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ENGINEERING RESOURCES

Sikeston Power Station 2023 Annual Groundwater Monitoring Report for Bottom Ash Pond For Compliance with USEPA 40 CFR 257.90(e)

Prepared for:

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1.0 EXECUTIVE SUMMARY

This report has been developed to fulfill the requirements of the United States Environmental Protection Agency (USEPA) 40 CFR 257 Subpart A – Classification of Solid Waste Disposal Facilities and Practices, which requires owners or operators to provide an Annual Groundwater Monitoring Report. Sikeston Board of Municipal Utilities (SBMU) provides this report of groundwater monitoring activities completed during 2023 for the Bottom Ash Pond (BAP) at the Sikeston Power Station (SPS).

The BAP at the SPS remained in Detection Monitoring status during 2023. The 11th semiannual Detection Monitoring groundwater sampling events was initiated in November 2022, but data review and statistical analysis were not completed until early 2023. Consequently, the results of the 11th sampling event are presented in this report along with the two semiannual sampling events conducted in 2023 at the SPS BAP. Table 1 below summarizes the BAP groundwater sampling for 2023.

Table 1 2023 Bottom Ash Pond Groundwater Sampling Summary

Event Name and Purpose	Event Start	Final Data Received from Laboratory	Constituents Sampled	Verified SSIs	Verified SSLs	Statistical Analysis Results Completed
11th CCR Compliance Sampling Event (2nd 2022 Semi-annual Detection Monitoring Event)	11/1/2022	11/22/2022	Appendix III Constituents	None	None	2/3/2023
and Verification Sampling	12/13/2022	1/3/2023	TDS & pH at MW-5, Cl, TDS, & Ca at MW-6 pH at MW-3, MW-4, & MW-8			
12th CCR Compliance Sampling Event (1st 2023 Semi-annual Detection Monitoring Event)	4/18/2023	5/5/2023	Appendix III Constituents	None	None	7/14/2023
and Verification Sampling	5/23/2023	6/14/2023	pH at MW-8, Chloride at MW-6			
13th CCR Compliance Sampling Event (2nd 2023 Semi-annual Detection Monitoring Event)	10/11/2023	10/23/2023	Appendix III Constituents	None	None	11/20/2023

The two 2023 semiannual Detection Monitoring events conducted in 2023 are the 12th and 13th groundwater sampling events conducted at the SPS-BAP. The 12th event was initiated in April 2023. The 13th event was initiated in October 2023.

Detection Monitoring statistical evaluations were completed after each sampling event to assess apparent significant increases relative to background data. Initial results during the April 2023 event suggested that Chloride concentrations in MW-6 had increased relative to background data. However, the increases were demonstrated to be the result of an alternate source located hydraulically upgradient of the SPS. As a result, the BAP remained in Detection Monitoring status during 2023.

2.0 INTRODUCTION

The Sikeston Power Station (SPS), owned and operated by the Sikeston Board of Municipal Utilities (SBMU), is an electric power producer and distributor located within the western city limits of Sikeston, in southern Scott County, Missouri. The SBMU-SPS began operation in 1981 and produces approximately 235 megawatts. Coal combustion residuals (approximately 10,000 tons per annum) are currently sold for reuse/recycling but were historically placed in the facility's Bottom Ash Pond (BAP) (approximately 61 acres in size). SBMU-SPS successfully completed a conversion to dry-handling methods of disposal as of May 1, 2023 and the BAP is now in the process of closure.

Pursuant to USEPA's 40 CFR Part 257 (§257) Federal Criteria for Classification of Solid Waste Disposal Facilities and Practices, Subpart D – Standards for Disposal of Coal Combustion Residuals (CCR) in Landfills and Surface Impoundments (ponds), the establishment of a groundwater monitoring system and routine detection sampling and reporting is required at all coal ash surface impoundments. The purpose of a monitoring well system is to evaluate the quality of groundwater as it passes beneath the waste mass within an impoundment. Groundwater samples are collected and analyzed on a semi-annual basis in accordance with §257.93, or as otherwise detailed in a site-specific Groundwater Monitoring and Sampling Plan (GMSAP). Statistical analyses of the resulting data are conducted in accordance with §257.93(f), and the results are included in this Annual Groundwater Monitoring Report in accordance with §257.90(e). If results suggest a statistically significant increase (SSI) in one or more constituents for detection monitoring listed in Appendix III of §257, a written demonstration is required to determine if the SSI is attributable to an ash pond release or to other causative factors. If a successful demonstration is not made, an assessment monitoring program must be initiated as required under §257.95.

Baseline data sets for each well are updated in accordance with Unified Guidance. The most recent update included previous sampling data through the eleventh round of detection monitoring (last 2022 sampling event). The next background update may follow the fifteenth detection sampling event scheduled to take place in the fall of 2024. A collection of statistical tools, including time series plots, box and whiskers plots, histograms, probability plots, outlier analysis, trend analysis, and analysis of variation, was used to explore, understand, and prepare the data sets for statistical analysis. This analysis allowed for censoring of outliers and data set detrending. Prediction limits were then calculated with the revised data sets described above for comparison to detection monitoring results compiled after 2022. The statistical analysis was performed in accordance with §257.93(f) using the appropriate statistical analysis method as filed in the SBMU-SPS operating record on October 17, 2017.

This report describes the results of the 11th, 12th, and 13th semiannual detection groundwater sampling events conducted at the SPS BAP beginning on November 1, 2022, April 18, 2023, and October 11, 2023, respectively. Included are descriptions of the sampling events, groundwater elevations, water table surfaces, summaries of field activities, analytical results, and statistical analysis results. Field sampling and reporting activities were conducted in accordance with the site-specific GMSAP (Gredell Engineering, 2021).

3.0 GROUNDWATER MONITORING SYSTEM

The groundwater monitoring system for the BAP consists of five monitoring wells. The wells are identified as MW-3, MW-4, MW-5, MW-6, and MW-8. Monitoring wells MW-3 and MW-6 are located hydraulically upgradient of the BAP, whereas MW-4, MW-5 and MW-8 are hydraulically downgradient of the BAP. MW-3 through MW-6 were installed during characterization of the site in May 2016 (Gredell Engineering, 2017). MW-8 was installed in April 2017 to serve as an additional downgradient monitoring well. Well construction activities were performed under the direction of a Registered Geologist in the State of Missouri. Well design and installation techniques were completed in accordance with 10 CSR 23-4, which is consistent with the standards summarized in 40 CFR 257.91(e). All five wells monitor uppermost groundwater, which is within the alluvial aquifer at the BAP site. Each well is between 34 and 36 feet deep as measured from ground surface and yields a sufficient quantity of water for the purposes of sampling and analysis.

Table 2 presents a construction summary of the wells comprising the BAP groundwater monitoring system. Figures 1, 2, and 3 depict well locations and groundwater contour maps of the uppermost aquifer for the 11th, 12th, and 13th semi-annual sampling events. These maps and the historical piezometric data summarized in Table 3 confirm that water in the uppermost aquifer continues to move in a west-southwesterly direction, consistent with the conclusions of the Site Characterization Report (Gredell Engineering, 2017). All groundwater wells are equipped with dedicated tubing for use with a peristaltic pump. This system has been used for chemical sampling since the inception of groundwater sampling with the BAP monitoring system. The BAP monitoring system is described in more detail in the site-specific GMSAP for this facility (Gredell Engineering, 2021).

3.1 Installation or Decommissioning of Monitoring Wells

No monitoring wells were installed or decommissioned for the BAP detection groundwater monitoring system in 2023 (Gredell Engineering, 2023).

4.0 DETECTION MONITORING SAMPLING SUMMARY

SPS environmental staff initiated the 11th BAP semi-annual detection groundwater sampling event on November 1, 2022. Following this initial sampling event, it was noted that the pH for samples MW-3, MW-4, MW-5, and MW-8 were outside of their respective prediction limits. Total Dissolved Solids (TDS) concentrations in MW-5 and MW-6 and Chloride and Calcium concentrations in MW-6 were also greater than their respective prediction limits. In accordance with the statistical analysis program, these well constituent pairs were resampled on December 13, 2022. The resample data demonstrated that results for each of the aforementioned constituent well pairs did not exceed their respective prediction limits, and therefore did not confirm the apparent SSIs for the 11th semi-annual detection groundwater sampling event with the exception of Chloride in MW-6.

Potential alternate sources were investigated to assess the increase in Chloride concentration in MW-6. An Alternate Source Demonstration (ASD) was successfully completed, and the increase in Chloride in this upgradient well was attributed to an alternate source up gradient of the ash pond. This ASD is provided in Appendix 8.

SPS environmental staff initiated the 12th semi-annual detection groundwater sampling event on April 18, 2023. Following this initial sampling event, it was noted that the Chloride concentration for MW-6 and the pH for sample MW-8 were greater than their respective prediction limits. In accordance with the statistical analysis program, these well constituent pairs were resampled on May 23, 2023. The resample data for demonstrated that results for each of the aforementioned constituent well pairs did not exceed their respective prediction limits, and therefore confirmed SSIs are not reported for the 12th semi-annual detection groundwater sampling event.

SPS environmental staff initiated the 13th semi-annual detection groundwater sampling event on October 11, 2023. Following this sampling event it was noted that the semi-annual detection results for each of the monitored constituents did not exceed their respective prediction limits. Therefore, confirmed SSIs are not reported for the 13th semi-annual detection groundwater sampling event.

Sampling procedures for the sampling events were consistent with the GMSAP. Groundwater samples were collected using low-flow sampling techniques and dedicated sampling equipment. Field tests of indicator parameters were performed using an In-Situ, Inc. Aqua TROLL 400 Multiparameter Probe with flow cell unit and HF Scientific MicroTPI field portable turbidimeter. Each groundwater sample was subsequently analyzed for the constituents listed in §257 Appendix III. All monitoring wells produced sufficient volumes of groundwater for full analysis.

SPS environmental staff inspected each monitoring well upon arrival. Wells were reported to be in satisfactory condition and had locks in place. Staff initially gauged water levels in the monitoring wells using a standard electronic water level meter graduated in increments of 0.01 feet. Static water levels were recorded on forms provided in the GMSAP. Each well was then purged while staff monitored water quality until indicator parameters (pH and specific conductance) stabilized in accordance with the criteria in the GMSAP. Additional parameters (turbidity, temperature, dissolved oxygen, and oxidation/reduction potential) were also monitored for stability prior to groundwater sample collection. Following stabilization of indicator parameters, final field data were recorded, and groundwater samples were then collected.

Field notes documenting the sampling events and copies of the chain-of-custody forms are presented in Appendix 1. Field sampling notes are also summarized in Table 4, including initial and final water level measurements, purge volumes, and pH. Laboratory analytical reports for the sampling events, including the field blanks and sample duplicates, and Quality Assurance/Quality Control (QA/QC) documentation are presented in Appendix 2. A summary of background and detection monitoring analytical data, including field parameters, is presented in Appendix 3.

4.1 Field Quality Assurance/Quality Control

Field QA/QC during the November 1, 2022, (11th) sampling event included the collection of one field blank and one field duplicate. The duplicate was collected from MW-8 (Table 6). Rinsate blanks were not collected because dedicated sampling equipment was used. Samples were shipped to Pace Analytical Services, LLC's (Pace) facility located in Peoria, Illinois using standard chain-of-custody documentation procedures. Samples collected during this sampling event were received by Pace on November 4, 2022, and subsequently analyzed for the six detection monitoring constituents listed in §257 Appendix III and required under §257.94(b) (Table 5). Results for these six detection monitoring constituents and field-measured pH are provided in the final analytical report, which was received from Pace on November 22, 2022 (Appendix 2).

Following the November 1st sampling event, samples from the verification sampling event conducted on December 13, 2022, were shipped to Pace's facility located in Peoria, Illinois using standard chain-of-custody documentation procedures. The samples collected during this resampling event were received by Pace on December 15, 2022, and subsequently analyzed for the requested constituents. The results are provided in the final analytical report, which was received from Pace on December 30, 2022 (Appendix 2).

Field QA/QC during the 12th semi-annual sampling event, initiated on April 18, 2023, included the collection of one field blank and one field duplicate. The duplicate was collected from MW-4 (Table 6). Rinsate blanks were not collected because dedicated sampling equipment was used. Samples were shipped to Pace Analytical Services, LLC facility located in Peoria, Illinois using standard chain-of-custody documentation procedures. Samples collected during this sampling event were received by Pace on April 20, 2023, and subsequently analyzed for the six detection monitoring constituents listed in §257 Appendix III and required under §257.94(b) (Table 5). Results for these six detection monitoring constituents and field-measured pH are provided in the final analytical reports, which were received from Pace on May 5, 2023 (Appendix 2).

Following the initial 12th semi-annual sampling event, analytical services were provided by Teklab, Inc. (Teklab). Accordingly, the sample from the verification sampling event conducted on May 23, 2023, was shipped to Teklab's facility located in Collinsville, Illinois using standard chain-of-custody documentation procedures. The sample collected during this event was received by Teklab on May 26, 2023, and subsequently analyzed for Chloride. The result is provided in the final analytical report, which was received from Teklab on June 14, 2023 (Appendix 2).

Field QA/QC during the 13th semi-annual sampling event, initiated on October 11, 2023, included collection of one field blank and one field duplicate. The duplicate was collected from MW-8 (Table 6). Rinsate blanks were not collected because dedicated sampling equipment was used. Samples were shipped to Teklab's facility located in Collinsville, Illinois using standard chain-of-custody documentation procedures. Samples collected during this sampling event were received by Teklab on October 13, 2023, and subsequently analyzed for the six detection monitoring constituents listed in §257 Appendix III and required under §257.94(b) (Table 5). Results for these six detection monitoring constituents and field-measured pH are provided in the final analytical reports, which were received from Teklab on October 23, 2023 (Appendix 2).

5.0 ANALYTICAL SUMMARY

Analytical data summary reports for each monitoring well sampled during the 11th, 12th, and 13th detection monitoring events are provided in Appendix 2. The data pertains to water quality results from the uppermost aquifer beneath the BAP, along with sample duplicates and field blank results.

5.1 Laboratory Quality Control

Laboratory analyses of all groundwater samples collected during the 11th and 12th detection monitoring events were completed by Pace Analytical Services, LLC of Peoria, Illinois. However, beginning with the verification sampling event on May 23, 2023 for the 12th detection monitoring event, analytical services were provided by Teklab Inc. The results for each sampling event are accompanied by appropriate QA/QC documentation. That documentation is presented in Appendix 2.

5.2 Precision and Accuracy

Precision is a measure of the reproducibility of analytical results, generally expressed as a *Relative Percent Difference (RPD)*. Laboratory quality control procedures to measure precision consist of laboratory control sample (LCS) analysis and analysis of matrix spike/matrix spike duplicates (MS/MSD). These analyses are used to define analytical variability. Accuracy is defined as the degree of agreement between the measured amount of a species and the amount actually known to be present, expressed as a percentage. It is generally determined by calculating the percent recoveries for analyses of surrogate compounds, laboratory control samples, continuing calibration check standards and matrix spike samples. Acceptable percent recoveries are established for SW-846 and USEPA methods. Field and laboratory blank analyses are also used to address measurement bias.

The analyses of the samples collected during the 11th detection monitoring event and the subsequent verification sampling event were performed within appropriate hold times except for TDS in MW-3. Both initial and continuing calibrations met acceptance criteria for all analyses. Similarly, method blanks and LCS analyses met acceptance criteria, except the TDS verification result for MW-5-duplicate sample, which was qualified with an “M” flag indicating that the analyte did not meet the acceptance criteria for duplicate analysis. The case narratives for the 11th sampling event and the subsequent verification sampling indicate that all testing was performed according to the lab’s TNI accreditations.

The analyses of samples collected during the 12th detection monitoring event were also performed within appropriate hold times. Both initial and continuing calibrations met acceptance criteria for all analyses. Similarly, method blanks and LCS analyses met acceptance criteria. The case narrative for this sampling event indicates that all testing was performed according to the lab’s TNI accreditations. However, TDS failed to meet the required acceptance criteria for duplicate analysis and the result was qualified in the analytical report. The analysis of the sample collected during the May 23rd verification sampling event was also performed within appropriate hold times and both initial and continuing calibrations met acceptance criteria for all analyses.

The analyses of the samples collected during the 13th detection monitoring event were also performed within appropriate hold times. Both initial and continuing calibrations met acceptance criteria for all analyses. Similarly, method blanks and LCS analyses met acceptance criteria. The case narrative for this sampling event indicates that all testing was performed according to the lab's NELAP accreditation. However, the sample/spike ratio for Calcium in MW-6 failed to meet the matrix spike control limits and the result was qualified in the analytical report.

Additional QA/QC comments for these sampling events include the following:

- *Field Duplicates:* Analyses of duplicate samples are used to define the total variability of the sampling/analytical system as a whole. One field duplicate was collected during each of the sampling events. RPDs were calculated for all detected chemical parameters, and a summary table showing the results of the RPD calculations is included as Table 6. Using a tolerance level of ±20 percent, all calculated RPDs were within acceptable ranges for each parameter.
- *Field Blank:* One field blank was incorporated into the data set for each sampling event. The field blank analytical results for the 11th and 13th events indicate TDS concentrations of 37 mg/L and 28 mg/L, respectively. The field blank analytical results for the 12th event indicate a low concentration of Boron (11 ug/L).
- *Laboratory Blanks:* Method blanks, artificial, and matrix-less samples are analyzed to monitor the laboratory system for interferences and contamination from glassware, reagents, etc. Method blanks are taken throughout the entire sample preparation process. They are included with each batch of extractions or digestions prepared, or with each 20 samples, whichever is more frequent. Reference to Appendix 2 should be made for comments related to these and other laboratory control samples.

5.3 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely reflect site conditions. Representativeness of the data is determined by comparing actual sampling procedures to those delineated in the field sampling plan, comparing results from field duplicate samples and reviewing the results of field blanks.

Approved sampling procedures are described in the GMSAP. Procedures specified in that plan have been followed. Approved sampling procedures should be reviewed annually. Groundwater monitoring data is evaluated using an intrawell statistical analysis methodology and is conducted separately for each constituent in each monitoring well using prediction limits in accordance with §257.93(f)(3) and the performance standards in §257.93(g). The stated statistical approach, along with supporting documentation and engineering certification, are available in the SBMU-SPS On-Site Operating Record.

5.4 Comparability

Comparability expresses the confidence with which one data set can be compared to another data set measuring the same property. Comparability is ensured by using established and approved sample collection techniques and analytical methods, consistent basis of analysis, consistent reporting units, and analyzing standard reference materials.

5.5 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount expected under controlled laboratory conditions. Completeness is defined as the valid data percentage of the total tests requested. Valid data are defined as those where the sample arrived at the laboratory intact, properly preserved, in sufficient quantity to perform the requested analyses, and accompanied by a completed chain-of-custody form (Appendix 2). Furthermore, the sample must have been analyzed within the specified holding time and in such a manner that analytical QC acceptance criteria are met.

6.0 STATISTICAL ANALYSIS

The BAP remained in detection monitoring status in 2023. The statistical analysis method used to evaluate detection monitoring data within the uppermost aquifer for the BAP monitoring system at SBMU-SPS consists of intra-well analysis using prediction limits. Groundwater sampling data are evaluated using appropriate statistical analysis methodologies and is conducted separately for each constituent in each of the five monitoring wells in accordance with §257.93(f) and the performance standards in §257.93(g).

6.1 Detection Monitoring Statistical Procedures

A complete background data set has been obtained for groundwater, representing the uppermost aquifer, moving below the BAP at the SPS Data from each event is compared to a comprehensive background data set resulting from previous sampling events. Updates to the background data set are permitted every two years, but SSIs will not be included in background unless they are unconfirmed in accordance with Unified Guidance (USEPA, 2009). A background update was conducted following the 11th groundwater compliance sampling event. The next background update may be conducted in 2025 following the fifteenth groundwater compliance sampling event.

Statistical analysis is performed in accordance with §257.93 using Sanitas© for Ground Water. The groundwater analytical results from the eleventh, twelfth, and thirteenth detection monitoring events are compared to the respective intra-well prediction limits at the 99 percent confidence level (Table 8) to determine if SSIs over background exist in the data sets.

If the number of reportable concentrations of a given constituent in a database for a given well is not sufficient to permit parametric analysis, non-parametric prediction interval analysis is conducted. Both parametric and non-parametric prediction limit analysis were performed for the BAP groundwater monitoring well network data. Following review of baseline data for outliers and trends, prediction intervals are computed based on the reviewed and screened background monitoring data sets (Appendix 3), including values reported as less than detection limits.

6.1.1 November 2022 (11th) Event Statistical Procedures

The background data used to evaluate the 11th groundwater compliance sampling event groundwater quality in MW-3, MW-4, MW-5, and MW-6 is based on 18 rounds of groundwater sampling spanning November 2016 to October 2020. The MW-8 background data is based on 18 rounds of groundwater sampling spanning May 2017 to October 2020. In general, all background data were used for each well constituent pair. However, data trend removal and screening of outliers reduced the background sample population for some well constituent pairs (Appendix 3). The background may be updated every two years in accordance with Unified Guidance (USEPA, 2009), and accordingly, background was updated following the 11th compliance sampling event, and verification sampling event.

Statistical analysis was performed in accordance with §257.93 using Sanitas© for Ground Water. The groundwater analytical results from the eleventh semiannual detection groundwater sampling event were compared to the prediction limits (Table 8) to determine if SSIs over background were apparent.

6.1.2 April 2023 (12th) and October 2023 (13th) Events Statistical Procedures

The background data set used to evaluate the 12th and 13th groundwater compliance sampling events groundwater quality in MW-3, MW-4, MW-5, and MW-6 is based on 22 rounds of groundwater sampling spanning November 2016 to November 2022. The MW-8 background data is based on 22 rounds of groundwater sampling spanning May 2017 to November 2022. In general, all background data were used for each well constituent pair. However, data trend removal and screening of outliers reduced the background sample population for some well constituent pairs (Appendix 3). The background may be updated every two years in accordance with Unified Guidance (USEPA, 2009). Accordingly, the background may be updated again in 2025 following the fifteenth compliance sampling event.

Statistical analysis was performed in accordance with §257.93 using Sanitas© for Ground Water. The groundwater analytical results from the 12th and 13th semiannual detection groundwater sampling events were compared to the prediction limits (Table 8) to determine if SSIs over background were apparent.

6.2 Exploratory Data Analysis and Detection Data Screening

Exploratory Data Analysis (EDA) of the data refers to a collection of descriptive and graphical statistical tools used to explore and understand a data set (ITRC, 2013). Generally, EDA includes a numerical summary and graphical displays such as Time Series Plots, Box and Whisker Plots, Histograms and Probability Plots that are reviewed during a background data update to help identify trends or outliers. EDA methods are supplemented with outlier and trend analysis tools included with Sanitas© software to screen the detection data during each background update. EDA and Data Screening were completed following the 11th groundwater compliance sampling event.

6.2.1 Detection Data Outlier Screening

The background monitoring data were evaluated for possible outliers using EDA with Sanitas©, time-series plots, box and whiskers plots, histograms, and probability plots following the 11th groundwater compliance sampling event. This evaluation, data screening, and background update is described below. Previous evaluation, data screening, and background updates used for statistical evaluation of the 1st through 11th groundwater compliance sampling events are described in previous groundwater monitoring annual reports.

The following procedure provides the basis for the 'statistical' evaluation of possible outliers contained in the database of the 22 groundwater compliance sampling events completed prior to 2023:

1. The data well/constituent pairs sample populations were analyzed for outliers using the Sanitas© program by initially screening for possible outliers with the EPA 1989 Outlier Test (Grubb's Test).
2. The data points within the sample populations were normality tested using the Shapiro-Wilk Test. The purpose of normality testing is to determine whether the sample populations are normally distributed.
3. Data that is normally distributed or can be normalized through transformation by the Ladder of Powers methods were then further analyzed for possible outliers using Dixon's Test, which is a parametric statistical outlier identification test. If the sample populations cannot be normalized by the Shapiro-Wilk test or through Ladder of Powers transformation, Dixon's Test method is halted.
4. Some possible outliers selected during the EDA evaluation were not identified by the above procedures because the sample population was not normalizable. These possible outliers were further tested (continued even if the distribution remained not normalizable) to determine if they could be confirmed. Several of these possible outliers were confirmed with additional testing. However, it is noted that these additional outliers are not recognized as 'statistical' outliers since the sample population distribution was not normalizable.
5. Similar to the above, possible outliers selected during the EDA evaluation that were not identified by the above procedures were reanalyzed using Tukey's method for outlier analysis, which indicates possible 'extreme' low or high outliers (Tukey, 1977; Unified Guidance, 2009), if the outlier concentrations exceed three times the interquartile range (IQR) on the Box and Whisker Plots.

Using the above-mentioned outlier analysis procedures, 12 outliers were screened from the 770 data points (5 wells x 7 constituents x 22 background sampling events). The outliers are identified with shaded cells in Appendix 3 and were screened from the background data prior to conducting additional statistical analysis. Subsequent outlier testing was performed to identify additional outliers that may have been masked by the initial outliers, but additional outliers were not identified. In total, these 12 outliers represent less than two percent of the 770 data points.

6.2.2 Detection Data Trend Screening

Trend analysis was also conducted on the screened background data sets to be included in the update (to include observations through November 2022) using Sanitas©. Data sets were modified where constituent-well pairs were significantly trending upward (or downward in the case of pH). Modifications generally consist of removing earlier data and retaining the most recent observations. The resulting alternate data sets are summarized in Table 7 and in Appendix 3.

The confirmed outliers were censored from the background data sets, as appropriate, prior to trend testing. The Sen's Slope/Mann-Kendall (non-parametric) trend test within Sanitas© was selected to identify statistically significant downward or upward trends in the detection monitoring background data. Trend testing identified several trends in the data. Significant increasing trends in constituent concentrations, and both decreasing and increasing significant trends in pH are of primary interest for detection monitoring at this site.

Sanitas identified a decreasing trend of pH in upgradient well MW-3 and increasing trends in Calcium and Boron in MW-6, and Calcium and TDS in MW-8 at the 98 percent confidence level. These trends are identified by Sanitas© as significant. Following Trend analysis, trend correction was performed for these constituent-well pairs. Trend elimination was accomplished by removing earlier results from the data set. Removed values are indicated in Appendix 3, and the data range for the resulting alternate data sets are summarized in Table 7. The resulting alternate data sets were tested using Sanitas© to verify successful trend elimination.

6.3 Detection Monitoring Statistical Summary

The results of the statistical analysis for the 11th, 12th, and 13th semiannual detection groundwater sampling events are described in this report. A complete database summarizing the sample results, dates of sampling, and the purpose of sampling event, as per §257.90(e)(3), is provided in Appendix 3. A statistical power curve, based on the background data, is provided in Appendix 4. Time series plots of background data for all detection monitoring constituents are presented in Appendix 5. Box and whiskers plots of background data are presented in Appendix 6. Prediction limit charts are provided in Appendix 7.

The results of the statistical analysis for the 11th, 12th, and 13th semiannual detection groundwater sampling events did not suggest the presence of confirmed SSIs associated with a release from the BAP at the Sikeston Power Station. Consequently, semi-annual detection monitoring should continue in 2024 as specified in §257.94(b).

7.0 LIMITATIONS

This report has been prepared for the exclusive use of the client and GREDELL Engineering Resources, Inc. for the specific project discussed in accordance with generally accepted environmental practices common to this locale at this time. The report is applicable only to this specific project and identified site conditions as they existed at the time of report preparation. The use of this report by others to develop independent interpretations of data or conclusions not explicitly stated in this report are the sole responsibility of those firms or individuals.

This report is not a guarantee of subsurface conditions. Variations in subsurface conditions may be present that were not identified during this or previous investigations. Interpretations of data and recommendations made in this report are based on observations of data that were available and referred to in this report unless otherwise noted. No other warranties, expressed or implied, are provided.

8.0 REFERENCES

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FIGURES

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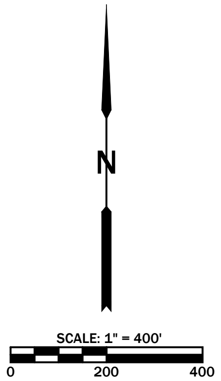

LEGEND

PROPERTY LINE	—PL—
GROUNDWATER CONTOUR	——
MONITORING WELL	MW
UP GRADIENT MONITORING LOCATION	UG
DOWN GRADIENT MONITORING LOCATION	DG
GENERAL FLOW DIRECTION	←

NOTES:

1. IMAGE PROVIDED BY BING MAPS.
2. MONITORING WELL LOCATIONS, CASING ELEVATIONS & UNDERGROUND CULVERT ELEVATIONS SURVEYED BY BOWEN ENGINEERING & SURVEYING.
3. GROUNDWATER ELEVATIONS MEASURED BY SIKESTON POWER STATION STAFF ON NOVEMBER 1, 2022.
4. MAP DEVELOPMENT BASED ON CONTOURS GENERATED BY SURFER® SOFTWARE.
5. RANGE OF HYDRAULIC GRADIENT AS DETERMINED BY SURFER® SOFTWARE 0.0005 FT./FT. TO 0.001 FT./FT.

WELL ID	GROUNDWATER ELEVATION	CASING ELEVATION	NORTHING	EASTING
MW-3	295.25	308.55	381130.00	1079946.62
MW-4	293.19	305.61	380804.62	1077766.95
MW-5	293.68	305.91	379858.94	1078477.85
MW-6	294.41	307.72	379874.77	1079384.36
MW-8	293.27	304.77	380311.20	1077940.08

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FIGURE 1
NOVEMBER 1 2022
GROUNDWATER CONTOUR MAP

PROJECT NAME	FILE NAME	SHEET #
PROJECT	GW CONT MAP BAP 10-2022	1 OF XX

SIKESTON POWER STATION
BOTTOM ASH POND
2023 ANNUAL GROUNDWATER MONITORING & REPORT

SURVEYED	DESIGNED	DRAWN	CHECKED	APPROVED	DATE	SCALE
N/A	KE	CM	KE	MCC	11/2023	1" = 400'

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Jefferson City, Missouri
Telephone: (573) 659-9078
Facsimile: (573) 659-9079
MO CORP. ENGINEERING LICENSE NO. E-2001001669-D

N

SCALE: 1" = 400'

0 200 400

LEGEND

PROPERTY LINE	——PL——
GROUNDWATER CONTOUR	———
MONITORING WELL	MW
UP GRADIENT MONITORING LOCATION	UG
DOWN GRADIENT MONITORING LOCATION	DG
GENERAL FLOW DIRECTION	←

NOTES:

1. IMAGE PROVIDED BY BING MAPS.
2. MONITORING WELL LOCATIONS, CASING ELEVATIONS & UNDERGROUND CULVERT ELEVATIONS SURVEYED BY BOWEN ENGINEERING & SURVEYING.
3. GROUNDWATER ELEVATIONS MEASURED BY SIKESTON POWER STATION STAFF ON APRIL 18, 2023.

WELL ID	GROUNDWATER ELEVATION	CASING ELEVATION	NORTHING	EASTING
MW-3	297.50	308.55	381130.00	1079946.62
MW-4	295.50	305.61	380804.62	1077766.95
MW-5	295.88	305.91	379858.94	1078477.85
MW-6	296.70	307.72	379874.77	1079384.36
MW-8	295.46	304.77	380311.20	1077940.08

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FIGURE 2
APRIL 18 2023
GROUNDWATER CONTOUR MAP

PROJECT NAME	FILE NAME	SHEET #
PROJECT	GW CONT MAP BAP 04-2023	2 OF XX

SIKESTON POWER STATION
BOTTOM ASH POND
2023 ANNUAL GROUNDWATER MONITORING & REPORT

SURVEYED	DESIGNED	DRAWN	CHECKED	APPROVED	DATE	SCALE
N/A	KE	CM	KE	MCC	11/2023	1" = 400'

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FILE PATH AND FILENAME: o:\caddfiles\SIKESTON\groundwater map\BAP\2023 annual gw\GW CONT MAP BAP 04-2023.dwg
PRINTED ON: 11/21/23 BY: cm
ORIGINAL SHEET SIZE: 11" X 17"

ORIGINAL SHEET SIZE: 11" X 17"

N

SCALE: 1" = 400'

0 200 400

LEGEND

PROPERTY LINE	—PL—
GROUNDWATER CONTOUR	——
MONITORING WELL	MW
UP GRADIENT MONITORING LOCATION	UG
DOWN GRADIENT MONITORING LOCATION	DG
GENERAL FLOW DIRECTION	←

NOTES:

1. IMAGE PROVIDED BY BING MAPS.
2. MONITORING WELL LOCATIONS, CASING ELEVATIONS & UNDERGROUND CULVERT ELEVATIONS SURVEYED BY BOWEN ENGINEERING & SURVEYING.
3. GROUNDWATER ELEVATIONS MEASURED BY SIKESTON POWER STATION STAFF ON OCTOBER 11, 2023.
4. MAP DEVELOPMENT BASED ON CONTOURS GENERATED BY SURFER® SOFTWARE.
5. RANGE OF HYDRAULIC GRADIENT AS DETERMINED BY SURFER® SOFTWARE 0.0005 FT./FT. TO 0.001 FT./FT.

