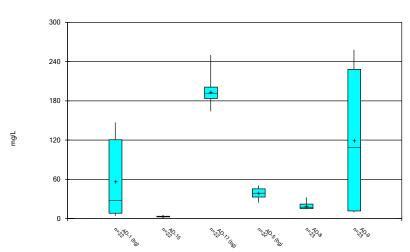
Box & Whiskers Plot



Constituent: Cadmium, total Analysis Run 2/7/2023 2:19 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Box & Whiskers Plot

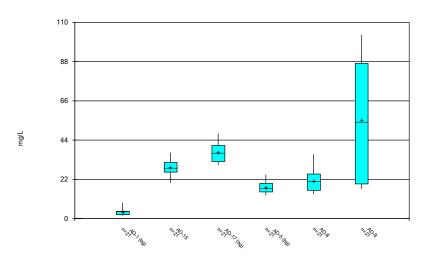


Constituent: Calcium, total Analysis Run 2/7/2023 2:19 PM View: Constituents View

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

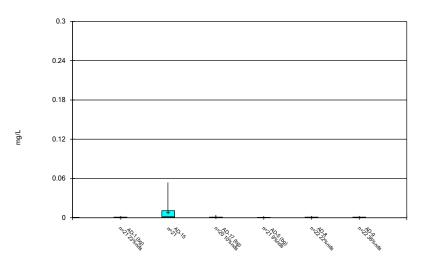
Sanitas™ v.9.6.36 . UG

Box & Whiskers Plot



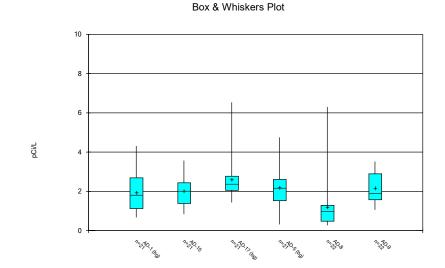
Constituent: Chloride, total Analysis Run 2/7/2023 2:19 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP





Constituent: Chromium, total Analysis Run 2/7/2023 2:19 PM View: Constituents View Welsh PBAP Client: Geosyntec Data: Welsh PBAP

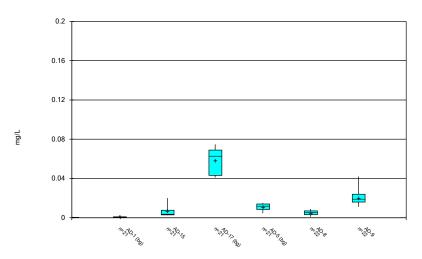
Sanitas™ v.9.6.36 . UG



Constituent: Combined Radium 226 + 228 Analysis Run 2/7/2023 2:20 PM View: Constituents View

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

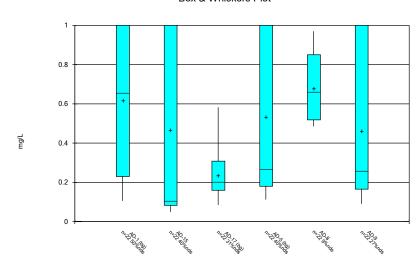
Box & Whiskers Plot



Constituent: Cobalt, total Analysis Run 2/7/2023 2:20 PM View: Constituents View Welsh PBAP Client: Geosyntec Data: Welsh PBAP

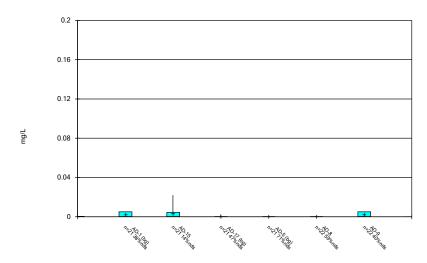
Sanitas™ v.9.6.36 . UG

Box & Whiskers Plot



Constituent: Fluoride, total Analysis Run 2/7/2023 2:20 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

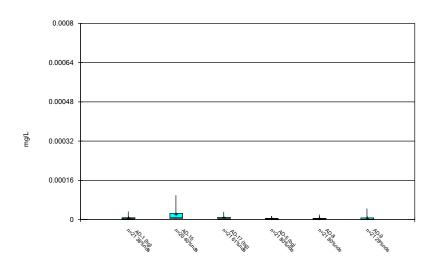




Constituent: Lead, total Analysis Run 2/7/2023 2:20 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

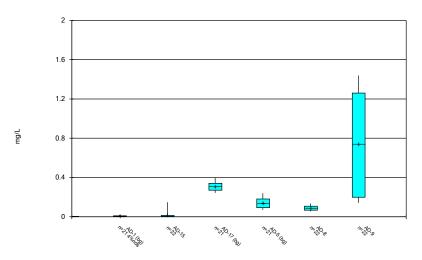
Sanitas™ v.9.6.36 . UG

Box & Whiskers Plot



Constituent: Mercury, total Analysis Run 2/7/2023 2:20 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

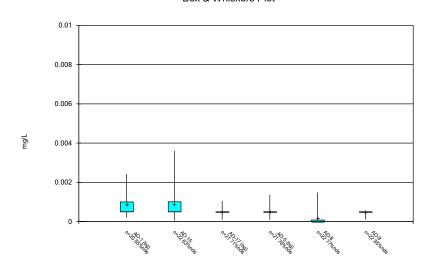
Box & Whiskers Plot



Constituent: Lithium, total Analysis Run 2/7/2023 2:20 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

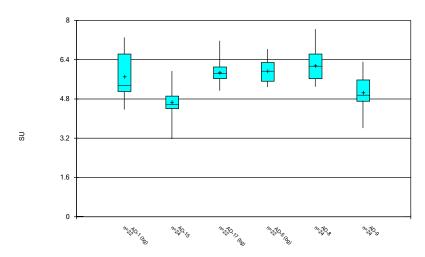
Sanitas™ v.9.6.36 . UG

Box & Whiskers Plot



Constituent: Molybdenum, total Analysis Run 2/7/2023 2:20 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

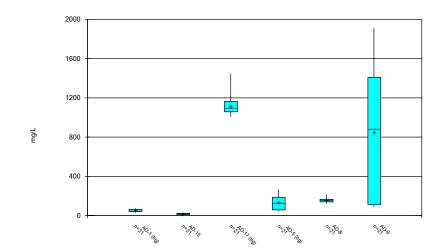
Box & Whiskers Plot



Constituent: pH, field Analysis Run 2/7/2023 2:20 PM View: Constituents View Welsh PBAP Client: Geosyntec Data: Welsh PBAP

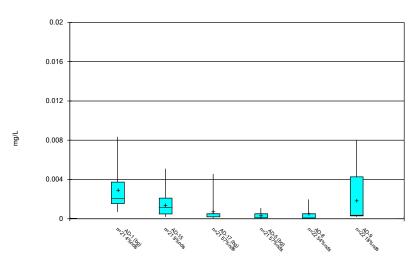
Sanitas™ v.9.6.36 . UG

Box & Whiskers Plot



Constituent: Sulfate, total Analysis Run 2/7/2023 2:20 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

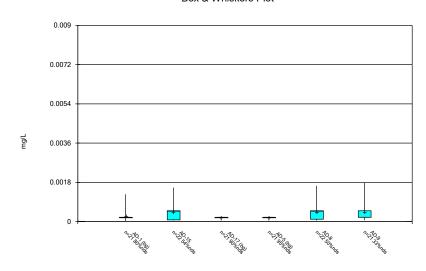
Box & Whiskers Plot



Constituent: Selenium, total Analysis Run 2/7/2023 2:20 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Box & Whiskers Plot



Constituent: Thallium, total Analysis Run 2/7/2023 2:20 PM View: Constituents View
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Box & Whiskers Plot

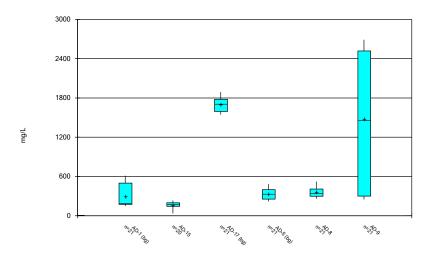


FIGURE C Outlier Summary and Tukey's Outlier Test

Outlier Sunmmary

Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 2/7/2023, 4:26 AM

| | AD-15 Arsenic, | , _{total} (mg/L) AD-15 Barium | , total (mg/L) AD-15 Beryllium | m, total (mg/L) AD-9 Boron, to | otal (mg/L) | _{lm, total} (mg/L) AD-17 Cadmiu | _{um, total} (mg/L) AD-15 Calciun | _{n, total} (mg/L) AD-15 Chromii | um, total (mg/L) | _{um, total} (mg/L) AD-15 Cobalt, total (r |
|---|-------------------------------------|---|--|--|--|---|--|---|-------------------|---|
| | AD-137. | AD-13 D | AD-13 D-1 | AD-9 Day | AD-13 0 | AD-11 | AD-10 | AD-10 | AD-11 | AD-10 - |
| 9/29/2016 | | | | | | | | | | |
| 9/30/2016 | 0.131 (o) | 1.93 (o) | 0.015 (o) | | 0.007 (o) | | 13.7 (o) | 0.28 (o) | | 0.134 (o) |
| 1/20/2017 | | | | | | | | | 0.068 (o) | |
| 6/8/2017 | | | | | | 0.00606 (o) | | | | |
| 5/23/2018 | | | | | | | | | | |
| 5/24/2018 | | | | | | 0.00646 (o) | | | | |
| 2/21/2019 | | | | 1.39 (o) | | | | | | |
| 6/2/2021 | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | -06 | + 228 (pCi/L) | | | | | ۳) مدر | ialL) | |
| | AD-15 Combin | ed Radium 226 f | + 228 (pCi/L) otal (mg/L) | , total (mg/L) | num, total (mg/L) | m, total (mg/L) | i, total (mg/L) | _{iss} olved Solids (m | ig/L) | |
| 010010046 | AD-15 Combine | ed Radium 226 ^s AD-15 Lead, ^{tr} | + 228 (pCi/L) otal (mg/L) AD-15 Mercury | , total (mg/L) AD-1 Molybde | _{num,} total (mg/L) AD-15 Seleniu | m, total (mg/L) AD-9 Thallium | _{i, total} (mg/L) AD-15 Total Di | _{iss} olved Solids ^{(m} | ig/L) | |
| 9/29/2016 | _{AD-15} Combin 9.92 (o) | | | , total (mg/L) AD-1 Molybde | | m, total (mg/L) AD-9 Thallium | | _{iss} olved Solids (π | igIL) | |
| 9/30/2016 | | ed Radium 226 - AD-15 Lead, tr 0.161 (o) | + 228 (pCi/L) otal (mg/L) AD-15 Mercur) 0.000707 (o) | _{r, total} (mg/L) AD-1 Molybde | _{num,} total (mg/L) AD-15 Seleniu 0.014 (o) | m, total (mg/L) AD-9 Thallium | , total (mg/L) AD-15 Total Di 367 (o) | _{iss} olved Solids (π | ig/L) | |
| 9/30/2016 1/20/2017 | | | | , total (mg/L) AD-1 Molybde | | m, total (mg/L) AD-9 Thallium. | | _{iss} olved Solids ^{(m} | ig/L) | |
| 9/30/2016 1/20/2017 6/8/2017 | | | | , total (mg/L) AD-1 Molybde | | | | _{iss} olved Solids ⁽ⁿ | _{lg} (L) | |
| 9/30/2016 1/20/2017 6/8/2017 5/23/2018 | | | | , total (mg/L) AD-1 Molybde | | m, total (mgll-) AD-9 Thallium AD-9 Totallium | | _{iss} olved Solids (m | ig/L) | |
| 9/30/2016 1/20/2017 6/8/2017 | | | | , total (mg/L) AD-1 Molybde | | | | _{iss} olved Solids (^m | ig/L) | |
| 9/30/2016 1/20/2017 6/8/2017 5/23/2018 | | | | , total (mg/L) AD-1 Molybde | | | | _{iss} olved Solids ^{(m} | igiL) | |

Tukey's Outlier Analysis - Significant Results

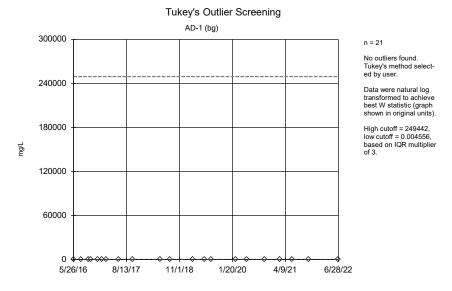
Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 2/2/2023, 3:11 AM

| Constituent | Well | Outlier Value(s) | Method A | Alpha N | Mean | Std. Dev. | Distribution | Normality Test |
|-------------------------------|-------|------------------|----------|---------|-------|-----------|--------------|----------------|
| Calcium, total (mg/L) | AD-15 | Yes 13.7 | NP N | NaN 22 | 3.781 | 2.321 | ln(x) | ShapiroWilk |
| Total Dissolved Solids (mg/L) | AD-15 | Yes 367 | NP N | NaN 20 | 174.4 | 66.97 | normal | ShapiroWilk |

Tukey's Outlier Analysis - All Results

Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 2/2/2023, 3:11 AM

| Constituent | Well | Outlie | Value(s) | Method | <u>Alpha</u> | <u>N</u> | <u>Mean</u> | Std. Dev. | Distribution | Normality Test |
|-------------------------------|------------|--------|----------|--------|--------------|----------|-------------|-----------|--------------|----------------|
| Calcium, total (mg/L) | AD-1 (bg) | No | n/a | NP | NaN | 21 | 59.51 | 55.92 | ln(x) | ShapiroWilk |
| Calcium, total (mg/L) | AD-15 | Yes | 13.7 | NP | NaN | 22 | 3.781 | 2.321 | In(x) | ShapiroWilk |
| Calcium, total (mg/L) | AD-17 (bg) | No | n/a | NP | NaN | 21 | 194.7 | 20.17 | ln(x) | ShapiroWilk |
| Calcium, total (mg/L) | AD-5 (bg) | No | n/a | NP | NaN | 21 | 38.6 | 7.729 | x^(1/3) | ShapiroWilk |
| Calcium, total (mg/L) | AD-8 | No | n/a | NP | NaN | 22 | 19.32 | 4.606 | ln(x) | ShapiroWilk |
| Calcium, total (mg/L) | AD-9 | No | n/a | NP | NaN | 22 | 124.1 | 104.8 | x^2 | ShapiroWilk |
| Chloride, total (mg/L) | AD-1 (bg) | No | n/a | NP | NaN | 20 | 3.63 | 1.685 | ln(x) | ShapiroWilk |
| Chloride, total (mg/L) | AD-15 | No | n/a | NP | NaN | 20 | 28.94 | 4.232 | x^2 | ShapiroWilk |
| Chloride, total (mg/L) | AD-17 (bg) | No | n/a | NP | NaN | 20 | 36.88 | 5.261 | ln(x) | ShapiroWilk |
| Chloride, total (mg/L) | AD-5 (bg) | No | n/a | NP | NaN | 20 | 17.56 | 3.38 | ln(x) | ShapiroWilk |
| Chloride, total (mg/L) | AD-8 | No | n/a | NP | NaN | 20 | 21.21 | 6.13 | ln(x) | ShapiroWilk |
| Chloride, total (mg/L) | AD-9 | No | n/a | NP | NaN | 20 | 57.11 | 31.78 | normal | ShapiroWilk |
| Fluoride, total (mg/L) | AD-1 (bg) | No | n/a | NP | NaN | 21 | 0.6403 | 0.3889 | ln(x) | ShapiroWilk |
| Fluoride, total (mg/L) | AD-15 | No | n/a | NP | NaN | 21 | 0.4851 | 0.4586 | ln(x) | ShapiroWilk |
| Fluoride, total (mg/L) | AD-17 (bg) | No | n/a | NP | NaN | 21 | 0.2438 | 0.1351 | ln(x) | ShapiroWilk |
| Fluoride, total (mg/L) | AD-5 (bg) | No | n/a | NP | NaN | 21 | 0.5496 | 0.4024 | ln(x) | ShapiroWilk |
| Fluoride, total (mg/L) | AD-8 | No | n/a | NP | NaN | 21 | 0.6636 | 0.1516 | ln(x) | ShapiroWilk |
| Fluoride, total (mg/L) | AD-9 | No | n/a | NP | NaN | 21 | 0.4749 | 0.3684 | ln(x) | ShapiroWilk |
| Sulfate, total (mg/L) | AD-1 (bg) | No | n/a | NP | NaN | 20 | 51.68 | 12.91 | ln(x) | ShapiroWilk |
| Sulfate, total (mg/L) | AD-15 | No | n/a | NP | NaN | 20 | 17.06 | 7.084 | x^2 | ShapiroWilk |
| Sulfate, total (mg/L) | AD-17 (bg) | No | n/a | NP | NaN | 20 | 1117 | 95.11 | ln(x) | ShapiroWilk |
| Sulfate, total (mg/L) | AD-5 (bg) | No | n/a | NP | NaN | 20 | 129.5 | 73.02 | x^(1/3) | ShapiroWilk |
| Sulfate, total (mg/L) | AD-8 | No | n/a | NP | NaN | 20 | 158.7 | 23.82 | ln(x) | ShapiroWilk |
| Sulfate, total (mg/L) | AD-9 | No | n/a | NP | NaN | 20 | 884.5 | 666.3 | normal | ShapiroWilk |
| Total Dissolved Solids (mg/L) | AD-1 (bg) | No | n/a | NP | NaN | 20 | 304.6 | 170.1 | ln(x) | ShapiroWilk |
| Total Dissolved Solids (mg/L) | AD-15 | Yes | 367 | NP | NaN | 20 | 174.4 | 66.97 | normal | ShapiroWilk |
| Total Dissolved Solids (mg/L) | AD-17 (bg) | No | n/a | NP | NaN | 20 | 1704 | 114.5 | ln(x) | ShapiroWilk |
| Total Dissolved Solids (mg/L) | AD-5 (bg) | No | n/a | NP | NaN | 20 | 328 | 82.5 | ln(x) | ShapiroWilk |
| Total Dissolved Solids (mg/L) | AD-8 | No | n/a | NP | NaN | 20 | 360.3 | 68.19 | ln(x) | ShapiroWilk |
| Total Dissolved Solids (mg/L) | AD-9 | No | n/a | NP | NaN | 20 | 1534 | 1015 | normal | ShapiroWilk |
| | | | | | | | | | | |



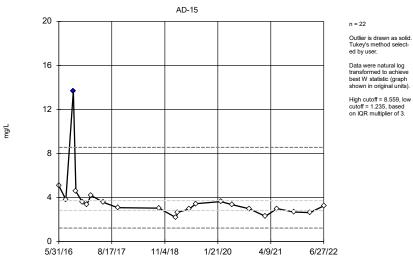
Constituent: Calcium, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Tukey's Outlier Screening AD-17 (bg) 300 n = 21 No outliers found. Tukey's method selected by user. 240 Data were natural log transformed to achieve best W statistic (graph shown in original units). 180 High cutoff = 259.9, low cutoff = 142.7, based on IQR multiplier of 3. mg/L 120 60 0 5/26/16 8/13/17 11/1/18 1/20/20 4/9/21 6/28/22

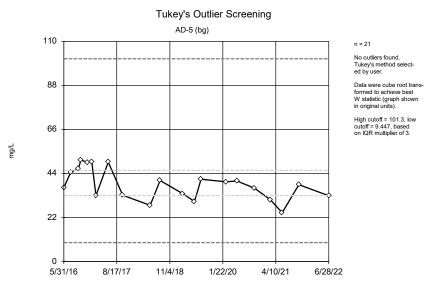
Constituent: Calcium, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Tukey's Outlier Screening

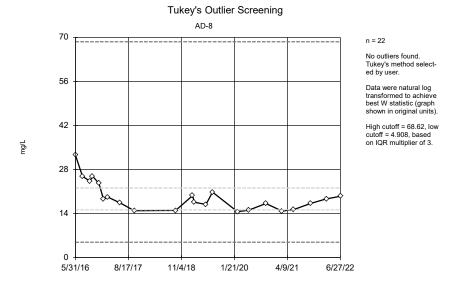


Constituent: Calcium, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG



Constituent: Calcium, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP

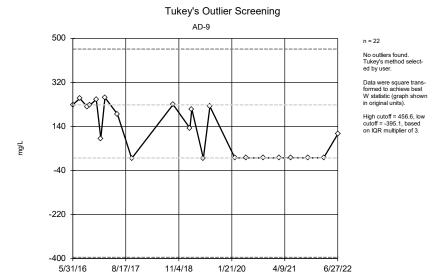


Constituent: Calcium, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP

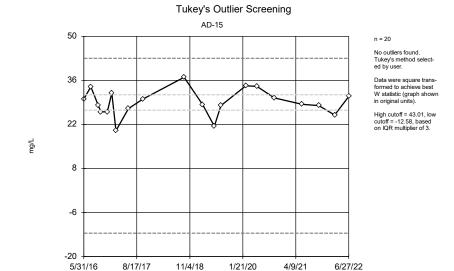
Sanitas™ v.9.6.36 . UG Tukey's Outlier Screening AD-1 (bg) 30 n = 20 No outliers found. Tukey's method selected by user. 24 Data were natural log transformed to achieve best W statistic (graph shown in original units). High cutoff = 22.93, low cutoff = 0.3898, based on IQR multiplier of 3. 12 0 5/26/16 8/13/17 11/1/18 1/20/20 4/9/21 6/28/22

Constituent: Chloride, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw

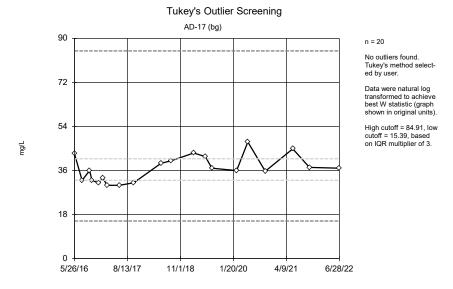
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Calcium, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Chloride, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP

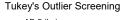


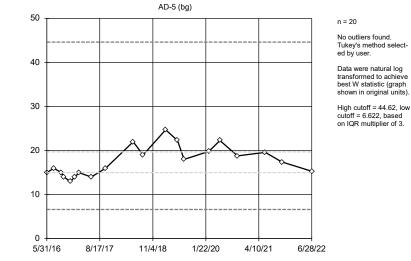
Constituent: Chloride, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Tukey's Outlier Screening AD-8 100 No outliers found. Tukey's method selected by user. 80 Data were natural log transformed to achieve best W statistic (graph shown in original units). 60 High cutoff = 96.87, low cutoff = 4.1, based on IQR multiplier of 3. 40 20 0 5/31/16 8/17/17 11/4/18 1/21/20 4/9/21 6/27/22

Constituent: Chloride, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP

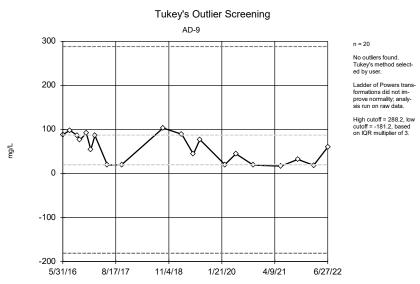




Constituent: Chloride, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP

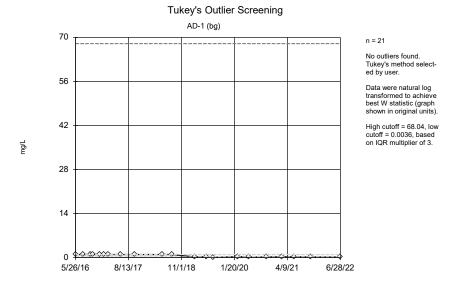
Sanitas™ v.9.6.36 . UG

mg/L



Constituent: Chloride, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG Sanitas™ v.9.6.36 . UG



Constituent: Fluoride, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Tukey's Outlier Screening

Sanitas™ v.9.6.36 . UG

0

5/26/16

8/13/17

AD-17 (bg) 2 n = 21 No outliers found. Tukey's method selected by user. 1.6 Data were natural log transformed to achieve best W statistic (graph shown in original units). 1.2 High cutoff = 1.999, low cutoff = 0.02539, based on IQR multiplier of 3. 0.8 0.4

Constituent: Fluoride, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP

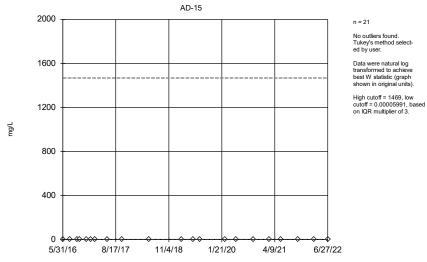
1/20/20

4/9/21

6/28/22

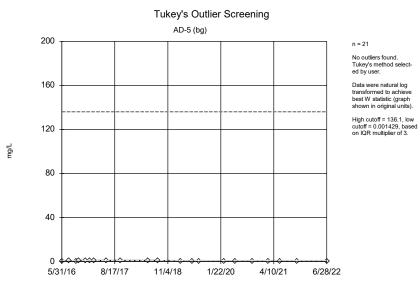
11/1/18

Tukey's Outlier Screening

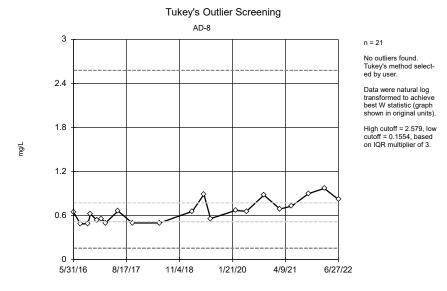


Constituent: Fluoride, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG



Constituent: Fluoride, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP

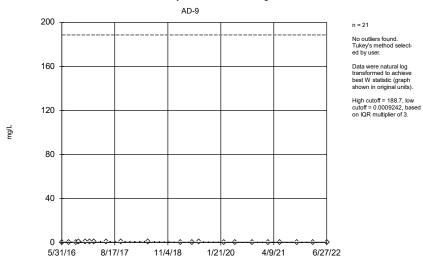


Constituent: Fluoride, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP

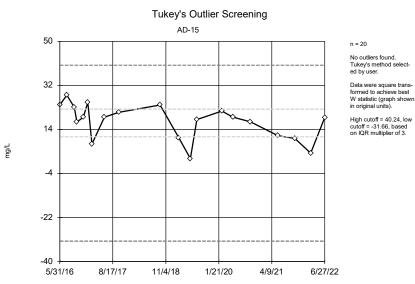
Sanitas™ v.9.6.36 . UG Tukey's Outlier Screening AD-1 (bg) 300 n = 20 No outliers found. Tukey's method selected by user. 240 Data were natural log transformed to achieve best W statistic (graph shown in original units). 180 High cutoff = 227.7, low cutoff = 11.82, based on IQR multiplier of 3. 120 60 0 5/26/16 8/13/17 11/1/18 1/20/20 4/9/21 6/28/22

Constituent: Sulfate, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intrawel Welsh PBAP Client: Geosyntec Data: Welsh PBAP

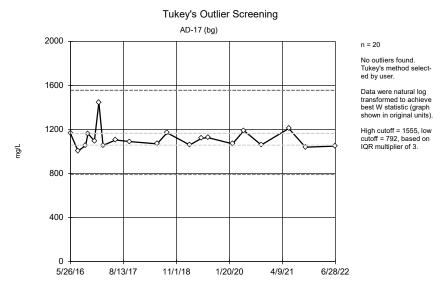
Tukey's Outlier Screening



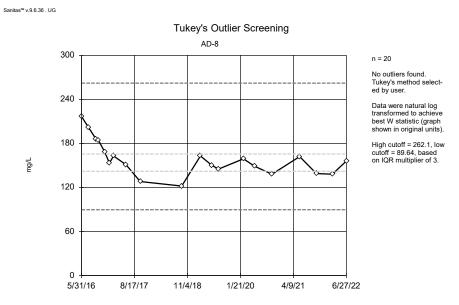
Constituent: Fluoride, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intraw Welsh PBAP Client: Geosyntec Data: Welsh PBAP



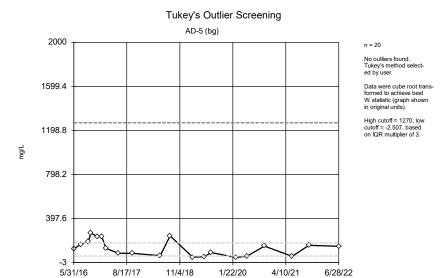
Constituent: Sulfate, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intrawel Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Sulfate, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intrawel Welsh PBAP Client: Geosyntec Data: Welsh PBAP

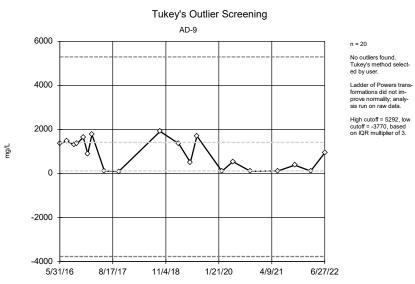


Constituent: Sulfate, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intrawel Welsh PBAP Client: Geosyntec Data: Welsh PBAP

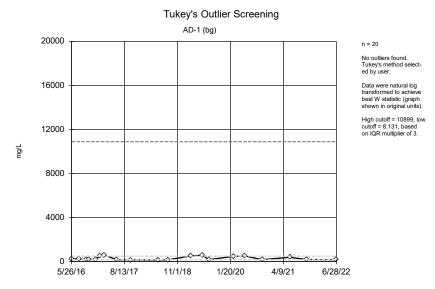


Constituent: Sulfate, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intrawel Welsh PBAP Client: Geosyntec Data: Welsh PBAP





Constituent: Sulfate, total Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix III Intrawel Welsh PBAP Client: Geosyntec Data: Welsh PBAP

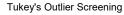


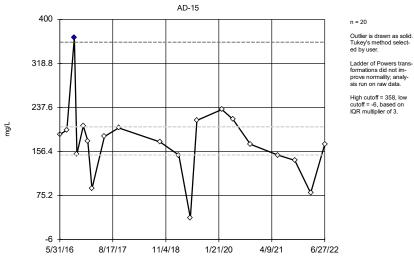
Constituent: Total Dissolved Solids Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix I Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Tukey's Outlier Screening AD-17 (bg) 3000 n = 20 No outliers found. Tukey's method selected by user. 2400 Data were natural log transformed to achieve best W statistic (graph shown in original units). 1800 High cutoff = 2473, low cutoff = 1148, based on IQR multiplier of 3. ng/L 1200 600 0 5/26/16 8/13/17 11/1/18 1/20/20 4/9/21 6/28/22

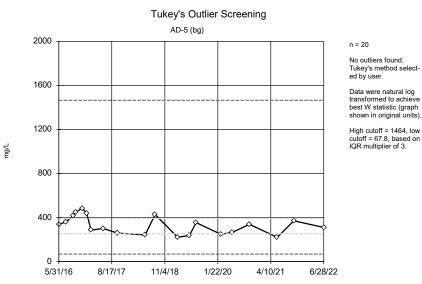
Constituent: Total Dissolved Solids Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix I Welsh PBAP Client: Geosyntec Data: Welsh PBAP



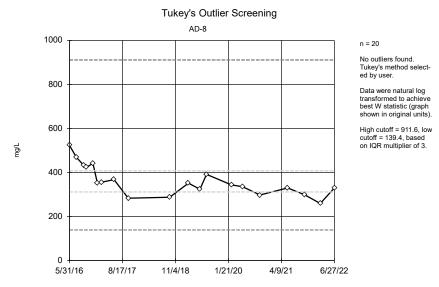


Constituent: Total Dissolved Solids Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix I

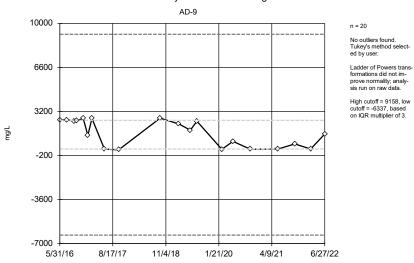
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Total Dissolved Solids Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix I Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Tukey's Outlier Screening

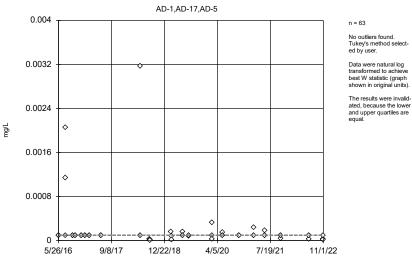


Constituent: Total Dissolved Solids Analysis Run 2/2/2023 3:10 AM View: Tukey's Outlier Test (Appendix I Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Tukey's Outlier Test - Upgradient Wells - All Results

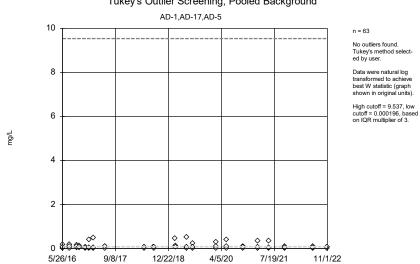
Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 2/2/2023, 1:05 AM Constituent <u>Well</u> Outlier Value(s) Method <u>Alpha</u> <u>N</u> <u>Mean</u> Std. Dev. <u>Distribution</u> <u>Normality Test</u> AD-1,AD-17,AD-5 NaN 63 0.0001947 0.0004732 Antimony, total (mg/L) NP ShapiroFrancia n/a n/a unknown Arsenic, total (mg/L) AD-1,AD-17,AD-5 NP NaN 63 0.002556 0.001952 ShapiroFrancia n/a ln(x) Barium, total (mg/L) AD-1,AD-17,AD-5 No n/a NP NaN 63 0.1055 0.1271 In(x) ShapiroFrancia Beryllium, total (mg/L) NP AD-1.AD-17.AD-5 NaN 63 0.0002176 0.0002374 ShapiroFrancia No n/a In(x) Boron, total (mg/L) AD-1,AD-17,AD-5 NP 66 0.2416 0.2468 In(x) ShapiroFrancia Cadmium, total (mg/L) AD-1,AD-17,AD-5 No n/a NP NaN 63 0.0005197 0.001325 In(x) ShapiroFrancia Chromium, total (mg/L) AD-1.AD-17.AD-5 0.068 NP NaN 63 0.00163 0.008526 In(x) ShapiroFrancia Yes Cobalt, total (mg/L) AD-1,AD-17,AD-5 NP 63 0.02345 ShapiroFrancia No n/a 0.02626 x^(1/3) Combined Radium 226 + 228 (pCi/L) AD-1,AD-17,AD-5 No NP NaN 63 2.256 1.044 x^(1/3) ShapiroFrancia AD-1,AD-17,AD-5 Yes 0.583.0.5399.0.085.0.09.0.09 NP NaN 66 0.2197 0.08753 In(x) ShapiroFrancia Fluoride, total (mg/L) 0.003384,0.000852,0.0011,0.00249,0.00003 ΝP ShapiroFrancia Lead, total (mg/L) AD-1,AD-17,AD-5 Yes NaN 63 0.0002888 0.0005141 In(x) Lithium, total (mg/L) AD-1,AD-17,AD-5 No NP NaN 63 0.1513 0.1299 sqrt(x) ShapiroFrancia 63 0.000007205 0.000005973 ln(x) Mercury, total (mg/L) AD-1,AD-17,AD-5 Yes $0.000033, 0.00001773, 0.00001521, 0.000013, 0.000013, \ NP$ NaN ShapiroFrancia AD-1,AD-17,AD-5 63 0.0006775 0.0006766 ShapiroFrancia Molybdenum, total (mg/L) n/a unknown pH, field (SU) AD-1,AD-17,AD-5 No n/a NP NaN 66 5.853 0.637 x^(1/3) ShapiroFrancia NP AD-1.AD-17.AD-5 63 0.001306 0.001756 ShapiroFrancia Selenium, total (mg/L) No NaN ln(x) n/a Thallium, total (mg/L) AD-1,AD-17,AD-5 n/a n/a 63 0.0002169 0.0001692 unknown ShapiroFrancia





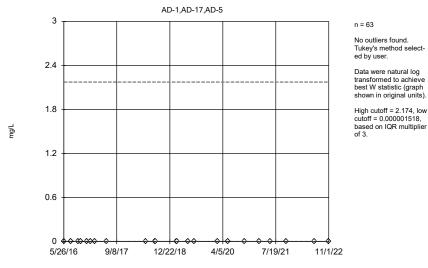
Constituent: Antimony, total Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Tukey's Outlier Screening, Pooled Background



Constituent: Barium, total Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells Welsh PBAP Client: Geosyntec Data: Welsh PBAP

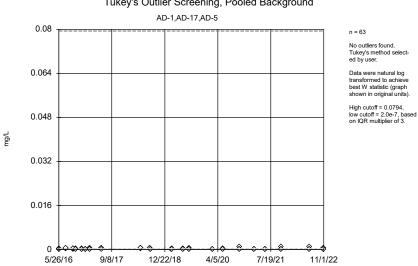
Tukey's Outlier Screening, Pooled Background



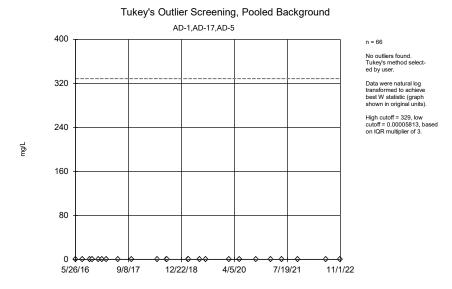
Constituent: Arsenic, total Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Tukey's Outlier Screening, Pooled Background



Constituent: Beryllium, total Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Boron, total Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

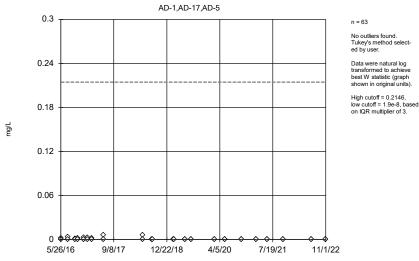
Sanitas™ v.9.6.36 . UG

Tukey's Outlier Screening, Pooled Background AD-1,AD-17,AD-5 0.07 n = 63 Outlier is drawn as solid. Tukey's method selected by user. 0.056 Data were natural log transformed to achieve best W statistic (graph shown in original units). High cutoff = 0.01094. low cutoff = 0.0000127, based on IQR multiplier 0.042 0.028 0.014 n 4 5/26/16 9/8/17 12/22/18 4/5/20 7/19/21 11/1/22

Constituent: Chromium, total Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells

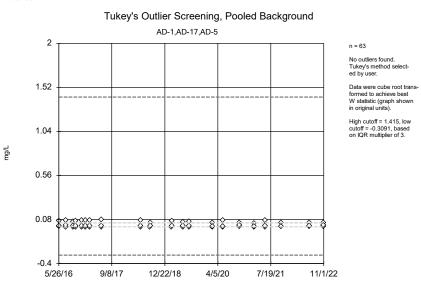
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Tukey's Outlier Screening, Pooled Background



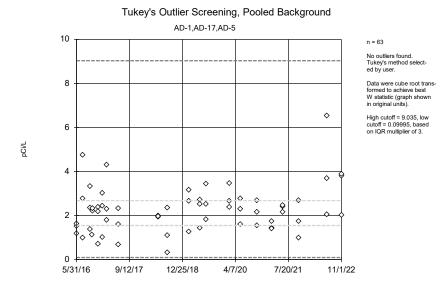
Constituent: Cadmium, total Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

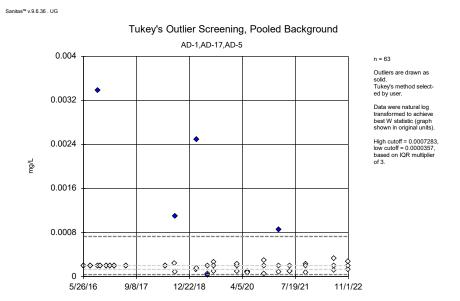


Constituent: Cobalt, total Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells

Welsh PBAP Client: Geosyntec Data: Welsh PBAP



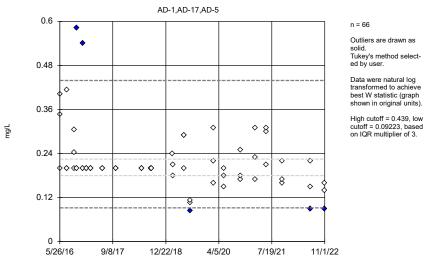
Constituent: Combined Radium 226 + 228 Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Lead, total Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

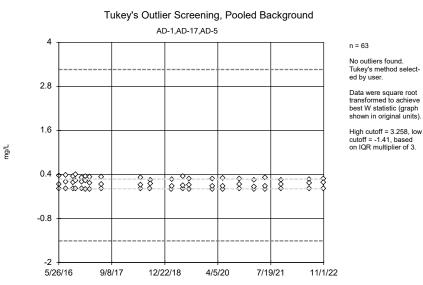
Tukey's Outlier Screening, Pooled Background



Constituent: Fluoride, total Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells

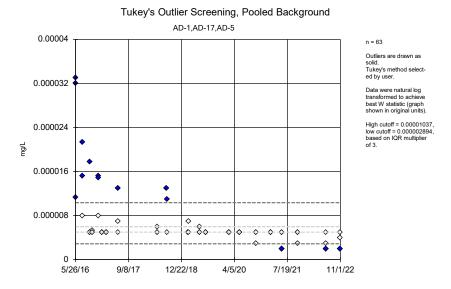
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG



Constituent: Lithium, total Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells

Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Mercury, total Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells

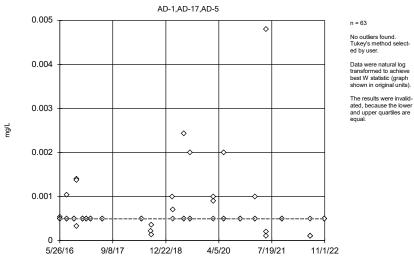
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Tukey's Outlier Screening, Pooled Background AD-1,AD-17,AD-5 10 n = 66 No outliers found. Tukey's method selected by user. Data were cube root transformed to achieve best W statistic (graph shown **\$** in original units). 0 0 \Diamond 0 High cutoff = 9.302, low cutoff = 3.295, based on IQR multiplier of 3. **\lambda** \Diamond **\$** $\Diamond \Diamond$ S \Diamond \Diamond 2 5/26/16 9/8/17 12/22/18 4/5/20 7/19/21 11/1/22

Constituent: pH, field Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells

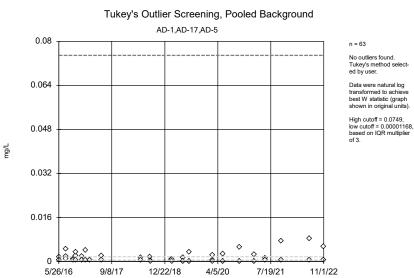
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Tukey's Outlier Screening, Pooled Background



Constituent: Molybdenum, total Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells

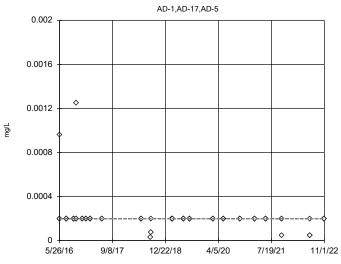
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Selenium, total Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells

Welsh PBAP Client: Geosyntec Data: Welsh PBAP





n = 63

No outliers found. Tukey's method selected by user.

Data were natural log transformed to achieve best W statistic (graph shown in original units).

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Thallium, total Analysis Run 2/2/2023 12:53 AM View: Tukey's Outlier Test on All Wells

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

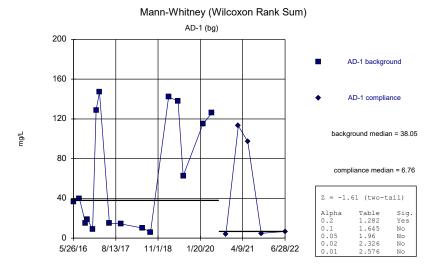
FIGURE D Mann-Whitney

Welch's t-test/Mann-Whitney - Significant Results

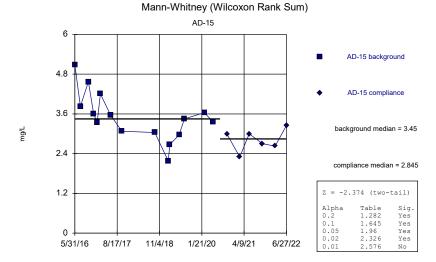
| | Welsh PBAP | Client: Geosyntec | Data: Welsh PBAP | Printed 2/7/2023, 4:29 AM | | |
|------------------------|------------|-------------------|------------------|---------------------------|-------------|--------|
| Constituent | | Well | | Calc. | <u>0.01</u> | Method |
| Chloride, total (mg/L) | | AD-8 | | -2.886 | Yes | Mann-W |
| Fluoride, total (mg/L) | | AD-5 | (bg) | -2.625 | Yes | Mann-W |
| Fluoride, total (mg/L) | | AD-8 | | 3.155 | Yes | Mann-W |
| Sulfate, total (mg/L) | | AD-1 | (bg) | 2.604 | Yes | Mann-W |

Welch's t-test/Mann-Whitney - All Results

| | Welsh PBAP | Client: Geosyntec | Data: Welsh PBAP | Printed 2/7/2023, 4:29 AM | | |
|-------------------------------|------------|-------------------|------------------|---------------------------|------|--------|
| Constituent | | Well | | Calc. | 0.01 | Method |
| Calcium, total (mg/L) | | AD-1 | (bg) | -1.61 | No | Mann-W |
| Calcium, total (mg/L) | | AD-1 | 5 | -2.374 | No | Mann-W |
| Calcium, total (mg/L) | | AD-1 | 7 (bg) | -1.941 | No | Mann-W |
| Calcium, total (mg/L) | | AD-5 | (bg) | -2.106 | No | Mann-W |
| Calcium, total (mg/L) | | AD-8 | | -1.254 | No | Mann-W |
| Calcium, total (mg/L) | | AD-9 | | -1.732 | No | Mann-W |
| Chloride, total (mg/L) | | AD-1 | (bg) | -1.982 | No | Mann-W |
| Chloride, total (mg/L) | | AD-1 | 5 | -0.175 | No | Mann-W |
| Chloride, total (mg/L) | | AD-1 | 7 (bg) | 0.852 | No | Mann-W |
| Chloride, total (mg/L) | | AD-5 | (bg) | 0.4268 | No | Mann-W |
| Chloride, total (mg/L) | | AD-8 | | -2.886 | Yes | Mann-W |
| Chloride, total (mg/L) | | AD-9 | | -2.532 | No | Mann-W |
| Fluoride, total (mg/L) | | AD-1 | (bg) | -2.231 | No | Mann-W |
| Fluoride, total (mg/L) | | AD-1 | 5 | -2.315 | No | Mann-W |
| Fluoride, total (mg/L) | | AD-1 | 7 (bg) | -0.8884 | No | Mann-W |
| Fluoride, total (mg/L) | | AD-5 | (bg) | -2.625 | Yes | Mann-W |
| Fluoride, total (mg/L) | | AD-8 | | 3.155 | Yes | Mann-W |
| Fluoride, total (mg/L) | | AD-9 | | -2.332 | No | Mann-W |
| Sulfate, total (mg/L) | | AD-1 | (bg) | 2.604 | Yes | Mann-W |
| Sulfate, total (mg/L) | | AD-1 | 5 | -2.011 | No | Mann-W |
| Sulfate, total (mg/L) | | AD-1 | 7 (bg) | -1.135 | No | Mann-W |
| Sulfate, total (mg/L) | | AD-5 | (bg) | 0.04726 | No | Mann-W |
| Sulfate, total (mg/L) | | AD-8 | | -1.485 | No | Mann-W |
| Sulfate, total (mg/L) | | AD-9 | | -1.878 | No | Mann-W |
| Total Dissolved Solids (mg/L) | | AD-1 | (bg) | -0.4728 | No | Mann-W |
| Total Dissolved Solids (mg/L) | | AD-1 | 5 | -2.039 | No | Mann-W |
| Total Dissolved Solids (mg/L) | | AD-1 | 7 (bg) | 1.088 | No | Mann-W |
| Total Dissolved Solids (mg/L) | | AD-5 | (bg) | -0.3781 | No | Mann-W |
| Total Dissolved Solids (mg/L) | | AD-8 | | -2.446 | No | Mann-W |
| Total Dissolved Solids (mg/L) | | AD-9 | | -2.096 | No | Mann-W |



Constituent: Calcium, total Analysis Run 2/7/2023 4:27 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Calcium, total Analysis Run 2/7/2023 4:27 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Mann-Whitney (Wilcoxon Rank Sum) AD-17 (bg) 300 AD-17 background 240 AD-17 compliance 180 mg/L background median = 194.5 120 compliance median = 168 Z = -1.941 (two-tail) 60 Alpha Table Sig. 1.282 0.2 Yes Yes 0.05 1.96 No No 1/20/20 4/9/21 6/28/22 5/26/16 8/13/17 11/1/18 2.576

Sanitas™ v.9.6.36 . UG

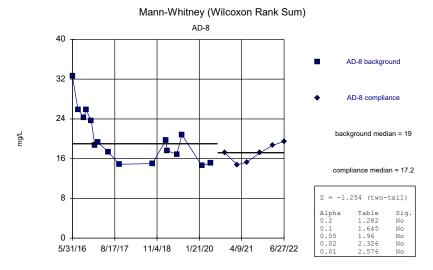
Mann-Whitney (Wilcoxon Rank Sum) AD-5 (bg) 60 AD-5 background 48 AD-5 compliance 36 mg/L background median = 40.35 24 compliance median = 32.9 12 Z = -2.106 (two-tail) Alpha Table Sig. 1.282 0.2 Yes Yes 0.05 1.96 Yes 1/22/20 4/10/21 6/28/22 5/31/16 8/17/17 11/4/18 2.576 No

Constituent: Calcium, total Analysis Run 2/7/2023 4:27 AM View: Mann-Whitney

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Constituent: Calcium, total Analysis Run 2/7/2023 4:27 AM View: Mann-Whitney

Welsh PBAP Client: Geosyntec Data: Welsh PBAP



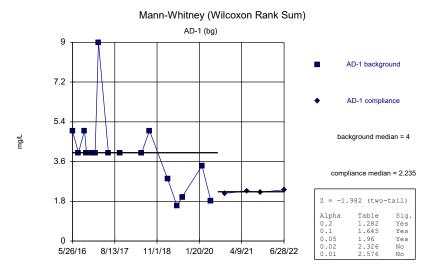
Constituent: Calcium, total Analysis Run 2/7/2023 4:27 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

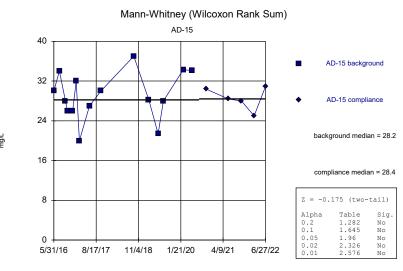
AD-9 300 AD-9 background AD-9 compliance 180 background median = 215.5 mg/L 120 compliance median = 11.95 60 Z = -1.732 (two-tail) Alpha 0.2 0.1 0.05 Table 1.282 1.645 Sig. Yes Yes 0.02 2.326 No 8/17/17 4/9/21 6/27/22 5/31/16 11/4/18 1/21/20 No

Mann-Whitney (Wilcoxon Rank Sum)

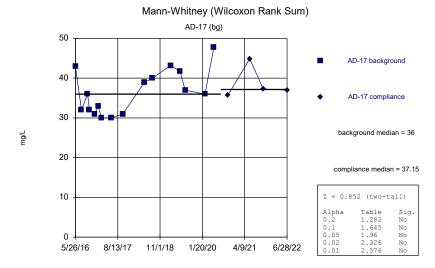
Constituent: Calcium, total Analysis Run 2/7/2023 4:27 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

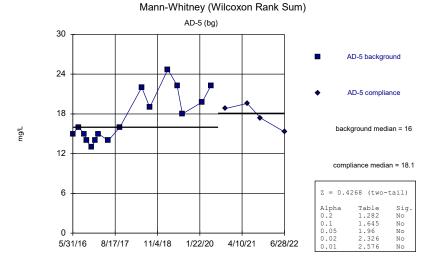




Sanitas™ v.9.6.36 . UG Sanitas™ v.9.6.36 . UG



Constituent: Chloride, total Analysis Run 2/7/2023 4:27 AM View: Mann-Whitney Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Chloride, total Analysis Run 2/7/2023 4:27 AM View: Mann-Whitney Welsh PBAP Client: Geosyntec Data: Welsh PBAP

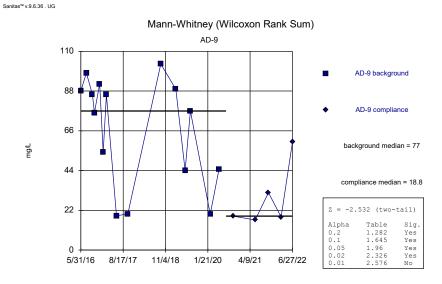
Mann-Whitney (Wilcoxon Rank Sum) AD-8 30 AD-8 background 24 AD-8 compliance 18 background median = 21 12 compliance median = 14.8 Z = -2.886 (two-tail) 6 Alpha Table Sig. 1.282 0.2 Yes Yes 0.05 1.96 Yes 2/20/18 3/24/19 4/24/20 5/26/21 6/27/22 1/20/17

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

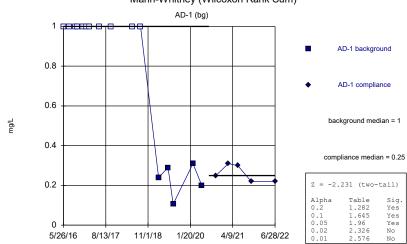
Sanitas™ v.9.6.36 . UG

Constituent: Chloride, total Analysis Run 2/7/2023 4:27 AM View: Mann-Whitney

2.576



Constituent: Chloride, total Analysis Run 2/7/2023 4:27 AM View: Mann-Whitney Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Fluoride, total Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

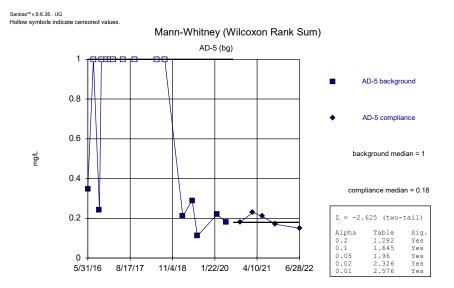
Sanitas™ v.9.6.36 . UG Hollow symbols indicate censored values. Mann-Whitney (Wilcoxon Rank Sum) AD-17 (bg) 0.4 AD-17 background 0.32 AD-17 compliance 0.24 background median = 0.2 0.16 compliance median = 0.17 0.08 Z = -0.8884 (two-tail) Alpha Table Sig. 0.2 1.282 No 1.645 No 0.05 1.96 No 0.02 No 2/21/18 3/25/19 4/25/20 6/28/22 1/20/17 5/27/21 2.576

AD-15 AD-15 background 0.8 AD-15 compliance 0.6 background median = 1 mg/L 0.4 compliance median = 0.09 Z = -2.315 (two-tail) 0.2 Alpha Table Sig. Yes 1.282 0.1 Yes Yes 0.02 2.326 No 8/17/17 4/9/21 6/27/22 5/31/16 11/4/18 1/21/20 No

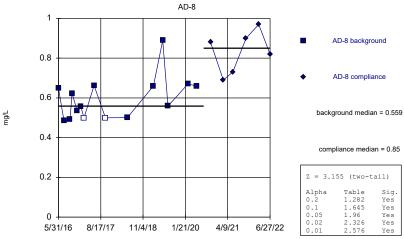
Mann-Whitney (Wilcoxon Rank Sum)

Constituent: Fluoride, total Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

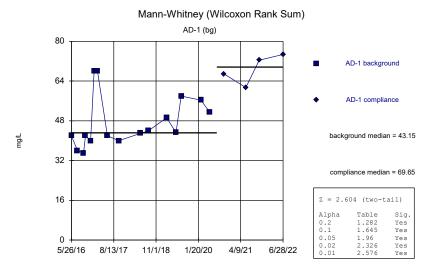


Constituent: Fluoride, total Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



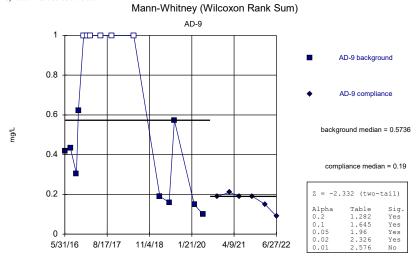
Constituent: Fluoride, total Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG



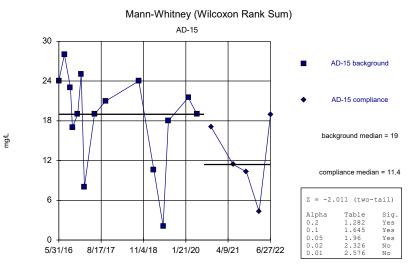
Constituent: Sulfate, total Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG Hollow symbols indicate censored values



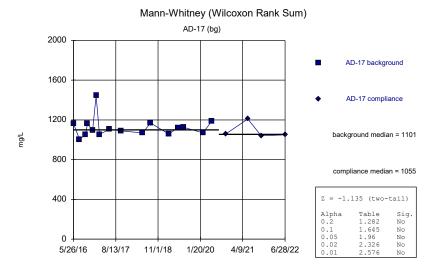
Constituent: Fluoride, total Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG



Constituent: Sulfate, total Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney

Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Sulfate, total Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

300 AD-5 background 240 AD-5 compliance 180 background median = 106.5 mg/L 120 compliance median = 147 60 Z = 0.04726 (two-tail)Alpha 0.2 0.1 0.05 Table Sig. 1.282 No No 0.02 2.326 No 8/17/17 4/10/21 6/28/22 5/31/16 11/4/18 1/22/20 No

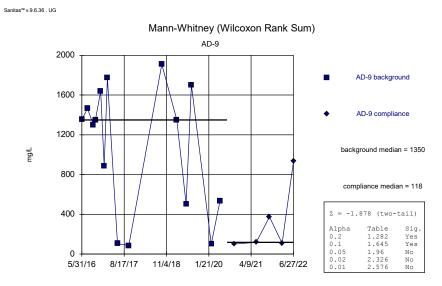
Mann-Whitney (Wilcoxon Rank Sum)

AD-5 (bg)

Constituent: Sulfate, total Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

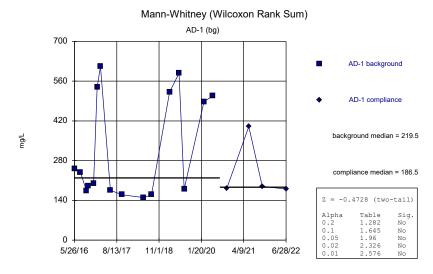
Sanitas™ v.9.6.36 . UG Mann-Whitney (Wilcoxon Rank Sum) AD-8 300 AD-8 background 240 AD-8 compliance 180 background median = 159 120 compliance median = 139 Z = -1.485 (two-tail) 60 Alpha Table Sig. 1.282 0.2 Yes No 0.05 1.96 No 1/21/20 4/9/21 6/27/22 5/31/16 8/17/17 11/4/18 2.576

Constituent: Sulfate, total Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Sulfate, total Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney

Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Total Dissolved Solids Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG Mann-Whitney (Wilcoxon Rank Sum) AD-17 (bg) 2000 AD-17 background 1600 AD-17 compliance 1200 background median = 1675 800 compliance median = 1730 Z = 1.088 (two-tail) 400 Alpha Table Sig. 1.282 0.2 No No

Constituent: Total Dissolved Solids Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

4/9/21

1/20/20

5/26/16

8/13/17 11/1/18

0.05

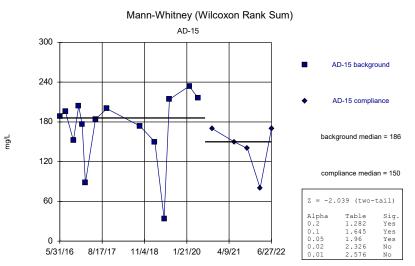
0.02

6/28/22

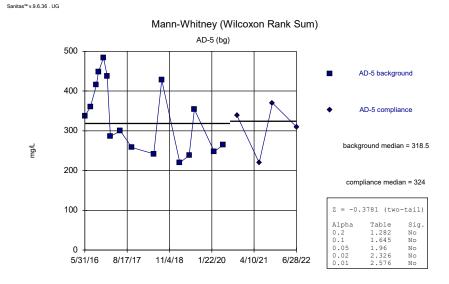
1.96

2.576

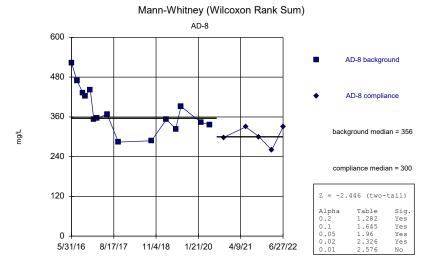
No



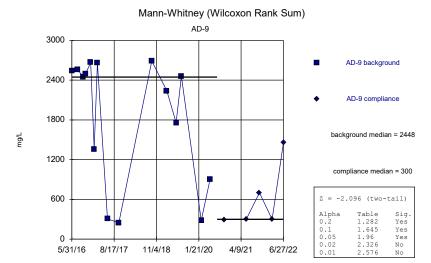
Constituent: Total Dissolved Solids Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Total Dissolved Solids Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Total Dissolved Solids Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



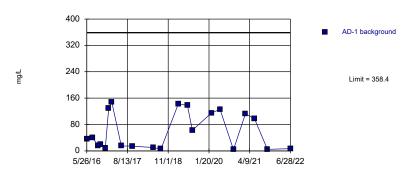
Constituent: Total Dissolved Solids Analysis Run 2/7/2023 4:28 AM View: Mann-Whitney
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

FIGURE E Intrawell PL

Appendix III - Intrawell Prediction Limits - All Results

Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 2/7/2023, 4:36 AM Constituent <u>Well</u> Upper Lim. Lower Lim. Date Observ. $\underline{\text{Sig.}} \ \underline{\text{Bg N}} \ \underline{\text{Bg Mean}} \ \underline{\text{Std. Dev.}}$ %NDs ND Adj. <u>Alpha</u> Method AD-1 358.4 n/a 21 0.002505 Param Intra 1 of 2 Calcium, total (mg/L) n/a n/a 1 future 3.437 1.3 0 None In(x) Calcium, total (mg/L) AD-15 4.646 n/a 21 0.7109 0.002505 Param Intra 1 of 2 n/a n/a 1 future 3.309 None Calcium, total (mg/L) AD-17 232.6 n/a n/a 1 future n/a 21 194.7 20.17 n None No 0.002505 Param Intra 1 of 2 AD-5 0 0.002505 Calcium, total (mg/L) 53.13 n/a 21 38.6 7.729 Param Intra 1 of 2 n/a n/a 1 future None No Calcium, total (mg/L) AD-8 28.06 n/a 1 future n/a 22 4.368 0.4972 sqrt(x) 0.002505 Param Intra 1 of 2 Calcium, total (mg/L) AD-9 258 n/a n/a 1 future n/a 22 n/a n/a 0 n/a 0.003707 NP Intra (normality) 1 of 2 Chloride, total (mg/L) AD-1 6.989 n/a 1 future n/a 20 1.862 0.413 0 None sqrt(x) 0.002505 Param Intra 1 of 2 n/a Chloride, total (mg/L) AD-15 36.94 n/a n/a 1 future n/a 20 28.94 4.232 None No 0.002505 Param Intra 1 of 2 Chloride, total (mg/L) AD-17 46.83 n/a n/a 1 future n/a 20 36.88 5.261 0 None No 0.002505 Param Intra 1 of 2 AD-5 n/a 20 0 None 0.002505 Chloride, total (mg/L) 23.96 n/a n/a 1 future 17.56 3.38 No Param Intra 1 of 2 Chloride, total (mg/L) AD-8 26.11 n/a n/a 1 future n/a 15 18.47 3.809 0 None No 0.002505 Param Intra 1 of 2 Chloride, total (mg/L) AD-9 117.2 n/a n/a 1 future n/a 20 57.11 31.78 0 None No 0.002505 Param Intra 1 of 2 Fluoride, total (mg/L) AD-1 NP Intra (NDs) 1 of 2 1 n/a n/a 1 future n/a 21 n/a n/a 52.38 n/a n/a 0.003999 AD-15 Fluoride, total (mg/L) n/a 1 future n/a 21 n/a 42.86 0.003999 NP Intra (normality) 1 of 2 Fluoride, total (mg/L) AD-17 0.2552 n/a n/a 1 future n/a 16 0.1438 0.05653 43.75 Kaplan-Meier Nο 0.002505 Param Intra 1 of 2 Fluoride, total (mg/L) AD-5 n/a 21 42.86 0.003999 NP Intra (normality) 1 of 2 n/a n/a 1 future n/a n/a n/a n/a Fluoride, total (mg/L) AD-8 0.9486 n/a 21 0.6636 0.1516 9.524 0.002505 Param Intra 1 of 2 n/a n/a 1 future None -1.628 Fluoride, total (mg/L) AD-9 0.6846 n/a 1 future n/a 21 0.6642 28.57 Kaplan-Meier 0.002505 Param Intra 1 of 2 AD-1 Sulfate, total (mg/L) 76 11 n/a n/a 1 future n/a 20 51 68 12 91 n None Nο 0.002505 Param Intra 1 of 2 Sulfate, total (mg/L) AD-15 30.46 n/a n/a 1 future n/a 20 17.06 7.084 None No 0.002505 Param Intra 1 of 2 n/a Sulfate, total (mg/L) AD-17 1445 n/a 1 future n/a 20 n/a n/a 0 n/a n/a 0.004291 NP Intra (normality) 1 of 2 AD-5 73.02 0 Sulfate, total (mg/L) 267.7 n/a n/a 1 future n/a 20 129.5 None No 0.002505 Param Intra 1 of 2 Sulfate, total (mg/L) AD-8 203.7 n/a 1 future n/a 20 158.7 23.82 0 None 0.002505 Param Intra 1 of 2 n/a No Sulfate, total (mg/L) AD-9 2145 n/a 1 future n/a 20 884.5 666.3 0 None No 0.002505 Param Intra 1 of 2 Total Dissolved Solids (mg/L) AD-1 612 n/a n/a 1 future n/a 20 n/a n/a 0 n/a n/a 0.004291 NP Intra (normality) 1 of 2 Total Dissolved Solids (mg/L) AD-15 261 n/a 1 future n/a 19 164.2 50.64 None No 0.002505 Param Intra 1 of 2 n/a n/a Total Dissolved Solids (mg/L) AD-17 1921 n/a 1 future n/a 20 1704 114.5 0 None Nο 0.002505 Param Intra 1 of 2 Total Dissolved Solids (mg/L) AD-5 484 n/a n/a 1 future n/a 20 328 82.5 0 None No 0.002505 Param Intra 1 of 2 Total Dissolved Solids (mg/L) AD-8 489.3 n/a 1 future n/a 20 360.3 68.19 0 None No 0.002505 Param Intra 1 of 2 n/a Total Dissolved Solids (mg/L) AD-9 2690 n/a 1 future n/a 20 0 0.004291 NP Intra (normality) 1 of 2

Prediction Limit Intrawell Parametric, AD-1 (bg)



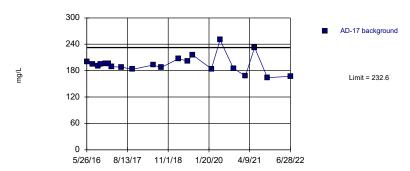
Background Data Summary (based on natural log transformation): Mean=3.437, Std. Dev.=1.3, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8865, critical = 0.873. Kappa = 1.88 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 2/7/2023 4:33 AM View: Intrawell PLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Prediction Limit Intrawell Parametric, AD-17 (bg)

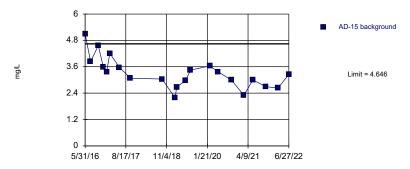


Background Data Summary: Mean=194.7, Std. Dev.=20.17, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9017, critical = 0.873. Kappa = 1.88 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

-

Prediction Limit

Intrawell Parametric, AD-15



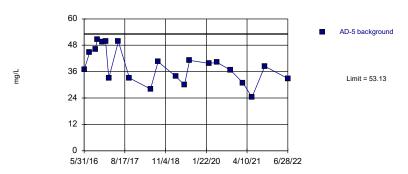
Background Data Summary: Mean=3.309, Std. Dev.=0.7109, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9525, critical = 0.873. Kappa = 1.88 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 2/7/2023 4:33 AM View: Intrawell PLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Prediction Limit Intrawell Parametric, AD-5 (bg)



Background Data Summary: Mean=38.6, Std. Dev.=7.729, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9562, critical = 0.873. Kappa = 1.88 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit Intrawell Parametric, AD-8



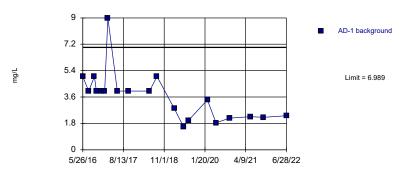
Background Data Summary (based on square root transformation): Mean=4.368, Std. Dev.=0.4972, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8896, critical = 0.878. Kappa = 1.869 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 2/7/2023 4:33 AM View: Intrawell PLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

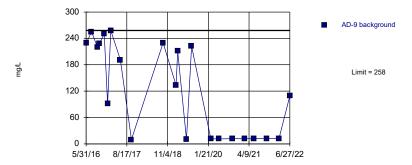
Prediction Limit Intrawell Parametric, AD-1 (bg)



Background Data Summary (based on square root transformation): Mean=1.862, Std. Dev.=0.413, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit

Intrawell Non-parametric, AD-9



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 22 background values. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2). Assumes 1 future value.

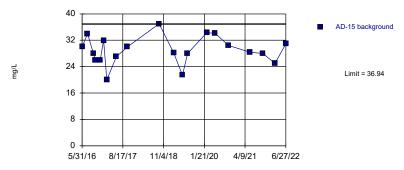
Constituent: Calcium, total Analysis Run 2/7/2023 4:34 AM View: Intrawell PLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

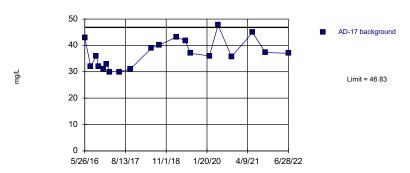
Prediction Limit





Background Data Summary: Mean=28.94, Std. Dev.=4.232, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9729, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit Intrawell Parametric, AD-17 (bg)

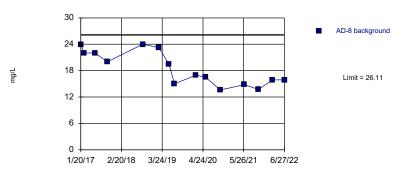


Background Data Summary: Mean=36.88, Std. Dev.=5.261, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9435, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

> Constituent: Chloride, total Analysis Run 2/7/2023 4:34 AM View: Intrawell PLs Welsh PBAP Client: Geosyntec Data: Welsh PBAP

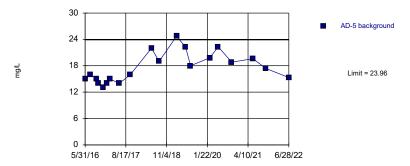
Sanitas™ v.9.6.36 . UG

Prediction Limit Intrawell Parametric, AD-8



Background Data Summary: Mean=18.47, Std. Dev.=3.809, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8957, critical = 0.835. Kappa = 2.006 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit Intrawell Parametric, AD-5 (bg)

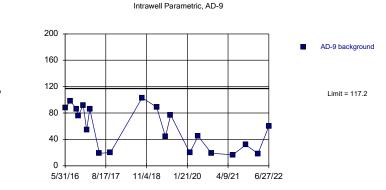


Background Data Summary: Mean=17.56, Std. Dev.=3.38, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9265, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

> Constituent: Chloride, total Analysis Run 2/7/2023 4:34 AM View: Intrawell PLs Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Prediction Limit



Background Data Summary: Mean=57.11, Std. Dev.=31.78, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8717, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Sanitas™ v.9.6.36 . UG Hollow symbols indicate censored values.

Prediction Limit Intrawell Non-parametric, AD-1 (bg)

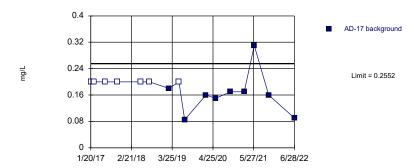


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 21 background values. 52.38% NDs. Well-constituent pair annual alpha = 0.007982. Individual comparison alpha = 0.003999 (1 of 2). Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 2/7/2023 4:34 AM View: Intrawell PLs
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG Hollow symbols indicate censored values.

Prediction Limit Intrawell Parametric, AD-17 (bg)



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.1438, Std. Dev.=0.05653, n=16, 43,75% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8487, critical = 0.844. Kappa = 1.97 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit

Intrawell Non-parametric, AD-15



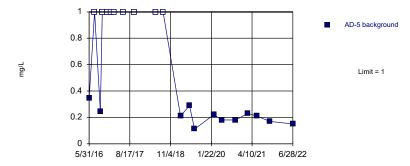
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 21 background values. 42.86% NDs. Well-constituent pair annual alpha = 0.007982. Individual comparison alpha = 0.003999 (1 of 2). Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 2/7/2023 4:34 AM View: Intrawell PLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG Hollow symbols indicate censored values.

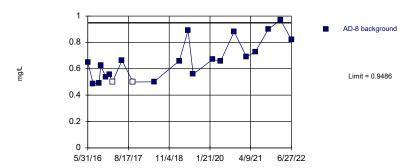
Prediction Limit Intrawell Non-parametric, AD-5 (bg)



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 21 background values. 42.86% NDs. Well-constituent pair annual alpha = 0.007982. Individual comparison alpha = 0.003999 (1 of 2). Assumes 1 future value.

Sanitas™ v.9.6.36 . UG Hollow symbols indicate censored values.

Prediction Limit Intrawell Parametric, AD-8



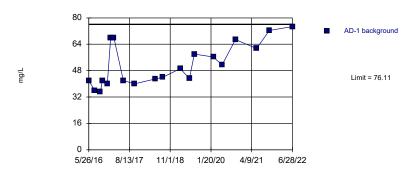
Background Data Summary: Mean=0.6636, Std. Dev.=0.1516, n=21, 9.524% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9048, critical = 0.873. Kappa = 1.88 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 2/7/2023 4:34 AM View: Intrawell PLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

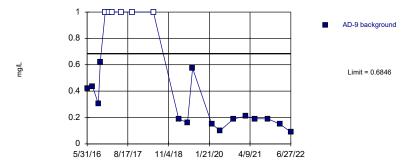




Background Data Summary: Mean=51.68, Std. Dev.=12.91, n=20. Normality test: Shapiro Wilk @alpha = 0.01, collaited = 0.8957, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit

Intrawell Parametric, AD-9



Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=1.628, Std. Dev.=0.6642, n=21, 28.57% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8809, critical = 0.873. Kappa = 1.88 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

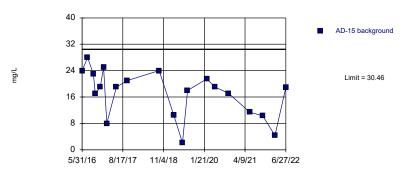
Constituent: Fluoride, total Analysis Run 2/7/2023 4:34 AM View: Intrawell PLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Prediction Limit

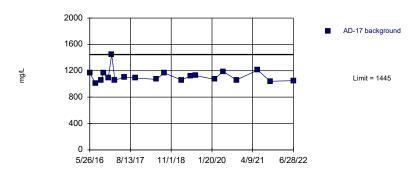
Intrawell Parametric, AD-15



Background Data Summary: Mean=17.06, Std. Dev.=7.084, n=20. Normality test: Shapiro Wilk @alpha = 0.01, culculated = 0.9371, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Sanitas™ v.9.6.36 . UG

Prediction Limit Intrawell Non-parametric, AD-17 (bg)



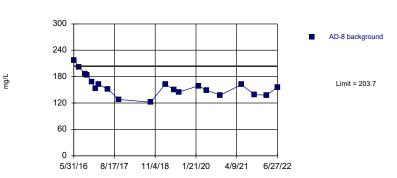
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 20 background values. Well-constituent pair annual alpha = 0.008564. Individual comparison alpha = 0.004291 (1 of 2). Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 2/7/2023 4:34 AM View: Intrawell PLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Prediction Limit Intrawell Parametric, AD-8

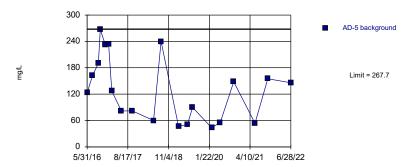


Background Data Summary: Mean=158.7, Std. Dev.=23.82, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.938, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Sanitas™ v.9.6.36 . UG

Prediction Limit

Intrawell Parametric, AD-5 (bg)



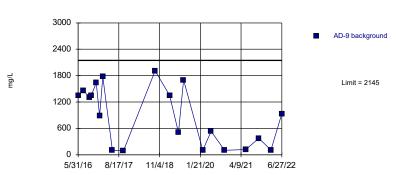
Background Data Summary: Mean=129.5, Std. Dev.=73.02, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9061, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 2/7/2023 4:34 AM View: Intrawell PLs
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

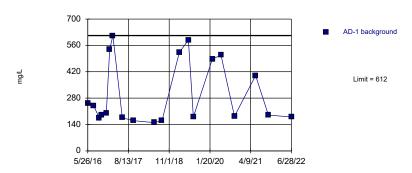
Prediction Limit

Intrawell Parametric, AD-9



Background Data Summary: Mean=884.5, Std. Dev.=666.3, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8749, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit Intrawell Non-parametric, AD-1 (bg)

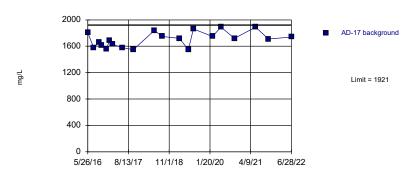


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 20 background values. Well-constituent pair annual alpha = 0.008564. Individual comparison alpha = 0.004291 (1 of 2). Assumes 1 future value.

Constituent: Total Dissolved Solids Analysis Run 2/7/2023 4:34 AM View: Intrawell PLs Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

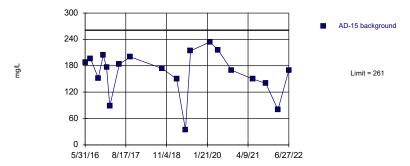
Prediction Limit Intrawell Parametric, AD-17 (bg)



Background Data Summary: Mean=1704, Std. Dev.=114.5, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9349, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit

Intrawell Parametric, AD-15

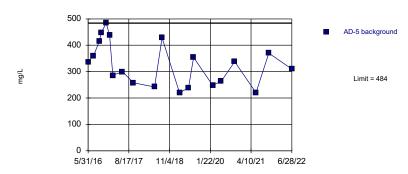


Background Data Summary: Mean=164.2, Std. Dev.=50.64, n=19. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9016, critical = 0.863. Kappa = 1.912 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: Total Dissolved Solids Analysis Run 2/7/2023 4:34 AM View: Intrawell PLs Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

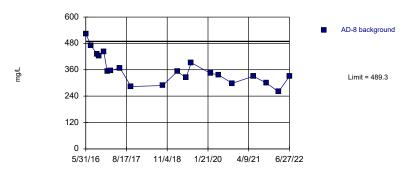
Prediction Limit Intrawell Parametric, AD-5 (bg)



Background Data Summary: Mean=328, Std. Dev.=82.5, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9369, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Sanitas™ v.9.6.36 . UG

Prediction Limit Intrawell Parametric, AD-8

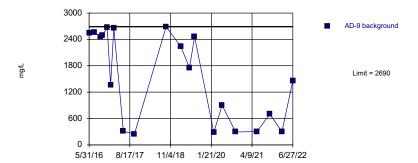


Background Data Summary: Mean=360.3, Std. Dev.=68.19, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9407, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: Total Dissolved Solids Analysis Run 2/7/2023 4:34 AM View: Intrawell PLs Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Prediction Limit Intrawell Non-parametric, AD-9



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 20 background values. Well-constituent pair annual alpha = 0.008564. Individual comparison alpha = 0.004291 (1 of 2). Assumes 1 future value.