WELL ID	GROUNDWATER ELEVATION	CASING ELEVATION	NORTHING	EASTING
MW-3	296.13	308.55	381130.00	1079946.62
MW-4	293.91	305.61	380804.62	1077766.95
MW-5	294.52	305.91	379858.94	1078477.85
MW-6	295.30	307.72	379874.77	1079384.36
MW-8	294.07	304.77	380311.20	1077940.08

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FIGURE 3
OCTOBER 11 2023
GROUNDWATER CONTOUR MAP

PROJECT NAME	FILE NAME	SHEET #
PROJECT	GW CONT MAP BAP 10-2023	3 OF XX

SIKESTON POWER STATION
BOTTOM ASH POND
2023 ANNUAL GROUNDWATER MONITORING & REPORT

SURVEYED	DESIGNED	DRAWN	CHECKED	APPROVED	DATE	SCALE
N/A	KE	CM	KE	MCC	11/2023	1" = 400'

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FILE PATH AND FILENAME: o:\caddfiles\SIKESTON\groundwater map\BAP\2023 annual gw\GW CONT MAP BAP 10-2023.dwg

TABLES

Annual Groundwater Monitoring Report
USEPA 40 CFR 257.90(e)
SBMU - Sikeston Power Station
Scott County, Missouri

Table 2
Groundwater Monitoring Network Summary

Monitoring Well ID[1,2]	Northing Location[3,4]	Easting Location[3,4]	Ground Surface Elevation[3,4] (feet)	Top of Riser Elevation[3,4] (feet)	Well Depth[5] (feet)	Base of Well Elevation[6] (feet)	Screen Length[7] (feet)	Top of Screen Elevation (feet)
MW-3	381130.00	1079946.62	306.11	308.55	37.21	271.34	10	281.5
MW-4	380804.62	1077766.95	303.26	305.61	37.55	268.06	10	278.3
MW-5	379858.94	1078477.85	303.57	305.91	37.17	268.74	10	278.9
MW-6	379874.77	1079384.36	305.37	307.72	38.03	269.69	10	279.9
MW-8	380311.20	1077940.08	302.37	304.77	37.41	267.36	10	277.6

NOTES:

1. Refer to Figure 1 for monitoring well locations.
2. Refer to Sikeston Power Station On-Site Operating Record for well construction diagrams.
3. Monitoring well survey data provided by Bowen Engineering & Surveying, Inc.
4. Horizontal Datum: Missouri State Plane Coordinates - NAD 83 (Feet), Vertical Datum: NAVD 88 (Feet).
5. Depth measurements relative to surveyed point on top of well casing.
6. Sump installed at base of screen (0.2 feet length).
7. Actual screen length (9.7 feet) is the machine-slotted section of the 10-foot length of Schedule 40 PVC pipe.

Prepared by: KAE
Checked by: JMC
Approved by: MCC

Prepared by: GREDELL Engineering Resources, Inc.

Annual Groundwater Monitoring Report
USEPA 40 CFR 257.90(e)
SBMU - Sikeston Power Station
Scott County, Missouri

Table 3
Historical Groundwater Level Summary

Well ID	MW-3	MW-4	MW-5	MW-6	MW-8
Date	Groundwater Elevation (feet MSL)				
05/12/16	298.13	296.01	296.68	297.41	NM
06/28/16	297.58	294.75	295.51	296.57	NM
07/15/16	297.37	294.77	295.53	296.44	NM
08/08/16	297.05	294.66	294.87	295.77	NM
09/08/16	296.76	294.40	294.96	295.84	NM
10/05/16	296.40	294.02	294.70	295.57	NM
11/01/16	296.10	293.99	294.49	295.24	NM
11/30/16	296.03	294.26	294.80	295.37	NM
01/24/17	296.35	294.73	295.19	295.77	NM
01/26/17	296.35	294.73	295.19	295.77	NM
02/22/17	296.00	294.40	294.81	295.41	NM
02/24/17	296.00	294.40	294.81	295.41	NM
03/20/17	296.45	295.10	295.46	295.97	NM
04/19/17	296.35	294.73	295.19	295.81	NM
04/27/17	296.72	295.41	295.78	296.20	NM
05/17/17	297.81	295.76	296.31	297.11	NM
06/08/17	297.81	295.64	296.17	296.96	NM
07/13/17	296.98	294.60	295.22	296.06	294.70
10/31/17	295.22	293.11	293.65	294.41	293.20
06/13/18	297.33	294.93	295.60	296.47	295.02
11/26/18	295.63	293.76	294.27	294.91	293.88
12/26/18	296.04	294.19	294.64	295.36	294.31
01/08/19	296.38	294.62	295.17	295.77	294.73
02/05/19	296.73	294.99	295.46	296.06	295.07
02/22/19	298.35	296.58	297.33	297.94	296.79
03/27/19	298.51	296.05	296.72	297.69	296.15
04/16/19	298.93	296.58	297.31	298.22	296.67
05/14/19	299.25	296.36	297.10	298.21	296.45
05/28/19	298.95	296.01	296.80	297.91	296.16
06/12/19	298.82	296.00	296.71	297.82	296.10
07/17/19	298.38	295.84	296.46	297.44	295.97
07/24/19	298.41	295.97	296.66	297.57	296.13
08/14/19	297.80	295.03	295.70	296.76	295.12
08/28/19	297.55	294.81	295.47	296.51	294.91
09/16/19	297.22	294.51	295.20	296.20	294.63
10/10/19	296.84	294.29	294.89	295.85	294.36
10/22/19	296.80	294.40	295.00	295.88	294.50
11/04/19	297.34	295.24	295.80	296.57	295.32
02/18/20	299.00	296.50	297.28	298.22	296.66
03/30/20	300.09	297.66	298.48	299.40	297.81
07/21/20	298.35	295.16	295.98	297.19	295.32
10/20/20	297.08	294.53	295.29	296.17	294.77
04/16/21	298.03	295.55	296.08	297.06	295.55
11/01/21	295.95	293.74	294.31	295.11	293.86
08/03/22	296.52	293.79	294.40	295.47	293.87
11/01/22	295.25	293.19	293.68	294.41	293.27
12/13/23	295.02	293.08	293.60	294.24	293.22
04/18/23	297.50	295.50	295.88	296.70	295.46
05/23/23	297.44	295.23	295.64	296.50	295.21
10/11/23	296.13	293.91	294.52	295.30	294.07

NOTES:
1. Refer to Figure 1 for monitoring well locations.
2. Refer to Sikeston Power Station On-Site Operating Record for well construction diagrams.
3. NM - Not Measured.
4. Maximum and minimum groundwater elevations are shaded.

Prepared by: GREDELL Engineering Resources, Inc.

Prepared by: KAE
Checked by: JTF
Approved by: MCC

Annual Groundwater Monitoring Report
USEPA 40 CFR 257.90(e)
SBMU - Sikeston Power Station
Scott County, Missouri

Table 4
Water Level and Field Parameter Summary

November 1, 2022

Monitoring Well I.D.	Hydraulic Position	Initial Water Level (ft, BTOC[2])	Final Water Level (ft, BTOC[2])	Minimum[3] Purge Vol. (mL[4])	Actual Purge Vol. (mL[4])	pH (S.U.[5])
MW-3	Upgradient	13.30	13.30	300	4,700	6.83
MW-4	Downgradient	12.42	12.43	300	4,550	7.56
MW-5	Downgradient	12.23	12.23	300	7,160	7.08
MW-6	Upgradient	13.31	13.31	300	9,800	6.85
MW-8	Downgradient	11.50	11.50	300	3,640	7.34

April 18, 2023

Monitoring Well I.D.	Hydraulic Position	Initial Water Level (ft, BTOC[2])	Final Water Level (ft, BTOC[2])	Minimum[3] Purge Vol. (mL[4])	Actual Purge Vol. (mL[4])	pH (S.U.[5])
MW-3	Upgradient	11.05	11.05	300	4,960	6.45
MW-4	Downgradient	10.11	10.11	300	14,920	7.49
MW-5	Downgradient	10.03	10.03	300	3,500	6.85
MW-6	Upgradient	11.02	11.04	300	9,460	6.91
MW-8	Downgradient	9.31	9.32	300	9,360	7.28

October 11, 2023

Monitoring Well I.D.	Hydraulic Position	Initial Water Level (ft, BTOC[2])	Final Water Level (ft, BTOC[2])	Minimum[3] Purge Vol. (mL[4])	Actual Purge Vol. (mL[4])	pH (S.U.[5])
MW-3	Upgradient	12.42	12.43	300	5,580	6.49
MW-4	Downgradient	11.70	11.70	300	3,400	7.25
MW-5	Downgradient	11.39	11.39	300	3,240	6.83
MW-6	Upgradient	12.42	12.42	300	4,780	6.80
MW-8	Downgradient	10.70	10.71	300	3,280	7.07

NOTES:

1. Sequence of sampling is MW-3, MW-6, MW-5, MW-8, MW-4.
2. BTOC: Below Top of Casing
3. Purge calculations based on 1/4" ID tubing and complete evacuation of single tubing volume.
4. mL: milliliter
5. S.U.: Standard Unit.

Prepared by: KAE
Checked by: JTF
Approved by: MCC

Annual Groundwater Monitoring Report
USEPA 40 CFR 257.90(e)
SBMU - Sikeston Power Station
Scott County, Missouri

Table 5
Groundwater Monitoring Constituents

USEPA 40 CFR 257			
Appendix III - Constituents for Detection Monitoring		**Appendix IV - Constituents for Assessment Monitoring**	
Chemical Constituent	**Method**	**Chemical Constituent**	**Method**
pH (S.U.)	Field	Antimony (µg/L)	SW 6020
Boron (µg/L)	SW 6020	Arsenic (µg/L)	SW 6020
Calcium (mg/L)	SW 6020	Barium (µg/L)	SW 6020
Chloride (mg/L)	EPA 300.0	Beryllium (µg/L)	SW 6020
Fluoride (mg/L)	EPA 300.0	Cadmium (µg/L)	SW 6020
Sulfate (mg/L)	EPA 300.0	Chromium (µg/L)	SW 6020
Total Dissolved Solids (mg/L)	SM 2540C	Cobalt (µg/L)	SW 6020
		Fluoride (mg/L)	EPA 300
		Lead (µg/L)	SW 6020
		Lithium (µg/L)	SW 6020
		Mercury (µg/L)	SW 6020
		Molybdenum (µg/L)	SW 6020
		Selenium (µg/L)	SW 6020
		Thallium (µg/L)	SW 6020
		Radium 226 and 228 combined (pCi/L)	EPA 903.1 & 904.0

NOTES:
1. S.U. = Standard Unit.
2. µg/L = micrograms per liter.
3. mg/L = milligrams per liter.
4. pCi/L = picocurie per liter.

Prepared by: KAE
Checked by: JMC
Approved by: MCC

Prepared by: GREDELL Engineering Resources, Inc.

Annual Groundwater Monitoring Report
USEPA 40 CFR 257.90(e)
SBMU - Sikeston Power Station
Scott County, Missouri

Table 6
Relative Percent Difference Summary - November 1, 2022

Chemical Parameter	Units	MW-8	DUP	Relative Percent Difference
pH	S.U.	7.05	7.05	0.00
Boron	µg/L	440	450	2.25
Calcium	mg/L	110	110	0.00
Chloride	mg/L	51	51	0.00
Fluoride	mg/L	N/A	N/A	N/A
Sulfate	mg/L	130	120	8.00
Total Dissolved Solids	mg/L	500	520	3.92

Relative Percent Difference Summary - April 18, 2023

Chemical Parameter	Units	MW-4	DUP	Relative Percent Difference
pH	S.U.	7.49	7.49	0.00
Boron	µg/L	680	700	2.90
Calcium	mg/L	72	72	0.00
Chloride	mg/L	10	11	9.52
Fluoride	mg/L	N/A	N/A	N/A
Sulfate	mg/L	76	66	14.08
Total Dissolved Solids	mg/L	330	300	9.52

Relative Percent Difference Summary - October 11, 2023

Chemical Parameter	Units	MW-8	DUP	Relative Percent Difference
pH	S.U.	7.07	7.07	0.00
Boron	µg/L	423	423	0.00
Calcium	mg/L	96.5	97.2	0.72
Chloride	mg/L	44	44	0.00
Fluoride	mg/L	N/A	N/A	N/A
Sulfate	mg/L	102	103	0.98
Total Dissolved Solids	mg/L	455	460	1.09

NOTES:

1. S.U. = Standard Unit.
2. µg/L = micrograms per liter.
3. mg/L = milligrams per liter.
4. Relative Percent Difference tolerance = 20%.

Prepared by: KAE
Checked by: JTF
Approved by: MCC

Annual Groundwater Monitoring Report
USEPA 40 CFR 257.90(e)
SBMU - Sikeston Power Station
Scott County, Missouri

Table 7
Alternate Data Sets - Eleventh Detection Sampling Event

Constituent-Well Pair [1]		Alternate Background Data Base (to eliminate trending data) [2]	Background set size (n)
Well ID	**Constituent**		
MW-3	pH	June 2017 through October 2020	12
MW-6	pH	January 2017 through October 2020	17
	Boron	November 2018 through October 2020	8
MW-8	Calcium	November 2018 through October 2020	8
	Chloride	June 2018 through October 2020	8
	Total Dissolved Solids	November 2018 through October 2020	8

Notes:

1. Trending constituent-well pairs identified based on Mann-Kendall Sen's Slope Trend Analysis of data.
2. Alternate background data sets proposed to eliminate significant increasing (or decreasing for pH) trends in data sets.

Alternate Data Sets - Twelfth and Thirteenth Detection Sampling Events

Constituent-Well Pair [1]		Alternate Background Data Base (to eliminate trending data) [2]	Background set size (n)
Well ID	**Constituent**		
MW-3	pH	June 2017 through November 2022	16
MW-6	Calcium	February 2019 through November 2022	11
	Boron	June 2018 through November 2022	13
MW-8	Calcium	September 2017 through November 2022	16
	Total Dissolved Solids	September 2017 through November 2022	16

NOTES:

1. Trending constituent-well pairs identified based on Mann-Kendall Sen's Slope Trend Analysis of data.
2. Alternate background data sets eliminate significant increasing (or decreasing for pH) trends in data sets.

Prepared by: KAE
Checked by: JTF
Approved by: MCC

Prepared by: GREDELL Engineering Resources, Inc.

Annual Groundwater Monitoring Report
USEPA 40 CFR 257.90(e)
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Scott County, Missouri

Table 8
Intra-Well Prediction Limit Summary - Eleventh Detection Sampling Event

40 CFR 257 Appendix III Constituents for Detection Monitoring	Units	MW-3	MW-4	MW-5	MW-6	MW-8
pH Upper	S.U.	6.772	7.516	7.011	7.00	7.242
pH Lower	S.U.	6.254	7.221	6.68	6.67	7.038
Chloride	mg/L	2.43	19.57	19.46	2.954	78.74
Fluoride	mg/L	0.438	0.259	0.272	0.338	0.26
Sulfate	mg/L	29.71	144.5	267.4	40.3	149.9
Total Dissolved Solids	mg/L	183.4	414.6	545.9	251.5	547.4
Boron	µg/L	52.07	1549	537.2	58.99	577.9
Calcium	mg/L	23.56	97.16	132.9	48.81	120

Notes:

1. Prediction limits for MW-3 through MW-6 based on data spanning November 2016 to October 2020, except as noted in Table 7.
2. Prediction limits for MW-8 based on data spanning May 2017 to October 2020, except as noted in Table 7.
3. Shaded cells indicate where alternate data sets (Table 7) were used to calculated Prediction Limits after trend removal.

Intra-Well Prediction Limit Summary - Twelfth and Thirteenth Detection Sampling Events

40 CFR 257 Appendix III Constituents for Detection Monitoring	Units	MW-3	MW-4	MW-5	MW-6	MW-8
pH Upper	S.U.	6.771	7.499	6.996	7.00	7.241
pH Lower	S.U.	6.308	7.225	6.699	6.67	7.033
Chloride	mg/L	2.354	19.7	17.47	4.382	67.53
Fluoride	mg/L	0.438	0.259	0.272	0.338	0.26
Sulfate	mg/L	29.65	138.1	269	38.7	151.9
Total Dissolved Solids	mg/L	184	415.2	545.3	253	521.7
Boron	µg/L	47.74	1511	518	60.06	571.3
Calcium	mg/L	23	95.44	137.6	50.19	120.6

Notes:

1. Prediction limits for MW-3 through MW-6 based on data spanning November 2016 to November 2022, except as noted in Table 7.
2. Prediction limits for MW-8 based on data spanning May 2017 to November 2022, except as noted in Table 7.
3. Shaded cells indicate where alternate data sets (Table 7) were used to calculated Prediction Limits after trend removal.

Prepared by: KAE
Checked by: JTF
Approved by: MCC

Prepared by: GREDELL Engineering Resources, Inc.

APPENDICES

Appendix 1

Field Sampling Notes

Appendix 1a

Field Sampling Notes – November 1, 2022 (Second 2022 Semi-annual Event)

Field Instrumentation Calibration Log

Facility: SBMU ~~Ameren RIEC Ash Ponds - Groundwater Monitoring~~

Calibrated by: Ashish Patel

Field Instruments: In-Situ SmarTROLL MP or In-Situ AquaTROLL 400 | HF scientific, Inc. Micro TPI Field Portable Turbidimeter

S/N #: 893502 | 20160736

	Date	Time	pH Standards (S.U.)		pH Measurements (S.U./mV)	Specific Conductance Standard (µS/cm)		Specific Conductance Measurement (µS/cm)	Oxidation Reduction Potential Standard (mV)		Oxidation Reduction Potential Measurement (mV)	Dissolved Oxygen (%)			Turbidity Standards (NTU)		Turbidity Measurements (NTU)
Beginning of Day Calibration	11-1-2022	0630	4.00 @ 25.00°C Standard is 4 @ 25°C	=	4.01 139.6	1413 @25.00°C	=	1414.6	220 mV at 25.00°C	=	229.1	Temperature (°C)	=	19.88	0.02	=	0.02
			7.00 @25.00°C Standard is 7 @ 25°C	=	7.02 -35.4	1413 @25.00°C			Standard is 229 mV @ 25°C			Tap Water Source	=	Sikeston City	10.0	=	10.0
			10.00 @25.00°C Standard is 10 @ 25°C	=	10.00 -208.1							Barometric Pressure (mm/Hg)	=	756.62	1000	=	1000.6
												Measurement	=	100.097			
End of Day Check	11-1-2022	1300	4.00 @ 25.00°C Standard is 4 @ 25°C	=	4.07 NA	1413 @25.00°C	=	1378.6	220 mV at 25.00°C	=	228.6	Temperature (°C)	=	21.78	0.02	=	0.02
			7.00 @25.00°C Standard is 7 @ 25°C	=	7.12 NA				Standard is [illegible] mV @ 25°C			Tap Water Source	=	Sikeston City	10.0	=	9.86
			10.00 @25.00°C Standard is 10 @ 25°C	=	10.08 NA							Barometric Pressure (mm/Hg)	=	757.92	1000	=	986.00
												Measurement	=	96.50			

Notes: The In-Situ SmarTROLL MP Field Meter and In-Situ AquaTROLL 400 measure Temperature, Specific Conductance, Dissolved Oxygen, pH, and Oxidation Reduction Potential.
The HF scientific, inc. Micro TPI Field Portable Turbidimeter measures Turbidity.
Dissolved oxygen is calibrated via % saturation method; however, field measurements are recorded as mg/L.

I certify that the aforementioned meters were calibrated within the manufacturers specifications.

Date: 11-01-2022 By: Ashish Patel

SBMU

Field Instrumentation Calibration Log

Facility: ~~Ameren RIEC Ash Ponds~~ - Groundwater Monitoring

Calibrated by:

Field Instruments: In-Situ SmarTROLL MP or In-Situ AquaTROLL 400 | HF scientific, Inc. Micro TPI Field Portable Turbidimeter

S/N #: 893508 | 201607366

	Date	Time	pH Standards (S.U.)		pH Measurements (S.U./mV)	Specific Conductance Standard (µS/cm)		Specific Conductance Measurement (µS/cm)	Oxidation Reduction Potential Standard (mV)		Oxidation Reduction Potential Measurement (mV)	Dissolved Oxygen (%)			Turbidity Standards (NTU)		Turbidity Measurements (NTU)
Beginning of Day Calibration	11-2-2022	0630	4.00 @ 25.00°C Standard is 4.2 @ 25 °C	=	4.01 139.57	1413 @25.00°C	=	1413.7	220 mV at 25.00°C	=	229.1	Temperature (°C)	=	21.85	0.02	=	0.02
			7.00 @25.00°C Standard is 7.0 @ 25 °C	=	7.02 -37.4				Standard is 229 mV @ 25 °C			Tap Water Source	=	Sikeston City	10.0	=	10.2
			10.00 @25.00°C Standard is 10 @ 25 °C	=	10.03 -207.2							Barometric Pressure (mm/Hg)	=	760.19	1000	=	1000.0
												Measurement	=	100.01%			
End of Day Check	11-2-2022	1315	4.00 @ 25.00°C Standard is ___ @ ___°C	=	4.04 NA	1413 @25.00°C	=	1418.8	220 mV at 25.00°C	=	228.4	Temperature (°C)	=	24.49	0.02	=	0.01
			7.00 @25.00°C Standard is ___ @ ___°C	=	7.17 NA				Standard is 229 mV @ 25 °C			Tap Water Source	=	Sikeston City	10.0	=	9.96
			10.00 @25.00°C Standard is ___ @ ___°C	=	10.07 NA							Barometric Pressure (mm/Hg)	=	759.88	1000	=	993.3
												Measurement	=	96.89			

Notes: The In-Situ SmarTROLL MP Field Meter and In-Situ AquaTROLL 400 measure Temperature, Specific Conductance, Dissolved Oxygen, pH, and Oxidation Reduction Potential

The HF scientific, inc. Micro TPI Field Portable Turbidimeter measures Turbidity.

Dissolved oxygen is calibrated via % saturation method; however, field measurements are recorded as mg/L.

I certify that the aforementioned meters were calibrated within the manufacturers specifications

Date: 11-02-2022 By

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW3
Name (Field Staff): A Patel J Lowes A Duester
Date: 11-1-2022

Access:

Accessibility: [✓ Good] Fair ___ Poor ___

Well clear of weeds and/or debris?: [✓ Yes] No ___

Well identification clearly visible?: [✓ Yes] No ___

Remarks:

Concrete Pad:

Condition of Concrete Pad: [✓ Good] Inadequate ___

Depressions or standing water around well?: Yes ___ [✓ No]

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: [✓ Good] Damaged ___

Condition of Locking Cap: [✓ Good] Damaged ___

Condition of Lock: [✓ Good] Damaged ___

Condition of Weep Hole: [✓ Good] Damaged ___

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: [✓ Good] Damaged ___

Condition of Riser Cap: [✓ Good] Damaged ___

Measurement Reference Point: [✓ Yes] No ___

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: [✓ Good] Damaged ___ Missing ___

Remarks:

Monitoring Well Locked/Secured Post Sampling?: [✓ Yes] No ___

Remarks:

Field Certification

	Lab Leadman	11-1-22
Signed	Title	Date

Prepared by: GREDELL Engineering Resources, Inc. January 2017

Field Sampling Log

Monitoring Well ID: MW 3 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 13.30 Date: 11-1-2022

Initial Groundwater Elevation (NAVD88): ______ Air Pressure in Well? Y [✓ N]

PURGE INFORMATION

Date: 11-1-2022

Name (Sample Collector): J Lowes

Method of Well Purge: Low Flow Peristaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 0731

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 13.30

Total Volume Purged (mL): 4700

Beginning Groundwater Elevation (NAVD88): ______

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.00

Water Level after Sampling (feet btoc): 13.30
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: 0756

PURGE STABILIZATION DATA AP

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	~~Specific~~ Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
0733		390	16.74	11.80	2.02	7.22	72.2	9.32	13.30	Black flake, no odor
0735	215	820	16.18	6.94	1.98	7.22	71.4	7.17	13.30	White flake, no odor
0737	240	1300	16.03	4.72	1.88	7.22	62.1	6.84	13.30	" "
0739	230	1760	15.85	6.10	1.78	7.04	57.1	5.81	13.30	clear, no odor
0741	290	2340	15.81	4.86	1.60	6.90	57.1	5.81	13.30	clear, no odor
0743	190	2720	15.78	5.31	1.73	6.87	56.0	3.64	13.30	" "
0745	240	3200	15.76	7.35	1.82	6.78	58.7	3.21	13.30	" "
0747	240	3680	15.71	3.22	1.62	6.79	58.2	4.06	13.30	" "
0749	260	4200	15.72	9.52	1.45	6.81	58.3	3.55	13.30	" "
0751	250	4700	15.70	3.53	1.25	6.83	53.4	3.60	13.30	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 3

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 13.30

Monitoring Event: Annual ( ) [✓ Semi-Annual] Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
11-1-2022 0751	250	15.70	3.53	1.25	6.83	53.4	3.60

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Cloudy, Foggy
55°F

Sample Characteristics: Clear, Colorless, odorless

Sample Collection Order: Per SAP

Comments and Observations:

- Coal train in motion within 50 feet

- Specific Conductance values are reported as conductivity for all data in logs.

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 11-1-22 By: Title: Lab Leadman

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 6
Name (Field Staff): J Lowes A Patel A Drester
Date: 11-1-2022

Access:

Accessibility: Good ✓ Fair ___ Poor ___

Well clear of weeds and/or debris?: Yes ✓ No ___

Well identification clearly visible?: Yes ✓ No ___

Remarks:

Concrete Pad:

Condition of Concrete Pad: Good ✓ Inadequate ___

Depressions or standing water around well?: Yes ___ No ✓

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: Good ✓ Damaged ___

Condition of Locking Cap: Good ✓ Damaged ___

Condition of Lock: Good ✓ Damaged ___

Condition of Weep Hole: Good ✓ Damaged ___

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: Good ✓ Damaged ___

Condition of Riser Cap: Good ✓ Damaged ___

Measurement Reference Point: Yes ✓ No ___

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: Good ✓ Damaged ___ Missing ___

Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes ✓ No ___

Remarks:

Field Certification Lab Leadman 11-1-2022
Signed Title Date

Prepared by: GREDELL Engineering Resources, Inc. January 2017

Field Sampling Log

Monitoring Well ID: MW6 **Facility:** SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 13.31 Date: 11-1-2022

Initial Groundwater Elevation (NAVD88): ____ Air Pressure in Well? Y [✓ N]

PURGE INFORMATION

Date: 11-1-2022

Name (Sample Collector): J Lowes

Method of Well Purge: Low Flow Peristaltic Pump Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 0807 One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 13.31 Total Volume Purged (mL): 9800

Beginning Groundwater Elevation (NAVD88): ~~19~~ AP Well Purged To Dryness? Y [✓ N]

Well Total Depth (feet btoc): 37.75 Water Level after Sampling (feet btoc): 13.31 (i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC Time Sampling Completed: 0848

PURGE STABILIZATION DATA AP

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
0809		520	15.76	18.51	3.48	6.90	45.4	5.89	13.31	Clear, no odor
0811	260	1040	15.95	22.50	3.27	6.80	55.5	13.22	13.31	" "
0813	270	1580	16.07	15.34	2.76	6.80	52.9	22.41	13.31	Black flake, no odor
0815	280	2140	16.12	20.71	2.69	6.97	52.7	12.81	13.31	Black flake, no odor
0817	270	2680	16.17	16.09	1.87	6.91	49.6	14.22	13.31	Clear, no odor
0819	260	3200	16.17	16.66	1.74	6.84	48.9	15.93	13.31	" "
0821	280	3760	16.22	21.52	1.53	6.90	54.8	14.23	13.31	" "
0823	270	4300	16.24	28.79	1.74	6.86	51.5	15.02	13.31	" "
0825	280	4860	16.26	24.71	1.48	6.86	62.5	11.90	13.31	" "
0827	270	5400	16.29	42.46	1.42	6.75	55.4	9.91	13.31	" "
0829	290	5980	16.29	10.45	1.35	6.80	52.7	7.98	13.31	" "
0831	260	6800	16.29	26.37	1.45	6.82	60.3	6.17	13.31	" "
0833	280	7060	16.31	16.54	1.09	6.91	46.5	6.79	13.31	" "
0835	275	7610	16.30	11.52	1.10	6.89	61.8	5.80	13.31	" "
0837	265	8140	16.30	10.50	1.07	6.85	50.3	7.60	13.31	" "
0839	260	8660	16.29	13.46	0.69	6.91	52.9	5.21	13.31	" "
0841	280	9220	16.34	9.52	0.21	6.84	61.0	5.83	13.31	" "
0843	290	9800	16.37	6.89	0.75	6.85	44.5	5.60	13.31	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring **Monitoring Well ID:** MW 6

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing **Dedicated:** [✓ Y] / N

Water Level @ Sampling (feet btoc): 13.31

Monitoring Event: Annual ( ) [✓ Semi-Annual ( )] Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
11-1-2022 0843	290	16.37	6.89	0.75	6.85	44.5	5.60

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Sunny 57°F

Sample Characteristics: clear; odorless, colorless

Sample Collection Order: Per SAP

Comments and Observations:

Specific Conductance value are reported as conductivity for all data in logs.

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 11-1-2022 By: Ashish Patel Title: Coal Leadman

Page 2 of 2

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 5
Name (Field Staff): A Pester J Lones A Dvester
Date: 11-1-22

Access:

Accessibility: Good ✓ Fair ___ Poor ___

Well clear of weeds and/or debris?: Yes ✓ No ___

Well identification clearly visible?: Yes ✓ No ___

Remarks:

Concrete Pad:

Condition of Concrete Pad: Good ✓ Inadequate ___

Depressions or standing water around well?: Yes ___ No ✓

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: Good ✓ Damaged ___

Condition of Locking Cap: Good ✓ Damaged ___

Condition of Lock: Good ✓ Damaged ___

Condition of Weep Hole: Good ✓ Damaged ___

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: Good ✓ Damaged ___

Condition of Riser Cap: Good ✓ Damaged ___

Measurement Reference Point: Yes ✓ No ___

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: Good ✓ Damaged ___ Missing ___

Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes ✓ No ___

Remarks:

Field Certification Signed: ___ Title: Lab Leadman Date: 11-1-2022

Field Sampling Log

Monitoring Well ID: MW 5 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 12.23
Date: 11-1-2022
Initial Groundwater Elevation (NAVD88):
Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 11-1-2022
Name (Sample Collector): J Lowes
Method of Well Purge: Low Flow Peristaltic Pump
Dedicated Tubing? [✓ Y] / N
Time Purging Initiated: 0942
One (1) Well Volume (mL): NA
Beginning Water Level (feet btoc): 12.23
Total Volume Purged (mL): 7160
Beginning Groundwater Elevation (NAVD88):
Well Purged To Dryness? Y / [✓ N]
Well Total Depth (feet btoc): 37.15
Water Level after Sampling (feet btoc): 12.23
(i.e., pump is off)
Casing Diameter (feet): 2" Sch 40 PVC
Time Sampling Completed: 1015

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
0944		480	17.10	18.45	2.03	6.40	58.2	14.66	12.23	Yellow Flake, no odor
0946	260	1000	17.03	5.74	1.73	6.63	53.4	12.50	12.23	" "
0948	220	1440	16.88	874.71	2.37	6.84	-60.1	9.79	12.23	" "
0950	250	1940	16.65	864.24	0.71	7.00	-68.7	11.46	12.23	Clear, no odor
0952	260	2460	16.53	870.28	0.74	7.04	-70.7	11.15	12.23	" "
0954	250	2960	16.51	884.30	0.75	7.05	-72.7	7.22	12.23	" "
0956	260	3480	16.52	878.24	0.72	7.07	-73.6	10.96	12.23	" "
0958	260	4000	16.56	852.65	0.70	7.07	-72.3	6.93	12.23	" "
1000	250	4500	16.56	833.07	0.68	7.07	-73.2	5.88	12.23	" "
1002	270	5040	16.65	859.17	0.65	7.07	-72.1	6.20	12.23	" "
1004	270	5580	16.65	862.42	0.60	7.08	-73.9	5.20	12.23	" "
1006	250	6080	16.65	859.10	0.59	7.07	-72.6	4.73	12.23	" "
1008	260	6600	16.74	844.12	0.56	7.08	-72.5	4.97	12.23	" "
1010	280	7160	16.74	802.17	0.54	7.08	-73.0	4.59	12.23	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 5

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 12.23

Monitoring Event: Annual ( ) Semi-Annual (✓) Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
11-1-2022 1010	280	16.74	822.17	0.54	7.08	-73.0	4.59

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Sunny

70 °F

Sample Characteristics: Clear, Colorless, Odorless

Sample Collection Order: Per SAP

Comments and Observations:

Collected Field Blank

First two values of Specific conductance are reported as Conductivity.