Constituent: Total Dissolved Solids Analysis Run 2/7/2023 4:34 AM View: Intrawell PLs Welsh PBAP Client: Geosyntec Data: Welsh PBAP

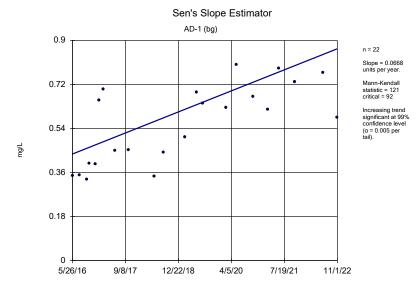
FIGURE F Upgradient Trend Test

Trend Tests - Upgradient Wells - Significant Results

| | Welsh PBAP Client: Geosy | ntec Data: Welsh Pl | BAP | Printed 2/9/ | 2023, | 11:04 A | M | | | | |
|---------------------|--------------------------|-----------------------|-------|--------------|-------|----------|------|-----------|--------------|--------------|--------|
| Constituent | Well | <u>Slope</u> <u>C</u> | Calc. | Critical | Sig. | <u>N</u> | %NDs | Normality | <u>Xform</u> | <u>Alpha</u> | Method |
| Boron, total (mg/L) | AD-1 (bg) | 0.0668 1 | 121 | 92 | Yes | 22 | 0 | n/a | n/a | 0.01 | NP |
| pH, field (SU) | AD-17 (bg) | -0.1264 - | -112 | -92 | Yes | 22 | 0 | n/a | n/a | 0.01 | NP |

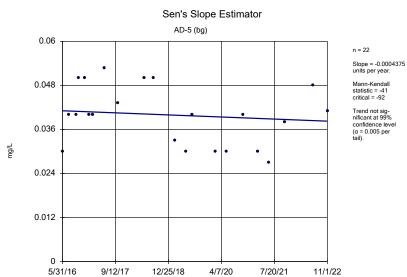
Trend Tests - Upgradient Wells - All Results Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 2/9/2023, 11:04 AM

| | Welsh PBAP | Client: Geosyntec | Data: Welsh | PBAP | Printed 2/9/2 | 2023, 1 | 11:04 AI | VI | | | | |
|---------------------|------------|-------------------|-------------|-------|---------------|---------|----------|------|-----------|--------------|--------------|--------|
| Constituent | Well | | Slope | Calc. | Critical | Sig. | <u>N</u> | %NDs | Normality | <u>Xform</u> | <u>Alpha</u> | Method |
| Boron, total (mg/L) | AD-1 (bg) | | 0.0668 | 121 | 92 | Yes | 22 | 0 | n/a | n/a | 0.01 | NP |
| Boron, total (mg/L) | AD-17 (bg) | | -0.003145 | -67 | -92 | No | 22 | 0 | n/a | n/a | 0.01 | NP |
| Boron, total (mg/L) | AD-5 (bg) | | -0.0004375 | -41 | -92 | No | 22 | 0 | n/a | n/a | 0.01 | NP |
| pH, field (SU) | AD-1 (bg) | | -0.08036 | -32 | -92 | No | 22 | 0 | n/a | n/a | 0.01 | NP |
| pH, field (SU) | AD-17 (bg) | | -0.1264 | -112 | -92 | Yes | 22 | 0 | n/a | n/a | 0.01 | NP |
| pH, field (SU) | AD-5 (bg) | | 0.02743 | 19 | 92 | No | 22 | 0 | n/a | n/a | 0.01 | NP |
| | | | | | | | | | | | | |

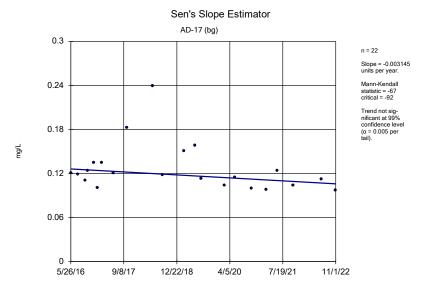


Constituent: Boron, total Analysis Run 2/9/2023 11:03 AM View: Upgradient Well Trend Test
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



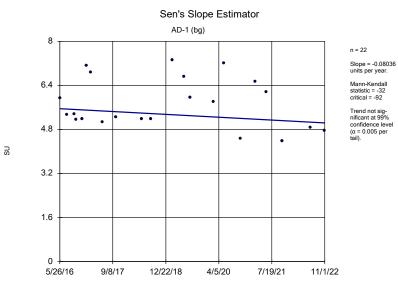


Constituent: Boron, total Analysis Run 2/9/2023 11:03 AM View: Upgradient Well Trend Test
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Boron, total Analysis Run 2/9/2023 11:03 AM View: Upgradient Well Trend Test
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

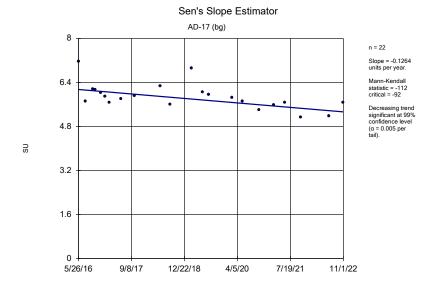
Sanitas™ v.9.6.36 Groundwater Stats Consulting. UG



Constituent: pH, field Analysis Run 2/9/2023 11:03 AM View: Upgradient Well Trend Test

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

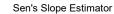
Sanitas™ v.9.6.36 Groundwater Stats Consulting. UG

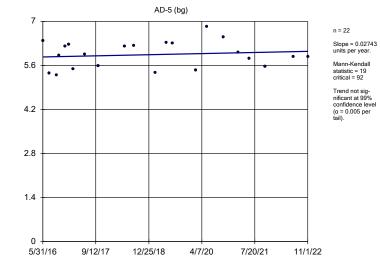


Constituent: pH, field Analysis Run 2/9/2023 11:03 AM View: Upgradient Well Trend Test
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 Groundwater Stats Consulting. UG

S





Constituent: pH, field Analysis Run 2/9/2023 11:03 AM View: Upgradient Well Trend Test
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

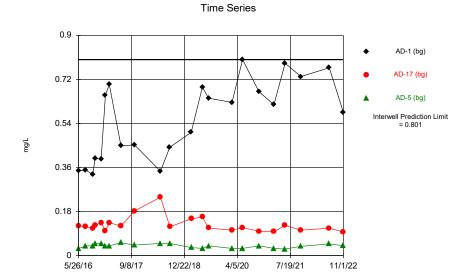
FIGURE G Interwell PL

Appendix III - Intrawell Prediction Limits - All Results

Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 2/2/2023, 4:31 AM

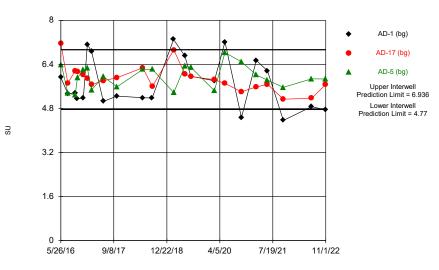
| Constituent | <u>Well</u> | Upper Lim. Lov | ver Lim. Date | Observ. | Sig. Bg N | Bg Mean | Std. Dev. | %NDs | ND Adj. | Transform | <u>Alpha</u> | Method |
|---------------------|-------------|----------------|---------------|----------|-----------|---------|-----------|------|---------|-----------|--------------|-----------------------------|
| Boron, total (mg/L) | n/a | 0.801 n/a | n/a | 3 future | n/a 66 | n/a | n/a | 0 | n/a | n/a | 0.0004437 | NP Inter (normality) 1 of 2 |
| pH, field (SU) | n/a | 6.936 4.7 | 7 n/a | 3 future | n/a 66 | 5.853 | 0.637 | 0 | None | No | 0.001253 | Param Inter 1 of 2 |

Sanitas™ v.9.6.36 Groundwater Stats Consulting. UG



Constituent: Boron, total Analysis Run 2/9/2023 10:40 AM View: Interwell Welsh PBAP Client: Geosyntec Data: Welsh PBAP

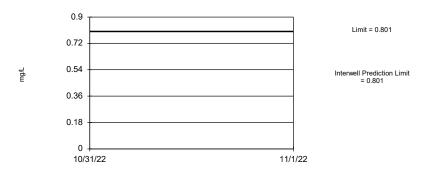
Time Series



Constituent: pH, field Analysis Run 2/9/2023 10:40 AM View: Interwell Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Prediction Limit Interwell Non-parametric



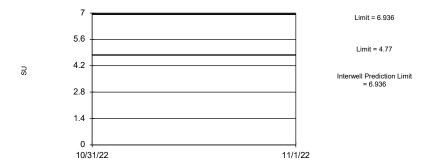
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 66 background values. Annual per-constituent alpha = 0.002659. Individual comparison alpha = 0.004437 (1 of 2). Assumes 3 future values.

Constituent: Boron, total Analysis Run 2/2/2023 4:31 AM View: Interwell PLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Prediction Limit Interwell Parametric



Background Data Summary: Mean=5.853, Std. Dev.=0.637, n=66. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9836, critical = 0.948. Mappa = 1.7 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.0074981. Assumes 3 future values.

Constituent: pH, field Analysis Run 2/2/2023 4:31 AM View: Interwell PLs
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

FIGURE H UTL

Upper Tolerance Limits Summary Table Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 3/3/2023, 1:02 PM

| | | | Welsh PBAP | Client: G | eosyntec | Data: We | sh PBAP | Printed 3/3/202 | 23, 1:02 | PM | | | |
|-----------------------------------|------|------------|------------|-------------|----------|----------|---------|-----------------|----------|---------|-----------|---------|---------------------|
| Constituent | Well | Upper Lim. | Lower Lim. | <u>Date</u> | Observ. | Sig.Bg N | Bg Mean | Std. Dev. | %NDs | ND Adj. | Transform | n Alpha | Method |
| Antimony, total (mg/L) | n/a | 0.00317 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 68.25 | n/a | n/a | 0.0395 | NP Inter(NDs) |
| Arsenic, total (mg/L) | n/a | 0.00628 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 30.16 | n/a | n/a | 0.0395 | NP Inter(normality) |
| Barium, total (mg/L) | n/a | 0.5643 | n/a | n/a | n/a | n/a 63 | -2.859 | 1.14 | 0 | None | In(x) | 0.05 | Inter |
| Beryllium, total (mg/L) | n/a | 0.001123 | n/a | n/a | n/a | n/a 63 | -8.998 | 1.099 | 6.349 | None | In(x) | 0.05 | Inter |
| Cadmium, total (mg/L) | n/a | 0.004 | n/a | n/a | n/a | n/a 61 | n/a | n/a | 32.79 | n/a | n/a | 0.04377 | NP Inter(normality) |
| Chromium, total (mg/L) | n/a | 0.002329 | n/a | n/a | n/a | n/a 62 | -7.943 | 0.9355 | 14.52 | None | In(x) | 0.05 | Inter |
| Cobalt, total (mg/L) | n/a | 0.0748 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 0 | n/a | n/a | 0.0395 | NP Inter(normality) |
| Combined Radium 226 + 228 (pCi/L) | n/a | 4.605 | n/a | n/a | n/a | n/a 63 | 1.464 | 0.3399 | 0 | None | sqrt(x) | 0.05 | Inter |
| Fluoride, total (mg/L) | n/a | 0.583 | n/a | n/a | n/a | n/a 66 | n/a | n/a | 40.91 | n/a | n/a | 0.03387 | NP Inter(normality) |
| Lead, total (mg/L) | n/a | 0.003384 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 52.38 | n/a | n/a | 0.0395 | NP Inter(NDs) |
| Lithium, total (mg/L) | n/a | 0.394 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 1.587 | n/a | n/a | 0.0395 | NP Inter(normality) |
| Mercury, total (mg/L) | n/a | 0.000033 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 60.32 | n/a | n/a | 0.0395 | NP Inter(NDs) |
| Molybdenum, total (mg/L) | n/a | 0.00243 | n/a | n/a | n/a | n/a 62 | n/a | n/a | 67.74 | n/a | n/a | 0.04158 | NP Inter(NDs) |
| Selenium, total (mg/L) | n/a | 0.00835 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 39.68 | n/a | n/a | 0.0395 | NP Inter(normality) |
| Thallium, total (mg/L) | n/a | 0.001251 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 88.89 | n/a | n/a | 0.0395 | NP Inter(NDs) |

FIGURE I GWPS

| WELSH PBAP GWPS | | | | | | | | |
|--------------------------------|-------|------------|--------|--|--|--|--|--|
| | | Background | | | | | | |
| Constituent Name | MCL | Limit | GWPS | | | | | |
| Antimony, Total (mg/L) | 0.006 | 0.0032 | 0.006 | | | | | |
| Arsenic, Total (mg/L) | 0.01 | 0.0063 | 0.01 | | | | | |
| Barium, Total (mg/L) | 2 | 0.56 | 2 | | | | | |
| Beryllium, Total (mg/L) | 0.004 | 0.0011 | 0.004 | | | | | |
| Cadmium, Total (mg/L) | 0.005 | 0.004 | 0.005 | | | | | |
| Chromium, Total (mg/L) | 0.1 | 0.0023 | 0.1 | | | | | |
| Cobalt, Total (mg/L) | n/a | 0.075 | 0.075 | | | | | |
| Combined Radium, Total (pCi/L) | 5 | 4.61 | 5 | | | | | |
| Fluoride, Total (mg/L) | 4 | 0.58 | 4 | | | | | |
| Lead, Total (mg/L) | n/a | 0.0034 | 0.0034 | | | | | |
| Lithium, Total (mg/L) | n/a | 0.39 | 0.39 | | | | | |
| Mercury, Total (mg/L) | 0.002 | 0.000033 | 0.002 | | | | | |
| Molybdenum, Total (mg/L) | n/a | 0.0024 | 0.0024 | | | | | |
| Selenium, Total (mg/L) | 0.05 | 0.0084 | 0.05 | | | | | |
| Thallium, Total (mg/L) | 0.002 | 0.0013 | 0.002 | | | | | |

^{*}MCL = Maximum Contaminant Level

^{*}GWPS = Groundwater Protection Standard

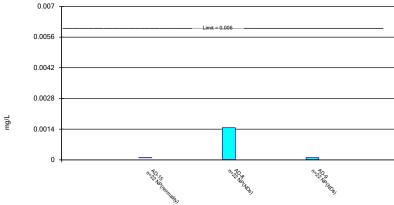
FIGURE J Confidence Intervals

Appendix IV - Confidence Intervals - All Results (No Significant)

Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 2/2/2023, 4:19 AM Constituent <u>Well</u> Upper Lim. Lower Lim. Compliance $\underline{\text{Sig.}} \ \underline{N}$ Std. Dev. %NDs Transform <u>Alpha</u> Method AD-15 0.0001 0.00009 No 22 0.00002938 NP (normality) Antimony, total (mg/L) 0.006 72.73 No 0.01 AD-8 0.001461 0.0007086 NP (NDs) Antimony, total (mg/L) 0.00001 0.006 No 22 86.36 0.01 Antimony, total (mg/L) AD-9 0.0001 0.00001 0.006 No 22 0.00001919 95.45 No 0.01 NP (NDs) 0.007535 0.003008 No 21 0.005803 AD-15 0.01 0 x^(1/3) 0.01 Arsenic, total (mg/L) Param. Arsenic, total (mg/L) AD-8 0.005 No 22 0.002273 36.36 0.01 Arsenic, total (mg/L) AD-9 0.005 0.00027 0.01 Nο 22 0.002247 40.91 Nο 0.01 NP (normality) Barium, total (mg/L) AD-15 0.184 0.0766 No 21 0.09365 0 0.01 NP (normality) 2 No Barium, total (mg/L) AD-8 0.02942 0.02256 No 22 0.006932 0 sqrt(x) 0.01 Param. Barium, total (mg/L) AD-9 0.05228 0.0354 2 No 22 0.01669 0 x^(1/3) 0.01 Param. AD-15 0.0006964 0.0001887 0.004 Nο 21 0.0006016 0 Beryllium, total (mg/L) sqrt(x) 0.01 Param. Beryllium, total (mg/L) AD-8 0.00001 0.004 No 22 0.00004267 68.18 No 0.01 NP (normality) Beryllium, total (mg/L) AD-9 0.001105 0.0006244 0.004 No 22 0.0004479 0 Nο 0.01 AD-15 0.000011 21 0.0001893 NP (normality) Cadmium, total (mg/L) 0.0003194 0.005 No 4.762 No 0.01 Cadmium, total (mg/L) AD-8 0.001 0.000021 No 22 0.0004888 40.91 No 0.01 NP (normality) Cadmium, total (mg/L) AD-9 0.0008404 0.0002356 0.005 Nο 22 0.0008166 0 x^(1/3) 0.01 Param. 21 0.01517 AD-15 0.005615 0.0006464 No 0 0.01 Param. Chromium, total (mg/L) 0.1 In(x) Chromium, total (mg/L) 0.0007512 No 22 0.0004789 22.73 No 0.01 NP (Cohens/xfrm) 0.1 Chromium, total (mg/L) AD-9 0.001045 0.0005609 0.1 No 22 0.0003123 36.36 0.01 No AD-15 21 0.005008 Cobalt, total (mg/L) 0.007174 0.003608 0.075 Nο n In(x) 0.01 Param Cobalt, total (mg/L) AD-8 0.006276 0.00359 0.075 No 22 0.002503 0 No 0.01 Param. Cobalt, total (mg/L) AD-9 0.02315 0.01655 0.075 No 22 0.006617 0 sqrt(x) 0.01 Param. Combined Radium 226 + 228 (pCi/L) Nο 21 0.8019 0 AD-15 2.463 1.578 5 Nο 0.01 Param. Combined Radium 226 + 228 (pCi/L) AD-8 1.32 0.5853 5 No 22 1.32 0 0.01 ln(x) Param. Combined Radium 226 + 228 (pCi/L) AD-9 2.559 1.78 5 No 22 0.7254 0 0.01 Fluoride, total (mg/L) AD-15 0.086 4 No 22 0.4563 40.91 No 0.01 NP (normality) Fluoride, total (mg/L) AD-8 0.7608 0.5907 No 22 0.1584 9.091 No 0.01 Param. Fluoride, total (mg/L) AD-9 0.6227 0.17 No 22 0.3653 27.27 No 0.01 NP (normality) 0.006215 Lead, total (mg/L) AD-15 0.0048 0.00009 0.0034 No 21 14.29 No 0.01 NP (normality) AD-8 0.0002 0.00007 No 22 0.00006645 59.09 0.01 NP (normality) Lead, total (mg/L) No AD-9 0.005 0.00008 0.0034 No 22 0.002442 40.91 0.01 NP (normality) Lead, total (mg/L) No AD-15 22 0.03109 Lithium, total (mg/L) 0.01275 0.004018 0.39 Nο 0 In(x) 0.01 Param Lithium, total (mg/L) AD-8 0.1012 0.07666 0.39 No 22 0.02288 0 No 0.01 Param. Lithium, total (mg/L) AD-9 No 22 0.5132 NP (normality) 1.2 0.205 0.01 0.000026 0.00002814 NP (Cohens/xfrm) Mercury, total (mg/L) AD-15 0.000005 0.002 No 20 40 No 0.01 AD-8 No 21 0.000003661 80.95 0.01 NP (NDs) Mercury, total (mg/L) 8000008 0.000005 0.002 No AD-9 0.002 No 21 0.00001056 0.01 NP (Cohens/xfrm) Mercury, total (mg/L) 0.00000739 28.57 No Molybdenum, total (mg/L) AD-15 0.0005868 0.0004635 0.0024 No 22 0.0009226 63.64 No 0.01 NP (normality) NP (NDs) Molybdenum, total (mg/L) AD-8 0.00016 0.0024 No 22 0.0004009 77.27 0.01 No Molybdenum, total (mg/L) AD-9 0.0005 0.00011 0.0024 No 22 0.00008315 95.45 0.01 NP (NDs) Selenium, total (mg/L) AD-15 0.00186 0.0007017 0.05 Nο 21 0.001235 9 524 sart(x) 0.01 Param AD-8 0.00137 0.00008 0.05 No 22 0.0005208 Selenium, total (mg/L) 54.55 No 0.01 NP (normality) AD-9 0.003528 No 22 0.002324 0.01 Selenium, total (mg/L) 0.0003 No Thallium, total (mg/L) AD-15 0.0005 0.00009 0.002 Nο 22 0.0003935 54.55 No 0.01 NP (normality) AD-8 0.0005 0.00011 22 0.0003799 NP (normality) Thallium, total (mg/L) 0.002 No 50 No 0.01 Thallium, total (mg/L) AD-9 0.0005 0.0002 0.0004252 NP (Cohens/xfrm) 0.002 0.01

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.



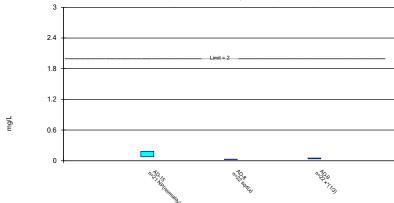
Constituent: Antimony, total Analysis Run 2/2/2023 4:15 AM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

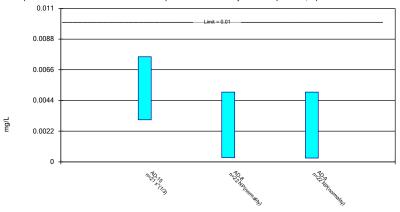


Constituent: Barium, total Analysis Run 2/2/2023 4:15 AM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



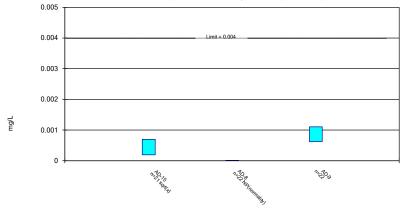
Constituent: Arsenic, total Analysis Run 2/2/2023 4:15 AM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Parametric and Non-Parametric (NP) Confidence Interval

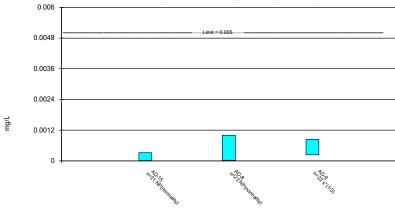
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Sanitas™ v.9.6.36 . UG

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



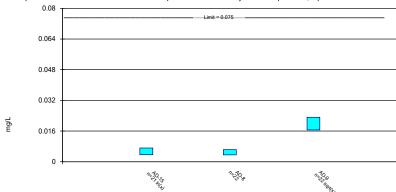
Constituent: Cadmium, total Analysis Run 2/2/2023 4:15 AM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

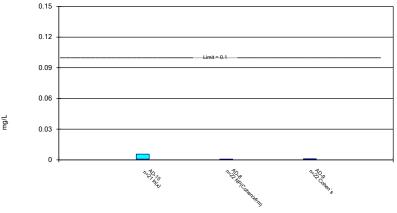
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



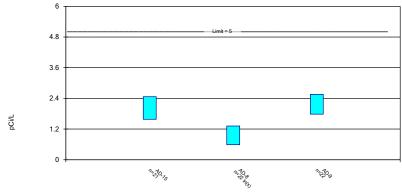
Constituent: Chromium, total Analysis Run 2/2/2023 4:15 AM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

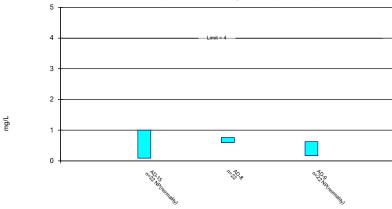
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



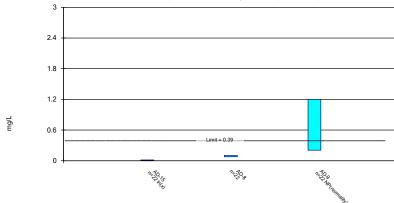
Constituent: Fluoride, total Analysis Run 2/2/2023 4:15 AM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

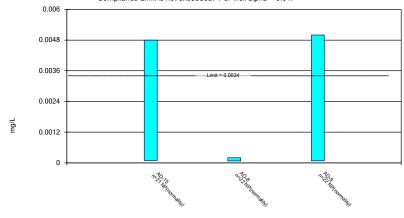


Constituent: Lithium, total Analysis Run 2/2/2023 4:15 AM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.



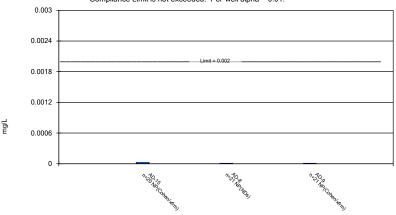
Constituent: Lead, total Analysis Run 2/2/2023 4:15 AM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.



Sanitas™ v.9.6.36 . UG

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.

0.003

0.0024

Limit = 0.0024

0.0018

0.0012

0.0006

Constituent: Molybdenum, total Analysis Run 2/2/2023 4:15 AM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.

0.003

0.0024

0.0018

0.0012

0.0006

0.0006

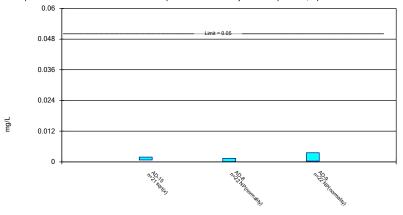
Constituent: Thallium, total Analysis Run 2/2/2023 4:15 AM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 . UG

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Selenium, total Analysis Run 2/2/2023 4:15 AM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP





engineers | scientists | innovators

STATISTICAL ANALYSIS SUMMARY, PRIMARY BOTTOM ASH POND

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Project Number: CHA8500B

October 3, 2023



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Data Quality Review Memorandum

Statistical Analysis Output

Attachment C:



ACRONYMS AND ABBREVIATIONS

CCR coal combustion residuals

GWPS groundwater protection standard

LPL lower prediction limit

PBAP Primary Bottom Ash Pond

QA/QC quality assurance and quality control

SSI statistically significant increase

SSL statistically significant level

SU standard units

TCEQ Texas Commission on Environmental Quality

UPL upper prediction limit



1. INTRODUCTION

In accordance with Texas Commission on Environmental Quality (TCEQ) regulations regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Title 30 Chapter 352, "CCR rule"), groundwater monitoring has been conducted at the Primary Bottom Ash Pond (PBAP), an existing CCR unit at the Welsh Power Plant in Pittsburg, Texas. Recent groundwater monitoring results were compared to site-specific groundwater protection standards (GWPSs) to identify potential exceedances.

Based on detection monitoring conducted in 2017 and 2018, statistically significant increases (SSIs) over background were concluded for boron at the PBAP. An alternative source was not identified at the time, so assessment monitoring was initiated and GWPS were set in accordance with § 352.951(b). Two assessment monitoring events were conducted at the PBAP in February and June 2023 in accordance with § 352.951(a). The results of these assessment events are documented in this report.

The monitoring data were submitted to Groundwater Stats Consulting, LLC for statistical analysis. Confidence intervals were calculated for Appendix IV parameters at the compliance wells to assess whether Appendix IV parameters were present at a statistically significant level (SSL) above previously established GWPS. No SSLs were identified; however, concentrations of Appendix III parameters remained above background. Thus, the unit will remain in assessment monitoring. Certification of the selected statistical methods by a qualified professional engineer is documented in Attachment A. The statistical analysis and certification of the selected methods were completed within 90 days of obtaining the data.



2. PRIMARY BOTTOM ASH POND EVALUATION

2.1 Data Validation and QA/QC

During the assessment monitoring program in 2023, two sets of samples (February 2023 and June 2023) were collected for analysis. Samples were collected from each background and compliance well during the June 2023 event, whereas samples were collected only from the compliance well locations during the February 2023 event. Samples from both events were analyzed for all Appendix III and Appendix IV parameters. A summary of data collected during these assessment monitoring events may be found in Table 1.

Chemical analysis was completed by an analytical laboratory certified by the National Environmental Laboratory Accreditation Program. Quality assurance and quality control (QA/QC) samples completed by the analytical laboratory included the use of laboratory reagent blanks, continuing calibration verification samples, and laboratory fortified blanks.

A data quality review was completed to assess if the data met the objectives outlined in TCEQ Draft Technical Guidance No. 32 related to groundwater sampling and analysis (TCEQ 2020). As noted in the review memoranda (Attachment B), the data were determined usable for supporting project objectives. The analytical data were imported into a Microsoft Access database, where checks were completed to assess the accuracy of sample location identification and analyte identification. Where necessary, unit conversions were applied to standardize reported units across all sampling events. Exported data files were created for use with the SanitasTM v.9.6.36 statistics software. The export file was checked against the analytical data for transcription errors and completeness.

2.2 Statistical Analysis

Statistical analyses for the PBAP were conducted in accordance with the Statistical Analysis Plan (Geosyntec 2021), except where noted below. Time series plots and results for all completed statistical tests are provided in Attachment C.

The data obtained in February and June 2023 were screened for potential outliers. No outliers were identified for these events.

2.2.1 Evaluation of Potential Appendix IV SSLs

A confidence interval was constructed for each Appendix IV parameter at each compliance well. Confidence limits were generally calculated parametrically ($\alpha = 0.01$), but nonparametric confidence limits were calculated in some cases (e.g., when the data did not appear to be normally distributed or when the nondetect frequency was too high). An SSL was concluded if the lower confidence limit was above the GWPS (i.e., if the entire confidence interval was above the GWPS). Calculated confidence limits are shown in Attachment C. The calculated confidence limits were compared to the GWPSs provided in Table 2. The GWPSs were established as either the greater value of the background concentration calculated during a previous statistical analysis or the maximum contaminant level (Geosyntec 2023).

No SSLs were identified at the PBAP.



2.2.2 Evaluation of Potential Appendix III SSIs

A review of the Appendix III results was also completed to assess whether concentrations of Appendix III parameters at the compliance wells were above background concentrations. Data collected during the June 2023 assessment monitoring event from each compliance well were compared to previously established prediction limits to evaluate results above background values. The results from this event and the prediction limits are summarized in Table 3. The following exceedances of the upper prediction limits (UPLs) or, in the case of pH, values below the lower prediction limits (LPLs) were noted:

- Boron concentrations were above the interwell UPL of 0.801 mg/L at AD-8 (0.932 mg/L).
- The reported pH values were below the interwell LPL of 4.8 SU mg/L at AD-15 (4.3 SU).

While the prediction limits were calculated for a one-of-two retesting procedure, SSIs were conservatively assumed if the initial (June 2023) sample was above the UPL or below the LPL. Based on these results, concentrations of boron appear to be above background concentrations, and pH values appear to be below background values. Therefore, the unit will remain in assessment monitoring.

2.3 Conclusions

An annual and semiannual assessment monitoring event were conducted in accordance with the TCEQ CCR Rule. The laboratory and field data were reviewed prior to statistical analysis, with no QA/QC issues identified that prevented data usage. A review of outliers identified no potential outliers in the February or June 2023 data. A confidence interval was constructed at each compliance well for each Appendix IV parameter; SSLs were concluded if the entire confidence interval exceeded the GWPS. No SSLs were identified.

The Appendix III results were evaluated to assess whether concentrations of Appendix III parameters were above background levels. Boron concentrations were above and pH values were below background levels at select downgradient wells.

Based on this evaluation, the PBAP CCR unit will remain in assessment monitoring.



3. REFERENCES

- Geosyntec. 2021. Statistical Analysis Plan J. Robert Welsh Plant. Geosyntec Consultants, Inc. September.
- Geosyntec. 2023. Statistical Analysis Summary Primary Bottom Ash Pond, J. Robert Welsh Plant. Geosyntec Consultants, Inc. March.
- TCEQ. 2020. Draft Technical Guidance No. 32. Coal Combustion Residuals Groundwater Monitoring and Corrective Action. Texas Commission on Environmental Quality. May

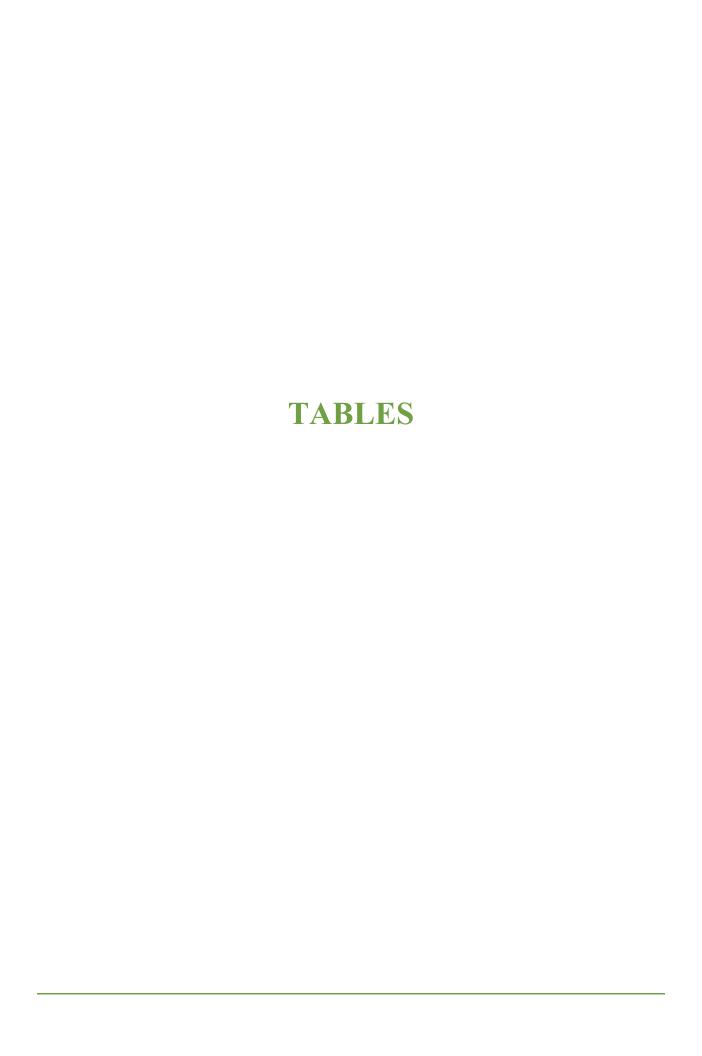


Table 1. Groundwater Data Summary Statistical Analysis Summary Welsh Plant - Primary Bottom Ash Pond

| | | AD-1 | AD-5 | Al |)-8 | AD-9 | | AD | AD-17 | |
|------------------------|-------|------------|------------|----------|------------|----------|------------------------------|----------|----------|------------|
| Parameter | Unit | Background | Background | Comp | oliance | Comp | Compliance 2/6/2023 6/6/2023 | | oliance | Background |
| | | 6/6/2023 | 6/6/2023 | 2/6/2023 | 6/5/2023 | 2/6/2023 | | | 6/5/2023 | 6/6/2023 |
| Antimony | μg/L | 0.041 J1 | 0.010 J1 | 0.10 U1 | 0.012 J1 | 0.10 U1 | 0.008 J1 | 0.10 U1 | 0.056 J1 | 1.0 U1 |
| Arsenic | μg/L | 0.21 | 4.30 | 0.28 | 0.24 | 0.33 | 1.15 | 3.26 | 7.67 | 1.1 |
| Barium | μg/L | 83.4 | 45.5 | 32.5 | 25.9 | 49.0 | 39.8 | 73.9 | 86.9 | 19.6 |
| Beryllium | μg/L | 1.11 | 0.055 | 0.021 J1 | 0.011 J1 | 1.60 | 0.502 | 0.162 | 0.237 | 0.11 J1 |
| Boron | mg/L | 0.729 | 0.030 J1 | 1.16 | 0.932 | 0.337 | 0.083 | 0.174 | 0.194 | 0.10 J1 |
| Cadmium | μg/L | 0.034 | 0.02 U1 | 0.031 | 0.020 | 0.379 | 0.135 | 0.019 J1 | 0.024 | 0.20 U1 |
| Calcium | mg/L | 6.59 | 26.5 | 24.6 M1 | 19.3 | 12.4 | 164 | 2.70 | 2.92 | 150 |
| Chloride | mg/L | 3.03 | 16.1 | 19.5 | 21.1 | 15.5 | 78.3 | 27.5 | 28.6 | 35.6 |
| Chromium | μg/L | 0.35 | 0.24 J1 | 0.23 | 0.27 J1 | 0.58 | 0.33 | 0.33 | 2.27 | 1.1 J1 |
| Cobalt | μg/L | 2.67 | 9.47 | 5.08 | 3.65 | 22.1 | 15.8 | 2.77 | 3.49 | 36.8 |
| Combined Radium | pCi/L | 0.95 | 1.72 | 3.47 | 0.68 | 3.05 | 1.86 | 1.77 | 1.37 | 1.42 |
| Fluoride | mg/L | 0.24 | 0.15 | 0.72 | 0.86 | 0.17 | 0.17 | 0.06 | 0.08 | 0.15 U1 |
| Lead | μg/L | 0.37 | 0.20 U1 | 0.05 J1 | 0.12 J1 | 0.18 J1 | 0.12 J1 | 0.15 J1 | 1.94 | 0.70 J1 |
| Lithium | mg/L | 0.0081 | 0.106 | 0.0821 | 0.0664 | 0.181 | 0.661 | 0.00373 | 0.0042 | 0.254 |
| Mercury | μg/L | 0.002 J1 | 0.005 U1 | 0.005 U1 | 0.005 U1 | 0.003 J1 | 0.005 U1 | 0.005 U1 | 0.006 | 0.003 J1 |
| Molybdenum | μg/L | 0.5 U1 | 0.5 U1 | 0.5 U1 | 0.5 U1 | 0.1 J1 | 0.5 U1 | 0.5 U1 | 0.1 J1 | 5 U1 |
| Selenium | μg/L | 10.1 | 0.06 J1 | 0.50 U1 | 0.07 J1 | 0.46 J1 | 0.51 | 0.45 J1 | 1.23 | 0.50 J1 |
| Sulfate | mg/L | 91.1 | 114 | 182 | 155 | 137 | 1,230 | 9.85 | 12.4 | 1,190 |
| Thallium | μg/L | 0.04 J1 | 0.20 U1 | 0.10 J1 | 0.10 J1 | 0.28 | 0.14 J1 | 0.07 J1 | 0.08 J1 | 2.0 U1 |
| Total Dissolved Solids | mg/L | 210 | 280 | 370 | 300 | 340 | 1,950 | 130 | 140 | 1,510 |
| pН | SU | 4.91 | 5.80 | 6.33 | 6.13 | 4.87 | 5.10 | 4.33 | 4.33 | 5.33 |

Notes:

μg/L: micrograms per liter mg/L: milligrams per liter pCi/L: picocuries per liter

SU: standard unit

U1: Non-detect value. For statistical analysis, parameters that were not detected were replaced with the reporting limit.

J1: Estimated value. Parameter was detected in concentrations below the reporting limit.

M1: The associated matrix spike (MS) or matrix spike duplicate (MSD) recovery was outside acceptance limits.

Table 2. Appendix IV Groundwater Protection Standards Statistical Analysis Summary

Welsh Plant - Primary Bottom Ash Pond

| Constituent Name | MCL | Calculated UTL | GWPS |
|--------------------------------|---------|----------------|---------|
| Antimony, Total (mg/L) | 0.00600 | 0.00317 | 0.00600 |
| Arsenic, Total (mg/L) | 0.0100 | 0.00628 | 0.0100 |
| Barium, Total (mg/L) | 2.00 | 0.564 | 2.00 |
| Beryllium, Total (mg/L) | 0.00400 | 0.00112 | 0.00400 |
| Cadmium, Total (mg/L) | 0.00500 | 0.00400 | 0.00500 |
| Chromium, Total (mg/L) | 0.100 | 0.00233 | 0.100 |
| Cobalt, Total (mg/L) | n/a | 0.0748 | 0.0748 |
| Combined Radium, Total (pCi/L) | 5.00 | 4.61 | 5.00 |
| Fluoride, Total (mg/L) | 4.00 | 0.583 | 4.00 |
| Lead, Total (mg/L) | n/a | 0.00338 | 0.00338 |
| Lithium, Total (mg/L) | n/a | 0.394 | 0.394 |
| Mercury, Total (mg/L) | 0.00200 | 0.0000330 | 0.00200 |
| Molybdenum, Total (mg/L) | n/a | 0.00243 | 0.00243 |
| Selenium, Total (mg/L) | 0.0500 | 0.00835 | 0.0500 |
| Thallium, Total (mg/L) | 0.00200 | 0.00125 | 0.00200 |

Notes:

- 1. Calculated UTL (Upper Tolerance Limit) represents site-specific background values.
- 2. Grey cells indicate the GWPS is based on the calculated UTL. Either the UTL is higher than the MCL or an MCL does not exist.

GWPS: Groundwater Protection Standard

MCL: Maximum Contaminant Level

mg/L: milligrams per liter pCi/L: picocuries per liter

n/a: not applicable

Table 3. Appendix III Data Summary Statistical Analysis Summary Welsh - Primary Bottom Ash Pond

| Analyte | Unit | Description | AD-8 | AD-9 | AD-15 | | | |
|------------------------|-------|----------------------------------|----------|---|--|--|--|--|
| Analyte | Oilit | Description | 6/5/2023 | 6/6/2023 | 6/5/2023 | | | |
| Boron | mg/L | Interwell Background Value (UPL) | 0.801 | | | | | |
| Doron | mg/L | Analytical Result | 0.932 | 0.083 | 0.194 | | | |
| Calcium | mg/L | Intrawell Background Value (UPL) | 28.1 | 258 | 4.65 | | | |
| Calcium | mg/L | Analytical Result | 19.3 | 6/6/2023 6/5/2023 0.801 0.083 0.194 258 4.65 164 2.92 117 36.9 78.3 28.6 0.685 1.00 0.17 0.08 6.9 4.8 5.1 4.3 2,150 30.5 1,230 12.4 | | | | |
| Chloride | mg/L | Intrawell Background Value (UPL) | 26.1 | 117 | 36.9 | | | |
| Cilioride | mg/L | Analytical Result | 21.1 | 78.3 | 0.801 0.083 0.194 258 4.65 164 2.92 117 36.9 78.3 28.6 0.685 1.00 0.17 0.08 6.9 4.8 5.1 4.3 2,150 30.5 | | | |
| Fluoride | mg/L | Intrawell Background Value (UPL) | 0.949 | 0.685 | 1.00 | | | |
| Pluoride | mg/L | Analytical Result | 0.86 | 0.17 | 0.08 | | | |
| | | Interwell Background Value (UPL) | 6.9 | | | | | |
| pН | SU | Interwell Background Value (LPL) | | 4.8 | | | | |
| | | Analytical Result | 6.1 | 5.1 | 4.3 | | | |
| Sulfate | mg/L | Intrawell Background Value (UPL) | 204 | 2,150 | 30.5 | | | |
| Sulfate | mg/L | Analytical Result | 155 | 1,230 | 0.194 4.65 2.92 36.9 28.6 1.00 0.08 | | | |
| Total Dissolved Solids | ma/I | Intrawell Background Value (UPL) | 489 | 2,690 | 261 | | | |
| Total Dissolved Solids | mg/L | Analytical Result | 300 | 1,950 | 140 | | | |

Notes:

1. Bold values exceed the background value.

2. Background values are shaded gray.

LPL: lower prediction limit mg/L: milligrams per liter

SU: standard units

UPL: upper prediction limit



ATTACHMENT A Certification by Qualified Professional Engineer

Certification by Qualified Professional Engineer

I certify that selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the Welsh Primary Bottom Ash Pond CCR management area and that the requirements of § 352.931(a) have been met.

| David Anthony M | liller | J. STA | A GOLD |
|------------------------|---------------------------|------------|--------------|
| Printed Name of Licens | sed Professional Engineer | DAVIDA | THONY MILLER |
| David Anthon | Miller | 1887 | ONAL ENG |
| Signature | | | |
| 112498 | Texas | 10.04.2023 | |
| License Number | Licensing State | Date | |

ATTACHMENT B Data Quality Review Memorandum





Memorandum

Date: September 22, 2023

To: David Miller (AEP)

Copies to: Rebecca Jones (AEP)

From: Allison Kreinberg (Geosyntec)

Subject: Data Quality Review – Welsh Power Plant

February 2023 Sampling Event

This memorandum summarizes the findings of a data quality review for groundwater samples collected at the Welsh Power Plant, located in Pittsburg, Texas in February 2023. The groundwater samples were collected to comply with the Texas Commission on Environmental Quality's (TCEQ's) regulations regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Title 30 Chapter 352, "CCR Rule"). 40 CFR 257 Appendix III and IV constituents were analyzed.

The following sample data groups (SDGs) were associated with the groundwater samples collected during the February 2023 sampling event and are reviewed in this memorandum:

- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 230430
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 230470

The data included in these SDGs were reviewed to assess if they met the objectives outlined in TCEQ Draft Technical Guideline No. 32¹ prior to submittal of this data to TCEQ.

The following data quality issues were identified:

 Mercury data for SDG 230470 had an inconsistent number of significant figures reported between the electronic data deliverable and the published laboratory report. The published

¹ TCEQ. Topic: Coal Combustion Residuals (CCR) Groundwater Monitoring and Corrective Action: Technical Guidance No. 32. May 2020.

Data Quality Review – Welsh February 2023 Data September 22, 2023 Page 2

laboratory report for SDG 230470 was reissued with the appropriate number of significant figures for mercury.

- As reported in SDG 230470, beryllium, boron, chromium, cobalt, lead, and lithium were detected in the equipment blank sample "EQUIPMENT BLANK" collected on 2/13/2023. The detected beryllium concentration in the equipment blank (0.011 μg/L) was more than 10% of the detected value in sample AD-8 (0.021 μg/L), which could result in high bias in the AD-8 beryllium results. The detected chromium concentration in the equipment blank (0.27 μg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results. The detected lead concentration in the equipment blank (0.37 μg/L) was more than 10% of the detected values for lead in all groundwater samples, which could result in high bias for all groundwater lead results.
- As reported in SDG 230430, the relative percent difference (RPD) for bromide concentrations from parent sample "AD-11" and duplicate sample "DUPLICATE" was 33%. The AD-11 bromide results should be considered estimated.
- As reported in SDG 230470, the RPD for chromium concentrations from parent sample (AD-11) and duplicate sample "DUPLICATE" was 46%. The AD-11 chromium results should be considered estimated.
- As reported in SDG 230470, the matrix spike duplicate (MSD) recovery for calcium (63.6%), sodium (26.4%), and strontium (69.6%) were below the acceptable limit of 75%. The associated sample (AD-8) was flagged M1: the associated matrix spike (MS) or MSD recovery was outside acceptance limits. The AD-8 calcium, sodium, and strontium results should be considered estimated.
- As reported in SDG 230470, the MSD recovery for calcium (135%), sodium (232%), and strontium (145%) were above the acceptable limit of 125%. The associated sample (AD-13) was flagged M1: the associated matrix spike (MS) or MSD recovery was outside acceptance limits. The AD-13 calcium, sodium, and strontium results should be considered estimated.

Based on these findings, the majority of the data reported in these SDGs are considered accurate and complete. Although the QC failures mentioned above will result in some limitations of data use since the affected results are considered estimated or have elevated reporting limits, the data are considered usable for supporting project objectives.





Memorandum

Date: October 3, 2023

To: David Miller (AEP)

Copies to: Rebecca Jones (AEP)

From: Allison Kreinberg (Geosyntec)

Subject: Data Quality Review – Welsh Power Plant

June 2023 Sampling Event

This memorandum summarizes the findings of a data quality review for groundwater samples collected at the Welsh Power Plant, located in Pittsburg, Texas in February 2023. The groundwater samples were collected to comply with the Texas Commission on Environmental Quality's (TCEQ's) regulations regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Title 30 Chapter 352, "CCR Rule"). 40 CFR 257 Appendix III and IV constituents were analyzed.

The following sample data groups (SDGs) were associated with the groundwater samples collected during the June 2023 sampling event and are reviewed in this memorandum:

- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 231693
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 231696
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 231698
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 231716
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 231719
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 231720

The data included in these SDGs were reviewed to assess if they met the objectives outlined in TCEQ Draft Technical Guideline No. 32¹ prior to submittal of this data to TCEQ.

¹ TCEQ. Topic: Coal Combustion Residuals (CCR) Groundwater Monitoring and Corrective Action: Technical Guidance No. 32. May 2020.

Data Quality Review – Welsh June 2023 Data October 3, 2023 Page 2

The following data quality issues were identified:

- Mercury data for SDGs 231716, 231719, and 231720 had an inconsistent number of significant figures reported between the electronic data deliverables and the published laboratory reports. The published laboratory reports for SDGs 231716, 231719, and 231720 were reissued with the appropriate number of significant figures for mercury.
- As reported in SDG 231716, calcium, chromium, and cobalt were detected in the equipment blank sample "EB-BACKGROUND" collected on 6/6/2023. The detected chromium concentration in the equipment blank (0.26 µg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results.
- As reported in SDG 231719, calcium, chromium, and cobalt were detected in the equipment blank sample "EQUIPMENT BLANK-PBAP" collected on 6/5/2023. The estimated detected chromium concentration in the equipment blank (0.29 µg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results.
- As reported in SDG 231720, antimony, beryllium, calcium, chromium, and cobalt were detected in the equipment blank sample "EQUIPMENT BLANK-LANDFILL" collected on 6/5/2023. The estimated detected antimony concentration in the equipment blank (0.025 μg/L) was more than 10% of the detected values for antimony in all groundwater samples, which could result in high bias for all groundwater antimony results. The estimated detected chromium concentration in the equipment blank (0.22 μg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results.
- As reported in SDG 231716, barium, beryllium, calcium, chromium, cobalt, and lead were detected in the field blank sample "FIELD BLANK BACKGROUND" collected on 6/6/2023. The detected beryllium concentration in the field blank (0.020 μg/L) was more than 10% of the detected value in samples AD-5 (0.055 μg/L) and AD-17 (estimated value of 0.11 μg/L), which could result in high bias in the AD-5 and AD-17 beryllium results. The detected chromium concentration in the field blank (0.27 μg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results. The detected lead concentration in the field blank (0.22 μg/L) was more than 10% of the detected values in samples AD-1 (0.37 μg/L) and AD-17 (estimated value of 0.7 μg/L), which could result in high bias in the AD-1 and AD-17 lead results.

Data Quality Review – Welsh June 2023 Data October 3, 2023 Page 3

- As reported in SDG 231719, calcium, chromium, and cobalt were detected in the field blank sample "FIELD BLANK PBAP" collected on 6/6/2023. The estimated detected chromium concentration in the field blank (0.23 μg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results.
- As reported in SDG 231720, calcium, chromium, and cobalt were detected in the field blank sample "FIELD BLANK LANDFILL" collected on 6/5/2023. The detected chromium concentration in the field blank (0.30 μg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results.
- As reported in SDG 231716, the relative percent difference (RPD) for lead concentrations from parent sample "AD-1" and duplicate sample "DUPLICATE-BACKGROUND" was 25%. The AD-1 lead result should be considered estimated.
- As reported in SDG 231719, the RPD for chromium concentrations from parent sample "AD-8" and duplicate sample "DUPLICATE - PBAP" was 41%. The AD-8 chromium result should be considered estimated. The RPD for lead concentrations from parent sample "AD-8" and duplicate sample "DUPLICATE - PBAP" was 96%. The AD-8 lead result should be considered estimated.
- The quality control data provided with SDG 231716 noted that the recovery on the matrix spike for radium-228 associated with sample "AD-1" had a low recovery, which resulted in poor precision for the matrix spike (MS)/matrix spike duplicate (MSD) pair. The radium-228 result for sample "AD-1" was not qualified in the provided laboratory report. The laboratory report should be amended to note the poor precision for the MSD.

Based on these findings, the majority of the data reported in these SDGs are considered accurate and complete. Although the QC failures mentioned above will result in some limitations of data use since the affected results are considered estimated or have elevated reporting limits, the data are considered usable for supporting project objectives.

ATTACHMENT C Statistical Analysis Output

GROUNDWATER STATS CONSULTING

SWFPR=

September 7, 2023

Geosyntec Consultants Attn: Ms. Allison Kreinberg 500 W. Wilson Bridge Road, Suite 250 Worthington, OH 43085

Re: Welsh PBAP – February & June 2023 Assessment Monitoring Report

Dear Ms. Kreinberg,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the statistical analysis of groundwater data for the February and June 2023 Assessment Monitoring report for American Electric Power Inc.'s Welsh PBAP. The analysis complies with the Texas Commission of Environmental Quality Rule 30 TAC 352 as well as with the United States Environmental Protection Agency (USEPA) Unified Guidance (2009).

Sampling began at the site for the Coal Combustion Residual (CCR) program in 2016. The monitoring well network, as provided by Geosyntec Consultants, consists of the following:

Upgradient wells: AD-1, AD-5, and AD-17

o **Downgradient wells:** AD-8, AD-9, and AD-15

Data were sent electronically, and the statistical analysis was reviewed by Andrew Collins, Project Manager of Groundwater Stats Consulting (GSC). The analysis was conducted according to the Statistical Analysis Plan prepared by GSC and approved by Dr. Cameron, PhD Statistician with MacStat Consulting, primary author of the USEPA Unified Guidance, and Senior Advisor to GSC.

Note that according to Geosyntec Consultants, the upgradient wells were not sampled in February 2023, but were sampled during the June 2023 sample event.

The CCR Assessment Monitoring program consists of the following constituents:

 Appendix IV (Assessment Monitoring) – antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, combined radium 226 + 228, fluoride, lead, lithium, mercury, molybdenum, selenium, and thallium

Time series plots for Appendix IV parameters are provided for all wells and constituents; and are used to evaluate concentrations over the entire record (Figure A). Additionally, box plots are included for all constituents at upgradient and downgradient wells (Figure B). For all constituents, a substitution of the most recent reporting limit is used for non-detect data. While the reporting limits may vary from well to well, a single reporting limit substitution is used across all wells for a given parameter in the time series plots since the wells are plotted as a group. Note that while dilution factors for antimony, molybdenum, and thallium resulted in elevated reporting limits at upgradient well AD-17 for the respective June 2023 observations, no changes occurred in Groundwater Protection Standards.

The time series plots are used to initially screen for suspected outliers and trends, while the box plots provide visual representation of variation within individual wells and between all wells. Values previously identified and flagged as outliers may be seen in the Outlier Summary following this letter (Figure C) and are plotted in a lighter font and disconnected symbol on the time series graphs. Note that the measured concentrations of most metals for the September 30, 2016 sample event at well AD-15 are very high compared to the rest of the observations and resulted from elevated turbidity levels of >1000 mg/L. These values were flagged as outliers as they do not represent the population at this well.

Summary of Statistical Methods – Appendix IV Parameters

Parametric tolerance limits are utilized when the screened historical data follow a normal or transformed-normal distribution. When data cannot be normalized or the majority of data are non-detects, a nonparametric test is utilized. The distribution of data is tested using the Shapiro-Wilk/Shapiro-Francia test for normality. After testing for normality and performing any adjustments as discussed below (USEPA, 2009), data are analyzed using either parametric or non-parametric tolerance limits as appropriate.

- No statistical analyses are required on wells and analytes containing 100% nondetects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain <15% non-detects, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for

- non-detects is the most recent practical quantification limit (PQL) as reported by the laboratory.
- When data contain between 15-50% non-detects, the Kaplan-Meier non-detect adjustment is applied to the background data. This technique adjusts the mean and standard deviation of the historical concentrations to account for concentrations below the reporting limit.
- Nonparametric tolerance limits are used on data containing greater than 50% nondetects.

Summary of Background Update – Conducted in February 2023

Outlier Analysis

Prior to evaluating Appendix IV parameters, upgradient well data are screened through both visual screening and Tukey's outlier test for potential outliers and extreme trending patterns that would lead to artificially elevated statistical limits. High outliers are also cautiously flagged in the downgradient wells when they are clearly much different from the rest of the data. This is generally a regulatory conservative approach in that it will reduce the variance and thus reduce the width of parametric confidence intervals, although it will also reduce the mean and thus lower the entire interval. The intent is to better represent the actual downgradient mean. No changes to previously flagged outliers were made.

Tukey's outlier test on pooled upgradient well data through October/November 2022 identified outliers for chromium, fluoride, lead, and mercury. The values identified by Tukey's test, with the exception of the highest value for chromium at AD-17, were either similar to concentrations upgradient of the facility or were lower than the respective Maximum Contaminant Level (MCL); therefore, these values were not flagged as outliers.

Previously flagged values were confirmed by visual screening and Tukey's outlier test. The highest value for chromium at upgradient well AD-17, molybdenum in upgradient well AD-1, and two highest values for cadmium in upgradient well AD-17 remain flagged in order to maintain statistical limits that are conservative (i.e., lower) from a regulatory perspective.

Additionally, downgradient well data through October/November 2022 were screened through visual screening using time series graphs. Since the downgradient well data are used to construct confidence intervals, a regulatory conservative approach is taken in that values that are marginally high relative to the rest of the data are retained unless there is particular justification for excluding them. No additional outliers among downgradient

wells were flagged during this analysis. All flagged values may be seen on the Outlier Summary following this letter.

Interwell Upper Tolerance Limits

Upper tolerance limits were used to calculate background limits from pooled upgradient well data through October/November 2022 for Appendix IV parameters (Figure D). These limits are updated on an annual basis and will be updated again during the Fall 2023 sample event. Parametric tolerance limits are calculated, with a target of 95% confidence and 95% coverage, when data follow a normal or transformed-normal distribution. When data contained greater than 50% non-detects or did not follow a normal or transformed-normal distribution, non-parametric tolerance limits were constructed using the highest background measurement. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples.

Groundwater Protection Standards

These background limits were compared to the Maximum Contaminant Levels (MCLs) as shown in the Groundwater Protection Standard (GWPS) table following this letter to determine the highest limit for use as the GWPS in the confidence interval comparisons (Figure E).

Evaluation of Appendix IV Parameters – February & June 2023

Time series plots were used to visually identify potential outliers in downgradient wells during the February and June 2023 sample events. When suspected outliers are identified, Tukey's outlier test is used to formally test whether measurements are statistically significant. As mentioned above, high outliers are 'cautiously' flagged in the downgradient wells when measurements are clearly much different from remaining data within a given well. This is intended to be a regulatory conservative approach in that it will reduce the variance and thus reduce the width of parametric confidence intervals; although it will also reduce the mean and thus lower the entire interval. The intent is to better represent the actual downgradient mean. No additional suspected outliers were identified.

Confidence intervals were then constructed with data through June 2023 on downgradient wells for each of the Appendix IV parameters and compared to the GWPS (i.e., the highest limit of the MCL or background limit as discussed above). When data followed a normal or transformed-normal distribution, parametric confidence intervals were used for Appendix IV parameters. Nonparametric confidence intervals, which use the largest and smallest order statistics depending on the sample size as interval limits,

were constructed when data did not follow a normal or transformed-normal distribution or when there were greater than 50% non-detects. The lower confidence limit, which is constructed with 99% confidence for parametric confidence intervals, is compared to the GWPS prepared as described above. The confidence level associated with nonparametric confidence intervals is dependent upon the number samples available.

Only when the entire confidence interval is above a GWPS is the well/constituent pair considered to exceed its respective standard. No exceedances were noted for any of the well/constituent pairs. A summary of the confidence interval results follows this letter (Figure F).

Thank you for the opportunity to assist you in the statistical analysis of groundwater quality for the Welsh PBAP. If you have any questions or comments, please feel free to contact us.

For Groundwater Stats Consulting,

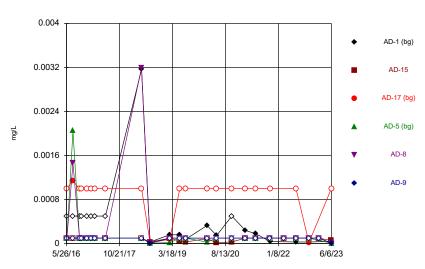
Abdul Diane

Groundwater Analyst

Andrew T. Collins
Project Manager

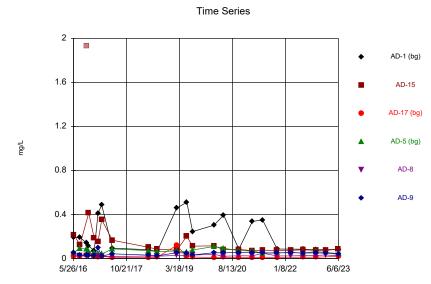
FIGURE A Time Series





Constituent: Antimony, total Analysis Run 9/1/2023 12:56 PM View: Appendix IV

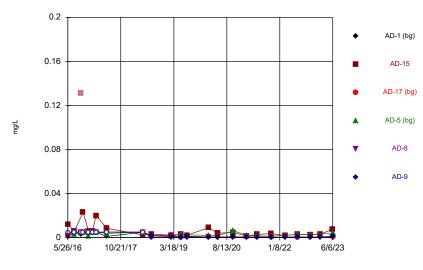
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Barium, total Analysis Run 9/1/2023 12:56 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

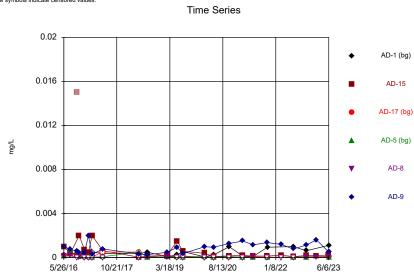
Time Series



Constituent: Arsenic, total Analysis Run 9/1/2023 12:56 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG Hollow symbols indicate censored values.

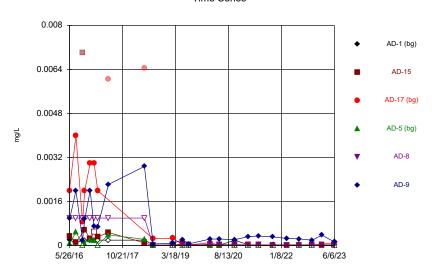


Constituent: Beryllium, total Analysis Run 9/1/2023 12:56 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG
Hollow symbols indicate censored values

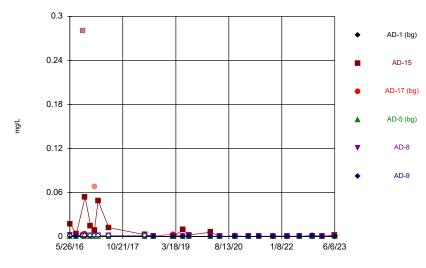




Constituent: Cadmium, total Analysis Run 9/1/2023 12:57 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

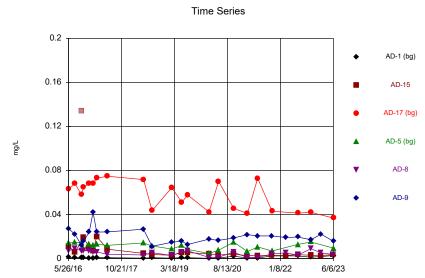
Time Series



Constituent: Chromium, total Analysis Run 9/1/2023 12:57 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

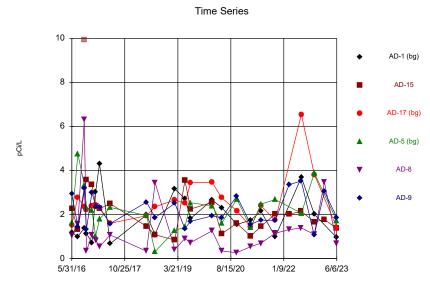
Sanitas™ v.9.6.37 . UG



Constituent: Cobalt, total Analysis Run 9/1/2023 12:57 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG

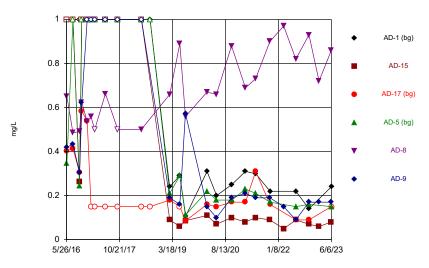


Constituent: Combined Radium 226 + 228 Analysis Run 9/1/2023 12:57 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG
Hollow symbols indicate censored values

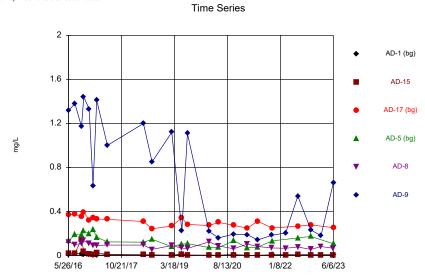




Constituent: Fluoride, total Analysis Run 9/1/2023 12:57 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

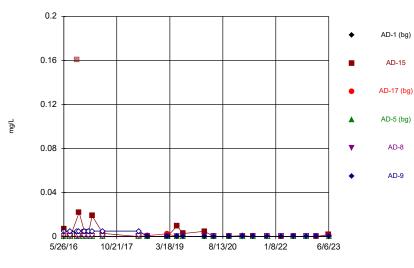
Sanitas™ v.9.6.37 . UG Hollow symbols indicate censored values.



Constituent: Lithium, total Analysis Run 9/1/2023 12:57 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

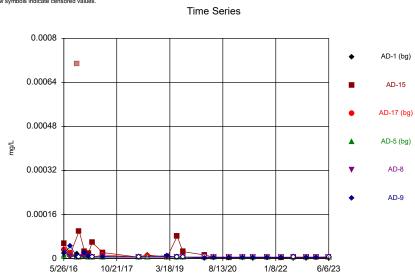
Time Series



Constituent: Lead, total Analysis Run 9/1/2023 12:57 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

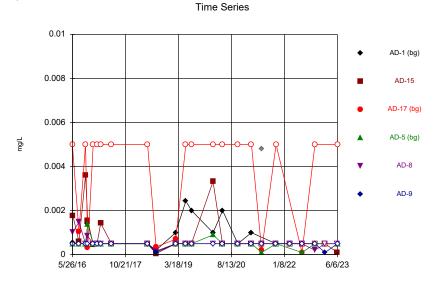
Sanitas™ v.9.6.37 . UG Hollow symbols indicate censored values.



Constituent: Mercury, total Analysis Run 9/1/2023 12:57 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

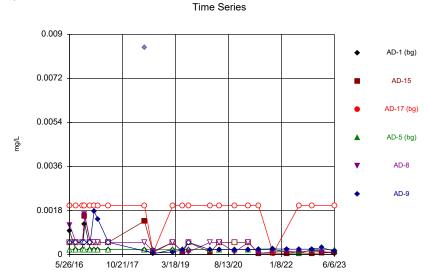
Sanitas™ v.9.6.37 . UG Hollow symbols indicate censored values



Constituent: Molybdenum, total Analysis Run 9/1/2023 12:57 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG Hollow symbols indicate censored values.

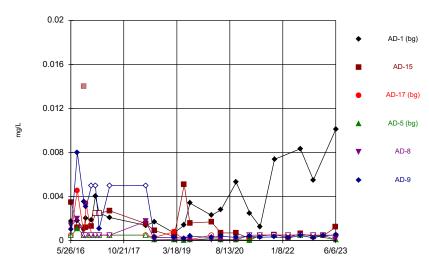


Constituent: Thallium, total Analysis Run 9/1/2023 12:57 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG



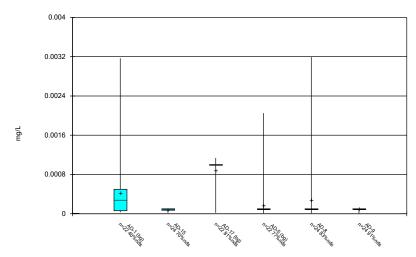


Constituent: Selenium, total Analysis Run 9/1/2023 12:57 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

FIGURE B Box Plots

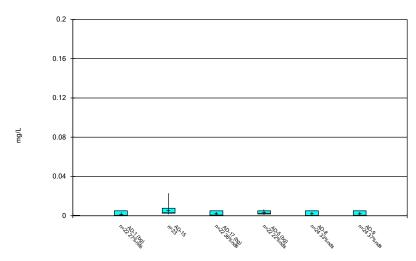




Constituent: Antimony, total Analysis Run 9/1/2023 1:00 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Box & Whiskers Plot

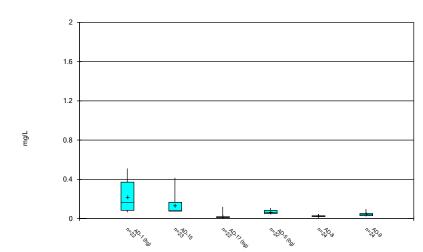


Constituent: Arsenic, total Analysis Run 9/1/2023 1:00 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG

Box & Whiskers Plot

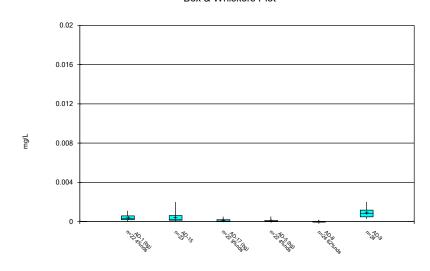


Constituent: Barium, total Analysis Run 9/1/2023 1:00 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG

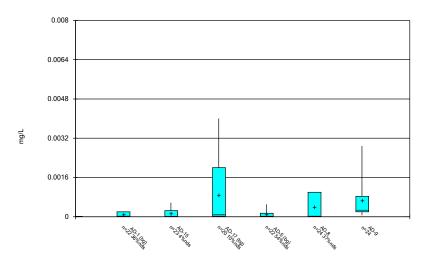
Box & Whiskers Plot



Constituent: Beryllium, total Analysis Run 9/1/2023 1:00 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

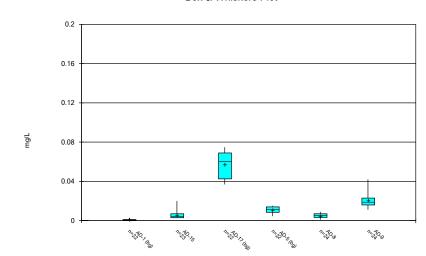




Constituent: Cadmium, total Analysis Run 9/1/2023 1:00 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

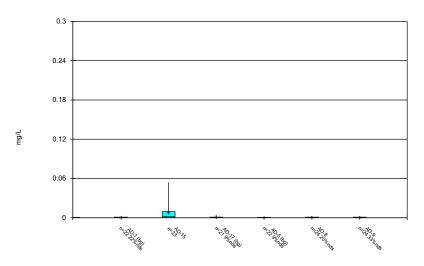
Box & Whiskers Plot



Constituent: Cobalt, total Analysis Run 9/1/2023 1:00 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Box & Whiskers Plot

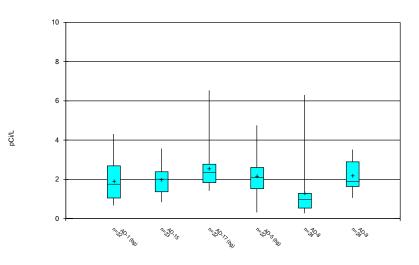


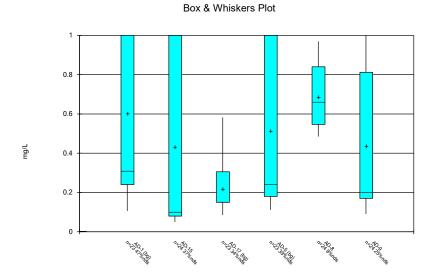
Constituent: Chromium, total Analysis Run 9/1/2023 1:00 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG

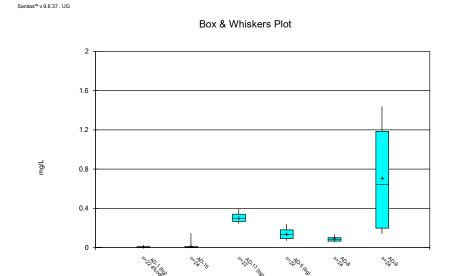
Box & Whiskers Plot





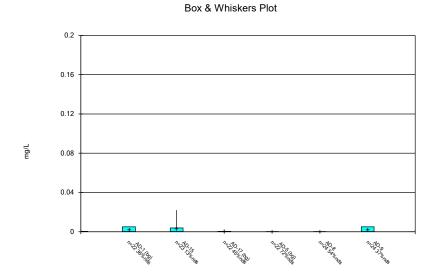
Constituent: Fluoride, total Analysis Run 9/1/2023 1:00 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP



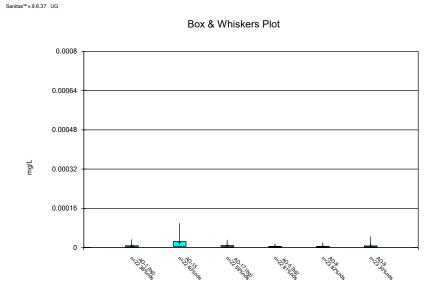
Constituent: Lithium, total Analysis Run 9/1/2023 1:00 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Lead, total Analysis Run 9/1/2023 1:00 PM View: Appendix IV

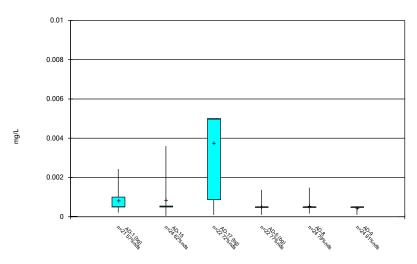
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Mercury, total Analysis Run 9/1/2023 1:00 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP



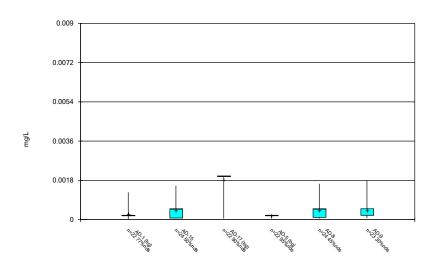


Constituent: Molybdenum, total Analysis Run 9/1/2023 1:00 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG

Box & Whiskers Plot

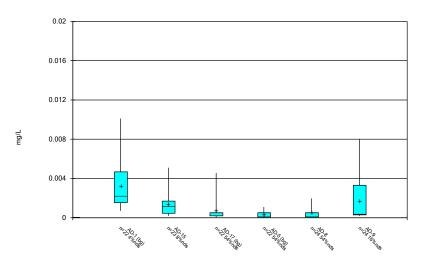


Constituent: Thallium, total Analysis Run 9/1/2023 1:00 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Box & Whiskers Plot

Sanitas™ v.9.6.37 . UG



Constituent: Selenium, total Analysis Run 9/1/2023 1:00 PM View: Appendix IV

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

FIGURE C Outlier Summary

Outlier Summary

Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 9/1/2023, 1:01 PM

| | AD-15 Arsenic | , _{total} (mg/L) AD-15 Barium | _{, total (mg/L)} AD-15 Berylliu | _{m, total} (mg/L) AD-15 Cadmiul | _{m, total} (mg/L) AD-17 Cadmiu | _{m, total} (mg/L) AD-15 Chromiu | _{um, total} (mg/L) AD-17 Chromiu | _{im, total} (mg/L) AD-15 Cobalt, | _{total} (mg/L) AD-15 Combin | ed Radium 226 + 228 (pCil AD-15 Lead, total (mg/L) |
|-----------|---------------|---|---|---|--|---|--|--|---|---|
| 9/29/2016 | | | | | | | | | 9.92 (o) | |
| 9/30/2016 | 0.131 (o) | 1.93 (o) | 0.015 (o) | 0.007 (o) | | 0.28 (o) | | 0.134 (o) | | 0.161 (o) |
| 1/20/2017 | | | | | | | 0.068 (o) | | | |
| 6/8/2017 | | | | | 0.00606 (o) | | | | | |
| 5/23/2018 | | | | | | | | | | |
| 5/24/2018 | | | | | 0.00646 (o) | | | | | |
| 6/2/2021 | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

AD-15 Mercury, total (mg/L)
AD-1 Molybdenum, total (mg/L)
AD-1 Molybdenum, total (mg/L)
AD-9 Thallium, total (mg/L)

9/29/2016

9/30/2016 0.000707 (o) 0.014 (o)

1/20/2017

6/8/2017

5/23/2018 0.00846 (o)

5/24/2018

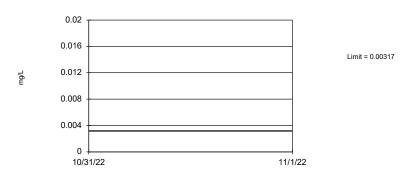
6/2/2021 0.0048 (o)

FIGURE D UTLs

Upper Tolerance Limits Summary Table Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 3/3/2023, 1:02 PM

| | | | Welsh PBAP | Client: G | ieosyntec | Data: We | lsh PBAP | Printed 3/3/202 | 23, 1:02 | PM | | | |
|-----------------------------------|------|------------|------------|-------------|-----------|----------|----------|-----------------|----------|---------|-----------|----------------|---------------------|
| Constituent | Well | Upper Lim. | Lower Lim. | <u>Date</u> | Observ. | Sig.Bg N | Bg Mean | Std. Dev. | %NDs | ND Adj. | Transform | n <u>Alpha</u> | Method |
| Antimony, total (mg/L) | n/a | 0.00317 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 68.25 | n/a | n/a | 0.0395 | NP Inter(NDs) |
| Arsenic, total (mg/L) | n/a | 0.00628 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 30.16 | n/a | n/a | 0.0395 | NP Inter(normality) |
| Barium, total (mg/L) | n/a | 0.5643 | n/a | n/a | n/a | n/a 63 | -2.859 | 1.14 | 0 | None | In(x) | 0.05 | Inter |
| Beryllium, total (mg/L) | n/a | 0.001123 | n/a | n/a | n/a | n/a 63 | -8.998 | 1.099 | 6.349 | None | In(x) | 0.05 | Inter |
| Cadmium, total (mg/L) | n/a | 0.004 | n/a | n/a | n/a | n/a 61 | n/a | n/a | 32.79 | n/a | n/a | 0.04377 | NP Inter(normality) |
| Chromium, total (mg/L) | n/a | 0.002329 | n/a | n/a | n/a | n/a 62 | -7.943 | 0.9355 | 14.52 | None | In(x) | 0.05 | Inter |
| Cobalt, total (mg/L) | n/a | 0.0748 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 0 | n/a | n/a | 0.0395 | NP Inter(normality) |
| Combined Radium 226 + 228 (pCi/L) | n/a | 4.605 | n/a | n/a | n/a | n/a 63 | 1.464 | 0.3399 | 0 | None | sqrt(x) | 0.05 | Inter |
| Fluoride, total (mg/L) | n/a | 0.583 | n/a | n/a | n/a | n/a 66 | n/a | n/a | 40.91 | n/a | n/a | 0.03387 | NP Inter(normality) |
| Lead, total (mg/L) | n/a | 0.003384 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 52.38 | n/a | n/a | 0.0395 | NP Inter(NDs) |
| Lithium, total (mg/L) | n/a | 0.394 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 1.587 | n/a | n/a | 0.0395 | NP Inter(normality) |
| Mercury, total (mg/L) | n/a | 0.000033 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 60.32 | n/a | n/a | 0.0395 | NP Inter(NDs) |
| Molybdenum, total (mg/L) | n/a | 0.00243 | n/a | n/a | n/a | n/a 62 | n/a | n/a | 67.74 | n/a | n/a | 0.04158 | NP Inter(NDs) |
| Selenium, total (mg/L) | n/a | 0.00835 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 39.68 | n/a | n/a | 0.0395 | NP Inter(normality) |
| Thallium, total (mg/L) | n/a | 0.001251 | n/a | n/a | n/a | n/a 63 | n/a | n/a | 88.89 | n/a | n/a | 0.0395 | NP Inter(NDs) |

Tolerance Limit Interwell Non-parametric



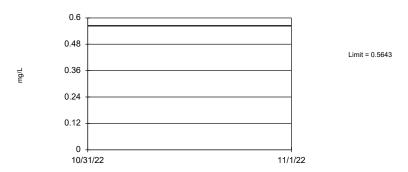
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 63 background values. 68.25% NDs. 92.77% coverage at alpha=0.01; 95.51% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.0395.

Constituent: Antimony, total Analysis Run 3/3/2023 1:00 PM View: UTLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 Groundwater Stats Consulting. UG

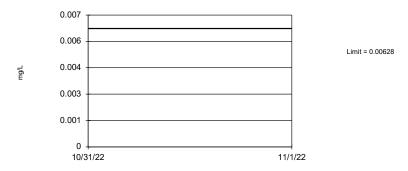
Tolerance Limit Interwell Parametric



95% coverage. Background Data Summary (based on natural log transformation): Mean=-2.859, Std. Dev.=1.14, n=63. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9546, critical = 0.947. Report alpha = 0.05.

Tolerance Limit

Interwell Non-parametric



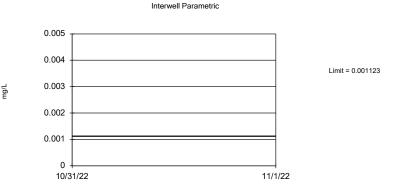
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 63 background values. 30.16% NDs. 92.77% coverage at alpha=0.01; 95.51% coverage at alpha=0.05; 99.02% coverage at alpha=0.05. Report alpha = 0.0395.