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 11-1-2022 By: Ashish Patel Title: Lab Leadman

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 8
Name (Field Staff): A Patel J Lowes A Dexter
Date: 11-1-2022

Access:

Accessibility: [✓ Good] Fair ___ Poor ___

Well clear of weeds and/or debris?: [✓ Yes] No ___

Well identification clearly visible?: [✓ Yes] No ___

Remarks:

Concrete Pad:

Condition of Concrete Pad: [✓ Good] Inadequate ___

Depressions or standing water around well?: Yes ___ [✓ No]

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: [✓ Good] Damaged ___

Condition of Locking Cap: [✓ Good] Damaged ___

Condition of Lock: [✓ Good] Damaged ___

Condition of Weep Hole: [✓ Good] Damaged ___

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: [✓ Good] Damaged ___

Condition of Riser Cap: [✓ Good] Damaged ___

Measurement Reference Point: [✓ Yes] No ___

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: [✓ Good] Damaged ___ Missing ___

Remarks:

Monitoring Well Locked/Secured Post Sampling?: [✓ Yes] No ___

Remarks:

Field Certification Lab Leadman 11-1-2022
Signed Title Date

Prepared by: GREDELL Engineering Resources, Inc. January 2017

Field Sampling Log

Monitoring Well ID: MW 8 **Facility:** SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 11.50 Date: 11-1-2022

Initial Groundwater Elevation (NAVD88): ______ Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 11-1-2022

Name (Sample Collector): J Lowes

Method of Well Purge: Low Flow Peristaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 1027

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 11.50

Total Volume Purged (mL): 3640

Beginning Groundwater Elevation (NAVD88): ______

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.10

Water Level after Sampling (feet btoc): (i.e., pump is off) AP ~~37.10~~ 11.50

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: 1051

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
1029		400	19.36	792.61	0.70	7.28	-112.0	3.18	11.50	Yellow Black, no odor
1031	230	860	18.71	792.89	0.38	7.30	-109.9	3.77	11.50	" "
1033	220	1300	18.52	790.15	0.30	7.32	-109.1	3.73	11.50	" "
1035	240	1780	18.53	785.21	0.26	7.33	-108.8	4.68	11.50	" "
1037	220	2220	18.57	783.07	0.23	7.33	-108.7	3.40	11.50	" "
1039	220	2680	18.61	781.75	0.21	7.33	-108.1	4.00	11.50	Clear, no odor
1041	240	3160	18.63	778.67	0.20	7.34	-107.9	3.72	11.50	" "
1043	240	3640	18.65	776.07	0.19	7.34	-107.5	3.20	11.50	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring   Monitoring Well ID: MW-8

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing   Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 11.50

Monitoring Event: Annual ( ) Semi-Annual (✓) Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
11-1-2022 1043	240	18.65	776.07	0.19	7.34	-107.5	3.20

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Sunny
70°F

Sample Characteristics: Clear, Colorless, Odorless

Sample Collection Order: Per SAP

Comments and Observations:
Collected Field Duplicate

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 11-1-2022 By: ______ Title: Lab Leadman

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 4
Name (Field Staff): A Patel J Lowes A Ovester
Date: 11-1-2022

Access:
Accessibility: Good ✓ Fair ___ Poor ___
Well clear of weeds and/or debris?: Yes ✓ No ___
Well identification clearly visible?: Yes ✓ No ___
Remarks:

Concrete Pad:
Condition of Concrete Pad: Good ✓ Inadequate ___
Depressions or standing water around well?: Yes ___ No ✓
Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp
Condition of Protective Casing: Good ✓ Damaged ___
Condition of Locking Cap: Good ✓ Damaged ___
Condition of Lock: Good ✓ Damaged ___
Condition of Weep Hole: Good ✓ Damaged ___
Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded
Condition of Riser: Good ✓ Damaged ___
Condition of Riser Cap: Good ✓ Damaged ___
Measurement Reference Point: Yes ✓ No ___
Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing
Condition: Good ✓ Damaged ___ Missing ___
Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes ✓ No ___
Remarks:

Field Certification
Signed:
Title: Lab Leadman
Date: 11-1-2022

Prepared by: GREDELL Engineering Resources, Inc. January 2017

Field Sampling Log

Monitoring Well ID: MW 4 **Facility:** SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 12.42 Date: 11-1-2022

Initial Groundwater Elevation (NAVD88): ________ Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 11-1-2022

Name (Sample Collector): J Lowes

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 1103

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 12.42

Total Volume Purged (mL): 4550

Beginning Groundwater Elevation (NAVD88): ________

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.20

Water Level after Sampling (feet btoc): 12.43
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: 1126

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
1105		200	20.17	536.68	1.44	7.52	-130.4	3.31	12.43	Clear, no odor
1107	290	780	19.32	543.06	1.48	7.54	-129.7	2.94	12.43	Yellow Flake, no odor
1109	265	1310	19.00	527.77	1.22	7.54	-129.4	2.73	12.43	" "
1111	265	1840	18.88	542.08	1.10	7.56	-129.0	3.05	12.43	Clear, no odor
1113	275	2390	18.93	516.00	1.02	7.57	-129.7	3.01	12.43	" "
1115	265	2920	18.88	542.38	1.00	7.57	-128.1	2.74	12.43	" "
1117	285	3490	18.84	541.32	0.98	7.56	-128.2	3.36	12.43	" "
1119	255	4000	18.88	535.41	0.96	7.57	-128.7	2.87	12.43	" "
1121	275	4550	18.90	539.46	0.90	7.56	-127.6	3.19	12.43	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring
Monitoring Well ID: MW 4

Sampling Information:

Method of Sampling: Low Flow - Peristaltic Pump & Tubing
Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 12.43

Monitoring Event: Annual ( ) Semi-Annual (✓) Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
11-1-2022 1121	275	18.90	539.46	0.90	7.56	-127.6	3.19

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Sunny
71 °F

Sample Characteristics: Clear, colorless, ~~and~~ odorless

Sample Collection Order: Per SAP

Comments and Observations:

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 11-1-2022 By: Pazer Title: Lab Leadman

PACE ANALYTICAL SERVICES
WWW.PACELABS.COM

REGULATORY PROGRAM (CIRCLE):	NPDES
MORBCA	RCRA
CCDD	TACO: RES OR IND/COMM

CHAIN OF CUSTODY RECORD

STATE WHERE SAMPLE COLLECTED MO

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

① CLIENT: SIKESTON BMU POWER STATION

PROJECT NUMBER:

PROJECT LOCATION: BOTTOM ASH

PURCHASE ORDER #:

ADDRESS: 1551 W WAKEFIELD

PHONE NUMBER: 573-475-3131

E-MAIL:

DATE SHIPPED:

CITY STAT ZIP: SIKESTON, MO 63801

SAMPLER (PLEASE PRINT): Justin Lowes

SAMPLER'S SIGNATURE:

CONTACT PERSON: MR LUKE ST MARY

MATRIX TYPES:
WW- WASTEWATER
DW- DRINKING WATER
GW- GROUND WATER
WWSL- SLUDGE
NAS- NON AQUEOUS SOLID
LCHT-LEACHATE
OIL-OIL
SO-SOIL
SOL-SOLID

③ ANALYSIS REQUESTED

④ (FOR LAB USE ONLY)
LOGIN # ____________________
LOGGED BY: ____________________
CLIENT: SIKESTON BMU, SIKESTON POWER STATION
PROJECT: SIKESTON BOTTOM ASH 2022
PROJ. MGR.: GJ SCHINDLER

② SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE CLIENT PROVIDED	CL, F, SO4, TDS	B, CA						REMARKS
MW-3	11-1-22	0751	X		GW	2	3,6	X	X						
MW-4	11-1-22	1121	X		GW	2	3,6	X	X						
MW-5	11-1-22	1010	X		GW	2	3,6	X	X						
MW-6	11-1-22	0843	X		GW	2	3,6	X	X						
MW-8	11-1-22	1043	X		GW	2	3,6	X	X						
DUPLICATE	11-1-22		X		GW	2	3,6	X	X						
FIELD BLANK	11-1-22	1010	X		DI	2	3,6	X	X						

CHEMICAL PRESERVATION CODES:	1 – HCL	2 – H2SO4	3 – HNO3	4 – NAOH	5 – NA2S2O3	6 – UNPRESERVED	7 – OTHER

⑤ TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE
EMAIL IF DIFFERENT FROM ABOVE:
PHONE # IF DIFFERENT FROM ABOVE:

DATE RESULTS NEEDED

⑥ *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.*

PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) ____________

⑦ RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
Patel	DATE 11-3-22 TIME 0700		DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED BY: (SIGNATURE)	DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED BY: (SIGNATURE)	DATE TIME

⑧ COMMENTS: (FOR LAB USE ONLY)
____
____

SAMPLE TEMPERATURE UPON RECEIPT ________ °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE ____________

Appendix 1b

Field Sampling Notes – December 13, 2022 (Re-sample)

Field Instrumentation Calibration Log

Facility: SBMU - Sikeston Power Station Ash Ponds - Groundwater Monitoring

Calibrated by: Ashley Pace

Field Instruments: In-Situ SmarTROLL MP or In-Situ AquaTROLL 400 | HF scientific, inc. Micro TPI Field Portable Turbidimeter

S/N #: 893568 | 201607366

	Date	Time	pH Standards (S.U.)	pH Measurements (S.U./mV)	Specific Conductance Standard (µS/cm)	Specific Conductance Measurement (µS/cm)	Oxidation Reduction Potential Standard (mV)	Oxidation Reduction Potential Measurement (mV)	Dissolved Oxygen (%)		Turbidity Standards (NTU)	Turbidity Measurements (NTU)
Beginning of Day Calibration	12-13-22	0810	4.00 @ 25.00°C	= 4.00 138.7	1413 @25.00°C	= 1411.9	220 mV at 25.00°C	= 229.0	Temperature (°C)	= 20.84	0.02	= 0.02
			7.00 @25.00°C	= 7.04 -36.3	1413 @ 25.00		Standard is 229 mV @ 25 °C		Tap Water Source	= Sikeston City	10.0	= 10.0
			10.00 @25.00°C	= 10.00 -209.6					Barometric Pressure (mm/Hg)	= 753.36	1000	= 1000.0
									Measurement	= 100.09		
End of Day Check	12-13-22	0330	4.00 @ 25.00°C	= 4.04 NA	1413 @25.00°C	= 1393.6	220 mV at 25.00°C	= 229.1	Temperature (°C)	= 20.64	0.02	= 0.03
			7.00 @25.00°C	= 7.05 NA	1413		Standard is 229 mV @ 25 °C		Tap Water Source	= Sikeston City	10.0	= 10.09
			10.00 @25.00°C	= 10.04 NA					Barometric Pressure (mm/Hg)	= 749.37	1000	= 996.9
									Measurement	= 99.78%		

Notes: The In-Situ SmarTROLL MP Field Meter and In-Situ AquaTROLL 400 measure Temperature, Specific Conductance, Dissolved Oxygen, pH, and Oxidation Reduction Potential.
The HF scientific, inc. Micro TPI Field Portable Turbidimeter measures Turbidity.
Dissolved oxygen is calibrated via % saturation method; however, field measurements are recorded as mg/L.

I certify that the aforementioned meters were calibrated within the manufacturers specifications.

Date: 12-13-22 By:

Rev: February 14, 2022

GREDELL Engineering Resources, Inc.

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 3
Name (Field Staff): A Pakl A Deuster
Date: 12-13-22

Access:

Accessibility: Good ✓ Fair ____ Poor ____

Well clear of weeds and/or debris?: Yes ✓ No ____

Well identification clearly visible?: Yes ✓ No ____

Remarks:

Concrete Pad:

Condition of Concrete Pad: Good ✓ Inadequate ____

Depressions or standing water around well?: Yes ____ No ✓

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: Good ✓ Damaged ____

Condition of Locking Cap: Good ✓ Damaged ____

Condition of Lock: Good ✓ Damaged ____

Condition of Weep Hole: Good ✓ Damaged ____

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: Good ✓ Damaged ____

Condition of Riser Cap: Good ✓ Damaged ____

Measurement Reference Point: Yes ✓ No ____

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: Good ✓ Damaged ___ Missing ___

Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes ✓ No ___

Remarks:

Field Certification

	Cos Tech	12-13-22
Signed	Title	Date

Prepared by: GREDELL Engineering Resources, Inc.

January 2017

Field Sampling Log

Monitoring Well ID: MW3 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 13.53 Date: 12-13-22

Initial Groundwater Elevation (NAVD88): Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 12-13-22

Name (Sample Collector): A Deuster

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 0917

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 13.53

Total Volume Purged (mL): 6600

Beginning Groundwater Elevation (NAVD88):

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 36.99

Water Level after Sampling (feet btoc): 13.53
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: NA

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
0919		390	15.60	188.76	0.98	6.48	55.8	120.7	13.53	Yellow no Flake, odor
0921	210	810	15.53	187.46	0.93	6.50	54.4	122.0	13.53	" "
0923	240	1290	15.49	185.37	0.87	6.51	52.3	95.87	13.53	" "
0925	250	1790	15.52	182.91	0.86	6.52	48.3	21.29	13.53	" "
0927	205	2200	15.57	180.96	0.78	6.54	63.0	13.95	13.53	" "
0929	245	2690	15.51	174.57	0.74	6.56	51.5	10.06	13.53	" "
0931	345	3380	15.52	173.07	0.73	6.57	47.6	7.03	13.53	Clear, no odor
0933	150	3680	15.53	174.41	0.68	6.61	43.9	5.37	13.53	" "
0935	250	4180	15.57	170.50	0.56	6.60	42.6	5.99	13.53	" "
0937	250	4680	15.58	167.30	0.54	6.61	37.4	5.45	13.53	" "
0939	240	5160	15.60	169.13	0.54	6.63	35.3	5.20	13.53	" "
0941	250	5660	15.64	157.30	0.53	6.64	33.0	3.97	13.53	" "
0943	250	6160	15.64	168.11	0.52	6.64	34.7	4.08	13.53	" "
0945	220	6600	15.67	166.92	0.50	6.65	35.1	3.43	13.53	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 3

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 13.53

Monitoring Event: Annual ( ) Semi-Annual ( ) Quarterly ( ) Monthly ( ) Other (✓) Resample

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
12-13-22 0945	220	15.67	166.92	0.50	6.65	35.1	3.43

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Cloudy
50°F

Sample Characteristics: Clear, colorless, odorless

Sample Collection Order: Per SAP

Comments and Observations:

pH 7 buffer was 7.09

No samples, Just data

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 12-13-22 By: Title: Lab Tech

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 6
Name (Field Staff): A Patel A Dorster
Date: 12-13-22

Access:

Accessibility: [✓ Good] Fair ____ Poor ____

Well clear of weeds and/or debris?: [✓ Yes] No ____

Well identification clearly visible?: [✓ Yes] No ____

Remarks:

Concrete Pad:

Condition of Concrete Pad: [✓ Good] Inadequate ____

Depressions or standing water around well?: Yes ____ [✓ No]

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: [✓ Good] Damaged ____

Condition of Locking Cap: [✓ Good] Damaged ____

Condition of Lock: [✓ Good] Damaged ____

Condition of Weep Hole: [✓ Good] Damaged ____

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: [✓ Good] Damaged ____

Condition of Riser Cap: [✓ Good] Damaged ____

Measurement Reference Point: [✓ Yes] No ____

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: [✓ Good] Damaged ____ Missing ____

Remarks:

Monitoring Well Locked/Secured Post Sampling?: [✓ Yes] No ____

Remarks:

Field Certification Lab Tech 12-13-22
Signed Title Date

Prepared by: GREDELL Engineering Resources, Inc. January 2017

Field Sampling Log

Monitoring Well ID: MW 6 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 13.48 Date: 12-13-22

Initial Groundwater Elevation (NAVD88): ______ Air Pressure in Well? Y [✓ N]

PURGE INFORMATION

Date: 12-13-22

Name (Sample Collector): A Duster

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 1038

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 13.48

Total Volume Purged (mL): 3800

Beginning Groundwater Elevation (NAVD88): ______

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.50

Water Level after Sampling (feet btoc): 13.49
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: 1102

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
1040		500	15.93	441.79	0.83	6.77	-79.6	12.76	13.49	clear, no odor
1042	250	1000	15.94	441.24	0.79	6.77	-85.6	12.16	13.49	" "
1044	240	1480	15.95	441.55	0.79	6.78	-84.8	8.04	13.49	" "
1046	230	1940	15.95	442.36	0.77	6.79	-84.4	8.95	13.49	" "
1048	220	2380	15.96	443.18	0.71	6.80	-83.8	8.86	13.49	" "
1050	240	2860	16.00	44023	0.70	6.79	-83.0	8.98	13.49	" "
1052	240	3340	16.02	439.41	0.67	6.79	-81.2	8.63	13.49	" "
1054	230	3800	16.02	438.68	0.66	6.78	-81.6	8.15	13.49	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 6

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 13.49

Monitoring Event: Annual ( ) Semi-Annual ( ) Quarterly ( ) Monthly ( ) Other (✓)

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
12-13-22 1054	230	16.02	458.68	0.66	6.78	-81.6	8.15

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Cloudy 50° F

Sample Characteristics: Clear, Colorless, Odorless

Sample Collection Order: Per SAP

Comments and Observations:

pH 7 buffer is 7.11

Collected Field Blank

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 12-13-22 By: Title: Lab Tech

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 5
Name (Field Staff): A Patel A Deuster
Date: 12-13-22

Access:

Accessibility: [✓ Good] Fair ____ Poor ____

Well clear of weeds and/or debris?: [✓ Yes] No ____

Well identification clearly visible?: [✓ Yes] No ____

Remarks:

Concrete Pad:

Condition of Concrete Pad: [✓ Good] Inadequate ____

Depressions or standing water around well?: Yes ____ [✓ No]

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: [✓ Good] Damaged ____

Condition of Locking Cap: [✓ Good] Damaged ____

Condition of Lock: [✓ Good] Damaged ____

Condition of Weep Hole: [✓ Good] Damaged ____

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: [✓ Good] Damaged ____

Condition of Riser Cap: [✓ Good] Damaged ____

Measurement Reference Point: [✓ Yes] No ____

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: [✓ Good] Damaged ____ Missing ____

Remarks:

Monitoring Well Locked/Secured Post Sampling?: [✓ Yes] No ____

Remarks:

Field Certification Ashish Patel Lab Tech 12-13-22
Signed Title Date

Field Sampling Log

Monitoring Well ID: MW 5 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 12.31

Date: 12-13-22

Initial Groundwater Elevation (NAVD88): ____

Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 12-13-22

Name (Sample Collector): A Oerster

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 1225

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 12.31

Total Volume Purged (mL): 4360

Beginning Groundwater Elevation (NAVD88): ____

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.19

Water Level after Sampling (feet btoc): 12.31
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: 1251

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
1227		500	16.60	804.16	0.51	6.79	-72.9	2.00	12.31	Clear, no odor
1229	250	1000	16.58	797.16	0.54	6.79	-76.2	2.21	12.31	" "
1231	230	1460	16.58	801.83	0.53	6.80	-76.9	2.43	12.31	" "
1233	250	1960	16.55	798.72	0.53	6.80	-76.7	1.80	12.31	" "
1235	220	2400	16.56	780.03	0.55	6.79	-75.9	2.00	12.31	" "
1237	270	2940	16.52	797.20	0.53	6.80	-76.8	1.86	12.31	" "
1239	230	3400	16.49	803.76	0.54	6.80	-77.2	1.88	12.31	" "
1241	250	3900	16.47	804.50	0.50	6.80	-77.2	1.45	12.31	" "
1243	230	4360	16.47	801.29	0.51	6.81	-77.4	1.27	12.31	

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 5

Sampling Information:

Dedicated: [✓ Y] / N

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Water Level @ Sampling (feet btoc): 12.31

Monitoring Event: Annual ( ) Semi-Annual ( ) Quarterly ( ) Monthly ( ) Other (✓) Resample

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (μS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
12-13-22 1243	230	16.47	801.29	0.51	6.81	-77.4	1.27

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Cloudy

Sample Characteristics: Clear, colorless, odorless

Sample Collection Order: Per SAP

Comments and Observations:

pH buffer 7 is 7.10

Collected Field Duplicate

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 12-13-22 By: Ashish Patel Title: Lab tech

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 8
Name (Field Staff): A Patel A Dexter
Date: 12-13-22

Access:

Accessibility: [✓ Good] Fair ___ Poor ___

Well clear of weeds and/or debris?: [✓ Yes] No ___

Well identification clearly visible?: [✓ Yes] No ___

Remarks:

Concrete Pad:

Condition of Concrete Pad: [✓ Good] Inadequate ___

Depressions or standing water around well?: Yes ___ [✓ No]

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: [✓ Good] Damaged ___

Condition of Locking Cap: [✓ Good] Damaged ___

Condition of Lock: [✓ Good] Damaged ___

Condition of Weep Hole: [✓ Good] Damaged ___

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: [✓ Good] Damaged ___

Condition of Riser Cap: [✓ Good] Damaged ___

Measurement Reference Point: [✓ Yes] No ___

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: [✓ Good] Damaged ___ Missing ___

Remarks:

Monitoring Well Locked/Secured Post Sampling?: [✓ Yes] No ___

Remarks:

Field Certification Signed: Title: Lab Tech Date: 12-13-22

Prepared by: GREDELL Engineering Resources, Inc.

January 2017

Field Sampling Log

Monitoring Well ID: MW8 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 11.55

Date: 12-13-22

Initial Groundwater Elevation (NAVD88): ______

Air Pressure in Well? Y [✓ N]

PURGE INFORMATION

Date: 12-13-22

Name (Sample Collector): A Patel

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: AP ~~1234~~ 1339

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 11.55

Total Volume Purged (mL): 5580

Beginning Groundwater Elevation (NAVD88): ______

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.05

Water Level after Sampling (feet btoc): 11.55
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: NA

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
1341		400	15.76	828.45	0.75	6.61	-82.1	8.73	11.55	Yellow Flake
1343	250	900	16.19	819.37	0.46	6.83	-99.1	5.40	11.55	" "
1345	240	1380	18.38	810.70	0.32	6.95	-102.4	4.13	11.55	" "
1347	230	1840	16.38	809.17	0.30	6.96	-102.7	4.39	11.55	" "
1349	230	2300	16.38	812.84	0.29	6.97	-102.9	4.86	11.55	" "
1351	230	2760	16.39	809.56	0.27	7.00	-103.1	4.61	11.55	Clear, no odor
1353	250	3260	16.38	803.98	0.25	7.01	-103.3	3.78	11.55	" "
1355	230	3720	16.38	800.72	0.24	7.02	-103.3	3.37	11.55	" "
1357	220	4160	16.38	816.26	0.22	7.03	-103.1	3.33	11.55	" "
1359	240	4640	16.38	832.92	0.22	7.04	-103.0	3.26	11.55	" "
1401	230	5100	16.37	799.42	0.22	7.04	-102.9	3.42	11.55	" "
1403	240	5580	16.36	791.25	0.21	7.05	-102.9	3.07	11.55	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 8

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 11.55

Monitoring Event: Annual ( ) Semi-Annual ( ) Quarterly ( ) Monthly ( ) Other (✓)

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
12-13-22 1403	240	16.38	791.25	0.21	7.05	-102.9	3.01

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Cloudy

Sample Characteristics: Clear, colorless, odorless

Sample Collection Order: Per SAP

Comments and Observations:

pH 7 buffer is 7.08

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 12-13-22 By: Title: Lab Tech

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 4
Name (Field Staff): A Patel A Deister
Date: 12-13-22

Access:

Accessibility: Good ✓ Fair ____ Poor ____

Well clear of weeds and/or debris?: Yes ✓ No ____

Well identification clearly visible?: Yes ✓ No ____

Remarks:

Concrete Pad:

Condition of Concrete Pad: Good ✓ Inadequate ____

Depressions or standing water around well?: Yes ____ No ✓

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: Good ✓ Damaged ____

Condition of Locking Cap: Good ✓ Damaged ____

Condition of Lock: Good ✓ Damaged ____

Condition of Weep Hole: Good ✓ Damaged ____

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: Good ✓ Damaged ____

Condition of Riser Cap: Good ✓ Damaged ____

Measurement Reference Point: Yes ✓ No ____

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: Good ✓ Damaged ____ Missing ____

Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes ✓ No ____

Remarks:

Field Certification Ashish Patel Lab Tech 12-13-22
Signed Title Date

Prepared by: GREDELL Engineering Resources, Inc.

January 2017

Field Sampling Log

Monitoring Well ID: MW 4 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 12.53 Date: 12-13-22

Initial Groundwater Elevation (NAVD88): ______ Air Pressure in Well? Y [✓ N]

PURGE INFORMATION

Date: 12-13-22

Name (Sample Collector): A Dexter

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 1439

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 12.53

Total Volume Purged (mL): 4320

Beginning Groundwater Elevation (NAVD88): ______

Well Purged To Dryness? Y [✓ N]

Well Total Depth (feet btoc): 37.25

Water Level after Sampling (feet btoc): 12.53
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: NA

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
1441		500	16.76	523.34	0.80	7.18	-117.4	2.33	12.53	Clear, no odor
1443	250	1000	16.96	522.78	0.63	7.20	-119.5	1.95	12.53	" "
1445	230	1460	17.05	525.14	0.55	7.23	-120.7	1.84	12.53	" "
1447	240	1940	17.08	522.25	0.50	7.24	-120.4	1.86	12.53	" "
1449	230	2400	17.06	519.20	0.47	7.25	-120.6	1.93	12.53	" "
1451	250	2900	17.06	521.31	0.45	7.26	-121.2	2.66	12.53	" "
1453	240	3380	17.06	520.40	0.43	7.26	-120.7	2.85	12.53	" "
1455	240	3860	17.06	521.26	0.42	7.26	-120.6	2.44	12.53	" "
1457	230	4320	17.05	519.27	0.41	7.27	-120.4	2.35	12.53	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 4

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 12.53

Monitoring Event: Annual ( ) Semi-Annual ( ) Quarterly ( ) Monthly ( ) Other (✓) Resample

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
12-13-22 1457	230	17.05	519.27	0.41	7.27	-120.4	2.35

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Cloudy 55°F

Sample Characteristics: Clear, Colorless, odorless

Sample Collection Order: Per SAP

Comments and Observations:

PH buffer was 7.04

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 12-13-22 By: Ashish Patel Title: Lab Tech

Pace

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WWW.PACECLABS.COM

REGULATORY PROGRAM (CIRCLE):	NPDES
MORBCA	RCRA
CCDD	TACO: RES OR IND/COMM

CHAIN OF CUSTODY RECORD

STATE WHERE SAMPLE COLLECTED IL

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

① CLIENT SIKESTON POWER STATION

ADDRESS 1551 W WAKEFIELD

CITY STAT ZIP SIKESTON, MO 63801

CONTACT PERSON MR LUKE ST MARY

PROJECT NUMBER

PROJECT LOCATION

PURCHASE ORDER #

PHONE NUMBER 573-475-3131

E-MAIL

DATE SHIPPED

SAMPLER (PLEASE PRINT) Anthony Devszer

SAMPLER'S SIGNATURE

MATRIX TYPES:
WW- WASTEWATER
DW- DRINKING WATER
GW- GROUND WATER
WWSL- SLUDGE
NAS- NON AQUEOUS SOLID
LCHT-LEACHATE
OIL-OIL
SO-SOIL
SOL-SOLID

③ ANALYSIS REQUESTED

④ (FOR LAB USE ONLY)

LOGIN # ____________

LOGGED BY: ____________

SIKESTON BMU, SIKESTON POWER STATION

SIKESTON BOTTOM ASH 2022 RESAMPLES

GJ SCHINDLER

② SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE CLIENT PROVIDED	TDS	CL, CA					REMARKS
MW-5	12-13-22	1243	X		GW	1	6	X						
MW-5 DUPLICATE	12-13-22		X		GW	1	6	X						
MW-6	12-13-22	1054	X		GW	2	3,6	X	X					
FIELD BLANK	12-13-22	1054	X		DI	2	3,6	X	X					

CHEMICAL PRESERVATION CODES:	1 – HCL	2 – H2SO4	3 – HNO3	4 – NAOH	5 – NA2S2O3	6 – UNPRESERVED	7 – OTHER

⑤ TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PACE LABS APPROVAL AND SURCHARGE)

RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE

EMAIL IF DIFFERENT FROM ABOVE:

PHONE # IF DIFFERENT FROM ABOVE:

DATE RESULTS NEEDED

⑥ *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.*

PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) ____________

⑦ RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
	DATE 10-14-22 TIME 0900		DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED BY: (SIGNATURE)	DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED BY: (SIGNATURE)	DATE TIME

⑧ COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT ________ °C

CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N

SAMPLE(S) RECEIVED ON ICE Y OR N

SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED Y OR N

DATE AND TIME TAKEN FROM SAMPLE BOTTLE ____________

Appendix 1c

Field Sampling Notes – April 18, 2023
(First 2023 Semi-annual Event)

Field Instrumentation Calibration Log

Facility: SBMU SPS CCR Groundwater Sampling

Calibrated by: Ashish Patel

Field Instruments: In-Situ smarTROLL Field Meter

S/N #: 893508

HF scientific, inc. Micro TPI Field Portable Turbidimeter

S/N #: 201607366

	Date	Time	pH Standards		pH Measurements	Specific Conductance Standard (µS/cm)		Specific Conductance Measurement (µS/cm)	Oxidation Reduction Potential Standard (mV)				Oxidation Reduction Potential Measurement (mV)	Dissolved Oxygen (%)			Turbidity Standards (NTU)		Turbidity Measurements (NTU)
Beginning of Day Calibration	4-18-2023	0630	4.00	=	4.02/170 mV	1413	=	1412.5	Temperature (°C)	=	21.35	=	228.9	Temperature (°C)	=	20.30	0.02	=	0.02
			7.00	=	7.02/2.9 mV				Standard (mV)	=	229.0			Tap Water Source	=	Sikeston City	10.0	=	10.0
			10.00	=	10.02 -175.7									Barometric Pressure (mm/Hg)	=	751.34	1000	=	1000.0
														Measurement	=	100.02			
End of Day Check	4-18-2023	1505	4.00	=	4.07	1413	=	1412.9	Temperature (°C)	=	21.55	=	230.0	Temperature (°C)	=	21.19	0.02	=	0.04
			7.00	=	7.05				Standard (mV)	=	2290			Tap Water Source	=	Sikeston City	10.0	=	10.11
			10.00	=	10.04									Barometric Pressure (mm/Hg)	=	749.90	1000	=	998.8
														Measurement	=	99.11			

Notes: The Multi-Probe Field Meter measures Temperature, Specific Conductance, Dissolved Oxygen, pH, and Oxidation Reduction Potential.

The HF scientific, inc. Micro TPI Field Portable Turbidimeter measures Turbidity.

Dissolved oxygen is calibrated via % saturation method; however, field measurements are recorded as mg/L.

I certify that the aforementioned meters were calibrated within the manufacturers specifications.

Date: 4-18-2023

By: Ashish Patel

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 3
Name (Field Staff): A Patel J Lowes A Oluester
Date: 4-18-2023

Access:

Accessibility: [✓ Good] Fair ____ Poor ____

Well clear of weeds and/or debris?: [✓ Yes] No ____

Well identification clearly visible?: [✓ Yes] No ____

Remarks:

Concrete Pad:

Condition of Concrete Pad: [✓ Good] Inadequate ____

Depressions or standing water around well?: Yes ____ [✓ No]

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: [✓ Good] Damaged ____

Condition of Locking Cap: [✓ Good] Damaged ____

Condition of Lock: [✓ Good] Damaged ____

Condition of Weep Hole: [✓ Good] Damaged ____

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: [✓ Good] Damaged ____

Condition of Riser Cap: [✓ Good] Damaged ____

Measurement Reference Point: [✓ Yes] No ____

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: [✓ Good] Damaged ____ Missing ____

Remarks:

Monitoring Well Locked/Secured Post Sampling?: [✓ Yes] No ____

Remarks:

Field Certification ABW81 R ws Pleadmg 4-18-2023
Signed Title Date

Prepared by: GREDELL Engineering Resources, Inc. January 2017

Field Sampling Log

Monitoring Well ID: MW3 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 11.05 Date: 4-18-2023

Initial Groundwater Elevation (NAVD88): ______ Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 4-18-2023

Name (Sample Collector): J Lowes

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 0740

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 11.05

Total Volume Purged (mL): 4960

Beginning Groundwater Elevation (NAVD88): ______

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.00

Water Level after Sampling (feet btoc): 11.05
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: 0802

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
0742		600	16.08	138.25	2.63	6.57	130.3	3.63	11.05	Clear, no odor
0744	255	1110	15.08	140.22	2.54	6.50	124.2	4.28	11.05	" "
0746	275	1660	14.81	138.72	2.52	6.45	117.2	4.57	11.05	" "
0748	270	2200	14.77	138.92	2.44	6.43	111.6	4.95	11.05	" "
0750	270	2740	14.77	138.27	2.25	6.43	106.1	4.64	11.05	" "
0752	280	3300	14.77	137.30	2.10	6.43	100.6	1.65	11.05	" "
0754	290	3880	14.78	136.02	1.98	6.43	96.5	1.09	11.05	" "
0756	250	4380	14.81	136.91	1.75	6.44	92.9	1.37	11.05	" "
0758	290	4960	14.83	136.64	1.56	6.45	88.8	1.43	11.05	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 3

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 11.05

Monitoring Event: Annual ( ) Semi-Annual (✓) Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
4-18-2023 0758	290	14.83	136.64	1.56	6.45	88.8	1.43

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia
2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Sunny
60°F

Sample Characteristics: Clear, colorless, odorless

Sample Collection Order: Per SAP

Comments and Observations:

Moving Train in track about 70 feet away

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 4-18-2023 By: Title: Lab Leadman

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW6
Name (Field Staff): JL
Date: 4-18-23

Access:
Accessibility: Good X Fair ____ Poor ____
Well clear of weeds and/or debris?: Yes X No ____
Well identification clearly visible?: Yes X No ____
Remarks:

Concrete Pad:
Condition of Concrete Pad: Good X Inadequate ____
Depressions or standing water around well?: Yes ____ No X
Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp
Condition of Protective Casing: Good X Damaged ____
Condition of Locking Cap: Good X Damaged ____
Condition of Lock: Good X Damaged ____
Condition of Weep Hole: Good X Damaged ____
Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded
Condition of Riser: Good X Damaged ____
Condition of Riser Cap: Good X Damaged ____
Measurement Reference Point: Yes X No ____
Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing
Condition: Good X Damaged ____ Missing ____
Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes X No ____
Remarks:

Field Certification

Signed	Lab Tech Level 4 Title	4-18-23 Date

Prepared by: GREDELL Engineering Resources, Inc.
January 2017

Field Sampling Log

Monitoring Well ID: MW 6 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 11.02 Date: 4-18-2023

Initial Groundwater Elevation (NAVD88): ________ Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 4-18-2023

Name (Sample Collector): Justin Lowes

Method of Well Purge: Low Flow Perstaltic Pump Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 0819 One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 11.04 Total Volume Purged (mL): 9460

Beginning Groundwater Elevation (NAVD88): ________ Well Purged To Dryness? Y / N

Well Total Depth (feet btoc): 37.75 Water Level after Sampling (feet btoc): 11.04
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC Time Sampling Completed: 0859

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
0821		700	16.12	328.72	1.81	6.60	-28.0	23.82	11.04	Red Specks
0823	300	1300	16.03	333.49	0.75	6.71	-37.9	20.36	11.04	White flake, no odor
0825	270	1840	15.98	330.53	0.66	6.78	-42.9	15.17	11.04	Clear, no odor
0827	250	2340	16.22	331.18	0.59	6.82	-46.9	14.94	11.04	" "
0829	300	2940	16.22	331.08	0.59	6.85	-47.5	12.23	11.04	" "
0831	280	3500	16.27	329.16	0.44	6.87	-46.9	11.45	11.04	" "
0833	380	4260	16.07	330.0	0.42	6.88	-47.9	10.72	11.04	" "
0835	270	4800	16.11	326.73	0.46	6.88	-49.0	5.72	11.04	" "
0837	280	5360	16.20	327.62	0.50	6.88	-48.5	4.67	11.04	" "
0839	320	6000	16.19	331.02	0.51	6.90	-50.0	3.86	11.04	" "
0841	280	6560	16.17	332.27	0.48	6.90	-50.5	2.90	11.04	" "
0843	290	7140	16.19	333.35	0.55	6.91	-50.5	3.90	11.04	" "
0845	280	7700	16.25	332.21	0.57	6.91	-50.5	3.53	11.04	" "
0847	320	8340	16.21	329.67	0.58	6.91	-50.5	2.49	11.04	" "
0849	300	8940	16.34	330.58	0.57	6.91	-50.5	2.57	11.04	" "
0851	260	9460	16.27	332.05	0.54	6.91	-50.5	2.55	11.04	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW6

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 11.04

Monitoring Event: Annual ( ) Semi-Annual (✓) Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
4-18-23 0851	260	16.27	332.05	.54	6.91	-50.5	2.55

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Sunny
65°F

Sample Characteristics: Clear, odorless, Colorless

Sample Collection Order: Per SAP

Comments and Observations:

Collected Field Blanks

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 4-18-23 By: Title: Lab Tech Level 4

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW5
Name (Field Staff): JL
Date: 4-18-23

Access:

Accessibility: Good X Fair ___ Poor ___

Well clear of weeds and/or debris?: Yes X No ___

Well identification clearly visible?: Yes X No ___

Remarks:

Concrete Pad:

Condition of Concrete Pad: Good X Inadequate ___

Depressions or standing water around well?: Yes ___ No X

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: Good X Damaged ___

Condition of Locking Cap: Good X Damaged ___

Condition of Lock: Good X Damaged ___

Condition of Weep Hole: Good X Damaged ___

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: Good X Damaged ___

Condition of Riser Cap: Good X Damaged ___

Measurement Reference Point: Yes X No ___

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: Good X Damaged ___ Missing ___

Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes X No ___

Remarks:

Field Certification

Signed	Title	Date
	Lab Tech Level 4	4-18-23

Prepared by: GREDELL Engineering Resources, Inc. January 2017

Field Sampling Log

Monitoring Well ID: MW 5 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 10.03 Date: 4-18-23

Initial Groundwater Elevation (NAVD88): ________ Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 4-18-23

Name (Sample Collector): JL

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 0951

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 10.03

Total Volume Purged (mL): 3500

Beginning Groundwater Elevation (NAVD88): ________

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.2

Water Level after Sampling (feet btoc): 10.03
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: 1015

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
0953		560	17.87	598.49	1.19	6.67	-24.3	12.08	10.03	Yellow Flakes
0955	255	1060	16.78	612.40	.86	6.76	.25.9	6.69	10.03	Yellow Flakes
0957	250	1560	16.56	615.50	.68	6.80	-27.3	6.35	10.03	Yellow Flakes
0959	220	2000	16.55	612.18	.60	6.82	.27.6	4.23	10.03	Clear
1001	240	2480	16.56	606.85	.56	6.83	-28.1	3.92	10.03	Clear
1003	270	3020	16.61	613.87	.55	6.84	-29.9	4.33	10.03	Clear
1005	240	3500	16.65	619.56	.52	6.85	-31.1	4.55	10.03	Clear

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring
Monitoring Well ID: MW5

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing
Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 10.03

Monitoring Event: Annual ( ) Semi-Annual (✓) Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
4-18-23 1005	240	16.65	619.56	.52	6.85	-31.1	4.55

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia
2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Sunny
70°F

Sample Characteristics: ~~clr~~ Colorless, odorless, clear

Sample Collection Order: Per SAP

Comments and Observations:

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 4-18-23 By: Title: Lab Tech Level 4

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 8
Name (Field Staff): A Patel J Lowes A Ovester
Date: 4-18·2023

Access:

Accessibility: Good ✓ Fair ___ Poor ___

Well clear of weeds and/or debris?: Yes ✓ No ___

Well identification clearly visible?: Yes ✓ No ___

Remarks:

Concrete Pad:

Condition of Concrete Pad: Good ✓ Inadequate ___

Depressions or standing water around well?: Yes ___ No ✓

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: Good ✓ Damaged ___

Condition of Locking Cap: Good ✓ Damaged ___

Condition of Lock: Good ✓ Damaged ___

Condition of Weep Hole: Good ✓ Damaged ___

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: Good ✓ Damaged ___

Condition of Riser Cap: Good ✓ Damaged ___

Measurement Reference Point: Yes ✓ No ___

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: Good ✓ Damaged ___ Missing ___

Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes ✓ No ___

Remarks:

Field Certification Ashwal Patel — Signed
Lab Leadman — Title
4-18-2023 — Date

Prepared by: GREDELL Engineering Resources, Inc.

January 2017

Field Sampling Log

Monitoring Well ID: MW 8 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 9.31 Date: 4/18/2023

Initial Groundwater Elevation (NAVD88): ______ Air Pressure in Well? Y [✓ N]

PURGE INFORMATION

Date: 4-18-2023

Name (Sample Collector): Anthony Dresser

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 10.47

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 9.31

Total Volume Purged (mL): 9860

Beginning Groundwater Elevation (NAVD88): ______

Well Purged To Dryness? Y [✓ N]

Well Total Depth (feet btoc): 37.05

Water Level after Sampling (feet btoc): 9.32
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: 1128

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
1049		520	18.57	496.27	0.54	6.85	-70.8	1.43	9.32	Yellow speck, no odor
1051	270	1060	17.14	507.79	0.37	7.00	-74.7	20.98	9.32	" "
1053	260	1580	16.92	512.62	0.30	7.08	-75.3	60.29	9.32	" "
1055	210	2000	16.84	510.33	0.25	7.12	-73.1	110.9	9.32	" "
1057	270	2540	18.83	511.44	0.23	7.17	-74.4	28.81	9.32	" "
1059	230	3100	16.97	512.52	0.21	7.20	-74.4	11.65	9.32	" "
1101	240	3580	16.92	516.93	0.20	7.21	-74.4	11.85	9.32	" "
1103	235	4150	16.82	516.28	0.20	7.23	-74.5	11.39	9.32	Clear, no odor
1105	265	4680	16.81	517.08	0.19	7.29	-74.5	10.00	9.32	" "
1107	310	5200	16.87	517.93	0.17	7.24	-75.3	11.17	9.32	" "
1109	255	5720	16.83	516.44	0.16	7.26	-77.3	7.96	9.32	" "
1111	230	6180	16.88	520.22	0.17	7.27	-78.4	9.31	9.32	" "
1113	260	6700	16.89	521.11	0.16	7.29	-78.8	6.59	9.32	" "
1115	280	7240	16.95	522.91	0.16	7.27	-78.4	8.99	9.32	" "
1117	260	7760	16.94	522.99	0.16	7.28	-78.4	9.52	9.32	" "
1119	250	8260	17.01	524.92	0.16	7.27	-78.1	5.21	9.32	" "
1121	280	8820	16.88	524.21	0.15	7.26	-77.4	6.04	9.32	" "
1123	270	9360	16.81	535.22	0.17	7.28	-78.4	5.80	9.32	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 8

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 9.32

Monitoring Event: Annual ( ) [✓ Semi-Annual ( )] Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
4-18-2023 1123	270	16.81	535.22	0.17	7.28	-78.9	5.80

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Sunny, windy
70° F

Sample Characteristics: Clear, Colorless, odorless

Sample Collection Order: Per SAP

Comments and Observations:

Moving coal train about 50 ft away.

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 4-18-23 By: Title: Lab Tech

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW4
Name (Field Staff): A Patel J Lowes A Drester
Date: 4-18-23

Access:

Accessibility: Good ✓ Fair ____ Poor ____

Well clear of weeds and/or debris?: Yes ✓ No ____

Well identification clearly visible?: Yes ✓ No ____

Remarks:

Concrete Pad:

Condition of Concrete Pad: Good ✓ Inadequate ____

Depressions or standing water around well?: Yes ____ No ✓

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: Good ✓ Damaged ____

Condition of Locking Cap: Good ✓ Damaged ____

Condition of Lock: Good ✓ Damaged ____

Condition of Weep Hole: Good ✓ Damaged ____

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: Good ✓ Damaged ____

Condition of Riser Cap: Good ✓ Damaged ____

Measurement Reference Point: Yes ✓ No ____

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: Good ✓ Damaged ____ Missing ___

Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes ✓ No ___

Remarks:

Field Certification Ashish Patel Lab Leadman 4-18-2025
Signed Title Date

Prepared by: GREDELL Engineering Resources, Inc. January 2017

Field Sampling Log

Monitoring Well ID: MW 4 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 10.11
Date: 4-18-2023

Initial Groundwater Elevation (NAVD88): ______
Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 4-18-2023

Name (Sample Collector): Anthony Drester

Method of Well Purge: Low Flow Perstaltic Pump
Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 1309
One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 10.11
Total Volume Purged (mL): 1403

Beginning Groundwater Elevation (NAVD88): ______
Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.20
Water Level after Sampling (feet btoc): 10.11
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC
Time Sampling Completed: 1412

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
1311		560	19.65	368.12	0.77	7.05	-69.4	158.2	10.11	Yellow Cloudy Flake,
1313	270	1100	18.44	381.43	0.59	7.18	-75.8	150.2	10.11	" "
1315	280	1660	18.04	383.22	0.48	7.29	-81.1	140.0	10.11	" "
1317	270	2200	17.95	387.44	0.43	7.33	-83.2	114.8	10.11	" "
1319	270	2740	17.96	391.46	0.40	7.35	-84.2	84.39	10.11	" "
1321	280	3300	17.99	388.74	0.37	7.37	-85.0	95.37	10.11	" "
1323	280	3860	18.22	391.91	0.37	7.42	-86.7	94.68	10.11	" "
1325	270	4400	18.08	390.6	0.35	7.41	-87.6	69.03	10.11	" "
1327	280	4960	18.05	388.17	0.34	7.42	-88.2	69.03	10.11	" "
1329	270	5500	18.08	388.33	0.32	7.45	-89.3	68.60	10.11	" "
1331	250	6000	17.99	393.18	0.32	7.46	-88.9	61.64	10.11	" "
1333	300	6600	18.04	389.21	0.32	7.48	-91.2	62.49	10.11	" "
1335	270	7140	18.06	390.75	0.31	7.48	-92.6	36.46	10.11	" "
1337	280	7700	18.09	394.01	0.31	7.47	-93.1	36.74	10.11	" "
1339	250	8200	18.08	391.19	0.31	7.47	-930	33.94	10.11	" "
1341	300	8800	18.07	397.09	0.30	7.48	-940	29.73	10.11	" "
1343	270	9340	18.00	398.35	0.30	7.48	-93.0	26.97	10.11	" "
1345	280	9900	17.99	396.41	0.30	7.47	-92.9	30.44	10.11	" "
1347	250	10400	17.95	391.80	0.30	7.48	-93.6	18.92	10.11	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 4

Date: 4-18-2023

PURGE STABILIZATION DATA CONTINUED

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
1349	300	11000	17.97	395.40	0.29	7.49	-96.0	22.03	10.11	Clear, no odor
1351	290	11580	17.96	401.49	0.30	7.50	-96.1	18.14	10.11	Clear, no flake
1353	290	12100	17.95	395.12	0.30	7.51	-97.2	17.41	10.11	" "
1355	280	12660	17.97	410.52	0.29	7.51	-96.2	17.22	10.11	" "
1357	340	13340	17.92	397.71	0.29	7.50	-96.8	11.46	10.11	" "
1359	280	13800	17.81	399.31	0.29	7.50	-96.5	11.83	10.11	" "
1401	270	14340	17.82	400.15	0.30	7.50	-96.3	11.72	10.11	" "
1403	290	14920	17.75	405.23	0.30	7.49	-96.3	10.86	10.11	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 4

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 10.11

Monitoring Event: Annual ( ) Semi-Annual (✓) Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
4-18-23 1403	290	17.75	405.23	0.30	7.49	-96.3	10.86

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Sunny, Windy
70° F

Sample Characteristics: Clear, Colorless, odorless

Sample Collection Order: Per SAP

Comments and Observations:

Colleete Field Duplicate
Moving coal train about 50 ft away

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 4-18-2023 By: Patel Title: Lab Tech

Pace

PACE ANALYTICAL SERVICES
WWW.PACELABS.COM

REGULATORY PROGRAM (CIRCLE):	NPDES
MORBCA	RCRA
CCDD	TACO: RES OR IND/COMM

CHAIN OF CUSTODY RECORD

STATE WHERE SAMPLE COLLECTED MO

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

① CLIENT: **SIKESTON BMU POWER STATION**

ADDRESS: **1551 W WAKEFIELD**

CITY STAT ZIP: **SIKESTON, MO 63801**

CONTACT PERSON: **MR LUKE ST MARY**

PROJECT NUMBER:

PROJECT LOCATION: BOTTOM ASH

PURCHASE ORDER #:

PHONE NUMBER: 573-475-3131

E-MAIL:

DATE SHIPPED:

SAMPLER (PLEASE PRINT): Anthony Duester

SAMPLER'S SIGNATURE:

MATRIX TYPES:
WW- WASTEWATER
DW- DRINKING WATER
GW- GROUND WATER
WWSL- SLUDGE
NAS- NON AQUEOUS SOLID
LCHT-LEACHATE
OIL-OIL
SO-SOIL
SOL-SOLID

③ ANALYSIS REQUESTED

④ (FOR LAB USE ONLY)
LOGIN # ____________
LOGGED BY: ____________
CLIENT: SIKESTON BMU, SIKESTON POWER STATION
PROJECT: SIKESTON BOTTOM ASH 2022
PROJ. MGR.: GJ SCHINDLER

② SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE CLIENT PROVIDED	CL, F, SO4, TDS	B, CA						REMARKS
MW-3	4-18-23	0758	X		GW	2	3,6	X	X						
MW-4	4-18-23	1403	X		GW	2	3,6	X	X						
MW-5	4-18-23	1005	X		GW	2	3,6	X	X						
MW-6	4-18-23	0851	X		GW	2	3,6	X	X						
MW-8	4-18-23	1123	X		GW	2	3,6	X	X						
DUPLICATE	4-18-23		X		GW	2	3,6	X	X						
FIELD BLANK	4-18-23	0851	X		DI	2	3,6	X	X						

CHEMICAL PRESERVATION CODES:	1 – HCL	2 – H2SO4	3 – HNO3	4 – NAOH	5 – NA2S2O3	6 – UNPRESERVED	7 – OTHER

⑤ TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE
EMAIL IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

DATE RESULTS NEEDED

⑥ *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.*

PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) ____________

⑦ RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
Ashish Patel	DATE 4-19-23 TIME 0800		DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED BY: (SIGNATURE)	DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED BY: (SIGNATURE)	DATE TIME

⑧ COMMENTS: (FOR LAB USE ONLY)
____
____

SAMPLE TEMPERATURE UPON RECEIPT ______ °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE ____________

Appendix 1d

Field Sampling Notes – May 23, 2023
(Re-sample)

Field Instrumentation Calibration Log

Facility: SBMU SPS CCR Groundwater Sampling

Calibrated by: Ashish Patel

Field Instruments: In-Situ smarTROLL Field Meter

S/N #: 893508

HF scientific, inc. Micro TPI Field Portable Turbidimeter

S/N #: 201607366

	Date	Time	pH Standards		pH Measurements	Specific Conductance Standard (µS/cm)		Specific Conductance Measurement (µS/cm)	Oxidation Reduction Potential Standard (mV)				Oxidation Reduction Potential Measurement (mV)	Dissolved Oxygen (%)			Turbidity Standards (NTU)		Turbidity Measurements (NTU)
Beginning of Day Calibration	5-22-2023	0640	4.00	=	4.00/169.9	1413	=	1412.9	Temperature (°C)	=	20.69	=	229.7	Temperature (°C)	=	19.86	0.02	=	0.02
			7.00	=	7.00/-1.4				Standard (mV)	=	229.0			Tap Water Source	=	Sikeston City	10.0	=	10.0
			10.00	=	10.00/-173.8									Barometric Pressure (mm/Hg)	=	755.42	1000	=	1000.0
														Measurement	=	99.99			
End of Day Check	5-22-2023	1409	4.00	=	4.04	1413	=	1398.6	Temperature (°C)	=	21.60	=	228.6	Temperature (°C)	=	27.55	0.02	=	0.01
			7.00	=	7.05				Standard (mV)	=	229.0			Tap Water Source	=	Sikeston City	10.0	=	10.09
			10.00	=	10.04									Barometric Pressure (mm/Hg)	=	753.6	1000	=	998.2
														Measurement	=	99.12			

Notes: The Multi-Probe Field Meter measures Temperature, Specific Conductance, Dissolved Oxygen, pH, and Oxidation Reduction Potential.

The HF scientific, inc. Micro TPI Field Portable Turbidimeter measures Turbidity.

Dissolved oxygen is calibrated via % saturation method; however, field measurements are recorded as mg/L.

I certify that the aforementioned meters were calibrated within the manufacturers specifications.

Date 5-22-2023 By: Ashish Patel

Field Instrumentation Calibration Log

Facility: SBMU SPS CCR Groundwater Sampling

Calibrated by:

Field Instruments: In-Situ smarTROLL Field Meter

S/N #: 893508

HF scientific, inc. Micro TPI Field Portable Turbidimeter

S/N #: 201607366

	Date	Time	pH Standards		pH Measure-ments	Specific Conductance Standard (µS/cm)		Specific Conductance Measurement (µS/cm)	Oxidation Reduction Potential Standard (mV)				Oxidation Reduction Potential Measurement (mV)	Dissolved Oxygen (%)			Turbidity Standards (NTU)		Turbidity Measurements (NTU)
Beginning of Day Calibration	5-23-2023	0620	4.00	=	4.00/1829	1413	=	1412.5	Temperature (°C)	=	25.00	=	229.6	Temperature (°C)	=	24.20	0.02	=	0.02
			7.00	=	7.00/-4.4				Standard (mV)	=	229			Tap Water Source	=	Sikeston City	10.0	=	10.0
			10.00	=	10.00 -174.8									Barometric Pressure (mm/Hg)	=	753.92	1000	=	1000.0
														Measurement	=	100.04			
End of Day Check	5-23-2023	1235	4.00	=	4.04	1413	=	1408.2	Temperature (°C)	=	22.18	=	228.5	Temperature (°C)	=	25.71	0.02	=	0.02
			7.00	=	7.02				Standard (mV)	=	229.0			Tap Water Source	=	Sikeston City	10.0	=	9.87
			10.00	=	10.05									Barometric Pressure (mm/Hg)	=	754.25	1000	=	1008.0
														Measurement	=	99.27			

Notes: The Multi-Probe Field Meter measures Temperature, Specific Conductance, Dissolved Oxygen, pH, and Oxidation Reduction Potential.

The HF scientific, inc. Micro TPI Field Portable Turbidimeter measures Turbidity.

Dissolved oxygen is calibrated via % saturation method; however, field measurements are recorded as mg/L.

I certify that the aforementioned meters were calibrated within the manufacturers specifications.

Date: 5-23-2023 By:

Prepared by: GREDELL Engineering Resources, Inc.

January 2017

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 3
Name (Field Staff): A Patel A Duesler
Date: 5-22-2023

Access:
Accessibility: Good ✓ Fair ___ Poor ___
Well clear of weeds and/or debris?: Yes ✓ No ___
Well identification clearly visible?: Yes ✓ No ___
Remarks:

Concrete Pad:
Condition of Concrete Pad: Good ✓ Inadequate ___
Depressions or standing water around well?: Yes ___ No ✓
Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp
Condition of Protective Casing: Good ✓ Damaged ___
Condition of Locking Cap: Good ✓ Damaged ___
Condition of Lock: Good ✓ Damaged ___
Condition of Weep Hole: Good ✓ Damaged ___
Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded
Condition of Riser: Good ✓ Damaged ___
Condition of Riser Cap: Good ✓ Damaged ___
Measurement Reference Point: Yes ✓ No ___
Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing
Condition: Good ✓ Damaged ___ Missing ___
Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes ✓ No ___
Remarks:

Field Certification
Signed:
Title: Lab Leadman
Date: 5-22-2023

Field Sampling Log

Monitoring Well ID: MW3 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 11.11

Date: 5-22-2023

Initial Groundwater Elevation (NAVD88):

Air Pressure in Well? Y [✓ N]

PURGE INFORMATION

Date: 5-22-2023

Name (Sample Collector): Anthony Duesser

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 0800

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 11.11

Total Volume Purged (mL): 4050

Beginning Groundwater Elevation (NAVD88):

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.00

Water Level after Sampling (feet btoc): 11.12
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: 0832

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
0802		540	16.83	178.13	2.06	6.91	224.5	2.73	11.12	Clear, no odor
0804	250	1040	15.90	180.33	1.92	6.78	227.7	4.97	11.12	" "
0806	260	1560	15.68	180.07	1.82	6.66	210.7	4.20	11.12	" "
0808	270	2100	15.58	177.19	1.71	6.64	207.5	4.24	11.12	" "
0810	240	2580	15.58	175.98	1.60	6.61	206.8	1.75	11.12	" "
0812	250	3080	15.55	173.24	1.48	6.61	203.5	1.52	11.12	" "
0814	220	3520	15.56	171.68	1.37	6.57	211.4	1.56	11.12	" "
0816	265	4050	15.58	169.13	1.26	6.60	219.5	1.90	11.12	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring   Monitoring Well ID: MW3

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing   Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 11.12

Monitoring Event: Annual ( ) Semi-Annual (✓) Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (μS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
5-22-2023 0816	265	15.58	169.13	1.26	6.60	219.5	1.90

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Sunny, Clear

Sample Characteristics: Clear, Colorless, Odorless

Sample Collection Order: Per SAP

Comments and Observations:

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 5-22-2023 By: Title: Lab Leadman

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 6
Name (Field Staff): A Patel A Dresser J Lowes
Date: 5-23-2023

Access:

Accessibility: Good ✓ Fair ___ Poor ___

Well clear of weeds and/or debris?: Yes ✓ No ___

Well identification clearly visible?: Yes ✓ No ___

Remarks:

Concrete Pad:

Condition of Concrete Pad: Good ✓ Inadequate ___

Depressions or standing water around well?: Yes ___ No ✓

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: Good ✓ Damaged ___

Condition of Locking Cap: Good ✓ Damaged ___

Condition of Lock: Good ✓ Damaged ___

Condition of Weep Hole: Good ✓ Damaged ___

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: Good ✓ Damaged ___

Condition of Riser Cap: Good ✓ Damaged ___

Measurement Reference Point: Yes ✓ No ___

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: Good ✓ Damaged ___ Missing ___

Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes ✓ No ___

Remarks:

Field Certification Ashish Patel — Lab Lead mgr — 5-23-2023
Signed — Title — Date

Prepared by: GREDELL Engineering Resources, Inc. January 2017

Field Sampling Log

Monitoring Well ID: MW 6 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 11.22

Date: 5-23-2023

Initial Groundwater Elevation (NAVD88): ______

Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 5-23-2023

Name (Sample Collector): Justin Lowes

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 0721

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 11.22

Total Volume Purged (mL): 7840

Beginning Groundwater Elevation (NAVD88): ______

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.75

Water Level after Sampling (feet btoc): 11.22
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: 0758

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
0723		600	18.33	407.05	0.83	6.70	-11.6	18.89	11.22	Yellow no Flake, odor
0725	270	1140	17.02	418.84	0.66	6.76	-18.7	18.00	11.22	" "
0727	280	1700	16.86	421.03	0.51	6.79	-19.7	14.95	11.22	" "
0729	280	2260	16.72	412.00	0.46	6.81	-11.6	9.92	11.22	" "
0731	280	2820	16.70	428.78	0.40	6.81	-18.2	10.47	11.22	" "
0733	290	3400	16.83	424.65	0.39	6.82	-12.3	8.58	11.22	Clear, no odor
0735	270	3940	16.74	427.64	0.38	6.82	-8.8	7.28	11.22	" "
0737	290	4520	16.76	424.07	0.35	6.84	-8.7	5.68	11.22	" "
0739	280	5080	16.78	432.01	0.36	6.84	-6.2	6.22	11.22	" "
0741	230	5540	16.75	420.82	0.35	6.84	3.8	4.38	11.22	" "
0743	300	6140	16.79	426.56	0.36	6.85	13.3	5.61	11.22	" "
0745	280	6700	16.82	426.75	0.36	6.85	22.7	4.68	11.22	" "
0747	290	7280	16.86	427.26	0.36	6.86	24.6	5.40	11.22	" "
0749	280	7840	16.91	426.63	0.35	6.86	24.3	5.50	11.22	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 6

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 11.22

Monitoring Event: Annual ( ) Semi-Annual (✓) Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
5-23-2023 0749	280	16.91	426.63	0.35	6.86	24.3	5.50

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Sunny, Clear 60°F

Sample Characteristics: Clear, Colorless, Odorless

Sample Collection Order: Per SAP

Comments and Observations:

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 5-23-23 By: Ashish Patel Title: Lab leadman

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW-5
Name (Field Staff): A PATEL A DEUSTER J LOWES
Date: 5-23-2023

Access:

Accessibility: Good ✓ Fair ____ Poor ____

Well clear of weeds and/or debris?: Yes ✓ No ____

Well identification clearly visible?: Yes ✓ No ____

Remarks:

Concrete Pad:

Condition of Concrete Pad: Good ✓ Inadequate ____

Depressions or standing water around well?: Yes ____ No ✓

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: Good ✓ Damaged ____

Condition of Locking Cap: Good ✓ Damaged ____

Condition of Lock: Good ✓ Damaged ____

Condition of Weep Hole: Good ✓ Damaged ____

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: Good ✓ Damaged ____

Condition of Riser Cap: Good ✓ Damaged ____

Measurement Reference Point: Yes ✓ No ____

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: Good ✓ Damaged ____ Missing ____

Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes ✓ No ____

Remarks:

Field Certification

Signed	Title	Date
	Lab Tech	5-23-23

Field Sampling Log

Monitoring Well ID: MW-5 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 10.27 Date: 5-23-23

Initial Groundwater Elevation (NAVD88): ______ Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 5-23-23

Name (Sample Collector): Justin Lowes

Method of Well Purge: Low Flow Perstaltic Pump Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 0814 One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 10.27 Total Volume Purged (mL): 7020

Beginning Groundwater Elevation (NAVD88): ______ Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.14 Water Level after Sampling (feet btoc): 10.26
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC Time Sampling Completed: 0855

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (μS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
0816	320	620	18.38	795.92	.79	6.64	29.3	22.17	10.27	Yellow Flakes
0818 AD	~~1220~~ 310	~~310~~ 1220	18.36	800.72	.80	6.65	27.3	6.81	10.27	Yellow FLAKES
0820	310	1840	16.68	834.65	.49	6.76	14.6	6.58	10.27	Yellow Flakes
0822	290	2420	16.57	845.50	.44	6.79	7.4	8.58	10.27	Yellow Flakes
0824	380	3180	16.74	831.05	.41	6.82	11.6	5.98	10.27	Yellow flakes
0826	280	3740	16.74	839.86	.37	6.82	8.6	7.47	10.27	Yellow Flakes
0828	360	4460	16.80	839.70	.38	6.82	12.4	6.23	10.27	Yellow flakes
0830	270	5000	16.87	838.93	.38	6.83	9.5	5.12	10.27	Yellow Flakes
0832	250	5500	16.92	842.26	.38	6.83	9.5	4.60	10.27	Yellow Flakes
0834	250	6000	16.92	843.43	.39	6.83	9.7	2.87	10.27	clear
0836	300	6600	16.95	843.19	.38	6.84	10.9	3.75	10.27	Clear
0838	210	7020	16.95	843.18	.38	6.84	10.7	2.95	10.27	Clear

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW-5

ampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 10.27

Monitoring Event: Annual ( ) Semi-Annual (✓) Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
5-23-23 0838	210	16.95	843.18	.38	6.84	10.7	2.95

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Sunny, Clear

Sample Characteristics: Clear, odorless, Colorless

Sample Collection Order: Per SAP

Comments and Observations:

Collected field duplicate #2

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 5-23-23 By: Title: Lab Tech

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 4
Name (Field Staff): A Patel J Lomes A Dresser
Date: 5-23-2023

Access:

Accessibility: [✓ Good] Fair ___ Poor ___

Well clear of weeds and/or debris?: [✓ Yes] No ___

Well identification clearly visible?: [✓ Yes] No ___

Remarks:

Concrete Pad:

Condition of Concrete Pad: [✓ Good] Inadequate ___

Depressions or standing water around well?: Yes ___ [✓ No]

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: [✓ Good] Damaged ___

Condition of Locking Cap: [✓ Good] Damaged ___

Condition of Lock: [✓ Good] Damaged ___

Condition of Weep Hole: [✓ Good] Damaged ___

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: [✓ Good] Damaged ___

Condition of Riser Cap: [✓ Good] Damaged ___

Measurement Reference Point: [✓ Yes] No ___

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: [✓ Good] Damaged ___ Missing ___

Remarks:

Monitoring Well Locked/Secured Post Sampling?: [✓ Yes] No ___

Remarks:

Field Certification

Signed:
Title: Lab Leadman
Date: 5-23-2023

Prepared by: GREDELL Engineering Resources, Inc. January 2017

Field Sampling Log

Monitoring Well ID: MW 4 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 10.38 Date: 5-23-2023

Initial Groundwater Elevation (NAVD88): ______ Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 5-23-2023

Name (Sample Collector): Justin Lowes

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 1033

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 10.38

Total Volume Purged (mL): 5380

Beginning Groundwater Elevation (NAVD88): ______

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.25

Water Level after Sampling (feet btoc): 10.38
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: 1102

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
1035		600	21.68	573.60	0.85	7.04	-84.6	7.82	10.38	Clear, no odor
1037	280	1160	18.72	609.65	0.57	7.18	-90.8	8.12	10.38	" "
1039	260	1680	18.26	618.61	0.50	7.24	-91.4	5.85	10.38	" "
1041	260	2200	18.09	620.01	0.45	7.29	-92.5	5.10	10.38	" "
1043	260	2720	18.15	615.39	0.42	7.31	-93.3	3.98	10.38	" "
1045	260	3240	18.04	617.93	0.39	7.33	-94.7	4.56	10.38	" "
1047	260	3760	18.08	615.00	0.37	7.34	-95.4	5.82	10.38	" "
1049	270	4300	17.99	618.49	0.35	7.34	-96.5	3.33	10.38	" "
1051	260	4820	1800	617.32	0.34	7.36	-97.8	3.30	10.38	" "
1053	280	5380	17.95	616.71	0.37	7.35	-99.3	3.45	10.38	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 4

ampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 10.37

Monitoring Event: Annual ( ) [✓ Semi-Annual ( )] Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
5-23-2023 1053	280	17.95	616.71	0.37	7.35	-993	3.45

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Sunny, Clear
75°F

Sample Characteristics: Clear, colorless, odorless

Sample Collection Order: Per SAP

Comments and Observations:

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 5-23-2023 By: Title: Crew Leadman

CHAIN OF CUSTODY

pg. 1 of 1 Work order # 23051831

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

Client: Sikeston Board of Municipal Utilities
Address: Sikeston Power Station
City / State / Zip Sikeston, MO 63801
Contact: Ashish Patel **Phone:** (573) 475-3119
E-Mail: apatel@sbmu.net **Fax:**

Samples on: ☒ ICE ☐ BLUE ICE ☐ NO ICE 4.4 °C LTG# 5
Preserved in: ☐ LAB ☐ FIELD **FOR LAB USE ONLY**
Lab Notes:
project = SBMU-SPS Bottom Ash Pond

Client Comments
Report from the container provided for NPDES Groundwater monitoring.

Are these samples known to be involved in litigation? If yes, a surcharge will apply ☐ Yes ☐ No
Are these samples known to be hazardous? ☐ Yes ☐ No
Are there any required reporting limits to be met on the requested analysis?. If yes, please provide limits in the comment section. ☐ Yes ☐ No

Project Name/Number	Sample Collector's Name
CCR BAP ReSample	Anthony Dresen

Results Requested
☐ Standard ☐ 1-2 Day (100% Surcharge)
☐ Other ____ ☐ 3 Day (50% Surcharge)

Billing Instructions

Lab Use Only	Sample Identification	Date/Time Sampled	# and Type of Containers: UNP	MATRIX: Groundwater	INDICATE ANALYSIS REQUESTED: Chloride
23051831-001	MW-6	5-23-23/0749	0	X	X

Relinquished By	Date/Time	Received By	Date/Time
Ashish Patel	5-24-2023/0730	Allison Cole	5/26/23 0955 (UPS)

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client. See www.teklabinc.com for terms and conditions.

BottleOrder: 79954

Appendix 1e

Field Sampling Notes – October 11, 2023
(Second 2023 Semi-annual Event)

Field Instrumentation Calibration Log

Facility: BMU SPS ~~Ameren-RIEC Ash Ponds~~ - Groundwater Monitoring

Calibrated by: Ashish Patel

Field Instruments: In-Situ SmarTROLL MP or In-Situ AquaTROLL 400 | HF scientific, inc. Micro TPI Field Portable Turbidimeter

S/N #: 893508 | 201607366

	Date	Time	pH Standards (S.U.)		pH Measurements (S.U./mV)	Specific Conductance Standard (µS/cm)		Specific Conductance Measurement (µS/cm)	Oxidation Reduction Potential Standard (mV)		Oxidation Reduction Potential Measurement (mV)	Dissolved Oxygen (%)			Turbidity Standards (NTU)		Turbidity Measurements (NTU)
Beginning of Day Calibration	10-11-2023	0615	4.00 @ 25.00°C Standard is 4.02 @ 20.8 °C	=	4.01 172.8	1413 @25.00°C	=	1413.8 20.98°C	220 mV at 25.00°C Standard is 229 mV @ 25 °C	=	229.0 20.91°C	Temperature (°C)	=	20.93	0.02	=	0.02
			7.00 @25.00°C Standard is 7.01 @21.1 °C	=	7.00 0.6							Tap Water Source	=	Sikeston City	10.0	=	9.98
			10.00 @25.00°C Standard is 10.06 @20.8 °C	=	10.06 -171.4							Barometric Pressure (mm/Hg)	=	748.99	1000	=	998.3
												Measurement	=	100.04			
End of Day Check	10-11-2023	1245	4.00 @ 25.00°C Standard is 4.02 @ 20.8 °C	=	4.02 NA	1413 @25.00°C	=	1414.7	220 mV at 25.00°C Standard is 229 mV @ ~~[illegible]~~ 25 °C	=	228.8	Temperature (°C)	=	20.62	0.02	=	0.03
			7.00 @25.00°C Standard is 7.01 @21.1 °C	=	7.00 NA							Tap Water Source	=	Sikeston City	10.0	=	9.97
			10.00 @25.00°C Standard is 10.06 @20.8 °C	=	10.05 NA							Barometric Pressure (mm/Hg)	=	749.01	1000	=	1008.0
												Measurement	=	99.97			

Notes: The In-Situ SmarTROLL MP Field Meter and In-Situ AquaTROLL 400 measure Temperature, Specific Conductance, Dissolved Oxygen, pH, and Oxidation Reduction Potential.
The HF scientific, inc. Micro TPI Field Portable Turbidimeter measures Turbidity.
Dissolved oxygen is calibrated via % saturation method; however, field measurements are recorded as mg/L.

I certify that the aforementioned meters were calibrated within the manufacturers specifications.

Date: 10-11-2023 By: Ashish Patel

GREDELL Engineering Resources, Inc.