Constituent: Arsenic, total Analysis Run 3/3/2023 1:00 PM View: UTLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

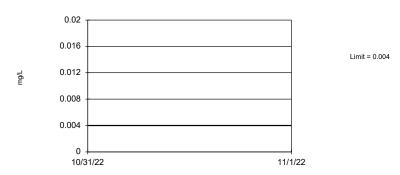
Sanitas™ v.9.6.36 Groundwater Stats Consulting. UG

Tolerance Limit



95% coverage. Background Data Summary (based on natural log transformation): Mean=-8.998, Std. Dev.=1.099, n=63, 6.349% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9693, critical = 0.947. Report alpha = 0.05.

Tolerance Limit Interwell Non-parametric



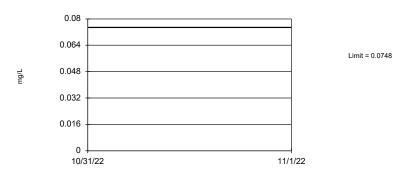
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 61 background values. 32.79% NDs. 92.77% coverage at alpha=0.01; 95.12% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.04377.

Constituent: Cadmium, total Analysis Run 3/3/2023 1:00 PM View: UTLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

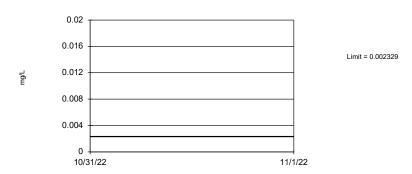
Sanitas™ v.9.6.36 Groundwater Stats Consulting. UG

Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 63 background values. 92.77% coverage at alpha=0.01; 95.51% coverage at alpha=0.05. Report alpha = 0.0395.

Tolerance Limit



Interwell Parametric

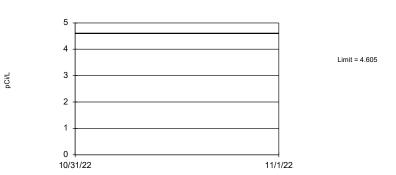
95% coverage. Background Data Summary (based on natural log transformation): Mean=-7.943, Std. Dev.=0.9355, n=62, 14.52% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9592, critical = 0.947. Report alpha = 0.05.

Constituent: Chromium, total Analysis Run 3/3/2023 1:00 PM View: UTLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

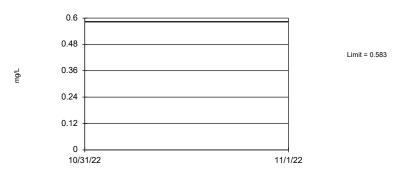
Sanitas™ v.9.6.36 Groundwater Stats Consulting. UG

Tolerance Limit Interwell Parametric



95% coverage. Background Data Summary (based on square root transformation): Mean=1.464, Std. Dev.=0.3399, n=63. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9691, critical = 0.947. Report alpha = 0.05.

Tolerance Limit Interwell Non-parametric



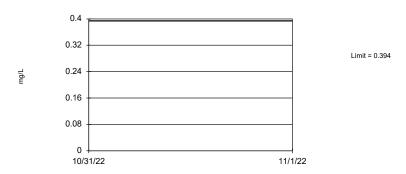
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 66 background values. 40.91% NDs. 93.16% coverage at alpha=0.01; 95.51% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.03387.

Constituent: Fluoride, total Analysis Run 3/3/2023 1:00 PM View: UTLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 Groundwater Stats Consulting. UG

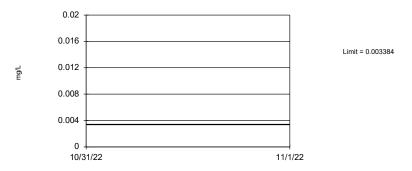
Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 63 background values. 1.587% NDs. 92.77% coverage at alpha=0.01; 95.51% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.0395.

Tolerance Limit

Interwell Non-parametric



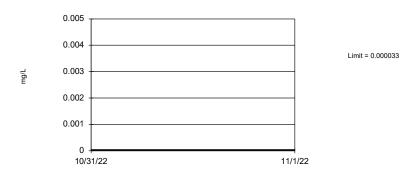
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 63 background values. 52.38% NDs. 92.77% coverage at alpha=0.01; 95.51% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.0395.

Constituent: Lead, total Analysis Run 3/3/2023 1:00 PM View: UTLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 Groundwater Stats Consulting. UG

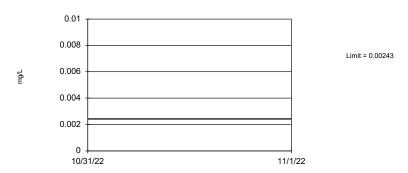
Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 63 background values. 60.32% NDs. 92.77% coverage at alpha=0.01; 95.51% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.0395.

Sanitas™ v.9.6.36 Groundwater Stats Consulting. UG

Tolerance Limit
Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 62 background values. 67.74% NDs. 92.77% coverage at alpha=0.01; 95.12% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.04158.

Constituent: Molybdenum, total Analysis Run 3/3/2023 1:00 PM View: UTLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 Groundwater Stats Consulting. UG

Tolerance Limit
Interwell Non-parametric

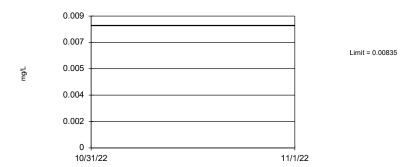


Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 63 background values. 88.89% NDs. 92.77% coverage at alpha=0.01; 95.51% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.0395.

Constituent: Thallium, total Analysis Run 3/3/2023 1:00 PM View: UTLs Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.36 Groundwater Stats Consulting. UG

Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 63 background values. 39.68% NDs. 92.77% coverage at alpha=0.01; 95.51% coverage at alpha=0.05. Report alpha = 0.0395.

Constituent: Selenium, total Analysis Run 3/3/2023 1:00 PM View: UTLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

FIGURE E GWPS

| WELSH PBAP GWPS | | | | | | | | | | |
|--------------------------------|-------|------------|--------|--|--|--|--|--|--|--|
| | | Background | | | | | | | | |
| Constituent Name | MCL | Limit | GWPS | | | | | | | |
| Antimony, Total (mg/L) | 0.006 | 0.0032 | 0.006 | | | | | | | |
| Arsenic, Total (mg/L) | 0.01 | 0.0063 | 0.01 | | | | | | | |
| Barium, Total (mg/L) | 2 | 0.56 | 2 | | | | | | | |
| Beryllium, Total (mg/L) | 0.004 | 0.0011 | 0.004 | | | | | | | |
| Cadmium, Total (mg/L) | 0.005 | 0.004 | 0.005 | | | | | | | |
| Chromium, Total (mg/L) | 0.1 | 0.0023 | 0.1 | | | | | | | |
| Cobalt, Total (mg/L) | n/a | 0.075 | 0.075 | | | | | | | |
| Combined Radium, Total (pCi/L) | 5 | 4.61 | 5 | | | | | | | |
| Fluoride, Total (mg/L) | 4 | 0.58 | 4 | | | | | | | |
| Lead, Total (mg/L) | n/a | 0.0034 | 0.0034 | | | | | | | |
| Lithium, Total (mg/L) | n/a | 0.39 | 0.39 | | | | | | | |
| Mercury, Total (mg/L) | 0.002 | 0.000033 | 0.002 | | | | | | | |
| Molybdenum, Total (mg/L) | n/a | 0.0024 | 0.0024 | | | | | | | |
| Selenium, Total (mg/L) | 0.05 | 0.0084 | 0.05 | | | | | | | |
| Thallium, Total (mg/L) | 0.002 | 0.0013 | 0.002 | | | | | | | |

^{*}MCL = Maximum Contaminant Level

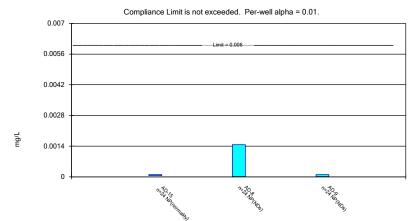
^{*}GWPS = Groundwater Protection Standard

FIGURE F Confidence Interval

Appendix IV - Confidence Intervals - All Results (No Significant) Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 9/6/2023, 12:17 PM

| | | Welsh PBAP | Client: Geo | osyntec Data | : Wels | h PBAP | Printed 9/6/20 | 23, 12:17 | PM | | |
|-----------------------------------|-------|------------|-------------|--------------|--------|----------|----------------|-----------|-----------|--------------|----------------|
| Constituent | Well | Upper Lim. | Lower Lim. | Compliance | Sig. | <u>N</u> | Std. Dev. | %NDs | Transform | <u>Alpha</u> | Method |
| Antimony, total (mg/L) | AD-15 | 0.0001 | 0.000056 | 0.006 | No | 24 | 0.00002887 | 70.83 | No | 0.01 | NP (normality) |
| Antimony, total (mg/L) | AD-8 | 0.001461 | 0.000012 | 0.006 | No | 24 | 0.0006807 | 83.33 | No | 0.01 | NP (NDs) |
| Antimony, total (mg/L) | AD-9 | 0.0001 | 0.00001 | 0.006 | No | 24 | 0.00002569 | 91.67 | No | 0.01 | NP (NDs) |
| Arsenic, total (mg/L) | AD-15 | 0.007313 | 0.00316 | 0.01 | No | 23 | 0.005576 | 0 | x^(1/3) | 0.01 | Param. |
| Arsenic, total (mg/L) | AD-8 | 0.005 | 0.00028 | 0.01 | No | 24 | 0.002232 | 33.33 | No | 0.01 | NP (normality) |
| Arsenic, total (mg/L) | AD-9 | 0.005 | 0.00027 | 0.01 | No | 24 | 0.002201 | 37.5 | No | 0.01 | NP (normality) |
| Barium, total (mg/L) | AD-15 | 0.166 | 0.0766 | 2 | No | 23 | 0.0909 | 0 | No | 0.01 | NP (normality) |
| Barium, total (mg/L) | AD-8 | 0.02944 | 0.02303 | 2 | No | 24 | 0.006747 | 0 | sqrt(x) | 0.01 | Param. |
| Barium, total (mg/L) | AD-9 | 0.05192 | 0.03635 | 2 | No | 24 | 0.01601 | 0 | sqrt(x) | 0.01 | Param. |
| Beryllium, total (mg/L) | AD-15 | 0.0005918 | 0.0001825 | 0.004 | No | 23 | 0.0005815 | 0 | x^(1/3) | 0.01 | Param. |
| Beryllium, total (mg/L) | AD-8 | 0.000011 | 0 | 0.004 | No | 24 | 0.0000408 | 62.5 | No | 0.01 | NP (normality) |
| Beryllium, total (mg/L) | AD-9 | 0.001115 | 0.0006453 | 0.004 | No | 24 | 0.0004606 | 0 | No | 0.01 | Param. |
| Cadmium, total (mg/L) | AD-15 | 0.0002465 | 0.000011 | 0.005 | No | 23 | 0.0001837 | 4.348 | No | 0.01 | NP (normality) |
| Cadmium, total (mg/L) | AD-8 | 0.001 | 0.000021 | 0.005 | No | 24 | 0.0004806 | 37.5 | No | 0.01 | NP (normality) |
| Cadmium, total (mg/L) | AD-9 | 0.0006482 | 0.0002121 | 0.005 | No | 24 | 0.0007912 | 0 | ln(x) | 0.01 | Param. |
| Chromium, total (mg/L) | AD-15 | 0.004816 | 0.0006571 | 0.1 | No | 23 | 0.01463 | 0 | ln(x) | 0.01 | Param. |
| Chromium, total (mg/L) | AD-8 | 0.000644 | 0.0002414 | 0.1 | No | 24 | 0.0004645 | 20.83 | sqrt(x) | 0.01 | Param. |
| Chromium, total (mg/L) | AD-9 | 0.0008319 | 0.0005174 | 0.1 | No | 24 | 0.0003082 | 33.33 | No | 0.01 | Param. |
| Cobalt, total (mg/L) | AD-15 | 0.007 | 0.0029 | 0.075 | No | 23 | 0.004863 | 0 | No | 0.01 | NP (normality) |
| Cobalt, total (mg/L) | AD-8 | 0.006113 | 0.003658 | 0.075 | No | 24 | 0.002406 | 0 | No | 0.01 | Param. |
| Cobalt, total (mg/L) | AD-9 | 0.02279 | 0.01672 | 0.075 | No | 24 | 0.0064 | 0 | sqrt(x) | 0.01 | Param. |
| Combined Radium 226 + 228 (pCi/L) | AD-15 | 2.388 | 1.575 | 5 | No | 23 | 0.7779 | 0 | No | 0.01 | Param. |
| Combined Radium 226 + 228 (pCi/L) | AD-8 | 1.37 | 0.6188 | 5 | No | 24 | 1.349 | 0 | ln(x) | 0.01 | Param. |
| Combined Radium 226 + 228 (pCi/L) | AD-9 | 2.56 | 1.826 | 5 | No | 24 | 0.7196 | 0 | No | 0.01 | Param. |
| Fluoride, total (mg/L) | AD-15 | 1 | 0.08 | 4 | No | 24 | 0.4501 | 37.5 | No | 0.01 | NP (normality) |
| Fluoride, total (mg/L) | AD-8 | 0.7649 | 0.6056 | 4 | No | 24 | 0.1562 | 8.333 | No | 0.01 | Param. |
| Fluoride, total (mg/L) | AD-9 | 0.6227 | 0.17 | 4 | No | 24 | 0.3586 | 25 | No | 0.01 | NP (normality) |
| Lead, total (mg/L) | AD-15 | 0.003961 | 0.0001 | 0.0034 | No | 23 | 0.00598 | 13.04 | No | 0.01 | NP (normality) |
| Lead, total (mg/L) | AD-8 | 0.0002 | 0.00007 | 0.0034 | No | 24 | 0.00006715 | 54.17 | No | 0.01 | NP (normality) |
| Lead, total (mg/L) | AD-9 | 0.005 | 0.0001 | 0.0034 | No | 24 | 0.0024 | 37.5 | No | 0.01 | NP (normality) |
| Lithium, total (mg/L) | AD-15 | 0.01159 | 0.004004 | 0.39 | No | 24 | 0.02988 | 0 | ln(x) | 0.01 | Param. |
| Lithium, total (mg/L) | AD-8 | 0.09913 | 0.0763 | 0.39 | No | 24 | 0.02237 | 0 | No | 0.01 | Param. |
| Lithium, total (mg/L) | AD-9 | 1.2 | 0.194 | 0.39 | No | 24 | 0.5035 | 0 | No | 0.01 | NP (normality) |
| Mercury, total (mg/L) | AD-15 | 0.000025 | 0.000005 | 0.002 | No | 22 | 0.00002726 | 40.91 | No | 0.01 | NP (normality) |
| Mercury, total (mg/L) | AD-8 | 0.000008 | 0.000005 | 0.002 | No | 23 | 0.000003511 | 82.61 | No | 0.01 | NP (NDs) |
| Mercury, total (mg/L) | AD-9 | 0.00000717 | 0.000003 | 0.002 | No | 23 | 0.000009467 | 30.43 | No | 0.01 | NP (normality) |
| Molybdenum, total (mg/L) | AD-15 | 0.0005868 | 0.0004635 | 0.0024 | No | 24 | 0.0008995 | 62.5 | No | 0.01 | NP (normality) |
| Molybdenum, total (mg/L) | AD-8 | 0.0008389 | 0.0002 | 0.0024 | No | 24 | 0.0002546 | 79.17 | No | 0.01 | NP (NDs) |
| Molybdenum, total (mg/L) | AD-9 | 0.0005 | 0.00011 | 0.0024 | No | 24 | 0.0001115 | 91.67 | No | 0.01 | NP (NDs) |
| Selenium, total (mg/L) | AD-15 | 0.001755 | 0.0007056 | 0.05 | No | 23 | 0.001196 | 8.696 | sqrt(x) | 0.01 | Param. |
| Selenium, total (mg/L) | AD-8 | 0.00137 | 0.00008 | 0.05 | No | 24 | 0.0005063 | 54.17 | No | 0.01 | NP (normality) |
| Selenium, total (mg/L) | AD-9 | 0.003528 | 0.0003 | 0.05 | No | 24 | 0.002254 | 16.67 | No | 0.01 | NP (normality) |
| Thallium, total (mg/L) | AD-15 | 0.0005 | 0.00008 | 0.002 | No | 24 | 0.0003893 | 50 | No | 0.01 | NP (normality) |
| Thallium, total (mg/L) | AD-8 | 0.0005 | 0.00011 | 0.002 | No | 24 | 0.0003743 | 45.83 | No | 0.01 | NP (normality) |
| Thallium, total (mg/L) | AD-9 | 0.0004466 | 0.0001996 | 0.002 | No | 23 | 0.0004108 | 30.43 | ln(x) | 0.01 | Param. |

Non-Parametric Confidence Interval

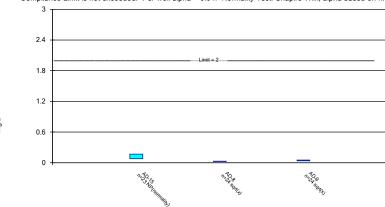


Constituent: Antimony, total Analysis Run 9/6/2023 12:14 PM View: Confidence Intervals Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG

Parametric and Non-Parametric (NP) Confidence Interval

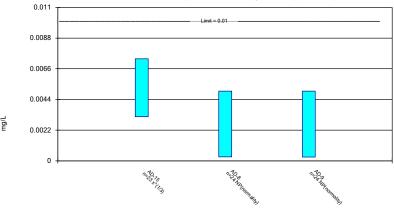
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium, total Analysis Run 9/6/2023 12:14 PM View: Confidence Intervals Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

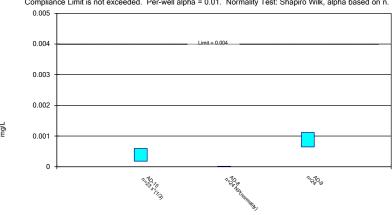


Constituent: Arsenic, total Analysis Run 9/6/2023 12:14 PM View: Confidence Intervals Welsh PBAP Client: Geosyntec Data: Welsh PBAP

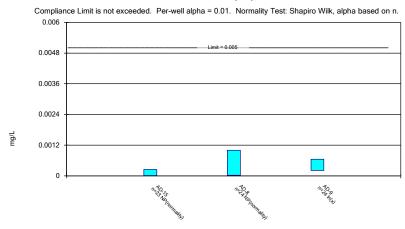
Sanitas™ v.9.6.37 . UG

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Parametric and Non-Parametric (NP) Confidence Interval

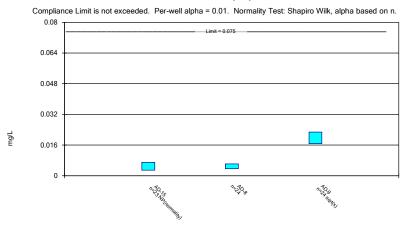


Constituent: Cadmium, total Analysis Run 9/6/2023 12:14 PM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

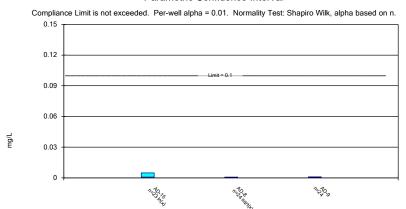
Sanitas™ v.9.6.37 . UG

Parametric and Non-Parametric (NP) Confidence Interval



Constituent: Cobalt, total Analysis Run 9/6/2023 12:14 PM View: Confidence Intervals Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Parametric Confidence Interval



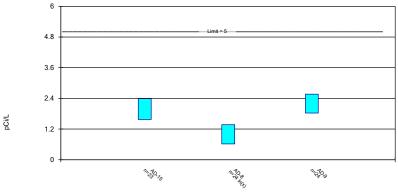
Constituent: Chromium, total Analysis Run 9/6/2023 12:14 PM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG

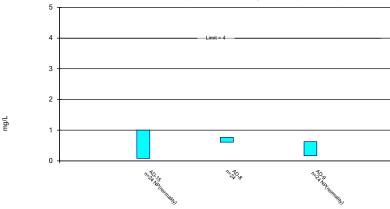
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

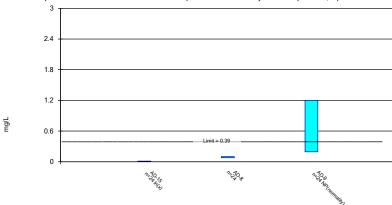


Constituent: Fluoride, total Analysis Run 9/6/2023 12:15 PM View: Confidence Intervals Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG

Parametric and Non-Parametric (NP) Confidence Interval

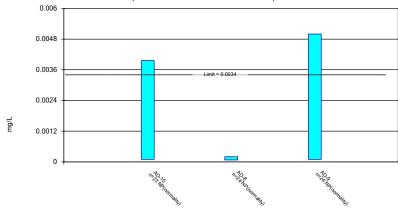
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium, total Analysis Run 9/6/2023 12:15 PM View: Confidence Intervals Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.

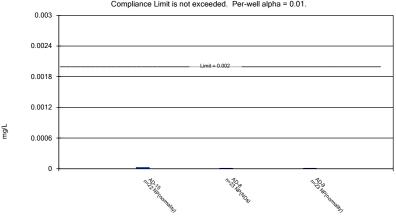


Constituent: Lead, total Analysis Run 9/6/2023 12:15 PM View: Confidence Intervals Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.



Sanitas™ v.9.6.37 . UG

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.

0.003

0.0024

Limit = 0.0024

0.0018

0.0012

0.0006

Constituent: Molybdenum, total Analysis Run 9/6/2023 12:15 PM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

0.003

0.0024

0.0018

0.0012

0.0006

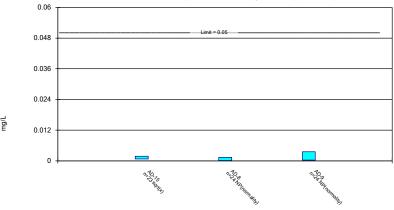
Constituent: Thallium, total Analysis Run 9/6/2023 12:15 PM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.9.6.37 . UG

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Selenium, total Analysis Run 9/6/2023 12:15 PM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP





engineers | scientists | innovators

STATISTICAL ANALYSIS SUMMARY, PRIMARY BOTTOM ASH POND

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Prepared for

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Project Number: CHA8500B

January 23, 2024



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Attachment A: Certification by Qualified Professional Engineer

Attachment B: Data Quality Review Memorandum

Attachment C: Statistical Analysis Output



ACRONYMS AND ABBREVIATIONS

CCR coal combustion residuals

GWPS groundwater protection standard

LPL lower prediction limit

mg/L milligram per liter

PBAP Primary Bottom Ash Pond PQL practical quantitation limit

QA/QC quality assurance/quality control

SSI statistically significant increase

SSL statistically significant level

TCEQ Texas Commission on Environmental Quality

TDS total dissolved solids

UPL upper prediction limit



1. EXECUTIVE SUMMARY

In accordance with Texas Commission on Environmental Quality's (TCEQ) regulations regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Title 30 Chapter 352, "CCR rule"), groundwater monitoring has been conducted at the Primary Bottom Ash Pond (PBAP), an existing CCR unit at the Welsh Power Plant in Pittsburg, Texas. Recent groundwater monitoring results were used to identify concentrations of Appendix IV constituents that are above site-specific groundwater protection standards (GWPSs).

Based on detection monitoring conducted in 2017 and 2018, statistically significant increases (SSIs) over background were concluded for boron at the PBAP. An alternative source was not identified at the time, so assessment monitoring was initiated and GWPSs were set in accordance with § 352.951(b) (Geosyntec 2018). A semiannual sampling event for Appendix III parameters and Appendix IV parameters, as required by § 352.951(a), was completed in October 2023. The results of the October 2023 assessment sampling event are documented in this report.

Before the statistical analyses were conducted, the groundwater data underwent several validation tests, including those for completeness, sample tracking accuracy, transcription errors, and consistent use of measurement units. No data quality issues that would impact data usability were identified.

The monitoring data were submitted to Groundwater Stats Consulting, LLC for statistical analysis. GWPSs were reestablished for the Appendix IV parameters. Confidence intervals were calculated for Appendix IV parameters at the compliance wells to assess whether any were present at statistically significant levels (SSLs) above the corresponding GWPS. No SSLs were identified; however, concentrations of Appendix III parameters remained above background. Therefore, the unit will remain in assessment monitoring. Certification of the selected statistical methods by a qualified professional engineer is documented in Attachment A.



2. PRIMARY BOTTOM ASH POND EVALUATION

2.1 Data Validation and QA/QC

During the October 2023 assessment monitoring event, one set of samples was collected for analysis from each background and compliance well. Samples from October 2023 were analyzed for all Appendix III and Appendix IV parameters. A summary of data collected during this assessment monitoring event may be found in Table 1.

Chemical analysis was completed by a National Environmental Laboratory Accreditation Program—certified analytical laboratory. The laboratory completed analysis of quality assurance and quality control (QA/QC) samples such as laboratory reagent blanks, continuing calibration verification samples, and laboratory fortified blanks.

A data quality review was completed to assess whether the data met the objectives outlined in TCEQ Draft Technical Guidance No. 32 related to groundwater sampling and analysis (TCEQ 2020). As noted in the review memorandum (Attachment B), the data were determined usable for supporting project objectives. The analytical data were imported into a Microsoft Access database, where checks were completed to assess the accuracy of sample location identification and analyte identification. Where necessary, unit conversions were applied to standardize reported units across all sampling events. Exported data files were created for use with the SanitasTM v.10.0.15 statistics software. The export file was checked against the analytical data for transcription errors and completeness.

2.2 Statistical Analysis

Statistical analyses for the PBAP were conducted in accordance with the December 2021 Statistical Analysis Plan (Geosyntec 2021). Time series plots and results for all completed statistical tests are provided in Attachment C. The data obtained in October 2023 were screened for potential outliers. No outliers were identified for this event.

2.2.1 Establishment of GWPSs

A GWPS was established for each Appendix IV parameter in accordance with § 352.951(b) and the Statistical Analysis Plan (Geosyntec 2021). The established GWPS was set to whichever was greater of the background concentration and the maximum contaminant level for each Appendix IV parameter. To determine background concentrations, an upper tolerance limit was calculated using data that were pooled from the background wells collected during the background monitoring and assessment monitoring events. Tolerance limits were calculated parametrically with 95% coverage and 95% confidence for barium, beryllium, chromium, and combined radium. Nonparametric tolerance limits were calculated for arsenic, cadmium, cobalt, fluoride, lithium, and selenium, due to apparent nonnormal distributions, and for antimony, lead, mercury, molybdenum, and thallium, due to a high nondetect frequency. Upper tolerance limits and the final GWPSs are summarized in Table 2.

2.2.2 Evaluation of Potential Appendix IV SSLs

A confidence interval was constructed for each Appendix IV parameter at each compliance well. Confidence limits were generally calculated parametrically ($\alpha = 0.01$), but nonparametric



confidence limits were calculated in some cases (e.g., when the data did not appear to be normally distributed or when the nondetect frequency was too high). An SSL was concluded if the lower confidence limit was above the GWPS (i.e., if the entire confidence interval was above the GWPS). The calculated confidence limits (Attachment C) were compared to the GWPS provided in Table 2.

No SSLs were identified at the PBAP.

2.2.3 Establishment of Appendix III Prediction Limits

Upper prediction limits (UPLs) were previously established for all Appendix III parameters following the background monitoring period (Geosyntec 2018). Intrawell tests were used to evaluate potential SSIs for calcium, chloride, fluoride, sulfate, and total dissolved solids (TDS). Interwell tests were used to evaluate potential SSIs for boron and pH. Interwell and intrawell prediction limits are updated periodically during the assessment monitoring period as sufficient data become available.

For intrawell tests, insufficient data was available to compare against the existing background dataset, and so the prediction limits were not updated for the intrawell calcium, chloride, sulfate, and TDS tests at this time. The intrawell prediction limits for these constituents were previously calculated using historical data through June 2022 (Geosyntec 2023). The established intrawell prediction limits were used to evaluate potential SSIs for calcium, chloride, sulfate, and TDS. While the background dataset was not updated, the intrawell prediction limits were revised slightly due to the substitution of more recent reporting limits for nondetect results.

Prediction limits for the interwell tests were calculated using data collected through the October 2023 assessment monitoring event. New background well data were tested for outliers before being added to the background data set. Background well data were also evaluated for statistically significant trends using the Sen's Slope/Mann-Kendall trend test, and the results are included in Attachment C. The boron and pH prediction limits were calculated using a one-of-two retesting procedure, as during detection monitoring.

After the revised background set was established, a parametric or nonparametric analysis was selected based on the distribution of the data and the frequency of nondetect data. Estimated results under the reporting limit (i.e., practical quantitation limit [PQL]) but above the method detection limit (i.e., "J-flagged" data) were considered detections and the estimated results were used in the statistical analyses. Nonparametric analyses were selected for data sets with at least 50% nondetect data or data sets that could not be normalized. Parametric analyses were selected for data sets (either transformed or untransformed) that passed the Shapiro-Wilk/Shapiro-Francía test for normality. The Kaplan-Meier nondetect adjustment was applied to data sets with between 15% and 50% nondetect data. For data sets with fewer than 15% nondetect data, nondetect data were replaced with one half of the PQL. The selected analysis (i.e., parametric or nonparametric) and transformation (where applicable) for each background data set are shown in Attachment C.

Interwell UPLs were updated for boron and pH, and lower prediction limits (LPLs) were also updated for pH using historical data through October 2023. The intrawell UPLs for fluoride were also updated due to a change in reporting limits. The updated prediction limits are summarized in Table 3. Intrawell UPLs were previously established for calcium, chloride, sulfate, and TDS using



the historical data through June 2022. The prediction limits were calculated for a one-of-two retesting procedure: If at least one sample in a series of two is not above the UPL (or, in the case of pH, is neither less than the LPL nor greater than the UPL), then it can be concluded that an SSI has not occurred. In practice, where the initial result is not above the UPL (or, in the case of pH, is neither under the LPL nor above the UPL), a second sample will not be collected. The retesting procedures allowed for an acceptably high statistical power that could detect changes at compliance wells for constituents evaluated using intrawell prediction limits.

2.2.4 Evaluation of Potential Appendix III SSIs

The Appendix III results was analyzed to assess whether concentrations of Appendix III parameters at the compliance wells were above background concentrations. Data collected during the October 2023 assessment monitoring event from each compliance well were compared to calculated prediction limits to assess whether the results were above background limits. The results from this event and the prediction limits are summarized in Table 3. The following were detected above the UPLs:

• Boron concentrations were detected above the interwell UPL of 0.901 milligrams per liter (mg/L) at AD-8 (1.06 mg/L).

While the prediction limits were calculated for a one-of-two retesting procedure, SSIs were conservatively assumed if the October 2023 sample was above the UPL or, in the case of pH, below the LPL. Based on this evaluation, concentrations of boron appear to be above background concentrations. Therefore, the unit will remain in assessment monitoring.

2.3 Conclusions

A semiannual assessment monitoring event was conducted in accordance with the TCEQ CCR Rule. The laboratory and field data were reviewed prior to statistical analysis, with no QA/QC issues identified that prevented data usage. A review of outliers identified no potential outliers in the October 2023 data. GWPSs were reestablished for the Appendix IV parameters. A confidence interval was constructed at each compliance well for each Appendix IV parameter; SSLs were concluded if the entire confidence interval was above the GWPS. No SSLs were identified. Appendix III results were compared to calculated prediction limits, with values above the UPL detected for boron.

Based on this evaluation, the Welsh PBAP CCR unit will remain in assessment monitoring.



3. REFERENCES

- Geosyntec. 2018. Statistical Analysis Summary Primary Bottom Ash Pond, J. Robert Welsh Plant, Pittsburg, Texas. Geosyntec Consultants, Inc. January.
- Geosyntec. 2021. Statistical Analysis Plan J. Robert Welsh Plant. Geosyntec Consultants, Inc. December.
- Geosyntec. 2023. Statistical Analysis Summary Primary Bottom Ash Pond, J. Robert Welsh Plant. Geosyntec Consultants, Inc. March.
- TCEQ. 2020. Draft Technical Guidance No. 32. Coal Combustion Residuals Groundwater Monitoring and Corrective Action. Texas Commission on Environmental Quality. May.



TABLES

Table 1. Groundwater Data Summary Statistical Analysis Summary Welsh Plant – Primary Bottom Ash Pond

| | | AD-1 | AD-5 | AD-8 | AD-9 | AD-15 | AD-17 |
|------------------------|-------|------------|------------|------------|------------|------------|------------|
| Parameter | Unit | Background | Background | Compliance | Compliance | Compliance | Background |
| | | 10/4/2023 | 10/4/2023 | 10/3/2023 | 10/3/2023 | 10/3/2023 | 10/4/2023 |
| Antimony | μg/L | 0.029 J1 | 0.1 U1 | 0.009 J1 | 0.1 U1 | 0.014 J1 | 1 U1 |
| Arsenic | μg/L | 0.19 | 2.94 | 0.21 | 1.57 | 3.01 | 0.5 J1 |
| Barium | μg/L | 80.0 | 63.9 | 24.2 | 37.0 | 69.8 | 11.8 |
| Beryllium | μg/L | 1.06 | 0.049 J1 | 0.05 U1 | 0.788 | 0.139 | 0.5 U1 |
| Boron | mg/L | 0.901 | 0.042 J1 | 1.06 | 0.168 | 0.179 | 0.14 J1 |
| Cadmium | μg/L | 0.027 | 0.02 U1 | 0.020 | 0.195 | 0.013 J1 | 0.2 U1 |
| Calcium | mg/L | 6.56 | 35.2 | 18.9 | 168 | 2.47 | 176 M1 |
| Chloride | mg/L | 3.03 | 17.5 | 21.5 | 75.4 | 27.5 | 37.9 |
| Chromium | μg/L | 0.38 | 0.30 | 0.40 | 0.48 | 0.37 | 1.3 J1 |
| Cobalt | μg/L | 2.25 | 12.8 | 3.95 | 17.4 | 3.06 | 41.2 |
| Combined Radium | pCi/L | 1.86 | 3.57 | 1.24 | 2.11 | 2.1 | 2.05 |
| Fluoride | mg/L | 0.2 | 0.17 | 0.94 | 0.1 | 0.06 | 0.06 J1 |
| Lead | μg/L | 0.44 | 0.2 U1 | 0.2 U1 | 0.47 | 0.08 J1 | 2 U1 |
| Lithium | mg/L | 0.0103 | 0.143 | 0.0732 | 0.777 | 0.00398 | 0.305 M1 |
| Mercury | μg/L | 0.002 J1 | 0.005 U1 |
| Molybdenum | μg/L | 0.5 U1 | 5 U1 |
| Selenium | μg/L | 9.26 | 0.05 J1 | 0.05 J1 | 0.44 J1 | 0.54 | 5 U1 |
| Sulfate | mg/L | 80.7 | 132 | 137 | 1,200 | 9.9 | 1,180 |
| Thallium | μg/L | 0.05 J1 | 0.2 U1 | 0.10 J1 | 0.16 J1 | 0.06 J1 | 2 U1 |
| Total Dissolved Solids | mg/L | 200 | 290 | 310 | 1,910 | 140 | 1,520 |
| рН | SU | 5.3 | 6.6 | 6.7 | 5.8 | 4.9 | 5.8 |

Notes:

J1: Estimated value. Parameter was detected in concentrations below the reporting limit.

M1: The associated matrix spike (MS) or matrix spike duplicate (MSD) recovery was outside acceptance limits.

mg/L: milligrams per liter pCi/L: picocuries per liter

SU: standard unit

U1: Non-detect value. For statistical analysis, parameters that were not detected were replaced with the reporting limit.

μg/L: micrograms per liter

Table 2. Appendix IV Groundwater Protection Standards Statistical Analysis Summary Welch Bland - Brimany Battern Ash Band

Welsh Plant - Primary Bottom Ash Pond

| Constituent Name | MCL | Calculated UTL | GWPS |
|--------------------------------|---------|----------------|---------|
| Antimony, Total (mg/L) | 0.00600 | 0.00317 | 0.00600 |
| Arsenic, Total (mg/L) | 0.0100 | 0.00628 | 0.0100 |
| Barium, Total (mg/L) | 2.00 | 0.510 | 2.00 |
| Beryllium, Total (mg/L) | 0.00400 | 0.00108 | 0.00400 |
| Cadmium, Total (mg/L) | 0.00500 | 0.00400 | 0.00500 |
| Chromium, Total (mg/L) | 0.100 | 0.00227 | 0.100 |
| Cobalt, Total (mg/L) | n/a | 0.0748 | 0.0748 |
| Combined Radium, Total (pCi/L) | 5.00 | 4.51 | 5.00 |
| Fluoride, Total (mg/L) | 4.00 | 0.583 | 4.00 |
| Lead, Total (mg/L) | n/a | 0.00338 | 0.00338 |
| Lithium, Total (mg/L) | n/a | 0.394 | 0.394 |
| Mercury, Total (mg/L) | 0.00200 | 0.0000330 | 0.00200 |
| Molybdenum, Total (mg/L) | n/a | 0.00243 | 0.00243 |
| Selenium, Total (mg/L) | 0.0500 | 0.01010 | 0.0500 |
| Thallium, Total (mg/L) | 0.00200 | 0.00125 | 0.00200 |

Notes:

1. Calculated UTL (upper tolerance limit) represents site-specific background values.

2. Grey cells indicate the GWPS is based on the calculated UTL. Either the UTL is higher than the MCL or an MCL does not exist.

GWPS: groundwater protection standard

MCL: maximum contaminant level

mg/L: milligrams per liter

n/a: not applicable

pCi/L: picocuries per liter

Table 3. Appendix III Data Summary Statistical Analysis Summary Welsh Plant – Primary Bottom Ash Pond

| Analyte | Unit | Description | AD-8 | AD-9 | AD-15 | |
|------------------------|------|---|--|-----------|-----------|--|
| Analyte | Omt | Description | 10/3/2023 | 10/3/2023 | 10/3/2023 | |
| Boron | mg/L | Interwell Background Value (UPL) | 0.901 | | | |
| DOIOII | mg/L | Analytical Result | 1.06 | 0.168 | 0.179 | |
| Calcium | mg/L | Intrawell Background Value (UPL) | 28.1 | 258 | 4.65 | |
| Calcium | mg/L | Analytical Result | 18.9 | 168 | 2.47 | |
| Chloride | mg/L | Intrawell Background Value (UPL) | 26.1 | 117 | 36.9 | |
| Cilioride | mg/L | Analytical Result 18.9 168 Intrawell Background Value (UPL) 26.1 117 Analytical Result 21.5 75.4 Intrawell Background Value (UPL) 1.06 0.623 Analytical Result 0.94 0.1 Interwell Background Value (UPL) 6.9 | 27.5 | | | |
| Fluoride | /I | Intrawell Background Value (UPL) | 1.06 | 0.623 | 0.16 | |
| Fluoride | mg/L | Analytical Result | 0.94 | 0.1 | 0.06 | |
| | | Interwell Background Value (UPL) 6.9 | | | | |
| pН | SU | Interwell Background Value (LPL) | 4.8 | | | |
| | | Analytical Result | Description terwell Background Value (UPL) Analytical Result Indextrawell Background Value (UPL) Analytical Result Analytical Result Itrawell Background Value (UPL) Analytical Result Itrawell Background Value (UPL) Analytical Result Itrawell Background Value (UPL) Analytical Result Iterwell Background Value (UPL) | 5.8 | 4.9 | |
| Sulfate | mg/L | Intrawell Background Value (UPL) | 204 | 2,150 | 30.5 | |
| Sullate | mg/L | Analytical Result | 137 | 1,200 | 9.9 | |
| Total Dissolved Solids | ma/I | Intrawell Background Value (UPL) | 489 | 2,690 | 261 | |
| Total Dissolved Solids | mg/L | Analytical Result | 310 | 1,910 | 140 | |

Notes:

1. Bold values exceed the background value.

2. Background values are shaded gray.

LPL: lower prediction limit mg/L: milligrams per liter

SU: standard units

UPL: upper prediction limit



ATTACHMENT A Certification by Qualified Professional Engineer

Certification by Qualified Professional Engineer

I certify that selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the Welsh Primary Bottom Ash Pond CCR management area and that the requirements of § 352.951(a) have been met.

| David Anthony Mille | er | ger STA | A CONTRACTOR OF THE PARTY OF TH |
|------------------------|---------------------------|------------|--|
| Printed Name of Licens | sed Professional Engineer | • | ONY MILLER |
| David Lothony | Miller | SSION | L ENGINEER |
| Signature | | | |
| 112498 | Texas | 01.24.2024 | _ |
| License Number | Licensing State | Date | |



ATTACHMENT B Data Quality Review Memorandum





Memorandum

Date: January 12, 2024

To: David Miller (AEP)

Copies to: Rebecca Jones (AEP)

From: Allison Kreinberg (Geosyntec)

Subject: Data Quality Review – Welsh Power Plant

October 2023 Sampling Event

This memorandum summarizes the findings of a data quality review for groundwater samples collected at the Welsh Power Plant, located in Pittsburg, Texas in October 2023. The groundwater samples were collected to comply with the Texas Commission on Environmental Quality's (TCEQ's) regulations regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Title 30 Chapter 352, "CCR Rule"). 40 CFR 257 Appendix III and IV constituents were analyzed.

The following sample data groups (SDGs) were associated with the groundwater samples collected during the October 2023 sampling event and are reviewed in this memorandum:

- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 233091
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 233092
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 233093
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 233117
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 233118
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 233119

The data included in these SDGs were reviewed to assess if they met the objectives outlined in TCEQ Draft Technical Guideline No. 32¹ prior to submittal of this data to TCEQ.

¹ TCEQ. Topic: Coal Combustion Residuals (CCR) Groundwater Monitoring and Corrective Action: Technical Guidance No. 32. May 2020.

Data Quality Review – Welsh October 2023 Data January 12, 2024 Page 2

The following data quality issues were identified:

- As reported in SDG 233117, chromium and cobalt were detected in the equipment blank sample "EB-BACKGROUND" collected on 10/4/2023. The detected chromium concentration in the equipment blank (0.51 μg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results.
- As reported in SDG 233118, calcium, lithium, chromium, and cobalt were detected in the equipment blank sample "EQUIPMENT BLANK-PBAP" collected on 10/3/2023. The detected chromium concentration in the equipment blank (0.37 μg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results.
- As reported in SDG 233119, boron, calcium, chromium, and cobalt were detected in the equipment blank sample "EQUIPMENT BLANK-LF" collected on 10/3/2023. The estimated detected chromium concentration in the equipment blank (0.29 µg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results.
- As reported in SDG 233117, chromium and cobalt were detected in the field blank sample "FIELD BLANK - BACKGROUND" collected on 10/4/2023. The detected chromium concentration in the field blank (0.35 μg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results.
- As reported in SDG 233118, lithium, chromium, and cobalt were detected in the field blank sample "FIELD BLANK - PBAP" collected on 10/3/2023. The detected chromium concentration in the field blank (0.35 μg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results.
- As reported in SDG 233119, boron, lithium, beryllium, chromium, and cobalt were detected in the field blank sample "FIELD BLANK LF" collected on 10/3/2023. The detected chromium concentration in the field blank (0.31 μg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias for all groundwater chromium results.

Data Quality Review – Welsh October 2023 Data January 12, 2024 Page 3

- As reported in SDG 233117, the relative percent difference (RPD) for antimony concentrations from parent sample "AD-1" and duplicate sample "DUPLICATE-BACKGROUND" was 29%. The AD-1 antimony result should be considered estimated.
- The quality control data provided with SDG 233117 noted that the recovery on the matrix spike duplicate for calcium and lithium associated with sample "AD-17" had low recoveries. The calcium and lithium results for sample "AD-17" were qualified with "M1: the associated matrix spike (MS) or matrix spike duplicate (MSD) recovery was outside acceptance limits".
- The quality control data provided with SDG 233119 noted that the recovery on the matrix spike duplicate for beryllium and lithium associated with sample "AD-11" had low recoveries. The beryllium and lithium results for sample "AD-11" were qualified with "M1: the associated matrix spike (MS) or matrix spike duplicate (MSD) recovery was outside acceptance limits".

Based on these findings, the majority of the data reported in these SDGs are considered accurate and complete. Although the QC failures mentioned above will result in some limitations of data use since the affected results are considered estimated or have elevated reporting limits, the data are considered usable for supporting project objectives.

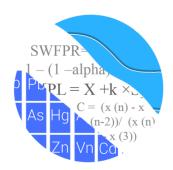


ATTACHMENT C Statistical Analysis Output

GROUNDWATER STATS CONSULTING

January 4, 2023

Geosyntec Consultants Attn: Ms. Allison Kreinberg 500 W. Wilson Bridge Road, Suite 250 Worthington, OH 43085



Re: Welsh PBAP - Assessment Monitoring Event & Background Update 2023

Dear Ms. Kreinberg,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the statistical analysis and background update of 2023 groundwater data for American Electric Power Inc.'s Welsh PBAP. The analysis complies with the Texas Commission of Environmental Quality Rule 30 TAC 352 as well as with the United States Environmental Protection Agency (USEPA) Unified Guidance (2009).

Sampling began at the site for the Coal Combustion Residuals (CCR) program in 2016. The monitoring well network, as provided by Geosyntec Consultants, consists of the following:

Upgradient wells: AD-1, AD-5, and AD-17
 Downgradient wells: AD-8, AD-9, and AD-15

Data were sent electronically, and the statistical analysis was reviewed by Kristina Rayner, Senior Statistician and Founder of Groundwater Stats Consulting. The analysis was conducted according to the Statistical Analysis Plan prepared by GSC and approved by Dr. Cameron, PhD Statistician with MacStat Consulting, primary author of the USEPA Unified Guidance, and Senior Advisor to GSC.

The CCR program consists of the following constituents:

 Appendix III (Detection Monitoring) - boron, calcium, chloride, fluoride, pH, sulfate, and TDS Appendix IV (Assessment Monitoring) – antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, combined radium 226 + 228, fluoride, lead, lithium, mercury, molybdenum, selenium, and thallium

Time series plots for Appendix III and IV parameters are provided for all wells and constituents, and are used to evaluate concentrations over the entire record (Figure A). Additionally, box plots are included for all constituents at upgradient and downgradient wells (Figure B). The time series plots are used to initially screen for suspected outliers and trends, while the box plots provide visual representation of variation within individual wells and between all wells. Values flagged as outliers may be seen in the Outlier Summary following this letter (Figure C) and are plotted in a lighter font and disconnected symbol on the time series graphs.

Due to varying detection limits in background data sets, a substitution of the most recent reporting limit is used for all non-detects. Note that for calculation of intrawell prediction limits, substitution of the most recent reporting limit is performed separately for each well/parameter pair. In some cases, the reporting limit provided by the laboratory contains varying limits for a given parameter; therefore, the substitution may differ from well to well. This generally gives the most conservative limit in each case. Reporting limit changes may occur depending on laboratory capabilities and in the case of fluoride, elevated historic reporting limits were replaced by the most recent reporting limit of 0.15 mg/L and was substituted across all non-detects for all wells.

Summary of Statistical Methods

- 1) Intrawell prediction limits, combined with a 1-of-2 resample plan for calcium, chloride, fluoride, sulfate, and TDS
- 2) Interwell prediction limits combined with a 1-of-2 resample plan for boron and pH

In the event of an initial exceedance of compliance well data, the 1-of-2 resample plan allows for collection of an additional sample to determine whether the initial exceedance is confirmed. When the resample confirms the initial exceedance, a statistically significant increase (SSI) is identified and further research would be required to identify the cause of the exceedance (i.e., impact from the site, natural variation, or an off-site source). If the resample falls within the statistical limit, the initial exceedance is considered to be a false positive result and, therefore, no further action is necessary.

Parametric prediction limits are utilized when the screened historical data follow a normal or transformed-normal distribution. When data cannot be normalized or the majority of data are non-detects, a nonparametric test is utilized. The distribution of data is tested

using the Shapiro-Wilk/Shapiro-Francia test for normality. After testing for normality and performing any adjustments as discussed below (US EPA, 2009), data are analyzed using either parametric or non-parametric prediction limits.

- No statistical analyses are required on wells and analytes containing 100% nondetects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain <15% non-detects, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for non-detects is the most recent practical quantification limit (PQL) as reported by the laboratory.
- When data contain between 15-50% non-detects, the Kaplan-Meier non-detect adjustment is applied to the background data for parametric limits. This technique adjusts the mean and standard deviation of the historical concentrations to account for concentrations below the reporting limit.
- Nonparametric prediction limits are used on data containing greater than 50% non-detects.

Natural systems continuously evolve due to physical changes made to the environment. Examples include capping a landfill, paving areas near a well, or lining a drainage channel to prevent erosion. Periodic updating of background statistical limits will be necessary to accommodate these types of changes. In the interwell case, newer data may be included in background during each sample event after screening the upgradient well data for any new outliers. Data will also be periodically evaluated for statistically significant trends, and earlier data may be deselected prior to construction of statistical limits so that limits represent-day conditions.

In the intrawell case, data for all wells and constituents are re-evaluated when a minimum of 4 new data points are available to determine whether earlier concentrations are representative of present-day groundwater quality. In some cases, the earlier portion of data are deselected prior to construction of limits in order to provide sensitive limits that will rapidly detect changes in groundwater quality. Even though the data are excluded from the calculation, the values will continue to be reported and shown in tables and graphs.

Summary of Background Screening Conducted in December 2017

<u>Appendix III – Determination of Spatial Variation</u>

The Analysis of Variance (ANOVA) was used to statistically evaluate differences in average concentrations among upgradient wells, which assists in identifying the most appropriate

statistical approach. Interwell tests, which compare downgradient well data to statistical limits constructed from pooled upgradient well data, are appropriate when average concentrations are similar across upgradient wells. Intrawell tests, which compare compliance data from a single well to screened historical data within the same well, are appropriate when upgradient wells exhibit spatial variation; when statistical limits constructed from upgradient wells would not be conservative from a regulatory perspective; and when downgradient water quality is unimpacted compared to upgradient water quality for the same parameter.

As a result of the screening, intrawell prediction limits were determined to be most appropriate for calcium, chloride, fluoride, sulfate, and TDS while interwell prediction limits were appropriate for boron and pH. A summary of those findings was included with the report.

Appendix III Background Update Summary – Conducted in January 2024

Outlier Analysis

Prior to updating interwell prediction limits for the Fall 2023 analysis, data were evaluated using Tukey's outlier test and visual screening on pooled upgradient well data for boron and pH. Results of the outlier tests follow this report (Figure C).

Tukey's outlier test on pooled upgradient well data did not identify any outliers for boron or pH among upgradient wells; therefore, no measurements were flagged as outliers. A list of all flagged values follows this report (Figure C).

For parameters which use intrawell prediction limits (calcium, chloride, fluoride, sulfate, and TDS), values were not re-evaluated for new outliers as these records had insufficient samples for updating background during this evaluation period.

<u>Intrawell – Prediction Li</u>mits

Intrawell prediction limits, combined with a 1-of-2 resample plan, are constructed using historical data through June 2022 for calcium, chloride, fluoride, sulfate, and TDS. A summary of the limits follows this letter (Figure D). Note that slight changes in statistical limits occurred for fluoride as a result of the reporting limit decreasing from 1 mg/L to 0.15 mg/L. No comparisons of the October 2023 observations were performed in this analysis.

<u>Interwell – Trend Test Evaluation</u>

For parameters which are tested using interwell prediction limits, the Sen's Slope/Mann-Kendall trend test was used to evaluate data in upgradient wells and determine whether concentrations are statistically increasing, decreasing or stable at the 99% confidence level (Figure E). Statistically significant trends were identified for the following well/constituent pairs:

Increasing

• Boron: AD-1 (upgradient)

Decreasing

• pH: AD-17 (upgradient)

Although statistically significant trends were identified for boron in upgradient well AD-1 and pH in upgradient well AD-17, the magnitudes of the trends are marginal relative to the respective concentrations; therefore, no adjustments were required for these well/constituent pairs at this time. Therefore, all data from upgradient wells were used to construct interwell prediction limits for boron and pH.

Interwell – Prediction Limits

Interwell prediction limits, combined with a 1-of-2 resample plan, were updated using all available data from upgradient wells through October 2023 for boron and pH (Figure F). Interwell prediction limits pool upgradient well data to establish a background limit for an individual constituent. Time series plots were included with the interwell prediction limit graphs to display concentrations at upgradient wells that were used to construct the statistical limits. A summary table of the updated limits may be found following this letter in the Prediction Limit Summary Tables. No comparison of the October 2023 compliance observations was performed in this analysis.

Evaluation of Appendix IV Parameters – October 2023

Outlier Analysis

Prior to evaluating Appendix IV parameters, upgradient well data are screened through both visual screening and Tukey's outlier test for potential outliers and extreme trending patterns that would lead to artificially elevated statistical limits. All flagged values may be seen on the Outlier Summary following this letter (Figure C) and no changes to previously flagged outliers for Appendix IV parameters were made. Note that due to elevated reporting limits in upgradient well AD-17 for antimony, lead, molybdenum, and selenium,

and thallium during this event, the most recent respective reporting limit from other wells was for substituted across all wells for each of these constituents.

For the current analysis, Tukey's outlier test on pooled upgradient well data through October 2023 identified outliers for chromium, lead, and mercury. The values identified by Tukey's test, except for the highest value for chromium at AD-17, were either similar to concentrations upgradient of the facility or were lower than the respective Maximum Contaminant Level (MCL); therefore, these values were not flagged as outliers. Tukey's outlier test and visual screening confirmed the previously flagged highest measurement of chromium at AD-17 along with other flagged observations. No additional measurements were flagged among upgradient wells for Appendix IV parameters during this analysis.

Additionally, downgradient well data through October 2023 were screened through visual screening using time series graphs. Since the downgradient well data are used to construct confidence intervals, a regulatory conservative approach is taken in that values that are marginally high relative to the rest of the data are retained unless there is particular justification for excluding them, such as the spurious observations at AD-15 during the September 2016 event for several constituents. No additional outliers among downgradient wells were flagged during this analysis. All flagged values may be seen on the Outlier Summary following this letter (Figure C).

Interwell Upper Tolerance Limits

Upper tolerance limits were used to calculate background limits from pooled upgradient well data through October 2023 for Appendix IV parameters (Figure G). These limits are updated on an annual basis and will be updated again during the Fall 2024 sample event. Parametric tolerance limits are calculated, with a target of 95% confidence and 95% coverage, when data follow a normal or transformed-normal distribution. When data contained greater than 50% non-detects or did not follow a normal or transformed-normal distribution, non-parametric tolerance limits were constructed using the highest background measurement. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples.

Groundwater Protection Standards

These background limits were compared to the MCLs as shown in the Groundwater Protection Standard (GWPS) table following this letter to determine the highest limit for use as the GWPS in the confidence interval comparisons (Figure H).

Confidence Intervals

Confidence intervals were then constructed using data through October 2023 on downgradient wells for each of the Appendix IV parameters and compared to the GWPS, (i.e., the highest limit of the MCL or background limit as discussed above). Confidence intervals were constructed as either parametric or nonparametric confidence intervals depending on the data distribution and percentage of non-detects. When data followed a normal or transformed-normal distribution, parametric confidence intervals were used for Appendix IV parameters. Nonparametric confidence intervals were constructed when data did not follow a normal or transformed-normal distribution or when there were greater than 50% non-detects. The lower confidence limit, which is constructed with 99% confidence for parametric confidence intervals, is compared to the GWPS prepared as described above. The confidence level associated with nonparametric confidence intervals is dependent upon the number samples available.

Only when the entire confidence interval is above a GWPS is the well/constituent pair considered to exceed its respective standard. Complete graphical results of the confidence intervals follow this letter (Figure I). No statistical exceedances were identified.

<u>Trend Test Evaluation – Appendix IV</u>

When confidence interval exceedances are identified in downgradient wells, data are further evaluated using the Sen's Slope/Mann Kendall trend test to determine whether concentrations are statistically increasing, decreasing, or stable at the 95% confidence level. Utilizing the 95% confidence level for trend tests readily identifies significant trends and is more sensitive than the 99% confidence level without drastically increasing the false negative rate. Upgradient wells are included in the trend analyses for all parameters found to exceed their confidence interval in downgradient wells. When similar patterns exist upgradient of the site, it is an indication of variability in groundwater which may be unrelated to practices at the site. Since no confidence interval exceedances were identified, trend tests were not required.

Thank you for the opportunity to assist you in the statistical analysis of groundwater quality for the Welsh PBAP. If you have any questions or comments, please feel free to contact us.

For Groundwater Stats Consulting,

Andrew Collins

Project Manager

Kristina Rayner Senior Statistician

Kristina Rayner

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Page 1

Date Ranges

Date: 1/3/2024 2:30 PM

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

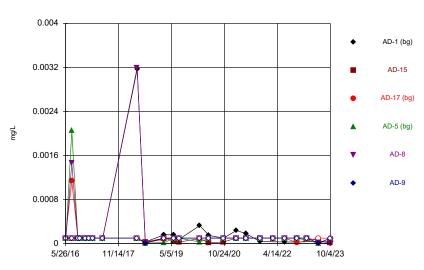
Chloride, total (mg/L)

AD-8 background:1/20/2017-6/28/2022
Fluoride, total (mg/L)

AD-17 background:1/20/2017-6/28/2022

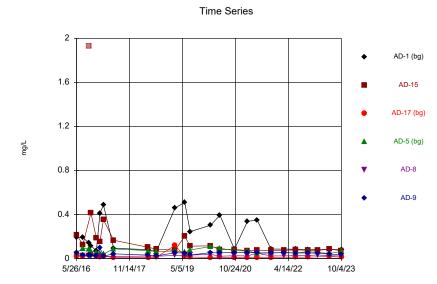
FIGURE A
Time Series





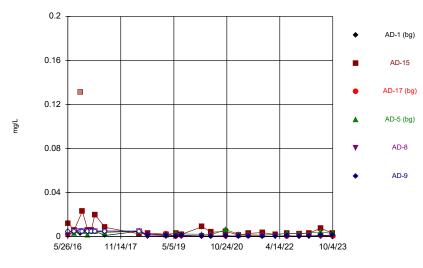
Constituent: Antimony, total Analysis Run 1/3/2024 12:53 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Constituent: Barium, total Analysis Run 1/3/2024 12:53 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

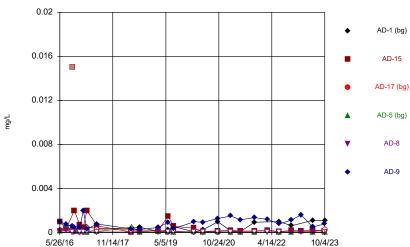
Time Series



Constituent: Arsenic, total Analysis Run 1/3/2024 12:53 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

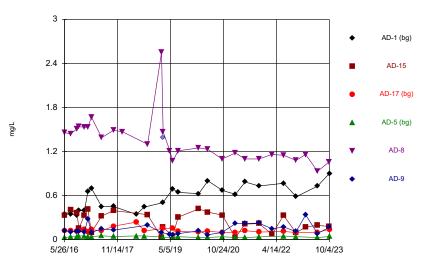
Sanitas™ v.10.0.15 Software licensed to . UG Hollow symbols indicate censored values.

Time Series



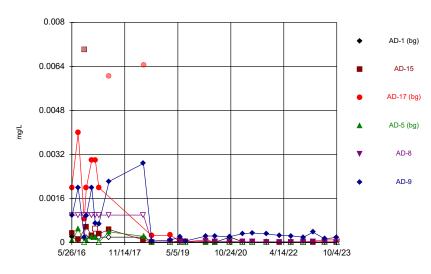
Constituent: Beryllium, total Analysis Run 1/3/2024 12:53 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP





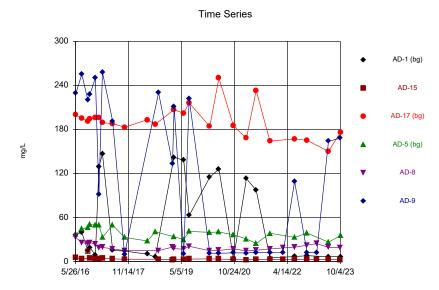
Constituent: Boron, total Analysis Run 1/3/2024 12:53 PM Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Time Series



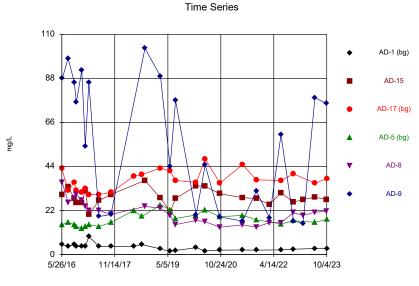
Constituent: Cadmium, total Analysis Run 1/3/2024 12:53 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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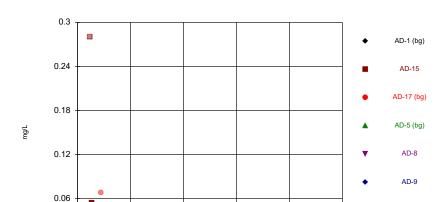


Constituent: Calcium, total Analysis Run 1/3/2024 12:53 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Constituent: Chloride, total Analysis Run 1/3/2024 12:53 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Time Series

Constituent: Chromium, total Analysis Run 1/3/2024 12:53 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

10/24/20

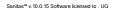
4/14/22

5/5/19

0.2 AD-1 (bg) 0.16 AD-15 繳 AD-17 (bg) 0.12 AD-5 (bg) mg/L 0.08 AD-8 AD-9 0.04 10/24/20 5/26/16 11/14/17 10/4/23

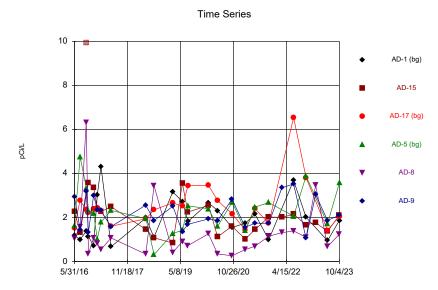
Time Series

Constituent: Cobalt, total Analysis Run 1/3/2024 12:53 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



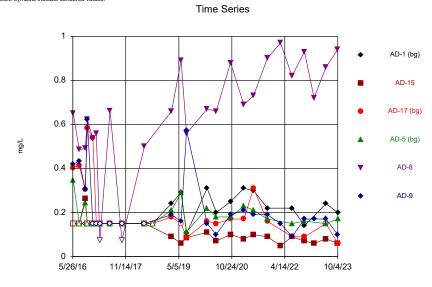
5/26/16

11/14/17



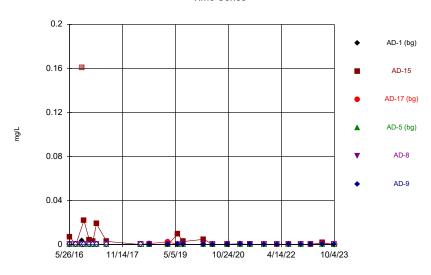
Constituent: Combined Radium 226 + 228 Analysis Run 1/3/2024 12:53 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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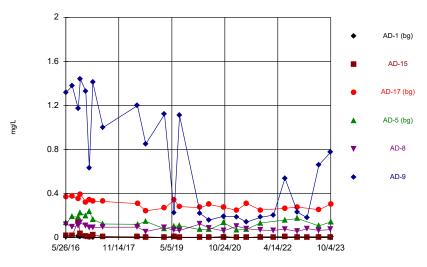
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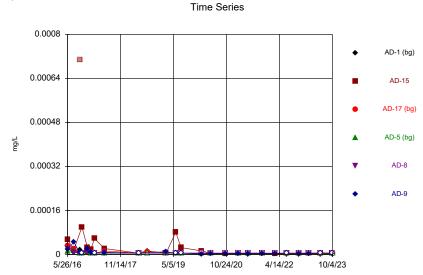
Constituent: Lead, total Analysis Run 1/3/2024 12:53 PM Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Time Series



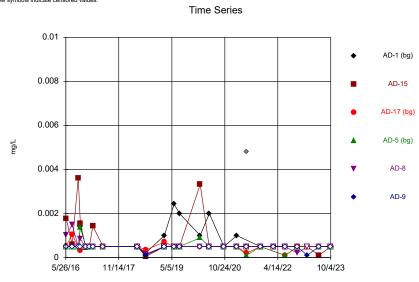
Constituent: Lithium, total Analysis Run 1/3/2024 12:53 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.10.0.15 Software licensed to . UG Hollow symbols indicate censored values.



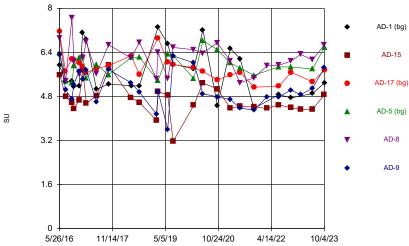
Constituent: Mercury, total Analysis Run 1/3/2024 12:53 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.10.0.15 Software licensed to . UG Hollow symbols indicate censored values.

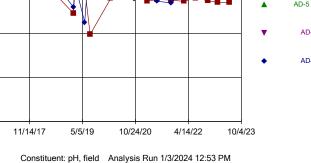


Constituent: Molybdenum, total Analysis Run 1/3/2024 12:53 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

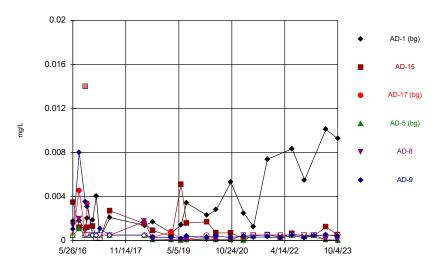
Time Series



Welsh PBAP Client: Geosyntec Data: Welsh PBAP

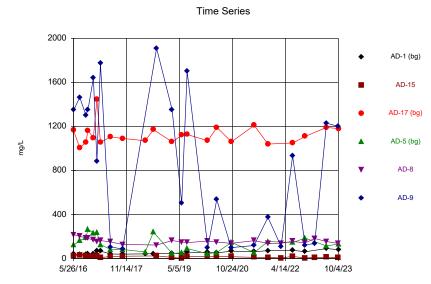


Time Series



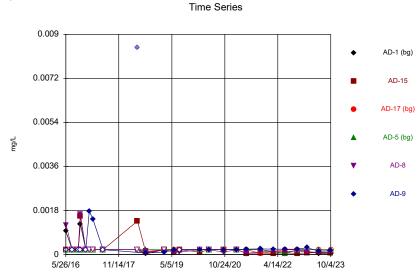
Constituent: Selenium, total Analysis Run 1/3/2024 12:53 PM Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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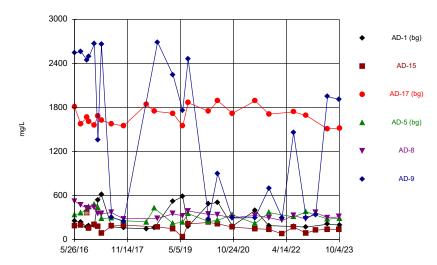
Constituent: Sulfate, total Analysis Run 1/3/2024 12:53 PM Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.10.0.15 Software licensed to . UG Hollow symbols indicate censored values.



Constituent: Thallium, total Analysis Run 1/3/2024 12:53 PM Welsh PBAP Client: Geosyntec Data: Welsh PBAP

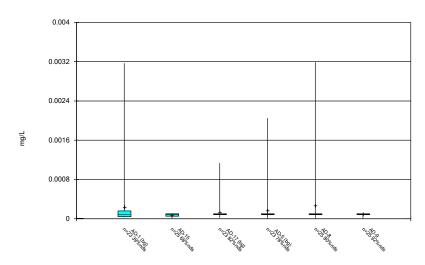
Time Series



Constituent: Total Dissolved Solids Analysis Run 1/3/2024 12:53 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

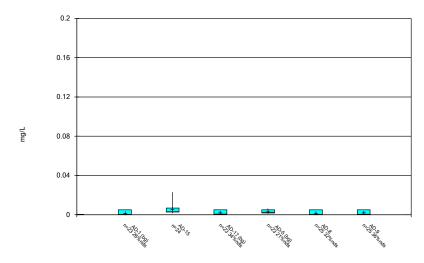
FIGURE B
Box Plots

Box & Whiskers Plot



Constituent: Antimony, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

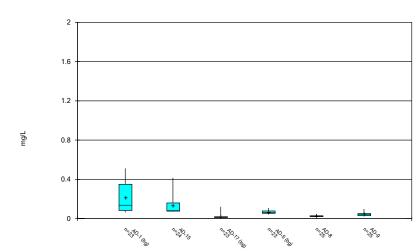
Box & Whiskers Plot



Constituent: Arsenic, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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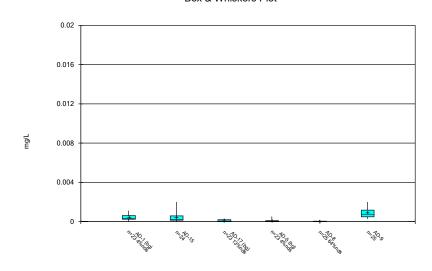
Box & Whiskers Plot



Constituent: Barium, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

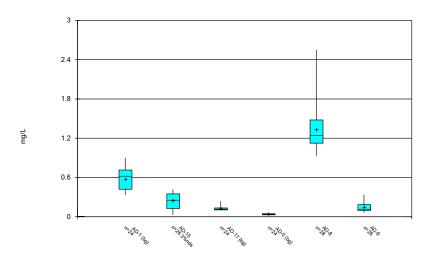
Sanitas™ v.10.0.15 Software licensed to . UG

Box & Whiskers Plot



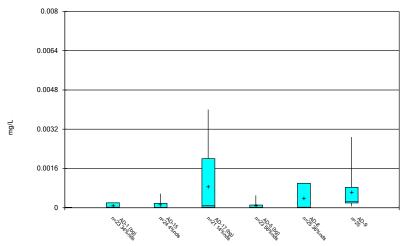
Constituent: Beryllium, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Box & Whiskers Plot



Constituent: Boron, total Analysis Run 1/3/2024 12:56 PM Welsh PBAP Client: Geosyntec Data: Welsh PBAP

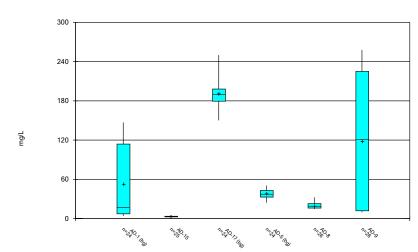
Box & Whiskers Plot



Constituent: Cadmium, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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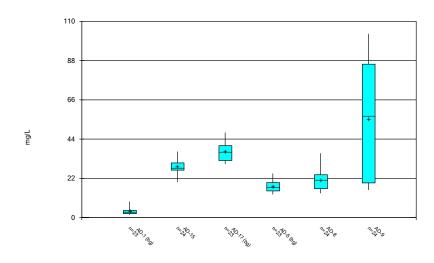
Box & Whiskers Plot



Constituent: Calcium, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

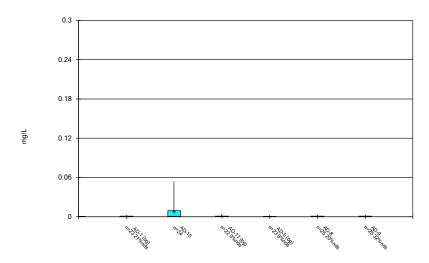
Sanitas™ v.10.0.15 Software licensed to . UG

Box & Whiskers Plot



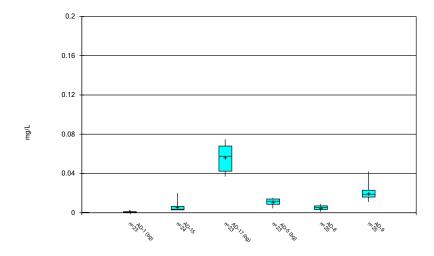
Constituent: Chloride, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Box & Whiskers Plot



Constituent: Chromium, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

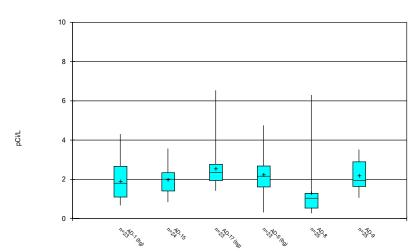
Box & Whiskers Plot



Constituent: Cobalt, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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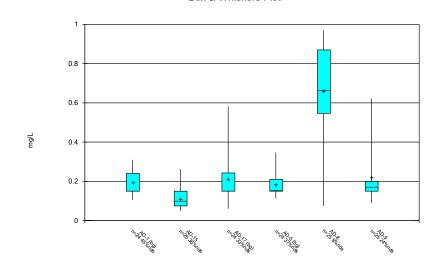
Box & Whiskers Plot



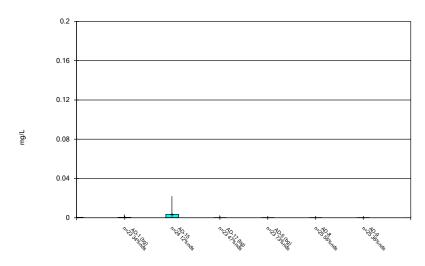
Constituent: Combined Radium 226 + 228 Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Box & Whiskers Plot

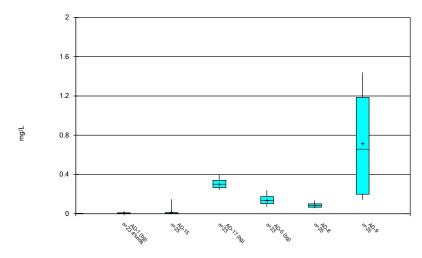


Box & Whiskers Plot



Constituent: Lead, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

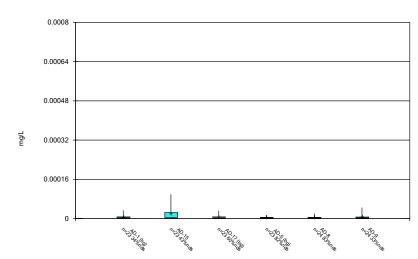
Box & Whiskers Plot



Constituent: Lithium, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.10.0.15 Software licensed to . UG

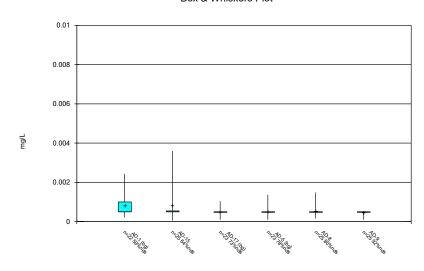
Box & Whiskers Plot



Constituent: Mercury, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

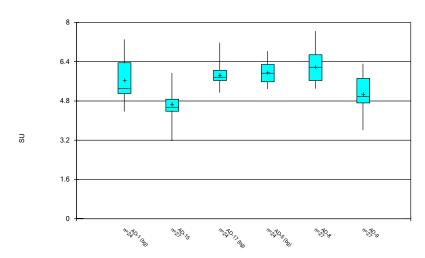
Sanitas™ v.10.0.15 Software licensed to . UG

Box & Whiskers Plot



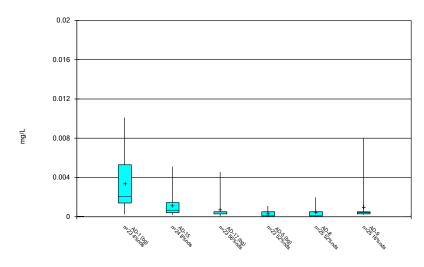
Constituent: Molybdenum, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Box & Whiskers Plot



Constituent: pH, field Analysis Run 1/3/2024 12:56 PM Welsh PBAP Client: Geosyntec Data: Welsh PBAP

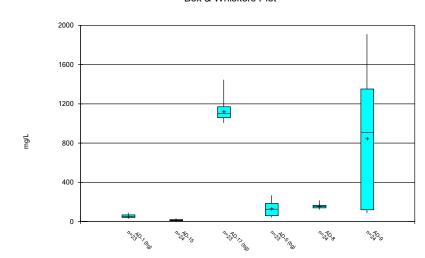
Box & Whiskers Plot



Constituent: Selenium, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.10.0.15 Software licensed to . UG

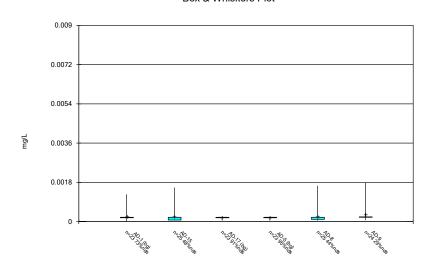
Box & Whiskers Plot



Constituent: Sulfate, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

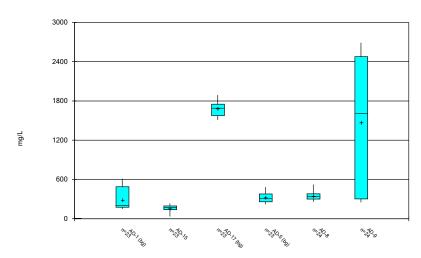
Sanitas™ v.10.0.15 Software licensed to . UG

Box & Whiskers Plot



Constituent: Thallium, total Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Box & Whiskers Plot

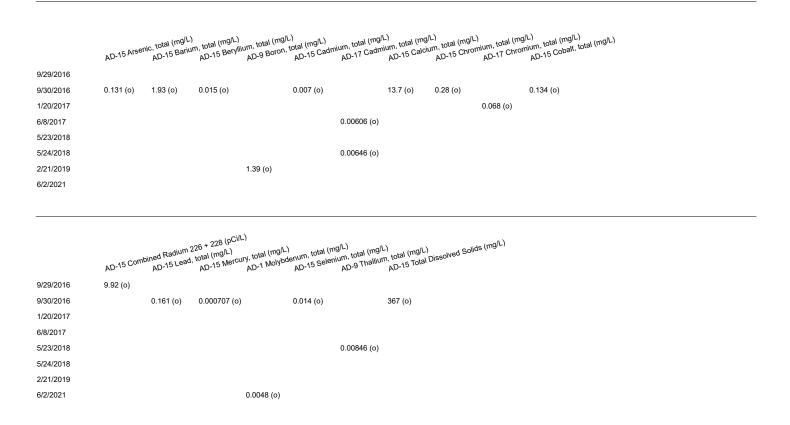


Constituent: Total Dissolved Solids Analysis Run 1/3/2024 12:56 PM
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

FIGURE C Outlier Summary and Tukey's Outlier Test

Outlier Summary

Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 1/3/2024, 12:58 PM



Tukey's Outlier Test - Upgradient Wells - Significant Results

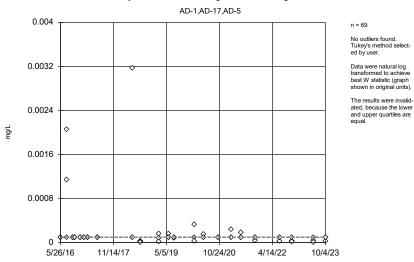
Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 1/3/2024, 1:00 PM

| Constituent | Well | <u>Outlier</u> | <u>Value(s)</u> | Metho | odAlpha N | <u>Mean</u> | Std. Dev. | Distributio | n Normality Test |
|------------------------|-----------------|----------------|---|-------|-----------|-------------|--------------|-------------|------------------|
| Chromium, total (mg/L) | AD-1,AD-17,AD-5 | Yes | 0.068 | NP | NaN 69 | 0.001542 | 0.008147 | In(x) | ShapiroFrancia |
| Lead, total (mg/L) | AD-1,AD-17,AD-5 | Yes | 0.003384, 0.0001, 0.0001, 0.0001, 0.000852, 0.00009, 0. | NP | NaN 69 | 0.0002942 | 0.0004942 | In(x) | ShapiroFrancia |
| Mercury, total (mg/L) | AD-1,AD-17,AD-5 | Yes | 0.000033,0.00001773,0.00001521,0.000013,0.000013 | , NP | NaN 69 | 0.00000689 | 7 0.00000580 | 6 ln(x) | ShapiroFrancia |

Tukey's Outlier Test - Upgradient Wells - All Results

| | | Welsh PBAP | Client: Geosyntec | Data: Welsh PBAP | Printed 1/3/2 | 2024, 1: | 00 PM | | | | |
|-----------------------------------|-----------------|------------|-------------------|-----------------------|---------------|----------|----------|------------|--------------|-------------|------------------|
| Constituent | Well | Outlier | Value(s) | | | Metho | dAlpha N | Mean | Std. Dev. | Distributio | n Normality Test |
| Antimony, total (mg/L) | AD-1,AD-17,AD-5 | n/a | n/a | | | NP | NaN 69 | 0.0001833 | 0.0004535 | unknown | ShapiroFrancia |
| Arsenic, total (mg/L) | AD-1,AD-17,AD-5 | No | n/a | | | NP | NaN 69 | 0.002468 | 0.001942 | x^(1/3) | ShapiroFrancia |
| Barium, total (mg/L) | AD-1,AD-17,AD-5 | No | n/a | | | NP | NaN 69 | 0.1007 | 0.1227 | ln(x) | ShapiroFrancia |
| Beryllium, total (mg/L) | AD-1,AD-17,AD-5 | No | n/a | | | NP | NaN 69 | 0.0002223 | 0.0002643 | ln(x) | ShapiroFrancia |
| Boron, total (mg/L) | AD-1,AD-17,AD-5 | No | n/a | | | NP | NaN 72 | 0.2484 | 0.2585 | ln(x) | ShapiroFrancia |
| Cadmium, total (mg/L) | AD-1,AD-17,AD-5 | No | n/a | | | NP | NaN 69 | 0.0004765 | 0.001273 | ln(x) | ShapiroFrancia |
| Chromium, total (mg/L) | AD-1,AD-17,AD-5 | Yes | 0.068 | | | NP | NaN 69 | 0.001542 | 0.008147 | ln(x) | ShapiroFrancia |
| Cobalt, total (mg/L) | AD-1,AD-17,AD-5 | No | n/a | | | NP | NaN 69 | 0.02294 | 0.02555 | x^(1/3) | ShapiroFrancia |
| Combined Radium 226 + 228 (pCi/L) | AD-1,AD-17,AD-5 | No | n/a | | | NP | NaN 69 | 2.228 | 1.03 | x^(1/3) | ShapiroFrancia |
| Fluoride, total (mg/L) | AD-1,AD-17,AD-5 | No | n/a | | | NP | NaN 72 | 0.1961 | 0.09322 | ln(x) | ShapiroFrancia |
| Lead, total (mg/L) | AD-1,AD-17,AD-5 | Yes | 0.003384,0.0001,0 | 0.0001,0.0001,0.00085 | 2,0.00009,0. | NP | NaN 69 | 0.0002942 | 0.0004942 | ln(x) | ShapiroFrancia |
| Lithium, total (mg/L) | AD-1,AD-17,AD-5 | No | n/a | | | NP | NaN 69 | 0.1501 | 0.1285 | sqrt(x) | ShapiroFrancia |
| Mercury, total (mg/L) | AD-1,AD-17,AD-5 | Yes | 0.000033,0.00001 | 773,0.00001521,0.000 | 013,0.000013 | , NP | NaN 69 | 0.00000689 | 7 0.00000580 | 6 ln(x) | ShapiroFrancia |
| Molybdenum, total (mg/L) | AD-1,AD-17,AD-5 | n/a | n/a | | | NP | NaN 69 | 0.0006621 | 0.000648 | unknown | ShapiroFrancia |
| pH, field (SU) | AD-1,AD-17,AD-5 | No | n/a | | | NP | NaN 72 | 5.833 | 0.6322 | x^(1/3) | ShapiroFrancia |
| Selenium, total (mg/L) | AD-1,AD-17,AD-5 | No | n/a | | | NP | NaN 69 | 0.001489 | 0.002216 | ln(x) | ShapiroFrancia |
| Thallium, total (mg/L) | AD-1,AD-17,AD-5 | n/a | n/a | | | NP | NaN 69 | 0.0002109 | 0.0001642 | unknown | ShapiroFrancia |

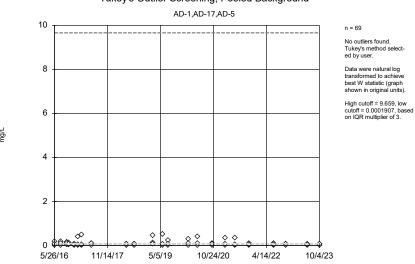
Tukey's Outlier Screening, Pooled Background



Constituent: Antimony, total Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

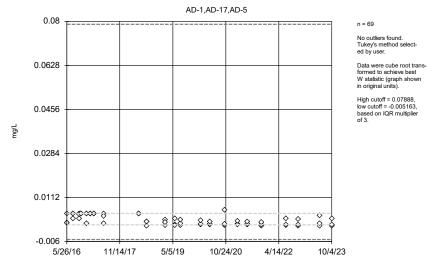
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Tukey's Outlier Screening, Pooled Background



Constituent: Barium, total Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

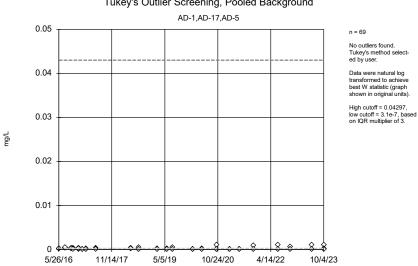
Tukey's Outlier Screening, Pooled Background



Constituent: Arsenic, total Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.10.0.15 Software licensed to . UG

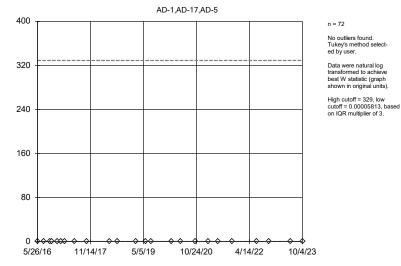
Tukey's Outlier Screening, Pooled Background



Constituent: Beryllium, total Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

mg/L

Tukey's Outlier Screening, Pooled Background



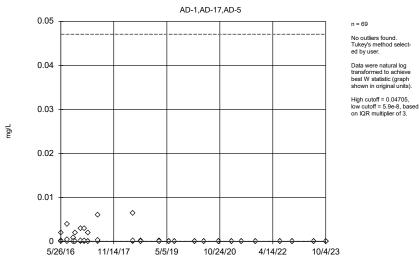
Constituent: Boron, total Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Tukey's Outlier Screening, Pooled Background AD-1,AD-17,AD-5 0.07 n = 69 Outlier is drawn as solid. Tukev's method selected by user. 0.056 Data were natural log transformed to achieve best W statistic (graph shown in original units). High cutoff = 0.01217. low cutoff = 0.00001221, 0.042 based on IQR multiplier 0.028 0.014 \Diamond 0 4 5/26/16 11/14/17 5/5/19 10/24/20 4/14/22 10/4/23

Constituent: Chromium, total Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

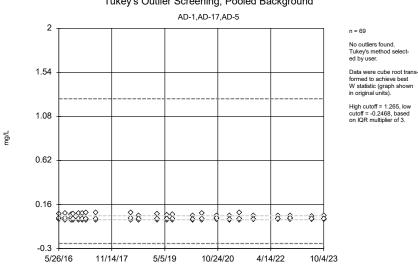
Tukey's Outlier Screening, Pooled Background



Constituent: Cadmium, total Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.10.0.15 Software licensed to . UG

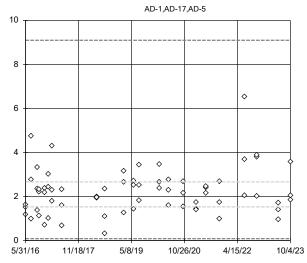
Tukey's Outlier Screening, Pooled Background



Constituent: Cobalt, total Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

pCi/L

Tukey's Outlier Screening, Pooled Background



High cutoff = 9.099, low cutoff = 0.09387, based on IQR multiplier of 3.