Rev: February 14, 2022

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 3
Name (Field Staff): ~~to~~ Ashish Patel A Duester
Date: 10-11-2023

Access:
Accessibility: Good ✓ Fair ____ Poor ____
Well clear of weeds and/or debris?: Yes ✓ No ____
Well identification clearly visible?: Yes ✓ No ____
Remarks:

Concrete Pad:
Condition of Concrete Pad: Good ✓ Inadequate ____
Depressions or standing water around well?: Yes ____ No ✓
Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp
Condition of Protective Casing: Good ✓ Damaged ____
Condition of Locking Cap: Good ✓ Damaged ____
Condition of Lock: Good ✓ Damaged ____
Condition of Weep Hole: Good ✓ Damaged ____
Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded
Condition of Riser: Good ✓ Damaged ____
Condition of Riser Cap: Good ✓ Damaged ____
Measurement Reference Point: Yes ✓ No ____
Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing
Condition: Good ✓ Damaged ____ Missing ____
Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes ✓ No ____
Remarks:

Field Certification Ashish Patel Lab Leadman 10-11-2023
Signed Title Date

Prepared by: GREDELL Engineering Resources, Inc. January 2017

Field Sampling Log

Monitoring Well ID: MW 3 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 12.42 Date: 10-11-2023

Initial Groundwater Elevation (NAVD88): ______ Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 10-11-2023

Name (Sample Collector): A Duesler

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 0741

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 12.42

Total Volume Purged (mL): 5580

Beginning Groundwater Elevation (NAVD88): ______

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.20

Water Level after Sampling (feet btoc): 12.43
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: 0810

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
0743		440	17.93	177.53	2.32	6.27	104.5	14.28	12.43	Yellow no flake, odor
0745	230	900	17.22	183.65	1.92	6.29	100.7	10.72	12.43	" "
0747	230	1360	16.94	185.04	1.67	6.31	97.5	8.96	12.43	" "
0749	230	1820	16.83	183.14	1.45	6.33	93.0	9.83	12.43	" "
0751	220	2260	16.74	182.27	1.31	6.36	89.6	4.56	12.43	" "
0753	240	2740	16.70	182.21	1.19	6.38	86.9	3.27	12.43	" "
0755	240	3220	16.69	181.43	1.08	6.41	83.9	2.44	12.43	Clear, no odor
0757	230	3680	16.68	181.58	1.05	6.43	82.7	3.11	12.43	" "
0759	210	4100	16.65	178.38	0.98	6.45	80.5	3.01	12.43	" "
0801	280	4600	16.65	178.32	0.93	6.46	78.7	2.04	12.43	" "
0803	240	5080	16.63	178.24	0.91	6.49	78.4	1.68	12.43	" "
0805	250	5580	16.61	180.98	0.92	6.49	72.3	1.77	12.43	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring   Monitoring Well ID: MW3

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing   Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 12.43

Monitoring Event: Annual ( ) [✓ Semi-Annual ( )] Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

<u>Date</u> Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
10-11-2023 0805	250	16.61	180.98	0.92	6.49	72.3	1.77

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Cloudy

67°F

Sample Characteristics: Clear, Colorless, odorless

Sample Collection Order: Per SAP

Comments and Observations:

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 10-11-2023 By: Title: Lab Leadman

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 6
Name (Field Staff): A Patel A Ovester
Date: 10-11-2023

Access:

Accessibility: [✓ Good] Fair ____ Poor ____

Well clear of weeds and/or debris?: [✓ Yes] No ____

Well identification clearly visible?: [✓ Yes] No ____

Remarks:

Concrete Pad:

Condition of Concrete Pad: [✓ Good] Inadequate ____

Depressions or standing water around well?: Yes ____ [✓ No]

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: [✓ Good] Damaged ____

Condition of Locking Cap: [✓ Good] Damaged ____

Condition of Lock: [✓ Good] Damaged ____

Condition of Weep Hole: [✓ Good] Damaged ____

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: [✓ Good] Damaged ____

Condition of Riser Cap: [✓ Good] Damaged ____

Measurement Reference Point: [✓ Yes] No ____

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: [✓ Good] Damaged ____ Missing ____

Remarks:

Monitoring Well Locked/Secured Post Sampling?: [✓ Yes] No ___

Remarks:

Field Certification Ashish Patel — Lab Leadman — 10-11-2023
Signed — Title — Date

Prepared by: GREDELL Engineering Resources, Inc. January 2017

Field Sampling Log

Monitoring Well ID: MW 6 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 12.42 Date: 10-11-2023

Initial Groundwater Elevation (NAVD88): ______ Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 10-11-2023

Name (Sample Collector): A Duester

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 0830

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 12.42

Total Volume Purged (mL): 4780

Beginning Groundwater Elevation (NAVD88): ______

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 38.0

Water Level after Sampling (feet btoc): 12.42
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: 0855

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)	
0832		500	17.71	456.64	1.43	6.51	-46.9	8.10	12.42	Yellow no flake, odor	Turb
0834	250	1000	17.26	459.73	1.01	6.62	-66.5	~~[illegible]~~	~~[illegible]~~ 12.42	" "	5.7
0836	240	1480	17.10	460.94	0.40	6.67	-73.1	4.65	12.42	" "	
0838	230	1940	17.05	454.18	0.82	6.71	-76.2	2.88	12.42	" "	
0840	230	2400	17.04	459.54	0.77	6.72	-77.2	2.90	12.42	" "	
0842	240	2880	17.02	456.01	0.72	6.74	-78.1	2.69	12.42	" "	
0844	230	3340	17.01	454.91	0.65	6.76	-78.6	1.61	12.42	Clear, no odor	
0846	250	3840	17.01	453.17	0.62	6.77	-78.7	1.85	12.42	" "	
0848	230	4300	17.01	450.45	0.59	6.78	-78.8	1.70	12.42	" "	
0850	240	4780	17.01	462.54	0.56	6.80	-79.2	1.53	12.42	" "	

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 6

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 12.42

Monitoring Event: Annual ( ) Semi-Annual (✓) Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
10-11-2023 0850	240	17.01	462.54	0.56	6.80	-79.2	1.53

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Cloudy, Windy

Sample Characteristics: Clear, Colorless, odorless

Sample Collection Order: Per SAP

Comments and Observations:

Collect Field Bank

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 10-11-2023 By: Title: Lab Leadman

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 5
Name (Field Staff): A Patel A Diesler
Date: 10-11-2023

Access:
Accessibility: Good ✓ Fair ___ Poor ___
Well clear of weeds and/or debris?: Yes ✓ No ___
Well identification clearly visible?: Yes ✓ No ___
Remarks:

Concrete Pad:
Condition of Concrete Pad: Good ✓ Inadequate ___
Depressions or standing water around well?: Yes ___ No ✓
Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp
Condition of Protective Casing: Good ✓ Damaged ___
Condition of Locking Cap: Good ✓ Damaged ___
Condition of Lock: Good ✓ Damaged ___
Condition of Weep Hole: Good ✓ Damaged ___
Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded
Condition of Riser: Good ✓ Damaged ___
Condition of Riser Cap: Good ✓ Damaged ___
Measurement Reference Point: Yes ✓ No ___
Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing
Condition: Good ✓ Damaged ___ Missing ___
Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes ✓ No ___
Remarks:

Field Certification Coal Yard MGR 10-11-2023
Signed Title Date

Prepared by: GREDELL Engineering Resources, Inc. January 2017

Field Sampling Log

Monitoring Well ID: MW 5 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 11.39 Date: MW 5

Initial Groundwater Elevation (NAVD88): ______ Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 10-11-2023

Name (Sample Collector): A Duester

Method of Well Purge: Low Flow Perstaltic Pump Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 0944 One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 11.39 Total Volume Purged (mL): 3240

Beginning Groundwater Elevation (NAVD88): ______ Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.40 Water Level after Sampling (feet btoc): 11.39
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC Time Sampling Completed: 1005

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
0946		460	17.92	808.81	1.55	6.81	-43.5	1.04	11.39	clear, no odor
0948	220	900	17.55	811.25	1.15	6.82	-49.5	1.18	11.39	" "
0950	240	1380	17.41	815.61	0.97	6.82	-52.8	0.73	11.39	" "
0952	220	1820	17.30	812.92	0.83	6.82	-55.1	0.38	11.39	" "
0954	230	2280	17.29	800.44	0.70	6.83	-56.8	0.49	11.39	" "
0956	240	2760	17.28	809.42	0.65	6.83	-57.6	0.92	11.39	" "
0958	240	3240	17.30	810.78	0.64	6.83	-58.8	0.30	11.39	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 5

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 11.39

Monitoring Event: Annual ( ) [✓ Semi-Annual] Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
10-11-2023 0958	240	17.30	810.78	0.64	6.83	-58.8	0.30

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Cloudy, Windy 63°F

Sample Characteristics: Clear, colorless, odorless

Sample Collection Order: Per SAP

Comments and Observations:

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 10-11-2023 By: Abhijit Pal Title: Lab leadman

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 8
Name (Field Staff): A Patel A Dresser
Date: 10-11-2023

Access:

Accessibility: Good ✓ Fair ___ Poor ___

Well clear of weeds and/or debris?: Yes ✓ No ___

Well identification clearly visible?: Yes ✓ No ___

Remarks:

Concrete Pad:

Condition of Concrete Pad: Good ✓ Inadequate ___

Depressions or standing water around well?: Yes ___ No ✓

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: Good ✓ Damaged ___

Condition of Locking Cap: Good ✓ Damaged ___

Condition of Lock: Good ✓ Damaged ___

Condition of Weep Hole: Good ✓ Damaged ___

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: Good ✓ Damaged ___

Condition of Riser Cap: Good ✓ Damaged ___

Measurement Reference Point: Yes ✓ No ___

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: Good ✓ Damaged ___ Missing ___

Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes ✓ No ___

Remarks:

Field Certification

Signed	Title	Date
	Lab Leadman	10-11-2023

Prepared by: GREDELL Engineering Resources, Inc. January 2017

Field Sampling Log

Monitoring Well ID: MW 8 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 10.70 Date: 10-11-2023

Initial Groundwater Elevation (NAVD88): ________ Air Pressure in Well? Y [✓ N]

PURGE INFORMATION

Date: 10-11-2023

Name (Sample Collector): A Duesler

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 1021

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 10.70

Total Volume Purged (mL): 3280

Beginning Groundwater Elevation (NAVD88): ________

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.30

Water Level after Sampling (feet btoc): 10.71
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: 1048

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
1023		400	19.07	748.84	1.10	6.79	-63.6	1.16	10.71	Clear, no odor
1025	210	820	18.44	750.45	0.70	6.91	-74.0	0.76	10.71	" "
1027	200	1220	18.25	757.22	0.57	6.97	-81.1	0.66	10.71	" "
1029	210	1640	18.15	755.50	0.60	7.01	-85.8	0.55	10.71	" "
1031	180	2000	18.13	756.42	0.48	7.03	-85.7	0.74	10.71	" "
1033	220	2440	18.08	751.19	0.44	7.04	-92.1	0.90	10.71	" "
1035	210	2860	18.04	757.54	0.42	7.07	-94.2	0.56	10.71	" "
1037	210	3280	18.07	750.30	0.41	7.07	-94.4	0.72	10.71	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring Monitoring Well ID: MW 8

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 10.71

Monitoring Event: Annual ( ) Semi-Annual (✓) Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
10-11-2023 1037	210	18.07	750.30	0.41	7.07	-94.9	0.72

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Sunny

65°F

Sample Characteristics: Clear, colorless, odorless

Sample Collection Order: Per SAP

Comments and Observations:

Collect Field Duplicate.

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 10-11-2023 By: Ashish Patel Title: Lab Leadman

Monitoring Well Field Inspection

Facility: SBMU SPS – CCR Groundwater Monitoring
Monitoring Well ID: MW 4
Name (Field Staff): Ashish Patel Anthony Dvester
Date: 10-11-2023

Access:

Accessibility: Good ✓ Fair ___ Poor ___

Well clear of weeds and/or debris?: Yes ✓ No ___

Well identification clearly visible?: Yes ✓ No ___

Remarks:

Concrete Pad:

Condition of Concrete Pad: Good ✓ Inadequate ___

Depressions or standing water around well?: Yes ___ No ✓

Remarks:

Protective Outer Casing: Material = 4" x 4" Steel Hinged Casing with Hasp

Condition of Protective Casing: Good ✓ Damaged ___

Condition of Locking Cap: Good ✓ Damaged ___

Condition of Lock: Good ✓ Damaged ___

Condition of Weep Hole: Good ✓ Damaged ___

Remarks:

Well Riser: Material = 2" Diameter, Schedule 40 PVC, Flush Threaded

Condition of Riser: Good ✓ Damaged ___

Condition of Riser Cap: Good ✓ Damaged ___

Measurement Reference Point: Yes ✓ No ___

Remarks:

Dedicated Purging/Sampling Device: Type = ¼ " ID Semi-Rigid Polyethylene & 0.170" ID Flexible Silicone Tubing

Condition: Good ✓ Damaged ___ Missing ___

Remarks:

Monitoring Well Locked/Secured Post Sampling?: Yes ✓ No ___

Remarks:

Field Certification Ashish Patel — Lab Leadman — 10-11-2023
Signed — Title — Date

Prepared by: GREDELL Engineering Resources, Inc. January 2017

Field Sampling Log

Monitoring Well ID: MW 4 Facility: SBMU Sikeston Power Station - Groundwater Monitoring

Initial Water Level (feet btoc): 11.70 Date: 10-11-2023

Initial Groundwater Elevation (NAVD88): ______ Air Pressure in Well? Y / [✓ N]

PURGE INFORMATION

Date: 10-11-2023

Name (Sample Collector): A Duesler

Method of Well Purge: Low Flow Perstaltic Pump

Dedicated Tubing? [✓ Y] / N

Time Purging Initiated: 1121

One (1) Well Volume (mL): NA

Beginning Water Level (feet btoc): 11.70

Total Volume Purged (mL): 3400

Beginning Groundwater Elevation (NAVD88): ______

Well Purged To Dryness? Y / [✓ N]

Well Total Depth (feet btoc): 37.55

Water Level after Sampling (feet btoc): 11.70
(i.e., pump is off)

Casing Diameter (feet): 2" Sch 40 PVC

Time Sampling Completed: 1141

PURGE STABILIZATION DATA

Time	Purge Rate (mL/min)	Cumulative Volume (mL)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Water Level (feet btoc)	Notes (e.g., opacity, color, odor)
1123		500	19.79	571.85	1.42	7.01	-81.6	0.85	11.70	clear, no odor
1125	270	1040	18.84	587.07	1.00	7.12	-99.7	0.35	11.70	" "
1127	230	1500	18.63	587.03	0.79	7.16	-104.7	0.36	11.70	" "
1129	240	1980	18.57	592.22	0.70	7.20	-107.3	0.55	11.70	" "
1131	230	2440	18.53	591.22	0.65	7.24	-108.0	0.55	11.70	" "
1133	240	2920	18.53	593.86	0.61	7.24	-109.6	0.42	11.70	" "
1135	240	3400	18.52	596.48	0.60	7.25	-108.6	0.49	11.70	" "

btoc - below top of casing

Field Sampling Log

Facility: SBMU Sikeston Power Station - CCR Groundwater Monitoring

Monitoring Well ID: MW 4

Sampling Information:

Method of Sampling: Low Flow - Perstaltic Pump & Tubing

Dedicated: [✓ Y] / N

Water Level @ Sampling (feet btoc): 11.70

Monitoring Event: Annual ( ) Semi-Annual (✓) Quarterly ( ) Monthly ( ) Other ( )

Final Purge Stablization Sampling Data:

Date Sample Time	Sample Rate (mL/min)	Temp (°C)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
10-11-2023 1135	240	18.52	596.48	0.60	7.25	-108.60	0.49

Instrument Calibration Data:

See instrument calibration log of daily calibration data for the following instruments:

1 - In-Situ SmarTroll Multi-Probe Field Meter (Temperature, Specific Conductance, Dissolved Oxygen, pH, Oxidation Reduction Potentia

2 - HF scientific, inc. Micro TPI Field Portable Turbidimeter

General Information:

Weather Conditions @ time of sampling: Sunny
70°F

Sample Characteristics: Clear, Colorless, Odorless

Sample Collection Order: Per SAP

Comments and Observations:

I certify that sampling procedures were in accordance with applicable EPA and State protocols.

Date: 10-11-2023 By: Ashish Patel Title: Lab Lead man

CHAIN OF CUSTODY

pg. 1 of 1 Work order # ______

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

Client: Sikeston Board of Municipal Utilities
Address: 107 E Malone Ave
City / State / Zip Sikeston, MO 63801
Contact: Luke St. Mary **Phone:** (573) 475-3119
E-Mail: lstmary@sbmu.net **Fax:**

Samples on: ☐ ICE ☐ BLUE ICE ☐ NO ICE ______ °C LTG# ______
Preserved in: ☐ LAB ☐ FIELD **FOR LAB USE ONLY**
Lab Notes:

Client Comments

Are these samples known to be involved in litigation? If yes, a surcharge will apply ☐ Yes ☑ No
Are these samples known to be hazardous? ☐ Yes ☑ No
Are there any required reporting limits to be met on the requested analysis?. If yes, please provide limits in the comment section. ☐ Yes ☑ No

Project Name/Number	Sample Collector's Name
Bottom Ash Pond (BAP)	Anthony Ovester

Results Requested
☐ Standard ☐ 1-2 Day (100% Surcharge)
☐ Other ____ ☐ 3 Day (50% Surcharge)

Billing Instructions

Lab Use Only	Sample Identification	Date/Time Sampled	UNP	HNO3	Aqueous	Groundwater	Trip Blank	B Ca (ICP)	Chloride	Fluoride	pH	Sulfate	TDS
			# and Type of Containers		**MATRIX**			**INDICATE ANALYSIS REQUESTED**					
	MW-3	10-11-23 0805	1	1		X		X	X	X	X	X	X
	MW-4	10-11-23 1135	1	1		X		X	X	X	X	X	X
	MW-5	10-11-23 0958	1	1		X		X	X	X	X	X	X
	MW-6	10-11-23 0850	1	1		X		X	X	X	X	X	X
	MW-8	10-11-23 1087	1	1		X		X	X	X	X	X	X
	Duplicate	10-11-23	1	1		X		X	X	X	X	X	X
	Field Blank	10-11-23 0850	1	1	X			X	X	X	X	X	X
	Trip Blank	10-11-23	1	1			X	X	X	X	X	X	X

Relinquished By	Date/Time	Received By	Date/Time
Ashish Patel	10-12-23 0700		

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client. See www.teklabinc.com for terms and conditions.

BottleOrder: 81587

Appendix 2

Laboratory Analytical Results and Quality Assurance/Quality Control Data

Appendix 2a

Laboratory Analytical Results and Quality Assurance/Quality Control Data – November 1, 2022 (Second 2022 Semi-annual Event)

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

November 22, 2022

Luke St Mary
Sikeston BMU, Sikeston Power Station
1551 W Wakefield
Sikeston, MO 63801

RE: SIKESTON FLY BOTTOM ASH APP III

Dear Luke St Mary:

Please find enclosed the analytical results for the **7** sample(s) the laboratory received on **11/4/22 10:00 am** and logged in under work order **FK01101**. All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of Pace Analytical Services, LLC.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

Pace Analytical Services appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant, with any feedback you have about your experience with our laboratory at 309-683-1764 or lisa.grant@pacelabs.com.

Gail g Schindler

Gail Schindler
Project Manager
(309) 692-9688 x1716
gail.schindler@pacelabs.com

SAMPLE RECEIPT CHECK LIST

Items not applicable will be marked as in compliance

Work Order FK01101

YES	Samples received within temperature compliance when applicable
YES	COC present upon sample receipt
YES	COC completed & legible
YES	Sampler name & signature present
YES	Unique sample IDs assigned
YES	Sample collection location recorded
YES	Date & time collected recorded on COC
YES	Relinquished by client signature on COC
YES	COC & labels match
YES	Sample labels are legible
YES	Appropriate bottle(s) received
YES	Sufficient sample volume received
YES	Sample containers received undamaged
NO	Zero headspace, <6 mm present in VOA vials
NO	Trip blank(s) received
YES	All non-field analyses received within holding times
NO	Short hold time analysis
YES	Current PDC COC submitted
YES	Case narrative provided

Case Narrative

MW-3 TDS was originally analyzed within hold time but results did not meet acceptance criteria. The sample was reanalyzed outside hold time with passing QC.

ANALYTICAL RESULTS

Sample: FK01101-01
Name: MW-3
Matrix: Ground Water - Grab

Sampled: 11/01/22 07:51
Received: 11/04/22 10:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	< 1.0	mg/L		11/11/22 19:36	1	1.0	11/11/22 19:36	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		11/11/22 19:36	1	0.250	11/11/22 19:36	CRD	EPA 300.0 REV 2.1
Sulfate	10	mg/L		11/13/22 12:29	5	5.0	11/13/22 12:29	LAM	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	100	mg/L	H	11/09/22 14:09	1	17	11/09/22 15:02	HRF	SM 2540C
Total Metals - PIA									
Boron	20	ug/L		11/08/22 09:10	5	10	11/11/22 10:10	JMW	EPA 6020A
Calcium	17000	ug/L		11/08/22 09:10	5	200	11/10/22 17:30	JMW	EPA 6020A

Sample: FK01101-02
Name: MW-4
Matrix: Ground Water - Grab

Sampled: 11/01/22 11:21
Received: 11/04/22 10:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	12	mg/L		11/11/22 20:30	5	5.0	11/11/22 20:30	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		11/11/22 20:12	1	0.250	11/11/22 20:12	CRD	EPA 300.0 REV 2.1
Sulfate	79	mg/L		11/11/22 20:48	25	25	11/11/22 20:48	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	340	mg/L		11/07/22 09:30	1	26	11/07/22 10:54	HRF	SM 2540C
Total Metals - PIA									
Boron	940	ug/L		11/08/22 09:10	5	10	11/11/22 10:14	JMW	EPA 6020A
Calcium	81000	ug/L		11/08/22 09:10	5	200	11/10/22 17:34	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: FK01101-03
Name: MW-5
Matrix: Ground Water - Grab

Sampled: 11/01/22 10:10
Received: 11/04/22 10:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	13	mg/L		11/11/22 21:24	10	10	11/11/22 21:24	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		11/11/22 21:06	1	0.250	11/11/22 21:06	CRD	EPA 300.0 REV 2.1
Sulfate	250	mg/L		11/11/22 21:42	100	100	11/11/22 21:42	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	670	mg/L		11/07/22 11:55	1	26	11/07/22 12:59	HRF	SM 2540C
Total Metals - PIA									
Boron	420	ug/L		11/08/22 09:10	5	10	11/11/22 10:17	JMW	EPA 6020A
Calcium	130000	ug/L		11/08/22 09:10	5	200	11/10/22 17:38	JMW	EPA 6020A

Sample: FK01101-04
Name: MW-6
Matrix: Ground Water - Grab

Sampled: 11/01/22 08:43
Received: 11/04/22 10:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	4.6	mg/L		11/11/22 22:01	1	1.0	11/11/22 22:01	CRD	EPA 300.0 REV 2.1
Sulfate	26	mg/L		11/11/22 22:55	10	10	11/11/22 22:55	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Fluoride	< 0.250	mg/L		11/17/22 15:02	1	0.250	11/17/22 15:02	ANK	SM 4500F C 1997
Solids - total dissolved solids (TDS)	330	mg/L		11/07/22 11:55	1	26	11/07/22 12:59	HRF	SM 2540C
Total Metals - PIA									
Boron	55	ug/L		11/08/22 09:10	5	10	11/11/22 10:21	JMW	EPA 6020A
Calcium	50000	ug/L		11/08/22 09:10	5	200	11/10/22 17:41	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: FK01101-05
Name: MW-8
Matrix: Ground Water - Grab

Sampled: 11/01/22 10:43
Received: 11/04/22 10:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	51	mg/L		11/11/22 23:31	10	10	11/11/22 23:31	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		11/11/22 23:13	1	0.250	11/11/22 23:13	CRD	EPA 300.0 REV 2.1
Sulfate	130	mg/L		11/13/22 12:47	25	25	11/13/22 12:47	LAM	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	500	mg/L		11/07/22 11:55	1	26	11/07/22 12:59	HRF	SM 2540C
Total Metals - PIA									
Boron	440	ug/L		11/08/22 09:10	5	10	11/11/22 10:25	JMW	EPA 6020A
Calcium	110000	ug/L		11/08/22 09:10	5	200	11/10/22 17:45	JMW	EPA 6020A

Sample: FK01101-06
Name: DUPLICATE
Matrix: Ground Water - Grab

Sampled: 11/01/22 00:00
Received: 11/04/22 10:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	51	mg/L		11/12/22 00:07	10	10	11/12/22 00:07	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		11/11/22 23:49	1	0.250	11/11/22 23:49	CRD	EPA 300.0 REV 2.1
Sulfate	120	mg/L		11/12/22 00:25	100	100	11/12/22 00:25	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	520	mg/L		11/07/22 11:55	1	26	11/07/22 12:59	HRF	SM 2540C
Total Metals - PIA									
Boron	450	ug/L		11/08/22 09:10	5	10	11/11/22 10:28	JMW	EPA 6020A
Calcium	110000	ug/L		11/08/22 09:10	5	200	11/10/22 17:56	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: FK01101-07
Name: FIELD BLANK
Matrix: Ground Water - Grab

Sampled: 11/01/22 10:10
Received: 11/04/22 10:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	< 1.0	mg/L		11/12/22 00:43	1	1.0	11/12/22 00:43	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		11/12/22 00:43	1	0.250	11/12/22 00:43	CRD	EPA 300.0 REV 2.1
Sulfate	< 1.0	mg/L		11/12/22 00:43	1	1.0	11/12/22 00:43	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	37	mg/L		11/07/22 11:55	1	17	11/07/22 12:59	HRF	SM 2540C
Total Metals - PIA									
Boron	< 10	ug/L		11/09/22 07:40	5	10	11/11/22 11:34	JMW	EPA 6020A
Calcium	< 200	ug/L		11/09/22 07:40	5	200	11/10/22 18:14	JMW	EPA 6020A

NOTES

Specifications regarding method revisions, method modifications, and calculations used for analysis are available upon request. Please contact your project manager.

* Not a TNI accredited analyte

Certifications

CHI - McHenry, IL - 4314-A W. Crystal Lake Road, McHenry, IL 60050
TNI Accreditation for Drinking Water and Wastewater Fields of Testing through IL EPA Accreditation No. 100279
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL - 2231 W. Altorfer Drive, Peoria, IL 61615
TNI Accreditation for Drinking Water, Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. 100230
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications/Accreditations: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Solid and Hazardous Material Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - Hazelwood, MO - 944 Anglum Rd, Hazelwood, MO 63042
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through KS KDHE Certification No. E-10389
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. - 200080
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory, Registry No. 171050
Missouri Department of Natural Resources - Certificate of Approval for Microbiological Laboratory Service - No. 1050

Qualifiers

H	Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

Gail J Schindler

Certified by: Gail Schindler, Project Manager

PACE ANALYTICAL SERVICES
WWW.PACELABS.COM

REGULATORY PROGRAM (CIRCLE):	NPDES
MORBCA	RCRA
CCDD	TACO: RES or IND/COMM

CHAIN OF CUSTODY RECORD

STATE WHERE SAMPLE COLLECTED MO

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

① CLIENT: SIKESTON BMU POWER STATION

PROJECT NUMBER:

PROJECT LOCATION: BOTTOM ASH

PURCHASE ORDER #:

ADDRESS: 1551 W WAKEFIELD

PHONE NUMBER: 573-475-3131

E-MAIL:

DATE SHIPPED:

CITY STAT ZIP: SIKESTON, MO 63801

CONTACT PERSON: MR LUKE ST MARY

SAMPLER (PLEASE PRINT): Justin Lowes

SAMPLER'S SIGNATURE:

MATRIX TYPES:
WW- WASTEWATER
DW- DRINKING WATER
GW- GROUND WATER
WWSL- SLUDGE
NAS- NON AQUEOUS SOLID
LCHT-LEACHATE
OIL-OIL
SO-SOIL
SOL-SOLID

③ ANALYSIS REQUESTED

④ (FOR LAB USE ONLY)

LOGIN # FK01101-7

LOGGED BY: lrp

CLIENT: SIKESTON BMU, SIKESTON POWER STATION

PROJECT: SIKESTON BOTTOM ASH 2022

PROJ. MGR.: GJ SCHINDLER

② SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE CLIENT PROVIDED	CL, F, SO4, TDS	B, CA						REMARKS
MW-3	11-1-22	0751	X		GW	2	3,6	X	X						
MW-4	11-1-22	1121	X		GW	2	3,6	X	X						
MW-5	11-1-22	1010	X		GW	2	3,6	X	X						
MW-6	11-1-22	0843	X		GW	2	3,6	X	X						
MW-8	11-1-22	1043	X		GW	2	3,6	X	X						
DUPLICATE	11-1-22		X		GW	2	3,6	X	X						
FIELD BLANK	11-1-22	1010	X		DI	2	3,6	X	X						

CHEMICAL PRESERVATION CODES: 1 – HCL 2 – H2SO4 3 – HNO3 4 – NAOH 5 – NA2S2O3 6 – UNPRESERVED 7 – OTHER

⑤ TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)

DATE RESULTS NEEDED

RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE

EMAIL IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

⑥ *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.*

PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) ______________

⑦ RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
Bhi3L Patcl	DATE: TIME:		DATE: TIME:
RELINQUISHED BY: (SIGNATURE)	DATE: TIME:	RECEIVED BY: (SIGNATURE)	DATE: TIME:
RELINQUISHED BY: (SIGNATURE)	DATE: TIME:	RECEIVED BY: (SIGNATURE)	DATE: 11/5/22 TIME: 1000

⑧ COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 1.5 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT [✓ Y] OR N

SAMPLE(S) RECEIVED ON ICE [✓ Y] OR N

SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED Y OR [✓ N]

UPS

DATE AND TIME TAKEN FROM SAMPLE BOTTLE ______________

Appendix 2b

Laboratory Analytical Results and QAQC Data – December 13, 2022 (Re-sample)

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

December 30, 2022

Luke St Mary
Sikeston BMU, Sikeston Power Station
1551 W Wakefield
Sikeston, MO 63801

RE: SIKESTON BOTTOM ASH RESAMPLES

Dear Luke St Mary:

Please find enclosed the analytical results for the **4** sample(s) the laboratory received on **12/15/22 4:00 pm** and logged in under work order **FL03252**. All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of Pace Analytical Services, LLC.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

Pace Analytical Services appreciates the opportunity to provide you with analytical expertise . We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant, with any feedback you have about your experience with our laboratory at 309-683-1764 or lisa.grant@pacelabs.com.

Gail g Schindler

Gail Schindler
Project Manager
(309) 692-9688 x1716
gail.schindler@pacelabs.com

SAMPLE RECEIPT CHECK LIST

Items not applicable will be marked as in compliance

Work Order FL03252

YES	Samples received within temperature compliance when applicable
YES	COC present upon sample receipt
YES	COC completed & legible
YES	Sampler name & signature present
YES	Unique sample IDs assigned
YES	Sample collection location recorded
YES	Date & time collected recorded on COC
YES	Relinquished by client signature on COC
YES	COC & labels match
YES	Sample labels are legible
YES	Appropriate bottle(s) received
YES	Sufficient sample volume received
YES	Sample containers received undamaged
NO	Zero headspace, <6 mm present in VOA vials
YES	Trip blank(s) received
YES	All non-field analyses received within holding times
NO	Short hold time analysis
YES	Current PDC COC submitted
NO	Case narrative provided

Customer #: 72-102975

ANALYTICAL RESULTS

Sample: FL03252-01
Name: MW-5
Matrix: Ground Water - Grab

Sampled: 12/13/22 12:43
Received: 12/15/22 16:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	490	mg/L		12/16/22 14:41	1	26	12/16/22 15:25	HRF	SM 2540C

Sample: FL03252-02
Name: MW-5 DUPLICATE
Matrix: Ground Water - Grab

Sampled: 12/13/22 00:00
Received: 12/15/22 16:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	460	mg/L	M	12/16/22 14:41	1	26	12/16/22 15:25	HRF	SM 2540C

Sample: FL03252-03
Name: MW-6
Matrix: Ground Water - Grab

Sampled: 12/13/22 10:54
Received: 12/15/22 16:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	4.0	mg/L		12/23/22 23:56	1	1.0	12/23/22 23:56	LAM	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	220	mg/L		12/16/22 14:41	1	26	12/16/22 15:25	HRF	SM 2540C
Total Metals - PIA									
Calcium	45000	ug/L		12/20/22 12:10	5	200	12/21/22 10:30	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: FL03252-04
Name: FIELD BLANK
Matrix: Ground Water - Grab

Sampled: 12/13/22 10:54
Received: 12/15/22 16:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	< 1.0	mg/L		12/24/22 00:32	1	1.0	12/24/22 00:32	LAM	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	< 17	mg/L		12/16/22 14:41	1	17	12/16/22 15:25	HRF	SM 2540C
Total Metals - PIA									
Calcium	< 200	ug/L		12/27/22 09:01	5	200	12/27/22 14:40	JMW	EPA 6020A

NOTES

Specifications regarding method revisions, method modifications, and calculations used for analysis are available upon request. Please contact your project manager.

* Not a TNI accredited analyte

Certifications

CHI - McHenry, IL - 4314-A W. Crystal Lake Road, McHenry, IL 60050
TNI Accreditation for Drinking Water and Wastewater Fields of Testing through IL EPA Accreditation No. 100279
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Drinking Water Certifications/Accreditations: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Solid and Hazardous Material Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - Hazelwood, MO - 944 Anglum Rd, Hazelwood, MO 63042
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through KS KDHE Certification No. E-10389
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. - 200080
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory, Registry No. 171050
Missouri Department of Natural Resources - Certificate of Approval for Microbiological Laboratory Service - No. 1050

Qualifiers

M Analyte failed to meet the required acceptance criteria for duplicate analysis.

Gail J Schindler

Certified by: Gail Schindler, Project Manager

PACE ANALYTICAL SERVICES
WWW.PACECLABS.COM

REGULATORY PROGRAM (CIRCLE):	NPDES
MORBCA	RCRA
CCDD	TACO: RES OR IND/COMM

CHAIN OF CUSTODY RECORD

STATE WHERE SAMPLE COLLECTED IL

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

① CLIENT: SIKESTON POWER STATION

ADDRESS: 1551 W WAKEFIELD

CITY STAT ZIP: SIKESTON, MO 63801

CONTACT PERSON: MR LUKE ST MARY

PROJECT NUMBER:

PROJECT LOCATION:

PURCHASE ORDER #:

PHONE NUMBER: 573-475-3131

E-MAIL:

DATE SHIPPED:

SAMPLER (PLEASE PRINT): Anthony Derster

SAMPLER'S SIGNATURE:

MATRIX TYPES:
WW- WASTEWATER
DW- DRINKING WATER
GW- GROUND WATER
WWSL- SLUDGE
NAS- NON AQUEOUS SOLID
LCHT-LEACHATE
OIL-OIL
SO-SOIL
SOL-SOLID

③ ANALYSIS REQUESTED

④ (FOR LAB USE ONLY)
LOGIN # FL03252-04
LOGGED BY: gj
SIKESTON BMU, SIKESTON POWER STATION
SIKESTON BOTTOM ASH 2022 RESAMPLES
GJ SCHINDLER

② SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE CLIENT PROVIDED	TDS	CL, CA						REMARKS
MW-5	12-13-22	1243	X		GW	1	6	X							
MW-5 DUPLICATE	12-13-22		X		GW	1	6	X							
MW-6	12-13-22	1054	X		GW	2	3,6	X	X						
FIELD BLANK	12-13-22	1054	X		DI	2	3,6	X	X						

CHEMICAL PRESERVATION CODES: 1 – HCL | 2 – H2SO4 | 3 – HNO3 | 4 – NAOH | 5 – NA2S2O3 | 6 – UNPRESERVED | 7 – OTHER

⑤ TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PACE LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE
EMAIL IF DIFFERENT FROM ABOVE:
PHONE # IF DIFFERENT FROM ABOVE:

DATE RESULTS NEEDED

⑥ *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.*

PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) ______________

⑦ RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
	DATE 10-14-22 TIME 0900		DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED BY: (SIGNATURE)	DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED BY: (SIGNATURE)	DATE 12/15/22 TIME 1600

⑧ COMMENTS: (FOR LAB USE ONLY)
____
____

SAMPLE TEMPERATURE UPON RECEIPT 1.7 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT [✓ Y] OR N
SAMPLE(S) RECEIVED ON ICE [✓ Y] OR N
SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED Y OR [✓ N]
DATE AND TIME TAKEN FROM SAMPLE BOTTLE ______________

courier

Appendix 2c

Laboratory Analytical Results and QAQC Data – April 18, 2023 (First 2023 Semi-annual Event)

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

May 05, 2023

Luke St Mary
Sikeston BMU, Sikeston Power Station
1551 W Wakefield
Sikeston, MO 63801

RE: SIKESTON FLY BOTTOM ASH APP III

Dear Luke St Mary:

Please find enclosed the analytical results for the **7** sample(s) the laboratory received on **4/20/23 10:30 am** and logged in under work order **GD03480**. All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of Pace Analytical Services, LLC.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

Pace Analytical Services appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the General Manager, Lisa Grant, with any feedback you have about your experience with our laboratory at 309-683-1764 or lisa.grant@pacelabs.com.

Gail J Schindler

Gail Schindler
Project Manager
(309) 692-9688 x1716
gail.schindler@pacelabs.com

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

SAMPLE RECEIPT CHECK LIST

Items not applicable will be marked as in compliance

Work Order GD03480

YES	Samples received within temperature compliance when applicable
YES	COC present upon sample receipt
YES	COC completed & legible
YES	Sampler name & signature present
YES	Unique sample IDs assigned
YES	Sample collection location recorded
YES	Date & time collected recorded on COC
YES	Relinquished by client signature on COC
YES	COC & labels match
YES	Sample labels are legible
YES	Appropriate bottle(s) received
YES	Sufficient sample volume received
YES	Sample containers received undamaged
NO	Zero headspace, <6 mm present in VOA vials
NO	Trip blank(s) received
YES	All non-field analyses received within holding times
NO	Short hold time analysis
YES	Current PDC COC submitted
NO	Case narrative provided

ANALYTICAL RESULTS

Sample: GD03480-01
Name: MW-3
Matrix: Ground Water - Grab

Sampled: 04/18/23 07:58
Received: 04/20/23 10:30
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	1.2	mg/L		05/02/23 14:51	1	1.0	05/02/23 14:51	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		05/02/23 14:51	1	0.250	05/02/23 14:51	CRD	EPA 300.0 REV 2.1
Sulfate	12	mg/L		05/02/23 15:09	5	5.0	05/02/23 15:09	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	120	mg/L		04/25/23 10:57	1	26	04/25/23 11:58	HRF	SM 2540C
Total Metals - PIA									
Boron	23	ug/L		04/25/23 09:01	5	10	04/27/23 13:56	JMW	EPA 6020A
Calcium	15000	ug/L		04/25/23 09:01	5	200	04/27/23 13:56	JMW	EPA 6020A

Sample: GD03480-02
Name: MW-4
Matrix: Ground Water - Grab

Sampled: 04/18/23 14:03
Received: 04/20/23 10:30
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	10	mg/L		05/02/23 15:46	5	5.0	05/02/23 15:46	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		05/02/23 15:27	1	0.250	05/02/23 15:27	CRD	EPA 300.0 REV 2.1
Sulfate	76	mg/L		05/02/23 16:04	25	25	05/02/23 16:04	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	330	mg/L		04/21/23 11:04	1	26	04/21/23 17:08	CPS	SM 2540C
Total Metals - PIA									
Boron	680	ug/L		04/25/23 09:01	5	10	04/27/23 14:00	JMW	EPA 6020A
Calcium	72000	ug/L		04/25/23 09:01	5	200	04/27/23 14:00	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: GD03480-03
Name: MW-5
Matrix: Ground Water - Grab

Sampled: 04/18/23 10:05
Received: 04/20/23 10:30
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	13	mg/L		05/02/23 16:40	5	5.0	05/02/23 16:40	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		05/02/23 16:22	1	0.250	05/02/23 16:22	CRD	EPA 300.0 REV 2.1
Sulfate	210	mg/L		05/02/23 16:58	50	50	05/02/23 16:58	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	500	mg/L		04/21/23 11:04	1	26	04/21/23 17:08	CPS	SM 2540C
Total Metals - PIA									
Boron	340	ug/L		04/25/23 09:01	5	10	04/27/23 14:04	JMW	EPA 6020A
Calcium	120000	ug/L		04/25/23 09:01	5	200	04/27/23 14:04	JMW	EPA 6020A

Sample: GD03480-04
Name: MW-6
Matrix: Ground Water - Grab

Sampled: 04/18/23 08:51
Received: 04/20/23 10:30
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	5.0	mg/L		05/02/23 17:16	1	1.0	05/02/23 17:16	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		05/02/23 17:16	1	0.250	05/02/23 17:16	CRD	EPA 300.0 REV 2.1
Sulfate	29	mg/L		05/02/23 18:10	5	5.0	05/02/23 18:10	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	240	mg/L		04/21/23 11:04	1	26	04/21/23 17:08	CPS	SM 2540C
Total Metals - PIA									
Boron	57	ug/L		04/25/23 09:01	5	10	04/27/23 14:07	JMW	EPA 6020A
Calcium	46000	ug/L		04/25/23 09:01	5	200	04/27/23 14:07	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: GD03480-05
Name: MW-8
Matrix: Ground Water - Grab

Sampled: 04/18/23 11:23
Received: 04/20/23 10:30
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	44	mg/L		05/02/23 18:46	10	10	05/02/23 18:46	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		05/02/23 18:28	1	0.250	05/02/23 18:28	CRD	EPA 300.0 REV 2.1
Sulfate	110	mg/L		05/03/23 23:22	25	25	05/03/23 23:22	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	440	mg/L		04/21/23 11:04	1	26	04/21/23 17:08	CPS	SM 2540C
Total Metals - PIA									
Boron	420	ug/L		04/25/23 09:01	5	10	04/27/23 14:11	JMW	EPA 6020A
Calcium	92000	ug/L		04/25/23 09:01	5	200	04/27/23 14:11	JMW	EPA 6020A

Sample: GD03480-06
Name: DUPLICATE
Matrix: Ground Water - Grab

Sampled: 04/18/23 00:00
Received: 04/20/23 10:30
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	11	mg/L		05/02/23 19:23	5	5.0	05/02/23 19:23	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		05/02/23 19:04	1	0.250	05/02/23 19:04	CRD	EPA 300.0 REV 2.1
Sulfate	66	mg/L		05/02/23 19:41	50	50	05/02/23 19:41	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	300	mg/L		04/21/23 11:04	1	26	04/21/23 17:08	CPS	SM 2540C
Total Metals - PIA									
Boron	700	ug/L		04/25/23 09:01	5	10	04/27/23 14:15	JMW	EPA 6020A
Calcium	72000	ug/L		04/25/23 09:01	5	200	04/27/23 14:15	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: GD03480-07
Name: FIELD BLANK
Matrix: Ground Water - Grab

Sampled: 04/18/23 08:51
Received: 04/20/23 10:30
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	< 1.0	mg/L		05/02/23 19:59	1	1.0	05/02/23 19:59	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		05/02/23 19:59	1	0.250	05/02/23 19:59	CRD	EPA 300.0 REV 2.1
Sulfate	< 1.0	mg/L		05/02/23 19:59	1	1.0	05/02/23 19:59	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	< 17	mg/L		04/21/23 11:04	1	17	04/21/23 17:08	CPS	SM 2540C
Total Metals - PIA									
Boron	11	ug/L		04/25/23 09:01	5	10	04/27/23 14:19	JMW	EPA 6020A
Calcium	< 200	ug/L		04/25/23 09:01	5	200	04/27/23 14:19	JMW	EPA 6020A

NOTES

Specifications regarding method revisions, method modifications, and calculations used for analysis are available upon request. Please contact your project manager.

* Not a TNI accredited analyte

Certifications

CHI - McHenry, IL - 4314-A W. Crystal Lake Road, McHenry, IL 60050
TNI Accreditation for Drinking Water and Wastewater Fields of Testing through IL EPA Accreditation No. 100279
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL - 2231 W. Altorfer Drive, Peoria, IL 61615
TNI Accreditation for Drinking Water, Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. 100230
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications/Accreditations: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Solid and Hazardous Material Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - Hazelwood, MO - 944 Anglum Rd, Hazelwood, MO 63042
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through KS KDHE Certification No. E-10389
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. - 200080
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory, Registry No. 171050
Missouri Department of Natural Resources - Certificate of Approval for Microbiological Laboratory Service - No. 1050

Gail g Schindler

Certified by: Gail Schindler, Project Manager

NELAP ACCREDITED TNI LABORATORY

PACE ANALYTICAL SERVICES
WWW.PACELABS.COM

REGULATORY PROGRAM (CIRCLE):	NPDES
MORBCA	RCRA
CCDD	TACO: RES OR IND/COMM

CHAIN OF CUSTODY RECORD

STATE WHERE SAMPLE COLLECTED MO

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

① CLIENT: **SIKESTON BMU POWER STATION**

PROJECT NUMBER:

PROJECT LOCATION: BOTTOM ASH

PURCHASE ORDER #:

ADDRESS: **1551 W WAKEFIELD**

PHONE NUMBER: 573-475-3131

E-MAIL:

DATE SHIPPED:

CITY STAT ZIP: **SIKESTON, MO 63801**

SAMPLER (PLEASE PRINT): Anthony Duester

SAMPLER'S SIGNATURE:

CONTACT PERSON: **MR LUKE ST MARY**

MATRIX TYPES:
WW- WASTEWATER
DW- DRINKING WATER
GW- GROUND WATER
WWSL- SLUDGE
NAS- NON AQUEOUS SOLID
LCHT-LEACHATE
OIL-OIL
SO-SOIL
SOL-SOLID

③ ANALYSIS REQUESTED

④ (FOR LAB USE ONLY)
LOGIN # 6D03480
LOGGED BY: JPO
CLIENT: SIKESTON BMU, SIKESTON POWER STATION
PROJECT: SIKESTON BOTTOM ASH 2022
PROJ. MGR.: GJ SCHINDLER

② SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE CLIENT PROVIDED	CL, F, SO4, TDS	B, CA						REMARKS
MW-3	4-18-23	0758	X		GW	2	3,6	X	X						
MW-4	4-18-23	1403	X		GW	2	3,6	X	X						
MW-5	4-18-23	1005	X		GW	2	3,6	X	X						
MW-6	4-18-23	0851	X		GW	2	3,6	X	X						
MW-8	4-18-23	1123	X		GW	2	3,6	X	X						
DUPLICATE	4-18-23		X		GW	2	3,6	X	X						
FIELD BLANK	4-18-23	0851	X		DI	2	3,6	X	X						

CHEMICAL PRESERVATION CODES: 1 – HCL | 2 – H2SO4 | 3 – HNO3 | 4 – NAOH | 5 – NA2S2O3 | 6 – UNPRESERVED | 7 – OTHER

⑤ TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
DATE RESULTS NEEDED
RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE
EMAIL IF DIFFERENT FROM ABOVE:
PHONE # IF DIFFERENT FROM ABOVE:

⑥ *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.*

PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) ______________

⑦ RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
Ashish Patel	DATE 4-19-23 TIME 0800		DATE TIME
	DATE TIME		DATE TIME
	DATE TIME		DATE 4/20/23 TIME 1030

⑧ COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 1.1 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT [✓ Y] OR N
SAMPLE(S) RECEIVED ON ICE [✓ Y] OR N
SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED UPS Y OR [✓ N]
DATE AND TIME TAKEN FROM SAMPLE BOTTLE ______________

1 **CLIENT**: Client's company name
ADDRESS: Client's mailing address
CITY, STATE, ZIP: Client's city, state and zip code for mailing
CONTACT PERSON: Person to receive results
PROJECT NUMBER: Client's reference to the project or work involved with these samples.
PROJECT LOCATION: Client's location of project
PURCHASE ORDER NUMBER: Client's invoicing information
PHONE NUMBER: Client's contact phone number
E-MAIL: Client's e-mail for correspondence and final report
DATE SHIPPED: Month, date and year samples were shipped or delivered to the lab
SAMPLER: Printed name of sample collector
SAMPLER'S SIGNATURE: Signature of sample collector
REGULATORY PROGRAM: Circle regulatory program if applicable.
STATE WHERE SAMPLES COLLECTED: Enter the state if different from client address

2 **SAMPLE DESCRIPTION**: The unique sample description you want to appear on the analytical report
DATE COLLECTED: Date sample was collected. For composite samples, this is typically the date when the last aliquot was added.
TIME COLLECTED: Time sample was collected. For composite samples, this is typically the time when the last aliquot was added.
SAMPLE TYPE: Place a check mark in the box marked "GRAB" if the sample was collected at one time from one specific location. Place a check mark in the box marked "COMP" if the sample is a composite of samples collected at one or more times or locations and combined to make one sample.
MATRIX TYPE: From field above. If "OTHER" please identify
BOTLE COUNT: Total number of containers submitted for the samples
PRESERVATION CODE: Indicate bottle preservative using the codes on the front of the COC for non-PACE bottles, provided by the client.

3 **ANALYSIS REQUESTED**: Write the analysis name (or an abbreviation), the name of a group of tests, or the method number you would like us to perform. Examples are BOD, TCLP Metals, PCBs, Method 624, etc. Place a check mark in the small boxes that correspond to the sample(s) on which you want these tests performed.

REMARKS: List special instructions about the sample here. This space can also be used for listing additional analyses, or to request an extra copy of the report to be sent to an alternate person/address.

4 To be completed by laboratory personnel.

5 **TURNAROUND TIME REQUESTED**: Circle "NORMAL" if you want routine 10 working day TAT. If faster results are needed circle "RUSH", indicated the due date requested, and, if possible, call the lab in advance to schedule this work. Surcharges may apply for non-routine turnaround times.
RUSH RESULTS VIA: Choose method by which you would like to receive the RUSH results by circling either "PHONE" or E-MAIL". List the appropriate number/e-mail if different from that listed in section 1.

6 Place your initials on the line to give the lab permission to proceed with analysis without calling you regarding a sample nonconformance. If the sample does not meet the Sample Acceptance Policy requirements then the appropriate case narrative and/or data qualifiers will be added to the corresponding analysis and may not be acceptable to use for regulatory purposes. Contact your project manager for further information or to obtain a copy of the Sample Acceptance Policy.

Summarized Sample Acceptance Policy Requirements:

- Proper, full and completed chain-of-custody documentation
- Readable unique sample container identification written in indelible ink
- Appropriate sample container
- Sufficient sample volume to perform requested tests
- Received within required holding time
- Received within temperature preservation requirements
- Sample containers received in good condition (not leaking or broken)
- Any custody seal intact
- Properly preserved, and
- No headspace in volatile water samples

A data qualifier and/or case narrative will be added to the final test report when the above sample acceptance requirements are not met.
BOX 6 CANNOT BE USED FOR DRINKING WATER COMPLIANCE SAMPLES.

7 **RELINQUISHED BY/RECEIVED BY:** This form **must be signed** each time the sample(s) changes hands. Chain-of-Custody seals are available upon request if needed.

8 To be completed by laboratory personnel.

SAMPLE ACCEPTANCE POLICY – RECEIVING FACILITY'S SPECIFIC POLICY AVAILABLE FROM YOUR PROJECT MANAGER.

SERVING YOU IN THE FOLLOWING LOCATIONS

2231 W Altorfer Dr
Peoria, IL 61615
309-692-9688

944 Anglum Road
Hazelwood, MO 63042
314-432-0550

1805 W Sunset St.
Springfield, MO 65807
417-964-8924

4314-A Crystal Lake Rd
McHenry, IL 60050
815-344-4044

Thank you for using Pace Analytical Services, LLC
Please call 800-752-6651 if you have any questions about completing this form.

Appendix 2d

Laboratory Analytical Results and QAQC Data – May 23, 2023 (Re-sample)

Teklab, Inc.
Environmental Laboratory
http://www.teklabinc.com/

June 14, 2023

Luke St. Mary
Sikeston Board of Municipal Utilities
107 E Malone Ave
PO Box 370
Sikeston, MO 63801
TEL: (573) 475-3119
FAX:

Illinois	100226
Kansas	E-10374
Louisiana	05002
Louisiana	05003
Oklahoma	9978

RE: CCR BAP ReSample

WorkOrder: 23051831

Dear Luke St. Mary:

TEKLAB, INC received 1 sample on 5/26/2023 9:55:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Elizabeth A. Hurley

Elizabeth A. Hurley
Director of Customer Service
(618)344-1004 ex 33
ehurley@teklabinc.com

Report Contents

Client: Sikeston Board of Municipal Utilities

Client Project: CCR BAP ReSample

Work Order: 23051831

Report Date: 14-Jun-23

This reporting package includes the following:

Client: Sikeston Board of Municipal Utilities
Work Order: 23051831

Client Project: CCR BAP ReSample
Report Date: 14-Jun-23

Abbr	Definition
*	Analytes on report marked with an asterisk are not NELAP accredited
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
CRQL	A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.
DNI	Did not ignite
DUP	Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample is a sample matrix, free from the analytes of interest,spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	"The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method’s recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
NC	Data is not acceptable for compliance purposes
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions.
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
C -	RL shown is a Client Requested Quantitation Limit	E -	Value above quantitation range
H -	Holding times exceeded	I -	Associated internal standard was outside method criteria
J -	Analyte detected below quantitation limits	M -	Manual Integration used to determine area response
ND -	Not Detected at the Reporting Limit	R -	RPD outside accepted recovery limits
S -	Spike Recovery outside recovery limits	T -	TIC(Tentatively identified compound)
X -	Value exceeds Maximum Contaminant Level		

Case Narrative

Client: Sikeston Board of Municipal Utilities
Client Project: CCR BAP ReSample

Work Order: 23051831
Report Date: 14-Jun-23

Cooler Receipt Temp: 4.4 °C

Locations

Collinsville

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425
Phone (618) 344-1004
Fax (618) 344-1005
Email jhriley@teklabinc.com

Collinsville Air

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425
Phone (618) 344-1004
Fax (618) 344-1005
Email EHurley@teklabinc.com

Springfield

Address 3920 Pintail Dr
Springfield, IL 62711-9415
Phone (217) 698-1004
Fax (217) 698-1005
Email KKlostermann@teklabinc.com

Chicago

Address 1319 Butterfield Rd.
Downers Grove, IL 60515
Phone (630) 324-6855
Fax
Email arenner@teklabinc.com

Kansas City

Address 8421 Nieman Road
Lenexa, KS 66214
Phone (913) 541-1998
Fax (913) 541-1998
Email jhriley@teklabinc.com

Accreditations

Client: Sikeston Board of Municipal Utilities
Work Order: 23051831
Client Project: CCR BAP ReSample
Report Date: 14-Jun-23

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2024	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2024	Collinsville
Louisiana	LDEQ	05002	NELAP	6/30/2023	Collinsville
Louisiana	LDEQ	05003	NELAP	6/30/2023	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2023	Collinsville
Arkansas	ADEQ	88-0966		3/14/2024	Collinsville
Illinois	IDPH	17584		5/31/2025	Collinsville
Iowa	IDNR	430		6/1/2024	Collinsville
Kentucky	UST	0073		1/31/2024	Collinsville
Missouri	MDNR	00930		5/31/2023	Collinsville
Missouri	MDNR	930		1/31/2025	Collinsville

Client: Sikeston Board of Municipal Utilities

Work Order: 23051831

Client Project: CCR BAP ReSample

Report Date: 14-Jun-23

Lab ID: 23051831-001

Client Sample ID: MW-6

Matrix: GROUNDWATER

Collection Date: 05/23/2023 7:49

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 9251 (TOTAL)								
Chloride	NELAP	4		**4**	mg/L	1	06/09/2023 0:00	R330074

SW-846 9251 (TOTAL)

Batch **R330074** **SampType:** **MBLK** Units **mg/L**

SampID: ICB/MBLK

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		4		**< 4**	0.5000	0	0	-100	100	06/09/2023

Batch **R330074** **SampType:** **LCS** Units **mg/L**

SampID: ICV/LCS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		4		**19**	20.00	0	94.4	90	110	06/09/2023

Batch **R330074** **SampType:** **MS** Units **mg/L**

SampID: 23050117-003FMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		20		**185**	100.0	96.87	88.3	85	115	06/09/2023

Batch **R330074** **SampType:** **MSD** Units **mg/L** RPD Limit: **15**

SampID: 23050117-003FMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride		20		**187**	100.0	96.87	90.5	185.2	1.17	06/09/2023

Batch **R330074** **SampType:** **MS** Units **mg/L**

SampID: 23050117-005EMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		4		**38**	20.00	19.12	93.1	85	115	06/09/2023

Batch **R330074** **SampType:** **MSD** Units **mg/L** RPD Limit: **15**

SampID: 23050117-005EMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride		4		**38**	20.00	19.12	93.6	37.73	0.29	06/09/2023

Batch **R330074** **SampType:** **MS** Units **mg/L**

SampID: 23050117-005FMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		4		**38**	20.00	19.81	89.0	85	115	06/09/2023

Batch **R330074** **SampType:** **MSD** Units **mg/L** RPD Limit: **15**

SampID: 23050117-005FMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride		4		**38**	20.00	19.81	91.4	37.62	1.22	06/09/2023

Client: Sikeston Board of Municipal Utilities
Work Order: 23051831

Client Project: CCR BAP ReSample
Report Date: 14-Jun-23

SW-846 9251 (TOTAL)

Batch **R330074** **SampType:** **MS** Units **mg/L**
SampID: 23051711-001AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		4		**35**	20.00	16.21	92.3	85	115	06/09/2023

Batch **R330074** **SampType:** **MSD** Units **mg/L** RPD Limit: **15**
SampID: 23051711-001AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride		4		**35**	20.00	16.21	91.8	34.66	0.26	06/09/2023

Batch **R330074** **SampType:** **MS** Units **mg/L**
SampID: 23051776-003AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		40		**413**	200.0	229.6	91.6	85	115	06/09/2023

Batch **R330074** **SampType:** **MSD** Units **mg/L** RPD Limit: **15**
SampID: 23051776-003AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride		40		**410**	200.0	229.6	90.3	412.9	0.64	06/09/2023

Receiving Check List

Client: Sikeston Board of Municipal Utilities
Work Order: 23051831
Client Project: CCR BAP ReSample
Report Date: 14-Jun-23

Carrier: UPS
Received By: ANC

Completed by: Elizabeth A. Hurley
On:
26-May-23
Elizabeth A. Hurley

Reviewed by: Ellie Hopkins
On:
26-May-23
Ellie Hopkins

Pages to follow: Chain of custody [1] Extra pages included [0]

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 4.4
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice ☐
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☐	No ☐	No VOA vials ☑
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	NA ☐
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑

Any No responses must be detailed below or on the COC.

CHAIN OF CUSTODY

pg. 1 of 1 Work order # 23051831

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

Client: Sikeston Board of Municipal Utilities
Address: Sikeston Power Station
City / State / Zip Sikeston, MO 63801
Contact: Ashish Patel **Phone:** (573) 475-3119
E-Mail: apatel@sbmu.net **Fax:**

Samples on: ☒ ICE ☐ BLUE ICE ☐ NO ICE 4.4 °C LTG# 5
Preserved in: ☐ LAB ☐ FIELD **FOR LAB USE ONLY**
Lab Notes:
project = SBMU-SPS Bottom Ash Pond

Client Comments
Report from the container provided for NPDES Groundwater monitoring.

Are these samples known to be involved in litigation? If yes, a surcharge will apply ☐ Yes ☐ No
Are these samples known to be hazardous? ☐ Yes ☐ No
Are there any required reporting limits to be met on the requested analysis?. If yes, please provide limits in the comment section. ☐ Yes ☐ No

Project Name/Number: CCR BAP ReSample
Sample Collector's Name: Anthony Dresen

Results Requested
☐ Standard ☐ 1-2 Day (100% Surcharge)
☐ Other ____ ☐ 3 Day (50% Surcharge)

Billing Instructions

Lab Use Only	Sample Identification	Date/Time Sampled	# and Type of Containers: UNP	MATRIX: Groundwater	INDICATE ANALYSIS REQUESTED: Chloride
23051831-001	MW-6	5-23-23/0749	0	X	X

Relinquished By	Date/Time	Received By	Date/Time
Ashish Patel	5-24-2023/0730	Allison Cole	5/26/23 0955 (UPS)

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client. See www.teklabinc.com for terms and conditions.

BottleOrder: 79954

Appendix 2e

Laboratory Analytical Results and QAQC Data – October 11, 2023 (Second 2023 Semi-annual Event)

Teklab, Inc.
Environmental Laboratory
http://www.teklabinc.com/

October 23, 2023

Luke St. Mary
Sikeston Board of Municipal Utilities
107 E Malone Ave
PO Box 370
Sikeston, MO 63801
TEL: (573) 475-3119
FAX:

Illinois	100226
Kansas	E-10374
Louisiana	05002
Louisiana	05003
Oklahoma	9978

RE: Bottom Ash Pond (BAP) **WorkOrder:** 23101081

Dear Luke St. Mary:

TEKLAB, INC received 8 samples on 10/13/2023 9:40:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Elizabeth A. Hurley

Elizabeth A. Hurley
Director of Customer Service
(618)344-1004 ex 33
ehurley@teklabinc.com

Report Contents

Client: Sikeston Board of Municipal Utilities

Work Order: 23101081

Client Project: Bottom Ash Pond (BAP)

Report Date: 23-Oct-23

This reporting package includes the following:

Definitions

Client: Sikeston Board of Municipal Utilities
Work Order: 23101081
Client Project: Bottom Ash Pond (BAP)
Report Date: 23-Oct-23

Abbr	Definition
*	Analytes on report marked with an asterisk are not NELAP accredited
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
CRQL	A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.
DNI	Did not ignite
DUP	Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.
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IDPH	IL Dept. of Public Health
LCS	Laboratory control sample is a sample matrix, free from the analytes of interest,spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.
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MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	"The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method’s recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
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SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
C -	RL shown is a Client Requested Quantitation Limit	E -	Value above quantitation range
H -	Holding times exceeded	I -	Associated internal standard was outside method criteria
J -	Analyte detected below quantitation limits	M -	Manual Integration used to determine area response
ND -	Not Detected at the Reporting Limit	R -	RPD outside accepted recovery limits
S -	Spike Recovery outside recovery limits	T -	TIC(Tentatively identified compound)
X -	Value exceeds Maximum Contaminant Level		

Case Narrative

Client: Sikeston Board of Municipal Utilities

Work Order: 23101081

Client Project: Bottom Ash Pond (BAP)

Report Date: 23-Oct-23

Cooler Receipt Temp: 4.8 °C

Per Ken Ewers, report field pH for the groundwater samples. EAH 10/19/23

Locations

Collinsville

Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004
Fax	(618) 344-1005
Email	jhriley@teklabinc.com

Springfield

Address	3920 Pintail Dr Springfield, IL 62711-9415
Phone	(217) 698-1004
Fax	(217) 698-1005
Email	KKlostermann@teklabinc.com

Kansas City

Address	8421 Nieman Road Lenexa, KS 66214
Phone	(913) 541-1998
Fax	(913) 541-1998
Email	jhriley@teklabinc.com

Collinsville Air

Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004
Fax	(618) 344-1005
Email	EHurley@teklabinc.com

Chicago

Address	1319 Butterfield Rd. Downers Grove, IL 60515
Phone	(630) 324-6855
Fax	
Email	arenner@teklabinc.com

Accreditations

Client: Sikeston Board of Municipal Utilities **Work Order:** 23101081

Client Project: Bottom Ash Pond (BAP) **Report Date:** 23-Oct-23

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2024	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2024	Collinsville
Louisiana	LDEQ	05002	NELAP	6/30/2024	Collinsville
Louisiana	LDEQ	05003	NELAP	6/30/2024	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2024	Collinsville
Arkansas	ADEQ	88-0966		3/14/2024	Collinsville
Illinois	IDPH	17584		5/31/2025	Collinsville
Iowa	IDNR	430		6/1/2024	Collinsville
Kentucky	UST	0073		1/31/2024	Collinsville
Missouri	MDNR	00930		5/31/2023	Collinsville
Missouri	MDNR	930		1/31/2025	Collinsville

Client: Sikeston Board of Municipal Utilities

Work Order: 23101081

Client Project: Bottom Ash Pond (BAP)

Report Date: 23-Oct-23

Lab ID: 23101081-001

Client Sample ID: MW-3

Matrix: GROUNDWATER

Collection Date: 10/11/2023 8:05

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 9040B FIELD									
pH	*	0	1.00		**6.49**		1	10/11/2023 8:05	R337931
STANDARD METHODS 2540 C (TOTAL) 1997, 2011									
Total Dissolved Solids	NELAP	20	20		**122**	mg/L	1	10/16/2023 12:51	R337858
SW-846 9036 (TOTAL)									
Sulfate	NELAP	10	10		**11**	mg/L	1	10/17/2023 2:38	R337819
SW-846 9214 (TOTAL)									
Fluoride	NELAP	0.25	0.25		**< 0.25**	mg/L	1	10/16/2023 11:53	R337786
SW-846 9251 (TOTAL)									
Chloride	NELAP	1	4		**< 4**	mg/L	1	10/17/2023 2:37	R337841
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)									
Boron	NELAP	10.0	10.0		**13.9**	µg/L	1	10/19/2023 15:15	213345
Calcium	NELAP	0.200	0.200		**15.5**	mg/L	1	10/19/2023 15:15	213345

Client: Sikeston Board of Municipal Utilities **Work Order:** 23101081

Client Project: Bottom Ash Pond (BAP) **Report Date:** 23-Oct-23

Lab ID: 23101081-002 **Client Sample ID:** MW-4

Matrix: GROUNDWATER **Collection Date:** 10/11/2023 11:35

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 9040B FIELD									
pH	*	0	1.00		**7.25**		1	10/11/2023 11:35	R337931
STANDARD METHODS 2540 C (TOTAL) 1997, 2011									
Total Dissolved Solids	NELAP	50	50		**335**	mg/L	2.5	10/16/2023 12:51	R337858
SW-846 9036 (TOTAL)									
Sulfate	NELAP	50	50		**88**	mg/L	5	10/17/2023 12:56	R337890
SW-846 9214 (TOTAL)									
Fluoride	NELAP	0.25	0.25		**< 0.25**	mg/L	1	10/16/2023 11:55	R337786
SW-846 9251 (TOTAL)									
Chloride	NELAP	1	4		**14**	mg/L	1	10/17/2023 3:12	R337841
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)									
Boron	NELAP	10.0	10.0		**940**	µg/L	1	10/19/2023 15:17	213345
Calcium	NELAP	0.200	0.200		**81.1**	mg/L	1	10/19/2023 15:17	213345

Client: Sikeston Board of Municipal Utilities

Work Order: 23101081

Client Project: Bottom Ash Pond (BAP)

Report Date: 23-Oct-23

Lab ID: 23101081-003

Client Sample ID: MW-5

Matrix: GROUNDWATER

Collection Date: 10/11/2023 9:58

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 9040B FIELD									
pH	*	0	1.00		**6.83**		1	10/11/2023 9:58	R337931
STANDARD METHODS 2540 C (TOTAL) 1997, 2011									
Total Dissolved Solids	NELAP	50	50		**435**	mg/L	2.5	10/16/2023 12:51	R337858
SW-846 9036 (TOTAL)									
Sulfate	NELAP	100	100		**172**	mg/L	10	10/17/2023 3:26	R337819
SW-846 9214 (TOTAL)									
Fluoride	NELAP	0.25	0.25		**< 0.25**	mg/L	1	10/16/2023 12:03	R337786
SW-846 9251 (TOTAL)									
Chloride	NELAP	1	4		**15**	mg/L	1	10/17/2023 3:20	R337841
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)									
Boron	NELAP	10.0	10.0		**405**	µg/L	1	10/19/2023 15:18	213345
Calcium	NELAP	0.200	0.200		**106**	mg/L	1	10/19/2023 15:18	213345

Client: Sikeston Board of Municipal Utilities **Work Order:** 23101081

Client Project: Bottom Ash Pond (BAP) **Report Date:** 23-Oct-23

Lab ID: 23101081-004 **Client Sample ID:** MW-6

Matrix: GROUNDWATER **Collection Date:** 10/11/2023 8:50

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 9040B FIELD									
pH	*	0	1.00		**6.80**		1	10/11/2023 8:50	R337931
STANDARD METHODS 2540 C (TOTAL) 1997, 2011									
Total Dissolved Solids	NELAP	50	50		**250**	mg/L	2.5	10/16/2023 12:52	R337858
SW-846 9036 (TOTAL)									
Sulfate	NELAP	10	10		**25**	mg/L	1	10/17/2023 3:28	R337819
SW-846 9214 (TOTAL)									
Fluoride	NELAP	0.25	0.25		**< 0.25**	mg/L	1	10/16/2023 12:06	R337786
SW-846 9251 (TOTAL)									
Chloride	NELAP	1	4	J	**3**	mg/L	1	10/17/2023 3:28	R337841
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)									
Boron	NELAP	10.0	10.0		**47.6**	µg/L	1	10/19/2023 15:40	213345
Calcium	NELAP	0.200	0.200	S	**46.7**	mg/L	1	10/19/2023 15:40	213345

Matrix spike control limits are not applicable due to high sample/spike ratio.