No outliers found. Tukey's method select-

Data were cube root trans-

formed to achieve best W statistic (graph shown

in original units).

n = 69

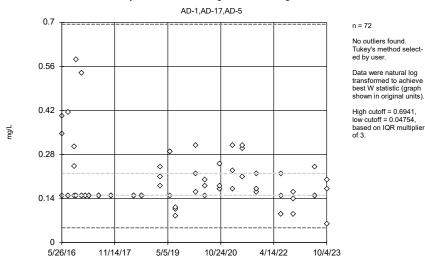
Constituent: Combined Radium 226 + 228 Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Tukey's Outlier Screening, Pooled Background AD-1,AD-17,AD-5 0.004 n = 69 Outliers are drawn as Tukey's method selected by user. 0.0032 Data were natural log transformed to achieve best W statistic (graph shown in original units). High cutoff = 0.0003247, 0.0024 low cutoff = 0.0001048based on IQR multiplier 0.0016 0.0008 **\(\)** 5/26/16 11/14/17 5/5/19 10/24/20 4/14/22 10/4/23

Constituent: Lead, total Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Tukey's Outlier Screening, Pooled Background

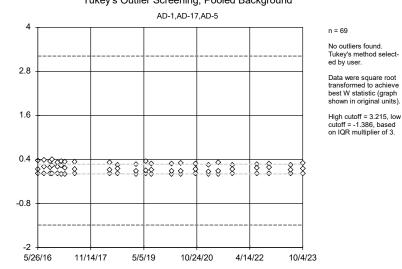


Constituent: Fluoride, total Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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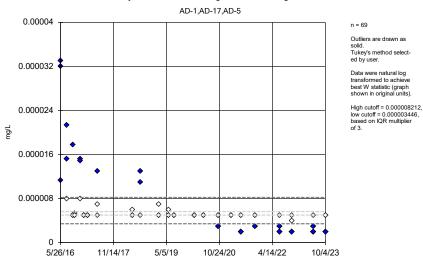
mg/L

Tukey's Outlier Screening, Pooled Background



Constituent: Lithium, total Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

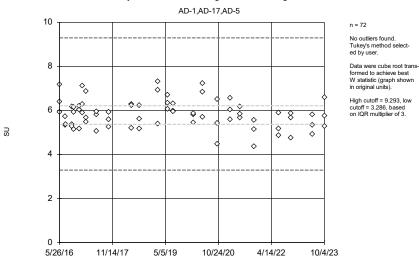
Tukey's Outlier Screening, Pooled Background



Constituent: Mercury, total Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

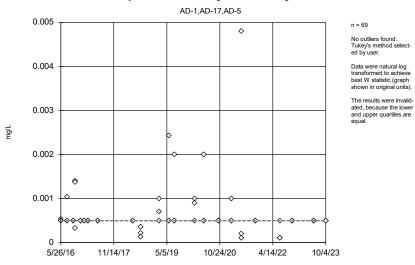
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Tukey's Outlier Screening, Pooled Background



Constituent: pH, field Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

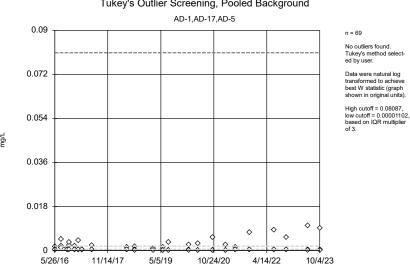
Tukey's Outlier Screening, Pooled Background



Constituent: Molybdenum, total Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Tukey's Outlier Screening, Pooled Background



Constituent: Selenium, total Analysis Run 1/3/2024 12:59 PM View: Outliers Welsh PBAP Client: Geosyntec Data: Welsh PBAP

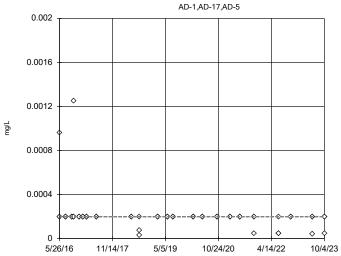
Tukey's Outlier Screening, Pooled Background

n = 69

No outliers found. Tukey's method selected by user.

Data were natural log transformed to achieve best W statistic (graph shown in original units).

The results were invalidated, because the lower and upper quartiles are equal.



Constituent: Thallium, total Analysis Run 1/3/2024 12:59 PM View: Outliers
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

FIGURE D Intrawell PLs

Appendix III Intrawell Prediction Limits - All Results

Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 1/3/2024, 1:11 PM Constituent Well Upper Lim. Lower Lim.Date Observ. Bg N Bg Mean Std. Dev. %NDs ND Adj. Method Calcium, total (mg/L) AD-1 358.4 1 future 21 3.437 1.3 0 None 0.002505 Param Intra 1 of 2 n/a n/a n/a In(x) Calcium, total (mg/L) AD-15 4.646 n/a n/a 1 future n/a 21 3.309 0.7109 0 None No 0.002505 Param Intra 1 of 2 AD-17 232.6 21 20.17 0.002505 Param Intra 1 of 2 Calcium, total (mg/L) 1 future n/a 194.7 0 None n/a n/a No Calcium, total (mg/L) AD-5 53.13 n/a 1 future n/a 21 38.6 7.729 0 None No 0.002505 Param Intra 1 of 2 Calcium, total (mg/L) AD-8 28.06 1 future n/a 22 4.368 0.4972 0 0.002505 Param Intra 1 of 2 n/a n/a None sqrt(x) Calcium, total (mg/L) AD-9 258 n/a n/a 1 future n/a 22 n/a n/a 0 n/a n/a 0.003707 NP Intra (normality) 1 of 2 Chloride, total (mg/L) AD-1 0.413 Param Intra 1 of 2 6.989 n/a n/a 1 future n/a 20 1.862 0 None sqrt(x) 0.002505 Chloride, total (mg/L) AD-15 36.94 1 future n/a 20 28.94 4.232 0 No 0.002505 Param Intra 1 of 2 Chloride, total (mg/L) AD-17 46.83 n/a n/a 1 future n/a 20 36.88 5.261 0 None Nο 0.002505 Param Intra 1 of 2 Chloride, total (mg/L) AD-5 23.96 n/a 1 future n/a 20 17.56 3.38 0.002505 Param Intra 1 of 2 Chloride, total (mg/L) AD-8 0.002505 Param Intra 1 of 2 26.11 n/a n/a 1 future n/a 15 18.47 3.809 0 None Nο Chloride, total (mg/L) AD-9 117.2 20 57.11 31.78 0 0.002505 Param Intra 1 of 2 1 future n/a No AD-1 0.003999 NP Intra (NDs) 1 of 2 Fluoride, total (mg/L) 0.31 21 n/a n/a 1 future n/a n/a n/a 52.38 n/a n/a Fluoride, total (mg/L) AD-15 0.16 1 future 21 0.2882 0.05947 42.86 Kaplan-Meier sqrt(x) 0.002505 Param Intra 1 of 2 Fluoride, total (mg/L) AD-17 0.31 n/a n/a 1 future n/a 16 n/a n/a 43 75 n/a n/a 0.006456 NP Intra (normality) 1 of 2 Fluoride, total (mg/L) AD-5 1 future n/a 21 -1.893 0.369 42.86 Kaplan-Meier ln(x) Param Intra 1 of 2 n/a n/a AD-8 Fluoride, total (mg/L) 1 057 n/a n/a 1 future n/a 21 0.6231 0.2307 9 524 None No 0.002505 Param Intra 1 of 2 Fluoride, total (mg/L) AD-9 0.6227 1 future 21 28.57 0.003999 NP Intra (normality) 1 of 2 n/a n/a n/a n/a n/a n/a n/a Sulfate, total (mg/L) AD-1 76.11 n/a n/a 1 future n/a 20 51.68 12.91 0 No 0.002505 Param Intra 1 of 2 Sulfate, total (mg/L) AD-15 30.46 n/a 1 future n/a 20 17.06 7.084 0 None No 0.002505 Param Intra 1 of 2 n/a Sulfate, total (mg/L) AD-17 1445 n/a n/a 1 future n/a 20 n/a n/a 0 n/a n/a 0.004291 NP Intra (normality) 1 of 2 Sulfate, total (mg/L) AD-5 267.7 73.02 Param Intra 1 of 2 n/a 1 future 20 129.5 0 None No 0.002505 n/a n/a Sulfate, total (mg/L) AD-8 203.7 n/a 1 future n/a 20 158.7 23.82 0 None No 0.002505 Param Intra 1 of 2 AD-9 20 666.3 Sulfate, total (mg/L) 2145 n/a n/a 1 future n/a 884.5 0 None No 0.002505 Param Intra 1 of 2 Total Dissolved Solids (mg/L) AD-1 612 n/a n/a 1 future n/a 20 n/a n/a 0 n/a 0.004291 NP Intra (normality) 1 of 2 Total Dissolved Solids (mg/L) AD-15 261 1 future n/a 19 164.2 50.64 0 None 0.002505 Param Intra 1 of 2 n/a n/a Nο Total Dissolved Solids (mg/L) AD-17 1921 n/a n/a 1 future n/a 20 1704 114.5 0 No 0.002505 Param Intra 1 of 2 Total Dissolved Solids (mg/L) AD-5 0.002505 484 20 328 82.5 Param Intra 1 of 2 1 future n/a 0 No n/a n/a None Total Dissolved Solids (mg/L) AD-8 489.3 1 future 20 360.3 68.19 0 No 0.002505 Param Intra 1 of 2 n/a

0.004291 NP Intra (normality) 1 of 2

Total Dissolved Solids (mg/L)

AD-9

2690

n/a

n/a

1 future

n/a 20 n/a

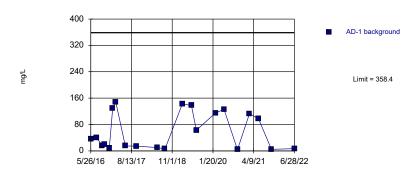
n/a

0

n/a

n/a

Prediction Limit Intrawell Parametric, AD-1 (bg)

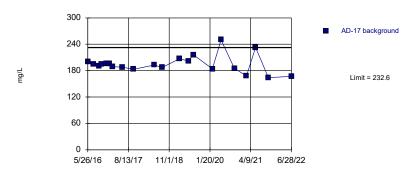


Background Data Summary (based on natural log transformation): Mean=3.437, Std. Dev.=1.3, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8865, critical = 0.873. Kappa = 1.88 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/3/2024 1:08 PM View: Intrawell
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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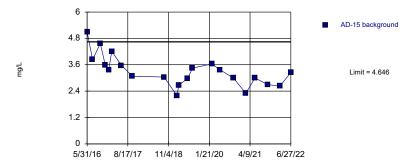
Prediction Limit Intrawell Parametric, AD-17 (bg)



Background Data Summary: Mean=194.7, Std. Dev.=20.17, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9017, critical = 0.873. Kappa = 1.88 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit

Intrawell Parametric, AD-15



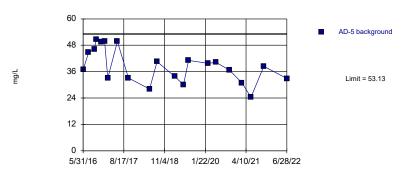
Background Data Summary: Mean=3.309, Std. Dev.=0.7109, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9525, critical = 0.873. Kappa = 1.88 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/3/2024 1:08 PM View: Intrawell

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Prediction Limit Intrawell Parametric, AD-5 (bg)



Background Data Summary: Mean=38.6, Std. Dev.=7.729, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9562, critical = 0.873. Kappa = 1.88 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit Intrawell Parametric, AD-8

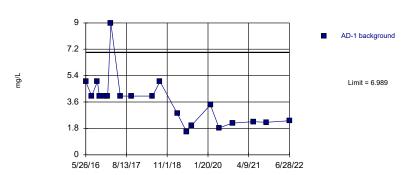


Background Data Summary (based on square root transformation): Mean=4.368, Std. Dev.=0.4972, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8896, critical = 0.878. Kappa = 1.869 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.005205. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/3/2024 1:08 PM View: Intrawell
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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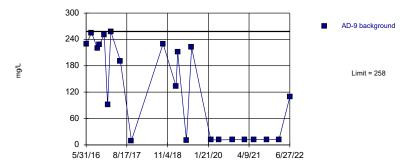
Prediction Limit Intrawell Parametric, AD-1 (bg)



Background Data Summary (based on square root transformation): Mean=1.862, Std. Dev.=0.413, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.002505. Assumes 1 future value.

Prediction Limit

Intrawell Non-parametric, AD-9

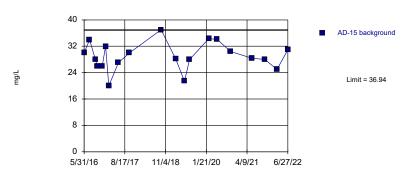


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 22 background values. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2). Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/3/2024 1:08 PM View: Intrawell Welsh PBAP Client: Geosyntec Data: Welsh PBAP

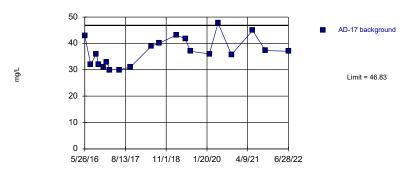
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Prediction Limit Intrawell Parametric, AD-15



Background Data Summary: Mean=28.94, Std. Dev.=4.232, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9729, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit Intrawell Parametric, AD-17 (bg)

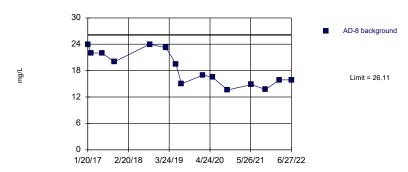


Background Data Summary: Mean=36.88, Std. Dev.=5.261, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9435, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/3/2024 1:08 PM View: Intrawell Welsh PBAP Client: Geosyntec Data: Welsh PBAP

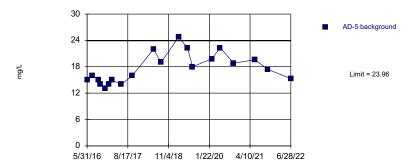
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Background Data Summary: Mean=18.47, Std. Dev.=3.809, n=15. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8957, critical = 0.881. Kappa = 2.006 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit Intrawell Parametric, AD-5 (bg)



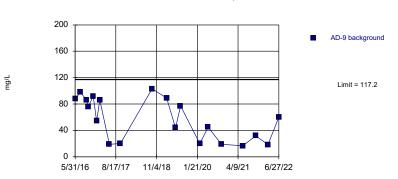
Background Data Summary: Mean=17.56, Std. Dev.=3.38, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9265, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/3/2024 1:08 PM View: Intrawell

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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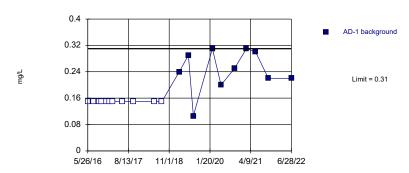
Prediction Limit Intrawell Parametric, AD-9



Background Data Summary: Mean=57.11, Std. Dev.=31.78, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8717, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

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Prediction Limit Intrawell Non-parametric, AD-1 (bg)

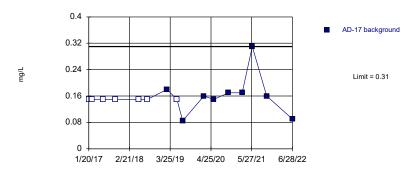


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 21 background values. 52.38% NDs. Well-constituent pair annual alpha = 0.007982. Individual comparison alpha = 0.003999 (1 of 2). Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/3/2024 1:09 PM View: Intrawell
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.10.0.15 Software licensed to . UG Hollow symbols indicate censored values

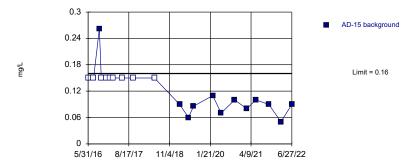




Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 16 background values. 43.75% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2). Assumes 1 future value.

Prediction Limit

Intrawell Parametric, AD-15



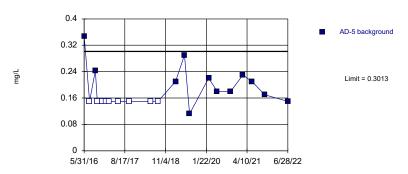
Background Data Summary (based on square root transformation) (after Kaplan-Meier Adjustment): Mean=0,2882, Std. Dev.=0.05947, n=21, 42.86% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9006, critical = 0.873. Kappa = 1.88 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/3/2024 1:09 PM View: Intrawell

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.10.0.15 Software licensed to . UG Hollow symbols indicate censored values.

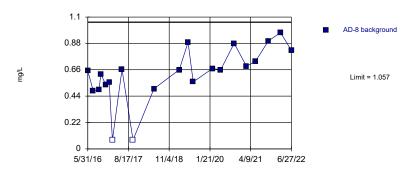
Prediction Limit Intrawell Parametric, AD-5 (bg)



Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-1.893, Std. Dev.=0.369, n=21, 42.86% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.874, critical = 0.873. Kappa = 1.88 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Sanitas™ v.10.0.15 Software licensed to . UG Hollow symbols indicate censored values.

Prediction Limit Intrawell Parametric, AD-8



Background Data Summary: Mean=0.6231, Std. Dev.=0,2307, n=21, 9.524% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8902, critical = 0.873. Kappa = 1.88 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/3/2024 1:09 PM View: Intrawell
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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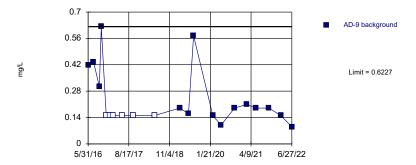
Prediction Limit Intrawell Parametric, AD-1 (bg)



Background Data Summary: Mean=51.68, Std. Dev.=12.91, n=20. Normality test: Shapiro Wilk @alpha = 0.01, collated = 0.8957, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit

Intrawell Non-parametric, AD-9



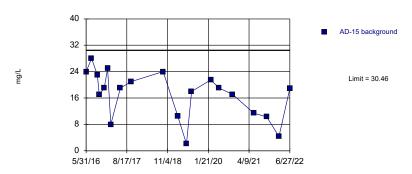
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 21 background values. 28.57% NDs. Well-constituent pair annual alpha = 0.007982. Individual comparison alpha = 0.003999 (1 of 2). Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/3/2024 1:09 PM View: Intrawell

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

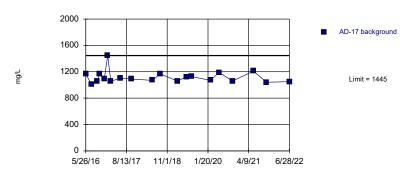
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Prediction Limit Intrawell Parametric, AD-15



Background Data Summary: Mean=17.06, Std. Dev.=7.084, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9371, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit Intrawell Non-parametric, AD-17 (bg)



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 20 background values. Well-constituent pair annual alpha = 0.008564. Individual comparison alpha = 0.004291 (1 of 2). Assumes 1 future value.

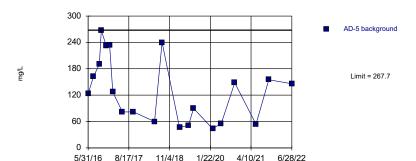
Constituent: Sulfate, total Analysis Run 1/3/2024 1:09 PM View: Intrawell
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Prediction Limit Intrawell Parametric, AD-8 AD-8 background 180 Limit = 203.7

Background Data Summary: Mean=158.7, Std. Dev.=23.82, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.938, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit Intrawell Parametric, AD-5 (bg)



Background Data Summary: Mean=129.5, Std. Dev.=73.02, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9061, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

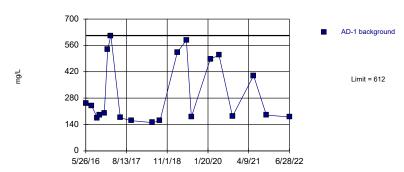
Constituent: Sulfate, total Analysis Run 1/3/2024 1:09 PM View: Intrawell Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Prediction Limit Intrawell Parametric, AD-9 3000 2400 1800 1200 600 5/31/16 8/17/17 11/4/18 1/21/20 4/9/21 6/27/22

Background Data Summary: Mean=884.5, Std. Dev=666.3, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8749, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit Intrawell Non-parametric, AD-1 (bg)

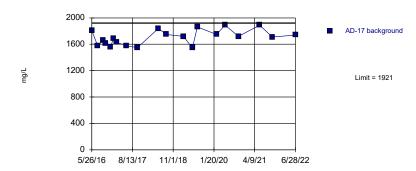


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 20 background values. Well-constituent pair annual alpha = 0.008564. Individual comparison alpha = 0.004291 (1 of 2). Assumes 1 future value.

Constituent: Total Dissolved Solids Analysis Run 1/3/2024 1:09 PM View: Intrawell Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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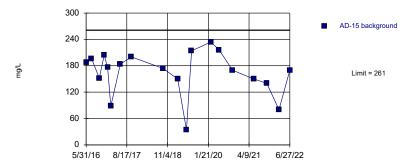
Prediction Limit Intrawell Parametric, AD-17 (bg)



Background Data Summary: Mean=1704, Std. Dev.=114.5, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9349, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Prediction Limit

Intrawell Parametric, AD-15

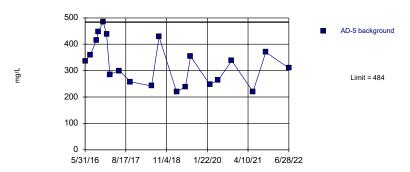


Background Data Summary: Mean=164.2, Std. Dev.=50.64, n=19. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9016, critical = 0.901. Kappa = 1.912 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: Total Dissolved Solids Analysis Run 1/3/2024 1:09 PM View: Intrawell Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.10.0.15 Software licensed to . UG

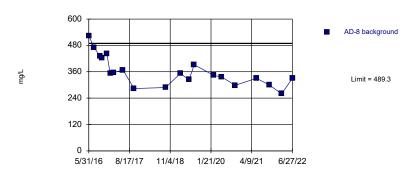
Prediction Limit Intrawell Parametric, AD-5 (bg)



Background Data Summary: Mean=328, Std. Dev.=82.5, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9369, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Sanitas™ v 10 0 15 Software licensed to UC

Prediction Limit
Intrawell Parametric, AD-8



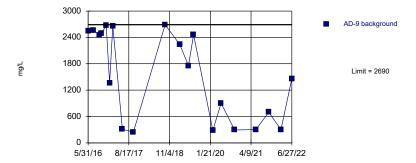
Background Data Summary: Mean=360.3, Std. Dev.=68.19, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9407, critical = 0.868. Kappa = 1.892 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: Total Dissolved Solids Analysis Run 1/3/2024 1:09 PM View: Intrawell Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Prediction Limit





Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 20 background values. Well-constituent pair annual alpha = 0.008564. Individual comparison alpha = 0.004291 (1 of 2). Assumes 1 future value.

Constituent: Total Dissolved Solids Analysis Run 1/3/2024 1:09 PM View: Intrawell Welsh PBAP Client: Geosyntec Data: Welsh PBAP

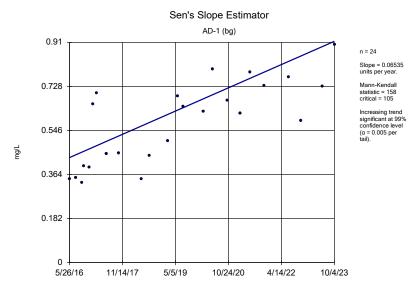
FIGURE E Upgradient Trend Tests

Trend Tests - Upgradient Wells - Significant Results Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 1/3/2024, 1:21 PM

| | Welsh PBAP | Client: Geosynteo | Data: V | Velsh PBAP | Printe | d 1/3/2024, | 1:21 PM | | | | |
|---------------------|------------|-------------------|---------|------------|--------|-------------|---------|-----------|--------------|--------|--|
| Constituent | Well | Slope | Calc. | Critical | Sig. | <u>N</u> | %NDs | Normality | <u>Alpha</u> | Method | |
| Boron, total (mg/L) | AD-1 (bg) | 0.06535 | 158 | 105 | Yes | 24 | 0 | n/a | 0.01 | NP | |
| nH field (SII) | AD-17 (bg) | -0.106 | -131 | -105 | Voc | 24 | 0 | n/a | 0.01 | ND | |

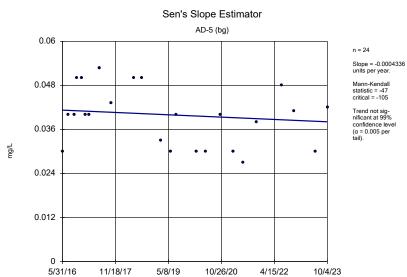
Trend Tests - Upgradient Wells - All Results Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 1/3/2024, 1:21 PM

| | Welsh PBAP | Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 1/3/2024, 1:21 PM | | | | | | | | |
|---------------------|------------|---|-------|----------|------|----------|------|-----------|-------|--------|
| Constituent | Well | Slope | Calc. | Critical | Sig. | <u>N</u> | %NDs | Normality | Alpha | Method |
| Boron, total (mg/L) | AD-1 (bg) | 0.06535 | 158 | 105 | Yes | 24 | 0 | n/a | 0.01 | NP |
| Boron, total (mg/L) | AD-17 (bg) | -0.002581 | -69 | -105 | No | 24 | 0 | n/a | 0.01 | NP |
| Boron, total (mg/L) | AD-5 (bg) | -0.0004336 | -47 | -105 | No | 24 | 0 | n/a | 0.01 | NP |
| pH, field (SU) | AD-1 (bg) | -0.07871 | -47 | -105 | No | 24 | 0 | n/a | 0.01 | NP |
| pH, field (SU) | AD-17 (bg) | -0.106 | -131 | -105 | Yes | 24 | 0 | n/a | 0.01 | NP |
| pH, field (SU) | AD-5 (bg) | 0.03886 | 32 | 105 | No | 24 | 0 | n/a | 0.01 | NP |

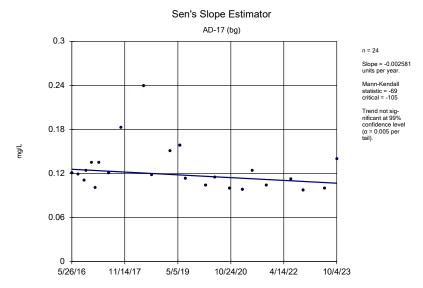


Constituent: Boron, total Analysis Run 1/3/2024 1:19 PM View: Upgradient Well Trend Test
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



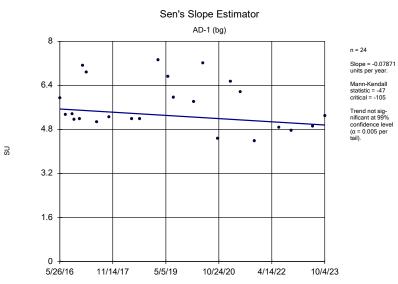


Constituent: Boron, total Analysis Run 1/3/2024 1:19 PM View: Upgradient Well Trend Test
Welsh PBAP Client: Geosyntec Data: Welsh PBAP



Constituent: Boron, total Analysis Run 1/3/2024 1:19 PM View: Upgradient Well Trend Test
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

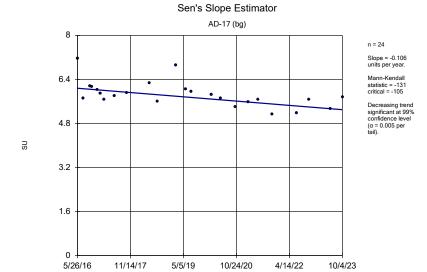
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Constituent: pH, field Analysis Run 1/3/2024 1:19 PM View: Upgradient Well Trend Test

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

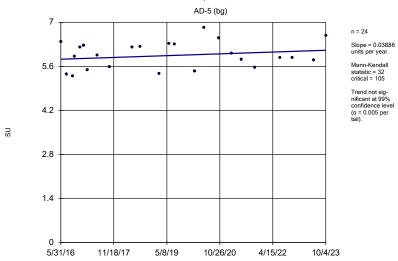
Sanitas™ v.10.0.15 Software licensed to . UC



Constituent: pH, field Analysis Run 1/3/2024 1:19 PM View: Upgradient Well Trend Test
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Sen's Slope Estimator



Constituent: pH, field Analysis Run 1/3/2024 1:19 PM View: Upgradient Well Trend Test

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

FIGURE F Interwell PLs

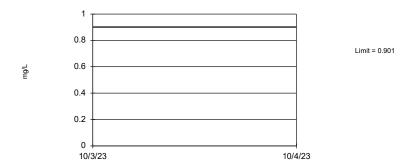
Appendix III Interwell Prediction Limits - All Results

Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 1/3/2024, 2:33 PM

| <u>Constituent</u> | Well | Upper Lim. | Lower L | im.Date | Observ. | Sig | Bg | N Bg Mear | Std. Dev | <u>/. %NE</u> | Os ND Adj. | Transfo | rm Alpha Method |
|---------------------|------|------------|---------|---------|----------|-----|----|-----------|----------|---------------|------------|---------|---------------------------------------|
| Boron, total (mg/L) | n/a | 0.901 | n/a | n/a | 3 future | n/a | 72 | n/a | n/a | 0 | n/a | n/a | 0.0003715 NP Inter (normality) 1 of 2 |
| pH, field (SU) | n/a | 6.905 | 4.761 | n/a | 3 future | n/a | 72 | 5.833 | 0.6322 | 0 | None | No | 0.001253 Param Inter 1 of 2 |

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Prediction Limit
Interwell Non-parametric

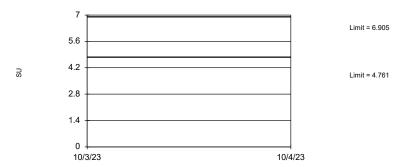


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 72 background values. Annual per-constituent alpha = 0.002227. Individual comparison alpha = 0.0003715 (1 of 2). Assumes 3 future values.

Constituent: Boron, total Analysis Run 1/3/2024 2:31 PM View: Interwell Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Prediction Limit Interwell Parametric

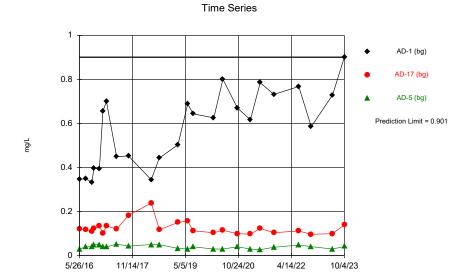


Background Data Summary: Mean=5.833, Std. Dev = 0.6322, n=72. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9855, critical = 0.954. Kappa = 1.695 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001253. Assumes 3 future values.

Constituent: pH, field Analysis Run 1/3/2024 2:31 PM View: Interwell

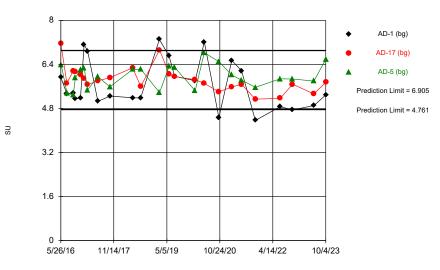
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Constituent: Boron, total Analysis Run 1/3/2024 2:33 PM View: Interwell Welsh PBAP Client: Geosyntec Data: Welsh PBAP





Constituent: pH, field Analysis Run 1/3/2024 2:33 PM View: Interwell

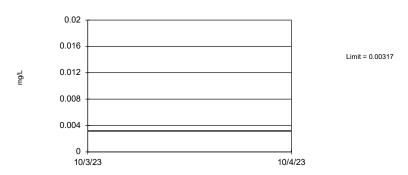
Welsh PBAP Client: Geosyntec Data: Welsh PBAP

FIGURE G UTLs

Upper Tolerance Limits Summary Table Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 1/3/2024, 1:35 PM

| | Welsh PB | AP Clie | ent: Geosynte | ec Data: Wel | sh PBAP | Printed 1/3/2024, 1: | 35 PM | | |
|-----------------------------------|------------|---------|---------------|--------------|---------|----------------------|-----------|--------------|---------------------|
| Constituent | Upper Lim. | Bg N | Bg Mean | Std. Dev. | %NDs | ND Adj. | Transform | <u>Alpha</u> | Method |
| Antimony, total (mg/L) | 0.00317 | 69 | n/a | n/a | 66.67 | n/a | n/a | 0.02904 | NP Inter(NDs) |
| Arsenic, total (mg/L) | 0.00628 | 69 | n/a | n/a | 27.54 | n/a | n/a | 0.02904 | NP Inter(normality) |
| Barium, total (mg/L) | 0.5101 | 69 | -2.889 | 1.114 | 0 | None | ln(x) | 0.05 | Inter |
| Beryllium, total (mg/L) | 0.001084 | 69 | -8.991 | 1.088 | 7.246 | None | ln(x) | 0.05 | Inter |
| Cadmium, total (mg/L) | 0.004 | 67 | n/a | n/a | 35.82 | n/a | n/a | 0.03217 | NP Inter(normality) |
| Chromium, total (mg/L) | 0.002274 | 68 | -7.915 | 0.9181 | 13.24 | None | ln(x) | 0.05 | Inter |
| Cobalt, total (mg/L) | 0.0748 | 69 | n/a | n/a | 0 | n/a | n/a | 0.02904 | NP Inter(normality) |
| Combined Radium 226 + 228 (pCi/L) | 4.509 | 69 | 1.455 | 0.3362 | 0 | None | sqrt(x) | 0.05 | Inter |
| Fluoride, total (mg/L) | 0.583 | 72 | n/a | n/a | 38.89 | n/a | n/a | 0.02489 | NP Inter(normality) |
| Lead, total (mg/L) | 0.003384 | 69 | n/a | n/a | 52.17 | n/a | n/a | 0.02904 | NP Inter(NDs) |
| Lithium, total (mg/L) | 0.394 | 69 | n/a | n/a | 1.449 | n/a | n/a | 0.02904 | NP Inter(normality) |
| Mercury, total (mg/L) | 0.000033 | 69 | n/a | n/a | 59.42 | n/a | n/a | 0.02904 | NP Inter(NDs) |
| Molybdenum, total (mg/L) | 0.00243 | 68 | n/a | n/a | 70.59 | n/a | n/a | 0.03056 | NP Inter(NDs) |
| Selenium, total (mg/L) | 0.0101 | 69 | n/a | n/a | 37.68 | n/a | n/a | 0.02904 | NP Inter(normality) |
| Thallium, total (mg/L) | 0.001251 | 69 | n/a | n/a | 86.96 | n/a | n/a | 0.02904 | NP Inter(NDs) |

Tolerance Limit Interwell Non-parametric



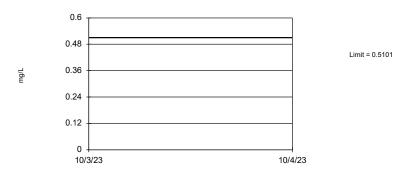
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 69 background values. 66.67% NDs. 93.55% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02904.

Constituent: Antimony, total Analysis Run 1/3/2024 1:33 PM View: UTLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

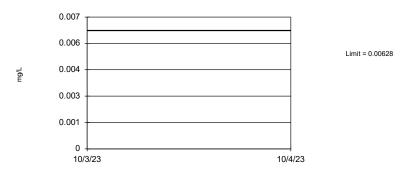
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95% coverage. Background Data Summary (based on natural log transformation): Mean=-2.889, Std. Dev.=1.114, n=69. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9527, critical = 0.951. Report alpha = 0.05.

Tolerance Limit Interwell Non-parametric



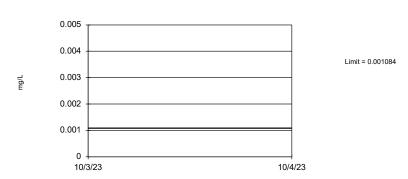
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 69 background values. 27.54% NDs. 93.55% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02904.

Constituent: Arsenic, total Analysis Run 1/3/2024 1:33 PM View: UTLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

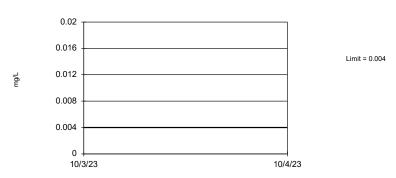
Sanitas™ v.10.0.15 Software licensed to . UG

Tolerance Limit Interwell Parametric



95% coverage. Background Data Summary (based on natural log transformation): Mean=-8.991, Std. Dev.=1.088, n=69, 7.246% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9746, critical = 0.951. Report alpha = 0.05.





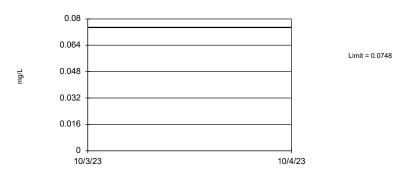
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 67 background values. 35.82% NDs. 93.16% coverage at alpha=0.01; 95.51% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.03217.

Constituent: Cadmium, total Analysis Run 1/3/2024 1:33 PM View: UTLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

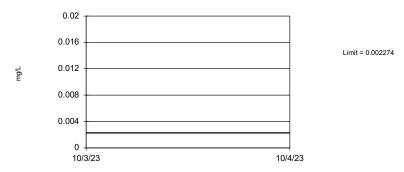
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Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 69 background values. 93.55% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02904.

Tolerance Limit Interwell Parametric



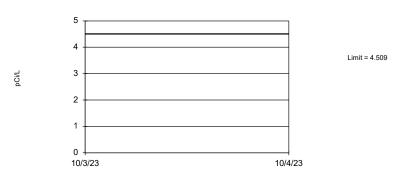
95% coverage. Background Data Summary (based on natural log transformation): Mean=-7.915, Std. Dev.=0.9181, n=68, 13.24% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9648, critical = 0.95. Report albha = 0.05.

Constituent: Chromium, total Analysis Run 1/3/2024 1:33 PM View: UTLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

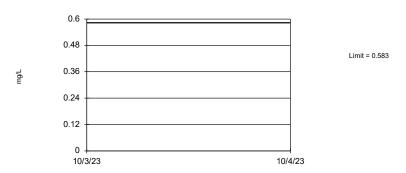
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Tolerance Limit Interwell Parametric



95% coverage. Background Data Summary (based on square root transformation): Mean=1.455, Std. Dev.=0.3362, n=69. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9728, critical = 0.951. Report alpha = 0.05.

Tolerance Limit Interwell Non-parametric

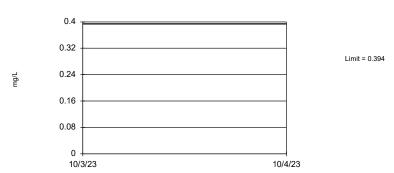


Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 72 background values. 38.89% NDs. 93.95% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; P9.02% coverage at alpha=0.5. Report alpha = 0.02489.

Constituent: Fluoride, total Analysis Run 1/3/2024 1:33 PM View: UTLs Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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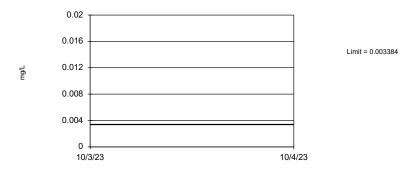




Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 69 background values. 1.449% NDs. 93.55% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02904.

Tolerance Limit





Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 69 background values. 52.17% NDs. 93.55% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02904.

Constituent: Lead, total Analysis Run 1/3/2024 1:33 PM View: UTLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Tolerance Limit

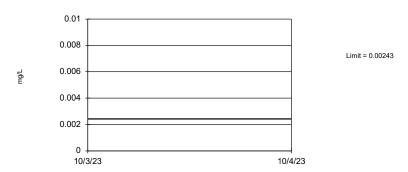
Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 69 background values. 59.42% NDs. 93.55% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02904.

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Tolerance Limit
Interwell Non-parametric



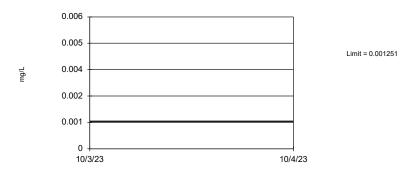
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 68 background values. 70.59% NDs. 93.55% coverage at alpha=0.01; 95.51% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.03056.

Constituent: Molybdenum, total Analysis Run 1/3/2024 1:33 PM View: UTLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Tolerance Limit
Interwell Non-parametric

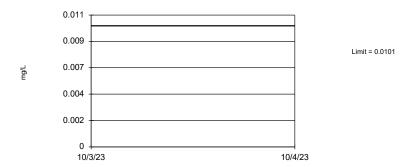


Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 69 background values. 86.96% NDs. 93.55% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02904.

Constituent: Thallium, total Analysis Run 1/3/2024 1:33 PM View: UTLs Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 69 background values. 37.68% NDs. 93.55% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02904.

Constituent: Selenium, total Analysis Run 1/3/2024 1:33 PM View: UTLs

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

FIGURE H GWPS

| WELSH P | BAP GWPS | | |
|--------------------------------|----------|------------|--------|
| | | Background | |
| Constituent Name | MCL | Limit | GWPS |
| Antimony, Total (mg/L) | 0.006 | 0.0032 | 0.006 |
| Arsenic, Total (mg/L) | 0.01 | 0.0063 | 0.01 |
| Barium, Total (mg/L) | 2 | 0.51 | 2 |
| Beryllium, Total (mg/L) | 0.004 | 0.0011 | 0.004 |
| Cadmium, Total (mg/L) | 0.005 | 0.004 | 0.005 |
| Chromium, Total (mg/L) | 0.1 | 0.0023 | 0.1 |
| Cobalt, Total (mg/L) | n/a | 0.075 | 0.075 |
| Combined Radium, Total (pCi/L) | 5 | 4.51 | 5 |
| Fluoride, Total (mg/L) | 4 | 0.58 | 4 |
| Lead, Total (mg/L) | n/a | 0.0034 | 0.0034 |
| Lithium, Total (mg/L) | n/a | 0.39 | 0.39 |
| Mercury, Total (mg/L) | 0.002 | 0.000033 | 0.002 |
| Molybdenum, Total (mg/L) | n/a | 0.0024 | 0.0024 |
| Selenium, Total (mg/L) | 0.05 | 0.01 | 0.05 |
| Thallium, Total (mg/L) | 0.002 | 0.0013 | 0.002 |

^{*}MCL = Maximum Contaminant Level

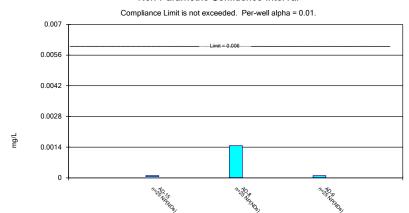
^{*}GWPS = Groundwater Protection Standard

FIGURE I Confidence Intervals

Confidence Intervals - All Results (No Significant) Welsh PBAP Client: Geosyntec Data: Welsh PBAP Printed 1/3/2024, 1:45 PM

| | | Welsh | PBAP Clie | nt: Geosyntec | Data: \ | Welsh PBAP | Printed 1/3/2024 | , 1:45 F | PM | | | |
|-----------------------------------|-------|------------|------------|---------------|---------|-------------|------------------|----------|--------------|-----------|-------|----------------|
| Constituent | Well | Upper Lim. | Lower Lim. | Compliance | Sig. N | <u>Mean</u> | Std. Dev. | %NDs | ND Adj. | Transform | Alpha | Method |
| Antimony, total (mg/L) | AD-15 | 0.0001 | 0.000056 | 0.006 | No 25 | 0.0000808 | 0.0000315 | 68 | None | No | 0.01 | NP (NDs) |
| Antimony, total (mg/L) | AD-8 | 0.001461 | 0.000012 | 0.006 | No 25 | 0.0002673 | 0.0006685 | 80 | None | No | 0.01 | NP (NDs) |
| Antimony, total (mg/L) | AD-9 | 0.0001 | 0.00001 | 0.006 | No 25 | 0.00009272 | 0.0000252 | 92 | None | No | 0.01 | NP (NDs) |
| Arsenic, total (mg/L) | AD-15 | 0.006433 | 0.003072 | 0.01 | No 24 | 0.005923 | 0.005488 | 0 | None | ln(x) | 0.01 | Param. |
| Arsenic, total (mg/L) | AD-8 | 0.005 | 0.00027 | 0.01 | No 25 | 0.001851 | 0.002211 | 32 | None | No | 0.01 | NP (normality) |
| Arsenic, total (mg/L) | AD-9 | 0.005 | 0.0003 | 0.01 | No 25 | 0.002236 | 0.002159 | 36 | None | No | 0.01 | NP (normality) |
| Barium, total (mg/L) | AD-15 | 0.166 | 0.0753 | 2 | No 24 | 0.1313 | 0.08986 | 0 | None | No | 0.01 | NP (normality) |
| Barium, total (mg/L) | AD-8 | 0.02921 | 0.02309 | 2 | No 25 | 0.02641 | 0.006621 | 0 | None | sqrt(x) | 0.01 | Param. |
| Barium, total (mg/L) | AD-9 | 0.05128 | 0.03637 | 2 | No 25 | 0.04474 | 0.01575 | 0 | None | sqrt(x) | 0.01 | Param. |
| Beryllium, total (mg/L) | AD-15 | 0.0005657 | 0.0001797 | 0.004 | No 24 | 0.0004842 | 0.0005735 | 0 | None | x^(1/3) | 0.01 | Param. |
| Beryllium, total (mg/L) | AD-8 | 0.00005 | 0.00003 | 0.004 | No 25 | 0.0000482 | 0.00003357 | 64 | None | No | 0.01 | NP (NDs) |
| Beryllium, total (mg/L) | AD-9 | 0.001102 | 0.0006517 | 0.004 | No 25 | 0.0008766 | 0.0004513 | 0 | None | No | 0.01 | Param. |
| Cadmium, total (mg/L) | AD-15 | 0.0002465 | 0.000011 | 0.005 | No 24 | 0.0001252 | 0.0001812 | 4.167 | None | No | 0.01 | NP (normality) |
| Cadmium, total (mg/L) | AD-8 | 0.001 | 0.000021 | 0.005 | No 25 | 0.0003778 | 0.0004763 | 36 | None | No | 0.01 | NP (normality) |
| Cadmium, total (mg/L) | AD-9 | 0.0006189 | 0.000211 | 0.005 | No 25 | 0.0006465 | 0.0007802 | 0 | None | ln(x) | 0.01 | Param. |
| Chromium, total (mg/L) | AD-15 | 0.00437 | 0.0006352 | 0.1 | No 24 | 0.007788 | 0.0144 | 0 | None | ln(x) | 0.01 | Param. |
| Chromium, total (mg/L) | AD-8 | 0.0004323 | 0.0001582 | 0.1 | No 25 | 0.0005033 | 0.0004552 | 20 | Kaplan-Meier | sqrt(x) | 0.01 | Param. |
| Chromium, total (mg/L) | AD-9 | 0.0005891 | 0.0003776 | 0.1 | No 25 | 0.0006668 | 0.0003042 | 32 | Kaplan-Meier | No No | 0.01 | Param. |
| Cobalt, total (mg/L) | AD-15 | 0.007 | 0.0029 | 0.075 | No 24 | 0.005905 | 0.004794 | 0 | None | No | 0.01 | NP (normality) |
| Cobalt, total (mg/L) | AD-8 | 0.006026 | 0.003671 | 0.075 | No 25 | 0.004848 | 0.002363 | 0 | None | No | 0.01 | Param. |
| Cobalt, total (mg/L) | AD-9 | 0.02256 | 0.01675 | 0.075 | No 25 | 0.01996 | 0.006288 | 0 | None | sqrt(x) | 0.01 | Param. |
| Combined Radium 226 + 228 (pCi/L) | AD-15 | 2.375 | 1.598 | 5 | No 24 | 1.987 | 0.7612 | 0 | None | No | 0.01 | Param. |
| Combined Radium 226 + 228 (pCi/L) | AD-8 | 1.364 | 0.6365 | 5 | No 25 | 1.282 | 1.32 | 0 | None | ln(x) | 0.01 | Param. |
| Combined Radium 226 + 228 (pCi/L) | AD-9 | 2.541 | 1.839 | 5 | No 25 | 2.19 | 0.7046 | 0 | None | No | 0.01 | Param. |
| Fluoride, total (mg/L) | AD-15 | 0.09078 | 0.05783 | 4 | No 25 | 0.1123 | 0.04808 | 36 | Kaplan-Meier | sqrt(x) | 0.01 | Param. |
| Fluoride, total (mg/L) | AD-8 | 0.7873 | 0.5984 | 4 | No 25 | 0.6614 | 0.2316 | 8 | None | x^2 | 0.01 | Param. |
| Fluoride, total (mg/L) | AD-9 | 0.21 | 0.15 | 4 | No 25 | 0.2193 | 0.1413 | 24 | None | No | 0.01 | NP (normality) |
| Lead, total (mg/L) | AD-15 | 0.003961 | 0.00009 | 0.0034 | No 24 | 0.003303 | 0.005889 | 12.5 | None | No | 0.01 | NP (normality) |
| Lead, total (mg/L) | AD-8 | 0.0002 | 0.00007 | 0.0034 | No 25 | 0.0001497 | 0.00006657 | 56 | None | No | 0.01 | NP (NDs) |
| Lead, total (mg/L) | AD-9 | 0.0002 | 0.0001 | 0.0034 | No 25 | 0.0001804 | 0.00009409 | 36 | None | No | 0.01 | NP (normality) |
| Lithium, total (mg/L) | AD-15 | 0.01112 | 0.004001 | 0.39 | No 25 | 0.01401 | 0.02933 | 0 | None | ln(x) | 0.01 | Param. |
| Lithium, total (mg/L) | AD-8 | 0.09815 | 0.07612 | 0.39 | No 25 | 0.08714 | 0.0221 | 0 | None | No | 0.01 | Param. |
| Lithium, total (mg/L) | AD-9 | 1.17 | 0.205 | 0.39 | No 25 | 0.7148 | 0.4931 | 0 | None | No | 0.01 | NP (normality) |
| Mercury, total (mg/L) | AD-15 | 0.000025 | 0.000005 | 0.002 | No 23 | 0.00002073 | 0.00002685 | 43.48 | None | No | 0.01 | NP (normality) |
| Mercury, total (mg/L) | AD-8 | 0.000008 | 0.000005 | 0.002 | No 24 | 0.000006154 | 0.000003443 | 83.33 | None | No | 0.01 | NP (NDs) |
| Mercury, total (mg/L) | AD-9 | 0.00000717 | 0.000003 | 0.002 | No 24 | 0.000007633 | 0.000009276 | 33.33 | None | No | 0.01 | NP (normality) |
| Molybdenum, total (mg/L) | AD-15 | 0.0005868 | 0.0004635 | 0.0024 | No 25 | 0.0008348 | 0.0008833 | 64 | None | No | 0.01 | NP (NDs) |
| Molybdenum, total (mg/L) | AD-8 | 0.0008389 | 0.0002 | 0.0024 | No 25 | 0.0005478 | 0.0002494 | 80 | None | No | 0.01 | NP (NDs) |
| Molybdenum, total (mg/L) | AD-9 | 0.0005 | 0.00011 | 0.0024 | No 25 | 0.0004684 | 0.0001094 | 92 | None | No | 0.01 | NP (NDs) |
| Selenium, total (mg/L) | AD-15 | 0.001464 | 0.0005559 | 0.05 | No 24 | 0.001155 | 0.001161 | 8.333 | None | sqrt(x) | 0.01 | Param. |
| Selenium, total (mg/L) | AD-8 | 0.0005 | 0.00008 | 0.05 | No 25 | 0.0004897 | 0.0005041 | 52 | None | No | 0.01 | NP (NDs) |
| Selenium, total (mg/L) | AD-9 | 0.00051 | 0.0003 | 0.05 | No 25 | 0.0009748 | 0.001678 | 16 | None | No | 0.01 | NP (normality) |
| Thallium, total (mg/L) | AD-15 | 0.0002 | 0.00007 | 0.002 | No 25 | 0.0002444 | 0.0003739 | 48 | None | No | 0.01 | NP (normality) |
| Thallium, total (mg/L) | AD-8 | 0.0002 | 0.00011 | 0.002 | No 25 | 0.0002523 | 0.0003592 | 44 | None | No | 0.01 | NP (normality) |
| Thallium, total (mg/L) | AD-9 | 0.00022 | 0.0002 | 0.002 | No 24 | 0.0003117 | 0.0004062 | 29.17 | None | No | 0.01 | NP (normality) |
| | | | | | | | | | | | | |

Non-Parametric Confidence Interval



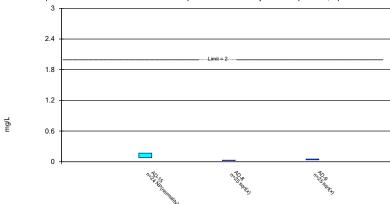
Constituent: Antimony, total Analysis Run 1/3/2024 1:41 PM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.10.0.15 Software licensed to . UG

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

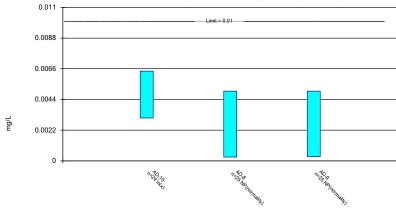


Constituent: Barium, total Analysis Run 1/3/2024 1:41 PM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



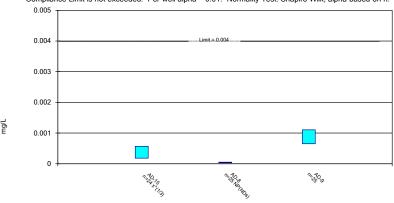
Constituent: Arsenic, total Analysis Run 1/3/2024 1:41 PM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

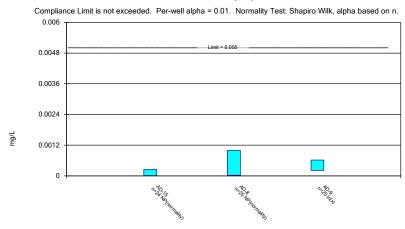
Sanitas™ v.10.0.15 Software licensed to . UG

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Parametric and Non-Parametric (NP) Confidence Interval

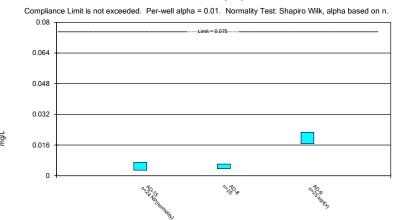


Constituent: Cadmium, total Analysis Run 1/3/2024 1:41 PM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Parametric and Non-Parametric (NP) Confidence Interval

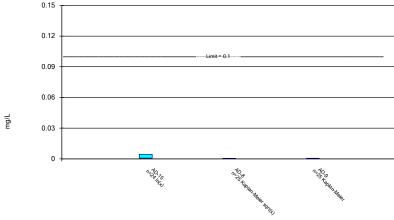


Constituent: Cobalt, total Analysis Run 1/3/2024 1:41 PM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



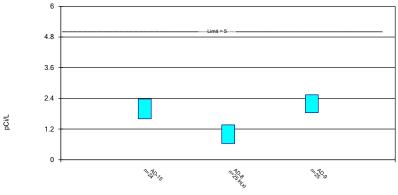
Constituent: Chromium, total Analysis Run 1/3/2024 1:41 PM View: Confidence Intervals

Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Sanitas™ v.10.0.15 Software licensed to . UG

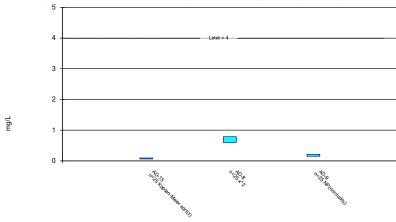
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

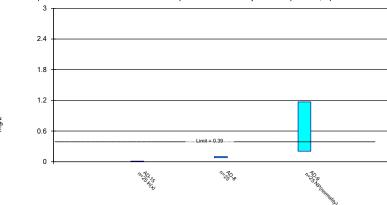


Constituent: Fluoride, total Analysis Run 1/3/2024 1:41 PM View: Confidence Intervals Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Parametric and Non-Parametric (NP) Confidence Interval

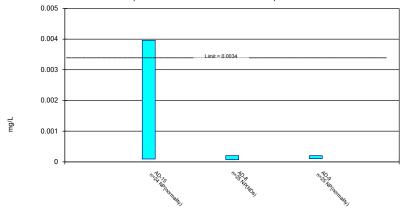
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium, total Analysis Run 1/3/2024 1:41 PM View: Confidence Intervals Welsh PBAP Client: Geosyntec Data: Welsh PBAP

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.

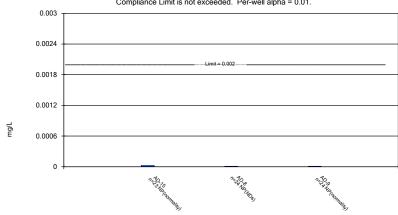


Constituent: Lead, total Analysis Run 1/3/2024 1:41 PM View: Confidence Intervals Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.



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Non-Parametric Confidence Interval

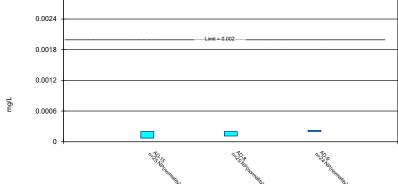
Compliance Limit is not exceeded. Per-well alpha = 0.01. 0.003 0.0024 0.0018 0.0012 0.0006

Constituent: Molybdenum, total Analysis Run 1/3/2024 1:41 PM View: Confidence Intervals Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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0.003

Non-Parametric Confidence Interval Compliance Limit is not exceeded. Per-well alpha = 0.01.

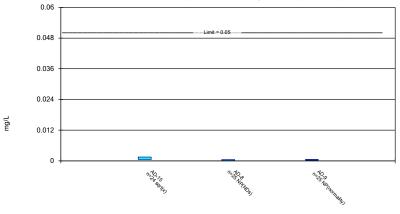


Constituent: Thallium, total Analysis Run 1/3/2024 1:41 PM View: Confidence Intervals Welsh PBAP Client: Geosyntec Data: Welsh PBAP

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Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Selenium, total Analysis Run 1/3/2024 1:41 PM View: Confidence Intervals Welsh PBAP Client: Geosyntec Data: Welsh PBAP

APPENDIX 3 NA

Alternate source demonstration(s) included in this appendix. Alternate sources are sources or reasons that explain that statistically significant increases over background or statistically significant levels above the groundwater protection standard are not attributable to the CCR unit.

APPENDIX 4 - NA

A summary of any transition between monitoring programs or an alternate monitoring frequency, for example the date and circumstances for transitioning from detection monitoring to assessment monitoring

APPENDIX 5- NA

Reports documenting monitoring well plugging and abandonment or well installation are included in the appendix. or other information required to be included in the annual report such as program related notification or assessment of corrective measures.

APPENDIX 6

Field reports and analytical reports.

| Facility: | | AEP WASH | Of HS | | s well illspection Form | rispection | Form | | * |
|----------------|----------------------|---|-------------------------------|---------------------------------|--|-----------------------------|---------------------|---------------|-------|
| Samplin | Sampling Contractor: | | CACIF | | Sampling Period: | - | FEBRUARY 2023 | 23 | |
| Well No. | Well | 100 | : | | olgilature: | 7 | M | | |
| | Locked | Functioning | Well Locked After Sampling | Access to Well Maintained | Well Casing, Housing, and Pad in Good | Well Properly Labeled | Well cap present | Comments | |
| AD-13 | > | 7 | > | - | Suape | | | | |
| A0-09 | > | > | | , | 7 | > | 7 | | |
| AD-08 | > | > | , > |) | > | > | 7 | | |
| A0-05 | > | 3 | 1/4 | 2 | > | > | 7 | | |
| A0-0A | > | , > | 3 | > ! | 3 | > | \ | | 13.48 |
| AD-12 | > | > | 2 | > - | > | 7 | 7 | | 12.75 |
| 10-0H | > | > | | 3 | 3 | 7 | 7 | | 19.95 |
| AD-02 | > | 7 | | | > | > | 7 | T | 17.83 |
| AD-03 | \ | 7 | , > | > > | | > | .> | PAD BROKEN | 13,17 |
| AD-07 | > | 7 | 7 | | , | > |) | | |
| A P-16R | > | > | 7 | 3 | > _ | > |) | | 17,31 |
| 10-04c | 5 | > | 7 | . _ | 5 | > . | \ | | |
| 1structions: (| Complete fc | <u>istructions:</u> Complete form and submit to AEP | | tal Services with | 7000 | > | > | | |
| nsdustactory | items shou | insatisiactory items should be left blank with a | | omments section | note in the comments section on what needs to be a section or what | check mark for | items that are | satisfactory. | |

Unsatisfactory items should be left blank with a note in the comments section on what needs to be remedied.

| FEBRUANY 2023 | Liter |
|-----------------------------------|-----------------------|
| Sampling Period: | Signature: |
| 1615H M | CACIF |
| acility: $\beta \in \mathcal{P} $ | ampling Contractor: _ |

| Locked Fi | | and the second s | | ì | | L | COLLINGING | |
|-----------|-------------|--|--------------------|--------------------------------------|---------------------|---------|------------|-------|
| > | Functioning | After Sampling | Well Maintained | Housing, and Pad in Good Shape | Properly Labeled | present | | |
| | > | > | > | > | > | > | | 1919 |
| > | > | > | | > | > | > | | 15,90 |
| > | > | > | > | > | <i>\</i> | > | | 15.94 |
| > | > | 1 | > | > | > | > | | 2333 |
| > | > | > | V | > | 7 | > | | 5.71 |
| | | | > | > | | > | NO LOCK | 4.66 |
| > | > | > | > | > | > | > | | 9.34 |
| | | | | | | | | |
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Unsatisfactory items should be left blank with a note in the comments section on what needs to be remedied.

| | | Comments | | | DTW 19.26 | • | | | | | | re satisfactory. |
|------------------|--|-------------------------------|----------------------|-------|-----------|------|------|--|--|--|--|---|
| 2-6-23 | Jamille | Well cap | | \ | 7 | \ | \ | | | | | for items that a |
| d: | The state of the s | Well | Labeled | \ | \ | \ | 1 | | | | | sce check mark |
| Sampling Period: | Signature: | Well Casing, | Pad in Good Shape | > | > | \ | \ | | | | | th Field Data. Pla |
| S | iS | Access to Well | Maintained | \ | > | \ | > | | | | | ental Services wi |
| | Tago | Well Locked After Sampling | 0 | \ | \ | (| \ | | | | | Instructions: Complete form and submit to AEP Environmental Services with Field Data. Place check mark for items that are satisfactory. |
| Wolsh | tor: | Lock | 0 | > | > |) | \ | | | | | e form and subn |
| | Contraci | Well | | > | 1 | 1 | \ | | | | | : Complet |
| Facility: _ | Sampling Contractor: | Well No. | | 40.15 | 91.10 | Poll | 4514 | | | | | nstructions |

Unsatisfactory items should be left blank with a note in the comments section on what needs to be remedied.

| Facility Name | は ひか こんじん ひか | | |
|-----------------|---|--------------------|---|
| | | | |
| Sample by | Kenny B. Dead | Sample Location ID | d |
| (· · · · · · · | 111111111111111111111111111111111111111 | מבולים בסמים | |

| 7.30 | (TOC) |
|----------------------------|----------------------------------|
| Depth to water, feet (TOC) | Measured Total Depth, feet (TOC) |

| MULLO | 02/07/23 |
|--------------------|---------------------|
| Sample Location ID | Depth to water date |

| | Temperature | (a) | 16.89 | 17.71 | 17,63 | 17,72 | | | | | | | |
|--------------------------|-------------|------------|-------|-------|-------|-------|--|--|--|--|--|--|--|
| | ORP | (mV) | 372 | 420 | 427 | 431 | | | | | | | |
| | D.O. | (mg/L) | 3.21 | 7.07 | 2,93 | 2,88 | | | | | | | |
| | Turbidity | (N.T.U) | 20.2 | 1 15 | 4.6 | 3.9 | | | | | | | |
| | Spec Cond | (mS/cm) | 75 | 72 | 77 | 6.5 | | | | | | | |
| | Hd | (S.U.) | 4.61 | 8916 | 14.71 | 4.73 | | | | | | | |
| | Flow Rate | (mL/min) | 220 | 022 | 022 | 022 | | | | | | | |
| Purge Stabilization Data | Water Depth | (from TOC) | 7.91 | 7,98 | 8,02 | 8,06 | | | | | | | |
| Purge Sta | Time | | 0918 | 0923 | 0928 | 0933 | | | | | | | |

| A STATE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER. | |
|---|----------|
| Total volume purged | |
| Sample appearance | CLMA |
| Sample time | 0 935 |
| Sample date | 02/02/23 |

| | Location ID AD-04 C |
|-----------------|---------------------|
| do H 572M d) F | KFMNY MIDENMID |
| Facility Name | Sample by |

Depth to water, feet (TOC)

Measured Total Depth, feet (TOC)

Depth to water date 02/07/23

| Purge Sta | Purge Stabilization Data | | | | | | | | | |
|-----------|--------------------------|-----------|--------|-----------|-----------|--------|------|---|---|--|
| Ë | Water Depth | Flow Rate | Hd | Spec Cond | Turbidity | D.O. | ORP | Temperature | | |
| ם | (from TOC) | (mL/min) | (S.U.) | (mS/cm) | (N.T.U) | (mg/L) | (mV) | (°C) | | |
| 1042 | 8,13 | 210 | 4.82 | 343 | 1.8 | 8,23 | 427 | 18,59 | | |
| 1647 | 0218 | 210 | 18.5 | 350. | 4.7 | 2,48 | 226 | 18.61 | | |
| 7501 | 978 | 210 | 7.5 | 350 | 3,8 | 14.2 | 232 | 18,63 | | |
| 1057 | 8.33 | 210 | 4.91 | 352 | 4,5 | 2,36 | 724 | 18,66 | | |
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| Total volume purged | |
|---------------------|---------|
| Sample appearance | 7/6477 |
| Sample time | 0501 |
| Sample date | 2/40/20 |

| Facility Name | TELST PD | | |
|---------------|-----------------|--------------------|----------|
| Sample by | KFURY MI DENALD | Sample Location ID | ∀ |

| 13.81 | 60,62 |
|----------------------------|----------------------------------|
| Depth to water, feet (TOC) | Measured Total Depth, feet (TOC) |

| A0-08 | 5010100 |
|--------------------|---------------------|
| Sample Location ID | Denth to water date |

| | Temperature | (sc) | 59.06 | (b'0Z | 10.12 | 2012 | | | | | | | | | |
|--------------------------|-------------|------------|-------|-------|-------|-------|---|----|---|----------------|--|--|--|--|--|
| | ORP | (mV) | SKE | hhE | 245 | 2 h E | | ¥ | | | | | | | |
| | D.0. | (mg/L) | 1718 | 1.94 | 1:73 | 69 | | | | | | | | | |
| | Turbidity | (N.T.U) | 6.8 | 12.8 | 13.2 | 12.0 | | 34 | | | | | | | |
| | Spec Cond | (µS/cm) | 473 | 3ch | 181 | 786 | | | | | | | | | |
| | Hd | (S.U.) | 6.30 | 6.35 | 6135 | 6.33 | | | | | | | | | |
| | Flow Rate | (mL/min) | 220 | 022 | 220 | 220 | | | | | | | | | |
| Purge Stabilization Data | Water Depth | (from TOC) | 14,23 | 14,27 | 14,29 | 14.36 | | | ž | (A) production | | | | | |
| Purge Sta | Time |) | 1011 | 9101 | 1021 | 9201 | • | | 1 | / | | | | | |

| Total volume purged | |
|---------------------|----------|
| Sample appearance | 1647 |
| Sample time | 1028 |
| Sample date | 12/99/20 |

| 0 0 | 10-07 |
|---------------|--------------------|
| | Sample Location ID |
| AEP WELSHPP. | KERNY M. Den Ald |
| Facility Name | Sample by |

Depth to water, feet (TOC) | 3, 14

Measured Total Depth, feet (TOC) | 3 6 1 4 5

Depth to water date 02/00/2

| | | | | | | | | | | | 41 | | | | | | | |
|--------------------------|-----------------------|------------|-------|-------|--------|------|---------|--------|--|--|----|--|--|--|--|--|--|--|
| | lemperature (°C) | 17.91 | | 8:36 | 14:06 | 9.13 | 19 21 | | | | | | | | | | | |
| 0 | ORP (mV) | 212 | 2/2 | 2000 | 386 | 292 | 296 | | | | | | | | | | | |
| | D.O. (mg/L) | 3(0) | 2,6 | 3,15 | 3.09 | 3,06 | 692 | 100 | | | | | | | | | | |
| | Turbidity (N T II) | 10.1.10 | 10:1 | 7 - | [2,] | 7.11 | 2 61 | 6 17 1 | | | | | | | | | | |
| | Spec Cond | (12/c 11) | 503 | 3 5 4 | 386 | 102 | 0011 | 700 | | | | | | | | | | |
| | Hd | (3.0.) | 2,47 | 5,38 | 20,2 | 7 90 | 200 | 1.81 | | | | | | | | | | |
| | Flow Rate | (mL/min) | 218 | 812 | 2.18 | 200 | 010 | 8 7 | | | | | | | | | | |
| Purge Stabilization Data | Water Depth | (trom 10C) | 15,48 | 12.51 | 13, 64 | 12/2 |) i @ / | 14,73 | | | | | | | | | | |
| Purge Stabi | Time | | 000 | 0913 | 0100 | 0100 | 0760 | 0428 | | | | | | | | | | |

| Total volume purged | Sample appearance | Carripic appearance | Sample time | 0+010 010000 |
|---------------------|-------------------|---------------------|-------------|--------------|

| AD-11 | Temperature (°C) (4.35 (4.45) (4.74) (4.74) | |
|---|--|-------------|
| Sample Location ID Depth to water date | D.O. ORP TO (mg/L) (mv) (mv) (mv) (mv) (mv) (mv) (mv) (mv | |
| 6 | Spec Cond Turbidity (µS/cm) (µS/cm) (N.T.U) 45. 5.1 5.1 5.1 | |
| 1421 1421 22. | Flow Rate pH (S.U.) 22.0 5.45 22.0 5.62 5.02 5.02 5.02 5.02 5.02 5.02 5.02 5.0 | 2.6.13 |
| Facility Name Sample by Depth to water, feet (TOC) Measured Total Depth, feet (TOC) | Time (from TOC) (625 (413) 14.34 19.35 14.35 14.35 Total volume purged Sample appearance Sample time | Sample date |

Diplicate 915

| Facility Name | H fo WELSHAP |
|---------------|-----------------|
| Sample by | Kinny mi Dengia |

| 14,00 | 0 6'61 |
|----------------------------|----------------------------------|
| Depth to water, feet (TOC) | Measured Total Depth, feet (TOC) |

| 140-13 | 02/06/23 |
|--------------------|---------------------|
| Sample Location ID | Depth to water date |

| Purge Stabilization Data | | | | | | | | |
|--|-----------|--------|-------------------|-----------|--------|------|-------------|--|
| | Flow Rate | Hd | Spec Cond | Turbidity | D.0. | ORP | Temperature | |
| | (mL/min) | (S.U.) | (µS/cm) | (N.T.U) | (mg/L) | (mV) | (°C) | |
| | 110 | 5.43 | 456 | 2.8 | 4,64 | 372 | 20,12 | |
| | 110 | 85'5 | 524 | 9.7 | 3,91 | 373 | 20,23 | |
| _ | | | | | | | | |
| _ | | | 1.5 | | | | | |
| _ | | WORLT | HOLD WATTER LEVEL | n Were | | | | |
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| | | | | | | | | |

| Total volume purged | |
|---------------------|----------|
| Sample appearance | Clara |
| Sample time | 1103 |
| Sample date | 02/00/23 |

| 2-623 | Temperature (°C) | |
|---|--|---|
| Sample Location ID Depth to water date | ORP (mV) 227 243 245 | * |
| Sample 1 Depth to | Turbidity D.O. (mg/l.) 21.3 ao/ 0 0.15 0 0.15 | |
| | Spec Cond Tu (transfer) (transfer | |
| 12.64 12.64 24.2 | (S.U.) 4.84 4.77 4.77 4.77 (L.) (Slo) (Slo) (Slo) (Slo) | |
| (TOC) | (mL/min) 226 122 122 122 122 122 122 122 122 122 | |
| | Time (from TOC) (126 12.87 12.47 12. | |
| Facility Name Sample by Depth to war Measured Tot | Time (126 1025 1134 Total volume Sample appe Sample time Sample date | |

•

| 2-6-23 | Temperature (°C) (7°-7) (°C) (7°-18) (2.18) | |
|--|--|---|
| Sample Location ID Depth to water date | 7. ORP (mV) (mV) 4.5 4.6 5.7 1.4 1.4 5.7 1.4 1.4 5.1 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1 | |
| Sample | Turbidity D.O. (mg/L) 33 0 85 24 0.13 18 0.13 18 0.05 18 0.0 | |
| 12-miles. | Spec Cond (µS/cm) 2.5 8 147 137 147 | |
| Molsh | PH (S.U.) 4(37) 4(37) 4(33) 4(33) 4(33) | 16.1. 957 2-6-23 |
| OC) Ceet (TOC | C) (mL/min) 250 250 250 250 250 250 250 250 250 250 | |
| Facility Name Sample by Depth to water, feet (TOC) Measured Total Depth, feet (TOC) Purge Stabilization Data | 11me (from TOC) 425 435 435 445 546 547 547 547 547 547 547 547 547 547 547 | Sample appearance Sample time Sample date |

| Facility Name | A CO WING IT PO |
|---------------|-----------------|
| Sample by | Kray M. Dangeld |

Depth to water, feet (TOC) $2 \dot{b}$, $0 \ 3$ Measured Total Depth, feet (TOC) $3 \ i$, $3 \ i$

Sample Location ID $\beta 0 - 16 R$ Depth to water date $\delta 2 / \delta 7 / 2 3$

| Purge Sta | Purge Stabilization Data | | | | | | | | |
|-----------|--------------------------|-----------|--------|-----------|-----------|--------|------|-------------|--|
| Ä | Water Depth | Flow Rate | Hd | Spec Cond | Turbidity | D.0. | ORP | Temperature | |
| ב | (from TOC) | (mL/min) | (S.U.) | (µS/cm) | (N.T.U) | (mg/L) | (mV) | (°C) | |
| 1000 | 26,32 | 120 | 3.75 | 212 | 11.8 | 5.31 | 884 | 18.37 | |
| 1005 | 26.37 | 120 | 3,71 | 209 | 3,6 | 12.21 | 75h | 18.44 | |
| 0101 | 26,40 | 021 | 3,67 | 202 | 2.0 | 2,18 | 427 | 14,81 | |
| 1015 | 26,44 | 120 | 3,65 | 197 | 217 | 2,14 | 61h | 18,49 | |
| | | | | | | | | | |
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| Total volume purged | |
|---------------------|----------|
| Sample appearance | W1) |
| Sample time | 1017 |
| Sample date | 02/07/23 |

| June 2023 | | Comments | DIW = Depth to | W ster | 2 | Vegitatin afound Well | .Vestating alound well | DTW-11.61 OVERGIOWN | | No Bolleids | DTW - (5.0) No Dellings | | NTW 7.03 | DTW 10,94 | DTW 12.01 | | |
|------------------|----------------------|--------------|--------------------------------------|----------------------|------|-----------------------|------------------------|---------------------|---------|-------------|-------------------------|------|----------|-----------|-----------|---|--|
| | WAT KANNING | Well Cap | Present and Vented* | Υ | \ | \ |) | | | 7 | 1 |) | | \ | \ | | |
| Sampling Period: | nre: | Well | Properly Labeled | | \ | \ | J | 7 | 1 |) |) |) | | \ | \ | | |
| Sampli | Signature: | Well Casing, | Protective Cover, Barriers and | Pad in Good Shape | \ | \ |) |) | \ |) | | \ | 1 | \ | \ | P | |
| | | Access to | Well Maintained | | 1 | ÷ | | | \ |) | \ | \ | J | | · | | |
| ļ | 7 | Well | Locked After Sampling | |) | \ |) |) | \ |) | \ | \ | \ |) |) | | |
| المام | or: | Fastener | and Lock Functioning | | \ | 1 |) | 1 | |) | 1 | , | / |) | | | |
| | Contracto | Well | Locked | | 7 | 1 | 7 | 7 | \ |) | \ | 7 |) | > | | | |
| Facility: _ | Sampling Contractor: | Well No. | | | AFIR | An | A - 1-4 | AD-10 | An. 16A | AD . V | AD:2 | ANIJ | 7:12 | 40-22 | A-23 | | |

*Not all wells will be vented, especially flush mounted wells. If that is the case, please note "flush mount well" in the comments.

2023

| Sampling Period: | Signature: |
|------------------|----------------------|
| 11 | CACIF ENVIOUN |
| acility: レドン 日 | Sampling Contractor: |

| Comments | | | | 175.5 | 17.61 | 8,6 | 17,23 | | 13.13 | | | not moute |
|---|------|-------|--------|-------|---------|--------|-------|-------|-------|-------|-------|-----------|
| Well cap C | > | 7 | > | > | 2 | > | > | > | > | > | > | V NOT |
| Well Properly Labeled | > | 1 | 1 | / | > | > | > | > | > | > | > | > |
| Well Casing, Housing, and Pad in Good Shape | > | > | > | > | 1 | > | > | > | > | > | > | |
| Access to Well Maintained | > | > | > | > | > | > | 7 | | > | > | > | |
| Well Locked After Sampling | > | > | > | > | > | > | > | / | ^ | 1 | > | , |
| Lock Functioning | > | > | > | > | > | 5 | > | > | > | > | 1 | > |
| Well | > | > | > | > | > | > | > | > | > | > | > | ,, |
| Well No. | APIB | AD-08 | 40-04C | 40-04 | A10-04A | AD-076 | A0-07 | A0-12 | 90-0A | A0-05 | A0-09 | 0.00 |

Instructions: Complete form and submit to AEP Environmental Services with Field Data. Place check mark for items that are satisfactory. Unsatisfactory items should be left blank with a note in the comments section on what needs to be remedied.

| 12 | ナイアションコーナ | | |
|----|---------------|---------------------|----------|
| 7 | Kinny Mipongy | Sample Location ID | 10-dH |
| | | | |
| | 18,38 | Depth to water date | 06/06/23 |
| | 78:71 | | |

| | Temperature | (2) | 23,12 | 23,08 | 23.04 | 22,97 | | | | | | | |
|--------------------------|-------------|------------|-------|-------|-------|-------|--|--|--|--|--|--|--|
| | ORP | (mV) | 200 | 197 | 191 | 186 | | | | | | | |
| | D.O. | (mg/L) | 1.78 | 1,50 | 1:36 | 1.31 | | | | | | | |
| | Turbidity | (N.T.U) | 13,6 | 1,3 | . 8 | 610 | | | | | | | |
| | Spec Cond | (m2/cm) | 364 | 3.04 | 767 | 162 | | | | | | | |
| | Hd | (S.U.) | 4.99 | 4.93 | 263 | 1615 | | | | | | | |
| | Flow Rate | (mL/min) | 214 | 412 | 412 | 717 | | | | | | | |
| Purge Stabilization Data | Water Depth | (from TOC) | 18.42 | 18,46 | 18,51 | 4.56 | | | | | | | |
| Purge Stabi | Time | | 1037 | 7401 | 1047 | 1052 | | | | | | | |

BACKERONNO DUPLICATE 120 0

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Total volume purged Sample appearance

Sample time Sample date

| Facility Name | | 11/01/01 | | | | | | |
|--|-----------|-----------|-----------|-----------|---------------------|---|---------------|--|
| Sample by | | W C 12 M | | | | • | | |
| | | 7 th 147. | 1. 1-01 | | Sample Location ID | ion ID | 7- 17 | |
| Depth to water feet (TOC) | | | | | | | | |
| Moseurod Total Parate 6-15 | 001 | 5 | ,0, | | Depth to water date | er date | 1172 | |
| ivieasuled lotal Depth, teet (10C) | (100) | 70. | 3 | | | | 6.6-6. | |
| Purge Stabilization Data | | | | | | | ~ | |
| 14.00 | 1 | <u> </u> | | | | | | |
| Time water Deptin | Flow Kate | Hd | Spec Cond | Turbidity | D.O. | aao | 1 | |
| | (mL/min) | (S.U.) | (µS/cm) | E L | (1/200) | | e in berarure | |
| 642 6.48 | 300 | 70.7 | (1) | 27 1 | A Tried | ď | (5,) | |
| 16471 9.54 | 300 | たっつ |) (| - | 2000 C | ľ | 25.68 | |
| 1057 6 60 | 202 | 1,2,7 | | | 3.46 | ~ | ング、ダグ | |
| - | 7,0 | 1, 50 | 6.0 | ۲, ۶ | 3.49 | 32.7 | 74.17 | |
| | 200 | ~, | 63 | a- | 3.4 | 37.4 | 27.17 | |
| | | | | | 2 | | 27,08 | |
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| Total volume purged | | | | | | | | |
| Sample appearance | | Cleri | | | | | | |
| Sample time | | 1059 | | | | | | |
| Sample date | | 1-6-23 | | | | | | |
| The state of the s | | , | | | | | | |

| Facility Name | ACP WASH DP | | |
|----------------------------------|------------------|---------------------|----------|
| Sample by | 12 from m Derain | Sample Location ID | PO-04C |
| | 1 | | |
| Depth to water, feet (TOC) | h8`8 | Depth to water date | 06/05/23 |
| Measured Total Depth, feet (TOC) | oc) 8.82 | | |
| | | | |

| | Temperature (°C) | 72.59 | 72:22 | 22,13 | 90122 | 22.01 | | | | | | | |
|--------------------------|---------------------|--------------|---------|-------|-------|-------|--|--|--|--|--|--|--|
| | ORP (mV) | 376 | 198 | 174 | 06/ | 163 | | | | | | | |
| | D.O. (mg/l.) | 7.28 | 2,41 | 2,33 | 6212 | 62'2 | | | | | | | |
| | Turbidity (N T II) | 18.7 | 17,5 | 17.3 | 17,3 | 0'11 | | | | | | | |
| | Spec Cond | 120 | Sur Sur | 337 | 335 | 734 | | | | | | | |
| | Hd | 5 2 5 | 51.5 | 2115 | 5.10 | 80.5 | | | | | | | |
| | Flow Rate | 200 | 200 | 200 | 200 | 002 | | | | | | | |
| Purge Stabilization Data | Water Depth | (201 1011) | 8.99 | 9.03 | 9,09 | 7 | | | | | | | |
| Purge Stak | Time | 2 | 1010 | 1024 | 1029 | 1034 | | | | | | | |

| Total volume purged | |
|---------------------|----------|
| Sample appearance | C1(44) |
| Sample time | 1036. |
| Sample date | 06/05/23 |

| Facility Name | TO WAGH PO | | |
|----------------------------------|--|---------------------|----------|
| Sample by | Kiny Millerail | Sample Location ID | A.O05 |
| | 14 N 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | |
| Depth to water, feet (TOC) | 14.42 | Depth to water date | 06/00/23 |
| Aeasured Total Depth, feet (TOC) | 38'28 | | |

| | | | | 5 | | | | | | | | | |
|--------------------------|-------------|------------|-------|-------|--|--|----------------------|--|--|--|--|--|--|
| | | | | | | | | | | | | | |
| | Temperature | (°C) | 21,52 | 21.40 | | | | | | | | | |
| | ORP | (mV) | 121 | 561 | | | | | | | | | |
| | D:0. | (mg/L) | 4157 | 75'6 | | | H | | | | | | |
| | Turbidity | (N.T.U) | 166 | 158 | | | with the | | | | | | |
| | Spec Cond | (µS/cm) | 464 | 463 | | | wit the water to the | | | | | | |
| | Hd | (S.U.) | 525 | 5,80 | | | | | | | | | |
| | Flow Rate | (mL/min) | 601 | F01 | | | | | | | | | |
| Purge Stabilization Data | Water Depth | (from TOC) | 15.37 | 16,52 | | | | | | | | | |
| Purge Stabi | Time |) | 9280 | 0831 | | | | | | | | | |

| Total volume purged | |
|---------------------|----------|
| Sample appearance | TUR 210 |
| Sample time | 00 00 |
| Sample date | 06/06/23 |

| Facility Name H CP ~ ELSH P F Sample by C M C D P C P F Depth to water, feet (TOC) Median Street Median P F | | 000 | | |
|---|----------------------------------|--------------------------|---------------------|----------|
| Sam Nater, feet (TOC) 1/4、S () Dep Total Depth, feet (TOC) 2 % () V | Facility Name | 4CP > F15H PF | | |
| 14.50 2 9.09 | Sample by | 16 promy M. C. Der M. C. | Sample Location ID | AD-08 |
| 14.50 Pop 2 | | | | |
| Measured Total Depth, feet (TOC) 2 9,04 | Depth to water, feet (TOC) | 14.50 | Depth to water date | 82/50/90 |
| | Measured Total Depth, feet (TOC) | 5006 2 | | |

| | Temperature | (၁) | 22.45 | 27.79 | 72.87 | 58.27 | | | | | | | | |
|--------------------------|-------------|------------|-------|-------|-------|-------|---|---|--|---|--|--|--|--|
| | ORP | (mV) | 318 | 339 | 345 | 357 | | | | | | | | |
| | D:0 | (mg/L) | 2.81 | 2,78 | 54.2 | 2,73 | | | | | | | | |
| | Turbidity | (N.T.U) | 13,6 | 8.3 | 9,0 | 8.6 | • | | | | | | | |
| | Spec Cond | (µS/cm) | 1/Lh | 666 | 473 | 26h | | 2 | | | | | | |
| | Н | (S.U.) | 56.3 | 1119 | (11) | 6.13 | | | | | | | | |
| | Flow Rate | (mL/min) | 012 | 210 | 210 | 012 | | | | | | | | |
| Purge Stabilization Data | Water Depth | (from TOC) | 14,72 | 14,74 | 14.74 | 14,77 | | | | | | | | |
| Purge Stabi | Time |) | 9580 | 1000 | 9060 | 100 | | | | 3 | | | | |

PBAP DUPLICATT. 1200

1441

Total volume purged

Sample appearance Sample time

Sample date

| Facility Name | AFP WHSH PP. | | · c | - 1 |
|----------------------------------|----------------|---------------------|----------|-----|
| Sample by | KINDY MIDONALD | Sample Location ID | FO-09 | |
| | | | | 1 |
| Depth to water, feet (TOC) | E2/h/ | Depth to water date | 06/06/73 | |
| Measured Total Depth, feet (TOC) | 56.95 | | | |

| Turbidity D.O. ORP (N.T.U) (mg/L) (mV) 2, 8 | rge Sta | Purge Stabilization Data | | | | | | | | T |
|--|---------|---------------------------|-----------------------|--------------|----------------------|----------------------|----------------|-------------|---------------------|---|
| 14,31 218 5.08 568 2.8 2.62 217 14,39 218 5.05 566 1.1 2,37 219 14,39 218 5.10 567 0.7 2.37 213 14,39 218 5.10 567 2.37 213 | e | Water Depth (from TOC) | Flow Rate (mL/min) | рН (S.U.) | Spec Cond (µS/cm) | Turbidity (N.T.U) | D.O. (mg/L) | ORP (mV) | Temperature (°C) | |
| 14,39 2.18 5.05 5.66 1.1 2,37 2.19 14,39 2.18 5.00 5.61 0.7 2.34 2.13 14,42 2.18 5.10 5.61 0.9 2.31 2.11 | 38 | 14.3) | 812 | 80.5 | 895 | 2.8 | 2912 | 217 | 25,77 | |
| 14,39 218 5,10 561 0,9 2,34 213 14,42 218 5,10 561 0,9 2,34 211 112 152 0,9 2,10 361 0,9 2,3 211 | I. | 14,33 | 812 | 50.5 | 266 | 1.1 | 2,37 | 612 | 18122 | |
| 117 12 218 5:10 561 0.9 2:31 211 | 48 | 14,39 | 218 | 2015 | 557 | 0,7 | 2,34 | 512 | 48.52 | |
| | 53 | _ | 218 | 5.10 | 561 | 6.0 | 2,3 | 112 | 18'22 | |
| | | | | | | | | | | |
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| | | | | 24 | | | | | | |

| Total volume purged | |
|---------------------|----------|
| Sample appearance | Clear |
| Sample time | 0955 |
| Sample date | 06/06/23 |

Temperature 22.0x 2 h 12 ÓRP (m) Depth to water date Sample Location ID (mg/L) Turbidity (N.T.U) 7.75 Spec Cond (µS/cm) 585 3.3 ₹ 2 (S.U.) Welsh ᇊ Flow Rate (mL/min) 204 200 200 Measured Total Depth, feet (TOC) Depth to water, feet (TOC) Water Depth (from TOC) Purge Stabilization Data 8= 21 5 Š Facility Name Sample by グナー = 3E 1043 57.0 Time

Land fill Duplicet

1-5-23

clear

Total volume purged Sample appearance

Sample time Sample date

| Facility Name | ACD WAS | SH PP | | | |
|----------------------------------|---------|------------|---------------------|----------|---|
| Sample by | (マペン) | 7 Alpenaco | Sample Location ID | PAD-13 | |
| | | | | | |
| Depth to water, feet (TOC) | | 20191 | Depth to water date | 52/50/90 | |
| Measured Total Depth, feet (TOC) | () | 19,40 | | | 0 |

| | Temperature (°C) | 27,54 | 19:22 | | | | | | | | | |
|--------------------------|------------------------|-------|-------|---|--|--------------|---|--|--|--|--|--|
| | ORP (mV) | 277 | 236 | | | | | | | | | |
| | D.O. (mg/L) | 3,82 | 2,97 | | | | | | | | | |
| | Turbidity (N.T.U) | 20.7 | 19,4 | | | I some later | | | | | | |
| | Spec Cond | 790 | 493 | | | 111000 | , | | | | | |
| | Hd | 7,62 | 69'6 | | | 120h 17 | | | | | | |
| | Flow Rate (ml /min) | 101 | 101 | | | | | | | | | |
| Purge Stabilization Data | Water Depth | 16,94 | 70'81 | | | | | | | | | |
| Purge Stak | Time | 8380 | Ch80 | • | | | | | | | | |

| Total volume purged | |
|---------------------|----------|
| Sample appearance | (War |
| Sample time | 6/11 |
| Sample date | 62/50/90 |

| Facility Name | Š | W. I. I. | | | | | | | |
|----------------------------------|-----------------------|-----------|---|------------|---------------------|-------------|--|---|---------|
| Sample by | | Total tou | 1 | | Cample Cantion 15 | . (1 | | | |
| | | Į | | | מינולוגיי | 03 HOL | AD: 14 | j | |
| Depth to water, feet (TOC) | | 7 7 | | | - | | | | |
| Measured Total Depth, feet (TOC) | TOC) | 1/1 | 127 | - | Depth to water date | ter date | (-5-23 | | |
| | | | | · 1 | | | | | : |
| Purge Stabilization Data | | | | | | | | | |
| Time Water Depth | Flow Rate | Hd | Spec Cond | Turbidity | D.O. | ORP | Temperature | | |
| | 22.0 | (S.U.) | (µS/cm) | (N.T.U) | (mg/L) | (mV) | (°C) | | |
| 114, 15.70 | 220 | 75.5 | 27.0 | 7: 57 | 7.50 | \$ | 23.40 | | |
| | \mathcal{U}° | 5,33 | ~ | , w | 10,00 | 200 | 72.11 | | |
| 1156 15.79 | 220 | 5.34 | 761 | 200 | 0.08 | 色のこ | 7,77 | | ***** |
| | | | | | 000 | X =1 | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | | ******* |
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| Total volume purged | | | | | | | | | |
| Sample appearance | | cleul | | | | | | | |
| Sample time | | 1158 | | | | | | | |
| Sample date | | 6-5-23 | | | | | | | |

| Facility Name | | Mole k | | | | | | |
|----------------------------------|-----------|--------|-----------|-----------|---------------------|----------|------------|----------|
| Sample by | 1 | 1 | -+ | | Cample Lores | | | |
| | - | | | _ | Sample Location ID | cron (C) | AD-15 | |
| Depth to water, feet (TOC) | | 5167 | | , | Destablish | | | |
| Measured Total Depth, feet (TOC) | (TOC) | 1,44. | | · • | Depth to water date | er date | 6-5-53 | |
| | | | | | | | u. | |
| Purge Stabilization Data | | | | | | | | |
| Time Water Depth | Flow Rate | Hď | Spec Cond | Turbidity | 0 | 400 | | |
| (fro | (mL/min) | (S.U.) | (µS/cm) | (N.T.III) | (2,2) | | emperature | ⇔ |
| 928 21.81 | 2 K | 4.03 | 27.5 | 17.3 | (11/E/L) | (my) | | |
| 533 22.02 | 280 | たった | 2 | 100 | | 260 | ~ | |
| 938 22.11 | 280 | 5/7 | 145 | 75.5 | 000 | 283 | 23.33 | 144 |
| 643 22.15 | 286 | 11 17 | 3 | 1/[4 | | 258 | 23.42 | |
| 4.18 22 17 | 28, | 7 | 1012 | 5 | 0,51 | 286 | 1 | |
| 453 22.18 | 2% | 1~ | 2/0 | 2 | 0.87 | 780 | 23,54 | |
| グー・ハー・メント | Ž | | 27 | 92. | 0,79 | 2.75 | 23.65 | |
| | 30, | 4 | 2 \$ | 35 | C. 74 | 275 | 23,71 | |
| 4 4 | 207 | 7.50 | 5 | 30 | 0.70 | > 71 | 23.72 | |
| 7-57 | 286 | 4.32 | 187 | ~ | L, 0 | > 16 | 12 21 | |
| 1013 22.11 | \$ ~ | 4.33 | 183 | 13.2 | 11 7 | 0,7 | 12.10 | |
| | | | | | 20.,, | 000 | <>> / | |
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| | | | | | | | | |
| Total volume purged | | | _ | | | | | |
| Sample appearance | | 4.1bid | | | | | | |
| Sample time | | 1015 | | · | | | | |
| Sample date | | 1-4-23 | | | | | | |
| | | | | _ | | | | |

| Sample Location ID An-167 Depth to water date 6-6-23 | | D.0. | 3.4 2.77 225 23.64 | 0 2.53 336 22.2 | | | | | | | | | | SA27 D.0 |
|---|---|------|--------------------|-----------------|--|-------|--------|--|-----|--|---------------------|-------------------|-------------|-------------|
| Welsh Hemilton. 25.48 31.30 | THE RESIDENCE OF THE PROPERTY | | 3.36 217 | 3.42 205 | | | | | | | | Clear | 418 | £2-9-) |
| Facility Name Sample by Depth to water, feet (TOC) Measured Total Depth, feet (TOC) | Purge Stabilization Data | > | 2 26. | 26,43 | | Greek | 2 24.4 | | 4-2 | | Total volume purged | Sample appearance | Sample time | Sample date |

| | | ٠ | | | | | - | - | | | | | | | | | | | | |
|---|----------------------------------|--------------------------|---------------------------|--|-------|------|---|---|---|------|-----|---|---|---|---|---|--------------------|-------------------|-------------|-------------|
| | 2.9. | | | | | | | | | | | | | | | - | | | | |
| AD | 6-6. | - F | - - - - | reinperature (°C) | 26.23 | 75.0 | | | | | | | | | | | - | | | |
| rtion ID | ter date | | dao | (mV) | 75 | | | | | | | | | | | | | | | |
| Sample Location ID | Depth to water date | | D.0. | (mg/L) | 27.3 | | | | | | - | | | | | | | | | |
| | | | Turbidity | (N.T.U) | 213 | | | | | | | | 1 | | | | - | | | |
| 9. 11. 4.5 | 101 | | Spec Cond | (µS/cm) | 1,770 | | | | | 1.01 | 0 0 | | | | - | | | | | |
| 15.5 | 27.62 | | Hd . | (3,U.) | 5.35 | | | | | | | | | | | | | Class | 1134 | 6-6-23 |
| | (50) | | Flow Rate | (11117) | 0 0 | | | | - | | | | | | | | | | | |
| acility Name Jample by Depth to water feat (7007) | Measured Total Depth, feet (TOC) | Purge Stabilization Data | Water Depth (from TOC) | 23.69 | 24,72 | | | | | | | - | | | | | otal volume purged | Sample appearance | ime | Jate |
| Facility Name Sample by Depth to war | Measure | Purge St | Time | 128 128 128 128 128 128 128 128 128 128 | \$3,6 | | | | | | | | | - | | | Total vol | Sample a | Sample time | Sample date |

CCR Groundwater Monitoring Well Inspection Form

| | | vtd s | | | | | 16.99 | | | 9.90 | 18.62 | 18.71 | 7 | 21.40 |
|------------------|----------------------|--------------|--------------------------------------|-------|--------|--------|--------|--------|--------|--------|-------|---------|----------|-------------|
| ~ | | Comments | | | | | | | | | | | DVACALWA | DUFACHEN |
| cTB/M 6023 | | Well cap | present | > | > | > | 7 | > | \ \ | \ | > | > | > | > |
| | A. | Well | Properly Labeled | > | > | 1 | 1 | / | 1 | | | | | > |
| Sampling Period: | Signature: | Well Casing, | Housing, and Pad in Good Shape |) | 1 | 0 | | 1 | | > | | > | > | > |
| | | Access to | Well Maintained | > | |) | > | | | | > | | | |
| 1.1 | FAOIC | Well Locked | After Sampling | > | 1 | > | 1 | 1 | 1 | | > | | | <i>></i> |
| THE WEIST IT | | Lock | Functioning | > | 1 | ~ | > | > | 1 | > | | > | / | <i>></i> |
| 7 | g Contrac | Well | Locked | > | > | > | > | > | > | > | > | `. | \ \ | > |
| Facility: | Sampling Contractor: | Well No. | | H0-13 | A10-09 | A10-08 | A D-07 | A10-05 | AD-04c | AD-046 | AD-07 | A.D-04a | 10-0H | 21-04 |

Instructions: Complete form and submit to AEP Environmental Services with Field Data. Place check mark for items that are satisfactory. Unsatisfactory items should be left blank with a note in the comments section on what needs to be remedied.

O Vin Grown

CCR Groundwater Monitoring Well Inspection Form

| | | | | | | | | | | | : | | | | | | |
|------------------|----------------------|--------------|-------------------------|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------------|----------|-------|--------|----------|
| Oct 1023 | Smo | Comments | | | | | | | | *** | | | No halliers | Da(1.e/s | | | |
| | Part. | Well Cap | Present | Vented* | | \ | \ | \ | \ | \ | \ | | | \ | \ | \ | |
| Sampling Period: | ure: | Well | Properly | | | | | \ | \ | \ | \ | \ | \ | \ | \ | \ | <u>-</u> |
| Sampl | Signature: | Well Casing, | Protective Cover. | Barriers and Pad in Good | Shape | \ | \ | \ | \ | \ | | | | | \ | \ | |
| | | Access to | Well Maintained | | | \ | \ | \ | \ | | \ | | \ | | \ | \ | |
| | لله | Well | Locked | Sampling | | \ | | | \ | | \ | \ | \ | \ | \ | \ | |
| Welsh | or: | Fastener | and Lock Functioning | | | \ | \ | \ | \ | | / | ` | \ | \ | | \ | |
| 7 | Contract | Well | Locked | | | / | | \ | \ | \ | \ | \ | \ | \ | \ | \ | |
| Facility: _ | Sampling Contractor: | Well No. | | | | AD-15 | AD-10 | AD-11 | AD-11 | AD-17 | Ab.18 | M-16R | Ah-3 | 18-5 | AD-22 | AD :23 | |

*Not all wells will be vented, especially flush mounted wells. If that is the case, please note "flush mount well" in the comments.

| Facility Name | AS WELCH PP | | |
|----------------------------------|-----------------|---------------------|----------|
| Sample by | Kerry M. Dowald | Sample Location ID | 10-01 |
| | | | |
| Depth to water, feet (TOC) | 90'0 | Depth to water date | 10/04/23 |
| Measured Total Depth, feet (TOC) | 28.71 | | |

| | Temperature | 54.42 | 24,43 | 24,43 | 24,40 | | | | | | | |
|--------------------------|---------------|--------------------|-------|-------|-------|--|--|--|--|--|--|--|
| | ORP (2017) | 383 | 287 | 389 | 391 | | | | | | | |
| | D:0. | (IIIB/L) 2, (1) | 2,10 | 80'2 | 2,05 | | | | | | | |
| | Turbidity | 2,8 | 1.3 | 1.1 | 8.0 | | | | | | | |
| | Spec Cond | 7.70 | 822 | 692 | 267 | | | | | | | |
| | Hd | 5.30 | 5.30 | 525 | 5.29 | | | | | | | |
| | Flow Rate | 022 | 072 | 220 | 220 | | | | | | | |
| Purge Stabilization Data | Water Depth | 19.26 | 19,27 | 19,27 | 19.20 | | | | | | | |
| Purge Sta | Time | 4560 | 6560 | 1001 | 6001 | | | | | | | |

BACKGALLIND DUP 1200

WW377

Sample appearance Sample time

Sample date

Total volume purged

| | 5 | | | |
|----------------------------|--|---|---|---|
| | 20 J | Temperature (°C) | | |
| | ation ID | ORP (mV) 33 7 35 7 346 343 | | |
| • 4 | Sample Location ID Depth to water date | 0.0. (mg/l) 1,35 0.65 0.45 | | |
| · | | Turbidity (N.T.U) 5, 26.57 23.3 | | |
| | 24,13 | Spec Cond (uS/cm) (s d | | |
| 15/07 | 0.1 | Hd (S.U.) 4.4.4.4.4.4.4.4.8.4.4.4.8.4.4.4.8.4.4.8.4.4.8.4.4.8.4.4.8.4.4.8.4.4.8.4.4.8.4.4.4.8.4.4.8.4.4.8.4.4.4.8.4.4.8.4.4.4.8.4.4.4.8.4 | clese 050 0-4-23 | |
| | | Flow Rate (mL/min) | | • |
| me | Depth-to water, feet (TOC) Measured Total Depth, feet (TOC) Purge Stabilization Data | Water Depth (from TOC) 0.45 11.06 11.11 | e purged earance | |
| Facility Name Sample by | Depth-to | Time (25/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/ | Total volume purged Sample time Sample time | |

| Sample by King of Mary Man 1 | Facility Name | FF >615+ | | |
|------------------------------|---------------|------------------|--------------------|-------|
| | Sample by | KINNY M. News. 1 | Sample Location ID | カン・しな |

| Depth to water, feet (TOC) | (0,0) |
|----------------------------------|-------|
| Measured Total Depth, feet (TOC) | 18.87 |

| 82/h |
|--------------------|
| 10/0 |
| epth to water date |

| | | J. De la Contraction de la Con | | | | | | | | | | | | |
|--------------------------|-------------|--|-------|-------|-------|---------|-------|--|--|--|--|--|--|--|
| | Temperature | (a,C) | 211/2 | 24,65 | 24,67 | 24.68 | | | | | | | | |
| | ORP | (mV) | 782 | 262 | 396 | った | | | | | | | | |
| | D.O. | (mg/L) | 11/5 | 3.07 | 5,93 | 2,88 | | | | | | | | |
| | Turbidity | (N.T.U) | 9.21 | 1.8 | 10,7 | 211 | 1.111 | | | | | | | |
| | Spec Cond | (mS/cm) | 345 | 341 | 340 | 740 | | | | | | | | |
| | Hd | (S.U.) | 18/6 | 28.7 | 4.94 | 4.97 | | | | | | | | |
| | Flow Rate | (mL/min) | 210 | 012 | 210 | 210 | | | | | | | | |
| Purge Stabilization Data | Water Depth | (from TOC) | 10.11 | 10,16 | 10,20 | 10.23 | | | | | | | | |
| Purge Stak | Time |) | 4060 | 0000 | 61160 | 6 6 6 0 | | | | | | | | |

| Total volume purged | |
|---------------------|----------|
| Sample appearance | Chorn |
| Sample time | 0921 |
| Sample date | 10/04/23 |

| Facility Name | TT WEIST 1 | | | |
|---------------|---------------|--------------------|-------|--|
| Sample by | KINNY OF DOME | Samule Location ID | 20-05 | |

Depth to water, feet (TOC) $|\mathcal{A}.38$ Measured Total Depth, feet (TOC) 32.88

Depth to water date $|0/64/z_3|$

| Spec Cond Turbidity D.O. ORP Temperature (μS/cm) (M.T.U) (mg/L) (mV) (°C) (°C) (γγ β β β β β β β β β β β β β β β β β β |
|--|
| (N.T.U) (mg/L) (mV) 16 |
| 116 2,79 329 42,3 1,43 87 44.0 |
| 45.3 1.43 87 |
| |
| WOR17 HEU |
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| Total volume purged Sample appearance Sample time Sample date Total volume | | |
|--|---------------------|-----------------|
| Sample appearance $\frac{\int L(c_H T L^4) + L M \delta I O}{1 1 8}$ Sample date $\frac{10}{1000000000000000000000000000000000$ | Total volume purged | |
| Sample time | Sample appearance | SLICHTLY TLABID |
| Sample date 10/04/23 | Sample time | 8111 |
| | Sample date | 10/04/23 |

| Facility Name | AFO WELSH PP | | | |
|----------------------------------|----------------|---------------------|----------|-----|
| Sample by | Kinry McDorAnd | Sample Location ID | HO-08 | |
| | | | | į į |
| Depth to water, feet (TOC) | 14.57 | Depth to water date | 10/03/23 | |
| Measured Total Depth, feet (TOC) | 29.64 | | | |

| | * | | | | | | | | | | | | |
|--------------------------|---------------------------|-------|-------|-------|-------|--|---|--|--|--|--|--|--|
| | Temperature (°C) | 26.42 | 26,69 | 66.32 | 26.76 | | | | | | | | |
| | ORP (mV) | 47 | 43 | 40 | 39 | | | | | | | | |
| | D.O. (mg/L) | 2,03 | 1.69 | 1.68 | 5911 | | | | | | | | |
| | Turbidity (N.T.U) | 4.8 | 5/2 | 1.6 | 1.3 | | | | | | | | |
| | Spec Cond (µS/cm) | SSH | 2htz | 438 | 433 | | | | | | | | |
| | рН (S.U.) | 6519 | 6667 | 19:9 | 6.68 | | | | | | | | |
| | Flow Rate (mL/min) | 216 | 216 | 912 | 912 | | 2 | | | | | | |
| Purge Stabilization Data | Water Depth (from TOC) | 12'71 | 14,6 | 19,41 | 14,63 | | | | | | | | |
| Purge Stab | Time | 1003 | 1008 | 1017 | 1018 | | | | | | | | |

PBAP DUPLICATE 1200

(Com

Total volume purged Sample appearance

Sample time Sample date

| Facility Name | AFF WELSH PP | | | |
|----------------------------------|-----------------|---------------------|----------|--|
| Sample by | Kenty My Dona U | Sample Location ID | P-0-9 | |
| | | | | |
| Depth to water, feet (TOC) | = 5 | Depth to water date | 10/03/23 | |
| Measured Total Depth, feet (TOC) | 36,45 | | - | |

| | Temperature | 10.50 | 1200 | 23,09 | 22,87 | 23.01 | 22,96 | | | | | | | |
|--------------------------|-------------|--------------------|-------|-------|-------|-------|-------|--|--|--|--|--|--|--|
| | ORP (m)/ | 100 | 200 | 28 | 10 | id | 52 | | | | | | | |
| | D.O. | (IIIB/L) S (, f | 100 | 2,34 | 2,33 | 2,27 | 7,24 | | | | | | | |
| | Turbidity | (N.1.0) | 5 - 1 | 0.0 | 0.0 | 0,6 | 0 0 | | | | | | | |
| | Spec Cond | (haycill) | 05 12 | 1300 | 1310 | 1480 | 0951 | | | | | | | |
| | Hd | (3.0.) | 0,56 | 5,88 | 185 | 5.8.5 | 683 | | | | | | | |
| | Flow Rate | 770 | 177 | 072 | 220 | 022 | 220 | | | | | | | |
| Purge Stabilization Data | Water Depth | 14 10 | 0 11 | 14.21 | 17,22 | 14,27 | 14,29 | | | | | | | |
| Purge Stab | Time | 100 | 000 | 205 | 900 | 9 | 126 | | | | | | | |

| Total volume purged | |
|---------------------|----------|
| Sample appearance | Clear |
| Sample time | 6923 |
| Sample date | 10/03/23 |

10-3.23 Temperature ングとなる ORP CAST Depth to water date Sample Location ID (mg/L) 0.00 0.0 1300 Turbidity (N.T.U) 19.2 22.5 Spec Cand (µS/cm) 980 N=41. 4=17 22,10 (S.U.) 1,17 4.15 0 7 717 드 C Cool Flow Rate (mL/min) 200 Measured Total Depth, feet (TOC) Depth-to water, feet (TOC) Water Depth (from TOC) Purge Stabilization Data 5.32 537 13.38 Total volume purged Sample appearance Sample time Sample date Sample by 1000 Time

Facility Name

Lendfill Dup 1036

| 2000 | THE WELSHIP | | |
|----------------------------------|---------------|---------------------|----------|
| Sample by | KIND MIDENAUS | Sample Location ID | An-13 |
| | | | 7 |
| Depth to water, feet (TOC) | 16.54 | Depth to water date | 10/03/23 |
| Measured Total Depth, feet (TOC) | 19,40 | | |

| Total volume purged | |
|---------------------|----------|
| Sample appearance | CLEAN |
| Sample time | 8111 |
| Sample date | 22/20/01 |

| S | | | | |
|---|---|--|-------------------|---|
| 4p.14 | Temperature (°C) 341 26.73 26.25 | | | |
| Sample Location ID Depth to water date | D.O. ORP (mg/l) (mv) 26.47 26.3 0.95 28.5 | | | |
| Samp | Turbidity (m.T.U) (m.24,3 2,6.4,6.4,5.4,6.4,6.4,6.4,6.4,6.4,6.4,6.4,6.4,6.4,6 | | | |
| بً، کری) | Spec Cond (µS/cm) {\${\\$} \$\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ | | | |
| 18 18 4 18 18 18 18 18 18 18 18 18 18 18 18 18 | Hd (S.U.) | | | |
| 9C) eet (TOC) | | | | |
| Facility Name Sample by Depth-to water, feet (TOC) Measured Total Depth, feet (TOC) Purge Stabilization Data | | | | Total volume purged Sample appearance Sample time Sample date |
| Facility Na Sample by Depth-to Measured Purge Stab | 105 | | 6.7.2.4. Value 5. | Total volume Sample appe Sample time Sample date |

: '

•

Temperature 25.34 ORP (mV) Depth to water date Sample Location ID 0.46 (mg/L) 2000 0.0 Turbidity (N.T.U) 50.7 Spec Cond (µS/cm) (S.U.) んろ Flow Rate (mL/min) 28° 28% Measured Total Depth, feet (TOC) Depth-to water, feet (TOC) Water Depth (from TOC) Purge Stabilization Data Total volume purged Sample appearance Facility Name Sample time Sample date Sample by 3258 438 Time

AD-10-19,24 AD-22 11,85 AD-2-15,56 AD-23 13.33 AD-18-9,34

| Sample Location ID Depth to water date 0-4-23 | Turbidity D.O. ORP Temperature (N.T.U) (mg/L) (mv) (°C) (°C) (°C) (°C) (°C) (°C) (°C) (°C | | | |
|--|---|--|--|---|
| Welsh Hamilton 2672 2672 | Flow Rate pH Spec Cond Tur | | | |
| Facility Name Sample by Depth to water, feet (TOC) Measured Total Depth, feet (TOC) Purge Stabilization Data | Time Water-Depth Fic (from 70C) (m (4e7 27.3) | | | Total volume purged Sample appearance Sample time Sample date |

BASP Dup 113

| 10-17 10-4-73 | Temperature (°C) 23-4 i 22 55 | | |
|---|--|---------------|---|
| Sample Location ID Depth to water date | D.O. ORP Temper (mg/L) (mV) (°C / 23.4 / 23.4 / 22.5) | | |
| S 2 0 0 | Spec Cond Turbidity (us/cm) (N.T.U) (76e &3 . & (76e & 75 . & | Will hat hald | |
| Weldy Nort How; 14. | Flow Rate pH Sp. | | slightly twibid |
| Facility Name Sample by Depth to water, feet (TOC) Measured Total Depth, feet (TOC) | Purge Stabilization Data Time Water Depth Flov (from TOC) (ml \$34 | | Total volume purged Sample appearance Sample time |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Reissued

Job ID: 230470 Customer: Welsh Power Station Date Reported: 10/28/2023

Customer Sample ID: AD-8 (PBAP) Customer Description:

Lab Number: 230470-001 Preparation:

Date Collected: 02/06/2023 11:28 EST Date Received: 02/13/2023 10:30 EST

Metals

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|--------------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | <0.02 µg/L | 1 | 0.10 | 0.02 U1 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 0.28 μg/L | 1 | 0.10 | 0.03 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 32.5 µg/L | 1 | 0.20 | 0.05 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0.021 μg/L | 1 | 0.050 | 0.007 J1 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 1.16 mg/L | 1 | 0.050 | 0.009 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.031 μg/L | 1 | 0.020 | 0.004 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 24.6 mg/L | 1 | 0.05 | 0.02 M1 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.23 μg/L | 1 | 0.20 | 0.04 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 5.08 μg/L | 1 | 0.020 | 0.003 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.05 μg/L | 1 | 0.20 | 0.05 J1 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.0821 mg/L | 1 | 0.00020 | 0.00005 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Magnesium | 10.8 mg/L | 1 | 0.10 | 0.02 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | JAB | 02/24/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Potassium | 3.94 mg/L | 1 | 0.10 | 0.02 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | <0.09 µg/L | 1 | 0.50 | 0.09 U1 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Sodium | 53.3 mg/L | 1 | 0.20 | 0.05 M1 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Strontium | 0.274 mg/L | 1 | 0.0020 | 0.0004 M1 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0. 1 0 μg/L | 1 | 0.20 | 0.04 J1 | GES | 02/15/2023 09:27 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 1.74 pCi/L | 0.28 | 0.38 | ST | 02/23/2023 12:42 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 75.6 % | | | | | |
| Radium-228 | 1.73 pCi/L | 0.18 | 0.52 | TTP | 02/22/2023 16:47 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 68.5 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Reissued

Job ID: 230470 Customer: Welsh Power Station Date Reported: 10/28/2023

Customer Sample ID: AD-9 (PBAP) Customer Description:

Lab Number: 230470-002 Preparation:

Date Collected: 02/06/2023 10:30 EST Date Received: 02/13/2023 10:30 EST

Metals

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|--------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | <0.02 µg/L | 1 | 0.10 | 0.02 U1 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 0.33 µg/L | 1 | 0.10 | 0.03 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 49.0 μg/L | 1 | 0.20 | 0.05 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 1.60 µg/L | 1 | 0.050 | 0.007 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.337 mg/L | 1 | 0.050 | 0.009 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.379 µg/L | 1 | 0.020 | 0.004 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 12.4 mg/L | 1 | 0.05 | 0.02 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.58 μg/L | 1 | 0.20 | 0.04 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 22.1 μg/L | 1 | 0.020 | 0.003 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.18 µg/L | 1 | 0.20 | 0.05 J1 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.181 mg/L | 1 | 0.00020 | 0.00005 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Magnesium | 6.23 mg/L | 1 | 0.10 | 0.02 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | 3 ng/L | 1 | 5 | 2 J1 | JAB | 02/24/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | 0.1 µg/L | 1 | 0.5 | 0.1 J1 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Potassium | 3.02 mg/L | 1 | 0.10 | 0.02 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 0.46 µg/L | 1 | 0.50 | 0.09 J1 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Sodium | 45.3 mg/L | 1 | 0.20 | 0.05 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Strontium | 0.198 mg/L | 1 | 0.0020 | 0.0004 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0.28 μg/L | 1 | 0.20 | 0.04 | GES | 02/15/2023 09:42 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 1.24 pCi/L | 0.21 | 0.26 | ST | 02/23/2023 12:42 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 88.8 % | | | | | |
| Radium-228 | 1.81 pCi/L | 0.20 | 0.58 | TTP | 02/22/2023 16:47 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 68.4 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



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Reissued

Job ID: 230470 Customer: Welsh Power Station Date Reported: 10/28/2023

Customer Sample ID: AD-11 (LF)

Customer Description:

Lab Number: 230470-003 Preparation:

Date Collected: 02/06/2023 11:37 EST Date Received: 02/13/2023 10:30 EST

Metals

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|--------------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | 0.02 μg/L | 1 | 0.10 | 0.02 J1 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 0.56 μg/L | 1 | 0.10 | 0.03 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 28.6 μg/L | 1 | 0.20 | 0.05 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 1.25 µg/L | 1 | 0.050 | 0.007 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 1.21 mg/L | 1 | 0.050 | 0.009 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.282 μg/L | 1 | 0.020 | 0.004 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 15.8 mg/L | 1 | 0.05 | 0.02 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.38 μg/L | 1 | 0.20 | 0.04 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 12.9 µg/L | 1 | 0.020 | 0.003 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.88 µg/L | 1 | 0.20 | 0.05 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.0213 mg/L | 1 | 0.00020 | 0.00005 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Magnesium | 9.90 mg/L | 1 | 0.10 | 0.02 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | 7 ng/L | 1 | 5 | 2 | JAB | 02/24/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | 0.1 μg/L | 1 | 0.5 | 0.1 J1 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Potassium | 2.13 mg/L | 1 | 0.10 | 0.02 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 1.36 µg/L | 1 | 0.50 | 0.09 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Sodium | 130 mg/L | 1 | 0.20 | 0.05 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Strontium | 0.240 mg/L | 1 | 0.0020 | 0.0004 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0. 1 6 μg/L | 1 | 0.20 | 0.04 J1 | GES | 02/15/2023 09:47 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 3.62 pCi/L | 0.36 | 0.24 P1 | ST | 02/23/2023 12:42 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 86.8 % | | | | | |
| Radium-228 | 0.43 pCi/L | 0.19 | 0.63 | TTP | 02/22/2023 16:47 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 71.6 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



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Reissued

Job ID: 230470 Customer: Welsh Power Station Date Reported: 10/28/2023

Customer Sample ID: AD-13 (LF)

Customer Description:

Lab Number: 230470-004 Preparation:

Date Collected: 02/06/2023 12:03 EST Date Received: 02/13/2023 10:30 EST

Metals

| Parameter | Result Ur | nits Di | ilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|-----------|---------|---------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | 0.03 με | ξ/L | 1 | 0.10 | 0.02 J1 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 0.37 με | ξ/L | 1 | 0.10 | 0.03 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 70.8 µg | ξ/L | 1 | 0.20 | 0.05 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0.182 με | ξ/L | 1 | 0.050 | 0.007 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 1.02 m | g/L | 1 | 0.050 | 0.009 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.079 με | ξ/L | 1 | 0.020 | 0.004 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 16.5 m | g/L | 1 | 0.05 | 0.02 M1 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.41 με | g/L | 1 | 0.20 | 0.04 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 2.87 με | ξ/L | 1 | 0.020 | 0.003 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.08 με | g/L | 1 | 0.20 | 0.05 J1 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.0147 m | g/L | 1 | 0.00020 | 0.00005 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Magnesium | 6.32 m | g/L | 1 | 0.10 | 0.02 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | 2 ng | ţ/L | 1 | 5 | 2 J1 | JAB | 02/24/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | 0.2 με | ξ/L | 1 | 0.5 | 0.1 J1 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Potassium | 1.69 m | g/L | 1 | 0.10 | 0.02 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 0.39 με | ξ/L | 1 | 0.50 | 0.09 J1 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Sodium | 55.5 m | g/L | 1 | 0.20 | 0.05 M1 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Strontium | 0.198 m | g/L | 1 | 0.0020 | 0.0004 M1 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0.07 με | ξ∕L | 1 | 0.20 | 0.04 J1 | GES | 02/15/2023 10:44 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 2.33 pCi/L | 0.29 | 0.26 | ST | 02/23/2023 12:42 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 87.5 % | | | | | |
| Radium-228 | 1.22 pCi/L | 0.19 | 0.59 | ΠTP | 02/22/2023 16:47 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 68.7 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



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Audinet: 210-4221

Reissued

Customer: Welsh Power Station Job ID: 230470 Date Reported: 10/28/2023

Customer Sample ID: AD-14 (LF) **Customer Description:**

Lab Number: 230470-005 Preparation:

Date Collected: 02/06/2023 12:32 EST Date Received: 02/13/2023 10:30 EST

Metals

| Parameter | Result Uni | s Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|-------------|------------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | 0.03 μg/ | . 1 | 0.10 | 0.02 J1 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 0.25 μg/ | . 1 | 0.10 | 0.03 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 35.8 μg/ | . 1 | 0.20 | 0.05 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0.460 µg/ | . 1 | 0.050 | 0.007 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 1.06 mg/ | L 1 | 0.050 | 0.009 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.359 μg/ | . 1 | 0.020 | 0.004 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 9.63 mg/ | L 1 | 0.05 | 0.02 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.31 μg/ | . 1 | 0.20 | 0.04 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 4.17 μg/ | . 1 | 0.020 | 0.003 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.16 µg/ | . 1 | 0.20 | 0.05 J1 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.00940 mg/ | L 1 | 0.00020 | 0.00005 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Magnesium | 5.30 mg/ | L 1 | 0.10 | 0.02 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/ | . 1 | 5 | 2 U1 | JAB | 03/01/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | 0.2 μg/ | . 1 | 0.5 | 0.1 J1 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Potassium | 0.50 mg/ | L 1 | 0.10 | 0.02 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 3.24 µg/ | . 1 | 0.50 | 0.09 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Sodium | 34.4 mg/ | L 1 | 0.20 | 0.05 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Strontium | 0.178 mg/ | L 1 | 0.0020 | 0.0004 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0.06 µg/ | . 1 | 0.20 | 0.04 J1 | GES | 02/15/2023 10:59 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 0.82 pCi/L | 0.17 | 0.27 | ST | 02/23/2023 12:42 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 90.8 % | | | | | |
| Radium-228 | 2.25 pCi/L | 0.21 | 0.64 | TTP | 02/22/2023 16:47 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 72.5 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



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Reissued

Job ID: 230470 Customer: Welsh Power Station Date Reported: 10/28/2023

Customer Sample ID: AD-15 (PBAP) Customer Description:

Lab Number: 230470-006 Preparation:

Date Collected: 02/06/2023 10:57 EST Date Received: 02/13/2023 10:30 EST

Metals

| Parameter | Result Units | Dilution | RL | MDL Data Qualifier | s Analyst | Analysis Date | Method |
|------------|---------------------|----------|---------|--------------------|-----------|------------------|--------------------------|
| Antimony | <0.02 µg/L | 1 | 0.10 | 0.02 U1 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 3.26 µg/L | 1 | 0.10 | 0.03 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 73.9 µg/L | 1 | 0.20 | 0.05 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0. 1 62 μg/L | 1 | 0.050 | 0.007 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.174 mg/l | . 1 | 0.050 | 0.009 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.019 μg/L | 1 | 0.020 | 0.004 J1 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 2.70 mg/l | . 1 | 0.05 | 0.02 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.33 µg/L | 1 | 0.20 | 0.04 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 2.77 μg/L | 1 | 0.020 | 0.003 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0. 1 5 μg/L | 1 | 0.20 | 0.05 J1 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.00373 mg/l | . 1 | 0.00020 | 0.00005 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Magnesium | 3.54 mg/l | . 1 | 0.10 | 0.02 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | JAB | 03/01/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Potassium | 0.75 mg/l | . 1 | 0.10 | 0.02 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 0.45 μg/L | 1 | 0.50 | 0.09 J1 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Sodium | 24.9 mg/l | . 1 | 0.20 | 0.05 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Strontium | 0.0386 mg/l | . 1 | 0.0020 | 0.0004 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0.07 µg/L | 1 | 0.20 | 0.04 J1 | GES | 02/15/2023 11:04 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 0.61 pCi/L | 0.14 | 0.23 | ST | 02/23/2023 12:42 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 96.3 % | | | | | |
| Radium-228 | 1.16 pCi/L | 0.28 | 0.89 | ΠTP | 02/22/2023 16:47 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 59.6 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



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Reissued

Job ID: 230470 Customer: Welsh Power Station Date Reported: 10/28/2023

Customer Sample ID: DUPLICATE Customer Description:

Lab Number: 230470-007 Preparation:

Date Collected: 02/06/2023 10:15 EST Date Received: 02/13/2023 10:30 EST

Metals

| motalo | | | | | | | |
|------------|-------------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
| Antimony | 0.02 μg/L | 1 | 0.10 | 0.02 J1 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 0.61 μg/L | 1 | 0.10 | 0.03 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 29.3 μg/L | 1 | 0.20 | 0.05 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 1.26 µg/L | 1 | 0.050 | 0.007 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 1.22 mg/L | 1 | 0.050 | 0.009 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.310 μg/L | 1 | 0.020 | 0.004 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 16.1 mg/L | 1 | 0.05 | 0.02 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.61 μg/L | 1 | 0.20 | 0.04 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 13 .6 μg/L | 1 | 0.020 | 0.003 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 1.03 µg/L | 1 | 0.20 | 0.05 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.0224 mg/L | 1 | 0.00020 | 0.00005 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Magnesium | 10.2 mg/L | 1 | 0.10 | 0.02 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | 7 ng/L | 1 | 5 | 2 | JAB | 03/01/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | 0.1 μg/L | 1 | 0.5 | 0.1 J1 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Potassium | 2.19 mg/L | 1 | 0.10 | 0.02 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 1.44 µg/L | 1 | 0.50 | 0.09 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Sodium | 131 mg/L | 1 | 0.20 | 0.05 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Strontium | 0.251 mg/L | 1 | 0.0020 | 0.0004 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0.16 µg/L | 1 | 0.20 | 0.04 J1 | GES | 02/15/2023 11:09 | EPA 200.8-1994, Rev. 5.4 |
| | | | | | | | |



Reissued

Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 230470 Customer: Welsh Power Station Date Reported: 10/28/2023

Customer Sample ID: EQUIPMENT BLANK Customer Description:

Lab Number: 230470-008 Preparation:

Date Collected: 02/06/2023 12:14 EST Date Received: 02/13/2023 10:30 EST

Metals

| Parameter | Result U | Jnits | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|-----------|-------|----------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | <0.02 µ | ıg/L | 1 | 0.10 | 0.02 U1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | <0.03 µ | ıg/L | 1 | 0.10 | 0.03 U1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Barium | <0.05 µ | ıg/L | 1 | 0.20 | 0.05 U1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0.011 μ | ıg/L | 1 | 0.050 | 0.007 J1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.017 m | ng/L | 1 | 0.050 | 0.009 J1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | <0.004 µ | ıg/L | 1 | 0.020 | 0.004 U1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | <0.02 m | ng/L | 1 | 0.05 | 0.02 U1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.27 μ | ıg/L | 1 | 0.20 | 0.04 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 0.011 μ | ıg/L | 1 | 0.020 | 0.003 J1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.37 μ | ıg/L | 1 | 0.20 | 0.05 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.00008 m | ng/L | 1 | 0.00020 | 0.00005 J1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Magnesium | <0.02 m | ng/L | 1 | 0.10 | 0.02 U1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 n | ıg/L | 1 | 5 | 2 U1 | JAB | 03/01/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µ | ıg/L | 1 | 0.5 | 0.1 U1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Potassium | <0.02 m | ng/L | 1 | 0.10 | 0.02 U1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | <0.09 µ | ıg/L | 1 | 0.50 | 0.09 U1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Sodium | <0.05 m | ng/L | 1 | 0.20 | 0.05 U1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Strontium | <0.0004 m | ng/L | 1 | 0.0020 | 0.0004 U1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | <0.04 µ | ıg/L | 1 | 0.20 | 0.04 U1 | GES | 02/15/2023 11:14 | EPA 200.8-1994, Rev. 5.4 |

230470 Job Comments:

Report originally issued 3/10/23. Report reissued 10/28/23 to correct rounding errors on report and EDD.



Job ID: 230470

Water Analysis Report

Reissued

Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Customer: Welsh Power Station Date Reported: 10/28/2023

Report Verification

This report and the above data have been confirmed by the following analyst.

Michael Ohlinger, Chemist

Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

Muhael S. Ollinger

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Data Qualifer Legend

- U1 Not detected at or above method detection limit (MDL).
- J1 Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.
- M1 The associated matrix spike (MS) or matrix spike duplicate (MSD) recovery was outside acceptance limits.
- P1 The precision between duplicate results was above acceptance limits.

| Dolan Chemical Laboratory (DCL.) 4001 Bixby Road | | | | 0 | Chair | ı of C | Susto. | ર્ક્ટ્ર lain of Custody Record | ord | tol- | hasey | 2304701 Meh. S |
|--|----------------|----------------|--|----------------------|---------------|-----------------|---|---|----------------------------|------------------|---------------------------|--------------------------|
| Groveport, Ohio 43125 Jonathan Barnhill (318-673-3803) Contacts: Michael Ohlinger (614-876-4784) | | | | Prog | Program: 6 | Coal Com | mbustio | Coal Compustion Residuals (CCR) Site Contact | is (CCR |) Date: | - | For Lab Use Only: COV |
| Project Name Welsh Annual Screening | | | | | | 14 | | Field-filter 500 mL | 12 | Three (six every | | |
| Contact Name: Jill Parker-Witt | Analysis | Turnaround | Analysis Tumaround Time (in Calendar Days) | lendar Da | 375) | | | bottle, then pH<2, | bottle, Coot, | 10th*) | 0 mL (Н ,6115) (S) | 087087 |
| Contact Phone: (318) 673-3816 | | | | | | | HNO3 | HNO3 | 3,9-0 | pH<2, HNO3 | po | |
| Sampler(s): Matt Hamilton Kenny McDonald | | | | | | (S) (S) | o, Pb, | nM bas (| SO,, | -228 | | |
| Sample Identification | Sample Date | Sample Time | Sample Type (C=Comp, G=Grab) | Matrix | # of Cont. | Sampler(s) Init | B, Ca, Li, Sb, Be, Cd, Cr, C Mo, Se, TL and Na, K, M | dissolved Fe | TDS, F, CI, and Br, All | Ra-226, Ra | βн | Sample Specific Notes. |
| AD-8 (PBAP) | 2/6/2023 | 1028 | g | GW | 9 | | × | | × | × | × | |
| AD-9 (PBAP) | 2/6/2023 | 930 | ပ | GW | g | | × | | × | × | × | |
| AD-11 (LF) | 2/6/2023 | 1037 | g | ß | o) | | × | | × | × | × | |
| AD-13 (LF) | 2/6/2023 | 1103 | O | GW | ø | 1 | × | | × | × | × | |
| AD-14 (LF) | 2/6/2023 | 1132 | ŋ | GW | φ | | × | | × | × | × | |
| AD-15 (PBAP) | 2/6/2023 | 957 | ŋ | GW | ø | | × | | × | × | × | |
| DUPLICATE | 2/6/2023 | 915 | Ø | GW | m | | × | | × | | × | |
| EQUIPMENT BLANK | 2/6/2023 | 1114 | ŋ | AS O | 2 | | × | | | | × | |
| | | | | | 1 | + | | | | | | |
| | | | | | + | 1 | | | | | | |
| | | | | | + | + | | | | | | |
| | | | | | | | | | | | | |
| Preservation Used: 1* Ice, 2* HCI; 3* H2SO4; 4*HNO3; 5*NaOH; 6* Other Six 1L Bottles must be collected for Radium for every 10th sample. | HNO3; S=Na | Sample. | her | ; F= filter in field | ilter in f | pla | 4 | 7 | | 4 | 2 | |
| | | | | | | | | | | | | |
| Special Instructions/QC Requirements & Comments: | nts: | | | | | | | | | | | |
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| Relinquished by That Samillan | Company: | 77,8,7 | | Date/Time: 2/8/23 | l | 12co Re | Received by | | | | | Date/Time |
| | Company: | , | | Date/Time: | iei (| ď | Received by | | * | | | Date/Time |
| Relinquished by: | Company: | | | Date/Time: | je je | ď | Received in Labo | Laboratory by: | × | Jag To | | DaterTime; 2/9/2 10,30Am |
| Form COC-04, AEP Chain of Custody (COC) Record for Coal Combustion Residual (CCR) Sampling - Shreveport, Rev. 1 | ord for Coal | Combust | on Residu | I (CCR) | Samplir | ig - Shre | veport, Re | 2 | | 9 | 1 | Maffy - /2/24 10:30AM |
| | | | | | | | • | 3 | 3 | 335 | ١ / ١ | 17110117 |

THE WATER & WASTE SAMPLE RECEIPT FORM (Temp Gun 1)

| | | | 11/11 | d by | eweiv9Я |
|-------------------------------------|---|--|--|---------------|------------|
| | ufs: | Comme | C8N | <u>γ</u> γο | годдец р |
| : əmi | Date & T | & Isitinl | olho | 222 | #OldsJ |
| Contacted: | Person | It Yes: | Speriorited | nstomer co | Was the c |
| uts (See Prep Book) | Comme | W/Y | Spatsanb | filtration re | elgmas al |
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| str | Commer | $\overline{\mathcal{O}}$ | d properly? | | |
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Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 230430 Customer: Welsh Power Station Date Reported: 02/17/2023

Customer Sample ID: AD-8 (PBAP) Customer Description: TG-32

Lab Number: 230430-001 Preparation:

Date Collected: 02/06/2023 23:28 EST Date Received: 02/09/2023 10:30 EST

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Bromide | 0.11 mg/L | 2 | 0.10 | 0.02 | CRJ | 02/15/2023 23:27 | EPA 300.1 -1997, Rev. 1.0 |
| Chloride | 19.5 mg/L | 2 | 0.04 | 0.02 | CRJ | 02/15/2023 23:27 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.72 mg/L | 2 | 0.06 | 0.02 | CRJ | 02/15/2023 23:27 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 182 mg/L | 10 | 2.0 | 0.3 | CRJ | 02/15/2023 15:46 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|----------|----|---------------------|---------|------------------|---------------|
| Alkalinity, as CaCO3 | 10 mg/L | 1 | 20 | 5 J1 | MGK | 02/13/2023 12:10 | SM 2320B-2011 |
| TDS, Filterable Residue | 370 mg/L | 1 | 50 | 20 | SDW | 02/10/2023 10:00 | SM 2540C-2015 |

Customer Description: TG-32

Customer Sample ID: AD-9 (PBAP)

Lab Number: 230430-002 Preparation:

Date Collected: 02/06/2023 10:30 EST Date Received: 02/09/2023 10:30 EST

Ion Chromatography

| Parameter | Result Units [| Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|----------------|----------|------|---------------------|---------|------------------|---------------------------|
| Bromide | 0.20 mg/L | 2 | 0.10 | 0.02 | CRJ | 02/16/2023 01:38 | EPA 300.1 -1997, Rev. 1.0 |
| Chloride | 15.5 mg/L | 2 | 0.04 | 0.02 | CRJ | 02/16/2023 01:38 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.17 mg/L | 2 | 0.06 | 0.02 | CRJ | 02/16/2023 01:38 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 137 mg/L | 25 | 5.0 | 0.8 | CRJ | 02/15/2023 16:52 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|----------|----|---------------------|---------|------------------|---------------|
| Alkalinity, as CaCO3 | 6 mg/L | 1 | 20 | 5 J1 | MGK | 02/13/2023 12:10 | SM 2320B-2011 |
| TDS, Filterable Residue | 340 mg/L | 1 | 50 | 20 | SDW | 02/10/2023 10:10 | SM 2540C-2015 |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 230430 Customer: Welsh Power Station Date Reported: 02/17/2023

Customer Sample ID: AD-11 (LF)

Customer Description: TG-32

Lab Number: 230430-003 Preparation:

Date Collected: 02/06/2023 11:37 EST Date Received: 02/09/2023 10:30 EST

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Bromide | 0.35 mg/L | 2 | 0.10 | 0.02 | CRJ | 02/16/2023 02:11 | EPA 300.1 -1997, Rev. 1.0 |
| Chloride | 9.63 mg/L | 2 | 0.04 | 0.02 | CRJ | 02/16/2023 02:11 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.69 mg/L | 2 | 0.06 | 0.02 | CRJ | 02/16/2023 02:11 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 368 mg/L | 25 | 5.0 | 0.8 | CRJ | 02/15/2023 17:25 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|----------------|----------|----|---------------------|---------|------------------|---------------|
| Alkalinity, as CaCO3 | 11 mg/L | 1 | 20 | 5 J1 | MGK | 02/13/2023 12:10 | SM 2320B-2011 |
| TDS, Filterable Residue | 620 mg/L | 1 | 50 | 20 | SDW | 02/10/2023 10:10 | SM 2540C-2015 |

Customer Sample ID: AD-13 (LF)

Customer Description: TG-32

Lab Number: 230430-004 Preparation:

Date Collected: 02/06/2023 12:03 EST Date Received: 02/09/2023 10:30 EST

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Bromide | 0.08 mg/L | 2 | 0.10 | 0.02 J1 | CRJ | 02/16/2023 00:00 | EPA 300.1 -1997, Rev. 1.0 |
| Chloride | 4.85 mg/L | 2 | 0.04 | 0.02 | CRJ | 02/16/2023 00:00 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.39 mg/L | 2 | 0.06 | 0.02 | CRJ | 02/16/2023 00:00 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 138 mg/L | 10 | 2.0 | 0.3 | CRJ | 02/15/2023 17:58 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|----------|----|---------------------|---------|------------------|---------------|
| Alkalinity, as CaCO3 | 36 mg/L | 1 | 20 | 5 | MGK | 02/13/2023 12:10 | SM 2320B-2011 |
| TDS, Filterable Residue | 280 mg/L | 1 | 50 | 20 | SDW | 02/10/2023 10:16 | SM 2540C-2015 |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 230430 Customer: Welsh Power Station Date Reported: 02/17/2023

Customer Sample ID: AD-14 (LF)

Customer Description: TG-32

Lab Number: 230430-005 Preparation:

Date Collected: 02/06/2023 12:32 EST Date Received: 02/09/2023 10:30 EST

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Bromide | 0.03 mg/L | 2 | 0.10 | 0.02 J1 | CRJ | 02/16/2023 00:33 | EPA 300.1 -1997, Rev. 1.0 |
| Chloride | 1.77 mg/L | 2 | 0.04 | 0.02 | CRJ | 02/16/2023 00:33 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.15 mg/L | 2 | 0.06 | 0.02 | CRJ | 02/16/2023 00:33 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 89.6 mg/L | 2 | 0.40 | 0.06 | CRJ | 02/16/2023 00:33 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method | |
|-------------------------|--------------|----------|----|---------------------|---------|------------------|---------------|--|
| Alkalinity, as CaCO3 | 29 mg/L | 1 | 20 | 5 | MGK | 02/13/2023 12:10 | SM 2320B-2011 | |
| TDS, Filterable Residue | 230 mg/L | 1 | 50 | 20 | SDW | 02/10/2023 10:16 | SM 2540C-2015 | |

Customer Description: TG-32

Customer Sample ID: AD-15 (PBAP)

Lab Number: 230430-006 Preparation:

Date Collected: 02/06/2023 10:57 EST Date Received: 02/09/2023 10:30 EST

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Bromide | 0.86 mg/L | 2 | 0.10 | 0.02 | CRJ | 02/16/2023 03:50 | EPA 300.1 -1997, Rev. 1.0 |
| Chloride | 27.5 mg/L | 2 | 0.04 | 0.02 | CRJ | 02/16/2023 03:50 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.06 mg/L | 2 | 0.06 | 0.02 | CRJ | 02/16/2023 03:50 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 9.85 mg/L | 2 | 0.40 | 0.06 | CRJ | 02/16/2023 03:50 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| Parameter | Result Units I | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|----------------|----------|----|---------------------|---------|------------------|---------------|
| Alkalinity, as CaCO3 | 47 mg/L | 1 | 20 | 5 | MGK | 02/13/2023 12:10 | SM 2320B-2011 |
| TDS, Filterable Residue | 130 mg/L | 1 | 50 | 20 | SDW | 02/10/2023 10:28 | SM 2540C-2015 |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 230430 Customer: Welsh Power Station Date Reported: 02/17/2023

Customer Sample ID: DUPLICATE Customer Description: TG-32

Lab Number: 230430-007 Preparation:

Date Collected: 02/06/2023 10:15 EST Date Received: 02/09/2023 10:30 EST

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Bromide | 0.35 mg/L | 2 | 0.10 | 0.02 | CRJ | 02/16/2023 04:23 | EPA 300.1 -1997, Rev. 1.0 |
| Chloride | 9.70 mg/L | 2 | 0.04 | 0.02 | CRJ | 02/16/2023 04:23 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.70 mg/L | 2 | 0.06 | 0.02 | CRJ | 02/16/2023 04:23 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 376 mg/L | 25 | 5.0 | 0.8 | CRJ | 02/15/2023 20:09 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|----------------|----------|----|---------------------|---------|------------------|---------------|
| Alkalinity, as CaCO3 | 10 mg/L | 1 | 20 | 5 J1 | MGK | 02/13/2023 12:10 | SM 2320B-2011 |
| TDS, Filterable Residue | 630 mg/L | 1 | 50 | 20 | SDW | 02/10/2023 10:28 | SM 2540C-2015 |

Report Verification

This report and the above data have been confirmed by the following analyst.

Michael Ohlinger, Chemist

Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 230430 Customer: Welsh Power Station Date Reported: 02/17/2023

Data Qualifer Legend

J1 - Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

| | | COC/Order # | 230430 | | Sample Specific Notes: | | | | | | | | | | | | | | | Date/Time: | Date/Time: | Date/Time; 2/9/2 10,30Am | |
|---------------------------------|--|---|---|--|--|-------------|-------------|------------|------------|------------|--------------|-----------|-----------------|--|-----|--------|---|--|--|------------------|------------------|--|---|
| to | 72 | | 250 mL Glass bottle, HCL**, pH<2 | | вн | × | × | × | × | × | × | × | × | | | | 2 | | | | | | |
| 40V) | | Date: | Three (six every 10th") 1 L bottles, pH<2, HNO ₃ | 82Z-F | Ra-226, Ra | × | × | × | × | × | × | | 100 | | | | 4 | | | | | The state of the s | |
| ord | als (CCF | | 1 L bottle, Cool, 0-6°C | SO ₄ , | TDS, F, CI, and Br, All | /.× | ж | × | × | × | × | × | | | | | - 1 | | | | | ¥ 4 | |
| Chain of Custody Record | Coal Compustion Residuals (CCR) | | Field-filter 500 mL bottle, then pH<2, HNO ₃ | | Feriossip | | | | | | | | | | | | F4 | | | .A. | . y . | Received in Laboratory by: | Sampling - Shreveport, Rev. 1, 1/10/17 |
| Custo | ombusti | tact | 250 mL bottle, pH<2, HNO3 | ,o, Pb, | B, Ca, Li, Sb, Mo, Se, TL and Na, K, M | × | × | × | × | × | × | × | × | | | 8 | 4 | | | Received by: | Received by: | Received in | eveport, R |
| in of | Coal C | Site Con | | | Sampler(s) ini | | | | | | | | 20 | | | | field | | | 550 | | | ling - Shr |
| Cha | ram: | | r Days) | , (85 <u>- 52 </u> 1744) | # of Conf. | | 9 | ø | ø | ø | 9 | E | 2 | | | | = filter in field | | | Date/Time: | Date/Time: | Date/Time: | |
| | Prog | | Calenda | | p, Matrix | | Β | ΝS | ₩ B | δ | Ğ | GW | GW | | | |) F= (| | | Date/ | Date/ | Date/ | dual (CC |
| | | | Analysis Turnaround Time (in Calendar Days) | | Sample Type (C=Comp, | g | σ | Ø | O | O | g | ပ | თ | | | | Other | | | | | | tion Resid |
| | | | Turnaroui | | Sample Time | 1028 | 930 | 1037 | 1103 | 1132 | 957 | 915 | 1114 | | | 7700.0 | 3OH; 6= (| sample. | | 77 | 7 | | Combus |
| _ | | | Analysis | | Sample Date | 2/6/2023 | 2/6/2023 | 2/6/2023 | 2/6/2023 | 2/6/2023 | 2/6/2023 | 2/6/2023 | 2/6/2023 | | | | HN03; 5=N | r every 10th | ints: | Company: | Company: | Company: | ord for Coa |
| Dolan Chemical Laboratory (DCL) | 4001 Bixby Road Groveport, Ohio 43125 | Contacts: Michael Ohlinger (614-836-4184) | Project Name: Welsh Annual Screening Contact Name: Jill Parker-Witt Contact Phone: (318) 673-3816 | Sampler(s): Matt Hamilton Kenny McDonald | Sample Identification | AD-8 (PBAP) | AD-9 (PBAP) | AD-11 (LF) | AD-13 (LF) | AD-14 (LF) | AD-15 (PBAP) | DUPLICATE | EQUIPMENT BLANK | | 100 | | Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other | * Six 1L Bottles must be collected for Radium for every 10th sample. | Special instructions/QC Requirements & Comments: | Relinquished by: | Relinquished by: | Relinquished by: | Form COC-04, AEP Chain of Custody (COC) Record for Coal Combustion Residual (CCR) |

WATER & WASTE SAMPLE RECEIPT FORM (Temp Gun 1)

| Package Type Delivery Type |
|---|
| Cooler Box: Bag Envelope PONY UPS FedEX USPS |
| Other |
| Plant/Customer Wolfen Number of Plastic Containers: |
| Opened By WEKTTP Number of Glass Containers: |
| Date/Time 2923 Number of Mercury Containers: |
| Were all temperatures within 0-6°C? (Y) N or N/A Initial: MG on ice / no |
| ice (IR Gun Ser# 221358900, Expir. 3/22/2024) - If No, specify each deviation: |
| Was container in good condition? (y) / N Comments |
| Was Chain of Custody received? / N Comments |
| Requested turnaround: March 9, 23 If RUSH, who was notified? |
| pH (15 min) Cr ⁻⁶ (pres) NO₂ or NO₃ (48 hr) ortho-PO₄ (48 hr) Hg-diss (pres) (24 hr) (48 hr) |
| Was COC filled out properly? / YID Comments Metals and Radium were oncac but we |
| Were samples labeled properly? (V) N Comments |
| Were correct containers used? (Y)/ N Comments |
| Was pH checked & Color Coding done? (Y) N or N/A Initial & Date: TTY 2/9/23 |
| pH paper (circle one): MQuant.PN1.09535.0001,LOT# HC904495 [OR] Lab Rat,PN4861_LOT# X000RWDG21 |
| Was Add'l Preservative needed? Y N If Yes: By whom & when: (See Prep Book) |
| Is sample filtration requested? Y / N Comments (See Prep Book) |
| Was the customer contacted? If Yes: Person Contacted: |
| Lab ID# 230435 Initial & Date & Time : |
| Logged by Ms Comments: Metal Wete on Coc, but we did Not Received Them Yet, more |
| - Also Rollidm |
| Reviewed by 11 Talmoz |
| COC does not indicate TG-32 Requirement GIP |

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.

AEP- Dalan Chemical Laborator,

Sample Receipt Form SOP-7102

Page 1 cf.1



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Reissued

Job ID: 231716 Customer: Welsh Power Station Date Reported: 10/29/2023

Customer Sample ID: AD-1 Customer Description: TG-32

Lab Number: 231716-001 Preparation:

Date Collected: 06/06/2023 11:54 EDT Date Received: 06/09/2023 13:30 EDT

Metals

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|--------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | 0.041 μg/L | 1 | 0.100 | 0.008 J1 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 0.21 μg/L | 1 | 0.10 | 0.03 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 83.4 μg/L | 1 | 0.20 | 0.05 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 1.11 µg/L | 1 | 0.050 | 0.007 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.729 mg/L | 1 | 0.050 | 0.007 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.034 µg/L | 1 | 0.020 | 0.004 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 6.59 mg/L | 1 | 0.05 | 0.01 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.35 μg/L | 1 | 0.30 | 0.07 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 2.67 μg/L | 1 | 0.020 | 0.005 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.37 μg/L | 1 | 0.20 | 0.05 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.00805 mg/L | 1 | 0.00030 | 0.00007 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Magnesium | 3.20 mg/L | 1 | 0.100 | 0.006 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | 2 ng/L | 1 | 5 | 2 J1 | JAB | 06/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Potassium | 0.989 mg/L | 1 | 0.100 | 0.008 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 10.1 µg/L | 1 | 0.50 | 0.04 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Sodium | 35.5 mg/L | 1 | 0.20 | 0.01 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0.04 μg/L | 1 | 0.20 | 0.02 J1 | GES | 06/20/2023 09:43 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 0.46 pCi/L | 0.13 | 0.22 | TTP | 06/26/2023 15:15 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 90.8 % | | | | | |
| Radium-228 | 0.49 pCi/L | 0.16 | 0.54 | ST | 06/29/2023 13:45 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 77.0 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Reissued

Job ID: 231716 Customer: Welsh Power Station Date Reported: 10/29/2023

Customer Sample ID: AD-5 Customer Description: TG-32

Lab Number: 231716-002 Preparation:

Date Collected: 06/06/2023 10:00 EDT Date Received: 06/09/2023 13:30 EDT

Metals

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|--------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | 0.010 µg/L | 1 | 0.100 | 0.008 J1 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 4.30 μg/L | 1 | 0.10 | 0.03 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 45.5 μg/L | 1 | 0.20 | 0.05 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0.055 μg/L | 1 | 0.050 | 0.007 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.030 mg/L | 1 | 0.050 | 0.007 J1 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | <0.004 µg/L | 1 | 0.020 | 0.004 U1 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 26.5 mg/L | 1 | 0.05 | 0.01 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.24 μg/L | 1 | 0.30 | 0.07 J1 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 9.47 μg/L | 1 | 0.020 | 0.005 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Lead | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.106 mg/L | 1 | 0.00030 | 0.00007 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Magnesium | 9.62 mg/L | 1 | 0.100 | 0.006 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | JAB | 06/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Potassium | 2.69 mg/L | 1 | 0.100 | 0.008 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 0.06 µg/L | 1 | 0.50 | 0.04 J1 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Sodium | 25.4 mg/L | 1 | 0.20 | 0.01 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | <0.02 µg/L | 1 | 0.20 | 0.02 U1 | GES | 06/20/2023 09:48 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|------------------|--------------|-----------|----------------------|---------|----------------------|----------------------------|
| Radium-226 | 0.63 pCi/L | 0.16 | 0.22 | TTP | 06/26/2023 16:02 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 77.6 % | | | | | |
| Radium-228 | 1.09 pCi/L | 0.16 | 0.48 | ST | 06/29/2023 13:45 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 83.4 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



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Reissued

Job ID: 231716 Customer: Welsh Power Station Date Reported: 10/29/2023

Customer Sample ID: AD-17 Customer Description: TG-32

Lab Number: 231716-003 Preparation:

Date Collected: 06/06/2023 12:34 EDT Date Received: 06/09/2023 13:30 EDT

Metals

| Parameter | Result U | Jnits | Dilution | RL | MDL | Data Qualifiers | Analyst | Analysis Date | Method |
|------------|----------------|-------|----------|--------|--------|-----------------|---------|------------------|--------------------------|
| Antimony | <0.08 µ | ıg/L | 10 | 1.00 | 0.08 | U1 | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 1.1 μ | ıg/L | 10 | 1.0 | 0.3 | | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 1 9.6 μ | ıg/L | 10 | 2.0 | 0.5 | | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0.11 μ | ıg/L | 10 | 0.50 | 0.07 | J1 | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.10 m | ng/L | 10 | 0.50 | 0.07 | J1 | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | <0.04 µ | ıg/L | 10 | 0.20 | 0.04 | U1 | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 1 50 m | ng/L | 10 | 0.5 | 0.1 | | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 1.1 µ | ıg/L | 10 | 3.0 | 0.7 | J1 | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 36.8 µ | ıg/L | 10 | 0.20 | 0.05 | | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.7 μ | ıg/L | 10 | 2.0 | 0.5 | J1 | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.254 m | ng/L | 10 | 0.0030 | 0.0007 | | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Magnesium | 46.0 m | ng/L | 10 | 1.00 | 0.06 | | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | 3 n | ıg/L | 1 | 5 | 2 | J1 | JAB | 06/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <1 µ | ıg/L | 10 | 5 | 1 | U1 | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Potassium | 7.43 m | ng/L | 10 | 1.00 | 0.08 | | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 0.5 μ | ıg/L | 10 | 5.0 | 0.4 | J1 | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Sodium | 40.2 m | ng/L | 10 | 2.0 | 0.1 | | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | <0.2 µ | ıg/L | 10 | 2.0 | 0.2 | U1 | GES | 06/20/2023 09:53 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|------------------|--------------|-----------|----------------------|---------|----------------------|----------------------------|
| Radium-226 | 0.53 pCi/L | 0.14 | 0.24 | TTP | 06/26/2023 16:02 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 96.9 % | | | | | |
| Radium-228 | 0.89 pCi/L | 0.16 | 0.49 | ST | 06/29/2023 13:45 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 76.3 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



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Reissued

Job ID: 231716 Customer: Welsh Power Station Date Reported: 10/29/2023

Customer Sample ID: DUPLICATE - BACKGROUND Customer Description: TG-32

Lab Number: 231716-004 Preparation:

Date Collected: 06/06/2023 13:00 EDT Date Received: 06/09/2023 13:30 EDT

Metals

| Metals | | | | | | | |
|------------|------------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
| Antimony | 0.033 μg/L | 1 | 0.100 | 0.008 J1 | GES | 06/20/2023 09:59 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 0.20 μg/L | 1 | 0.10 | 0.03 | GES | 06/20/2023 09:59 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 86.5 μg/L | 1 | 0.20 | 0.05 | GES | 06/20/2023 09:59 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 1.10 µg/L | 1 | 0.050 | 0.007 | GES | 06/20/2023 09:59 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.768 mg/L | 1 | 0.050 | 0.007 | GES | 06/20/2023 09:59 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.033 μg/L | 1 | 0.020 | 0.004 | GES | 06/20/2023 09:59 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 6.99 mg/L | 1 | 0.05 | 0.01 | GES | 06/20/2023 09:59 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.31 μg/L | 1 | 0.30 | 0.07 | GES | 06/20/2023 09:59 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 2.88 μg/L | 1 | 0.020 | 0.005 | GES | 06/20/2023 09:59 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.53 μg/L | 1 | 0.20 | 0.05 | GES | 06/20/2023 09:59 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.00790 mg/L | 1 | 0.00030 | 0.00007 | GES | 06/20/2023 09:59 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | JAB | 06/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 06/20/2023 09:59 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 10.1 μg/L | 1 | 0.50 | 0.04 | GES | 06/20/2023 09:59 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0.04 µg/L | 1 | 0.20 | 0.02 J1 | GES | 06/20/2023 09:59 | EPA 200.8-1994, Rev. 5.4 |



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Reissued

Job ID: 231716 Customer: Welsh Power Station Date Reported: 10/29/2023

Customer Sample ID: EB - BACKGROUND Customer Description: TG-32

Lab Number: 231716-005 Preparation:

Date Collected: 06/06/2023 12:25 EDT Date Received: 06/09/2023 13:30 EDT

Metals

| Motals | | | | | | | |
|------------|---------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
| Antimony | <0.008 µg/L | 1 | 0.100 | 0.008 U1 | GES | 06/20/2023 10:04 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | <0.03 µg/L | 1 | 0.10 | 0.03 U1 | GES | 06/20/2023 10:04 | EPA 200.8-1994, Rev. 5.4 |
| Barium | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 06/20/2023 10:04 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | <0.007 µg/L | 1 | 0.050 | 0.007 U1 | GES | 06/20/2023 10:04 | EPA 200.8-1994, Rev. 5.4 |
| Boron | <0.007 mg/L | 1 | 0.050 | 0.007 U1 | GES | 06/20/2023 10:04 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | <0.004 µg/L | 1 | 0.020 | 0.004 U1 | GES | 06/20/2023 10:04 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 0.02 mg/L | 1 | 0.05 | 0.01 J1 | GES | 06/20/2023 10:04 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.26 µg/L | 1 | 0.30 | 0.07 J1 | GES | 06/20/2023 10:04 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 0.033 µg/L | 1 | 0.020 | 0.005 | GES | 06/20/2023 10:04 | EPA 200.8-1994, Rev. 5.4 |
| Lead | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 06/20/2023 10:04 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | <0.00007 mg/L | 1 | 0.00030 | 0.00007 U1 | GES | 06/20/2023 10:04 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | JAB | 06/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 06/20/2023 10:04 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | <0.04 µg/L | 1 | 0.50 | 0.04 U1 | GES | 06/20/2023 10:04 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | <0.02 µg/L | 1 | 0.20 | 0.02 U1 | GES | 06/20/2023 10:04 | EPA 200.8-1994, Rev. 5.4 |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221

Audinet: 210-4221

Reissued

Customer: Welsh Power Station Date Reported: 10/29/2023 Job ID: 231716

Customer Sample ID: FIELD BLANK - BACKGROUND Customer Description: TG-32

Lab Number: 231716-006 Preparation:

Date Received: 06/09/2023 13:30 EDT Date Collected: 06/06/2023 12:22 EDT

Metals

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|---------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | <0.008 µg/L | 1 | 0.100 | 0.008 U1 | GES | 06/20/2023 10:09 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | <0.03 µg/L | 1 | 0.10 | 0.03 U1 | GES | 06/20/2023 10:09 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 0.07 μg/L | 1 | 0.20 | 0.05 J1 | GES | 06/20/2023 10:09 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0.020 µg/L | 1 | 0.050 | 0.007 J1 | GES | 06/20/2023 10:09 | EPA 200.8-1994, Rev. 5.4 |
| Boron | <0.007 mg/L | 1 | 0.050 | 0.007 U1 | GES | 06/20/2023 10:09 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | <0.004 µg/L | 1 | 0.020 | 0.004 U1 | GES | 06/20/2023 10:09 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 0.02 mg/L | 1 | 0.05 | 0.01 J1 | GES | 06/20/2023 10:09 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.27 µg/L | 1 | 0.30 | 0.07 J1 | GES | 06/20/2023 10:09 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 0.037 µg/L | 1 | 0.020 | 0.005 | GES | 06/20/2023 10:09 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.22 µg/L | 1 | 0.20 | 0.05 | GES | 06/20/2023 10:09 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | <0.00007 mg/L | 1 | 0.00030 | 0.00007 U1 | GES | 06/20/2023 10:09 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | JAB | 06/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 06/20/2023 10:09 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | <0.04 µg/L | 1 | 0.50 | 0.04 U1 | GES | 06/20/2023 10:09 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | <0.02 µg/L | 1 | 0.20 | 0.02 U1 | GES | 06/20/2023 10:09 | EPA 200.8-1994, Rev. 5.4 |

Radiochemistry

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 0.36 pCi/L | 0.11 | 0.19 | TTP | 06/26/2023 16:02 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 96.9 % | | | | | |
| Radium-228 | -0.20 pCi/L | 0.12 | 0.42 | ST | 06/29/2023 13:45 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 93.5 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

231716 **Job Comments:**

Report originally issued 7/7/23. Report reissued 10/29/23 to correct rounding errors on report and EDD.