Client: Sikeston Board of Municipal Utilities
Work Order: 23101081
Client Project: Bottom Ash Pond (BAP)
Report Date: 23-Oct-23
Lab ID: 23101081-005
Client Sample ID: MW-8
Matrix: GROUNDWATER
Collection Date: 10/11/2023 10:37

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 9040B FIELD									
pH	*	0	1.00		**7.07**		1	10/11/2023 10:37	R337931
STANDARD METHODS 2540 C (TOTAL) 1997, 2011									
Total Dissolved Solids	NELAP	50	50		**455**	mg/L	2.5	10/16/2023 12:52	R337858
SW-846 9036 (TOTAL)									
Sulfate	NELAP	100	100		**102**	mg/L	10	10/17/2023 3:41	R337819
SW-846 9214 (TOTAL)									
Fluoride	NELAP	0.25	0.25		**< 0.25**	mg/L	1	10/16/2023 12:08	R337786
SW-846 9251 (TOTAL)									
Chloride	NELAP	1	4		**44**	mg/L	1	10/17/2023 3:36	R337841
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)									
Boron	NELAP	10.0	10.0		**423**	µg/L	1	10/19/2023 15:44	213345
Calcium	NELAP	0.200	0.200		**96.5**	mg/L	1	10/19/2023 15:44	213345

Client: Sikeston Board of Municipal Utilities
Work Order: 23101081
Client Project: Bottom Ash Pond (BAP)
Report Date: 23-Oct-23
Lab ID: 23101081-006
Client Sample ID: Duplicate
Matrix: GROUNDWATER
Collection Date: 10/11/2023 0:00

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 9040B FIELD									
pH	*	0	1.00		**7.07**		1	10/11/2023 0:00	R337931
STANDARD METHODS 2540 C (TOTAL) 1997, 2011									
Total Dissolved Solids	NELAP	50	50		**460**	mg/L	2.5	10/16/2023 12:53	R337858
SW-846 9036 (TOTAL)									
Sulfate	NELAP	100	100		**103**	mg/L	10	10/17/2023 3:50	R337819
SW-846 9214 (TOTAL)									
Fluoride	NELAP	0.25	0.25		**< 0.25**	mg/L	1	10/16/2023 12:10	R337786
SW-846 9251 (TOTAL)									
Chloride	NELAP	1	4		**44**	mg/L	1	10/17/2023 3:44	R337841
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)									
Boron	NELAP	10.0	10.0		**423**	µg/L	1	10/19/2023 15:46	213345
Calcium	NELAP	0.200	0.200		**97.2**	mg/L	1	10/19/2023 15:46	213345

Laboratory Results

Client: Sikeston Board of Municipal Utilities **Work Order:** 23101081

Client Project: Bottom Ash Pond (BAP) **Report Date:** 23-Oct-23

Lab ID: 23101081-007 **Client Sample ID:** Field Blank

Matrix: AQUEOUS **Collection Date:** 10/11/2023 8:50

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011									
Total Dissolved Solids	NELAP	20	20		**28**	mg/L	1	10/16/2023 12:53	R337858
SW-846 9036 (TOTAL)									
Sulfate	NELAP	10	10		**< 10**	mg/L	1	10/17/2023 4:08	R337819
SW-846 9040B, LABORATORY ANALYZED									
Lab pH	NELAP	0	1.00	H	**5.43**		1	10/17/2023 10:41	R337830
SW-846 9214 (TOTAL)									
Fluoride	NELAP	0.25	0.25		**< 0.25**	mg/L	1	10/16/2023 12:13	R337786
SW-846 9251 (TOTAL)									
Chloride	NELAP	1	4		**< 4**	mg/L	1	10/17/2023 4:08	R337841
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)									
Boron	NELAP	10.0	10.0		**< 10.0**	µg/L	1	10/19/2023 15:47	213345
Calcium	NELAP	0.200	0.200		**< 0.200**	mg/L	1	10/19/2023 15:47	213345

Client: Sikeston Board of Municipal Utilities
Work Order: 23101081
Client Project: Bottom Ash Pond (BAP)
Report Date: 23-Oct-23
Lab ID: 23101081-008
Client Sample ID: Trip Blank
Matrix: TRIP BLANK
Collection Date: 10/13/2023 9:40

Analyses	Certification	MDL	RL	Qual	Result	Units	DF	Date Analyzed	Batch
STANDARD METHODS 2540 C (TOTAL) 1997, 2011									
Total Dissolved Solids	NELAP	20	20		**26**	mg/L	1	10/16/2023 12:53	R337858
SW-846 9036 (TOTAL)									
Sulfate	NELAP	10	10		**< 10**	mg/L	1	10/17/2023 4:16	R337819
SW-846 9040B, LABORATORY ANALYZED									
Lab pH	NELAP	0	1.00	RH	**5.52**		1	10/16/2023 9:17	R337767
RPD for DUP was outside control limits due to sample composition. *Consistent results were not achieved across multiple prep and analyses. The highest result is reported.*									
SW-846 9214 (TOTAL)									
Fluoride	NELAP	0.25	0.25		**< 0.25**	mg/L	1	10/16/2023 12:15	R337786
SW-846 9251 (TOTAL)									
Chloride	NELAP	1	4		**< 4**	mg/L	1	10/17/2023 4:16	R337841
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)									
Boron	NELAP	10.0	10.0		**< 10.0**	µg/L	1	10/19/2023 15:49	213345
Calcium	NELAP	0.200	0.200		**< 0.200**	mg/L	1	10/19/2023 15:49	213345

STANDARD METHODS 2540 C (TOTAL) 1997, 2011

Batch R337858 **SampType:** MBLK Units **mg/L**
SampID: MBLK

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids		20		**< 20**	16.00	0	0	-100	100	10/16/2023
Total Dissolved Solids		20		**< 20**	16.00	0	0	-100	100	10/16/2023

Batch R337858 **SampType:** LCS Units **mg/L**
SampID: LCS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids		20		**920**	1000	0	92.0	90	110	10/16/2023
Total Dissolved Solids		20		**952**	1000	0	95.2	90	110	10/16/2023

Batch R337858 **SampType:** DUP Units **mg/L** RPD Limit **10**
SampID: 23091794-040ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Dissolved Solids		50		**3600**				3545	1.54	10/16/2023

Batch R337858 **SampType:** DUP Units **mg/L** RPD Limit **10**
SampID: 23100935-003ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Total Dissolved Solids		20		**530**				530.0	0.00	10/16/2023

SW-846 9036 (TOTAL)

Batch R337819 **SampType:** MBLK Units **mg/L**
SampID: ICB/MBLK

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		10		**< 10**	6.140	0	0	-100	100	10/16/2023

Batch R337819 **SampType:** LCS Units **mg/L**
SampID: ICV/LCS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		10		**19**	20.00	0	95.5	90	110	10/16/2023

Batch R337819 **SampType:** MS Units **mg/L**
SampID: 23091794-006AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		50		**211**	100.0	113.2	97.6	85	115	10/16/2023

Client: Sikeston Board of Municipal Utilities

Client Project: Bottom Ash Pond (BAP)

Work Order: 23101081

Report Date: 23-Oct-23

SW-846 9036 (TOTAL)

Batch **R337819** **SampType:** **MSD** Units **mg/L** RPD Limit **10**
SampID: 23091794-006AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate		50		**207**	100.0	113.2	94.0	210.8	1.69	10/16/2023

Batch **R337819** **SampType:** **MS** Units **mg/L**
SampID: 23091794-006BMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		50		**209**	100.0	118.2	91.2	85	115	10/16/2023

Batch **R337819** **SampType:** **MSD** Units **mg/L** RPD Limit **10**
SampID: 23091794-006BMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate		50		**209**	100.0	118.2	90.6	209.4	0.29	10/16/2023

Batch **R337819** **SampType:** **MS** Units **mg/L**
SampID: 23091794-060BMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		100		**458**	200.0	275.7	91.0	85	115	10/16/2023

Batch **R337819** **SampType:** **MSD** Units **mg/L** RPD Limit **10**
SampID: 23091794-060BMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate		100		**459**	200.0	275.7	91.7	457.7	0.32	10/16/2023

Batch **R337819** **SampType:** **MS** Units **mg/L**
SampID: 23091794-101BMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		500		**1880**	1000	929.5	95.1	85	115	10/16/2023

Batch **R337819** **SampType:** **MSD** Units **mg/L** RPD Limit **10**
SampID: 23091794-101BMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate		500		**1840**	1000	929.5	91.3	1881	2.04	10/16/2023

Batch **R337819** **SampType:** **MS** Units **mg/L**
SampID: 23091794-103AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		10	S	**22**	20.00	10.85	55.8	85	115	10/17/2023

SW-846 9036 (TOTAL)

Batch R337819 **SampType:** MSD Units **mg/L** RPD Limit **10**

SampID: 23091794-103AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate		10	S	**22**	20.00	10.85	56.8	22.02	0.86	10/17/2023

Batch R337819 **SampType:** MS Units **mg/L**

SampID: 23101081-001AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		10		**28**	20.00	10.73	88.5	85	115	10/17/2023

Batch R337819 **SampType:** MSD Units **mg/L** RPD Limit **10**

SampID: 23101081-001AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate		10		**28**	20.00	10.73	88.2	28.43	0.25	10/17/2023

Batch R337890 **SampType:** MBLK Units **mg/L**

SampID: ICB/MBLK

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		10		**< 10**	6.140	0	0	-100	100	10/17/2023

Batch R337890 **SampType:** LCS Units **mg/L**

SampID: ICV/LCS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		10		**19**	20.00	0	93.9	90	110	10/17/2023

Batch R337890 **SampType:** MS Units **mg/L**

SampID: 23101090-001AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		100		**499**	200.0	325.3	86.9	85	115	10/17/2023

Batch R337890 **SampType:** MSD Units **mg/L** RPD Limit **10**

SampID: 23101090-001AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate		100		**496**	200.0	325.3	85.3	499.1	0.64	10/17/2023

Batch R337890 **SampType:** MS Units **mg/L**

SampID: 23101094-001AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		100		**410**	200.0	232.2	89.0	85	115	10/17/2023

Quality Control Results

Client: Sikeston Board of Municipal Utilities
Client Project: Bottom Ash Pond (BAP)

Work Order: 23101081
Report Date: 23-Oct-23

SW-846 9036 (TOTAL)

Batch R337890 **SampType:** MSD Units **mg/L** RPD Limit **10**
SampID: 23101094-001AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate		100		**412**	200.0	232.2	90.0	410.2	0.47	10/17/2023

Batch R337890 **SampType:** MS Units **mg/L**
SampID: 23101248-002AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		10	S	**24**	20.00	8.620	75.2	85	115	10/17/2023

Batch R337890 **SampType:** MSD Units **mg/L** RPD Limit **10**
SampID: 23101248-002AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate		10	S	**25**	20.00	8.620	79.4	23.65	3.57	10/17/2023

SW-846 9040B, LABORATORY ANALYZED

Batch R337767 **SampType:** LCS Units
SampID: LCS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab pH		1.00		**6.97**	7.000	0	99.6	99.29	100.7	10/16/2023

Batch R337767 **SampType:** DUP Units RPD Limit **10**
SampID: 23101081-008ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	RH	**5.41**				5.520	2.01	10/16/2023

Batch R337767 **SampType:** DUP Units RPD Limit **10**
SampID: 23101053-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**5.37**				5.370	0.00	10/16/2023

Batch R337767 **SampType:** DUP Units RPD Limit **10**
SampID: 23101060-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**6.37**				6.410	0.63	10/16/2023

SW-846 9040B, LABORATORY ANALYZED

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101069-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.37**				7.370	0.00	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101069-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.68**				7.680	0.00	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101070-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**8.02**				8.000	0.25	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101070-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.87**				7.860	0.13	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101076-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.69**				7.700	0.13	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101076-005ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.64**				7.640	0.00	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101084-001BDUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**11.5**				11.50	0.00	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101090-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.30**				7.300	0.00	10/16/2023

Client: Sikeston Board of Municipal Utilities
Work Order: 23101081
Client Project: Bottom Ash Pond (BAP)
Report Date: 23-Oct-23

SW-846 9040B, LABORATORY ANALYZED

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101090-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.20**				7.200	0.00	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101090-003ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.09**				7.100	0.14	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101090-004ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.25**				7.250	0.00	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101090-005ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.23**				7.240	0.14	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101091-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**6.80**				6.820	0.29	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101091-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**6.88**				6.900	0.29	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101091-003ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.41**				7.410	0.00	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101091-004ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.21**				7.230	0.28	10/16/2023

Client: Sikeston Board of Municipal Utilities **Work Order:** 23101081

Client Project: Bottom Ash Pond (BAP) **Report Date:** 23-Oct-23

SW-846 9040B, LABORATORY ANALYZED

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101092-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.02**				7.020	0.00	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101093-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**8.43**				8.490	0.71	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101094-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**8.93**				8.930	0.00	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101096-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.47**				7.470	0.00	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101099-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.99**				7.990	0.00	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101113-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**8.38**				8.430	0.59	10/16/2023

Batch **R337767** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101113-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**8.43**				8.450	0.24	10/16/2023

Batch **R337830** **SampType:** **LCS** Units

SampID: LCS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab pH		1.00		**6.97**	7.000	0	99.6	99.29	100.7	10/17/2023

Quality Control Results

Client: Sikeston Board of Municipal Utilities

Client Project: Bottom Ash Pond (BAP)

Work Order: 23101081

Report Date: 23-Oct-23

SW-846 9040B, LABORATORY ANALYZED

Batch **R337830** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101081-007ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**5.42**				5.430	0.18	10/17/2023

Batch **R337830** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101076-003ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**11.4**				11.42	0.26	10/17/2023

Batch **R337830** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101076-007ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.80**				7.830	0.38	10/17/2023

Batch **R337830** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101155-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**5.64**				5.640	0.00	10/17/2023

Batch **R337830** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101171-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.30**				7.300	0.00	10/17/2023

Batch **R337830** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101171-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.72**				7.710	0.13	10/17/2023

Batch **R337830** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101204-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**6.76**				6.730	0.44	10/17/2023

Batch **R337830** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101204-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.81**				7.820	0.13	10/17/2023

Client: Sikeston Board of Municipal Utilities
Work Order: 23101081
Client Project: Bottom Ash Pond (BAP)
Report Date: 23-Oct-23

SW-846 9040B, LABORATORY ANALYZED

Batch **R337830** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101204-003ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.92**				7.880	0.51	10/17/2023

Batch **R337830** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101209-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.47**				7.380	1.21	10/17/2023

Batch **R337830** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101222-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.50**				7.500	0.00	10/17/2023

Batch **R337888** **SampType:** **LCS** Units
SampID: LCS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab pH		1.00		**6.98**	7.000	0	99.7	99.29	100.7	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101092-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.27**				7.280	0.14	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101232-001BDUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.73**				7.660	0.91	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101234-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.22**				7.290	0.96	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101234-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.27**				7.300	0.41	10/18/2023

Client: Sikeston Board of Municipal Utilities **Work Order:** 23101081

Client Project: Bottom Ash Pond (BAP) **Report Date:** 23-Oct-23

SW-846 9040B, LABORATORY ANALYZED

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101234-003ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.35**				7.350	0.00	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101234-004ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.33**				7.290	0.55	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101234-005ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.34**				7.390	0.68	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101259-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.66**				7.640	0.26	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101269-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.60**				7.600	0.00	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101282-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.71**				7.670	0.52	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101288-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**5.86**				5.860	0.00	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101329-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.09**				7.090	0.00	10/18/2023

Client: Sikeston Board of Municipal Utilities
Work Order: 23101081

Client Project: Bottom Ash Pond (BAP)
Report Date: 23-Oct-23

SW-846 9040B, LABORATORY ANALYZED

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101332-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.72**				7.680	0.52	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101332-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**8.47**				8.490	0.24	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101360-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.67**				7.650	0.26	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101361-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**11.4**				11.42	0.18	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101362-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.61**				7.610	0.00	10/18/2023

Batch **R337888** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101363-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.56**				7.550	0.13	10/18/2023

Batch **R337943** **SampType:** **LCS** Units
SampID: LCS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab pH		1.00		**6.97**	7.000	0	99.6	99.29	100.7	10/19/2023

Batch **R337943** **SampType:** **DUP** Units RPD Limit **10**
SampID: 23100005-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.67**				7.660	0.13	10/19/2023

Client: Sikeston Board of Municipal Utilities

Client Project: Bottom Ash Pond (BAP)

Work Order: 23101081

Report Date: 23-Oct-23

SW-846 9040B, LABORATORY ANALYZED

Batch **R337943** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101317-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**6.84**				6.830	0.15	10/19/2023

Batch **R337943** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101317-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**6.72**				6.750	0.45	10/19/2023

Batch **R337943** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101339-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.29**				7.290	0.00	10/19/2023

Batch **R337943** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101339-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.32**				7.300	0.27	10/19/2023

Batch **R337943** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101339-003ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.43**				7.450	0.27	10/19/2023

Batch **R337943** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101339-004ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.38**				7.410	0.41	10/19/2023

Batch **R337943** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101340-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.27**				7.310	0.55	10/19/2023

Batch **R337943** **SampType:** **DUP** Units RPD Limit **10**

SampID: 23101386-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**6.22**				6.240	0.32	10/19/2023

Client: Sikeston Board of Municipal Utilities
Work Order: 23101081
Client Project: Bottom Ash Pond (BAP)
Report Date: 23-Oct-23

SW-846 9040B, LABORATORY ANALYZED

Batch R337943 **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101394-002ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**5.15**				5.160	0.19	10/19/2023

Batch R337943 **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101442-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.82**				7.810	0.13	10/19/2023

Batch R337943 **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101463-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.61**				7.610	0.00	10/19/2023

Batch R337943 **SampType:** **DUP** Units RPD Limit **10**
SampID: 23101472-001ADUP

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH		1.00	H	**7.87**				7.860	0.13	10/19/2023

SW-846 9214 (TOTAL)

Batch R337786 **SampType:** **MBLK** Units **mg/L**
SampID: MBLK

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		**< 0.10**	0.0500	0	0	-100	100	10/16/2023

Batch R337786 **SampType:** **LCS** Units **mg/L**
SampID: LCS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		**1.01**	1.000	0	101.1	90	110	10/16/2023

Batch R337786 **SampType:** **MS** Units **mg/L**
SampID: 23091794-016AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		**2.35**	2.000	0.2150	106.6	75	125	10/16/2023

Client: Sikeston Board of Municipal Utilities **Work Order:** 23101081

Client Project: Bottom Ash Pond (BAP) **Report Date:** 23-Oct-23

SW-846 9214 (TOTAL)

Batch **R337786** **SampType:** **MSD** Units **mg/L** RPD Limit **15**

SampID: 23091794-016AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Fluoride		0.10		**2.66**	2.000	0.2150	122.2	2.348	12.39	10/16/2023

Batch **R337786** **SampType:** **MS** Units **mg/L**

SampID: 23091794-023AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		**2.98**	2.000	0.9210	103.1	75	125	10/16/2023

Batch **R337786** **SampType:** **MSD** Units **mg/L** RPD Limit **15**

SampID: 23091794-023AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Fluoride		0.10		**2.98**	2.000	0.9210	102.9	2.983	0.13	10/16/2023

Batch **R337786** **SampType:** **MS** Units **mg/L**

SampID: 23091794-028BMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		**2.06**	2.000	0.2180	92.4	75	125	10/16/2023

Batch **R337786** **SampType:** **MSD** Units **mg/L** RPD Limit **15**

SampID: 23091794-028BMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Fluoride		0.10		**2.12**	2.000	0.2180	94.9	2.065	2.44	10/16/2023

Batch **R337786** **SampType:** **MS** Units **mg/L**

SampID: 23091794-046BMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		**2.30**	2.000	0.3240	98.8	75	125	10/16/2023

Batch **R337786** **SampType:** **MSD** Units **mg/L** RPD Limit **15**

SampID: 23091794-046BMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Fluoride		0.10		**2.37**	2.000	0.3240	102.2	2.299	2.91	10/16/2023

Batch **R337786** **SampType:** **MS** Units **mg/L**

SampID: 23091794-104BMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		**2.35**	2.000	0.2700	104.0	75	125	10/16/2023

SW-846 9214 (TOTAL)

Batch **R337786** **SampType:** **MSD** Units **mg/L** RPD Limit **15**
SampID: 23091794-104BMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Fluoride		0.10		**2.32**	2.000	0.2700	102.4	2.350	1.33	10/16/2023

Batch **R337786** **SampType:** **MS** Units **mg/L**
SampID: 23100953-001AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		**2.76**	2.000	0.6310	106.4	75	125	10/16/2023

Batch **R337786** **SampType:** **MSD** Units **mg/L** RPD Limit **15**
SampID: 23100953-001AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Fluoride		0.10		**2.72**	2.000	0.6310	104.2	2.759	1.61	10/16/2023

Batch **R337786** **SampType:** **MS** Units **mg/L**
SampID: 23101030-004AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		**2.32**	2.000	0.3580	98.0	75	125	10/16/2023

Batch **R337786** **SampType:** **MSD** Units **mg/L** RPD Limit **15**
SampID: 23101030-004AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Fluoride		0.10		**2.40**	2.000	0.3580	102.2	2.317	3.64	10/16/2023

Batch **R337786** **SampType:** **MS** Units **mg/L**
SampID: 23101081-008AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		**1.92**	2.000	0	96.2	75	125	10/16/2023

Batch **R337786** **SampType:** **MSD** Units **mg/L** RPD Limit **15**
SampID: 23101081-008AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Fluoride		0.10		**1.93**	2.000	0	96.4	1.925	0.16	10/16/2023

Batch **R337786** **SampType:** **MS** Units **mg/L**
SampID: 23101092-002AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Fluoride		0.10		**2.53**	2.000	0.4170	105.8	75	125	10/16/2023

Client: Sikeston Board of Municipal Utilities **Work Order:** 23101081

Client Project: Bottom Ash Pond (BAP) **Report Date:** 23-Oct-23

SW-846 9214 (TOTAL)

Batch **R337786** **SampType:** **MSD** Units **mg/L** RPD Limit **15**

SampID: 23101092-002AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Fluoride		0.10		**2.52**	2.000	0.4170	105.2	2.533	0.47	10/16/2023

SW-846 9251 (TOTAL)

Batch **R337841** **SampType:** **MBLK** Units **mg/L**

SampID: ICB/MBLK

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		4		**< 4**	0.5000	0	0	-100	100	10/16/2023

Batch **R337841** **SampType:** **LCS** Units **mg/L**

SampID: ICV/LCS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		4		**19**	20.00	0	95.0	90	110	10/16/2023

Batch **R337841** **SampType:** **MS** Units **mg/L**

SampID: 23091794-027BMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		20		**119**	100.0	26.60	92.3	85	115	10/16/2023

Batch **R337841** **SampType:** **MSD** Units **mg/L** RPD Limit **15**

SampID: 23091794-027BMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride		20		**117**	100.0	26.60	90.0	118.9	1.95	10/16/2023

Batch **R337841** **SampType:** **MS** Units **mg/L**

SampID: 23091794-060BMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		20		**136**	100.0	46.37	90.0	85	115	10/16/2023

Batch **R337841** **SampType:** **MSD** Units **mg/L** RPD Limit **15**

SampID: 23091794-060BMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride		20		**136**	100.0	46.37	89.9	136.4	0.12	10/16/2023

Client: Sikeston Board of Municipal Utilities
Work Order: 23101081

Client Project: Bottom Ash Pond (BAP)
Report Date: 23-Oct-23

SW-846 9251 (TOTAL)

Batch R337841 **SampType:** MS Units **mg/L**
SampID: 23091794-101BMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		40	S	**328**	200.0	161.9	83.2	85	115	10/16/2023

Batch R337841 **SampType:** MSD Units **mg/L** RPD Limit **15**
SampID: 23091794-101BMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride		40	S	**327**	200.0	161.9	82.8	328.3	0.26	10/16/2023

Batch R337841 **SampType:** MS Units **mg/L**
SampID: 23091794-103AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		40		**248**	200.0	48.59	99.7	85	115	10/17/2023

Batch R337841 **SampType:** MSD Units **mg/L** RPD Limit **15**
SampID: 23091794-103AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride		40		**243**	200.0	48.59	97.1	248.0	2.15	10/17/2023

Batch R337841 **SampType:** MS Units **mg/L**
SampID: 23101081-001AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		4		**20**	20.00	0	99.6	85	115	10/17/2023

Batch R337841 **SampType:** MSD Units **mg/L** RPD Limit **15**
SampID: 23101081-001AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride		4		**20**	20.00	0	99.7	19.91	0.10	10/17/2023

Batch R337892 **SampType:** MBLK Units **mg/L**
SampID: ICB/MBLK

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		4		**< 4**	0.5000	0	0	-100	100	10/17/2023

Batch R337892 **SampType:** LCS Units **mg/L**
SampID: ICV/LCS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		4		**19**	20.00	0	92.6	90	110	10/17/2023

SW-846 9251 (TOTAL)

Batch **R337892** **SampType:** **MS** Units **mg/L**

SampID: 23101090-001AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		40		**468**	200.0	279.7	94.2	85	115	10/17/2023

Batch **R337892** **SampType:** **MSD** Units **mg/L** RPD Limit **15**

SampID: 23101090-001AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride		40		**462**	200.0	279.7	91.0	468.2	1.38	10/17/2023

Batch **R337892** **SampType:** **MS** Units **mg/L**

SampID: 23101094-001AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		4		**30**	20.00	12.21	90.0	85	115	10/17/2023

Batch **R337892** **SampType:** **MSD** Units **mg/L** RPD Limit **15**

SampID: 23101094-001AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride		4		**30**	20.00	12.21	90.9	30.20	0.59	10/17/2023

Batch **R337892** **SampType:** **MS** Units **mg/L**

SampID: 23101248-002AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride		4		**47**	20.00	27.40	97.6	85	115	10/17/2023

Batch **R337892** **SampType:** **MSD** Units **mg/L** RPD Limit **15**

SampID: 23101248-002AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride		4		**46**	20.00	27.40	95.2	46.91	0.99	10/17/2023

SW-846 3005A, 6010B, METALS BY ICP (TOTAL)

Batch **213345** **SampType:** **MBLK** Units **µg/L**

SampID: MBLK-213345

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron		20.0		**< 20.0**	9.000	0	0	-100	100	10/19/2023
Calcium		0.100		**< 0.100**	0.0350	0	0	-100	100	10/19/2023

Client: Sikeston Board of Municipal Utilities
Work Order: 23101081
Client Project: Bottom Ash Pond (BAP)
Report Date: 23-Oct-23

SW-846 3005A, 6010B, METALS BY ICP (TOTAL)

Batch **213345** **SampType:** **LCS** Units **µg/L**
SampID: LCS-213345

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron		20.0		**501**	500.0	0	100.3	85	115	10/19/2023
Calcium		0.100		**2.64**	2.500	0	105.5	85	115	10/19/2023

Batch **213345** **SampType:** **MS** Units **µg/L**
SampID: 23101081-004BMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron		20.0		**562**	500.0	47.60	103.0	75	125	10/19/2023
Calcium		0.100	S	**50.3**	2.500	46.67	146.4	75	125	10/19/2023

Batch **213345** **SampType:** **MSD** Units **µg/L** RPD Limit **20**
SampID: 23101081-004BMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Boron		20.0		**563**	500.0	47.60	103.0	562.5	0.02	10/19/2023
Calcium		0.100	S	**51.2**	2.500	46.67	182.0	50.33	1.75	10/19/2023

Teklab Inc. Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Sikeston Board of Municipal Utilities
Work Order: 23101081
Client Project: Bottom Ash Pond (BAP)
Report Date: 23-Oct-23

Carrier: UPS
Received By: LM

Completed by:
On:
14-Oct-23
Timothy W. Mathis

Reviewed by:
On:
16-Oct-23
Elizabeth A Hurley
Elizabeth A. Hurley

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C	4.8
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice	☐
Chain of custody present?	Yes ☑	No ☐			
Chain of custody signed when relinquished and received?	Yes ☑	No ☐			
Chain of custody agrees with sample labels?	Yes ☑	No ☐			
Samples in proper container/bottle?	Yes ☑	No ☐			
Sample containers intact?	Yes ☑	No ☐			
Sufficient sample volume for indicated test?	Yes ☑	No ☐			
All samples received within holding time?	Yes ☐	No ☑			
Reported field parameters measured:	Field ☐	Lab ☑	NA ☐		

Sample analyses to be measured in the field and/or within 15 minutes of collection were analyzed in the lab as soon as practicable. These analyses include Chlorine (demand, free and/or residual), Carbon Dioxide, Dissolved Oxygen, Ferrous Iron, pH, and Sulfite.

Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☐	No ☐	No VOA vials ☑
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	NA ☐
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑

Any No responses must be detailed below or on the COC.

pH strip #90719. - TMathis - 10/14/2023 10:50:30 AM

CHAIN OF CUSTODY

pg. 1 of 1 Work order # 23101081

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

Client: Sikeston Board of Municipal Utilities
Address: 107 E Malone Ave
City / State / Zip Sikeston, MO 63801
Contact: Luke St. Mary **Phone:** (573) 475-3119
E-Mail: lstmary@sbmu.net **Fax:**

Samples on: ☒ ICE ☐ BLUE ICE ☐ NO ICE 4.8 °C LTG# 1
Preserved in: ☐ LAB ☒ FIELD **FOR LAB USE ONLY**
Lab Notes: TM 90719

Client Comments

Are these samples known to be involved in litigation? If yes, a surcharge will apply ☐ Yes ☑ No

Are these samples known to be hazardous? ☐ Yes ☑ No

Are there any required reporting limits to be met on the requested analysis?. If yes, please provide limits in the comment section. ☐ Yes ☑ No

Project Name/Number: Bottom Ash Pond (BAP)

Sample Collector's Name: Anthony Ovester

Results Requested
☐ Standard ☐ 1-2 Day (100% Surcharge)
☐ Other ____ ☐ 3 Day (50% Surcharge)

Billing Instructions

Lab Use Only	Sample Identification	Date/Time Sampled	UNP	HNO3	Aqueous	Groundwater	Trip Blank	B Ca (ICP)	Chloride	Fluoride	pH	Sulfate	TDS
23101081 -001	MW-3	10-11-23 0805	1	1		X		X	X	X	X	X	X
002	MW-4	10-11-23 1135	1	1		X		X	X	X	X	X	X
003	MW-5	10-11-23 0958	1	1		X		X	X	X	X	X	X
004	MW-6	10-11-23 0850	1	1		X		X	X	X	X	X	X
005	MW-8	10-11-23 1037	1	1		X		X	X	X	X	X	X
006	Duplicate	10-11-23	1	1		X		X	X	X	X	X	X
007	Field Blank	10-11-23 0850	1	1	X			X	X	X	X	X	X
008	Trip Blank	10-11-23	1	1			X	X	X	X	X	X	X

Relinquished By	Date/Time	Received By	Date/Time
Ashish Patel	10-12-23 0700	(UPS)	10/13/23 0940

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client. See www.teklabinc.com for terms and conditions.