Reissued

Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 231716 Customer: Welsh Power Station Date Reported: 10/29/2023

Report Verification

This report and the above data have been confirmed by the following analyst.

Michael Ohlinger, Chemist

 Email:
 msohlinger@aep.com

 Phone:
 614-836-4184

 Audinet:
 8-210-4184

Muhael S. Ollinger

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Data Qualifer Legend

- J1 Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.
- U1 Not detected at or above method detection limit (MDL).

Chain of Custody Record

Dolan Chemical Laboratory (DCL) 4001 Bixby Road

| Groveport, Ohio 43125 | | | | Prog | ıram: | Coal Co | smbustio | Program: Coal Combustion Residuals (CCR) | ils (CCR | _ | | | | |
|--|----------------|---------------------|--|-------------|---------------|----------------|--|---|----------------------------------|---|---|-----------|------------------------|---|
| Confacts: annual Obligace (A44 098 4404) | | | | | | Site Contact: | act: | | | Date: | | Ö | For Lab Use Only: | M |
| Project Name: Welsh Background Contact Name: Rebecca Jones Contact Phone: (737) 330-3725 | Analysis | Tumarounc Routin | Analysis Turnaround Time (in Calendar Days) Routine (28 days) | elendar D | ays. | | 250 mL bottle, pH<2, HNO ₃ | Field-filter 500 mL bottle, then pH<2, HNO ₃ | t L bottle, Cool, 0-6°C | Three (six every 10th*) 1 L bottles, pH<2, HNO, | 125 mL PTFE lined bottle, HCL**, pH<2 | | 231716 | |
| Sampler(s): Matt Hamilton Kenny McDonald | | =" | 2 | | | 11 | , 48, 84, ,dq ,o; | uM bas s | 'os | 822-8 | | | | |
| Sample Identification | Sample Date | Sample Time | Sample Type (C=Comp, G=Grab) | Matrix | # of Cont. | Sampler(s) Inl | B, 6a, Li, 5b, Be, Cd, Cr, 7 Mo, Se, Tt | -T beviossib | , F, CI, | Ka-226, Ra | 6н / | | Sample Specific Notes: | |
| AD-1 | 6/6/2023 | 1054 | တ | ВW | 8 | | × | | | × | × | Rot | Routine (28 days) | |
| AD-5 | 6/6/2023 | 900 | တ | ВW | 25 | | × | | | × | × | ρ̈́ | TG-32 needed | |
| AD-17 | 6/8/2023 | 1134 | ဟ | ВW | 2 | | × | | | × | × | | | T |
| DUPLICATE - BACKGROUND | 6/6/2023 | 1200 | တ | S. | 2 | | × | | | | × | 1 | | T |
| EQUIPMENT BLANK - BACKGROUND | 6/6/2023 | 1125 | Ø | QW | 2 | 1 | × | | | | × | + | | |
| FIELD BLANK - BACKGROUND | 6/6/2023 | 1122 | Ø | 8 B | ıo | | × | | | × | × | 1 | | T |
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| | | 1000 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | П |
| | | | | | | | | | | | | \exists | | ٦ |
| Preservation Used: 1a Ice. 2= HCl: 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other | HNO3: 5=Ng | 10H: 6= 0 | ther | ; F= filter | filter in | in field | 4 | 7 | - | 4 | 2 | | | |
| | | | | | | | | | | | | | | |

* Six 1L Bottles must be collected for Radium for every 10th sample.

Special Instructions/QC Requirements & Comments:

| Relinquished by | Company Fack | Date/Time: 1/c. Received by. | Received by: | Daterrime |
|--|--------------------------------|------------------------------|---------------------------|---------------|
| Relinquished by: | Company: | Date/Time: | Received by: | Date/Time |
| Relinquished by: | Company: | Date/Time: | Reoding In Laboration by | 6/4/23 1:30PM |
| Form COC-04, AEP Chain of Custody (COC) Record for Coal Combustion Residual (CCR) Sampling - Shreveport, Rev. 1, 1/10/17 | ord for Coal Combustion Residu | ıal (CCR) Sampling - Shi | reveport, Rev. 1, 1/10/17 | |

MATER & WASTE SAMPLE RECEIPT FORM

| Package Type | Delivery Type |
|---|---|
| Coole Box Bag Envelope | PONY UPS FEEDEX USPS |
| | Other |
| Plant/Customer Welsh | Number of Plastic Containers: |
| Opened By M50/MCH | Number of Glass Containers: |
| Date/Time 6/9/23 1/309 M | Number of Mercury Containers: |
| Were all temperatures within 0-6°C? Y / N | or(N/) Initial:on ice / no ice |
| | 4) - If No, specify each deviation: |
| Was container in good condition? | Comments |
| | Comments |
| Requested turnaround:kouhiku | If RUSH, who was notified? |
| pH (15 min) Cr⁴6 (pres) NO₂ or N (24 hr) | IO ₃ (48 hr) ortho-PO ₄ (48 hr) Hg-diss (pres) (48 hr) |
| Was COC filled out property? | Comments |
| Were samples labeled property? (Y)/ N | Comments |
| Were correct containers used? \(\textstyle / N \) | Comments |
| | IN or N/A Initial & Date: Mark 6/9/73 |
| pH paper (circle one): MQuant,PN1.09535.0001,LC | OT#[OR]_Lab Rat,PN4801,LOT#X000RW0G21 Exp 11/15/2024 |
| - Was Add'l Preservative needed? Y (1) If | Yes: By whom & when: (See Prep Book) |
| Is sample filtration requested? Y /N | Comments (See Prep Book) |
| Was the customer contacted? If Yes: | Person Contacted: |
| Lab ID# | Date & Time : |
| Logged by MGC Commer Life Reviewed by | ots: Missing HD-17 Raylum Cly from Missing cooler Ted Ex 72376474227 |
| Reviewed by | Missing sumple arrived 6/12/23 Msungle |

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.

Municipal Solid Waste Laboratory Review Checklist

| This da | ata pack | tage consists of: |
|--|---|--|
| X | (which | gnature page, and the laboratory review checklist consisting of Table 1, Reportable Data includes the reportable data identified on this page), Table 2, Supporting Data, and Exception Reports. |
| х | R1 | Field chain-of-custody documentation |
| x | R2 | Sample identification cross-reference |
| x | R3 | Test reports (analytical data sheets) for each environmental sample that includes: (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard (b) Dilution factors (c) Preparation methods (d) Cleanup methods (e) If required for the project, tentatively identified compounds (TICs) |
| , NA | R4 | Surrogate recovery data including: (a) Calculated recovery (%R) (b) The laboratory's surrogate QC limits |
| × | R ₅ | Test reports/summary forms for blank samples |
| X | R6 | Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts (b) Calculated %R for each analyte (c) The laboratory's LCS QC limits |
| X | R7 | Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) Samples associated with the MS/MSD clearly identified (b) MS/MSD spiking amounts (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples (d) Calculated %Rs and relative percent differences (RPDs) (e) The laboratory's MS/MSD QC limits |
| X | R8 | Laboratory analytical duplicate (if applicable) recovery and precision: (a) The amount of analyte measured in the duplicate (b) The calculated RPD (c) The laboratory's QC limits for analytical duplicates |
| x | R9 | List of method quantitation limits (MQLs) for each analyte for each method and matrix |
| x | R10 | Other problems or anomalies |
| х | | sception Report for every item for which the result is "No" or "NR" (Not Reviewed) |
| packag require reports by the | se Stat ge as be ements s. By m laborat | ement: I am responsible for the release of this laboratory data package. This data en reviewed by the laboratory and is complete and technically compliant with the of the methods used, except where noted by the laboratory in the attached exception y signature below, I affirm to the best of my knowledge, all problems/anomalies, observed tory as having the potential to affect the quality of the data, have been identified by the the Laboratory Review Checklist, and no information or data have been knowingly withheld |
| | | ect the quality of the data. |
| respon used is | ding to | rule. This laboratory is an in-house laboratory controlled by the person rule. The official signing the cover page of the rule-required report in which these data are sible for releasing this data package and is by signature affirming the above release rue. |
| Susai | ny Ju | damann Signature Shirt 6.20-23 Official Title Date |
| Name | (printed | d) Signature Official Title Date |

Table 1. Reportable Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh

Reviewer Name: Becky Podlasiak

LRC Date: 6/19/2023

Laboratory Job Number: 231716

Prep Batch Number(s): PB23061503

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| R1 | O, I | Chain-of-custody (COC) | | |
| | I | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | Yes | |
| | I | Were all departures from standard conditions described in an exception report? | Yes | |
| R2 | O, I | Sample and quality control (QC) identification | | |
| | I | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | Yes | |
| | I | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | Yes | |
| R3 | O, I | Test reports | | |
| ! | I | Were all samples prepared and analyzed within holding times? | Yes | |
| | I | Other than those results < MQL, were all other raw values bracketed by calibration standards? | Yes | |
| = 1 | I | Were calculations checked by a peer or supervisor? | Yes | |
| | 1 | Were all analyte identifications checked by a peer or supervisor? | Yes | |
| | I | Were sample quantitation limits reported for all analytes not detected? | Yes | |
| | I | Were all results for soil and sediment samples reported on a dry weight basis? | NA | |
| | I | Was % moisture (or solids) reported for all soil and sediment samples? | NA | |
| | I | If required for the project, TICs reported? | NA | |
| R4 | 0 | Surrogate recovery data | | |
| | I | Were surrogates added prior to extraction? | NA | |
| | I | Were surrogate percent recoveries in all samples within the laboratory QC limits? | NA | |
| R5 | Ο, Ι | Test reports/summary forms for blank samples | | |
| | I | Were appropriate type(s) of blanks analyzed? | Yes | |
| | I | Were blanks analyzed at the appropriate frequency? | Yes | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|---------|-----------------------|---|---|-----------------------------|
| | I | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures? | Yes | |
| | I | Were blank concentrations < MQL? | Yes | |
| R6 | O, I | Laboratory control samples (LCS): | | |
| | I | Were all COCs included in the LCS? | Yes | |
| | I | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | Yes | |
| | I | Were LCSs analyzed at the required frequency? | Yes | |
| | I | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | Yes | |
| <u></u> | I | Was the LCSD RPD within QC limits? | Yes | |
| R7 | O, I | Matrix spike (MS) and matrix spike duplicate (MSD) data | | |
| | I | Were the project/method specified analytes included in the MS and MSD? | Yes | |
| | I | Were MS/MSD analyzed at the appropriate frequency? | Yes | |
| | I | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | NA | |
| | I | Were MS/MSD RPDs within laboratory QC limits? | NA | |
| R8 | O, I | Analytical duplicate data | | |
| | I | Were appropriate analytical duplicates analyzed for each matrix? | Yes | |
| | I | Were analytical duplicates analyzed at the appropriate frequency? | Yes | |
| | I | Were RPDs or relative standard deviations within the laboratory QC limits? | Yes | |
| R9 | O, I | Method quantitation limits (MQLs): | | |
| | I | Are the MQLs for each method analyte included in the laboratory data package? | Yes | |
| | I | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | Yes | |
| | Ī | Are unadjusted MQLs included in the laboratory data package? | Yes | |
| R10 | O, I | Other problems/anomalies | | |
| | I | Are all known problems/anomalies/special conditions noted in this LRC and ER? | Yes | |
| | I | Were all necessary corrective actions performed for the reported data? | Yes | |
| | I | Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results? | Yes | |

Table 2. Supporting Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh

Reviewer Name: Becky Podlasiak

LRC Date: 6/19/2023

Laboratory Job Number: 231716

Prep Batch Number(s): PB23061503

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|--|--|-----------------------------|
| S1 | O, I | Initial calibration (ICAL) | | |
| | I | Were response factors and/or relative response factors for each analyte within QC limits? | NA | |
| | I | Were percent RSDs or correlation coefficient criteria met? | Yes | |
| | I | Was the number of standards recommended in the method used for all analytes? | Yes | |
| | I | Were all points generated between the lowest and highest standard used to calculate the curve? | Yes | |
| | I | Are ICAL data available for all instruments used? | Yes | |
| | I | Has the initial calibration curve been verified using an appropriate second source standard? | Yes | |
| S2 | О, І | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | |
| | I | Was the CCV analyzed at the method-required frequency? | Yes | |
| | Ī | Were percent differences for each analyte within the method-required QC limits? | Yes | |
| | I | Was the ICAL curve verified for each analyte? | Yes | |
| | I | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | No | ER1 |
| S3 | 0 | Mass spectral tuning: | | |
| | I | Was the appropriate compound for the method used for tuning? | NA | |
| | I | Were ion abundance data within the method-required QC limits? | NA | : |
| S4 | 0 | Internal standards (IS): | | |
| | I | Were IS area counts and retention times within the method-required QC limits? | NA | |
| S5 | O, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | |
| | I | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | Yes | |
| | I | Were data associated with manual integrations flagged on the raw data? | NA | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ |
|------------|-----------------------|--|--|---|
| S6 | 0 | Dual column confirmation | | |
| | I | Did dual column confirmation results meet the method-required QC? | NA | |
| S 7 | 0 | Tentatively identified compounds (TICs): | | |
| | I | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | NA | |
| S8 | I | Interference Check Sample (ICS) results: | | |
| | I | Were percent recoveries within method QC limits? | NA | |
| S9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | |
| | I | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | NA | |
| S10 | O, I | Method detection limit (MDL) studies | | |
| | I | Was a MDL study performed for each reported analyte? | Yes | |
| | I | Is the MDL either adjusted or supported by the analysis of DCSs? | Yes | |
| S11 | O, I | Proficiency test reports: | | |
| | I | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | Yes | |
| S12 | O, I | Standards documentation | | - " |
| | I | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | Yes | |
| S13 | 0, 1 | Compound/analyte identification procedures | | |
| | I | Are the procedures for compound/analyte identification documented? | Yes | |
| S14 | O, I | Demonstration of analyst competency (DOC) | | |
| | I | Was DOC conducted consistent with NELAC Chapter 5C? | Yes | |
| | I | Is documentation of the analyst's competency up-to- date and on file? | Yes | |
| S15 | O, I | Verification/validation documentation for methods (NELAC Chap 5n 5) | | N |
| | I | Are all the methods used to generate the data documented, verified, and validated, where applicable? | Yes | |
| S16 | O, I | Laboratory standard operating procedures (SOPs): | | |
| | I | Are laboratory SOPs current and on file for each method performed? | Yes | |

Table 3. Exception Reports.

| Laboratory Name: | American Electric Power Dolan Chemical Laboratory |
|-------------------|---|
| Project Name: We | lsh |
| Reviewer Name: B | ecky Podlasiak |
| LRC Date: 6/19/20 | |
| Laboratory Job Nu | mber: 231716 |
| Prep Batch Number | |

| Exception Report No. | Description |
|----------------------|--|
| ER1 | CCB acceptance criteria is CCB <mql.< th=""></mql.<> |
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¹ Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

² O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

³ NA - Not applicable; NR - Not reviewed.

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

Municipal Solid Waste Laboratory Review Checklist

| This da | ata pack | tage consists of | : | | | | |
|--|--|--|--|--|---|--|--|
| | (which | | eportable data ident | eview checklist consisting of T tified on this page), Table 2, Su | | | |
| | R1 | Field chain-of | -custody document | ation | | | |
| | R2 | Sample identif | fication cross-refere | ence | | | |
| | R3 Test reports (analytical data sheets) for each environmental sample that includes: (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 20 NELAC Standard (b) Dilution factors (c) Preparation methods (d) Cleanup methods (e) If required for the project, tentatively identified compounds (TICs) | | | | | | |
| | R4 | (a) Calculate | overy data including d recovery (%R) atory's surrogate Q | | | | |
| П | R5 | | ummary forms for | | | | |
| | R6 | Test reports/s (a) LCS spiki (b) Calculated | ummary forms for | laboratory control samples (LC | CSs) including: | | |
| | R7 | (a) Samples a(b) MS/MSD(c) Concentra(d) Calculate | associated with the spiking amounts ation of each MS/M | ike/matrix spike duplicates (M MS/MSD clearly identified ISD analyte measured in the pa percent differences (RPDs) C limits | - | | |
| | R8 | (a) The amou | unt of analyte meas lated RPD | f applicable) recovery and predured in the duplicate ranalytical duplicates | cision: | | |
| | R9 | List of method | l quantitation limits | s (MQLs) for each analyte for e | each method and matrix | | |
| | R10 | Other problem | ns or anomalies | | | | |
| | The Ex | ception Report | t for every item for | which the result is "No" or "NF | R" (Not Reviewed) | | |
| packag require reports by the laborat that we Check respon used is | ge as be ements s. By m laborat tory in t ould aff a, if app dding to | en reviewed by of the methods y signature beltory as having the Laboratory ect the quality of rule. The officiasible for release | the laboratory and used, except where low, I affirm to the he potential to affect Review Checklist, a of the data. This laboratory is an al signing the cover | release of this laboratory data is complete and technically conted by the laboratory in the best of my knowledge, all probet the quality of the data, have and no information or data have in-house laboratory controlled page of the rule-required repose and is by signature affirming | ompliant with the e attached exception clems/anomalies, observed been identified by the re been knowingly withheld ed by the person ort in which these data are | | |
| Name | (printed | d) | Signature | Official Title | Date | | |

Table 1. Reportable Data.

| Laboratory Name: | |
|------------------------|--|
| Project Name: | |
| Reviewer Name: | |
| LRC Date: | |
| Laboratory Job Number: | |
| Prep Batch Number(s): | |

| I tem ¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|--------------------|-----------------------|---|---|-----------------------------|
| R1 | O, I | Chain-of-custody (COC) | | |
| | | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | | |
| | | Were all departures from standard conditions described in an exception report? | | |
| R2 | O, I | Sample and quality control (QC) identification | | |
| | | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | | |
| | | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | | |
| R3 | O, I | Test reports | | |
| | | Were all samples prepared and analyzed within holding times? | | |
| | | Other than those results < MQL, were all other raw values bracketed by calibration standards? | | |
| | | Were calculations checked by a peer or supervisor? | | |
| | | Were all analyte identifications checked by a peer or supervisor? | | |
| | | Were sample quantitation limits reported for all analytes not detected? | | |
| | | Were all results for soil and sediment samples reported on a dry weight basis? | | |
| | | Was % moisture (or solids) reported for all soil and sediment samples? | | |
| | | If required for the project, TICs reported? | | |
| R4 | 0 | Surrogate recovery data | | |
| | | Were surrogates added prior to extraction? | | |
| | | Were surrogate percent recoveries in all samples within the laboratory QC limits? | | |
| R5 | Ο, Ι | Test reports/summary forms for blank samples | | |
| | | Were appropriate type(s) of blanks analyzed? | | |
| | | Were blanks analyzed at the appropriate frequency? | | |

| I tem ¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ |
|--------------------|-----------------------|---|---|---|
| | | Were method blanks taken through the entire analytical process, including preparation and, if applicable, | | |
| | | cleanup procedures? | | |
| | | Were blank concentrations < MQL? | | |
| R6 | O, I | Laboratory control samples (LCS): | | |
| | | Were all COCs included in the LCS? | | |
| | | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | | |
| | | Were LCSs analyzed at the required frequency? | | |
| | | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | | |
| | | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | | |
| | | Was the LCSD RPD within QC limits? | | |
| R7 | O, I | Matrix spike (MS) and matrix spike duplicate (MSD) data | | |
| | | Were the project/method specified analytes included in the MS and MSD? | | |
| | | Were MS/MSD analyzed at the appropriate frequency? | | |
| | | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | | |
| | | Were MS/MSD RPDs within laboratory QC limits? | | |
| R8 | O, I | Analytical duplicate data | | |
| | | Were appropriate analytical duplicates analyzed for each matrix? | | |
| | | Were analytical duplicates analyzed at the appropriate frequency? | | |
| | | Were RPDs or relative standard deviations within the laboratory QC limits? | | |
| R9 | O, I | Method quantitation limits (MQLs): | | |
| | | Are the MQLs for each method analyte included in the laboratory data package? | | |
| | | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | | |
| | | Are unadjusted MQLs included in the laboratory data package? | | |
| R10 | O, I | Other problems/anomalies | | |
| - | , | Are all known problems/anomalies/special conditions noted in this LRC and ER? | | |
| | | Were all necessary corrective actions performed for the reported data? | | |
| | | Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results? | | |

Table 2. Supporting Data.

| Laboratory Name: | |
|--------------------------|--|
| Project Name: | |
| Reviewer Name: | |
| LRC Date: | |
| Laboratory Job Number: _ | |
| Prep Batch Number(s): | |

| Item ¹ Analytes ² | | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ | |
|---|------|--|--|---|--|
| | | Initial calibration (ICAL) | | | |
| | | Were response factors and/or relative response factors for each analyte within QC limits? | | | |
| | | Were percent RSDs or correlation coefficient criteria met? | | | |
| | | Was the number of standards recommended in the method used for all analytes? | | | |
| | | Were all points generated between the lowest and highest standard used to calculate the curve? | | | |
| | | Are ICAL data available for all instruments used? | | | |
| | | Has the initial calibration curve been verified using an appropriate second source standard? | | | |
| S2 | O, I | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | | |
| | | Was the CCV analyzed at the method-required frequency? | | | |
| | | Were percent differences for each analyte within the method-required QC limits? | | | |
| | | Was the ICAL curve verified for each analyte? | | | |
| | | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | | | |
| S3 | 0 | Mass spectral tuning: | | | |
| | | Was the appropriate compound for the method used for tuning? | | | |
| | | Were ion abundance data within the method-required QC limits? | | | |
| S4 | 0 | Internal standards (IS): | | | |
| | | Were IS area counts and retention times within the method-required QC limits? | | | |
| S5 | O, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | | |
| | | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | | | |
| | | Were data associated with manual integrations flagged on the raw data? | | | |

| Item ¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------------------|-----------------------|--|--|-----------------------------|
| S6 | 0 | Dual column confirmation | | |
| | | Did dual column confirmation results meet the method-required QC? | | |
| S7 | 0 | Tentatively identified compounds (TICs): | | |
| | | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | | |
| S8 | I | Interference Check Sample (ICS) results: | | |
| | | Were percent recoveries within method QC limits? | | |
| S9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | |
| | | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | | |
| S10 | O, I | Method detection limit (MDL) studies | | |
| | | Was a MDL study performed for each reported analyte? | | |
| | | Is the MDL either adjusted or supported by the analysis of DCSs? | | |
| S11 | O, I | Proficiency test reports: | | |
| | | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | | |
| S12 | O, I | Standards documentation | | |
| | | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | | |
| S13 | O, I | Compound/analyte identification procedures | | |
| | | Are the procedures for compound/analyte identification documented? | | |
| S14 | O, I | Demonstration of analyst competency (DOC) | | |
| | | Was DOC conducted consistent with NELAC Chapter 5C? | | |
| | | Is documentation of the analyst's competency up-to-date and on file? | | |
| S15 | O, I | Verification/validation documentation for methods (NELAC Chap 5n 5) | | |
| | | Are all the methods used to generate the data documented, verified, and validated, where applicable? | | |
| S16 | O, I | Laboratory standard operating procedures (SOPs): | | |
| | | Are laboratory SOPs current and on file for each method performed? | | |

Table 3. Exception Reports.

| Laboratory Name: | |
|-----------------------|--|
| Project Name: | |
| Reviewer Name: | |
| LRC Date: | |
| | |
| Prep Batch Number(s): | |

| Exception Report No. | Description |
|-------------------------|-------------|
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¹ Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

² O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

³ NA - Not applicable; NR - Not reviewed.

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."



Reissued

Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 231719 Customer: Welsh Power Station Date Reported: 10/29/2023

Customer Sample ID: AD-8 Customer Description: TG-32

Lab Number: 231719-001 Preparation:

Date Collected: 06/05/2023 10:13 EDT Date Received: 06/09/2023 13:30 EDT

Metals

| Parameter | Result Units | Dilution | RL | MDL Data Qualifier | s Analyst | Analysis Date | Method |
|------------|-------------------|----------|---------|--------------------|-----------|------------------|--------------------------|
| Antimony | 0.012 μg/L | 1 | 0.100 | 0.008 J1 | GES | 06/20/2023 12:23 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 0.24 μg/L | 1 | 0.10 | 0.03 | GES | 06/20/2023 12:23 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 25.9 μg/L | 1 | 0.20 | 0.05 | GES | 06/20/2023 12:23 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0.011 μg/L | 1 | 0.050 | 0.007 J1 | GES | 06/20/2023 12:23 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.932 mg/L | 1 | 0.050 | 0.007 | GES | 06/20/2023 12:23 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.020 μg/L | 1 | 0.020 | 0.004 | GES | 06/20/2023 12:23 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 19.3 mg/L | 1 | 0.05 | 0.01 | GES | 06/20/2023 12:23 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.27 μg/L | 1 | 0.30 | 0.07 J1 | GES | 06/20/2023 12:23 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 3.65 µg/L | 1 | 0.020 | 0.005 | GES | 06/20/2023 12:23 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0. 12 μg/L | 1 | 0.20 | 0.05 J1 | GES | 06/20/2023 12:23 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.0664 mg/L | 1 | 0.00030 | 0.00007 | GES | 06/20/2023 12:23 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | JAB | 06/16/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 06/20/2023 12:23 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 0.07 μg/L | 1 | 0.50 | 0.04 J1 | GES | 06/20/2023 12:23 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0.10 µg/L | 1 | 0.20 | 0.02 J1 | GES | 06/20/2023 12:23 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 0.44 pCi/L | 0.12 | 0.16 | TTP | 06/26/2023 16:02 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 90.8 % | | | | | |
| Radium-228 | 0.24 pCi/L | 0.12 | 0.40 | ST | 06/29/2023 13:45 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 94.0 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Reissued

Job ID: 231719 Customer: Welsh Power Station Date Reported: 10/29/2023

Customer Sample ID: AD-9 Customer Description: TG-32

Lab Number: 231719-002 Preparation:

Date Collected: 06/06/2023 10:55 EDT Date Received: 06/09/2023 13:30 EDT

Metals

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|------------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | 0.008 µg/L | 1 | 0.100 | 0.008 J1 | GES | 06/20/2023 12:28 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 1.15 µg/L | 1 | 0.10 | 0.03 | GES | 06/20/2023 12:28 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 39.8 μg/L | 1 | 0.20 | 0.05 | GES | 06/20/2023 12:28 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0.502 μg/L | 1 | 0.050 | 0.007 | GES | 06/20/2023 12:28 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.083 mg/L | 1 | 0.050 | 0.007 | GES | 06/20/2023 12:28 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.135 μg/L | 1 | 0.020 | 0.004 | GES | 06/20/2023 12:28 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 164 mg/L | 1 | 0.05 | 0.01 | GES | 06/20/2023 12:28 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.33 µg/L | 1 | 0.30 | 0.07 | GES | 06/20/2023 12:28 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 15.8 μg/L | 1 | 0.020 | 0.005 | GES | 06/20/2023 12:28 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.12 µg/L | 1 | 0.20 | 0.05 J1 | GES | 06/20/2023 12:28 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.661 mg/L | 1 | 0.00030 | 0.00007 | GES | 06/20/2023 12:28 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | JAB | 06/16/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 06/20/2023 12:28 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 0.51 μg/L | 1 | 0.50 | 0.04 | GES | 06/20/2023 12:28 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0.14 µg/L | 1 | 0.20 | 0.02 J1 | GES | 06/20/2023 12:28 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 0.71 pCi/L | 0.15 | 0.19 | TTP | 06/26/2023 16:02 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 88.4 % | | | | | |
| Radium-228 | 1.15 pCi/L | 0.15 | 0.46 | ST | 06/29/2023 13:45 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 86.2 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Reissued

Job ID: 231719 Customer: Welsh Power Station Date Reported: 10/29/2023

Customer Sample ID: AD-15 Customer Description: TG-32

Lab Number: 231719-003 Preparation:

Date Collected: 06/05/2023 11:15 EDT Date Received: 06/09/2023 13:30 EDT

Metals

| Parameter | Result | Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|---------|-------|----------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | 0.056 | μg/L | 1 | 0.100 | 0.008 J1 | GES | 06/20/2023 12:33 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 7.67 | μg/L | 1 | 0.10 | 0.03 | GES | 06/20/2023 12:33 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 86.9 | μg/L | 1 | 0.20 | 0.05 | GES | 06/20/2023 12:33 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0.237 | μg/L | 1 | 0.050 | 0.007 | GES | 06/20/2023 12:33 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.194 | mg/L | 1 | 0.050 | 0.007 | GES | 06/20/2023 12:33 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.024 | μg/L | 1 | 0.020 | 0.004 | GES | 06/20/2023 12:33 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 2.92 | mg/L | 1 | 0.05 | 0.01 | GES | 06/20/2023 12:33 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 2.27 | µg/L | 1 | 0.30 | 0.07 | GES | 06/20/2023 12:33 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 3.49 | μg/L | 1 | 0.020 | 0.005 | GES | 06/20/2023 12:33 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 1.94 | μg/L | 1 | 0.20 | 0.05 | GES | 06/20/2023 12:33 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.00423 | mg/L | 1 | 0.00030 | 0.00007 | GES | 06/20/2023 12:33 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | 6 | ng/L | 1 | 5 | 2 | JAB | 06/16/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | 0.1 | μg/L | 1 | 0.5 | 0.1 J1 | GES | 06/20/2023 12:33 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 1.23 | μg/L | 1 | 0.50 | 0.04 | GES | 06/20/2023 12:33 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0.08 | μg/L | 1 | 0.20 | 0.02 J1 | GES | 06/20/2023 12:33 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 0.60 pCi/L | 0.13 | 0.17 | TTP | 06/26/2023 16:02 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 118 % | | | | | |
| Radium-228 | 0.77 pCi/L | 0.15 | 0.48 | ST | 06/29/2023 13:45 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 83.4 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Reissued

Job ID: 231719 Customer: Welsh Power Station Date Reported: 10/29/2023

Customer Sample ID: DUPLICATE - PBAP Customer Description: TG-32

Lab Number: 231719-004 Preparation:

Date Collected: 06/05/2023 13:00 EDT Date Received: 06/09/2023 13:30 EDT

Metals

| Motais | | | | | | | |
|------------|--------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
| Antimony | 0.011 µg/L | 1 | 0.100 | 0.008 J1 | GES | 06/20/2023 12:38 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 0.25 µg/L | 1 | 0.10 | 0.03 | GES | 06/20/2023 12:38 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 26.6 μg/L | 1 | 0.20 | 0.05 | GES | 06/20/2023 12:38 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0.044 µg/L | 1 | 0.050 | 0.007 J1 | GES | 06/20/2023 12:38 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.974 mg/L | 1 | 0.050 | 0.007 | GES | 06/20/2023 12:38 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.022 µg/L | 1 | 0.020 | 0.004 | GES | 06/20/2023 12:38 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 20.4 mg/L | 1 | 0.05 | 0.01 | GES | 06/20/2023 12:38 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.41 µg/L | 1 | 0.30 | 0.07 | GES | 06/20/2023 12:38 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 3.81 µg/L | 1 | 0.020 | 0.005 | GES | 06/20/2023 12:38 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.34 µg/L | 1 | 0.20 | 0.05 | GES | 06/20/2023 12:38 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.0646 mg/L | 1 | 0.00030 | 0.00007 | GES | 06/20/2023 12:38 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | JAB | 06/16/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 06/20/2023 12:38 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 0.09 µg/L | 1 | 0.50 | 0.04 J1 | GES | 06/20/2023 12:38 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0.11 µg/L | 1 | 0.20 | 0.02 J1 | GES | 06/20/2023 12:38 | EPA 200.8-1994, Rev. 5.4 |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Reissued

Job ID: 231719 Customer: Welsh Power Station Date Reported: 10/29/2023

Customer Sample ID: EQUIPMENT BLANK - PBAP Customer Description: TG-32

Lab Number: 231719-005 Preparation:

Date Collected: 06/05/2023 11:06 EDT Date Received: 06/09/2023 13:30 EDT

Metals

| Motais | | | | | | | |
|------------|--------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
| Antimony | <0.008 µg/L | 1 | 0.100 | 0.008 U1 | GES | 06/20/2023 12:43 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | <0.03 µg/L | 1 | 0.10 | 0.03 U1 | GES | 06/20/2023 12:43 | EPA 200.8-1994, Rev. 5.4 |
| Barium | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 06/20/2023 12:43 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | <0.007 µg/L | 1 | 0.050 | 0.007 U1 | GES | 06/20/2023 12:43 | EPA 200.8-1994, Rev. 5.4 |
| Boron | <0.007 mg/L | 1 | 0.050 | 0.007 U1 | GES | 06/20/2023 12:43 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | <0.004 µg/L | 1 | 0.020 | 0.004 U1 | GES | 06/20/2023 12:43 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 0.02 mg/L | 1 | 0.05 | 0.01 J1 | GES | 06/20/2023 12:43 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.29 µg/L | 1 | 0.30 | 0.07 J1 | GES | 06/20/2023 12:43 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 0.034 µg/L | 1 | 0.020 | 0.005 | GES | 06/20/2023 12:43 | EPA 200.8-1994, Rev. 5.4 |
| Lead | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 06/20/2023 12:43 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.00014 mg/L | 1 | 0.00030 | 0.00007 J1 | GES | 06/20/2023 12:43 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | JAB | 06/16/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 06/20/2023 12:43 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | <0.04 µg/L | 1 | 0.50 | 0.04 U1 | GES | 06/20/2023 12:43 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | <0.02 µg/L | 1 | 0.20 | 0.02 U1 | GES | 06/20/2023 12:43 | EPA 200.8-1994, Rev. 5.4 |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Reissued

Job ID: 231719 Customer: Welsh Power Station Date Reported: 10/29/2023

Customer Sample ID: FIELD BLANK - PBAP Customer Description: TG-32

Lab Number: 231719-006 Preparation:

Date Collected: 06/05/2023 11:01 EDT Date Received: 06/09/2023 13:30 EDT

Metals

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|--------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | <0.008 µg/L | 1 | 0.100 | 0.008 U1 | GES | 06/20/2023 12:48 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | <0.03 µg/L | 1 | 0.10 | 0.03 U1 | GES | 06/20/2023 12:48 | EPA 200.8-1994, Rev. 5.4 |
| Barium | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 06/20/2023 12:48 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | <0.007 µg/L | 1 | 0.050 | 0.007 U1 | GES | 06/20/2023 12:48 | EPA 200.8-1994, Rev. 5.4 |
| Boron | <0.007 mg/L | 1 | 0.050 | 0.007 U1 | GES | 06/20/2023 12:48 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | <0.004 µg/L | 1 | 0.020 | 0.004 U1 | GES | 06/20/2023 12:48 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 0.01 mg/L | 1 | 0.05 | 0.01 J1 | GES | 06/20/2023 12:48 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.23 μg/L | 1 | 0.30 | 0.07 J1 | GES | 06/20/2023 12:48 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 0.033 µg/L | 1 | 0.020 | 0.005 | GES | 06/20/2023 12:48 | EPA 200.8-1994, Rev. 5.4 |
| Lead | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 06/20/2023 12:48 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.00009 mg/L | 1 | 0.00030 | 0.00007 J1 | GES | 06/20/2023 12:48 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | JAB | 06/16/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 06/20/2023 12:48 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | <0.04 µg/L | 1 | 0.50 | 0.04 U1 | GES | 06/20/2023 12:48 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | <0.02 µg/L | 1 | 0.20 | 0.02 U1 | GES | 06/20/2023 12:48 | EPA 200.8-1994, Rev. 5.4 |

Radiochemistry

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 0.64 pCi/L | 0.15 | 0.19 | TTP | 06/30/2023 08:57 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 92.4 % | | | | | |
| Radium-228 | 0.12 pCi/L | 0.13 | 0.43 | ST | 06/29/2023 13:45 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 93.2 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

231719 Job Comments:

Report originally issued 7/7/23. Report reissued 10/29/23 to correct rounding errors on report and EDD.



Job ID: 231719

Water Analysis Report

Reissued

Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Customer: Welsh Power Station Date Reported: 10/29/2023

Report Verification

This report and the above data have been confirmed by the following analyst.

Michael Ohlinger, Chemist

Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

Muhael S. Ollinger

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Data Qualifer Legend

J1 - Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

U1 - Not detected at or above method detection limit (MDL).

Chain of Custody Record

Dolan Chemical Laboratory (DCL) 4001 Bbrby Road

| Groveport, Ohio 43125 | | | | Prog | ram: | Coal Co | mbustio | Program: Coal Combustion Residuals (CCR) | Is (CCR | | | | |
|--|----------------|----------------|---|-------------|---------------|----------------|---|--|-------------|--|-------------------------|----------|--|
| Contacts: | | | | | V) | Site Contact: | act: | | | Date: | | 2 | For Lab Use Only: |
| Michael Onlinger (614-636-4164) | _ | | | | | - | | | | _ | | <u>3</u> | COC/Order *: |
| Project Name: Welsh PBAP | | | | | | | 250 mL | Field-filter 500 mL | 1,1 | Three (six every | | | 2 |
| Contact Name: Rebecca Jones | Analysis T | umaround | Analysis Turnaround Time (in Calendar Days) Routine (28 days) | Nendar Di | (\$4) | | bottle, | bottle, | bottle, | 10th") | mL F d bot d ,**; | | 0777 |
| Contact Phone: (737) 330-3725 | | | | | | | | HNO, | 0-6°C | T L DOTTIES, pH<2, HNO ₃ | enii | | 621-119 |
| Sampler(s): Matt Hamilton Kenny McDonald | | | | | | <i>p</i> / . | .48, 84, dq. o: | uM bas s | 'os | 822-1 | | | |
| Sample Identification | Sample Date | Sample Time | Sample Type (C=Comp, G=Grab) | Matrix | # of Cont. | Sampler(s) Inl | 8, Ca, Li, Sb, Be, Ca, Cr, C Mo, Se, TL | dissolved F | TDS, F, CI, | אפ-226, אנ / | _{БН} | | Sample Specific Notes: |
| AD-8 | 6/5/2023 | 913 | 9 | ωS | 8 | | × | | | × | × | - 16 | TG-32 needed |
| AD-9 | 6/6/2023 | 955 | G | GW | 5 | | × | | | × | × | | The state of the s |
| AD-15 | 6/5/2023 | 1015 | G | ВW | c, | | × | | | × | × | | |
| DUPLICATE - PBAP | 6/5/2023 | 1200 | ტ | ΜS | 7 | | × | | | | × | | |
| EQUIPMENT BLANK - PBAP | 6/5/2023 | 1006 | g | GW | 2 | | × | | | | × | | |
| FIELD BLANK - PBAP | 6/5/2023 | 1001 | g | Q.W | လ | | × | | | × | × | _ | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| The state of the s | | | | | | | | | | | | | 2 |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | i | | | | | | |
| Preservation Used: 1= Ice. 2= HCl: 3= H2SO4: 4=HNO3: 5=NaOH: 6= Other | HNO3: 5=Na(| 2H; 6= Oth | | ; F= filter | | in field | 4 | F4 | L. | 4 | 2 | | |
| | | | | | | | | | | | | | |

^{*} Six 1L Bottles must be collected for Radium for every 10th sample.

Special instructions/QC Requirements & Comments:

| Relinquished bo | Company | Date/Time: bac Received by | Received by: | Date/Time: |
|--|---------------------------------|--------------------------------|--------------------------|--------------------|
| Relinquished by: | Company: | V / C > Date/Time: | Received by: | Date/Time: |
| Relinquished by: | Company: | Date/Time: | Received in abolatory by | Date/Time: 1;30.PM |
| Form COC-04, AEP Chain of Custody (COC) Record for Coal Combustion Residual (CCR) Sampling - Shreveport, Rev. 1, 1/10/17 | ord for Coal Combustion Residua | at (CCR) Sampling - S | | |

AEP WATER & WASTE SAMPLE RECEIPT FORM

| Package Type | Delivery Type | | | | | | | |
|--|---|-------------------------|--|--|--|--|--|--|
| Cooler Box Bag Envelope | PONY UPS FOREX US | PS | | | | | | |
| | Other | _ | | | | | | |
| Plant/Customer WCSh | Number of Plastic Containers: | | | | | | | |
| Opened By MCK | Number of Glass Containers: | | | | | | | |
| Date/Time 6/9/23 1,30PM | Number of Mercury Containers: | | | | | | | |
| Were all temperatures within 0-6°C? Y / N | or N/A Initial:on id | e / no ice | | | | | | |
| (IR Gun Ser# 2213689000 , Expir. 03/24/2024 | | \sim | | | | | | |
| Was container in good condition? (Y) / N | Comments | | | | | | | |
| Was Chain of Custody received? (Y)/ N | Comments | | | | | | | |
| Requested turnaround: | If RUSH, who was notified? | | | | | | | |
| pH (15 min) Cr ⁺⁶ (pres) NO₂ or N (24 hr) | O ₃ (48 hr) ortho-PO ₄ (48 hr) Hg-d | iss (pres) (48 hr) | | | | | | |
| Was COC filled out properly? | Comments | | | | | | | |
| Were samples labeled properly? N | Comments | | | | | | | |
| Were correct containers used? | | | | | | | | |
| Was pH checked & Color Coding done? YN or N/A Initial & Date: Mbk 6/9/23 | | | | | | | | |
| pH paper (circle one): MQuant,PN1.09535.0001,LO | T#[OR] Lab Rat,PN4801,LOT# | X000RW0G21 Eφ 11/15/202 | | | | | | |
| - Was Add'l Preservative needed? Y / N)f | Yes: By whom & when: | (See Prep Book) | | | | | | |
| Is sample filtration requested? Y / (§) | Comments | (See Prep Book) | | | | | | |
| Was the customer contacted? If Yes: | Person Contacted: | | | | | | | |
| Lab ID# _ 7 3/7(9 Initial & D | Date & Time : | | | | | | | |
| Logged by MSO Commen | ts: Missing AD-8 Radi tHes. Likely in mu | Sity | | | | | | |
| Reviewed by MCC | mainly bottles and C/12/23 | 7871 MS | | | | | | |

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.

Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

| Ľ | (which | | reportable data identi | fied on this page), Table | | |
|--|--|--|---|---|---|--|
| x | R1 | Field chain-o | f-custody documenta | tion | | |
| × | R2 | Sample ident | ification cross-refere | nce | | |
| x | R3 | (a) Items sp NELAC (b) Dilution (c) Preparat (d) Cleanup | ecified in NELAC Cha Standard factors ion methods methods | s) for each environmenta apter 5 for reporting resu statively identified comp | ilts, e.g., Sectio | |
| MA | R4 | (a) Calculat | covery data including ed recovery (%R) ratory's surrogate QC | | | |
| х | R5 | Test reports/ | summary forms for b | lank samples | | |
| x | R6 | (a) LCS spik (b) Calculate | summary forms for la king amounts ed %R for each analyth tratory's LCS QC limit | | es (LCSs) inclu | ding: |
| × | R7 | (a) Samples(b) MS/MS(c) Concent(d) Calculat | associated with the I D spiking amounts ration of each MS/M | ke/matrix spike duplicat MS/MSD clearly identific SD analyte measured in percent differences (RPD Climits | ed the parent and | · · |
| x | R8 | (a) The amo | ount of analyte measuulated RPD | applicable) recovery and red in the duplicate analytical duplicates | l precision: | |
| x | R9 | List of metho | d quantitation limits | (MQLs) for each analyte | for each meth | od and matrix |
| х | R10 | Other proble | ms or anomalies | | | |
| x | The E | xception Repo | rt for every item for v | which the result is "No" o | r "NR" (Not R | eviewed) |
| packag requir report by the labora | ge as be ements s. By m labora tory in | een reviewed be of the method ny signature be tory as having | by the laboratory and is used, except where elow, I affirm to the be the potential to affect y Review Checklist, as | elease of this laboratory is complete and technica noted by the laboratory sest of my knowledge, all the quality of the data, and no information or dat | lly compliant of the attached problems/and have been ider | with the I exception omalies, observed ntified by the |
| respon used i staten | nding to s respon nent is t | rule. The officensible for release. | cial signing the cover sing this data packag | in-house laboratory con page of the rule-required e and is by signature affi | l report in whi rming the abo | ch these data are ve release |
| Susa | 12 au | Jung LL | Sallam | ann Senior | Chenist | 6.20-23 |
| Name | (printe | d) | Signature | Official Title | | Date |
| | | | tory Review Checklist (| | | Page 1 of 6 |

Table 1. Reportable Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh

Reviewer Name: Becky Podlasiak

LRC Date: 6/19/2023

Laboratory Job Number: 231719

Prep Batch Number(s): PB23061608

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ |
|-------|-----------------------|---|---|---|
| R1 | O, I | Chain-of-custody (COC) | | |
| | I | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | Yes | |
| | I | Were all departures from standard conditions described in an exception report? | Yes | |
| R2 | O, I | Sample and quality control (QC) identification | | |
| | I | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | Yes | · |
| | I | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | Yes | |
| R3 | O, I | Test reports | | |
| | I | Were all samples prepared and analyzed within holding times? | Yes | |
| | I | Other than those results < MQL, were all other raw values bracketed by calibration standards? | Yes | |
| | I | Were calculations checked by a peer or supervisor? | Yes | |
| | I | Were all analyte identifications checked by a peer or supervisor? | Yes | |
| | I | Were sample quantitation limits reported for all analytes not detected? | Yes | : |
| | I | Were all results for soil and sediment samples reported on a dry weight basis? | NA | |
| | I | Was % moisture (or solids) reported for all soil and sediment samples? | NA | |
| | I | If required for the project, TICs reported? | NA | |
| R4 | 0 | Surrogate recovery data | | |
| | I | Were surrogates added prior to extraction? | NA | |
| | I | Were surrogate percent recoveries in all samples within the laboratory QC limits? | NA | |
| R5 | O, I | Test reports/summary forms for blank samples | | |
| | I | Were appropriate type(s) of blanks analyzed? | Yes | |
| | I | Were blanks analyzed at the appropriate frequency? | Yes | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| | I | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures? | Yes | |
| | I | Were blank concentrations < MQL? | Yes | |
| R6 | 0, I | Laboratory control samples (LCS): | | |
| | I | Were all COCs included in the LCS? | Yes | |
| | I | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | Yes | |
| | I | Were LCSs analyzed at the required frequency? | Yes | |
| 4 | I | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | Yes | |
| | I | Was the LCSD RPD within QC limits? | Yes | |
| R7 | O, I | Matrix spike (MS) and matrix spike duplicate (MSD) data | | |
| | I | Were the project/method specified analytes included in the MS and MSD? | Yes | |
| | I | Were MS/MSD analyzed at the appropriate frequency? | Yes | |
| | I | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | NA | |
| | I | Were MS/MSD RPDs within laboratory QC limits? | NA | |
| R8 | O, I | Analytical duplicate data | | |
| | I | Were appropriate analytical duplicates analyzed for each matrix? | Yes | |
| | I | Were analytical duplicates analyzed at the appropriate frequency? | Yes | |
| | I | Were RPDs or relative standard deviations within the laboratory QC limits? | Yes | |
| R9 | 0, I | Method quantitation limits (MQLs): | | |
| | 1 | Are the MQLs for each method analyte included in the laboratory data package? | Yes | |
| | I | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | Yes | , |
| | I | Are unadjusted MQLs included in the laboratory data package? | Yes | |
| R10 | O, I | Other problems/anomalies | | |
| | I | Are all known problems/anomalies/special conditions noted in this LRC and ER? | Yes | |
| | I | Were all necessary corrective actions performed for the reported data? | Yes | |
| | I | Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results? | Yes | |

Table 2. Supporting Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh

Reviewer Name: Becky Podlasiak

LRC Date: 6/19/2023

Laboratory Job Number: 231719

Prep Batch Number(s): PB23061608

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ |
|-------|-----------------------|--|--|---|
| S1 | O, I | Initial calibration (ICAL) | | |
| | I | Were response factors and/or relative response factors for each analyte within QC limits? | NA | |
| | I | Were percent RSDs or correlation coefficient criteria met? | Yes | |
| | I | Was the number of standards recommended in the method used for all analytes? | Yes | |
| | I | Were all points generated between the lowest and highest standard used to calculate the curve? | Yes | |
| | I | Are ICAL data available for all instruments used? | Yes | |
| | I | Has the initial calibration curve been verified using an appropriate second source standard? | Yes | |
| S2 | 0, I | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | |
| | I | Was the CCV analyzed at the method-required frequency? | Yes | |
| | I | Were percent differences for each analyte within the method-required QC limits? | Yes | |
| | I | Was the ICAL curve verified for each analyte? | Yes | |
| | I | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | No | ER1 |
| S3 | 0 | Mass spectral tuning: | | |
| | I | Was the appropriate compound for the method used for tuning? | NA | |
| | I | Were ion abundance data within the method-required QC limits? | NA | |
| S4 | 0 | Internal standards (IS): | | |
| | I | Were IS area counts and retention times within the method-required QC limits? | NA | |
| S5 | O, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | |
| | I | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | Yes | |
| | I | Were data associated with manual integrations flagged on the raw data? | NA | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ |
|-------|-----------------------|--|--|---|
| S6 | 0 | Dual column confirmation | | |
| | I | Did dual column confirmation results meet the method-required QC? | NA | |
| S7 | 0 | Tentatively identified compounds (TICs): | | |
| | I | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | NA | |
| S8 | I | Interference Check Sample (ICS) results: | | |
| | I | Were percent recoveries within method QC limits? | NA | |
| S9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | |
| | I | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | NA | |
| S10 | O, I | Method detection limit (MDL) studies | | |
| | I | Was a MDL study performed for each reported analyte? | Yes | |
| | I | Is the MDL either adjusted or supported by the analysis of DCSs? | Yes | |
| S11 | O, I | Proficiency test reports: | | |
| | I | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | Yes | |
| S12 | O, I | Standards documentation | | |
| | I | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | Yes | |
| S13 | O, I | Compound/analyte identification procedures | | |
| | I | Are the procedures for compound/analyte identification documented? | Yes | |
| S14 | O, I | Demonstration of analyst competency (DOC) | | |
| | I | Was DOC conducted consistent with NELAC Chapter 5C? | Yes | |
| | I | Is documentation of the analyst's competency up-to-date and on file? | Yes | |
| S15 | O, I | Verification/validation documentation for methods (NELAC Chap 5n 5) | | |
| | I | Are all the methods used to generate the data documented, verified, and validated, where applicable? | Yes | |
| S16 | O, I | Laboratory standard operating procedures (SOPs): | | |
| | I | Are laboratory SOPs current and on file for each method performed? | Yes | |

Table 3. Exception Reports.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh

Reviewer Name: Becky Podlasiak

LRC Date: 6/19/2023

Laboratory Job Number: 231719

Prep Batch Number(s): PB23061608

| Exception Report No. | Description |
|-------------------------|--|
| ER1 | CCB acceptance criteria is CCB <mql.< th=""></mql.<> |
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¹ Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

³ NA - Not applicable; NR - Not reviewed.

² O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

Municipal Solid Waste Laboratory Review Checklist

| This da | ata pack | tage consists of | : | | | | |
|--|---|--|--|--|---|--|--|
| | This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports. | | | | | | |
| | R1 | Field chain-of-custody documentation | | | | | |
| | R2 | Sample identif | fication cross-refere | ence | | | |
| | R3 | (a) Items speNELAC St(b) Dilution f(c) Preparation(d) Cleanup r | cified in NELAC Ch tandard actors on methods nethods | ts) for each environmental san apter 5 for reporting results, e ntatively identified compound | e.g., Section 5.5.10 in 2003 | | |
| | R4 | (a) Calculate | overy data including d recovery (%R) atory's surrogate Q | | | | |
| П | R5 | | ummary forms for | | | | |
| | R6 | Test reports/s (a) LCS spiki (b) Calculated | ummary forms for | laboratory control samples (LC | CSs) including: | | |
| | R7 | (a) Samples a(b) MS/MSD(c) Concentra(d) Calculate | associated with the spiking amounts ation of each MS/M | ike/matrix spike duplicates (M MS/MSD clearly identified ISD analyte measured in the pa percent differences (RPDs) C limits | - | | |
| | R8 | (a) The amou | unt of analyte meas lated RPD | f applicable) recovery and predured in the duplicate ranalytical duplicates | cision: | | |
| | R9 | List of method | l quantitation limits | s (MQLs) for each analyte for e | each method and matrix | | |
| | R10 | Other problem | ns or anomalies | | | | |
| | The Ex | ception Report | t for every item for | which the result is "No" or "NF | R" (Not Reviewed) | | |
| packag require reports by the laborat that we Check respon used is | ge as be ements s. By m laborat tory in t ould aff a, if app dding to | en reviewed by of the methods y signature beltory as having the Laboratory ect the quality of rule. The officiasible for release | the laboratory and used, except where low, I affirm to the he potential to affect Review Checklist, a of the data. This laboratory is an al signing the cover | release of this laboratory data is complete and technically conted by the laboratory in the best of my knowledge, all probet the quality of the data, have and no information or data have in-house laboratory controlled page of the rule-required repose and is by signature affirming | ompliant with the e attached exception clems/anomalies, observed been identified by the re been knowingly withheld ed by the person ort in which these data are | | |
| Name | (printed | d) | Signature | Official Title | Date | | |

Table 1. Reportable Data.

| Laboratory Name: | |
|------------------------|--|
| Project Name: | |
| Reviewer Name: | |
| LRC Date: | |
| Laboratory Job Number: | |
| Prep Batch Number(s): | |

| I tem ¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|--------------------|-----------------------|---|---|-----------------------------|
| R1 | O, I | Chain-of-custody (COC) | | |
| | | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | | |
| | | Were all departures from standard conditions described in an exception report? | | |
| R2 | O, I | Sample and quality control (QC) identification | | |
| | | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | | |
| | | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | | |
| R3 | O, I | Test reports | | |
| | | Were all samples prepared and analyzed within holding times? | | |
| | | Other than those results < MQL, were all other raw values bracketed by calibration standards? | | |
| | | Were calculations checked by a peer or supervisor? | | |
| | | Were all analyte identifications checked by a peer or supervisor? | | |
| | | Were sample quantitation limits reported for all analytes not detected? | | |
| | | Were all results for soil and sediment samples reported on a dry weight basis? | | |
| | | Was % moisture (or solids) reported for all soil and sediment samples? | | |
| | | If required for the project, TICs reported? | | |
| R4 | 0 | Surrogate recovery data | | |
| | | Were surrogates added prior to extraction? | | |
| | | Were surrogate percent recoveries in all samples within the laboratory QC limits? | | |
| R5 | Ο, Ι | Test reports/summary forms for blank samples | | |
| | | Were appropriate type(s) of blanks analyzed? | | |
| | | Were blanks analyzed at the appropriate frequency? | | |

| I tem ¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ |
|--------------------|-----------------------|---|---|---|
| | | Were method blanks taken through the entire analytical process, including preparation and, if applicable, | | |
| | | cleanup procedures? | | |
| | | Were blank concentrations < MQL? | | |
| R6 | O, I | Laboratory control samples (LCS): | | |
| | | Were all COCs included in the LCS? | | |
| | | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | | |
| | | Were LCSs analyzed at the required frequency? | | |
| | | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | | |
| | | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | | |
| | | Was the LCSD RPD within QC limits? | | |
| R7 | O, I | Matrix spike (MS) and matrix spike duplicate (MSD) data | | |
| | | Were the project/method specified analytes included in the MS and MSD? | | |
| | | Were MS/MSD analyzed at the appropriate frequency? | | |
| | | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | | |
| | | Were MS/MSD RPDs within laboratory QC limits? | | |
| R8 | O, I | Analytical duplicate data | | |
| | | Were appropriate analytical duplicates analyzed for each matrix? | | |
| | | Were analytical duplicates analyzed at the appropriate frequency? | | |
| | | Were RPDs or relative standard deviations within the laboratory QC limits? | | |
| R9 | O, I | Method quantitation limits (MQLs): | | |
| | | Are the MQLs for each method analyte included in the laboratory data package? | | |
| | | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | | |
| | | Are unadjusted MQLs included in the laboratory data package? | | |
| R10 | O, I | Other problems/anomalies | | |
| - | , | Are all known problems/anomalies/special conditions noted in this LRC and ER? | | |
| | | Were all necessary corrective actions performed for the reported data? | | |
| | | Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results? | | |

Table 2. Supporting Data.

| Laboratory Name: | |
|--------------------------|--|
| Project Name: | |
| Reviewer Name: | |
| LRC Date: | |
| Laboratory Job Number: _ | |
| Prep Batch Number(s): | |

| Item ¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------------------|-----------------------|--|--|-----------------------------|
| S1 | O, I | Initial calibration (ICAL) | | |
| | | Were response factors and/or relative response factors for each analyte within QC limits? | | |
| | | Were percent RSDs or correlation coefficient criteria met? | | |
| | | Was the number of standards recommended in the method used for all analytes? | | |
| | | Were all points generated between the lowest and highest standard used to calculate the curve? | | |
| | | Are ICAL data available for all instruments used? | | |
| | | Has the initial calibration curve been verified using an appropriate second source standard? | | |
| S2 | O, I | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | |
| | | Was the CCV analyzed at the method-required frequency? | | |
| | | Were percent differences for each analyte within the method-required QC limits? | | |
| | | Was the ICAL curve verified for each analyte? | | |
| | | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | | |
| S3 | 0 | Mass spectral tuning: | | |
| | | Was the appropriate compound for the method used for tuning? | | |
| | | Were ion abundance data within the method-required QC limits? | | |
| S4 | 0 | Internal standards (IS): | | |
| | | Were IS area counts and retention times within the method-required QC limits? | | |
| S5 | O, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | |
| | | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | | |
| | | Were data associated with manual integrations flagged on the raw data? | | |

| Item ¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------------------|-----------------------|--|--|-----------------------------|
| S6 | 0 | Dual column confirmation | | |
| | | Did dual column confirmation results meet the method-required QC? | | |
| S7 | 0 | Tentatively identified compounds (TICs): | | |
| | | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | | |
| S8 | I | Interference Check Sample (ICS) results: | | |
| | | Were percent recoveries within method QC limits? | | |
| S9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | |
| | | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | | |
| S10 | O, I | Method detection limit (MDL) studies | | |
| | | Was a MDL study performed for each reported analyte? | | |
| | | Is the MDL either adjusted or supported by the analysis of DCSs? | | |
| S11 | O, I | Proficiency test reports: | | |
| | | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | | |
| S12 | O, I | Standards documentation | | |
| | | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | | |
| S13 | O, I | Compound/analyte identification procedures | | |
| | | Are the procedures for compound/analyte identification documented? | | |
| S14 | O, I | Demonstration of analyst competency (DOC) | | |
| | | Was DOC conducted consistent with NELAC Chapter 5C? | | |
| | | Is documentation of the analyst's competency up-to-date and on file? | | |
| S15 | O, I | Verification/validation documentation for methods (NELAC Chap 5n 5) | | |
| | | Are all the methods used to generate the data documented, verified, and validated, where applicable? | | |
| S16 | O, I | Laboratory standard operating procedures (SOPs): | | |
| | | Are laboratory SOPs current and on file for each method performed? | | |

Table 3. Exception Reports.

| Laboratory Name: | |
|-----------------------|--|
| Project Name: | |
| Reviewer Name: | |
| LRC Date: | |
| | |
| Prep Batch Number(s): | |

| Exception Report No. | Description |
|-------------------------|-------------|
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¹ Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

² O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

³ NA - Not applicable; NR - Not reviewed.

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 231698 Customer: Welsh Power Station Date Reported: 07/05/2023

Customer Sample ID: AD-1 Customer Description: TG-32

Lab Number: 231698-001 Preparation:

Date Collected: 06/06/2023 11:54 EDT Date Received: 06/08/2023 11:00 EDT

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | 3.03 mg/L | 2 | 0.04 | 0.01 | CRJ | 06/28/2023 08:33 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.24 mg/L | 2 | 0.06 | 0.02 | CRJ | 06/28/2023 08:33 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 91.1 mg/L | 2 | 0.6 | 0.1 | CRJ | 06/28/2023 08:33 | EPA 300.1 -1997. Rev. 1.0 |

Wet Chemistry

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|----------|----|---------------------|---------|------------------|---------------|
| TDS, Filterable Residue | 210 mg/L | 1 | 50 | 20 | ELT | 06/12/2023 08:06 | SM 2540C-2015 |

Customer Sample ID: AD-5 Customer Description: TG-32

Lab Number: 231698-002 Preparation:

Date Collected: 06/06/2023 10:00 EDT Date Received: 06/08/2023 11:00 EDT

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method | |
|-------------------------------|--------------|----------|------|---------------------|---------|------------------|---------------------------|---|
| Chloride | 16.1 mg/L | 2 | 0.04 | 0.01 | CRJ | 06/28/2023 12:24 | EPA 300.1 -1997, Rev. 1.0 | - |
| Fluoride | 0.15 mg/L | 2 | 0.06 | 0.02 | CRJ | 06/28/2023 12:24 | EPA 300.1 -1997, Rev. 1.0 | |
| Sulfate | 114 mg/L | 10 | 3.0 | 0.6 | CRJ | 06/28/2023 11:51 | EPA 300.1 -1997, Rev. 1.0 | |
| M - 1 O b 1 - 1 | | | | | | | | |
| Wet Chemistry | | | | | | | | |

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|----------|----|---------------------|---------|------------------|---------------|
| TDS, Filterable Residue | 280 mg/L | 1 | 50 | 20 | ELT | 06/12/2023 08:19 | SM 2540C-2015 |

Customer Sample ID: AD-17 Customer Description: TG-32

Lab Number: 231698-003 Preparation:

Date Collected: 06/06/2023 12:34 EDT Date Received: 06/08/2023 11:00 EDT

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | 35.6 mg/L | 5 | 0.10 | 0.03 | CRJ | 06/28/2023 14:35 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | <0.05 mg/L | 5 | 0.15 | 0.05 U1 | CRJ | 06/28/2023 14:35 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 1190 mg/L | 50 | 15 | 3 | CRJ | 06/28/2023 14:02 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| trot onomiou, | | | | | | | |
|-------------------------|----------------|----------|-----|---------------------|---------|------------------|---------------|
| Parameter | Result Units [| Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
| TDS. Filterable Residue | 1510 mg/L | 2 | 100 | 40 | FLT | 06/12/2023 08:27 | SM 2540C-2015 |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Customer: Welsh Power Station Date Reported: 07/05/2023 Job ID: 231698

Customer Sample ID: DUPLICATE - BACKGROUND

Preparation:

Customer Description: TG-32

Lab Number: 231698-004

Date Received: 06/08/2023 11:00 EDT Date Collected: 06/06/2023 13:00 EDT

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | 3.05 mg/L | 2 | 0.04 | 0.01 | CRJ | 06/28/2023 13:29 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.24 mg/L | 2 | 0.06 | 0.02 | CRJ | 06/28/2023 13:29 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 92.1 mg/L | 2 | 0.6 | 0.1 | CRJ | 06/28/2023 13:29 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| Parameter | Result Units Dile | ution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method | |
|-------------------------|-------------------|-------|----|---------------------|---------|------------------|---------------|--|
| TDS, Filterable Residue | 220 mg/L | 1 | 50 | 20 | ELT | 06/12/2023 08:27 | SM 2540C-2015 | |

Customer Sample ID: FIELD BLANK - BACKGROUND

Lab Number: 231698-005

<20 mg/L

Date Collected: 06/06/2023 12:22 EDT

Customer Description: TG-32

ELT

06/12/2023 08:34 SM 2540C-2015

Preparation:

Date Received: 06/08/2023 11:00 EDT

Ion Chromatography

TDS, Filterable Residue

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|---------------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | <0.01 mg/L | 2 | 0.04 | 0.01 U1 | CRJ | 06/28/2023 15:47 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | <0.02 mg/L | 2 | 0.06 | 0.02 U1 | CRJ | 06/28/2023 15:47 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | <0.1 mg/L | 2 | 0.6 | 0.1 U1 | CRJ | 06/28/2023 15:47 | EPA 300.1 -1997, Rev. 1.0 |
| Wet Chemistry | | | | | | | |
| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |

20 U1

50



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 231698 Customer: Welsh Power Station Date Reported: 07/05/2023

Report Verification

This report and the above data have been confirmed by the following analyst.

Michael Ohlinger, Chemist

Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

Muhael S. Ollinger

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Data Qualifer Legend

U1 - Not detected at or above method detection limit (MDL).

Chain of Custody Record

Dolan Chemical Laboratory (DCL) 4001 Bixby Road

| Groveport, Ohio 43125 | | | | Prog | ram: | Coal Co | ombustic | Program: Coal Combustion Residuals (CCR) | Is (CCR | | | | f) |
|--|----------------|--------------------|--|-------------|-------|----------------|--|---|----------------------------------|---|--|------------------------|-----------------------------------|
| Contacts: Michael Ohlinger (614-836-4184) | | | | | | Site Contact: | act: | | | Date: | | O | For Lab Use Only: COC/Order #: |
| Project Name: Welsh Background Contact Name: Rebecca Jones Contact Phone: (737) 330-3725 | Analysis 7 | umaround Routin | Analysis Turnaround Time (in Calendar Days) Routine (28 days) | endar D | 878) | | 250 mL bottle, pH<2, HNO ₃ | Field-filter 500 mL bottle, then pH<2, HNO ₃ | 1 L bottle, Cool, 0-6°C | Three (six every 10th*) 1 L bottles, pH<2, HNO ₃ | 40 mL Glass visi or 125 mL PTFE Ilned bottle, HCL**, PH<2 | sy somethy assistantil | 231698 |
| Sampler(s): Matt Hamilton Kenny McDonald | | | | | | elei?i | , 88, 88, ,dq ,o; | nM bns e | 'os | 822-8 | | | |
| Sample Identification | Sample Date | Sample Time | Sample Type (C=Comp, G=Grab) | Matrix | Cont. | Sampler(s) Ini | B, Ca, Li, Sb Be, Cd, Cr, C Mo, Se, TL | i beviossib | т р \$, ғ , сі | Ra-226, Ra | вн | | Sample Specific Notes: |
| AD-1 | 6/6/2023 | 1054 | ŋ | S.W | - | | | | × | | | | TG-32 needed |
| AD-5 | 6/6/2023 | 900 | Ø | GW | - | | | | × | | | | |
| AD-17 | 6/6/2023 | 1134 | ŋ | βW | - | | | | × | | | | |
| DUPLICATE - BACKGROUND | 6/6/2023 | 1200 | ၁ | ΝS | - | \dashv | | | × | | | \dashv | |
| FIELD BLANK - BACKGROUND | 6v6/2023 | 1122 | Ø | Š | - | | | | × | | | \dashv | |
| | | | | | | | | | | | | \dashv | and the second |
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| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Preservation Used: 1ª Ice, 2ª HCl; 3ª H2SO4; 4=HNO3; 5=NaOH; 6= Other | HNO3; 5=Na | OH; 6= Ot | her | ; F= filter | | in field | 4 | F4 | F | 4 | | | |
| | 100 | ŀ | | | | | | | | | | | |

^{*} Six 1L Bottles must be collected for Radium for every 10th sample.

Special instructions/QC Requirements & Comments:

| Relinquished by | Hal | Company | Date/Time: 160c Received by: | | Date/Time: |
|---------------------------|------------------|--|------------------------------|------------------------------|----------------|
| Refinquished by: | | Company: | Date/Time: | Received by: | Date/Time |
| Relinquished by: | | Company: | Date/Time: | Received in Laboration by: | Date: 11,00,AM |
| Form COC-04, AEP Chain of | Custody (COC) Re | Form COC-04, AEP Chain of Custody (COC) Record for Coal Combustion Residual (CCR) Sampling - Shreveport, Rev. 1, 1/10/17 | tal (CCR) Sampling - Sh | Ireveport, Rev. 1, 1/10/17 🗸 | L |

AEP WATER & WASTE SAMPLE RECEIPT FORM

| Package Type | Delivery Type |
|---|--|
| (Cooler Box Bag Envelope | PONY UPS FEDEX USPS |
| | Other |
| Plant/Customer Welsh Power | Number of Plastic Containers: |
| Opened By Misgina/Micha | Number of Glass Containers: |
| _ | Number of Mercury Containers: |
| | or N/A Initial: /// on ice / no ice |
| | 4) - If No, specify each deviation: Comments |
| | |
| Requested turnaround: Requested turnaround: | If RUSH, who was notified? |
| | O ₃ (48 hr) ortho-PO ₄ (48 hr) Hg-diss (pres) (48 hr) |
| Was COC filled out properly? | Comments |
| Were samples labeled properly? (Y)/ N | Comments |
| Were correct containers used? | Comments |
| Was pH checked & Color Coding done? | N or N/A Initial & Date: 123 |
| pH paper (circle one): MQuant,PN1.09535.0001,LC | OT# [OR] Lab Rat,PN4801,LOT# X000KWDG21 Exp 11/15/200 |
| - Was Add'l Preservative needed? Y / Ŋ If | Yes: By whom & when: (See Prep Book) |
| Is sample filtration requested? Y / 🕅 | Comments (See Prep Book) |
| Was the customer contacted? If Yes: | Person Contacted: |
| Lab ID# <u>93/698</u> Initial & C | Date & Time : |
| Logged by \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | nts: |
| 1 (1 8 2 1/ 2 | |

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.

Municipal Solid Waste Laboratory Review Checklist

| This da | ıta pack | age consists | of: | | |
|---|--|--|---|---|---|
| x | (which | | reportable data identified | w checklist consisting of Table 1, l on this page), Table 2, Supporti | |
| x | R1 | Field chain- | of-custody documentation | 1 | |
| x | R2 | Sample iden | ntification cross-reference | | |
| X | R3 | (a) Items s NELAC (b) Dilution (c) Prepara (d) Cleanup | pecified in NELAC Chapte Standard n factors ation methods p methods | or each environmental sample ther 5 for reporting results, e.g., Sec every service to the service of the servic | ction 5.5.10 in 2003 |
| x | R4 | (a) Calcula | ecovery data including: ted recovery (%R) oratory's surrogate QC lin | nits | |
| x | R ₅ | | s/summary forms for blan | | |
| × | R6 | (a) LCS spi (b) Calcula | /summary forms for labo iking amounts ted %R for each analyte oratory's LCS QC limits | ratory control samples (LCSs) in | cluding: |
| × | R7 | (a) Sample(b) MS/MS(c) Concent(d) Calcula | es associated with the MS/ SD spiking amounts | analyte measured in the parent a ent differences (RPDs) | |
| X | R8 | (a) The am (b) The cal | analytical duplicate (if app tount of analyte measured culated RPD oratory's QC limits for an | | |
| x | R9 | List of meth | od quantitation limits (M | QLs) for each analyte for each m | ethod and matrix |
| x | R10 | Other probl | ems or anomalies | | |
| х | The Ex | ception Rep | ort for every item for whic | h the result is "No" or "NR" (Not | Reviewed) |
| packag require reports by the laborat | e as be ements s. By m laborat tory in t | en reviewed of the metho y signature l ory as having he Laborator | by the laboratory and is or ds used, except where not below, I affirm to the best g the potential to affect th | use of this laboratory data package omplete and technically compliated by the laboratory in the attact of my knowledge, all problems/are quality of the data, have been in information or data have been | nt with the hed exception anomalies, observed dentified by the |
| respon used is statem | ding to respon ent is tr | rule. The off sible for rele | icial signing the cover pag | house laboratory controlled by the of the rule-required report in vold is by signature affirming the a | vhich these data are bove release |
| | Arnold | | Um / Jely | Chemist Principle | 6/30/23 |
| Name | (printed | d) | Signature | Official Title | Date |

Table 1. Reportable Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh Background

Reviewer Name: Tim Arnold

LRC Date: 6/30/23

Laboratory Job Number: 231698

Prep Batch Number(s): QC2306254

| Item ¹ Analytes | | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|----------------------------|------|---|---|-----------------------------|
| R1 | 0, I | Chain-of-custody (COC) | | |
| | I | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | Yes | |
| | I | Were all departures from standard conditions described in an exception report? | Yes | |
| R2 | O, I | Sample and quality control (QC) identification | | |
| | I | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | Yes | |
| | I | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | Yes | |
| R3 | O, I | Test reports | | |
| | I | Were all samples prepared and analyzed within holding times? | Yes | |
| | I | Other than those results < MQL, were all other raw values bracketed by calibration standards? | Yes | |
| | I | Were calculations checked by a peer or supervisor? | Yes | |
| | I | Were all analyte identifications checked by a peer or supervisor? | Yes | |
| | I | Were sample quantitation limits reported for all analytes not detected? | Yes | |
| | I | Were all results for soil and sediment samples reported on a dry weight basis? | - NA | |
| | I | Was % moisture (or solids) reported for all soil and sediment samples? | NA | |
| | I | If required for the project, TICs reported? | NA | |
| R4 | 0 | Surrogate recovery data | | |
| | I | Were surrogates added prior to extraction? | Yes | |
| | I | Were surrogate percent recoveries in all samples within the laboratory QC limits? | Yes | |
| R5 | 0, I | Test reports/summary forms for blank samples | | |
| | I | Were appropriate type(s) of blanks analyzed? | Yes | |
| | I | Were blanks analyzed at the appropriate frequency? | Yes | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| | I | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures? | Yes | |
| | I | Were blank concentrations < MQL? | Yes | |
| R6 | O, I | Laboratory control samples (LCS): | | |
| | I | Were all COCs included in the LCS? | Yes | |
| , | 1 | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | Yes | |
| | I | Were LCSs analyzed at the required frequency? | Yes | |
| | I | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | Yes | |
| | I | Was the LCSD RPD within QC limits? | Yes | |
| R7 | 0, I | Matrix spike (MS) and matrix spike duplicate (MSD) data | | |
| | I | Were the project/method specified analytes included in the MS and MSD? | Yes | |
| | I | Were MS/MSD analyzed at the appropriate frequency? | Yes | |
| | I | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Were MS/MSD RPDs within laboratory QC limits? | Yes | |
| R8 | O, I | Analytical duplicate data | | |
| | I | Were appropriate analytical duplicates analyzed for each matrix? | Yes | |
| | I | Were analytical duplicates analyzed at the appropriate frequency? | Yes | |
| | I | Were RPDs or relative standard deviations within the laboratory QC limits? | Yes | |
| _R9 | O, I | Method quantitation limits (MQLs): | | |
| | I | Are the MQLs for each method analyte included in the laboratory data package? | Yes | |
| | I | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | Yes | |
| | I | Are unadjusted MQLs included in the laboratory data package? | Yes | |
| R10 | O, I | Other problems/anomalies | | |
| | I | Are all known problems/anomalies/special conditions noted in this LRC and ER? | Yes | |
| | I | Were all necessary corrective actions performed for the reported data? | Yes | |
| | I | Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results? | Yes | |

Table 2. Supporting Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh Background

Reviewer Name: Tim Arnold

LRC Date: 6/30/23

Laboratory Job Number: 231698

Prep Batch Number(s): QC2306254

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|------------|-----------------------|--|--|-----------------------------|
| S1 | O, I | Initial calibration (ICAL) | | |
| | I | Were response factors and/or relative response factors for each analyte within QC limits? | NA | |
| | I | Were percent RSDs or correlation coefficient criteria met? | Yes | |
| | I | Was the number of standards recommended in the method used for all analytes? | Yes | |
| | I | Were all points generated between the lowest and highest standard used to calculate the curve? | Yes | |
| | I | Are ICAL data available for all instruments used? | Yes | |
| | I | Has the initial calibration curve been verified using an appropriate second source standard? | Yes | |
| S 2 | O, I | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | |
| | I | Was the CCV analyzed at the method-required frequency? | Yes | |
| · | I · | Were percent differences for each analyte within the method-required QC limits? | Yes | |
| | I | Was the ICAL curve verified for each analyte? | Yes | |
| | I | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | No | ER1 |
| 53 | 0 | Mass spectral tuning: | | |
| | I | Was the appropriate compound for the method used for tuning? | NA | |
| | I | Were ion abundance data within the method-required QC limits? | NA | |
| S4 | 0 | Internal standards (IS): | | |
| | I | Were IS area counts and retention times within the method-required QC limits? | NA | |
| S5 | O, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | |
| | I | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | Yes | |
| | I | Were data associated with manual integrations flagged on the raw data? | NA | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ |
|-----------|-----------------------|--|--|---|
| S6 | 0 | Dual column confirmation | | |
| · | I | Did dual column confirmation results meet the method-required QC? | NA | |
| S7 | 0 | Tentatively identified compounds (TICs): | | |
| | I | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | NA | |
| S8 | I | Interference Check Sample (ICS) results: | | |
| | I | Were percent recoveries within method QC limits? | NA | |
| S9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | |
| | I | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | NA | |
| S10 | O, I | Method detection limit (MDL) studies | | |
| | I | Was a MDL study performed for each reported analyte? | Yes | |
| | I | Is the MDL either adjusted or supported by the analysis of DCSs? | Yes | |
| S11 | O, I | Proficiency test reports: | | |
| | I | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | Yes | |
| S12 | O, I | Standards documentation | | |
| | I | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | Yes | |
| S13 | O, I | Compound/analyte identification procedures | | |
| | I | Are the procedures for compound/analyte identification documented? | Yes | |
| S14 | O, I | Demonstration of analyst competency (DOC) | | |
| | I | Was DOC conducted consistent with NELAC Chapter 5C? | Yes | |
| | I | Is documentation of the analyst's competency up-to-date and on file? | Yes | |
| S15 | O, I | Verification/validation documentation for methods (NELAC Chap 5n 5) | , | |
| | I | Are all the methods used to generate the data documented, verified, and validated, where applicable? | Yes | |
| S16 | O, I | Laboratory standard operating procedures (SOPs): | | 4 |
| | I | Are laboratory SOPs current and on file for each method performed? | Yes | |

Table 3. Exception Reports.

| Laboratory Nai | me: American Electric Power Dolan Chemical Laboratory |
|----------------|---|
| | Welsh Background |
| Reviewer Name | |
| LRC Date: 6/30 | 0/23 |
| | Number: 231698 |
| | mber(s): QC2306254 |

| Exception Report No. | Description |
|----------------------|--|
| ER1 | CCB acceptance criteria is CCB <mql.< th=""></mql.<> |
| | |
| | |
| - | |
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| | |

Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

² O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

³ NA - Not applicable; NR - Not reviewed.

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

| × | (which | nis signature page, and the laboratory review checklist consisting of Table 1, Reportable Data which includes the reportable data identified on this page), Table 2, Supporting Data, and able 3, Exception Reports. | | | | | | |
|---|--|--|--|---|---|---|--|--|
| x | R ₁ | Field | chain-of-cus | stody documen | itation | | | |
| X | R2 | Samp | ple identifica | tion cross-refe | rence | | | |
| x | R3 | (a) 1 (b) 1 (c) 1 (d) 0 | Items specific NELAC Stand Dilution factor Preparation 1 Cleanup met | ed in NELAC C dard ors nethods hods | Chapter 5 for | | sample that includes: s, e.g., Section 5.5.10 in 2003 ands (TICs) | |
| NA | R4 | (a) | Calculated re | ry data includir covery (%R) ry's surrogate (| | | | |
| x | R ₅ | Test | reports/sum | mary forms for | r blank samı | oles | | |
| X | R6 | (a) 1 (b) (| LCS spiking a Calculated % | | lyte | control samples | (LCSs) including: | |
| × | R7 | (a) { (b) { (c) { (d) { | Samples asso MS/MSD spi Concentratio Calculated % | ciated with the king amounts on of each MS/ | e MŚ/MSD o MSD analyto e percent dif | learly identified | e parent and spiked samples | |
| X | R8 | (a) ' (b) ' | The amount The calculate | of analyte mea | sured in the | - | precision: | |
| x | R9 | List | of method qu | antitation limi | ts (MQLs) f | or each analyte f | or each method and matrix | |
| x | R10 | Othe | r problems o | r anomalies | | | | |
| x | The Ex | ceptio | on Report for | every item for | r which the 1 | esult is "No" or ' | 'NR" (Not Reviewed) | |
| packag require reports by the laborat | e as be ements s. By m laborat tory in t | en revof the y sign as tory as the La | viewed by the methods use nature below s having the p | e laboratory an ed, except whe , I affirm to the potential to aff riew Checklist, | d is complete re noted by the best of my ect the quali | e and technically he laboratory in knowledge, all p ty of the data, ha | ata package. This data y compliant with the the attached exception roblems/anomalies, observed ave been identified by the have been knowingly withheld | |
| respon used is statem Micha | ding to respon ent is tr ael Oh | rule. sible rue. llinge | The official s for releasing | igning the cove this data pack | er page of th | e rule-required i signature affirm Chemist | report in which these data are ning the above release 7/5/2023 | |
| name | (printed | l) | Sig | gnature | () | Official Title | Date | |

Table 1. Reportable Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh Background

Reviewer Name: Michael Ohlinger

LRC Date: 7/5/2023

Laboratory Job Number: 231698

Prep Batch Number(s): QC2306119

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ |
|-------|-----------------------|---|---|---|
| R1 | O, I | Chain-of-custody (COC) | | |
| | I | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | Yes | |
| | I | Were all departures from standard conditions described in an exception report? | NA | |
| R2 | O, I | Sample and quality control (QC) identification | | |
| | I | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | Yes | |
| | I | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | Yes | |
| R3 | O, I | Test reports | | |
| | I | Were all samples prepared and analyzed within holding times? | Yes | |
| | I | Other than those results < MQL, were all other raw values bracketed by calibration standards? | NA | |
| | I | Were calculations checked by a peer or supervisor? | Yes | - |
| | I | Were all analyte identifications checked by a peer or supervisor? | Yes | *6 |
| | I | Were sample quantitation limits reported for all analytes not detected? | Yes | |
| | I | Were all results for soil and sediment samples reported on a dry weight basis? | NA | |
| | I | Was % moisture (or solids) reported for all soil and sediment samples? | NA | |
| | I | If required for the project, TICs reported? | NA | |
| R4 | 0 | Surrogate recovery data | | |
| | I | Were surrogates added prior to extraction? | NA | |
| | I | Were surrogate percent recoveries in all samples within the laboratory QC limits? | NA | |
| R5 | O, I | Test reports/summary forms for blank samples | | |
| _ | I | Were appropriate type(s) of blanks analyzed? | Yes | |
| | I | Were blanks analyzed at the appropriate frequency? | Yes | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ |
|-------|-----------------------|---|---|---|
| - | I | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures? | Yes | |
| | I | Were blank concentrations < MQL? | Yes | |
| R6 | O, I | Laboratory control samples (LCS): | | |
| | I | Were all COCs included in the LCS? | Yes | |
| | I | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | Yes | |
| | I | Were LCSs analyzed at the required frequency? | Yes | |
| | I | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | Yes | |
| | I | Was the LCSD RPD within QC limits? | Yes | |
| R7 | O, I | Matrix spike (MS) and matrix spike duplicate (MSD) data | | |
| | I | Were the project/method specified analytes included in the MS and MSD? | NA | |
| | I | Were MS/MSD analyzed at the appropriate frequency? | NA | |
| | I | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | NA | |
| | I | Were MS/MSD RPDs within laboratory QC limits? | NA | |
| R8 | O, I | Analytical duplicate data | | |
| | I | Were appropriate analytical duplicates analyzed for each matrix? | Yes | |
| | I | Were analytical duplicates analyzed at the appropriate frequency? | Yes | |
| | I | Were RPDs or relative standard deviations within the laboratory QC limits? | Yes | |
| R9 | O, I | Method quantitation limits (MQLs): | | |
| | I | Are the MQLs for each method analyte included in the laboratory data package? | Yes | |
| | I | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | Yes | |
| | I | Are unadjusted MQLs included in the laboratory data package? | Yes | |
| R10 | O, I | Other problems/anomalies | | |
| | I | Are all known problems/anomalies/special conditions noted in this LRC and ER? | Yes | |
| | I | Were all necessary corrective actions performed for the reported data? | Yes | |
| | I | Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results? | Yes | |

Table 2. Supporting Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh Background

Reviewer Name: Michael Ohlinger

LRC Date: 7/5/2023

Laboratory Job Number: 231698

Prep Batch Number(s): QC2306119

| Item¹ | | | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ |
|-------|------|--|--|---|
| S1 | O, I | Initial calibration (ICAL) | | |
| | I | Were response factors and/or relative response factors for each analyte within QC limits? | NA | |
| | I | Were percent RSDs or correlation coefficient criteria met? | NA | |
| | I | Was the number of standards recommended in the method used for all analytes? | NA | |
| | I | Were all points generated between the lowest and highest standard used to calculate the curve? | NA | |
| | I | Are ICAL data available for all instruments used? | NA | - |
| | I | Has the initial calibration curve been verified using an appropriate second source standard? | NA | |
| S2 | O, I | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | |
| | I | Was the CCV analyzed at the method-required frequency? | NA | |
| | I | Were percent differences for each analyte within the method-required QC limits? | NA | |
| | I | Was the ICAL curve verified for each analyte? | NA | |
| | I | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | NA | |
| _ \$3 | 0 | Mass spectral tuning: | | |
| | I | Was the appropriate compound for the method used for tuning? | NA | |
| | I | Were ion abundance data within the method-required QC limits? | NA | |
| S4 | 0 | Internal standards (IS): | | |
| | I | Were IS area counts and retention times within the method-required QC limits? | NA | |
| S5 | O, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | 1993. (6) |
| | I | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | Yes | |
| | I | Were data associated with manual integrations flagged on the raw data? | NA | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|--|--|-----------------------------|
| S6 | 0 | Dual column confirmation | | |
| - | I | Did dual column confirmation results meet the method-required QC? | NA | |
| S7 | 0 | Tentatively identified compounds (TICs): | | |
| | I | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | NA | |
| S8 | I | Interference Check Sample (ICS) results: | | |
| | I | Were percent recoveries within method QC limits? | NA | |
| S9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | |
| | I | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | NA · | |
| S10 | O, I | Method detection limit (MDL) studies | | |
| | I | Was a MDL study performed for each reported analyte? | Yes | |
| | I | Is the MDL either adjusted or supported by the analysis of DCSs? | Yes | |
| S11 | O, I | Proficiency test reports: | | |
| | I | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | Yes | |
| S12 | O, I | Standards documentation | | |
| | I | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | Yes | |
| S13 | O, I | Compound/analyte identification procedures | | |
| | I | Are the procedures for compound/analyte identification documented? | Yes | |
| S14 | O, I | Demonstration of analyst competency (DOC) | | |
| | I | Was DOC conducted consistent with NELAC Chapter 5C? | Yes | |
| | I | Is documentation of the analyst's competency up-to-date and on file? | Yes | |
| S15 | O, I | Verification/validation documentation for methods (NELAC Chap 5n 5) | | |
| | I | Are all the methods used to generate the data documented, verified, and validated, where applicable? | Yes | |
| S16 | O, I | Laboratory standard operating procedures (SOPs): | | |
| | I | Are laboratory SOPs current and on file for each method performed? | Yes | |

Table 3. Exception Reports.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh Background

Reviewer Name: Michael Ohlinger

LRC Date: 7/5/2023

Laboratory Job Number: 231698

Prep Batch Number(s): QC2306119

| Exception Report No. | Description |
|----------------------|-------------|
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¹ Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

²O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

³ NA - Not applicable; NR - Not reviewed.

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 231693 Customer: Welsh Power Station Date Reported: 06/30/2023

Customer Sample ID: AD-8 Customer Description: TG-32

Lab Number: 231693-001 Preparation:

Date Collected: 06/05/2023 10:13 EDT Date Received: 06/08/2023 11:00 EDT

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | 21.1 mg/L | 2 | 0.04 | 0.01 | CRJ | 06/27/2023 17:11 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.86 mg/L | 2 | 0.06 | 0.02 | CRJ | 06/27/2023 17:11 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 155 mg/L | 10 | 3.0 | 0.6 | CRJ | 06/27/2023 16:38 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| Parameter | Result Units D | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method | |
|-------------------------|----------------|----------|----|---------------------|---------|------------------|---------------|--|
| TDS, Filterable Residue | 300 mg/L | 1 | 50 | 20 | ELT | 06/08/2023 12:52 | SM 2540C-2015 | |

Customer Sample ID: AD-9 Customer Description: TG-32

Lab Number: 231693-002 Preparation:

Date Collected: 06/05/2023 10:55 EDT Date Received: 06/08/2023 11:00 EDT

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Metnod |
|---------------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | 78.3 mg/L | 25 | 0.5 | 0.1 | CRJ | 06/27/2023 18:50 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.17 mg/L | 2 | 0.06 | 0.02 | CRJ | 06/27/2023 19:23 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 1230 mg/L | 25 | 8 | 2 | CRJ | 06/27/2023 18:50 | EPA 300.1 -1997, Rev. 1.0 |
| Wet Chemistry | | | | | | | |

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|----------|----|---------------------|---------|------------------|---------------|
| TDS, Filterable Residue | 1950 mg/L | 1 | 50 | 20 | ELT | 06/08/2023 12:58 | SM 2540C-2015 |

Customer Sample ID: AD-15 Customer Description: TG-32

Lab Number: 231693-003 Preparation:

Date Collected: 06/05/2023 11:15 EDT Date Received: 06/08/2023 11:00 EDT

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | 28.6 mg/L | 2 | 0.04 | 0.01 | CRJ | 06/27/2023 16:06 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.08 mg/L | 2 | 0.06 | 0.02 | CRJ | 06/27/2023 16:06 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 12.4 mg/L | 2 | 0.6 | 0.1 | CRJ | 06/27/2023 16:06 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|----------|----|---------------------|---------|------------------|---------------|
| TDS, Filterable Residue | 140 mg/L | 1 | 50 | 20 | ELT | 06/08/2023 12:58 | SM 2540C-2015 |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 231693 Customer: Welsh Power Station Date Reported: 06/30/2023

Customer Sample ID: DUPLICATE-PBAP Customer Description: TG-32

Lab Number: 231693-004 Preparation:

Date Collected: 06/05/2023 13:00 EDT Date Received: 06/08/2023 11:00 EDT

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | 21.2 mg/L | 2 | 0.04 | 0.01 | CRJ | 06/27/2023 21:02 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.85 mg/L | 2 | 0.06 | 0.02 | CRJ | 06/27/2023 21:02 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 156 mg/L | 10 | 3.0 | 0.6 | CRJ | 06/27/2023 20:29 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| Parameter | Result Units I | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method | |
|-------------------------|----------------|----------|----|---------------------|---------|------------------|---------------|--|
| TDS, Filterable Residue | 310 mg/L | 1 | 50 | 20 | ELT | 06/08/2023 13:04 | SM 2540C-2015 | |

Customer Sample ID: Field Blank-PBAP Customer Description: TG-32

Lab Number: 231693-005 Preparation:

<20 mg/L

Date Collected: 06/05/2023 11:01 EDT Date Received: 06/08/2023 11:00 EDT

50

Ion Chromatography

TDS, Filterable Residue

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|---------------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | <0.01 mg/L | 2 | 0.04 | 0.01 U1 | CRJ | 06/27/2023 18:17 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | <0.02 mg/L | 2 | 0.06 | 0.02 U1 | CRJ | 06/27/2023 18:17 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | <0.1 mg/L | 2 | 0.6 | 0.1 U1 | CRJ | 06/27/2023 18:17 | EPA 300.1 -1997, Rev. 1.0 |
| Wet Chemistry | | | | | | | |
| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |

20 U1

ELT

06/08/2023 13:04 SM 2540C-2015



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 231693 Customer: Welsh Power Station Date Reported: 06/30/2023

Report Verification

This report and the above data have been confirmed by the following analyst.

Michael Ohlinger, Chemist

Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

Muhael S. Ollinger

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Data Qualifer Legend

U1 - Not detected at or above method detection limit (MDL).

Chain of Custody Record

Dolan Chemical Laboratory (DCL)

4001 Bixby Road

| Groveport, Ohlo 43125 | | | | Prog | ram: (| Soal Co | mbustio | Program: Coal Combustion Residuals (CCR) | Is (CCR) | | | |
|---|---|-------------|---------------------------------------|-------------|---------------|-----------------|---|--|----------------------|--|-----------------------------------|------------------------|
| Contacts: | | | | | S | Site Contact: | i; | | | Date: | ! | For Lab Use Only: |
| Michael Ohlinger (614-836-4184) | | | | | | | | | | | | COCOCIEE #. |
| Project Name: Welsh PBAP | | | | | | | | Field-filter 500 mL | 7 | Three (aix every | ass vial L PTFE tle, H<2 | |
| Contact Name: Rebecca Jones | Analysis Turnsround Time (In Calendar Days) Routine (28 days) | - Routine | Fime (In Ca (28 days) | endar Da |) S | | bottle, | bottle, | bottle, | 10th") | | 321/02 |
| Contact Phone; (737) 330-3725 | | | | | | | | HNO, | 0-6°C | 1 L Bottles, pH<2, HNO ₃ | f 10 enil | 4-216-75 |
| Sampler(s): Matt Hamilton Kenny McDonald | | | | | | | ,88, 88, 0, Pb, | uM bns (| 'os | 822- | | |
| Sample Identification | Sample S Date | Sample Time | Sample Type (C=Comp, G=Grab) | Matrix | # of Cont. | Sampler(s) Inli | B, Ca, Li, Sb, Be, Cd, Cr, C Mo, Se, TL | dissolved Fe | ,IO ,7 , 2 0T | Ra-226, Ra | вн | Sample Specific Notes: |
| AD-8 | 6/5/2023 | 913 | ŋ | ΑS | - | | | | × | | | Routine (28 days) |
| AD-9 | 6/6/2023 | 955 | O | ΜS | - | | | | × | | | TG-32 needed |
| AD-15 | 6/5/2023 | 1015 | O | GW | - | | | | × | | | |
| DUPLICATE - PBAP | 6/5/2023 | 1200 | ဗ | § S | - | | | | × | | | |
| FIELD BLANK - PBAP | 6/5/2023 | 1001 | ၅ | GW | - | | | | × | | | |
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| | | | | | | | | | | | | |
| Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other | HNO3; 5=NaO | H; 6= Oth | ler | ; F= filter | lter in field | leid | 4 | F4 | 1 | 4 | | 0.30 |
| * Six 1L Bottles must be collected for Radium for every 10th sample. | r every 10th s | атрів. | | | | | | | | | | |

Special instructions/QC Requirements & Comments:

| 7 | | | | |
|--|---------------------------------|------------------------|----------------------------|----------------------------|
| Relinquished by, Style 18 | Company | Date/Time: 1/cz | Received by: | Date/Time, |
| Relinquished by: | Company | Date/Time: | Received by: | Date/Time; |
| Relinquished by: | Company | Date/Time: | Received in Laborator by: | Date/Time: 6/8/23 10,00 Am |
| Form COC-04, AEP Chain of Custody (COC) Record for Coal Combustion Residual (CCR) Sampling - Shreveport, Rev. 1, 1/10/17 | ard for Coal Combustion Residua | il (CCR) Sampling - Sh | Ireveport, Rev. 1, 1/10/17 | |

AEP WATER & WASTE SAMPLE RECEIPT FORM

| Package Type | Delivery Type | | | | | | |
|---|---|--|--|--|--|--|--|
| (Cooler) Box Bag Envelope | PONY UPS FEEEX USPS | | | | | | |
| | Other | | | | | | |
| Plant/Customer Welsh Power | Number of Plastic Containers:5 | | | | | | |
| Opened By Misgina Michael Number of Glass Containers: | | | | | | | |
| | Number of Mercury Containers: | | | | | | |
| | or N/A Initial: /// on ice / no ice | | | | | | |
| * | 4) - If No, specify each deviation: Comments | | | | | | |
| | | | | | | | |
| Was Chain of Custody received? () / N Requested turnaround: | | | | | | | |
| | IO ₃ (48 hr) ortho-PO ₄ (48 hr) Hg-diss (pres) (48 hr) | | | | | | |
| Was COC filled out property? (Y/ N | Comments | | | | | | |
| Were samples labeled property? (V)/ N | Comments | | | | | | |
| | Comments | | | | | | |
| Was pH checked & Color Coding done? (1) N or N/A Initial & Date: 106/08/23 | | | | | | | |
| pH paper (circle one): MQuant,PN1.09535.0001,LOT# [OR] Lab Rat,PN4801,LOT# X000(WDG21 Exp 11/19/202 | | | | | | | |
| • | Yes: By whom & when: (See Prep Book) | | | | | | |
| Is sample filtration requested? Y / () | Comments (See Prep Book) | | | | | | |
| Was the customer contacted? If Yes: | Person Contacted: | | | | | | |
| Lab ID# 23/693 Initial & I | Date & Time : | | | | | | |
| Logged by SO | nts: | | | | | | |
| Reviewed by MMC | | | | | | | |

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.

Municipal Solid Waste Laboratory Review Checklist

| This da | ata pack | age consists o | of: | | | | |
|---|--|--|---|---|--|--|--|
| x | (which | | reportable data identified | w checklist consisting of Table 1, d on this page), Table 2, Supporti | | | |
| x | R1 | Field chain-o | f-custody documentation | n | | | |
| × | R2 | Sample identification cross-reference | | | | | |
| X | R3 | (a) Items sp NELAC S (b) Dilution (c) Preparat (d) Cleanup | ecified in NELAC Chapte Standard factors ion methods methods | or each environmental sample the cr 5 for reporting results, e.g., Section 1975 of the compounds (TICs ively identified compounds (TICs | ction 5.5.10 in 2003 | | |
| х | R4 | (a) Calculate | covery data including: ed recovery (%R) ratory's surrogate QC lin | nits | | | |
| х | R5 | Test reports/ | summary forms for blan | k samples | | | |
| X | R6 | (a) LCS spile (b) Calculate | | ratory control samples (LCSs) in | cluding: | | |
| × | R7 | (a) Samples(b) MS/MSI(c) Concent(d) Calculate | associated with the MS/ D spiking amounts | analyte measured in the parent a ent differences (RPDs) | | | |
| X | R8 | (a) The amo | ount of analyte measured | - | | | |
| x | R9 | List of metho | d quantitation limits (M | QLs) for each analyte for each m | ethod and matrix | | |
| x | R10 | Other proble | ms or anomalies | | | | |
| x | The Ex | ception Repo | rt for every item for whic | h the result is "No" or "NR" (Not | Reviewed) | | |
| packag require reports by the laborat | e as be ements s. By m laborat tory in t | en reviewed b of the method y signature be ory as having | y the laboratory and is co is used, except where not elow, I affirm to the best the potential to affect the Review Checklist, and r | ase of this laboratory data package omplete and technically complianted by the laboratory in the attack of my knowledge, all problems/a e quality of the data, have been in the information or data have been | nt with the ned exception nomalies, observed dentified by the | | |
| respon used is | ding to | rule. The offic sible for relea | cial signing the cover pag | house laboratory controlled by the of the rule-required report in wind is by signature affirming the a | hich these data are | | |
| Tim A | Arnold | | Chu Chal | Chemist Principle | 6/30/23 | | |
| Name | (printed | H) | Signature | Official Title | Date | | |

Table 1. Reportable Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh PBAP

Reviewer Name: Tim Arnold

LRC Date: 6/30/23

Laboratory Job Number: 231693

Prep Batch Number(s): QC2306254

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ |
|-------|-----------------------|---|---|---|
| R1 | O, I | Chain-of-custody (COC) | | |
| | I | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | Yes | |
| | I | Were all departures from standard conditions described in an exception report? | Yes | |
| R2 | 0, I | Sample and quality control (QC) identification | | |
| | I | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | Yes | |
| | I | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | Yes | |
| R3 | O, I | Test reports | | |
| | I | Were all samples prepared and analyzed within holding times? | Yes | |
| | I | Other than those results < MQL, were all other raw values bracketed by calibration standards? | Yes | |
| | · I | Were calculations checked by a peer or supervisor? | Yes | |
| | I | Were all analyte identifications checked by a peer or supervisor? | Yes | |
| | I | Were sample quantitation limits reported for all analytes not detected? | Yes | |
| | 1 | Were all results for soil and sediment samples reported on a dry weight basis? | NA | |
| | I | Was % moisture (or solids) reported for all soil and sediment samples? | NA | |
| | I | If required for the project, TICs reported? | NA | |
| R4 | 0 | Surrogate recovery data | | |
| | I | Were surrogates added prior to extraction? | Yes | |
| | I | Were surrogate percent recoveries in all samples within the laboratory QC limits? | Yes | |
| R5 | O, I | Test reports/summary forms for blank samples | | |
| | I | Were appropriate type(s) of blanks analyzed? | Yes | |
| | I | Were blanks analyzed at the appropriate frequency? | Yes | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| | I | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures? | Yes | |
| | _ I | Were blank concentrations < MQL? | Yes | |
| R6 | O, I | Laboratory control samples (LCS): | | |
| | I | Were all COCs included in the LCS? | Yes | |
| | I | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | Yes | ! |
| | I | Were LCSs analyzed at the required frequency? | Yes | |
| | I | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | Yes | |
| | I | Was the LCSD RPD within QC limits? | Yes | |
| R7 | O, I | Matrix spike (MS) and matrix spike duplicate (MSD) data | | |
| | I | Were the project/method specified analytes included in the MS and MSD? | Yes | 23 |
| | a: I | Were MS/MSD analyzed at the appropriate frequency? | Yes | |
| | I | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Were MS/MSD RPDs within laboratory QC limits? | Yes | |
| R8 | O, I | Analytical duplicate data | | |
| | I | Were appropriate analytical duplicates analyzed for each matrix? | Yes | |
| | 1 | Were analytical duplicates analyzed at the appropriate frequency? | Yes | |
| | I | Were RPDs or relative standard deviations within the laboratory QC limits? | Yes | |
| R9 | O, I | Method quantitation limits (MQLs): | | |
| | I | Are the MQLs for each method analyte included in the laboratory data package? | Yes | |
| | I | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | Yes | |
| | I , | Are unadjusted MQLs included in the laboratory data package? | Yes | |
| R10 | O, I | Other problems/anomalies | | |
| | W I | Are all known problems/anomalies/special conditions noted in this LRC and ER? | Yes | |
| | I | Were all necessary corrective actions performed for the reported data? | Yes | |
| | I | Was applicable and available technology used to lower the SQL minimize the matrix Interference affects on the sample results? | Yes | |

Table 2. Supporting Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh PBAP

Reviewer Name: Tim Arnold

LRC Date: 6/30/23

Laboratory Job Number: 231693

Prep Batch Number(s): QC2306254

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|------------|-----------------------|--|--|-----------------------------|
| S1 | 0, I | Initial calibration (ICAL) | | |
| | I | Were response factors and/or relative response factors for each analyte within QC limits? | NA | |
| | I | Were percent RSDs or correlation coefficient criteria met? | Yes | |
| | I | Was the number of standards recommended in the method used for all analytes? | Yes | |
| | I | Were all points generated between the lowest and highest standard used to calculate the curve? | Yes | [02:00:00:00:00:00 |
| | I | Are ICAL data available for all instruments used? | Yes | |
| | I | Has the initial calibration curve been verified using an appropriate second source standard? | Yes | |
| S2 | O, I | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | |
| | I | Was the CCV analyzed at the method-required frequency? | Yes | |
| | I | Were percent differences for each analyte within the method-required QC limits? | Yes | |
| | I | Was the ICAL curve verified for each analyte? | Yes | |
| | I | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | No | ER1 |
| S 3 | 0 | Mass spectral tuning: | | |
| | I | Was the appropriate compound for the method used for tuning? | NA | |
| | I | Were ion abundance data within the method-required QC limits? | NA | |
| \$4 | 0 | Internal standards (IS): | | , |
| · | I | Were IS area counts and retention times within the method-required QC limits? | NA | |
| S5 | O, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | |
| | I | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | Yes | |
| | I | Were data associated with manual integrations flagged on the raw data? | NA | 82 3 |

Ion Chromatography Laboratory Review Checklist

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 | |
|------------|-----------------------|--|--|-----------------------------|--|
| S6 | 0 | Dual column confirmation | | | |
| | I | Did dual column confirmation results meet the method-required QC? | NA | | |
| S7 | 0 | Tentatively identified compounds (TICs): | | | |
| 4 | I | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | NA | | |
| S8 | I | Interference Check Sample (ICS) results: | | | |
| | I | Were percent recoveries within method QC limits? | NA | | |
| S 9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | | |
| | I | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | NA | | |
| S10 | O, I | Method detection limit (MDL) studies | | | |
| | I | Was a MDL study performed for each reported analyte? | Yes | | |
| | I | Is the MDL either adjusted or supported by the analysis of DCSs? | Yes | | |
| S11 | O, I | Proficiency test reports: | | | |
| | I | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | Yes | | |
| S12 | O, I | Standards documentation | | | |
| | I | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | Yes | | |
| S13 | O, I | Compound/analyte identification procedures | | | |
| | I | Are the procedures for compound/analyte identification documented? | Yes | | |
| S14 | 0, I | Demonstration of analyst competency (DOC) | | | |
| | I | Was DOC conducted consistent with NELAC Chapter 5C? | Yes | | |
| | I | Is documentation of the analyst's competency up-to-date and on file? | Yes | | |
| S15 | O, I | Verification/validation documentation for methods (NELAC Chap 5n 5) | | | |
| 7.2 | I | Are all the methods used to generate the data documented, verified, and validated, where applicable? | Yes | | |
| S16 | O, I | Laboratory standard operating procedures (SOPs): | | | |
| | I | Are laboratory SOPs current and on file for each method performed? | Yes | | |

Ion Chromatography Laboratory Review Checklist

Table 3. Exception Reports.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh PBAP

Reviewer Name: Tim Arnold

LRC Date: 6/30/23

Laboratory Job Number: 231693

Prep Batch Number(s): QC2306254

| Exception Report No. | Description | | | | | | | | |
|----------------------|--|--|--|--|--|--|--|--|--|
| ER1 | CCB acceptance criteria is CCB <mql.< th=""></mql.<> | | | | | | | | |
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Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

² O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

³ NA - Not applicable; NR - Not reviewed.

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

Municipal Solid Waste Laboratory Review Checklist

This data package consists of: х This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports. X R₁ Field chain-of-custody documentation × R_2 Sample identification cross-reference Test reports (analytical data sheets) for each environmental sample that includes: \mathbf{x} R3 (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 **NELAC Standard** (b) Dilution factors (c) Preparation methods (d) Cleanup methods (e) If required for the project, tentatively identified compounds (TICs) NA. **R**4 Surrogate recovery data including: (a) Calculated recovery (%R) (b) The laboratory's surrogate QC limits Test reports/summary forms for blank samples х **R**5 X R6 Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts (b) Calculated %R for each analyte (c) The laboratory's LCS QC limits Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: X **R**7 (a) Samples associated with the MS/MSD clearly identified (b) MS/MSD spiking amounts (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples (d) Calculated %Rs and relative percent differences (RPDs) (e) The laboratory's MS/MSD QC limits X Laboratory analytical duplicate (if applicable) recovery and precision: **R8** (a) The amount of analyte measured in the duplicate (b) The calculated RPD (c) The laboratory's QC limits for analytical duplicates List of method quantitation limits (MQLs) for each analyte for each method and matrix $|\mathbf{x}|$ R9 $\left[\mathbf{x} \right]$ Other problems or anomalies X The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed) Release Statement: I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data. Check, if applicable: () This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Michael Ohlinger

Name (printed)

6/30/23

Date

Official Title

Table 1. Reportable Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh PBAP

Reviewer Name: Michael Ohlinger

LRC Date: 6/30/2023

Laboratory Job Number: 231693

Prep Batch Number(s): QC2306117

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| R1 | O, I | Chain-of-custody (COC) | | |
| | I | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | Yes | |
| | I | Were all departures from standard conditions described in an exception report? | NA | |
| R2 | O, I | Sample and quality control (QC) identification | | |
| | I | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | Yes | |
| | I | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | Yes | |
| R3 | O, I | Test reports | | |
| | I | Were all samples prepared and analyzed within holding times? | Yes | |
| | I | Other than those results < MQL, were all other raw values bracketed by calibration standards? | NA | |
| | I | Were calculations checked by a peer or supervisor? | Yes | |
| | I | Were all analyte identifications checked by a peer or supervisor? | Yes | |
| | I | Were sample quantitation limits reported for all analytes not detected? | Yes | |
| | I | Were all results for soil and sediment samples reported on a dry weight basis? | NA | |
| | ı | Was % moisture (or solids) reported for all soil and sediment samples? | NA | |
| | I | If required for the project, TICs reported? | NA | |
| R4 | 0 | Surrogate recovery data | | |
| | I | Were surrogates added prior to extraction? | NA | |
| | I | Were surrogate percent recoveries in all samples within the laboratory QC limits? | NA | |
| R5 | O, I | Test reports/summary forms for blank samples | | |
| | I | Were appropriate type(s) of blanks analyzed? | Yes | |
| | I | Were blanks analyzed at the appropriate frequency? | Yes | |

| Item¹ Analytes | | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 | |
|----------------|--------|---|---|-----------------------------|--|
| | I | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures? | Yes | | |
| | I | Were blank concentrations < MQL? | Yes | | |
| R6 | . O, I | Laboratory control samples (LCS): | | | |
| | I | Were all COCs included in the LCS? | Yes | | |
| | I | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | Yes | | |
| | I | Were LCSs analyzed at the required frequency? | Yes | | |
| | I | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | Yes | | |
| | I | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | Yes | | |
| | I | Was the LCSD RPD within QC limits? | Yes | | |
| R7 | O, I | Matrix spike (MS) and matrix spike duplicate (MSD) data | | | |
| | I | Were the project/method specified analytes included in the MS and MSD? | NA | | |
| | I | Were MS/MSD analyzed at the appropriate frequency? | NA | | |
| | I | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | NA | | |
| | I | Were MS/MSD RPDs within laboratory QC limits? | NA | | |
| R8 | O, I | Analytical duplicate data | | | |
| | I | Were appropriate analytical duplicates analyzed for each matrix? | Yes | | |
| | I | Were analytical duplicates analyzed at the appropriate frequency? | Yes | | |
| | I | Were RPDs or relative standard deviations within the laboratory QC limits? | Yes | | |
| R9 | O, I | Method quantitation limits (MQLs): | | | |
| | I | Are the MQLs for each method analyte included in the laboratory data package? | Yes | | |
| | I | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | Yes | | |
| | I | Are unadjusted MQLs included in the laboratory data package? | Yes | | |
| R10 | O, I | Other problems/anomalies | | | |
| | I | Are all known problems/anomalies/special conditions noted in this LRC and ER? | Yes | | |
| | I | Were all necessary corrective actions performed for the reported data? | Yes | : | |
| | I | Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results? | Yes | | |

Table 2. Supporting Data.

| Laboratory Nam | ne: American Electric Power Dolan Chemical Laboratory |
|-----------------|---|
| Project Name: 💄 | |
| _ | Michael Ohlinger |
| LRC Date: | - 3 |
| Laboratory Job | Number: 231693 |
| | ber(s): QC2306117 |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|--|--|-----------------------------|
| S1 | O, I | Initial calibration (ICAL) | | |
| | I | Were response factors and/or relative response factors for each analyte within QC limits? | NA | |
| | I | Were percent RSDs or correlation coefficient criteria met? | NA | |
| | I | Was the number of standards recommended in the method used for all analytes? | NA | |
| | I | Were all points generated between the lowest and highest standard used to calculate the curve? | NA | |
| | I | Are ICAL data available for all instruments used? | NA | |
| | I | Has the initial calibration curve been verified using an appropriate second source standard? | NA | |
| S2 | O, I | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | |
| | I | Was the CCV analyzed at the method-required frequency? | NA | |
| | I | Were percent differences for each analyte within the method-required QC limits? | NA | |
| | I | Was the ICAL curve verified for each analyte? | NA | |
| | I | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | NA | |
| S3 | 0 | Mass spectral tuning: | | |
| | I | Was the appropriate compound for the method used for tuning? | NA | |
| | I | Were ion abundance data within the method-required QC limits? | NA | |
| S4 | 0 | Internal standards (IS): | | |
| | I | Were IS area counts and retention times within the method-required QC limits? | NA | |
| S5 | O, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | |
| | I | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | Yes | |
| | I | Were data associated with manual integrations flagged on the raw data? | NA | |

| Item ¹ Analytes | | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|----------------------------|------|--|--|-----------------------------|
| S6 | 0 | Dual column confirmation | | |
| | I | Did dual column confirmation results meet the method-required QC? | NA | |
| S7 | 0 | Tentatively identified compounds (TICs): | | |
| | I | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | NA | Sq. |
| S8 | I | Interference Check Sample (ICS) results: | | |
| | I | Were percent recoveries within method QC limits? | NA | |
| S9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | |
| | I | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | NA | |
| S10 | O, I | Method detection limit (MDL) studies | | |
| | I | Was a MDL study performed for each reported analyte? | Yes | |
| | I | Is the MDL either adjusted or supported by the analysis of DCSs? | Yes | |
| S11 | O, I | Proficiency test reports: | | |
| | I | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | Yes | |
| S12 | O, I | Standards documentation | | |
| | I | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | Yes | |
| S13 | O, I | Compound/analyte identification procedures | | |
| | I | Are the procedures for compound/analyte identification documented? | Yes | |
| S14 | O, I | Demonstration of analyst competency (DOC) | | |
| | I | Was DOC conducted consistent with NELAC Chapter 5C? | Yes | |
| | I | Is documentation of the analyst's competency up-to-date and on file? | Yes | |
| S15 | O, I | Verification/validation documentation for methods (NELAC Chap 5n 5) | | |
| | I | Are all the methods used to generate the data documented, verified, and validated, where applicable? | Yes | |
| S 16 | O, I | Laboratory standard operating procedures (SOPs): | | |
| | I | Are laboratory SOPs current and on file for each method performed? | Yes | |

Table 3. Exception Reports.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh PBAP

Reviewer Name: Michael Ohlinger

LRC Date: 6/30/2023

Laboratory Job Number: 231693

Prep Batch Number(s): QC2306117

| Exception Report No. | Description | Figure 1 |
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Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

²O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

³ NA - Not applicable; NR - Not reviewed.

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233117 Customer: Welsh Power Station Date Reported: 11/15/2023

Customer Sample ID: AD-1 Customer Description: TG-32

Lab Number: 233117-001 Preparation:

Date Collected: 10/04/2023 11:11 EDT Date Received: 10/04/2023 10:11 EDT

Metals

| Parameter | Result | Units | Dilution | RL | MDL Data Qua | alifiers Analyst | Analysis Date | Method |
|------------|--------|-------|----------|---------|--------------|------------------|------------------|--------------------------|
| Antimony | 0.029 | μg/L | 1 | 0.100 | 0.008 J1 | GES | 10/17/2023 13:26 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 0.19 | μg/L | 1 | 0.10 | 0.03 | GES | 10/17/2023 13:26 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 80.0 | μg/L | 1 | 0.20 | 0.05 | GES | 10/17/2023 13:26 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 1.06 | µg/L | 1 | 0.050 | 0.007 | GES | 10/17/2023 13:26 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.901 | mg/L | 1 | 0.050 | 0.007 | GES | 10/17/2023 13:26 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.027 | µg/L | 1 | 0.020 | 0.004 | GES | 10/17/2023 13:26 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 6.56 | mg/L | 1 | 0.05 | 0.01 | GES | 10/17/2023 13:26 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.38 | µg/L | 1 | 0.30 | 0.07 | GES | 10/17/2023 13:26 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 2.25 | μg/L | 1 | 0.020 | 0.005 | GES | 10/17/2023 13:26 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.44 | µg/L | 1 | 0.20 | 0.05 | GES | 10/17/2023 13:26 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.0103 | mg/L | 1 | 0.00030 | 0.00007 | GES | 10/17/2023 13:26 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | 2 | ng/L | 1 | 5 | 2 J1 | RLP | 10/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 | µg/L | 1 | 0.5 | 0.1 U1 | GES | 10/17/2023 13:26 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 9.26 | µg/L | 1 | 0.50 | 0.04 | GES | 10/17/2023 13:26 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0.05 | µg/L | 1 | 0.20 | 0.02 J1 | GES | 10/17/2023 13:26 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 0.69 pCi/L | 0.14 | 0.14 | TTP | 10/23/2023 17:45 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 76.5 % | | | | | |
| Radium-228 | 1.17 pCi/L | 0.15 | 0.47 | ST | 11/02/2023 17:52 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 74.6 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233117 Customer: Welsh Power Station Date Reported: 11/15/2023

Customer Sample ID: AD-5 Customer Description: TG-32

Lab Number: 233117-002 Preparation:

Date Collected: 10/04/2023 12:18 EDT Date Received: 10/04/2023 10:11 EDT

Metals

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|--------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | <0.008 µg/L | 1 | 0.100 | 0.008 U1 | GES | 10/17/2023 13:31 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 2.94 μg/L | 1 | 0.10 | 0.03 | GES | 10/17/2023 13:31 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 63.9 μg/L | 1 | 0.20 | 0.05 | GES | 10/17/2023 13:31 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0.049 μg/L | 1 | 0.050 | 0.007 J1 | GES | 10/17/2023 13:31 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.042 mg/L | 1 | 0.050 | 0.007 J1 | GES | 10/17/2023 13:31 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | <0.004 µg/L | 1 | 0.020 | 0.004 U1 | GES | 10/17/2023 13:31 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 35.2 mg/L | 1 | 0.05 | 0.01 | GES | 10/17/2023 13:31 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.30 µg/L | 1 | 0.30 | 0.07 | GES | 10/17/2023 13:31 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 12.8 µg/L | 1 | 0.020 | 0.005 | GES | 10/17/2023 13:31 | EPA 200.8-1994, Rev. 5.4 |
| Lead | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 10/17/2023 13:31 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.143 mg/L | 1 | 0.00030 | 0.00007 | GES | 10/17/2023 13:31 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | RLP | 10/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 10/17/2023 13:31 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 0.05 µg/L | 1 | 0.50 | 0.04 J1 | GES | 10/17/2023 13:31 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | <0.02 µg/L | 1 | 0.20 | 0.02 U1 | GES | 10/17/2023 13:31 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 1.28 pCi/L | 0.18 | 0.14 | TTP | 10/23/2023 17:45 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 88.5 % | | | | | |
| Radium-228 | 2.29 pCi/L | 0.21 | 0.62 | ST | 11/02/2023 17:52 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 75.4 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233117 Customer: Welsh Power Station Date Reported: 11/15/2023

Customer Sample ID: AD-17 Customer Description: TG-32

Lab Number: 233117-003 Preparation:

Date Collected: 10/04/2023 12:07 EDT Date Received: 10/04/2023 10:11 EDT

Metals

| Parameter | Result Unit | s Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|-------------|------------|--------|---------------------|---------|------------------|--------------------------|
| Antimony | <0.08 µg/L | 10 | 1.00 | 0.08 U1 | GES | 10/17/2023 13:36 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 0.5 µg/L | 10 | 1.0 | 0.3 J1 | GES | 10/17/2023 13:36 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 11.8 µg/l | 10 | 2.0 | 0.5 | GES | 10/17/2023 13:36 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | <0.07 µg/L | 10 | 0.50 | 0.07 U1 | GES | 10/17/2023 13:36 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.14 mg/ | 10 | 0.50 | 0.07 J1 | GES | 10/17/2023 13:36 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | <0.04 µg/L | 10 | 0.20 | 0.04 U1 | GES | 10/17/2023 13:36 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 176 mg/ | 10 | 0.5 | 0.1 M1 | GES | 10/17/2023 13:36 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 1.3 µg/l | 10 | 3.0 | 0.7 J1 | GES | 10/17/2023 13:36 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 41.2 µg/l | 10 | 0.20 | 0.05 | GES | 10/17/2023 13:36 | EPA 200.8-1994, Rev. 5.4 |
| Lead | <0.5 µg/L | 10 | 2.0 | 0.5 U1 | GES | 10/17/2023 13:36 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.305 mg/ | 10 | 0.0030 | 0.0007 M1 | GES | 10/17/2023 13:36 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | RLP | 10/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <1 µg/l | 10 | 5 | 1 U1 | GES | 10/17/2023 13:36 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | <0.4 µg/L | 10 | 5.0 | 0.4 U1 | GES | 10/17/2023 13:36 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | <0.2 µg/L | 10 | 2.0 | 0.2 U1 | GES | 10/17/2023 13:36 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 0.65 pCi/L | 0.12 | 0.12 | TTP | 10/23/2023 17:45 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 94.9 % | | | | | |
| Radium-228 | 1.40 pCi/L | 0.21 | 0.66 | ST | 11/02/2023 17:52 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 70.7 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233117 Customer: Welsh Power Station Date Reported: 11/15/2023

Customer Sample ID: DUPLICATE - BACKGROUND Customer Description: TG-32

Lab Number: 233117-004 Preparation:

Date Collected: 10/04/2023 13:00 EDT Date Received: 10/04/2023 10:11 EDT

| Motals | | | | | | | |
|------------|--------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
| Antimony | 0.039 μg/L | 1 | 0.100 | 0.008 J1 | GES | 10/17/2023 13:51 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 0.22 µg/L | 1 | 0.10 | 0.03 | GES | 10/17/2023 13:51 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 82.9 μg/L | 1 | 0.20 | 0.05 | GES | 10/17/2023 13:51 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0.997 µg/L | 1 | 0.050 | 0.007 | GES | 10/17/2023 13:51 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.907 mg/L | 1 | 0.050 | 0.007 | GES | 10/17/2023 13:51 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.027 µg/L | 1 | 0.020 | 0.004 | GES | 10/17/2023 13:51 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 6.77 mg/L | 1 | 0.05 | 0.01 | GES | 10/17/2023 13:51 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.35 µg/L | 1 | 0.30 | 0.07 | GES | 10/17/2023 13:51 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 2.39 µg/L | 1 | 0.020 | 0.005 | GES | 10/17/2023 13:51 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.45 µg/L | 1 | 0.20 | 0.05 | GES | 10/17/2023 13:51 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.00980 mg/L | 1 | 0.00030 | 0.00007 | GES | 10/17/2023 13:51 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | RLP | 10/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 10/17/2023 13:51 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 10.0 µg/L | 1 | 0.50 | 0.04 | GES | 10/17/2023 13:51 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0.05 µg/L | 1 | 0.20 | 0.02 J1 | GES | 10/17/2023 13:51 | EPA 200.8-1994, Rev. 5.4 |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233117 Customer: Welsh Power Station Date Reported: 11/15/2023

Customer Sample ID: EB - BACKGROUND Customer Description: TG-32

Lab Number: 233117-005 Preparation:

Date Collected: 10/04/2023 10:49 EDT Date Received: 10/04/2023 10:11 EDT

| Motais | | | | | | | |
|------------|---------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
| Antimony | <0.008 µg/L | 1 | 0.100 | 0.008 U1 | GES | 10/17/2023 14:48 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | <0.03 µg/L | 1 | 0.10 | 0.03 U1 | GES | 10/17/2023 14:48 | EPA 200.8-1994, Rev. 5.4 |
| Barium | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 10/17/2023 14:48 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | <0.007 µg/L | 1 | 0.050 | 0.007 U1 | GES | 10/17/2023 14:48 | EPA 200.8-1994, Rev. 5.4 |
| Boron | <0.007 mg/L | 1 | 0.050 | 0.007 U1 | GES | 10/17/2023 14:48 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | <0.004 µg/L | 1 | 0.020 | 0.004 U1 | GES | 10/17/2023 14:48 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | <0.01 mg/L | 1 | 0.05 | 0.01 U1 | GES | 10/17/2023 14:48 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.51 μg/L | 1 | 0.30 | 0.07 | GES | 10/17/2023 14:48 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 0.085 μg/L | 1 | 0.020 | 0.005 | GES | 10/17/2023 14:48 | EPA 200.8-1994, Rev. 5.4 |
| Lead | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 10/17/2023 14:48 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | <0.00007 mg/L | 1 | 0.00030 | 0.00007 U1 | GES | 10/17/2023 14:48 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | RLP | 10/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 10/17/2023 14:48 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | <0.04 µg/L | 1 | 0.50 | 0.04 U1 | GES | 10/17/2023 14:48 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | <0.02 µg/L | 1 | 0.20 | 0.02 U1 | GES | 10/17/2023 14:48 | EPA 200.8-1994, Rev. 5.4 |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233117 Customer: Welsh Power Station Date Reported: 11/15/2023

Customer Sample ID: FIELD BLANK - BACKGROUND Customer Description: TG-32

Lab Number: 233117-006 Preparation:

Date Collected: 10/04/2023 12:10 EDT Date Received: 10/04/2023 10:11 EDT

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|---------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | <0.008 µg/L | 1 | 0.100 | 0.008 U1 | GES | 10/17/2023 14:53 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | <0.03 µg/L | 1 | 0.10 | 0.03 U1 | GES | 10/17/2023 14:53 | EPA 200.8-1994, Rev. 5.4 |
| Barium | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 10/17/2023 14:53 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | <0.007 µg/L | 1 | 0.050 | 0.007 U1 | GES | 10/17/2023 14:53 | EPA 200.8-1994, Rev. 5.4 |
| Boron | <0.007 mg/L | 1 | 0.050 | 0.007 U1 | GES | 10/17/2023 14:53 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | <0.004 µg/L | 1 | 0.020 | 0.004 U1 | GES | 10/17/2023 14:53 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | <0.01 mg/L | 1 | 0.05 | 0.01 U1 | GES | 10/17/2023 14:53 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.35 μg/L | 1 | 0.30 | 0.07 | GES | 10/17/2023 14:53 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 0.039 µg/L | 1 | 0.020 | 0.005 | GES | 10/17/2023 14:53 | EPA 200.8-1994, Rev. 5.4 |
| Lead | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 10/17/2023 14:53 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | <0.00007 mg/L | 1 | 0.00030 | 0.00007 U1 | GES | 10/17/2023 14:53 | EPA 200.8-1994, Rev. 5.4 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 10/17/2023 14:53 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | <0.04 µg/L | 1 | 0.50 | 0.04 U1 | GES | 10/17/2023 14:53 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | <0.02 µg/L | 1 | 0.20 | 0.02 U1 | GES | 10/17/2023 14:53 | EPA 200.8-1994, Rev. 5.4 |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233117 Customer: Welsh Power Station Date Reported: 11/15/2023

Report Verification

This report and the above data have been confirmed by the following analyst.

Michael Ohlinger, Chemist

Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

Muhuel S. Ollinger

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Data Qualifer Legend

- J1 Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.
- U1 Not detected at or above method detection limit (MDL).
- M1 The associated matrix spike (MS) or matrix spike duplicate (MSD) recovery was outside acceptance limits.

Chain of Custody Record

Dolan Chemical Laboratory (DCL)

4001 Bixby Road

| Groveport, Ohio 43125 | | | | Prog | ram: (| Soal Co | mbustio | Program: Coal Combustion Residuals (CCR) | s (CCR) | | | |
|---|----------------|------------|---|-----------|----------------------|----------------|---|--|----------------|--|-------------------------------|-----------------------------------|
| Contacts: Michael Ohlinger (614-836-4184) | | | | | Ś | Site Contact: | act: | | | Date: | | For Lab Use Only: COC/Order #: |
| Project Name: Welsh Background | Analysis T | urmaround | Analyais Turnaround Time (in Calendar Days) | lendar Da | (<u>%</u> | | | | 1 L bottle, | Three (six every 10th") |), PHFE bottle, ', pH<2 | |
| | | Routin | Routine (28 days) | | | | PH<2, HNO, | then pH<2, HNO ₃ | Coof, 0-6°C | 1 L bottles, pH<2, HNO ₃ | banii | 654 633117 |
| Sampler(s): Matt Hamilton Kenny McDonald | | | | | | | ,68,88, ,d9,0; | oM bas e | 'os | 1-228 | | |
| Sample Identification | Sample Date | Sample | Sample Type (C=Comp, G=Grab) | Matrix | # of Conf. | Sampler(s) Ini | B, Ca, Ll, Sb, Be, Cd, Cr, C Mo, Se, TL | dissolved Fe | , TDS, F, CI, | 년 년 - 226, 년 : | бн | Sample Specific Notes: |
| AD-1 | 10/4/2023 | 1011 | ტ | GW | 80 | | × | | | × | × | Routine (28 days) |
| AD-5 | 10/4/2023 | 1118 | თ | GW | -Cr | | × | | | × | × | TG-32 needed |
| AD-17 | 10/4/2023 | 1107 | g | GW | 2 | | × | | | × | × | |
| DUPLICATE - BACKGROUND | 10/4/2023 | 1200 | ဖ | οW | 2 | | × | | | | × | |
| EQUIPMENT BLANK - BACKGROUND | 10/4/2023 | 949 | | GW | 2 | | × | | | | × | |
| FIELD BLANK - BACKGROUND | 10/4/2023 | 1110 | ტ | GW | - | | × | | | 22 | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other | HNO3; 5=Na | DH; 6= Oth | ner | FE f | ; F= filter in field | eld | 4 | F4 | F | 4 | | |
| * Six 1L Bottles must be collected for Radium for every 10th sample. | r every 10th | sample. | | | | | | | | | | |

Special instructions/QC Requirements & Comments:

| | | ١ | | |
|---|--------------------------------|------------------------|--|--------------------|
| Relinquished by The Hand | Company | Date/Time: 60 | (6 cm* Received by: | Date/ Lime: |
| Relinquished by | Company | Date/Time: | | Date/Time: |
| Relinquished by | Company: | Date/Time | Received Hoperatory by D. C. | Date/Time 7 9/0/23 |
| Form COC-04, AEP Chain of Custody (COC) Record for Coal Combustion Residual (CCR) | rd for Coal Combustion Residu: | al (CCR) Sampling - Sh | Sampling - Shreveport, Rev. 1, 1/10/17 | |

AFF WATER & WASTE SAMPLE RECEIPT FORM

| Package Type Delivery Type | | | | | | | | |
|---|--|--|--|--|--|--|--|--|
| Coole Box Bag Envelope PONY UPS FedEX USPS | | | | | | | | |
| Other | | | | | | | | |
| Plant/Customer Nelsh Power Number of Plastic Containers: 18 | | | | | | | | |
| Opened By Misgrina Number of Glass Containers: | | | | | | | | |
| Date/Time 10/09/23 11:30 Am Number of Mercury Containers: 5 | | | | | | | | |
| Were all temperatures within 0-6°C? Y / N or NA Initial: M/r/c on ice / no ice | | | | | | | | |
| (IR Gun Ser# 2213689000 , Expir. 03/24/2024) - If No, specify each deviation: | | | | | | | | |
| Was container in good condition? W/ N Comments | | | | | | | | |
| Was Chain of Custody received? (V) N Comments | | | | | | | | |
| pH (15 min) Cr ⁴⁶ (pres) NO ₂ or NO ₃ (48 hr) ortho-PO ₄ (48 hr) Hg-diss (pres) | | | | | | | | |
| (24 hr) (48 hr) | | | | | | | | |
| Was COC filled out properly? (Y/N Comments | | | | | | | | |
| Were samples labeled properly? (*/) N Comments | | | | | | | | |
| were correct containers used? (Y// N Comments | | | | | | | | |
| Was pH checked & Color Coding done? (V) N or N/A Initial & Date: MGC 10/09/23 | | | | | | | | |
| pH paper (circle one): MQuant,PN1.09535.0001,LOT# [OR] Lab Rat,PN4801.LOT# xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx | | | | | | | | |
| - Was Add'l Preservative needed? Y / N If Yes: By whom & when: (See Prep Book) | | | | | | | | |
| Is sample filtration requested? Y / N Comments (See Prep Book) | | | | | | | | |
| Was the customer contacted? If Yes: Person Contacted: | | | | | | | | |
| Lab ID# | | | | | | | | |
| Logged by M 50 | | | | | | | | |
| Reviewed by MFIC | | | | | | | | |

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.

Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

| I III3 ua | ta pack | age consists or. | | | | | |
|---|--|--|---|--|--|---|---|
| х | (which | | portable data iden | | dist consisting of Ta s page), Table 2, Sup | | |
| × | R1 | Field chain-of- | custody document | ation | | | |
| × | R2 | Sample identifi | cation cross-refer | ence | | | |
| × | R3 | (a) Items spec NELAC State(b) Dilution fa(c) Preparation(d) Cleanup m | cified in NELAC Ch andard actors in methods aethods | napter 5 for | environmental sam reporting results, e., entified compounds | g., Section | |
| M | R4 | (a) Calculated | very data including recovery (%R) tory's surrogate Q | _ | | | |
| x | R ₅ | Test reports/su | ımmary forms for | blank samp | les | | |
| x | R6 | (a) LCS spikir(b) Calculated | | ⁄te | control samples (LC | Ss) includ | ding: |
| X | R7 | (a) Samples a(b) MS/MSD(c) Concentra(d) Calculated | ssociated with the spiking amounts | MS/MSD c ISD analyte percent diff | measured in the pa | | - |
| х | R8 | (a) The amou(b) The calcul | nt of analyte meas | ured in the | _ | ision: | |
| X | R9 | List of method | quantitation limit | s (MQLs) fo | or each analyte for ea | ach meth | od and matrix |
| х | R10 | Other problem | s or anomalies | | | | |
| х | The Ex | ception Report | for every item for | which the r | esult is "No" or "NR | " (Not Re | viewed) |
| packag require reports by the laborat | e as be ements s. By m laborat tory in t | en reviewed by of the methods y signature bel ory as having tl | the laboratory and used, except wher ow, I affirm to the ne potential to affe Review Checklist, a | l is complet e noted by t best of my l ct the quali | nis laboratory data pe e and technically con he laboratory in the knowledge, all proble ty of the data, have b rmation or data have | mpliant w attached ems/ano been iden | vith the exception malies, observed tified by the |
| respon used is | ding to | rule. The official sible for releasi | al signing the cove ng this data packa | r page of the ge and is by | aboratory controlled e rule-required repo signature affirming | rt in whic the abov | ch these data are |
| Susa | nn Su | Izmann | Jusann In | 7 Many | Senior Chemist | | 11-02-2023 |
| Name | (printed | d) | Signature | | Official Title | | Date |

Table 1. Reportable Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh Power Station

Reviewer Name: Susann Sulzmann

LRC Date: 11-03-2023

Laboratory Job Number: 233117

Prep Batch Number(s): PB23101204

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| R1 | O, I | Chain-of-custody (COC) | | |
| | I | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | Yes | |
| | I | Were all departures from standard conditions described in an exception report? | Yes | |
| R2 | O, I | Sample and quality control (QC) identification | | |
| | I | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | Yes | |
| | I | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | Yes | |
| R3 | O, I | Test reports | | |
| • | I | Were all samples prepared and analyzed within holding times? | yes | |
| | I | Other than those results < MQL, were all other raw values bracketed by calibration standards? | yes | |
| | I | Were calculations checked by a peer or supervisor? | Yes | |
| | I | Were all analyte identifications checked by a peer or supervisor? | Yes | |
| | I | Were sample quantitation limits reported for all analytes not detected? | Yes | |
| | I | Were all results for soil and sediment samples reported on a dry weight basis? | NA | |
| | I | Was % moisture (or solids) reported for all soil and sediment samples? | NA | |
| | I | If required for the project, TICs reported? | NA | |
| R4 | 0 | Surrogate recovery data | | |
| | I | Were surrogates added prior to extraction? | NA | |
| | I | Were surrogate percent recoveries in all samples within the laboratory QC limits? | NA | |
| R5 | O, I | Test reports/summary forms for blank samples | | |
| | I | Were appropriate type(s) of blanks analyzed? | Yes | |
| | I | Were blanks analyzed at the appropriate frequency? | Yes | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| - | I | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures? | Yes | |
| | I | Were blank concentrations < MQL? | ves | |
| R6 | O, I | Laboratory control samples (LCS): | | |
| | I | Were all COCs included in the LCS? | Yes | |
| | I | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | Yes | |
| | I | Were LCSs analyzed at the required frequency? | Yes | |
| | I | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | yes | |
| | I | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | Yes | |
| | I | Was the LCSD RPD within QC limits? | ves | |
| R7 | O, I | Matrix spike (MS) and matrix spike duplicate (MSD) data | | |
| | I | Were the project/method specified analytes included in the MS and MSD? | Yes | |
| | I | Were MS/MSD analyzed at the appropriate frequency? | Yes | |
| | I | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | yes | |
| | I | Were MS/MSD RPDs within laboratory QC limits? | ves | |
| R8 | O, I | Analytical duplicate data | | |
| | I | Were appropriate analytical duplicates analyzed for each matrix? | Yes | |
| | I | Were analytical duplicates analyzed at the appropriate frequency? | Yes | |
| | I | Were RPDs or relative standard deviations within the laboratory QC limits? | yes | |
| R9 | O, I | Method quantitation limits (MQLs): | | |
| | I | Are the MQLs for each method analyte included in the laboratory data package? | Yes | |
| | I | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | Yes | |
| | I | Are unadjusted MQLs included in the laboratory data package? | Yes | |
| R10 | 0, I | Other problems/anomalies | | |
| | I | Are all known problems/anomalies/special conditions noted in this LRC and ER? | Yes | |
| | I | Were all necessary corrective actions performed for the reported data? | Yes | |
| | I | Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results? | Yes | |

Table 2. Supporting Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh Power Station

Reviewer Name: Susann Sulzmann

LRC Date: 11-03-2023

Laboratory Job Number: 233117

Prep Batch Number(s): PB23101204

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|------------|-----------------------|--|--|-----------------------------|
| S1 | O, I | Initial calibration (ICAL) | | |
| | I | Were response factors and/or relative response factors for each analyte within QC limits? | NA | 2 |
| | I | Were percent RSDs or correlation coefficient criteria met? | Yes | |
| | I | Was the number of standards recommended in the method used for all analytes? | Yes | |
| | I | Were all points generated between the lowest and highest standard used to calculate the curve? | | |
| | I | Are ICAL data available for all instruments used? | Yes | |
| | I | Has the initial calibration curve been verified using an appropriate second source standard? | Yes | |
| S2 | O, I | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | |
| | I | Was the CCV analyzed at the method-required frequency? | Yes | |
| | I | Were percent differences for each analyte within the method-required QC limits? | Yes | |
| | I | Was the ICAL curve verified for each analyte? | Yes | |
| | I | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | No | ER1 |
| S 3 | 0 | Mass spectral tuning: | | |
| | I | Was the appropriate compound for the method used for tuning? | NA | |
| | I | Were ion abundance data within the method-required QC limits? | NA | |
| S4 | 0 | Internal standards (IS): | | |
| | I | Were IS area counts and retention times within the method-required QC limits? | NA | |
| S5 | O, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | |
| | I | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | Yes | |
| | I | Were data associated with manual integrations flagged on the raw data? | NA | |

| Item¹ Analytes² | | Analytes ² Description | | | |
|-----------------|------|--|-----|---|--|
| S6 | 0 | Dual column confirmation | | | |
| | I | Did dual column confirmation results meet the method-required QC? | NA | | |
| S7 | 0 | Tentatively identified compounds (TICs): | | | |
| | I | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | NA | | |
| S8 | I | Interference Check Sample (ICS) results: | | | |
| | I | Were percent recoveries within method QC limits? | NA | | |
| S9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | | |
| <u> </u> | I | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | NA | | |
| S10 | O, I | Method detection limit (MDL) studies | | | |
| | I | Was a MDL study performed for each reported analyte? | Yes | | |
| | I | Is the MDL either adjusted or supported by the analysis of DCSs? | Yes | | |
| S11 | O, I | Proficiency test reports: | | | |
| | I | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | Yes | | |
| S12 | O, I | Standards documentation | | | |
| | I | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | Yes | | |
| S13 | 0, I | Compound/analyte identification procedures | | | |
| | I | Are the procedures for compound/analyte identification documented? | Yes | | |
| S14 | O, I | Demonstration of analyst competency (DOC) | | | |
| | I | Was DOC conducted consistent with NELAC Chapter 5C? | Yes | | |
| | I | Is documentation of the analyst's competency up-to- date and on file? | Yes | | |
| S15 | O, I | Verification/validation documentation for methods (NELAC Chap 5n 5) | | | |
| | I | Are all the methods used to generate the data documented, verified, and validated, where applicable? | Yes | | |
| S16 | O, I | Laboratory standard operating procedures (SOPs): | | - | |
| | I | Are laboratory SOPs current and on file for each method performed? | Yes | | |

Table 3. Exception Reports.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh Power Station

Reviewer Name: Susann Sulzmann

LRC Date: 11-03-2023

Laboratory Job Number: 233117

Prep Batch Number(s): PB23101204

| Exception Report No. | Description |
|---------------------------------------|--|
| ER1 | CCB acceptance criteria is CCB <mql.< th=""></mql.<> |
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Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

²O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

³ NA - Not applicable; NR - Not reviewed.

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

Municipal Solid Waste Laboratory Review Checklist

| This da | ıta pack | age | consists of: | | | | | | | |
|--|--|---|--|--|--|--|--|--|--|--|
| × | This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports. | | | | | | | | | |
| x | R1 | Field chain-of-custody documentation | | | | | | | | |
| × | R2 | Sample identification cross-reference | | | | | | | | |
| x | R3 Test reports (analytical data sheets) for each environmental sample that includes: (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in some NELAC Standard (b) Dilution factors (c) Preparation methods (d) Cleanup methods (e) If required for the project, tentatively identified compounds (TICs) | | | | | | | | | |
| NA | R4 | (a) | rogate recovery data in Calculated recovery (9 The laboratory's surro | 6R) | | | | | | |
| х | R5 | | t reports/summary for | _ | ples | | | | | |
| x | R6 | (a) (b) | t reports/summary for LCS spiking amounts Calculated %R for eac The laboratory's LCS (| h analyte | control samples (LCS | s) including: | | | | |
| × | R7 | Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) Samples associated with the MS/MSD clearly identified (b) MS/MSD spiking amounts (c) Concentration of each MS/MSD analyte measured in the parent and spiked sample (d) Calculated %Rs and relative percent differences (RPDs) (e) The laboratory's MS/MSD QC limits | | | | | | | | |
| x | R8 | (a) (b) | oratory analytical dupl The amount of analyte The calculated RPD The laboratory's QC li | e measured in the | duplicate | sion: | | | | |
| x | R9 | | of method quantitation | · · | _ | ch method and matrix | | | | |
| X. | R10 | Oth | er problems or anomal | ies | | | | | | |
| х | The Ex | cept | ion Report for every ite | em for which the | result is "No" or "NR" | (Not Reviewed) | | | | |
| packag require reports by the laborat that we | e as be ements s. By m laborat tory in t | en re of th y sig tory : the L ect t | as having the potential aboratory Review Cheche quality of the data. | ory and is comple t where noted by to the best of my to affect the qual eklist, and no info | te and technically con the laboratory in the a knowledge, all proble ity of the data, have be rmation or data have | npliant with the attached exception ms/anomalies, observed een identified by the been knowingly withheld | | | | |
| respon used is | ding to | rule sible | This laborato The official signing the for releasing this data | e cover page of the package and is b | ie rule-required repor | t in which these data are | | | | |
| Jona | than E | Barn | hill | Benefit of the comment served of the comment served of the comment | Lab Supervisor | 11/8/2023 | | | | |
| Name | (printed | d) | Signature | | Official Title | Date | | | | |

Table 1. Reportable Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh CCR

Reviewer Name: Jonathan Barnhill

LRC Date: 11/8/2023

Laboratory Job Number: 233117

Prep Batch Number(s): PB23101209 QC2310150

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| R1 | O, I | Chain-of-custody (COC) | | |
| | I | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | Yes | |
| | I | Were all departures from standard conditions described in an exception report? | Yes | |
| R2 | O, I | Sample and quality control (QC) identification | | |
| | I | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | Yes | |
| | I | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | Yes | |
| R3 | O, I | Test reports | | |
| | I | Were all samples prepared and analyzed within holding times? | Yes | |
| | I | Other than those results < MQL, were all other raw values bracketed by calibration standards? | No | ER1 |
| - | I | Were calculations checked by a peer or supervisor? | Yes | |
| | I | Were all analyte identifications checked by a peer or supervisor? | Yes | |
| | I | Were sample quantitation limits reported for all analytes not detected? | Yes | |
| | I | Were all results for soil and sediment samples reported on a dry weight basis? | NA | |
| | I | Was % moisture (or solids) reported for all soil and sediment samples? | NA | |
| | I | If required for the project, TICs reported? | NA | |
| R4 | 0 | Surrogate recovery data | | |
| | I | Were surrogates added prior to extraction? | NA | |
| | I | Were surrogate percent recoveries in all samples within the laboratory QC limits? | NA | |
| R5 _ | O, I | Test reports/summary forms for blank samples | | |
| | I | Were appropriate type(s) of blanks analyzed? | Yes | |
| | I | Were blanks analyzed at the appropriate frequency? | Yes | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| | I | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures? | Yes | |
| | I | Were blank concentrations < MQL? | Yes | |
| R6 | O, I | Laboratory control samples (LCS): | | |
| | I | Were all COCs included in the LCS? | Yes | |
| | I | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | Yes | |
| | I | Were LCSs analyzed at the required frequency? | Yes | |
| | I | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | Yes | 3 |
| | I | Was the LCSD RPD within QC limits? | Yes | |
| R7 | O, I | Matrix spike (MS) and matrix spike duplicate (MSD) data | | |
| | I | Were the project/method specified analytes included in the MS and MSD? | Yes | |
| | I | Were MS/MSD analyzed at the appropriate frequency? | Yes | |
| | I | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | No | ER3 |
| | I | Were MS/MSD RPDs within laboratory QC limits? | Yes | |
| R8 | O, I | Analytical duplicate data | | |
| | I | Were appropriate analytical duplicates analyzed for each matrix? | Yes | |
| | I | Were analytical duplicates analyzed at the appropriate frequency? | Yes | |
| | I | Were RPDs or relative standard deviations within the laboratory QC limits? | Yes | |
| R9 | O, I | Method quantitation limits (MQLs): | | |
| | I | Are the MQLs for each method analyte included in the laboratory data package? | Yes | |
| | I | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | Yes | |
| | I | Are unadjusted MQLs included in the laboratory data package? | Yes | |
| R10 | O, I | Other problems/anomalies | | |
| | I | Are all known problems/anomalies/special conditions noted in this LRC and ER? | Yes | |
| | I | Were all necessary corrective actions performed for the reported data? | Yes | |
| | I | Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results? | Yes | |

Table 2. Supporting Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh CCR

Reviewer Name: Jonathan Barnhill

LRC Date: 11/8/2023

Laboratory Job Number: 233117

Prep Batch Number(s): PB23101209 QC2310150

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ | |
|------------|-----------------------|--|--|---|--|
| S1 | O, I | Initial calibration (ICAL) | | | |
| | I | Were response factors and/or relative response factors for each analyte within QC limits? | NA | | |
| | I | Were percent RSDs or correlation coefficient criteria met? | Yes | | |
| | I | Was the number of standards recommended in the method used for all analytes? | Yes | | |
| | I | Were all points generated between the lowest and highest standard used to calculate the curve? | Yes | | |
| | I | Are ICAL data available for all instruments used? | Yes | | |
| | I | Has the initial calibration curve been verified using an appropriate second source standard? | Yes | | |
| S2 | O, I | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | | |
| | I | Was the CCV analyzed at the method-required frequency? | Yes | | |
| | I | Were percent differences for each analyte within the method-required QC limits? | Yes | | |
| | I | Was the ICAL curve verified for each analyte? | Yes | | |
| | I | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | No | ER2 | |
| S3 | 0 | Mass spectral tuning: | | | |
| | I | Was the appropriate compound for the method used for tuning? | Yes | | |
| | I | Were ion abundance data within the method-required QC limits? | Yes | - | |
| 54 | 0 | Internal standards (IS): | | | |
| | I | Were IS area counts and retention times within the method-required QC limits? | Yes | | |
| S 5 | O, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | | |
| | I | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | Yes | | |
| | I | Were data associated with manual integrations flagged on the raw data? | NA | | |

| Item ¹ Analytes ² | | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|---|------|--|--|-----------------------------|
| S6 | 0 | Dual column confirmation | | |
| | I | Did dual column confirmation results meet the method-required QC? | NA | |
| S 7 | 0 | Tentatively identified compounds (TICs): | | |
| | I | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | NA | |
| 58 | I | Interference Check Sample (ICS) results: | | |
| | I | Were percent recoveries within method QC limits? | NA | |
| S9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | |
| | I | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | NA | |
| S10 | O, I | Method detection limit (MDL) studies | | |
| | I | Was a MDL study performed for each reported analyte? | Yes | |
| | I | Is the MDL either adjusted or supported by the analysis of DCSs? | Yes | |
| S11 | O, I | Proficiency test reports: | | |
| | I | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | Yes | |
| S12 | Ο, Ι | Standards documentation | | |
| | I | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | Yes | |
| S13 | O, I | Compound/analyte identification procedures | | |
| | I | Are the procedures for compound/analyte identification documented? | Yes | |
| S14 | O, I | Demonstration of analyst competency (DOC) | | |
| | I | Was DOC conducted consistent with NELAC Chapter 5C? | Yes | - ** 91-34- |
| | I | Is documentation of the analyst's competency up-to- date and on file? | Yes | |
| S15 | O, I | Verification/validation documentation for methods (NELAC Chap 5n 5) | | 500 m |
| | I | Are all the methods used to generate the data documented, verified, and validated, where applicable? | Yes | |
| S16 | O, I | Laboratory standard operating procedures (SOPs): | | |
| | I | Are laboratory SOPs current and on file for each method performed? | Yes | |

Table 3. Exception Reports.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh CCR

Reviewer Name: Jonathan Barnhill

LRC Date: 11/8/2023

Laboratory Job Number: 233117

Prep Batch Number(s): PB23101209 QC2310150

| Exception Report No. | Description |
|----------------------|---|
| ER1 | Linear Dynamic Range (LDR) study used to determine upper limit of analyte calibration |
| ER2 | CCB acceptance criteria is CCB<2.2*MDL. |
| ER3 | Sample 233117-003 failed acceptance criteria on Matrix spike for Calcium and Lithium |
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Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

² O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

³ NA - Not applicable; NR - Not reviewed.

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233118 Customer: Welsh Power Station Date Reported: 11/15/2023

Customer Sample ID: AD-8 Customer Description: TG-32

Lab Number: 233118-001 Preparation:

Date Collected: 10/03/2023 11:20 EDT Date Received: 10/09/2023 12:00 EDT

Metals

| Parameter | Result Un | ts Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|-------------------|-------------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | 0.009 µg/ | L 1 | 0.100 | 0.008 J1 | GES | 10/17/2023 14:58 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 0.21 μg/ | L 1 | 0.10 | 0.03 | GES | 10/17/2023 14:58 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 24.2 μg/ | L 1 | 0.20 | 0.05 | GES | 10/17/2023 14:58 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | <0.007 µg/ | L 1 | 0.050 | 0.007 U1 | GES | 10/17/2023 14:58 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 1 .06 mg | ′L 1 | 0.050 | 0.007 | GES | 10/17/2023 14:58 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.020 μg/ | L 1 | 0.020 | 0.004 | GES | 10/17/2023 14:58 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 18.9 mg | ′L 1 | 0.05 | 0.01 | GES | 10/17/2023 14:58 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.40 μg/ | L 1 | 0.30 | 0.07 | GES | 10/17/2023 14:58 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 3.95 µg∕ | L 1 | 0.020 | 0.005 | GES | 10/17/2023 14:58 | EPA 200.8-1994, Rev. 5.4 |
| Lead | <0.05 µg/ | L 1 | 0.20 | 0.05 U1 | GES | 10/17/2023 14:58 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.0732 mg | ′L 1 | 0.00030 | 0.00007 | GES | 10/17/2023 14:58 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/ | L 1 | 5 | 2 U1 | RLP | 10/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/ | L 1 | 0.5 | 0.1 U1 | GES | 10/17/2023 14:58 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 0.05 μg/ | L 1 | 0.50 | 0.04 J1 | GES | 10/17/2023 14:58 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0. 1 0 µg/ | L 1 | 0.20 | 0.02 J1 | GES | 10/17/2023 14:58 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 0.64 pCi/L | 0.13 | 0.14 | TTP | 10/23/2023 17:45 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 88.2 % | | | | | |
| Radium-228 | 0.60 pCi/L | 0.16 | 0.54 | ST | 11/02/2023 17:52 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 78.8 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233118 Customer: Welsh Power Station Date Reported: 11/15/2023

Customer Sample ID: AD-9 Customer Description: TG-32

Lab Number: 233118-002 Preparation:

Date Collected: 10/03/2023 10:23 EDT Date Received: 10/09/2023 12:00 EDT

Metals

| Parameter | Result Un | ts Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|--------------------|-------------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | <0.008 µg/ | L 1 | 0.100 | 0.008 U1 | GES | 10/17/2023 15:03 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 1.57 µg/ | L 1 | 0.10 | 0.03 | GES | 10/17/2023 15:03 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 37.0 μg/ | L 1 | 0.20 | 0.05 | GES | 10/17/2023 15:03 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0.788 μg/ | L 1 | 0.050 | 0.007 | GES | 10/17/2023 15:03 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.168 mg | ′L 1 | 0.050 | 0.007 | GES | 10/17/2023 15:03 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0. 1 95 μg/ | L 1 | 0.020 | 0.004 | GES | 10/17/2023 15:03 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 168 mg | ′L 1 | 0.05 | 0.01 | GES | 10/17/2023 15:03 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.48 μg/ | L 1 | 0.30 | 0.07 | GES | 10/17/2023 15:03 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 17.4 µg/ | L 1 | 0.020 | 0.005 | GES | 10/17/2023 15:03 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.47 µg/ | L 1 | 0.20 | 0.05 | GES | 10/17/2023 15:03 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.777 mg | ′L 1 | 0.00030 | 0.00007 | GES | 10/17/2023 15:03 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/ | L 1 | 5 | 2 U1 | RLP | 10/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/ | L 1 | 0.5 | 0.1 U1 | GES | 10/17/2023 15:03 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 0.44 µg/ | L 1 | 0.50 | 0.04 J1 | GES | 10/17/2023 15:03 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0. 1 6 μg/ | L 1 | 0.20 | 0.02 J1 | GES | 10/17/2023 15:03 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 0.81 pCi/L | 0.15 | 0.14 | TTP | 10/23/2023 17:45 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 85.8 % | | | | | |
| Radium-228 | 1.30 pCi/L | 0.19 | 0.61 | ST | 11/02/2023 17:52 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 71.5 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233118 Customer: Welsh Power Station Date Reported: 11/15/2023

Customer Sample ID: AD-15 Customer Description: TG-32

Lab Number: 233118-003 Preparation:

Date Collected: 10/03/2023 10:40 EDT Date Received: 10/09/2023 12:00 EDT

Metals

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|------------|--------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Antimony | 0.014 μg/L | 1 | 0.100 | 0.008 J1 | GES | 10/17/2023 15:08 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 3.01 µg/L | 1 | 0.10 | 0.03 | GES | 10/17/2023 15:08 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 69.8 μg/L | 1 | 0.20 | 0.05 | GES | 10/17/2023 15:08 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | 0.139 µg/L | 1 | 0.050 | 0.007 | GES | 10/17/2023 15:08 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 0.179 mg/L | 1 | 0.050 | 0.007 | GES | 10/17/2023 15:08 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.013 µg/L | 1 | 0.020 | 0.004 J1 | GES | 10/17/2023 15:08 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 2.47 mg/L | 1 | 0.05 | 0.01 | GES | 10/17/2023 15:08 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.37 µg/L | 1 | 0.30 | 0.07 | GES | 10/17/2023 15:08 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 3.06 µg/L | 1 | 0.020 | 0.005 | GES | 10/17/2023 15:08 | EPA 200.8-1994, Rev. 5.4 |
| Lead | 0.08 µg/L | 1 | 0.20 | 0.05 J1 | GES | 10/17/2023 15:08 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.00398 mg/L | 1 | 0.00030 | 0.00007 | GES | 10/17/2023 15:08 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | RLP | 10/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 10/17/2023 15:08 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 0.54 µg/L | 1 | 0.50 | 0.04 | GES | 10/17/2023 15:08 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0.06 µg/L | 1 | 0.20 | 0.02 J1 | GES | 10/17/2023 15:08 | EPA 200.8-1994, Rev. 5.4 |

| Parameter | Result Units | UNC*(+/-) | MDA* Data Qualifiers | Analyst | Analysis Date | Method |
|------------------|--------------|-----------|----------------------|---------|------------------|----------------------------|
| Radium-226 | 0.68 pCi/L | 0.13 | 0.15 | TTP | 10/23/2023 17:45 | SW-846 9315-1986, Rev. 0 |
| Carrier Recovery | 97.8 % | | | | | |
| Radium-228 | 1.42 pCi/L | 0.14 | 0.40 | ST | 11/02/2023 17:52 | SW-846 9320-2014, Rev. 1.0 |
| Carrier Recovery | 82.3 % | | | | | |

^{*} The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233118 Customer: Welsh Power Station Date Reported: 11/15/2023

Customer Sample ID: DUPLICATE - PBAP Customer Description: TG-32

Lab Number: 233118-004 Preparation:

Date Collected: 10/03/2023 13:00 EDT Date Received: 10/09/2023 12:00 EDT

| Motais | | | | | | | |
|------------|-------------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
| Antimony | 0.009 μg/L | 1 | 0.100 | 0.008 J1 | GES | 10/17/2023 15:13 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | 0.21 µg/L | 1 | 0.10 | 0.03 | GES | 10/17/2023 15:13 | EPA 200.8-1994, Rev. 5.4 |
| Barium | 24.4 μg/L | 1 | 0.20 | 0.05 | GES | 10/17/2023 15:13 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | <0.007 µg/L | 1 | 0.050 | 0.007 U1 | GES | 10/17/2023 15:13 | EPA 200.8-1994, Rev. 5.4 |
| Boron | 1.07 mg/L | 1 | 0.050 | 0.007 | GES | 10/17/2023 15:13 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | 0.023 µg/L | 1 | 0.020 | 0.004 | GES | 10/17/2023 15:13 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 19.0 mg/L | 1 | 0.05 | 0.01 | GES | 10/17/2023 15:13 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.46 µg/L | 1 | 0.30 | 0.07 | GES | 10/17/2023 15:13 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 4.04 µg/L | 1 | 0.020 | 0.005 | GES | 10/17/2023 15:13 | EPA 200.8-1994, Rev. 5.4 |
| Lead | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 10/17/2023 15:13 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.0702 mg/L | 1 | 0.00030 | 0.00007 | GES | 10/17/2023 15:13 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | RLP | 10/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 10/17/2023 15:13 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | 0.05 µg/L | 1 | 0.50 | 0.04 J1 | GES | 10/17/2023 15:13 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | 0. 11 µg/L | 1 | 0.20 | 0.02 J1 | GES | 10/17/2023 15:13 | EPA 200.8-1994, Rev. 5.4 |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233118 Customer: Welsh Power Station Date Reported: 11/15/2023

Customer Sample ID: EQUIPMENT BLANK - PBAP Customer Description: TG-32

Lab Number: 233118-005 Preparation:

Date Collected: 10/03/2023 10:57 EDT Date Received: 10/09/2023 12:00 EDT

| Motals | | | | | | | |
|------------|--------------|----------|---------|---------------------|---------|------------------|--------------------------|
| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
| Antimony | <0.008 µg/L | 1 | 0.100 | 0.008 U1 | GES | 10/17/2023 15:18 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | <0.03 µg/L | 1 | 0.10 | 0.03 U1 | GES | 10/17/2023 15:18 | EPA 200.8-1994, Rev. 5.4 |
| Barium | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 10/17/2023 15:18 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | <0.007 µg/L | 1 | 0.050 | 0.007 U1 | GES | 10/17/2023 15:18 | EPA 200.8-1994, Rev. 5.4 |
| Boron | <0.007 mg/L | 1 | 0.050 | 0.007 U1 | GES | 10/17/2023 15:18 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | <0.004 µg/L | 1 | 0.020 | 0.004 U1 | GES | 10/17/2023 15:18 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | 0.02 mg/L | 1 | 0.05 | 0.01 J1 | GES | 10/17/2023 15:18 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.37 μg/L | 1 | 0.30 | 0.07 | GES | 10/17/2023 15:18 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 0.032 μg/L | 1 | 0.020 | 0.005 | GES | 10/17/2023 15:18 | EPA 200.8-1994, Rev. 5.4 |
| Lead | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 10/17/2023 15:18 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.00012 mg/L | 1 | 0.00030 | 0.00007 J1 | GES | 10/17/2023 15:18 | EPA 200.8-1994, Rev. 5.4 |
| Mercury | <2 ng/L | 1 | 5 | 2 U1 | RLP | 10/12/2023 00:00 | EPA 245.7-2005, Rev. 2.0 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 10/17/2023 15:18 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | <0.04 µg/L | 1 | 0.50 | 0.04 U1 | GES | 10/17/2023 15:18 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | <0.02 µg/L | 1 | 0.20 | 0.02 U1 | GES | 10/17/2023 15:18 | EPA 200.8-1994, Rev. 5.4 |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233118 Customer: Welsh Power Station Date Reported: 11/15/2023

Customer Sample ID: FIELD BLANK - PBAP Customer Description: TG-32

Lab Number: 233118-006 Preparation:

Date Collected: 10/03/2023 10:59 EDT Date Received: 10/09/2023 12:00 EDT

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | s Analyst | Analysis Date | Method |
|------------|--------------|----------|---------|---------------------|-----------|------------------|--------------------------|
| Antimony | <0.008 µg/L | 1 | 0.100 | 0.008 U1 | GES | 10/17/2023 15:23 | EPA 200.8-1994, Rev. 5.4 |
| Arsenic | <0.03 µg/L | 1 | 0.10 | 0.03 U1 | GES | 10/17/2023 15:23 | EPA 200.8-1994, Rev. 5.4 |
| Barium | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 10/17/2023 15:23 | EPA 200.8-1994, Rev. 5.4 |
| Beryllium | <0.007 µg/L | 1 | 0.050 | 0.007 U1 | GES | 10/17/2023 15:23 | EPA 200.8-1994, Rev. 5.4 |
| Boron | <0.007 mg/L | 1 | 0.050 | 0.007 U1 | GES | 10/17/2023 15:23 | EPA 200.8-1994, Rev. 5.4 |
| Cadmium | <0.004 µg/L | 1 | 0.020 | 0.004 U1 | GES | 10/17/2023 15:23 | EPA 200.8-1994, Rev. 5.4 |
| Calcium | <0.01 mg/L | 1 | 0.05 | 0.01 U1 | GES | 10/17/2023 15:23 | EPA 200.8-1994, Rev. 5.4 |
| Chromium | 0.35 μg/L | 1 | 0.30 | 0.07 | GES | 10/17/2023 15:23 | EPA 200.8-1994, Rev. 5.4 |
| Cobalt | 0.042 μg/L | 1 | 0.020 | 0.005 | GES | 10/17/2023 15:23 | EPA 200.8-1994, Rev. 5.4 |
| Lead | <0.05 µg/L | 1 | 0.20 | 0.05 U1 | GES | 10/17/2023 15:23 | EPA 200.8-1994, Rev. 5.4 |
| Lithium | 0.00009 mg/L | 1 | 0.00030 | 0.00007 J1 | GES | 10/17/2023 15:23 | EPA 200.8-1994, Rev. 5.4 |
| Molybdenum | <0.1 µg/L | 1 | 0.5 | 0.1 U1 | GES | 10/17/2023 15:23 | EPA 200.8-1994, Rev. 5.4 |
| Selenium | <0.04 µg/L | 1 | 0.50 | 0.04 U1 | GES | 10/17/2023 15:23 | EPA 200.8-1994, Rev. 5.4 |
| Thallium | <0.02 µg/L | 1 | 0.20 | 0.02 U1 | GES | 10/17/2023 15:23 | EPA 200.8-1994, Rev. 5.4 |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233118 Customer: Welsh Power Station Date Reported: 11/15/2023

Report Verification

This report and the above data have been confirmed by the following analyst.

Michael Ohlinger, Chemist

Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

Muhael S. Ollinger

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Data Qualifer Legend

J1 - Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

U1 - Not detected at or above method detection limit (MDL).

Chain of Custody Record

Dolan Chemical Laboratory (DCL)

| 4001 Bixby Road Gravemort Other 43125 | | | | , 6 | · mez | loo leo | philatio | Program: Coal Combustion Residuals (CCR) | A (CCR | _ | | | |
|---|----------------|----------------------|---|----------------|-----------------------|----------------|-----------------------------|--|----------|---------------------|------------------------|------------------------|---|
| Contacts: | | | | | 8 | Site Contact: | ų. | | | Date: | | For Lab Use Only: | |
| Michael Ohlinger (614-836-4184) | | | | | _ | ŀ | ľ | | | - | | COCOGGE *: | |
| Project Name Welsh PBAP | | | | | | _ N | | Field-filter 500 mL | 11 | Three (six every | | | |
| Contact Name: Rebecca Jones | Analysis | Furmaround Routin | Analysis Turnaround Time (in Calendar Days) Routine (28 days) | lendar Da | <u>e</u> | | bottle, nH<2. | bottle, | bottle, | 10th*) | mL i d bod d bod | (| |
| Contact Phone: (737) 330-3725 | | | | | | | \neg | H Q | 0-6°C | pH<2, HNO, | euli | 253118 | |
| Sampler(s): Matt Hamilton Kenny McDonald | | | | | | | 'qa 'o | nM bns e | 'os | 977-1 | | | |
| Sample Identification | Sample Date | Sample Time | Sample Type (C=Comp, G=Grab) | Matrix | # of Cont. | Sampler(s) Ini | Be, Cd, Cr, C Mo, Se, TL | dissolved Fe | , F, CI, | Ra-226, Ra | вн | Sample Specific Notes: | |
| AD-8 | 10/3/2023 | 1020 | 9 | GW | 80 | | × | | | × | × | TG-32 needed | |
| AD-9 | 10/3/2023 | 923 | ၅ | GW | ιΩ | | × | | | × | × | | |
| AD-15 | 10/3/2023 | 940 | ဖ | W _O | 'n | | × | | | × | × | | |
| DUPLICATE - PBAP | 10/3/2023 | 1200 | O | δW | 7 | \dashv | × | | | | × | | |
| EQUIPMENT BLANK - PBAP | 10/3/2023 | 957 | တ | ΒW | 7 | + | × | | | | × | | T |
| FIELD BLANK - PBAP | 10/3/2023 | 959 | g | GW | - | | × | | | | | | |
| | | | | | | _ | | ia— | | | | | |
| | | - 33 9 | | | | | | | | | | | |
| | 0 | 6.270 | | | | | | | | | 1000000 | | |
| | | | | | | | | | | S 80 | | | |
| | | | | | | | | | | | | | |
| | | | | | | | * | | | | | | |
| Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other | HNO3; 5≈Na | OH; 6= Of | ther | . F=f | _; F= filter in field | ple | 4 | F4 | 1 | 4 | 2 | | |
| * Six 1L Bottles must be collected for Radium for every 10th sample. | r every 10th | sample. | | | | | | | | | | ं व | |

Special Instructions/QC Requirements & Comments:

| 0 | | | | | _ |
|---|----------|----------------|----------------------------|----------------------|---|
| Relinquished by Manual | Company | Date/Time. 16% | FS /6% Received by: | Date/Time: | |
| Relinquished by: | Company: | Date/Time: | Received by: | Date/Time: | |
| Relinquished by: | Company: | Date/Time: | Received in Laboratory by: | Date/Time: 10/10/2 > | |

Form COC-04, AEP Chain of Custody (COC) Record for Coal Combustion Residual (CCR) Sampling - Shreveport, Rev. 1, 1/10/17

AEP WATER & WASTE SAMPLE RECEIPT FORM

| Package Type | | Delivery Type | |
|--|--|----------------------------------|----------------------------|
| Cooler Box Bag Enve | | | JSPS |
| | Other | | |
| Plant/Customer Welsh | Power Station | Plastic Containers: | Ŕ |
| Opened By Misgha | Number of 0 | | |
| Date/Time 10/09/23 | 11:30 Am Number of N | Mercury Containers: | 5 |
| Were all temperatures within 0-6 | C? Y/N or NA Initial: | M_{J-1} on | ice / no ice |
| (IR Gun Ser# 2213689000 , Expi | | | |
| Was Chain of Custody received? | ACA | | |
| Requested turnaround: 28/ | | was notified? | |
| pH (15 min) Cr ⁺⁶ (pres) (24 hr) | NO ₂ or NO ₃ (48 hr) | ortho-PO ₄ (48 hr) Hg | -diss (pres) (48 hr) |
| Was COC filled out properly? | (V) N Comments | | |
| Were samples labeled properly? | N Comments | | |
| Were correct containers used? | 2.7 | | |
| Was pH checked & Color Coding | | | |
| pH paper (circle one): MQuant,PN1. | 09535.0001,LOT# | [OR] Lab Rat,PN4801.LO | # X050RWDG21 Exp 11/15/202 |
| - Was Add'l Preservative needed | l? Y / ∭ If Yes: By whom 8 | when: | _ (See Prep Book) |
| Is sample filtration requested? | Y / N) Comments | 7/4 | _ (See Prep Book) |
| Was the customer contacted? | If Yes: Person Contact | | |
| Lab ID# 233 11 8 | initial & Date & Time : | | |
| Logged by MSO | Comments: | | |
| Reviewed by MGC | | | |
| | | | |

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.

Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

| x | (which | | reportable data identified on | ecklist consisting of Table 1, Rothis page), Table 2, Supporting | |
|---|---------------------------------------|---|---|---|--|
| x | Rı | Field chain-o | of-custody documentation | | |
| x | R2 | Sample iden | tification cross-reference | | |
| x | R3 | (a) Items spNELAC(b) Dilution(c) Prepara(d) Cleanup | pecified in NELAC Chapter 5 f Standard factors tion methods methods | ch environmental sample that or reporting results, e.g., Secti identified compounds (TICs) | |
| NA | R4 | (a) Calculat | covery data including: red recovery (%R) oratory's surrogate QC limits | | |
| х | R ₅ | Test reports, | summary forms for blank sar | nples | |
| × | R6 | (a) LCS spi (b) Calculat | summary forms for laborator king amounts ed %R for each analyte oratory's LCS QC limits | ry control samples (LCSs) inclu | ıding: |
| x | R7 | (a) Samples(b) MS/MS(c) Concent(d) Calculat | s associated with the MS/MSI D spiking amounts | yte measured in the parent and | _ |
| x | R8 | (a) The ame | nalytical duplicate (if applica ount of analyte measured in the culated RPD oratory's QC limits for analytic | he duplicate | |
| x | R9 | List of meth | od quantitation limits (MQLs) |) for each analyte for each met | hod and matrix |
| x | R10 | Other proble | ems or anomalies | | |
| х | The Ex | ception Repo | ort for every item for which the | e result is "No" or "NR" (Not R | Reviewed) |
| packag require report by the labora | ge as beements s. By m labora tory in | en reviewed l of the method y signature l tory as having | by the laboratory and is comp ds used, except where noted b below, I affirm to the best of m g the potential to affect the qu y Review Checklist, and no in | f this laboratory data package. lete and technically compliant y the laboratory in the attache y knowledge, all problems/an ality of the data, have been ide formation or data have been k | with the d exception omalies, observed ntified by the |
| respor used is | iding to | rule. The offi sible for relea | cial signing the cover page of asing this data package and is | se laboratory controlled by the the rule-required report in wh by signature affirming the abo | ich these data are |
| Susa | ınn Su | Izmann | Susann Julquany Signature | Senior Chemist | 11-02-2023 |
| Name | (printe | d) | Signature | Official Title | Date |
| | | | | | |

Table 1. Reportable Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh Power Station

Reviewer Name: Susann Sulzmann

LRC Date: 11-03-2023

Laboratory Job Number: 233118

Prep Batch Number(s): PB23101204

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| R1 | O, I | Chain-of-custody (COC) | | |
| | I | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | Yes | |
| | I | Were all departures from standard conditions described in an exception report? | Yes | |
| R2 | O, I | Sample and quality control (QC) identification | | |
| | I | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | Yes | |
| | I | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | Yes | |
| R3 | Ι ,Ο | Test reports | | |
| | I | Were all samples prepared and analyzed within holding times? | yes | |
| | I | Other than those results < MQL, were all other raw values bracketed by calibration standards? | yes | |
| | I | Were calculations checked by a peer or supervisor? | Yes | |
| | I | Were all analyte identifications checked by a peer or supervisor? | Yes | |
| | I | Were sample quantitation limits reported for all analytes not detected? | Yes | |
| | I | Were all results for soil and sediment samples reported on a dry weight basis? | NA | |
| | I | Was % moisture (or solids) reported for all soil and sediment samples? | NA | |
| | I | If required for the project, TICs reported? | NA | |
| R4 | 0 | Surrogate recovery data | | |
| | I | Were surrogates added prior to extraction? | NA | |
| | I | Were surrogate percent recoveries in all samples within the laboratory QC limits? | NA | |
| R5 | O, I | Test reports/summary forms for blank samples | | |
| | I | Were appropriate type(s) of blanks analyzed? | Yes | |
| | I | Were blanks analyzed at the appropriate frequency? | Yes | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| | I | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures? | Yes | |
| | I | Were blank concentrations < MQL? | ves | |
| R6 | O, I | Laboratory control samples (LCS): | | |
| | I | Were all COCs included in the LCS? | Yes | |
| | I | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | Yes | |
| | I | Were LCSs analyzed at the required frequency? | Yes | |
| | I | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | yes | |
| | I | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | Yes | |
| | I | Was the LCSD RPD within QC limits? | ves | |
| R7 | O, I | Matrix spike (MS) and matrix spike duplicate (MSD) data | | |
| | I | Were the project/method specified analytes included in the MS and MSD? | Yes | |
| | I | Were MS/MSD analyzed at the appropriate frequency? | Yes | |
| | I | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | yes | |
| | I | Were MS/MSD RPDs within laboratory QC limits? | ves | |
| R8 | O, I | Analytical duplicate data | | |
| | I | Were appropriate analytical duplicates analyzed for each matrix? | Yes | |
| | I | Were analytical duplicates analyzed at the appropriate frequency? | Yes | |
| | I | Were RPDs or relative standard deviations within the laboratory QC limits? | yes | |
| R9 | O, I | Method quantitation limits (MQLs): | | |
| | I | Are the MQLs for each method analyte included in the laboratory data package? | Yes | |
| | I | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | Yes | |
| | I | Are unadjusted MQLs included in the laboratory data package? | Yes | |
| R10 | O, I | Other problems/anomalies | | |
| | I | Are all known problems/anomalies/special conditions noted in this LRC and ER? | Yes | |
| | I | Were all necessary corrective actions performed for the reported data? | Yes | |
| | I | Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results? | Yes | |

Table 2. Supporting Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh Power Station

Reviewer Name: Susann Sulzmann

LRC Date: 11-03-2023

Laboratory Job Number: 233118

Prep Batch Number(s): PB23101204

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ |
|-------|-----------------------|--|--|--|
| S1 | O, I | Initial calibration (ICAL) | | |
| | I | Were response factors and/or relative response factors for each analyte within QC limits? | NA | |
| | I | Were percent RSDs or correlation coefficient criteria met? | Yes | |
| | I | Was the number of standards recommended in the method used for all analytes? | Yes | |
| | I | Were all points generated between the lowest and highest standard used to calculate the curve? | | |
| | I | Are ICAL data available for all instruments used? | Yes | |
| | I | Has the initial calibration curve been verified using an appropriate second source standard? | Yes | |
| S2 | O, I | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | |
| | I | Was the CCV analyzed at the method-required frequency? | Yes | |
| | I | Were percent differences for each analyte within the method-required QC limits? | Yes | |
| | I | Was the ICAL curve verified for each analyte? | Yes | |
| | I | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | No | ER1 |
| S3 | 0 | Mass spectral tuning: | | |
| _ | I | Was the appropriate compound for the method used for tuning? | NA | 2 - 4 - 12 - 12 - 12 - 12 - 12 - 12 - 12 |
| | I | Were ion abundance data within the method-required QC limits? | NA | |
| S4 | 0 | Internal standards (IS): | | |
| | I | Were IS area counts and retention times within the method-required QC limits? | NA | |
| S5 | O, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | |
| | I | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | Yes | |
| | I | Were data associated with manual integrations flagged on the raw data? | NA | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|------------|-----------------------|--|--|-----------------------------|
| S6 | 0 | Dual column confirmation | | |
| | I | Did dual column confirmation results meet the method-required QC? | NA | |
| S7 | 0 | Tentatively identified compounds (TICs): | | |
| | I | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | NA | |
| S8 | I | Interference Check Sample (ICS) results: | | |
| | I | Were percent recoveries within method QC limits? | NA | |
| S 9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | |
| | I | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | NA | |
| S10 | O, I | Method detection limit (MDL) studies | | |
| | I | Was a MDL study performed for each reported analyte? | Yes | |
| | 1 | Is the MDL either adjusted or supported by the analysis of DCSs? | Yes | |
| S11 | O, I | Proficiency test reports: | | |
| | I | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | Yes | |
| S12 | O, I | Standards documentation | | |
| | I | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | Yes | |
| S13 | O, I | Compound/analyte identification procedures | | |
| | I | Are the procedures for compound/analyte identification documented? | Yes | |
| S14 | O, I | Demonstration of analyst competency (DOC) | | |
| | I | Was DOC conducted consistent with NELAC Chapter 5C? | Yes | |
| | I | Is documentation of the analyst's competency up-to-date and on file? | Yes | |
| \$15 | O, I | Verification/validation documentation for methods (NELAC Chap 5n 5) | | |
| | I | Are all the methods used to generate the data documented, verified, and validated, where applicable? | Yes | |
| S16 | O, I | Laboratory standard operating procedures (SOPs): | | |
| | I | Are laboratory SOPs current and on file for each method performed? | Yes | |

Table 3. Exception Reports.

Laboratory Name:
American Electric Power Dolan Chemical Laboratory

Project Name:
Welsh Power Station

Reviewer Name:
Susann Sulzmann

LRC Date:
11-03-2023

Laboratory Job Number:
233118

Prep Batch Number(s):
PB23101204

| Exception Report No. | Description |
|----------------------|--|
| ER1 | CCB acceptance criteria is CCB <mql.< th=""></mql.<> |
| | |
| | |
| | |
| | |
| | |
| | Water and the state of the stat |
| | |
| | |
| | |

Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

³ NA - Not applicable; NR - Not reviewed.

² O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

Municipal Solid Waste Laboratory Review Checklist

| This da | ata pack | age consists of | : | | |
|---|---|---|---|---|--|
| × | (which | | eportable data identi | riew checklist consisting of T ied on this page), Table 2, Su | |
| x | R1 | Field chain-of | -custody documentat | ion | |
| × | R2 | Sample identi | fication cross-referer | ce | |
| х | R3 | (a) Items spe NELAC S (b) Dilution i (c) Preparati (d) Cleanup i | cified in NELAC Cha tandard factors on methods methods |) for each environmental san pter 5 for reporting results, e atively identified compound | .g., Section 5.5.10 in 2003 |
| NA | R4 | (a) Calculate | overy data including: d recovery (%R) atory's surrogate QC | limits | |
| х | R ₅ | | summary forms for bl | | |
| x | R6 | Test reports/s (a) LCS spiki (b) Calculate | summary forms for la | boratory control samples (LC | CSs) including: |
| × | R7 | (a) Samples(b) MS/MSD(c) Concentr(d) Calculate | associated with the M spiking amounts ation of each MS/MS | e/matrix spike duplicates (M S/MSD clearly identified D analyte measured in the pa ercent differences (RPDs) limits | |
| x | R8 | (a) The amount (b) The calcu | unt of analyte measu | - | cision: |
| x | R9 | List of method | d quantitation limits | MQLs) for each analyte for e | each method and matrix |
| x | R10 | Other problem | ns or anomalies | | |
| х | The Ex | ception Repor | t for every item for w | nich the result is "No" or "NF | R" (Not Reviewed) |
| packag require reports by the laborat | ge as be ements s. By m laborat tory in t | en reviewed by of the methods y signature be tory as having t | y the laboratory and in sused, except where in low, I affirm to the both the potential to affect Review Checklist, an | lease of this laboratory data scomplete and technically conted by the laboratory in the est of my knowledge, all probes the quality of the data, have d no information or data have | ompliant with the attached exception lems/anomalies, observed been identified by the |
| respon used is | ding to | rule. The offici sible for releas | ial signing the cover p sing this data package | n-house laboratory controlle page of the rule-required repo and is by signature affirmin | ort in which these data are |
| Jona | than E | Barnhill | Openin agent in collette best of the standard formular plant of production of prime common relations for the prime common relations for the standard for the standard plant of the standard for the standard plant of the death of the standard formular standard plant of the death of the standard formular standard plant of the death of the standard formular standard plant of the standard plant of the death of the standard plant of the standard plant of the standard plant of the death of the standard plant | Lab Supervisor | 11/8/2023 |
| Name | (printed | d) | Signature | Official Title | Date |

Table 1. Reportable Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh CCR

Reviewer Name: Jonathan Barnhill

LRC Date: 11/8/2023

Laboratory Job Number: 233118

Prep Batch Number(s): PB23101209 QC2310150

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|----------|-----------------------|---|---|-----------------------------|
| R1 | O, I | Chain-of-custody (COC) | | |
| | I | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | Yes | |
| | I | Were all departures from standard conditions described in an exception report? | Yes | |
| R2 | O, I | Sample and quality control (QC) identification | | |
| | I | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | Yes | |
| | I | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | Yes | |
| R3 | O, I | Test reports | | |
| | I | Were all samples prepared and analyzed within holding times? | Yes | |
| | I | Other than those results < MQL, were all other raw values bracketed by calibration standards? | No | ER1 |
| | I | Were calculations checked by a peer or supervisor? | Yes | |
| | I | Were all analyte identifications checked by a peer or supervisor? | Yes | |
| | I | Were sample quantitation limits reported for all analytes not detected? | Yes | |
| <u> </u> | I | Were all results for soil and sediment samples reported on a dry weight basis? | NA | |
| | I | Was % moisture (or solids) reported for all soil and sediment samples? | NA | |
| | I | If required for the project, TICs reported? | NA | |
| R4 | 0 | Surrogate recovery data | | |
| | I | Were surrogates added prior to extraction? | NA | |
| | I | Were surrogate percent recoveries in all samples within the laboratory QC limits? | NA | |
| R5 | O, I | Test reports/summary forms for blank samples | | |
| | I | Were appropriate type(s) of blanks analyzed? | Yes | |
| | I | Were blanks analyzed at the appropriate frequency? | Yes | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| | I | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures? | Yes | |
| | I | Were blank concentrations < MQL? | Yes | |
| R6 | O, I | Laboratory control samples (LCS): | | |
| | I | Were all COCs included in the LCS? | Yes | |
| | I | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | Yes | |
| | I | Were LCSs analyzed at the required frequency? | Yes | |
| | I | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | Yes | |
| | I | Was the LCSD RPD within QC limits? | Yes | |
| R7 | O, I | Matrix spike (MS) and matrix spike duplicate (MSD) data | | |
| | I | Were the project/method specified analytes included in the MS and MSD? | Yes | |
| | I | Were MS/MSD analyzed at the appropriate frequency? | Yes | |
| | I | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Were MS/MSD RPDs within laboratory QC limits? | Yes | |
| R8 | O, I | Analytical duplicate data | | |
| | I | Were appropriate analytical duplicates analyzed for each matrix? | Yes | |
| | I | Were analytical duplicates analyzed at the appropriate frequency? | Yes | |
| | I | Were RPDs or relative standard deviations within the laboratory QC limits? | Yes | |
| R9 | O, I | Method quantitation limits (MQLs): | | |
| | I | Are the MQLs for each method analyte included in the laboratory data package? | Yes | |
| | I | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | Yes | |
| | I | Are unadjusted MQLs included in the laboratory data package? | Yes | |
| R10 | O, I | Other problems/anomalies | | |
| | I | Are all known problems/anomalies/special conditions noted in this LRC and ER? | Yes | |
| | I | Were all necessary corrective actions performed for the reported data? | Yes | |
| | I | Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results? | Yes | |

Table 2. Supporting Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh CCR

Reviewer Name: Jonathan Barnhill

LRC Date: 11/8/2023

Laboratory Job Number: 233118

Prep Batch Number(s): PB23101209 QC2310150

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|------------|-----------------------|--|--|-----------------------------|
| S1 | O, I | Initial calibration (ICAL) | | |
| | I | Were response factors and/or relative response factors for each analyte within QC limits? | NA | |
| | I | Were percent RSDs or correlation coefficient criteria met? | Yes | |
| | I | Was the number of standards recommended in the method used for all analytes? | Yes | |
| | I | Were all points generated between the lowest and highest standard used to calculate the curve? | Yes | |
| | I | Are ICAL data available for all instruments used? | Yes | |
| | I | Has the initial calibration curve been verified using an appropriate second source standard? | Yes | |
| S 2 | O, I | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | |
| | I | Was the CCV analyzed at the method-required frequency? | Yes | |
| | I | Were percent differences for each analyte within the method-required QC limits? | Yes | |
| | I | Was the ICAL curve verified for each analyte? | Yes | |
| | I | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | No | ER2 |
| S3 | 0 | Mass spectral tuning: | | |
| | I | Was the appropriate compound for the method used for tuning? | Yes | |
| | 1 | Were ion abundance data within the method-required QC limits? | Yes | |
| S4 | 0 | Internal standards (IS): | | |
| | I | Were IS area counts and retention times within the method-required QC limits? | Yes | |
| S5 | 0, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | |
| | I | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | Yes | |
| | I | Were data associated with manual integrations flagged on the raw data? | NA | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|--|--|-----------------------------|
| S6 | 0 | Dual column confirmation | | |
| | I | Did dual column confirmation results meet the method-required QC? | NA | |
| S7 | 0 | Tentatively identified compounds (TICs): | | |
| | I | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | NA | |
| S8 | I | Interference Check Sample (ICS) results: | | |
| | I | Were percent recoveries within method QC limits? | NA | a . |
| S9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | |
| | I | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | NA | |
| S10 | O, I | Method detection limit (MDL) studies | | |
| | I | Was a MDL study performed for each reported analyte? | Yes | |
| | I | Is the MDL either adjusted or supported by the analysis of DCSs? | Yes | 3.4.45.38.40.38 |
| S11 | O, I | Proficiency test reports: | | |
| | I | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | Yes | |
| S12 | O, I | Standards documentation | | |
| | I | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | Yes | |
| S13 | O, I | Compound/analyte identification procedures | | |
| | I | Are the procedures for compound/analyte identification documented? | Yes | |
| S14 | O, I | Demonstration of analyst competency (DOC) | | |
| | I | Was DOC conducted consistent with NELAC Chapter 5C? | Yes | |
| | I | Is documentation of the analyst's competency up-to-date and on file? | Yes | |
| S15 | 0, 1 | Verification/validation documentation for methods (NELAC Chap 5n 5) | | |
| | I | Are all the methods used to generate the data documented, verified, and validated, where applicable? | Yes | |
| S16 | O, I | Laboratory standard operating procedures (SOPs): | | |
| | I | Are laboratory SOPs current and on file for each method performed? | Yes | |

Table 3. Exception Reports.

Laboratory Name: American Electric Power Dolan Chemical Laboratory
Project Name: Welsh CCR
Reviewer Name: Jonathan Barnhill
LRC Date: 11/8/2023
Laboratory Job Number: 233118
Prep Batch Number(s): PB23101209 QC2310150

| Exception Report No. | Description |
|-------------------------|--|
| ER1 | Linear Dynamic Range (LDR) study used to determine upper limit of analyte calibration. |
| ER2 | CCB acceptance criteria is CCB<2.2*MDL. |
| | |
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| | |
| | |

Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

² O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

³ NA - Not applicable; NR - Not reviewed.

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233091 Customer: Welsh Power Station Date Reported: 11/01/2023

Customer Sample ID: AD-8 Customer Description:

Lab Number: 233091-001 Preparation:

Date Collected: 10/03/2023 11:20 EDT Date Received: 10/06/2023 09:50 EDT

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | 21.5 mg/L | 2 | 0.04 | 0.01 | CRJ | 10/17/2023 02:59 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.94 mg/L | 2 | 0.06 | 0.02 | CRJ | 10/17/2023 02:59 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 137 mg/L | 10 | 3.0 | 0.6 | CRJ | 10/16/2023 20:24 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|----------|----|---------------------|---------|------------------|---------------|
| TDS, Filterable Residue | 310 mg/L | 1 | 50 | 20 | ELT | 10/06/2023 12:32 | SM 2540C-2015 |

Customer Sample ID: AD-9 Customer Description:

Lab Number: 233091-002 Preparation:

Date Collected: 10/03/2023 10:23 EDT Date Received: 10/06/2023 09:50 EDT

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|---------------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | 75.4 mg/L | 25 | 0.5 | 0.1 | CRJ | 10/16/2023 20:57 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.1 mg/L | 2 | 0.06 | 0.02 | CRJ | 10/17/2023 05:11 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 1200 mg/L | 25 | 8 | 2 | CRJ | 10/16/2023 20:57 | EPA 300.1 -1997, Rev. 1.0 |
| Wet Chemistry | | | | | | | |
| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |

ELT

10/06/2023 12:45 SM 2540C-2015

20

Customer Sample ID: AD-15 Customer Description:

Lab Number: 233091-003 Preparation:

1910 mg/L

Date Collected: 10/03/2023 10:40 EDT Date Received: 10/06/2023 09:50 EDT

50

Ion Chromatography

TDS, Filterable Residue

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | 27.5 mg/L | 2 | 0.04 | 0.01 | CRJ | 10/16/2023 21:30 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.06 mg/L | 2 | 0.06 | 0.02 | CRJ | 10/16/2023 21:30 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 9.9 mg/L | 2 | 0.6 | 0.1 | CRJ | 10/16/2023 21:30 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|----------|----|---------------------|---------|------------------|---------------|
| TDS, Filterable Residue | 140 mg/L | 1 | 50 | 20 | ELT | 10/06/2023 12:45 | SM 2540C-2015 |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233091 Customer: Welsh Power Station Date Reported: 11/01/2023

Customer Sample ID: DUPLICATE - PBAP

Customer Description:

Lab Number: 233091-004

Preparation:

Date Collected: 10/03/2023 13:00 EDT

290 mg/L

Date Received: 10/06/2023 09:50 EDT

ELT

10/06/2023 13:04 SM 2540C-2015

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|---------------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | 21.6 mg/L | 2 | 0.04 | 0.01 | CRJ | 10/17/2023 05:44 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.91 mg/L | 2 | 0.06 | 0.02 | CRJ | 10/17/2023 05:44 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 132 mg/L | 25 | 8 | 2 | CRJ | 10/16/2023 22:03 | EPA 300.1 -1997, Rev. 1.0 |
| Wet Chemistry | | | | | | | |
| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |

20

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TDS, Filterable Residue

233091-001 Comments:

TG-32

233091-002 Comments:

TG-32

233091-003 Comments:

TG-32



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233091 Customer: Welsh Power Station Date Reported: 11/01/2023

233091-004 Comments:

TG-32

Report Verification

This report and the above data have been confirmed by the following analyst.

Michael Ohlinger, Chemist

Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

Muhael & Ollinger

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Chain of Custody Record

Dolan Chemical Laboratory (DCL)

| 4001 Bixby Road Groveport, Ohio 43125 | | | | Prog | ram: (| oal Con | bustion | Program: Coal Combustion Residuals (CCR) | s (CCR) | | | |
|---|----------------|---------------------|--|-------------|----------------|----------------|------------------------------------|---|-------------------------|--------------------------------------|--|------------------------|
| Contacts: Michael Ohlinger (614-836-4184) | | | | | S | Site Contact: | | | | Date: | | COC/Order #: |
| Project Name: Welsh PBAP Contact Name: Rebecca Jones Contact Phone (737) 330-3725 | Analysis T | umaround Routine | Analysis Turnaround Time (in Calendar Days) Routine (28 days) | lendar Da | <u> </u> | 25 0 0 1 | 250 mL bottle, pH<2, HNO. | Field-filter 500 mL bottle, then pH<2, | 1 L bottle, Cool, | Three (six every 10th*) 1 L bottles, | 10 mL Glass vial hed bottle, 4CL**, pH<2 | 233041 |
| Sampler(s): Matt Hamilton Kenny McDonald | | | | | | | 'qa 'o | nM bns e | 'os | -228 | | |
| Sample Identification | Sample Date | Sample | Sample Type (C=Comp, G=Grab) | Matrix | Comt. | Sampler(s) Inl | Be, Cd, Cr, C Mo, Se, TL | dissolved Fe | ,ID ,F ,CI, | Ra-226, Ra | бн | Sample Specific Notes: |
| AD-8 | 10/3/2023 | 1020 | G | W.S | - | | | | × | | | Routine (28 days) |
| AD-9 | 10/3/2023 | 923 | G | GW | 1 | _ | | | × | | | TG-32 needed |
| AD-15 | 10/3/2023 | 940 | ပ | GW | - | Н | | | × | | | |
| DUPLICATE - PBAP | 10/3/2023 | 1200 | g | GW | | | | 100000 | × | | | |
| 0.000 | | | 0 : | | | | | | | | | |
| | | | | | | | | | | 0.000 | | |
| | | | | 30.00 | | _ | | | | | | |
| | | | | | | | | | | | N.S | |
| 2006 | | | | | | | | | | | | |
| | | - | | | | | | | | | | |
| | | | | | Н | | | | | | | |
| | | | | | | | | | | | | |
| Preservation Used: 1= ice, 2= HCi; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other | HNO3; 5=Na(|)H; 6= Otl | ner | ; F= filter | itter in field | eld | 4 | F4 | 1 | 4 | | |
| * Six 1L Bottles must be collected for Radium for every 10th sample. | r every 10th | sample. | | | | | | | | | | |

Special Instructions/QC Requirements & Comments:

| Date/Time: | Date/Time: | Minuso Date 10/6/23 9150 An |
|------------------------------|-------------------|--------------------------------|
| S-23 164 Received by: | me: Received by: | me: Received in Laddratonylby: |
| Company: Date/Til | Company. Date/Tir | Company: Date/Tin |
| Relinquished by Mother Amila | Relinquished by: | Relinquished by: |

Form COC-04, AEP Chain of Custody (COC) Record for Coal Combustion Residual (CCR) Sampling - Shreveport, Rev. 1, 1/10/17

MATER & WASTE SAMPLE RECEIPT FORM

| Package Type | Delivery Type |
|--|--|
| Gooler Box Bag Envelope | PONY UPS FEEEX USPS |
| 1 | Other |
| Plant/Customer Nolch | Number of Plastic Containers: |
| Opened By | Number of Glass Containers: |
| Date/Time 10/6/23 9,50/2m | Number of Mercury Containers: |
| Were all temperatures within 0-6°C7(Y) N | or N/A Initial: |
| | 24) - If No, specify each deviation: |
| | Comments |
| Was Chain of Custody received? (Y) N | Comments |
| Requested turnaround: Koutine | If RUSH, who was notified? |
| pH (15 min) Cr ⁺⁶ (pres) NO₂ or N (24 hr) | NO ₃ (48 hr) ortho-PO ₄ (48 hr) Hg-diss (pres) (48 hr) |
| Was COC filled out properly? (Y)/ N | Comments |
| Were samples labeled properly? | Comments |
| Were correct containers used? Y N | Comments |
| Was pH checked & Color Coding done Y | N or N/A Initial & Date: MS0 10/6/23 |
| pH paper (circle one): MQuant,PN1.09535.0001,L0 | OT#[ORTLab Rat,PN4801,LOT# X000RWDG21 Exp 11/15/2024 |
| - Was Add'l Preservative needed? Y | Yes: By whom & when: (See Prep Book) |
| Is sample filtration requested? | Comments (See Prep Book) |
| Was the customer contacted? If Yes: | Person Contacted: |
| | Date & Time : |
| Lawred by MSD | nts: |
| nni | |

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.

Municipal Solid Waste Laboratory Review Checklist

This data package consists of: х This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports. X Field chain-of-custody documentation R_1 X R₂ Sample identification cross-reference х Rз Test reports (analytical data sheets) for each environmental sample that includes: (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 **NELAC Standard** (b) Dilution factors (c) Preparation methods (d) Cleanup methods (e) If required for the project, tentatively identified compounds (TICs) $\overline{\mathbf{x}}$ Surrogate recovery data including: **R**4 (a) Calculated recovery (%R) (b) The laboratory's surrogate QC limits x **R**5 Test reports/summary forms for blank samples X **R6** Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts (b) Calculated %R for each analyte (c) The laboratory's LCS QC limits [x]**R**7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) Samples associated with the MS/MSD clearly identified (b) MS/MSD spiking amounts (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples (d) Calculated %Rs and relative percent differences (RPDs) (e) The laboratory's MS/MSD QC limits X R8 Laboratory analytical duplicate (if applicable) recovery and precision: (a) The amount of analyte measured in the duplicate (b) The calculated RPD (c) The laboratory's QC limits for analytical duplicates List of method quantitation limits (MQLs) for each analyte for each method and matrix X R9 × **R10** Other problems or anomalies The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed) **Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data. Check, if applicable: () This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true. **Principle Chemist** Tim Arnold 10/18/2023

Official Title

Name (printed)

Date

Table 1. Reportable Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh CCR

Reviewer Name: Tim Arnold

LRC Date: 10/18/2023

Laboratory Job Number: 233091

Prep Batch Number(s): QC2310136

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ | |
|-------|-----------------------|---|---|---|--|
| R1 | 0, I | Chain-of-custody (COC) | | | |
| | I | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | Yes | | |
| | I | Were all departures from standard conditions described in an exception report? | Yes | | |
| R2 | O, I | Sample and quality control (QC) identification | | | |
| | I | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | Yes | | |
| | I | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | Yes | | |
| R3 | O, I | Test reports | | | |
| | I | Were all samples prepared and analyzed within holding times? | Yes | | |
| | I | Other than those results < MQL, were all other raw values bracketed by calibration standards? | Yes | | |
| | I | Were calculations checked by a peer or supervisor? | Yes | | |
| | I | Were all analyte identifications checked by a peer or supervisor? | Yes | | |
| | I | Were sample quantitation limits reported for all analytes not detected? | Yes | | |
| | I | Were all results for soil and sediment samples reported on a dry weight basis? | NA | | |
| | I | Was % moisture (or solids) reported for all soil and sediment samples? | NA | | |
| | I | If required for the project, TICs reported? | NA | | |
| R4 | 0 | Surrogate recovery data | | | |
| | I | Were surrogates added prior to extraction? | Yes | | |
| | I | Were surrogate percent recoveries in all samples within the laboratory QC limits? | Yes | | |
| R5 | O, I | Test reports/summary forms for blank samples | | | |
| | I | Were appropriate type(s) of blanks analyzed? | Yes | | |
| | I | Were blanks analyzed at the appropriate frequency? | Yes | | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| | I | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures? | Yes | × |
| | I | Were blank concentrations < MQL? | Yes | |
| R6 | O, I | Laboratory control samples (LCS): | | |
| | I | Were all COCs included in the LCS? | Yes | |
| | I | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | Yes | |
| | I | Were LCSs analyzed at the required frequency? | Yes | |
| | I | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | Yes | |
| | I | Was the LCSD RPD within QC limits? | Yes | |
| R7 | 0, 1 | Matrix spike (MS) and matrix spike duplicate (MSD) data | | |
| | I | Were the project/method specified analytes included in the MS and MSD? | Yes | |
| | I | Were MS/MSD analyzed at the appropriate frequency? | Yes | |
| | I | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Were MS/MSD RPDs within laboratory QC limits? | Yes | |
| R8 | O, I | Analytical duplicate data | | |
| | I | Were appropriate analytical duplicates analyzed for each matrix? | Yes | |
| | I | Were analytical duplicates analyzed at the appropriate frequency? | Yes | |
| | I | Were RPDs or relative standard deviations within the laboratory QC limits? | Yes | |
| R9 | O, I | Method quantitation limits (MQLs): | | |
| | I | Are the MQLs for each method analyte included in the laboratory data package? | Yes | |
| | I | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | Yes | |
| | I | Are unadjusted MQLs included in the laboratory data package? | Yes | |
| R10 | 0, I | Other problems/anomalies | | |
| | I | Are all known problems/anomalies/special conditions noted in this LRC and ER? | Yes | |
| | I | Were all necessary corrective actions performed for the reported data? | Yes | |
| | I | Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results? | Yes | |

Table 2. Supporting Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh CCR

Reviewer Name: Tim Arnold

LRC Date: 10/18/2023

Laboratory Job Number: 233091

Prep Batch Number(s): QC2310136

| Item ¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------------------|-----------------------|--|--|-----------------------------|
| S1 | O, I | Initial calibration (ICAL) | | |
| | I | Were response factors and/or relative response factors for each analyte within QC limits? | NA | |
| | I | Were percent RSDs or correlation coefficient criteria met? | Yes | |
| | I | Was the number of standards recommended in the method used for all analytes? | Yes | |
| | I | Were all points generated between the lowest and highest standard used to calculate the curve? | Yes | |
| | I | Are ICAL data available for all instruments used? | Yes | |
| | I | Has the initial calibration curve been verified using an appropriate second source standard? | Yes | |
| S2 | O, I | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | |
| | I | Was the CCV analyzed at the method-required frequency? | Yes | |
| | I | Were percent differences for each analyte within the method-required QC limits? | Yes | |
| | I | Was the ICAL curve verified for each analyte? | Yes | |
| | I | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | No | ER1 |
| S3 | 0 | Mass spectral tuning: | | |
| | I | Was the appropriate compound for the method used for tuning? | NA | |
| | I | Were ion abundance data within the method-required QC limits? | NA | |
| S4 | 0 | Internal standards (IS): | | |
| | I | Were IS area counts and retention times within the method-required QC limits? | NA | |
| S5 | O, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | |
| | I | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | Yes | |
| | 1 | Were data associated with manual integrations flagged on the raw data? | NA | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 | |
|------------|-----------------------|--|--|-----------------------------|--|
| S6 | 0 | Dual column confirmation | | | |
| | I | Did dual column confirmation results meet the method-required QC? | NA | | |
| S 7 | 0 | Tentatively identified compounds (TICs): | TĀ. | | |
| | I | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | NA | | |
| S8 | I | Interference Check Sample (ICS) results: | | | |
| | I | Were percent recoveries within method QC limits? | NA | | |
| S9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | | |
| | I | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | NA | | |
| S10 | O, I | Method detection limit (MDL) studies | | | |
| | I | Was a MDL study performed for each reported analyte? | Yes | | |
| | I | Is the MDL either adjusted or supported by the analysis of DCSs? | Yes | | |
| S11_ | O, I | Proficiency test reports: | | | |
| | I | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | Yes | | |
| S12 | O, I | Standards documentation | | | |
| | I | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | Yes | | |
| S13 | O, I | Compound/analyte identification procedures | | | |
| | I | Are the procedures for compound/analyte identification documented? | Yes | | |
| 514 | 0, I | Demonstration of analyst competency (DOC) | | | |
| | I | Was DOC conducted consistent with NELAC Chapter 5C? | Yes | | |
| | I | Is documentation of the analyst's competency up-to- date and on file? | Yes | | |
| S15 | O, I | Verification/validation documentation for methods (NELAC Chap 5n 5) | | | |
| | I | Are all the methods used to generate the data documented, verified, and validated, where applicable? | Yes | | |
| S16 | O, I | Laboratory standard operating procedures (SOPs): | | | |
| | I | Are laboratory SOPs current and on file for each method performed? | Yes | | |

Table 3. Exception Reports.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh CCR

Reviewer Name: Tim Arnold

LRC Date: 10/18/2023

Laboratory Job Number: 233091

Prep Batch Number(s): QC2310136

| Exception Report No. | Description | | | | | | | |
|-------------------------|--|--|--|--|--|--|--|--|
| ER1 | CCB acceptance criteria is CCB <mql.< td=""></mql.<> | | | | | | | |
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Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

² O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

³ NA - Not applicable; NR - Not reviewed.

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

Municipal Solid Waste Laboratory Review Checklist

This data package consists of: X This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports. \square R1 Field chain-of-custody documentation X R2 Sample identification cross-reference X R3 Test reports (analytical data sheets) for each environmental sample that includes: (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard (b) Dilution factors (c) Preparation methods (d) Cleanup methods (e) If required for the project, tentatively identified compounds (TICs) NA Surrogate recovery data including: **R**4 (a) Calculated recovery (%R) (b) The laboratory's surrogate OC limits х Test reports/summary forms for blank samples **R**5 х R6 Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts (b) Calculated %R for each analyte (c) The laboratory's LCS QC limits X **R**7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: (a) Samples associated with the MS/MSD clearly identified (b) MS/MSD spiking amounts (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples (d) Calculated %Rs and relative percent differences (RPDs) (e) The laboratory's MS/MSD QC limits X R8 Laboratory analytical duplicate (if applicable) recovery and precision: (a) The amount of analyte measured in the duplicate (b) The calculated RPD (c) The laboratory's QC limits for analytical duplicates X R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix X Other problems or anomalies **R10** x The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed) Release Statement: I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data. Check, if applicable: This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Michael Ohlinger

Name (printed)

Table 1. Reportable Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh PBAP

Reviewer Name: Michael Ohlinger

LRC Date: 11/1/23

Laboratory Job Number: 233091

Prep Batch Number(s): QC2310085

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| R1 | O, I | Chain-of-custody (COC) | | |
| | I | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | Yes | |
| | I | Were all departures from standard conditions described in an exception report? | NA | |
| R2 | O, I | Sample and quality control (QC) identification | • | |
| | I | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | Yes | D |
| | I | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | Yes | |
| R3 | 0, I | Test reports | | |
| | I | Were all samples prepared and analyzed within holding times? | Yes | |
| | I | Other than those results < MQL, were all other raw values bracketed by calibration standards? | NA | |
| | I | Were calculations checked by a peer or supervisor? | Yes | |
| | r | Were all analyte identifications checked by a peer or supervisor? | Yes | |
| | I | Were sample quantitation limits reported for all analytes not detected? | Yes | |
| | I | Were all results for soil and sediment samples reported on a dry weight basis? | NA | |
| | I | Was % moisture (or solids) reported for all soil and sediment samples? | NA | |
| | I | If required for the project, TICs reported? | NA | |
| R4 | 0 | Surrogate recovery data | | |
| | I | Were surrogates added prior to extraction? | NA | |
| ŧ | Ī | Were surrogate percent recoveries in all samples within the laboratory QC limits? | NA | |
| R5 | O, I | Test reports/summary forms for blank samples | | |
| | I | Were appropriate type(s) of blanks analyzed? | Yes | |
| | I | Were blanks analyzed at the appropriate frequency? | Yes | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| | I | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures? | Yes | |
| | I | Were blank concentrations < MQL? | Yes | |
| R6 | O, I | Laboratory control samples (LCS): | | |
| | I | Were all COCs included in the LCS? | Yes | |
| | I | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | Yes | |
| | I | Were LCSs analyzed at the required frequency? | Yes | |
| | I | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | Yes | |
| | I | Was the LCSD RPD within QC limits? | Yes | |
| R7 | O, I | Matrix spike (MS) and matrix spike duplicate (MSD) data | | |
| | I | Were the project/method specified analytes included in the MS and MSD? | NA | |
| | I | Were MS/MSD analyzed at the appropriate frequency? | NA | |
| | I | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | NA | |
| | I | Were MS/MSD RPDs within laboratory QC limits? | NA | |
| R8 | O, I | Analytical duplicate data | | |
| | I | Were appropriate analytical duplicates analyzed for each matrix? | Yes | |
| | I | Were analytical duplicates analyzed at the appropriate frequency? | Yes | |
| | I | Were RPDs or relative standard deviations within the laboratory QC limits? | Yes | |
| R9 | O, I | Method quantitation limits (MQLs): | | |
| | I | Are the MQLs for each method analyte included in the laboratory data package? | Yes | |
| | I | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | Yes | |
| | I | Are unadjusted MQLs included in the laboratory data package? | Yes | |
| R10 | O, I | Other problems/anomalies | | |
| | I | Are all known problems/anomalies/special conditions noted in this LRC and ER? | Yes | |
| | I | Were all necessary corrective actions performed for the reported data? | Yes | |
| | I | Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results? | Yes | |

Table 2. Supporting Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh PBAP

Reviewer Name: Michael Ohlinger

LRC Date: 11/1/23

Laboratory Job Number: 233091

Prep Batch Number(s): QC2310085

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 | |
|------------|-----------------------|--|--|-----------------------------|--|
| S 1 | O, I | Initial calibration (ICAL) | | | |
| | I | Were response factors and/or relative response factors for each analyte within QC limits? | NA | | |
| | I | Were percent RSDs or correlation coefficient criteria met? | NA | | |
| | I | Was the number of standards recommended in the method used for all analytes? | NA | | |
| | I | Were all points generated between the lowest and highest standard used to calculate the curve? | NA | | |
| | I | Are ICAL data available for all instruments used? | NA | | |
| | I | Has the initial calibration curve been verified using an appropriate second source standard? | NA | | |
| S2 | O, I | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | | |
| | I | Was the CCV analyzed at the method-required frequency? | NA | | |
| | I | Were percent differences for each analyte within the method-required QC limits? | NA | | |
| | I | Was the ICAL curve verified for each analyte? | NA | | |
| | I | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | NA | | |
| S3 | 0 | Mass spectral tuning: | | | |
| | I | Was the appropriate compound for the method used for tuning? | NA | | |
| | I | Were ion abundance data within the method-required QC limits? | NA | | |
| 54 | 0 | Internal standards (IS): | | | |
| | I | Were IS area counts and retention times within the method-required QC limits? | NA | | |
| S5 | O, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | | |
| | I | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | Yes | | |
| | I | Were data associated with manual integrations flagged on the raw data? | NA | | |

| Item¹ | Analytes ² | Analytes ² Description | | | | |
|------------|---|--|-----|-----|--|--|
| S6 | 0 | Dual column confirmation | | | | |
| | I | Did dual column confirmation results meet the method-required QC? | NA | | | |
| S 7 | 0 | Tentatively identified compounds (TICs): | | | | |
| | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | | | | | |
| S8 | I | Interference Check Sample (ICS) results: | | | | |
| | I | Were percent recoveries within method QC limits? | NA | | | |
| S9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | | | |
| | I | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | NA | | | |
| S10 | O, I | Method detection limit (MDL) studies | | | | |
| | I | Was a MDL study performed for each reported analyte? | Yes | | | |
| | I | Is the MDL either adjusted or supported by the analysis of DCSs? | Yes | | | |
| S11 | O, I | Proficiency test reports: | | | | |
| | I | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | Yes | | | |
| S12 | O, I | Standards documentation | | | | |
| | I | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | Yes | | | |
| S13 | O, I | Compound/analyte identification procedures | | | | |
| | I | Are the procedures for compound/analyte identification documented? | Yes | | | |
| S14 | O, I | Demonstration of analyst competency (DOC) | | | | |
| | I | Was DOC conducted consistent with NELAC Chapter 5C? | Yes | | | |
| | I | Is documentation of the analyst's competency up-to-date and on file? | Yes | | | |
| S15 | O, I | Verification/validation documentation for methods (NELAC Chap 5n 5) | | 3 | | |
| | I | Are all the methods used to generate the data documented, verified, and validated, where applicable? | Yes | | | |
| S16 | O, I | Laboratory standard operating procedures (SOPs): | | | | |
| | I | Are laboratory SOPs current and on file for each method performed? | Yes | = = | | |

Table 3. Exception Reports.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh PBAP

Reviewer Name: Michael Ohlinger

LRC Date: 11/1/23

Laboratory Job Number: 233091

Prep Batch Number(s): QC2310085

| Exception Report No. | Description | |
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Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

²O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

³ NA - Not applicable; NR - Not reviewed.

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233093 Customer: Welsh Power Station Date Reported: 11/02/2023

Customer Sample ID: AD-1 Customer Description:

Lab Number: 233093-001 Preparation:

Date Collected: 10/04/2023 11:11 EDT Date Received: 10/06/2023 09:50 EDT

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | 3.03 mg/L | 2 | 0.04 | 0.01 | CRJ | 10/17/2023 17:15 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.20 mg/L | 2 | 0.06 | 0.02 | CRJ | 10/17/2023 17:15 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 80.7 mg/L | 2 | 0.6 | 0.1 | CRJ | 10/17/2023 17:15 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-------------------------|--------------|----------|----|---------------------|---------|------------------|---------------|
| TDS, Filterable Residue | 200 mg/L | 1 | 50 | 20 | ELT | 10/09/2023 12:54 | SM 2540C-2015 |

Customer Sample ID: AD-5 Customer Description:

Lab Number: 233093-002 Preparation:

Date Collected: 10/04/2023 12:18 EDT Date Received: 10/06/2023 09:50 EDT

Ion Chromatography

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|---------------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | 17.5 mg/L | 2 | 0.04 | 0.01 | CRJ | 10/17/2023 20:00 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.17 mg/L | 2 | 0.06 | 0.02 | CRJ | 10/17/2023 20:00 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 132 mg/L | 10 | 3.0 | 0.6 | CRJ | 10/17/2023 18:21 | EPA 300.1 -1997, Rev. 1.0 |
| Wet Chemistry | | | | | | | |
| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |

20

ELT

10/09/2023 12:54 SM 2540C-2015

Customer Sample ID: AD-17 Customer Description:

Lab Number: 233093-003 Preparation:

290 mg/L

Date Collected: 10/04/2023 12:07 EDT Date Received: 10/06/2023 09:50 EDT

50

Ion Chromatography

TDS, Filterable Residue

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|-----------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | 37.9 mg/L | 5 | 0.10 | 0.03 | CRJ | 10/17/2023 20:33 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.06 mg/L | 5 | 0.15 | 0.05 J1 | CRJ | 10/17/2023 20:33 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 1180 mg/L | 50 | 15 | 3 | CRJ | 10/17/2023 18:54 | EPA 300.1 -1997, Rev. 1.0 |

Wet Chemistry

| Wot offormstry | | | | | | | | |
|-------------------------|----------------|----------|-----|---------------------|---------|------------------|---------------|--|
| Parameter | Result Units I | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method | |
| TDS. Filterable Residue | 1520 mg/L | 2 | 100 | 40 | ELT | 10/09/2023 12:59 | SM 2540C-2015 | |



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233093 Customer: Welsh Power Station Date Reported: 11/02/2023

Customer Sample ID: DUPLICATE - BACKGROUND

170 mg/L

Customer Description:

Lab Number: 233093-004

Preparation:

Date Collected: 10/04/2023 13:00 EDT

Date Received: 10/06/2023 09:50 EDT

ELT

10/09/2023 12:59 SM 2540C-2015

Ion Chromatography

TDS, Filterable Residue

| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |
|---------------|--------------|----------|------|---------------------|---------|------------------|---------------------------|
| Chloride | 3.01 mg/L | 2 | 0.04 | 0.01 | CRJ | 10/17/2023 17:48 | EPA 300.1 -1997, Rev. 1.0 |
| Fluoride | 0.20 mg/L | 2 | 0.06 | 0.02 | CRJ | 10/17/2023 17:48 | EPA 300.1 -1997, Rev. 1.0 |
| Sulfate | 80.3 mg/L | 2 | 0.6 | 0.1 | CRJ | 10/17/2023 17:48 | EPA 300.1 -1997, Rev. 1.0 |
| Wet Chemistry | | | | | | | |
| Parameter | Result Units | Dilution | RL | MDL Data Qualifiers | Analyst | Analysis Date | Method |

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100

233093-001 Comments:

TG-32

233093-002 Comments:

TG-32

233093-003 Comments:

TG-32



Dolan Chemical Laboratory 4001 Bixby Road Groveport, OH 43125 Phone: 614-836-4221 Audinet: 210-4221

Job ID: 233093 Customer: Welsh Power Station Date Reported: 11/02/2023

233093-004 Comments:

TG-32

Report Verification

This report and the above data have been confirmed by the following analyst.

Michael Ohlinger, Chemist

Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

Muhael S. Ollinger

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Data Qualifer Legend

J1 - Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

Chain of Custody Record

Dolan Chemical Laboratory (DCL)

| 4001 Bixby Road | | | | 5 | į ' | 5 | ් දිනු : | piocet in cost of the | 5 | | | | |
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| Groveport, Onio 43125 | | | | 20 0 | | Coal Con | nbustio | Program: Coal Combustion Residuals (CCR) | S (CCR | | | | |
| Contacts: Michael Ohlinger (614-836-4184) | | | | | <u> </u> | Site Contact: | H | | | Date | | COC/Order #. | 37.34 |
| Project Name: Welsh Background | | | | | | - 25 | | Field-filter 500 mL | = | Three (six every | | | |
| Contact Name: Rebecca Jones | Analysis | Furmaround Routine | Analysis Turnaround Time (in Calendar Days) Routine (28 days) | lendar Da | | Δ 6 | bottle, nH<2 | bottle, | bottle, | 10th*) | | 7320 | UX! |
| Contact Phone: (737) 330-3725 | | | | | | - | | HNO | 0-6°C, | pH<2, HNO, | f 10 | C>2043 | 90 |
| Sampler(s): Matt Hamilton Kenny McDonald | | | | | | | '9a '0 | nM bns e | 'os | 1-228 | | | 9 3 |
| Sample Identification | Sample Date | Sample | Sample Type (C=Comp, G=Grab) | Matrix | Conf. | B, Ca, Ll, Sb, | Be, Cd, Cr, C Mo, Se, TL | dissolved Fe | , F, CI, | Ra-226, Ra | 6H | Sample Specific Notes: | |
| AD-1 | 10/4/2023 | | 9 | | - | | | | × | | | TG-32 needed | |
| AD-5 | 10/4/2023 | 1118 | 9 | GW | - | | | 33 | × | | | | |
| AD-17 | 10/4/2023 | 1107 | 9 | GW | - | | | | × | | | | |
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| Preservation Used: 1= ice, 2= HCl; 3= H2SO4, 4=HN03; 5=NaOH; 6= Other | HNO3; 5=Na | OH; 6= Ot | her | j Feff | Fe filter in field | leld | 4 | F4 | ı | 4 | | | 100 |
| * Six 1L Bottles must be collected for Radium for every 10th sample. | r every 10th | sample. | | | | | | | | | | | |

Special Instructions/QC Requirements & Comments:

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| Date/Time: | Date/Time: | Date/Time: 9:50/Am |
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| Date/Time: 6a Received by: | Date/Time; | Date/Time: |
| Company | Company | Company: |
| velinquished by Med basinphilips | (elinquished by: | Relinquished by: |

Form COC-04, AEP Chain of Custody (COC) Record for Coal Combustion Residual (CCR) Sampling - Shreveport, Rev. 1, 1/10/17

WATER & WASTE SAMPLE RECEIPT FORM

| Package Type | Delivery Type |
|---|---|
| Gooler Box Bag Envelope | PONY UPS FEEEX USPS |
| | Other |
| Plant/Customer Welch | Number of Plastic Containers: |
| Opened By MS 3 | Number of Glass Containers: |
| | Number of Mercury Containers: or N/A Initial: |
| | 4) - If No, specify each deviation: |
| Was container in good condition? (Y)/ N | Comments |
| Was Chain of Custody received? N | Comments |
| Requested turnaround: Routine | If RUSH, who was notified? |
| pH (15 min) Cr*6 (pres) NO₂ or N (24 hr) | IO ₃ (48 hr) ortho-PO ₄ (48 hr) Hg-diss (pres) (48 hr) |
| Was COC filled out properly? (Y)/ N | Comments |
| Were samples labeled properly? (Y) N | Comments |
| Were correct containers used? (Y) N | Comments |
| Was pH checked & Color Coding done Y | N or N/A Initial & Date: MS0 10/6/23 |
| pH paper (circle one): MQuant,PN1.09535.0001,L0 | OT#ORTLab Rat, PN4801, LOT#X000RWDG21 Exp 11/15/2024 |
| - Was Add'l Preservative needed? Y N | Yes: By whom & when: (See Prep Book) |
| Is sample filtration requested? Y / N | Comments (See Prep Book) |
| Was the customer contacted? If Yes: | Person Contacted: |
| Lab ID# 233993 Initial & [| Date & Time : |
| Lamada, MSD | nts: |
| | |

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.

Municipal Solid Waste Laboratory Review Checklist

| This da | ita pack | age consists of | f : | | |
|---|--|--|---|--|--|
| × | (which | | eportable data identified | checklist consisting of Table 1 on this page), Table 2, Support | |
| х | R1 | Field chain-of | -custody documentation | | |
| x | R2 | Sample identi | fication cross-reference | | |
| X | R3 | (a) Items specified NELAC S(b) Dilution S(c) Preparation (d) Cleanup S | ecified in NELAC Chapter tandard factors on methods methods | r each environmental sample the 5 for reporting results, e.g., Secretary results and the feet of the f | ection 5.5.10 in 2003 |
| × | R4 | (a) Calculate | overy data including: ed recovery (%R) eatory's surrogate QC lim | its | |
| x | R5 | Test reports/s | summary forms for blank | samples | |
| x | R6 | (a) LCS spik (b) Calculate | | atory control samples (LCSs) in | ncluding: |
| x | R7 | (a) Samples(b) MS/MSI(c) Concentr(d) Calculate | associated with the MS/I spiking amounts | nalyte measured in the parent nt differences (RPDs) | |
| X | R8 | (a) The amo (b) The calcu | unt of analyte measured | - | : |
| x | R9 | List of metho | d quantitation limits (MC | Ls) for each analyte for each n | nethod and matrix |
| x | R10 | Other problem | ns or anomalies | | |
| х | The Ex | ception Repor | t for every item for which | the result is "No" or "NR" (No | t Reviewed) |
| packag require reports by the laborat | e as be ements s. By m laborat tory in t | en reviewed by of the methods y signature be tory as having | y the laboratory and is co s used, except where note clow, I affirm to the best of the potential to affect the Review Checklist, and no | se of this laboratory data packa mplete and technically complia d by the laboratory in the attac of my knowledge, all problems/ quality of the data, have been o information or data have bee | ant with the ched exception anomalies, observed identified by the |
| respon used is | ding to | rule. The offic sible for releas | ial signing the cover page | ouse laboratory controlled by to the rule-required report in d is by signature affirming the | which these data are |
| Tim / | Arnold | | Jun Under | Principle Chemist | 10/18/2023 |
| Name (printed) | | | Signature | Official Title | Date |

Table 1. Reportable Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh CCR

Reviewer Name: Tim Arnold

LRC Date: 10/18/2023

Laboratory Job Number: 233093

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| R1 | O, I | Chain-of-custody (COC) | | 2 |
| | I | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | Yes | |
| | I | Were all departures from standard conditions described in an exception report? | Yes | |
| R2 | O, I | Sample and quality control (QC) identification | | |
| | I | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | Yes | |
| | I | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | Yes | |
| R3 | O, I | Test reports | | |
| | I | Were all samples prepared and analyzed within holding times? | Yes | |
| | I | Other than those results < MQL, were all other raw values bracketed by calibration standards? | Yes | |
| | I | Were calculations checked by a peer or supervisor? | Yes | |
| | I | Were all analyte identifications checked by a peer or supervisor? | Yes | |
| | I | Were sample quantitation limits reported for all analytes not detected? | Yes | : |
| | I | Were all results for soil and sediment samples reported on a dry weight basis? | NA | |
| | I | Was % moisture (or solids) reported for all soil and sediment samples? | NA | |
| | I | If required for the project, TICs reported? | NA | |
| R4 | 0 | Surrogate recovery data | | |
| | I | Were surrogates added prior to extraction? | Yes | -25 |
| | I | Were surrogate percent recoveries in all samples within the laboratory QC limits? | Yes | |
| R5 | O, I | Test reports/summary forms for blank samples | | |
| | I | Were appropriate type(s) of blanks analyzed? | Yes | |
| | I | Were blanks analyzed at the appropriate frequency? | Yes | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| | I | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures? | Yes | |
| • | I | Were blank concentrations < MQL? | Yes | |
| R6 | O, I | Laboratory control samples (LCS): | | |
| | I | Were all COCs included in the LCS? | Yes | |
| | I | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | Yes | |
| | I | Were LCSs analyzed at the required frequency? | Yes | |
| | I | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | Yes | |
| | I | Was the LCSD RPD within QC limits? | Yes | |
| R7 | O, I | Matrix spike (MS) and matrix spike duplicate (MSD) data | | |
| | I | Were the project/method specified analytes included in the MS and MSD? | Yes | |
| | I | Were MS/MSD analyzed at the appropriate frequency? | Yes | |
| | I | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Were MS/MSD RPDs within laboratory QC limits? | Yes | |
| R8 | O, I | Analytical duplicate data | | |
| | I | Were appropriate analytical duplicates analyzed for each matrix? | Yes | |
| | I | Were analytical duplicates analyzed at the appropriate frequency? | Yes | |
| | I | Were RPDs or relative standard deviations within the laboratory QC limits? | Yes | |
| R9 | O, I | Method quantitation limits (MQLs): | | |
| | I | Are the MQLs for each method analyte included in the laboratory data package? | Yes | |
| | I | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | Yes | |
| | I | Are unadjusted MQLs included in the laboratory data package? | Yes | |
| R10 | O, I | Other problems/anomalies | | |
| | I | Are all known problems/anomalies/special conditions noted in this LRC and ER? | Yes | |
| | I | Were all necessary corrective actions performed for the reported data? | Yes | |
| | I | Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results? | Yes | |

Table 2. Supporting Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh CCR

Reviewer Name: Tim Arnold

LRC Date: 10/18/2023

Laboratory Job Number: 233093

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ |
|------------|-----------------------|--|--|---|
| S1 | 0, I | Initial calibration (ICAL) | | Ţ. |
| | I | Were response factors and/or relative response factors for each analyte within QC limits? | NA | |
| | I | Were percent RSDs or correlation coefficient criteria met? | Yes | |
| | I | Was the number of standards recommended in the method used for all analytes? | Yes | |
| | I | Were all points generated between the lowest and highest standard used to calculate the curve? | Yes | |
| | I | Are ICAL data available for all instruments used? | Yes | |
| | I | Has the initial calibration curve been verified using an appropriate second source standard? | Yes | |
| S2 | O, I | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | |
| | I | Was the CCV analyzed at the method-required frequency? | Yes | |
| | I | Were percent differences for each analyte within the method-required QC limits? | Yes | |
| | I | Was the ICAL curve verified for each analyte? | Yes | |
| | I | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | No | ER1 |
| S 3 | 0 | Mass spectral tuning: | | |
| | I | Was the appropriate compound for the method used for tuning? | NA | |
| | I | Were ion abundance data within the method-required QC limits? | NA | |
| S4 | 0 | Internal standards (IS): | | |
| | I | Were IS area counts and retention times within the method-required QC limits? | NA | |
| S5 | O, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | |
| | I | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | Yes | |
| | I | Were data associated with manual integrations flagged on the raw data? | NA | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No. ⁴ |
|-------------|-----------------------|--|--|---|
| S6 | 0 | Dual column confirmation | | |
| | I | Did dual column confirmation results meet the method-required QC? | NA | |
| S 7 | 0 | Tentatively identified compounds (TICs): | | |
| | I | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | NA | |
| S8 | I | Interference Check Sample (ICS) results: | | |
| | I | Were percent recoveries within method QC limits? | NA | |
| S9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | |
| | I | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | NA | |
| S10 | O, I | Method detection limit (MDL) studies | | |
| | I | Was a MDL study performed for each reported analyte? | Yes | |
| - 1 | I | Is the MDL either adjusted or supported by the analysis of DCSs? | Yes | |
| S11 | O, I | Proficiency test reports: | | |
| | I | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | Yes | |
| S12 | O, I | Standards documentation | | |
| | I | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | Yes | |
| S13 | O, I | Compound/analyte identification procedures | | |
| | I | Are the procedures for compound/analyte identification documented? | Yes | |
| S14 | O, I | Demonstration of analyst competency (DOC) | | |
| | I | Was DOC conducted consistent with NELAC Chapter 5C? | Yes | |
| | I | Is documentation of the analyst's competency up-to- date and on file? | Yes | |
| S 15 | O, I | Verification/validation documentation for methods (NELAC Chap 5n 5) | | |
| | I | Are all the methods used to generate the data documented, verified, and validated, where applicable? | Yes | |
| S16 | O, I | Laboratory standard operating procedures (SOPs): | | |
| | I | Are laboratory SOPs current and on file for each method performed? | Yes | |

Table 3. Exception Reports.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh CCR

Reviewer Name: Tim Arnold

LRC Date: 10/18/2023

Laboratory Job Number: 233093

Prep Batch Number(s): QC2310142

| Exception Report No. | Description |
|-------------------------|--|
| ER1 | CCB acceptance criteria is CCB <mql.< th=""></mql.<> |
| | |
| <u></u> | |
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¹ Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

³ NA - Not applicable; NR - Not reviewed.

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

Municipal Solid Waste Laboratory Review Checklist

This data package consists of: х This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports. x Field chain-of-custody documentation R1 X R₂ Sample identification cross-reference х Test reports (analytical data sheets) for each environmental sample that includes: R3 (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 **NELAC Standard** (b) Dilution factors (c) Preparation methods (d) Cleanup methods (e) If required for the project, tentatively identified compounds (TICs) NA Surrogate recovery data including: **R**4 (a) Calculated recovery (%R) (b) The laboratory's surrogate QC limits х Test reports/summary forms for blank samples **R**5 x R6 Test reports/summary forms for laboratory control samples (LCSs) including: (a) LCS spiking amounts (b) Calculated %R for each analyte (c) The laboratory's LCS QC limits x Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including: **R**7 (a) Samples associated with the MS/MSD clearly identified (b) MS/MSD spiking amounts (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples (d) Calculated %Rs and relative percent differences (RPDs) (e) The laboratory's MS/MSD QC limits X **R8** Laboratory analytical duplicate (if applicable) recovery and precision: (a) The amount of analyte measured in the duplicate (b) The calculated RPD (c) The laboratory's QC limits for analytical duplicates X List of method quantitation limits (MQLs) for each analyte for each method and matrix R9 х R10 Other problems or anomalies X The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed) **Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data. Check, if applicable: () This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are

used is responsible for releasing this data package and is by signature affirming the above release

statement is true. Michael Ohlinger

Name (printed)

Table 1. Reportable Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh Background

Reviewer Name: Michael Ohlinger

LRC Date: 11/2/23

Laboratory Job Number: 233093

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| R1 | O, I | Chain-of-custody (COC) | | |
| | I | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? | Yes | |
| | I | Were all departures from standard conditions described in an exception report? | NA | |
| R2 | O, I | Sample and quality control (QC) identification | | |
| | I | Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | Yes | |
| | I | Are all laboratory ID numbers cross-referenced to the corresponding QC data? | Yes | |
| R3 | O, I | Test reports | | |
| | I | Were all samples prepared and analyzed within holding times? | Yes | |
| | I | Other than those results < MQL, were all other raw values bracketed by calibration standards? | NA | 100 |
| | I | Were calculations checked by a peer or supervisor? | Yes | |
| | I | Were all analyte identifications checked by a peer or supervisor? | Yes | |
| | I | Were sample quantitation limits reported for all analytes not detected? | Yes | |
| | ı | Were all results for soil and sediment samples reported on a dry weight basis? | NA | |
| | I | Was % moisture (or solids) reported for all soil and sediment samples? | NA | |
| | I | If required for the project, TICs reported? | NA | |
| R4 | 0 | Surrogate recovery data | | |
| | I | Were surrogates added prior to extraction? | NA | |
| | I | Were surrogate percent recoveries in all samples within the laboratory QC limits? | NA | |
| R5 | O, I | Test reports/summary forms for blank samples | | |
| | I | Were appropriate type(s) of blanks analyzed? | Yes | |
| | I | Were blanks analyzed at the appropriate frequency? | Yes | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|---|---|-----------------------------|
| | I | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures? | Yes | |
| | I | Were blank concentrations < MQL? | Yes | |
| R6 | O, I | Laboratory control samples (LCS): | | |
| | I | Were all COCs included in the LCS? | Yes | |
| | I | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps? | Yes | |
| | I | Were LCSs analyzed at the required frequency? | Yes | |
| | ī | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits? | Yes | |
| | I | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs? | Yes | |
| | I | Was the LCSD RPD within QC limits? | Yes | |
| R7 | O, I | Matrix spike (MS) and matrix spike duplicate (MSD) data | | |
| | I | Were the project/method specified analytes included in the MS and MSD? | NA | |
| | I | Were MS/MSD analyzed at the appropriate frequency? | NA | |
| | I | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits? | NA | |
| | I | Were MS/MSD RPDs within laboratory QC limits? | NA | |
| R8 | O, I | Analytical duplicate data | | |
| | I | Were appropriate analytical duplicates analyzed for each matrix? | Yes | |
| | I | Were analytical duplicates analyzed at the appropriate frequency? | Yes | |
| | I | Were RPDs or relative standard deviations within the laboratory QC limits? | Yes | |
| R9 | O, I | Method quantitation limits (MQLs): | | |
| | I | Are the MQLs for each method analyte included in the laboratory data package? | Yes | |
| | I | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard? | Yes | |
| | I | Are unadjusted MQLs included in the laboratory data package? | Yes | |
| R10 | 0, I | Other problems/anomalies | | |
| | I | Are all known problems/anomalies/special conditions noted in this LRC and ER? | Yes | |
| | I | Were all necessary corrective actions performed for the reported data? | Yes | |
| | I | Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results? | Yes | |

Table 2. Supporting Data.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh Background

Reviewer Name: Michael Ohlinger

LRC Date: 11/2/23

Laboratory Job Number: 233093

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-------|-----------------------|--|--|-----------------------------|
| S1 | 0, I | Initial calibration (ICAL) | | |
| | I | Were response factors and/or relative response factors for each analyte within QC limits? | NA | |
| | I | Were percent RSDs or correlation coefficient criteria met? | NA | |
| | I | Was the number of standards recommended in the method used for all analytes? | NA | |
| | I | Were all points generated between the lowest and highest standard used to calculate the curve? | NA | E-10-10 |
| | I | Are ICAL data available for all instruments used? | NA | |
| | I | Has the initial calibration curve been verified using an appropriate second source standard? | NA | |
| S2 | O, I | Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB): | | |
| | I | Was the CCV analyzed at the method-required frequency? | NA | |
| | I | Were percent differences for each analyte within the method-required QC limits? | NA | |
| | I | Was the ICAL curve verified for each analyte? | NA | |
| | I | Was the absolute value of the analyte concentration in the inorganic CCB < MDL? | NA . | |
| S3 | 0 | Mass spectral tuning: | | |
| | I | Was the appropriate compound for the method used for tuning? | NA | |
| | I | Were ion abundance data within the method-required QC limits? | NA | |
| S4 | 0 | Internal standards (IS): | | |
| | I | Were IS area counts and retention times within the method-required QC limits? | NA | |
| S5 | O, I | Raw data (NELAC section 1 appendix A glossary, and section 5.) | | |
| | I | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst? | Yes | |
| | I | Were data associated with manual integrations flagged on the raw data? | NA | |

| Item¹ | Analytes ² | Description | Result (Yes, No, NA, NR) ³ | Exception Report No.4 |
|-----------|-----------------------|--|--|-----------------------------|
| S6 | 0 | Dual column confirmation | | |
| | I | Did dual column confirmation results meet the method-required QC? | NA | |
| S7 | 0 | Tentatively identified compounds (TICs): | | |
| | I | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks? | NA | |
| S8 | I | Interference Check Sample (ICS) results: | | |
| | I | Were percent recoveries within method QC limits? | NA | |
| S9 | I | Serial dilutions, post digestion spikes, and method of standard additions | | |
| | I | Were percent differences, recoveries, and the linearity within the QC limits specified in the method? | NA | |
| S10 | O, I | Method detection limit (MDL) studies | | |
| | I | Was a MDL study performed for each reported analyte? | Yes | |
| | I | Is the MDL either adjusted or supported by the analysis of DCSs? | Yes | |
| S11 | O, I | Proficiency test reports: | | |
| | I | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | Yes | |
| S12 | O, I | Standards documentation | | |
| | I | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources? | Yes | |
| S13 | O, I | Compound/analyte identification procedures | | |
| | I | Are the procedures for compound/analyte identification documented? | Yes | |
| S14 | O, I | Demonstration of analyst competency (DOC) | | |
| | I | Was DOC conducted consistent with NELAC Chapter 5C? | Yes | |
| | I | Is documentation of the analyst's competency up-to- date and on file? | Yes | |
| S15 | O, I | Verification/validation documentation for methods (NELAC Chap 5n 5) | K 19 | |
| | I | Are all the methods used to generate the data documented, verified, and validated, where applicable? | Yes | |
| S16 | O, I | Laboratory standard operating procedures (SOPs): | | |
| | I | Are laboratory SOPs current and on file for each method performed? | Yes | |

Table 3. Exception Reports.

Laboratory Name: American Electric Power Dolan Chemical Laboratory

Project Name: Welsh Background

Reviewer Name: Michael Ohlinger

LRC Date: 11/2/23

Laboratory Job Number: 233093

Prep Batch Number(s): QC2310087

| Exception Report No. | Description |
|----------------------|-------------|
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¹ Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

² O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

³ NA - Not applicable; NR - Not reviewed.

⁴ Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."