BottleOrder: 81587

Appendix 3

Groundwater Quality Database

Sikeston Board of Municipal Utilities
Sikeston Power Station
Bottom Ash Pond Scott County, Missouri
CCR Groundwater Data Base

			Field Parameters					Appendix III Monitoring Constituents (Detection)							Appendix IV Monitoring Constituents (Assessment)														
Well ID	Date	Monitoring Purpose	Spec. Cond.	Temp.	ORP	D.O.	Turbidity	pH	Chloride	Fluoride	Sulfate	TDS	Boron	Calcium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium	Radium 226 and 228 (Combined)
			µmhos/cm	°C	mV	mg/L	NTU	S.U.	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L
									None	4.0	None	None	None	None	6	10	2000	4	5	100	6	15	40	2	100	50	2	5
MW-3 (UG)	11/30/2016	Background	254.0	15.75	-27.1	0.41	37.28	~~7.08~~	2.3	0.438	26	160	18	24	<3.0	1.5	96	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	1.668
	1/24/2017	Background	226.4	16.52	-8.4	0.39	4.46	~~6.88~~	2.0	0.261	30	130	12	21	<3.0	1.2	120	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.677(ND)
	2/22/2017	Background	226.6	16.47	9.7	0.36	3.56	~~6.93~~	1.9	0.290	26	120	33	22	<3.0	1.0	120	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.460(ND)
	3/20/2017	Background	212.1	17.07	33.7	0.43	6.61	~~6.68~~	1.8	0.286	21	170	22	19	<3.0	<1.0	110	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.277(ND)
	4/27/2017	Background	223.2	15.35	9.2	0.57	2.69	~~6.68~~	2.0	0.257	28	140	54	20	<3.0	<1.0	110	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	9.9	<1.0	<1.0	-0.030(ND)
	5/17/2017	Background	224.9	17.68	26.8	0.45	12.59	~~6.59~~	1.5	<0.250	21	130	19	17	<3.0	<1.0	120	<1.0	<1.0	<4.0	<2.0	<1.0	<10	0.40	<1.0	<1.0	<1.0	0.844(ND)
	6/8/2017	Background	217.9	16.73	18.2	0.49	2.61	6.66	1.7	0.276	22	160	20	19	<3.0	<1.0	110	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	-0.469(ND)
	7/13/2017	Background	243.8	19.02	5.5	0.39	4.79	6.71	2.2	0.256	19	160	18	20	<3.0	<1.0	100	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.715(ND)
	10/31/2017	Background / D1	246.2	16.74	12.4	0.65	7.47	6.64	2.0	0.331	20	140	27	19	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	6/13/2018	Background / D2	194.2	17.19	42.3	0.42	7.57	6.59	1.3	0.291	17	130	23	20	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/26/2018	Background / D3	194.9	15.05	49.8	0.47	2.23	6.50	1.5	0.301	18	100	23	17	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	2/5/2019	Background	205.0	14.49	46.9	0.49	1.92	6.46	1.5	0.342	20	160	22	17	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	5/28/2019	Background / D4	218.4	16.42	32.2	0.82	9.69	6.4	1.3	<0.250	20	(NA)	51	17	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	7/23/2019		203.0	16.58	71.0	0.88	4.96	(NA)	(NA)	(NA)	(NA)	140	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	8/28/2019	Background / D5	207.4	16.97	75.6	0.89	4.02	6.4	1.1	<0.250	18	140	35	15	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	11/4/2019	Background	202.3	16.60	63.2	0.70	4.22	6.4	1.4	<0.250	18	130	37	15	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	2/18/2020	Background / D6	207.6	14.17	58.6	1.22	6.34	6.4	1.3	<0.250	21	(NA)	27	16	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	3/30/2020		199.3	14.87	61.2	1.20	6.01	(NA)	(NA)	(NA)	(NA)	180	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	7/21/2020	Background / D7	197.8	16.87	-40.4	8.42	3.43	6.5	1.0	<0.250	15	140	21	18	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	10/20/2020	Background	206.2	16.22	-15.1	8.73	2.88	6.5	1.2	<0.250	15	130	21	17	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	4/16/2021	Detection 8	189.2	14.10	41.3	12.69	4.03	6.5	1.2	<0.250	16	(NA)	25	17	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	4/17/2021		196.8	14.04	34.3	12.04	3.47	(NA)	(NA)	(NA)	(NA)	150	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/1/2021	Detection 9	199.7	11.89	70.3	10.10	1.46	6.57	1.0	<0.250	14	(NA)	25	14	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	12/27/2021		194.7	7.62	62.3	1.67	1.03	(NA)	(NA)	(NA)	(NA)	170	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	8/3/2022	Detection 10	158.1	17.06	42.0	0.36	8.28	6.65	< 1.0	<0.250	11	130	23	16	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/1/2022	Detection 11	(NA)	15.70	53.4	1.25	3.60	(NA)	< 1.0	<0.250	**10**	**100 H**	**20**	**17**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	12/13/2022		166.9	15.67	35.1	0.50	3.43	**6.65**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	4/18/2023	Detection 12	136.6	14.83	88.8	1.56	1.43	**6.45**	**1.2**	<0.250	**12**	**120**	**23**	**15**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	10/11/2023	Detection 13	181.0	16.61	72.3	0.92	1.77	**6.49**	**<4**	<0.250	**11**	**122**	**13.9**	**15.5**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)

NOTES:

1. All data transcribed from analytical lab data sheets or field notes.
2. Less than (<) symbol denotes concentration not detected at or above reportable limits.
3. (ND) denotes Radium 226 and 228 (combined) concentration not detected above minimum detectable concentration.
4. (NA) denotes analysis not conducted, or not available at time of report.
5. Background monitoring per USEPA 40 CFR 257.93.
6. Detection monitoring per USEPA 40 CFR 257.94.
7. Assessment monitoring per USEPA 40 CFR 257.95.
8. Additional background sampling based on recommendations in Alternate Source Demonstration dated September 26, 2018 (see Gredell Engineering, 2019).
9. Background updated March 2021 to include previous background, additional background (see note 8), and detection monitoring data through October 2020 except as noted in note 10.
10. Censored data for outlier removal or trend elimination indicated as shown below:

4.5 - Value identified by Sanitas for Groundwater as an outlier.

~~120~~ - Value restricted from data set to eliminate significant trend.

11. Data Qualifiers

H – Reanalyzed outside hold time

J – Analyte detected below quantitaion limits

S – Spike Recovery outside recovery limits

Appendix 3
Prepared by: KAE
Checked by: MCC

Sikeston Board of Municipal Utilities
Sikeston Power Station
Bottom Ash Pond Scott County, Missouri
CCR Groundwater Data Base

			Field Parameters					Appendix III Monitoring Constituents (Detection)							Appendix IV Monitoring Constituents (Assessment)														
Well	Date	Monitoring Purpose	Spec. Cond.	Temp.	ORP	D.O.	Turbidity	pH	Chloride	Fluoride	Sulfate	TDS	Boron	Calcium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium	Radium 226 and 228 (Combined)
ID			μmhos/cm	°C	mV	mg/L	NTU	S.U.	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L
									None	4.0	None	None	None	None	6	10	2000	4	5	100	6	15	40	2	100	50	2	5
MW-4 (DG)	11/30/2016	Background	575.6	17.51	-108.3	0.48	0.61	7.46	18	0.259	140	390	1400	89	<3.0	<1.0	41	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.572(ND)
	1/24/2017	Background	543.7	17.00	-105.2	0.50	0.48	7.45	15	<0.250	120	290	880	79	<3.0	<1.0	46	<2.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.7031(ND)
	2/22/2017	Background	554.0	17.95	-115.3	0.51	1.19	7.49	13	<0.250	97	320	1500	78	<3.0	<1.0	51	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.550(ND)
	3/20/2017	Background	562.8	18.58	-108.8	0.69	1.70	7.37	12	<0.250	94	350	1400	72	<3.0	<1.0	53	<1.0	<1.0	<4.0	<2.0	<1.0	<10	1.3	<1.0	<1.0	<1.0	1.036
	4/27/2017	Background	536.9	17.25	-129.6	0.91	2.38	7.38	14	<0.250	99	300	1300	74	<3.0	<1.0	50	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.210(ND)
	5/17/2017	Background	554.9	17.90	-115.5	0.63	3.02	7.38	14	<0.250	96	320	1200	71	<3.0	<1.0	66	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.774(ND)
	6/8/2017	Background	509.7	18.24	-122.9	0.86	0.84	7.38	12	<0.250	86	340	1100	61	<3.0	<1.0	45	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.464(ND)
	7/13/2017	Background	575.5	19.46	-115.2	0.52	1.43	7.37	13	<0.250	88	300	1200	79	<3.0	<1.0	52	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	1.086(ND)
	10/31/2017	Background / D1	525.8	18.35	-118.1	0.63	1.07	7.31	17	<0.250	83	290	1400	67	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	6/13/2018	Background / D2	511.5	18.92	-120.7	0.44	18.50	7.32	14	<0.250	86	290	1200	80	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/26/2018	Background / D3	468.0	16.07	-101.8	0.53	1.01	7.36	8.8	<0.250	54	260	1100	64	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	2/5/2019	Background	761.0	15.62	-97.5	0.52	2.58	7.3	33	<0.250	140	420	1100	100	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	5/28/2019	Background / D4	581.7	18.65	-108.5	0.37	3.30	7.3	11	<0.250	75	(NA)	980	70	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	7/23/2019		615.2	18.88	-105.2	0.43	0.36	(NA)	(NA)	(NA)	(NA)	340	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	8/28/2019	Background / D5	645.4	19.60	-101.7	0.40	2.31	(NA)	18	<0.250	110	300	1100	83	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	10/23/2019		620.0	18.90	-110.6	0.55	1.93	7.3	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/4/2019	Background	657.7	18.52	-104.2	0.50	0.96	7.2	2.1	<0.250	120	400	1200	89	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	2/18/2020	Background / D6	526.9	14.49	-87.6	0.63	1.60	7.4	11	<0.250	66	(NA)	930	67	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	3/30/2020		520.6	16.45	-91.1	0.35	19.51	(NA)	(NA)	(NA)	(NA)	300	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	7/21/2020	Background / D7	550.7	19.75	-145.6	5.06	6.49	(NA)	14	<0.250	86	290	920	76	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	8/3/2020		567.8	18.81	-117.8	4.87	7.19	7.4	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	10/20/2020	Background	596.6	17.94	-92.1	6.36	1.80	7.4	17	<0.250	96	330	1000	80	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	4/16/2021	Detection 8	591.2	15.99	-58.4	4.85	12.85	7.4	19	<0.250	100	340	920	85	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/1/2021	Detection 9	609.8	14.87	-59.8	0.54	2.97	7.34	16	<0.250	95	360	870	76	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	8/3/2022	Detection 10	552.4	19.67	-130.9	0.32	6.40	7.32	14	<0.250	93	390	880	76	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/1/2022	Detection 11	539.5	18.90	-127.6	0.90	3.19	(NA)	**12**	<0.250	**79**	**340**	**940**	**81**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	12/13/2022		519.3	17.05	-120.4	0.41	2.35	**7.27**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	4/18/2023	Detection 12	405.2	17.75	-96.3	0.30	10.86	**7.49**	**10**	<0.250	**76**	**330**	**680**	**72**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	10/11/2023	Detection 13	596.5	18.52	-108.6	0.60	0.49	**7.25**	**14**	<0.250	**88**	**335**	**940**	**81.1**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)

NOTES:

1. All data transcribed from analytical lab data sheets or field notes.
2. Less than (<) symbol denotes concentration not detected at or above reportable limits.
3. (ND) denotes Radium 226 and 228 (combined) concentration not detected above minimum detectable concentration.
4. (NA) denotes analysis not conducted, or not available at time of report.
5. Background monitoring per USEPA 40 CFR 257.93.
6. Detection monitoring per USEPA 40 CFR 257.94.
7. Assessment monitoring per USEPA 40 CFR 257.95.
8. Additional background sampling based on recommendations in Alternate Source Demonstration dated September 26, 2018 (see Gredell Engineering, 2019).
9. Background updated March 2021 to include previous background, additional background (see note 8), and detection monitoring data through October 2020 except as noted in note 10.
10. Censored data for outlier removal or trend elimination indicated as shown below:

4.5 - Value identified by Sanitas for Groundwater as an outlier.
~~120~~ - Value restricted from data set to eliminate significant trend.

11. Data Qualifiers

H – Reanalyzed outside hold time
J – Analyte detected below quantitaion limits
S – Spike Recovery outside recovery limits

Appendix 3
Prepared by: KAE
Checked by: MCC

Sikeston Board of Municipal Utilities
Sikeston Power Station
Bottom Ash Pond Scott County, Missouri
CCR Groundwater Data Base

			Field Parameters					Appendix III Monitoring Constituents (Detection)							Appendix IV Monitoring Constituents (Assessment)													
Well ID	Date	Monitoring Purpose	Spec. Cond.	Temp.	ORP	D.O.	Turbidity	pH	Chloride	Fluoride	Sulfate	TDS	Boron	Calcium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium	Radium 226 and 228 (Combined)
			µmhos/cm	°C	mV	mg/L	NTU	S.U.	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L
									None	4.0	None	None	None	None	6	10	2000	4	5	100	6	15	40	2	100	50	2	5
MW-5 (DG)	11/30/2016	Background	808.3	16.20	-48.7	0.50	1.24	6.97	16	0.255	230	560	470	96	<3.0	<1.0	84	<1.0	<1.0	<4.0	4.3	<1.0	<10	<0.20	<1.0	<1.0	<1.0	1.844
	1/24/2017	Background	745.3	16.24	-37.6	0.58	0.72	6.90	15	<0.250	270	470	480	120	<3.0	<1.0	91	<1.0	<1.0	<4.0	5.2	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.827(ND)
	2/22/2017	Background	717.8	17.75	-50.5	0.36	3.43	6.97	11	<0.250	170	420	470	100	<3.0	<1.0	83	<1.0	<1.0	<4.0	3.6	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.130(ND)
	3/20/2017	Background	737.9	17.78	-36.5	0.72	2.16	6.85	11	<0.250	170	480	320	99	<3.0	<1.0	76	<1.0	<1.0	<4.0	4.4	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.538(ND)
	4/27/2017	Background	777.3	16.07	-58.8	0.69	5.20	6.80	12	<0.250	460	480	490	120	<3.0	<1.0	87	<1.0	<1.0	<4.0	4.8	<1.0	<10	<0.20	3.0	<1.0	<1.0	1.676
	5/17/2017	Background	760.1	17.81	-56.0	0.46	5.35	6.81	11	<0.250	200	440	5700	240	<3.0	1.8	180	<1.0	<1.0	16	5.3	6.3	<10	0.24	<1.0	<1.0	<1.0	1.739
	6/8/2017	Background	678.3	17.72	-58.6	0.69	1.89	6.82	11	<0.250	180	480	360	97	<3.0	<1.0	77	<1.0	<1.0	<4.0	3.9	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.869(ND)
	7/13/2017	Background	799.0	19.19	-82.0	1.08	17.49	6.98	10	<0.250	190	430	320	110	<3.0	<1.0	81	<1.0	<1.0	<4.0	3.8	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.767(ND)
	10/31/2017	Background / D1	591.8	17.45	-77.6	0.85	3.17	6.89	13	<0.250	88	310	280	72	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	6/13/2018	Background / D2	756.4	18.28	-55.6	0.84	1.91	6.77	11	<0.250	240	480	370	130	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/26/2018	Background / D3	836.4	14.90	-27.0	0.51	0.38	6.74	17	<0.250	230	520	420	120	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	2/5/2019	Background	845.6	15.22	-23.7	0.41	0.71	6.72	15	0.272	200	480	450	120	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	5/28/2019	Background / D4	861.1	18.31	-59.1	0.60	3.71	6.9	10	<0.250	190	(NA)	280	110	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	7/23/2019		806.9	18.66	-44.9	0.81	1.34	(NA)	(NA)	(NA)	(NA)	480	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	8/28/2019	Background / D5	848.4	18.49	-42.2	0.64	0.82	6.8	16	<0.250	190	480	410	110	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	11/4/2019	Background	729.9	18.03	-55.8	0.77	2.65	6.8	3.2	<0.250	15	440	420	99	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	2/18/2020	Background / D6	871.7	14.05	-45.2	0.81	0.88	6.8	15	<0.250	210	(NA)	400	110	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	3/30/2020		750.4	15.84	-49.7	0.62	2.90	(NA)	(NA)	(NA)	(NA)	450	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	7/21/2020	Background / D7	816.5	18.35	-102.9	4.37	5.36	6.8	14	<0.250	210	470	330	110	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	10/20/2020	Background	886.3	16.27	-70.2	8.15	3.72	6.9	15	<0.250	220	590	360	120	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	4/16/2021	Detection 8	837.4	15.79	-11.1	7.27	2.84	6.9	10	<0.250	240	510	370	120	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/1/2021	Detection 9	790.8	12.79	-25.5	7.62	0.50	6.90	13	<0.250	170	490	330	94	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	8/3/2022	Detection 10	758.3	17.88	-83.7	0.59	11.66	6.82	12	<0.250	210	(NA)	390	110	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	9/12/2022		882.5	17.00	-85.4	0.41	3.12	(NA)	(NA)	(NA)	(NA)	510	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/1/2022	Detection 11	802.2	16.74	-73.0	0.54	4.59	(NA)	13	<0.250	250	(NA)	**420**	**130**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	12/13/2022		801.3	16.47	-77.4	0.51	1.27	**6.81**	(NA)	(NA)	(NA)	**490**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	4/18/2023	Detection 12	619.6	16.65	-31.1	0.52	4.55	**6.85**	**13**	<0.250	**210**	**500**	**340**	**120**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	10/11/2023	Detection 13	810.8	17.30	-58.8	0.64	0.3	**6.83**	**15**	<0.250	**172**	**435**	**405**	**106**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)

NOTES:

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3. (ND) denotes Radium 226 and 228 (combined) concentration not detected above minimum detectable concentration.
4. (NA) denotes analysis not conducted, or not available at time of report.
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6. Detection monitoring per USEPA 40 CFR 257.94.
7. Assessment monitoring per USEPA 40 CFR 257.95.
8. Additional background sampling based on recommendations in Alternate Source Demonstration dated September 26, 2018 (see Gredell Engineering, 2019).
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~~120~~ - Value restricted from data set to eliminate significant trend.

11. Data Qualifiers

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J – Analyte detected below quantitaion limits

S – Spike Recovery outside recovery limits

Appendix 3
Prepared by: KAE
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Bottom Ash Pond Scott County, Missouri
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ID			µmhos/cm	°C	mV	mg/L	NTU	S.U.	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L
									None	4.0	None	None	None	None	6	10	2000	4	5	100	6	15	40	2	100	50	2	5
MW-6 (UG)	11/30/2016	Background	369.0	16.39	-49.4	0.85	0.84	~~6.92~~	2.8	0.331	36	200	~~36~~	45	<3.0	4.3	190	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	1.532
	1/24/2017	Background	358.9	16.29	-44.8	0.66	0.26	6.87	2.4	<0.250	43	200	~~27~~	41	<3.0	5.7	220	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.948(ND)
	2/22/2017	Background	352.5	17.20	-42.2	0.81	15.27	6.89	2.1	0.269	32	160	~~59~~	40	<3.0	6.4	210	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.685(ND)
	3/20/2017	Background	360.8	16.90	24.9	0.36	9.70	6.73	2.1	<0.250	31	240	~~37~~	39	<3.0	5	160	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.577(ND)
	4/27/2017	Background	331.5	15.71	-50.9	0.39	8.35	6.72	2.3	<0.250	34	170	~~36~~	38	<3.0	3.2	180	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	1.243(ND)
	5/17/2017	Background	323.2	17.65	-71.5	0.45	7.13	6.76	1.8	<0.250	30	170	~~35~~	30	<3.0	4.9	190	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	1.173(ND)
	6/8/2017	Background	326.7	17.50	-53.0	0.33	3.86	6.73	1.7	<0.250	29	180	~~38~~	36	<3.0	4.6	190	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.893(ND)
	7/13/2017	Background	396.8	19.68	-84.0	0.72	2.17	6.98	1.6	<0.250	28	180	~~31~~	40	<3.0	5.8	200	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.575(ND)
	10/31/2017	Background / D1	359.6	17.57	-57.9	0.71	1.48	6.72	1.7	0.303	29	170	~~41~~	38	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	6/13/2018	Background / D2	345.4	17.59	-44.0	0.40	13.24	6.67	2.3	<0.250	32	160	~~43~~	41	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/26/2018	Background / D3	375.3	15.04	-37.6	1.07	1.66	6.72	1.5	0.313	29	180	46	36	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	2/5/2019	Background	384.7	14.86	-33.9	0.56	2.68	6.72	1.6	0.338	27	160	44	40	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	7/23/2019	Background / D4	419.3	17.64	-59.8	0.51	2.03	(NA)	(NA)	(NA)	(NA)	180	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	8/28/2019	Background / D5	442.2	17.67	-65.4	0.66	1.15	6.7	1.0	<0.250	24	200	54	44	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	11/4/2019	Background	388.3	17.62	-48.1	0.38	1.68	6.7	1.4	0.319	22	210	47	43	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	2/18/2020	Background / D6	390.3	14.54	-54.5	0.81	5.79	6.7	1.7	<0.250	24	(NA)	40	41	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	3/30/2020		391.0	15.17	-53.6	0.67	3.99	(NA)	(NA)	(NA)	(NA)	230	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	7/21/2020	Background / D7	415.1	17.64	-100.2	4.54	3.48	6.7	<1.0	<0.250	22	220	46	43	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	10/20/2020	Background	455.5	16.43	-60.5	6.31	0.57	7.0	2.4	<0.250	24	250	47	49	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	4/16/2021	Detection 8	399.3	14.69	-7.1	6.88	16.55	6.8	2.0	<0.250	24	200	52	44	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/1/2021	Detection 9	475.9	12.07	-20.8	5.05	2.22	6.88	4.3	0.330	27	220	56	47	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	12/27/2021		444.7	7.72	-56.0	0.67	3.26	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	8/3/2022	Detection 10	381.1	17.84	-93.0	0.40	12.36	6.86	4.3	<0.250	24	230	51	43	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	9/12/2022		443.5	16.99	-82.3	0.50	11.06	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/1/2022	Detection 11	(NA)	16.37	(NA)	0.75	5.60	**6.85**	**4.6**	<0.250	**26**	(NA)	**55**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	12/13/2022		438.7	16.02	-81.6	0.66	8.15	(NA)	(NA)	(NA)	(NA)	**220**	(NA)	**45**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	4/18/2023	Detection 12	332.1	16.27	-50.5	0.54	2.55	**6.91**	~~5.0 (NA)~~	<0.250	**29**	**240**	**57**	**46**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	5/23/2023		426.6	16.91	24.3	0.35	5.50	(NA)	**4.0**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	10/11/2023	Detection 13	462.6	17.01	-79.2	0.56	1.53	**6.80**	**3 J**	<0.250	**25**	**250**	**47.6**	**46.7 S**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)

NOTES:

1. All data transcribed from analytical lab data sheets or field notes.
2. Less than (<) symbol denotes concentration not detected at or above reportable limits.
3. (ND) denotes Radium 226 and 228 (combined) concentration not detected above minimum detectable concentration.
4. (NA) denotes analysis not conducted, or not available at time of report.
5. Background monitoring per USEPA 40 CFR 257.93.
6. Detection monitoring per USEPA 40 CFR 257.94.
7. Assessment monitoring per USEPA 40 CFR 257.95.
8. Additional background sampling based on recommendations in Alternate Source Demonstration dated September 26, 2018 (see Gredell Engineering, 2019).
9. Background updated March 2021 to include previous background, additional background (see note 8), and detection monitoring data through October 2020 except as noted in note 10.
10. Censored data for outlier removal or trend elimination indicated as shown below:

4.5 - Value identified by Sanitas for Groundwater as an outlier.

~~120~~ - Value restricted from data set to eliminate significant trend.

11. Data Qualifiers

H – Reanalyzed outside hold time

J – Analyte detected below quantitaion limits

S – Spike Recovery outside recovery limits

Appendix 3
Prepared by: KAE
Checked by: MCC

Sikeston Board of Municipal Utilities
Sikeston Power Station
Bottom Ash Pond Scott County, Missouri
CCR Groundwater Data Base

			Field Parameters					Appendix III Monitoring Constituents (Detection)							Appendix IV Monitoring Constituents (Assessment)													
Well	Date	Monitoring Purpose	Spec. Cond.	Temp.	ORP	D.O.	Turbidity	pH	Chloride	Fluoride	Sulfate	TDS	Boron	Calcium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium	Radium 226 and 228 (Combined)
ID			µmhos/cm	°C	mV	mg/L	NTU	S.U.	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L
									None	4.0	None	None	None	None	6	10	2000	4	5	100	6	15	40	2	100	50	2	5
MW-8 (DG)	5/18/2017	Background	662.5	17.58	-89.4	0.29	2.39	7.16	~~46~~	<0.250	100	~~340~~	400	~~74~~	<3.0	<1.0	86	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	1.067
	6/9/2017	Background	678.2	17.90	-108.5	0.31	0.47	7.16	~~43~~	<0.250	110	~~380~~	520	~~92~~	<3.0	<1.0	86	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.839(ND)
	7/13/2017	Background	661.5	18.57	-107.1	0.23	1.20	7.25	~~36~~	<0.250	89	~~320~~	430	~~87~~	<3.0	<1.0	74	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	1.034(ND)
	8/3/2017	Background	665.7	19.06	-108.4	0.24	0.98	7.15	~~37~~	<0.250	89	~~330~~	490	~~80~~	<3.0	<1.0	74	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.681(ND)
	8/15/2017	Background	594.9	18.56	-88.7	0.38	0.99	7.16	~~36~~	<0.250	83	~~320~~	530	~~75~~	<3.0	<1.0	68	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.906(ND)
	8/30/2017	Background	644.2	18.62	-91.3	0.29	1.18	7.15	~~41~~	<0.250	96	~~290~~	510	~~88~~	<3.0	<1.0	75	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.805(ND)
	9/14/2017	Background	707.9	18.52	-90.1	0.48	0.67	7.13	~~53~~	<0.250 H	110	~~370~~	510	~~86~~	<3.0	<1.0	77	<1.0	<1.0	<4.0	<2.0	<1.0	12	<0.20	<1.0	<1.0	<1.0	0.314(ND)
	9/27/2017	Background	764.0	19.11	-89.6	0.30	0.58	7.05	~~50~~	<0.250	120	~~420~~	480	~~92~~	<3.0	<1.0	80	<1.0	<1.0	<4.0	<2.0	<1.0	<10	<0.20	<1.0	<1.0	<1.0	0.594(ND)
	10/31/2017	Background / D1	698.1	17.99	-96.3	0.38	0.94	7.09	~~45~~	<0.250	110	~~380~~	540	~~86~~	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	6/13/2018	Background / D2	788.8	18.34	-99.1	0.23	4.80	7.11	65	<0.250	(NA)	~~430~~	520	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	7/10/2018		899.4	18.52	-94.2	0.35	2.69	(NA)	(NA)	(NA)	150	(NA)	(NA)	~~120~~	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/26/2018	Background / D3	662.1	15.08	-77.6	0.35	2.88	7.17	45	<0.250	100	320	500	94	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	2/5/2019	Background	839.7	14.72	-76.0	0.30	2.66	7.14	71	0.26	140	390	550	110	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	5/28/2019	Background / D4	836.6	18.25	-90.6	0.29	4.89	7.1	53	<0.250	130	(NA)	540	100	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	7/23/2019		819.5	19.34	-90.7	0.30	1.39	(NA)	(NA)	(NA)	(NA)	420	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	8/28/2019	Background / D5	769.1	19.38	-90.0	0.25	1.25	7.1	55	<0.250	110	360	460	93	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	11/4/2019	Background	729.8	18.39	-80.0	0.29	0.86	7.1	2.0	<0.250	4.5	400	480	98	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	2/18/2020	Background / D6	747.9	13.49	-75.7	0.29	0.69	7.2	53	<0.250	110	(NA)	480	93	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	3/30/2020		840.0	15.71	-82.4	0.20	7.48	(NA)	(NA)	(NA)	(NA)	480	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	7/21/2020	Background / D7	673.7	19.33	-130.8	2.91	3.56	7.1	50	<0.250	100	420	470	89	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	10/20/2020	Background	794.1	17.14	-83.8	3.59	0.88	7.2	56	<0.250	130	460	510	110	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8	Note 8
	4/16/2021	Detection 8	758.6	15.85	-44.7	3.47	5.16	7.2	51	<0.250	130	400	460	100	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/1/2021	Detection 9	676.9	14.15	-45.1	0.42	0.71	7.16	45	0.258	94	360	430	80	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	8/3/2022	Detection 10	752.0	19.27	-110.8	0.18	11.32	7.08	56	<0.250	140	490	420	100	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	11/1/2022	Detection 11	776.1	18.65	-107.5	0.19	3.20	(NA)	**51**	<0.250	**130**	**500**	**440**	**110**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	12/13/2022		791.3	16.36	-102.9	0.21	3.01	**7.05**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	4/18/2023	Detection 12	535.2	16.81	-78.9	0.17	5.80	~~7.28 (NA)~~	**44**	<0.250	**110**	**440**	**420**	**92**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	5/23/2023		650.7	17.53	-56.2	0.19	1.73	**7.14**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	10/11/2023	Detection 13	750.3	18.07	-94.9	0.41	0.72	**7.07**	**44**	<0.250	**102**	**455**	**423**	**96.5**	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)

NOTES:

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2. Less than (<) symbol denotes concentration not detected at or above reportable limits.
3. (ND) denotes Radium 226 and 228 (combined) concentration not detected above minimum detectable concentration.
4. (NA) denotes analysis not conducted, or not available at time of report.
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6. Detection monitoring per USEPA 40 CFR 257.94.
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9. Background updated March 2021 to include previous background, additional background (see note 8), and detection monitoring data through October 2020 except as noted in note 10.
10. Censored data for outlier removal or trend elimination indicated as shown below:

4.5 - Value identified by Sanitas for Groundwater as an outlier.

~~120~~ - Value restricted from data set to eliminate significant trend.

11. Data Qualifiers

H – Reanalyzed outside hold time

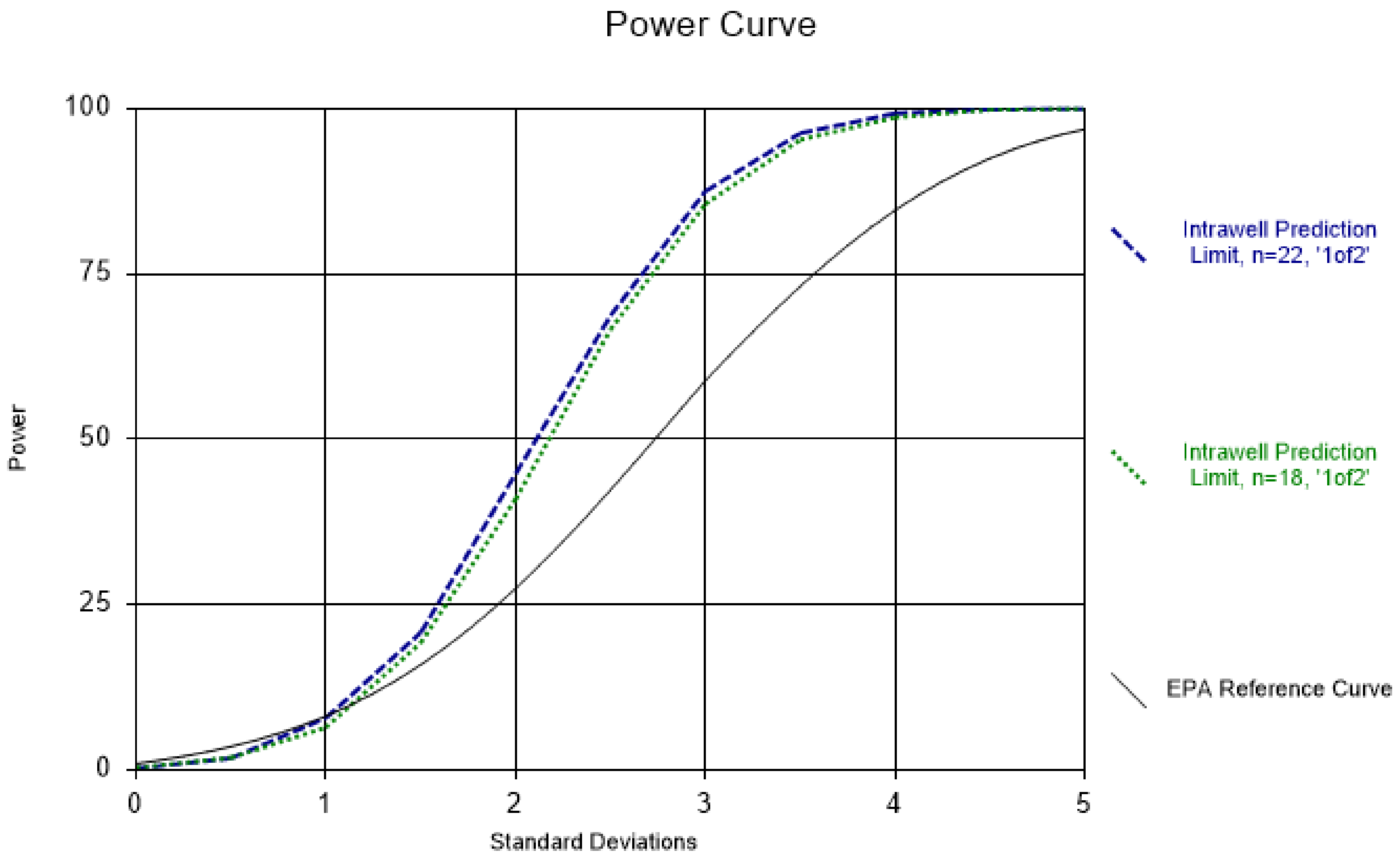
J – Analyte detected below quantitaion limits

S – Spike Recovery outside recovery limits

Appendix 3
Prepared by: KAE
Checked by: MCC

Appendix 4

Statistical Power Curve



Analysis Run 8/25/2023 1:27 PM View: Everything Minus Detrended Data

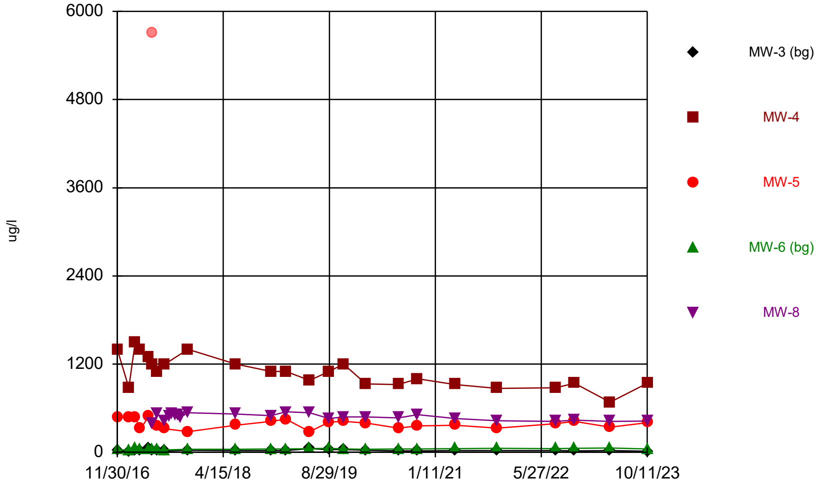
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Appendix 5

Time Series Plots

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG

Boron



Time Series Analysis Run 11/20/2023 3:31 PM

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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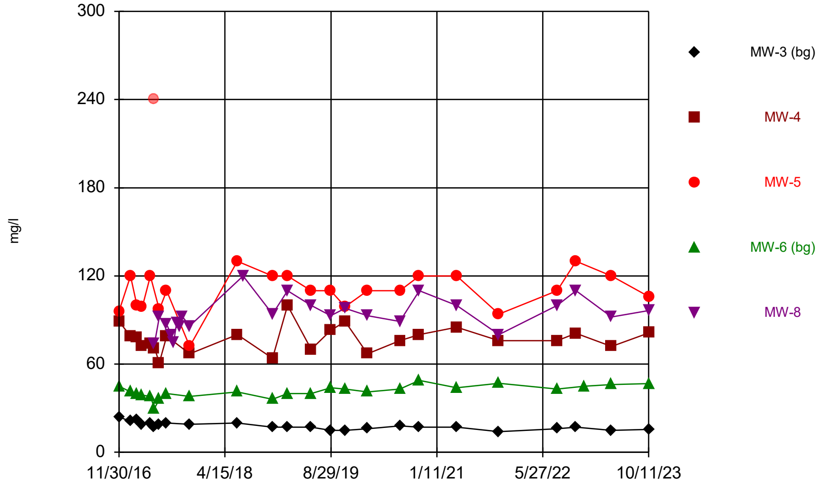
Calcium

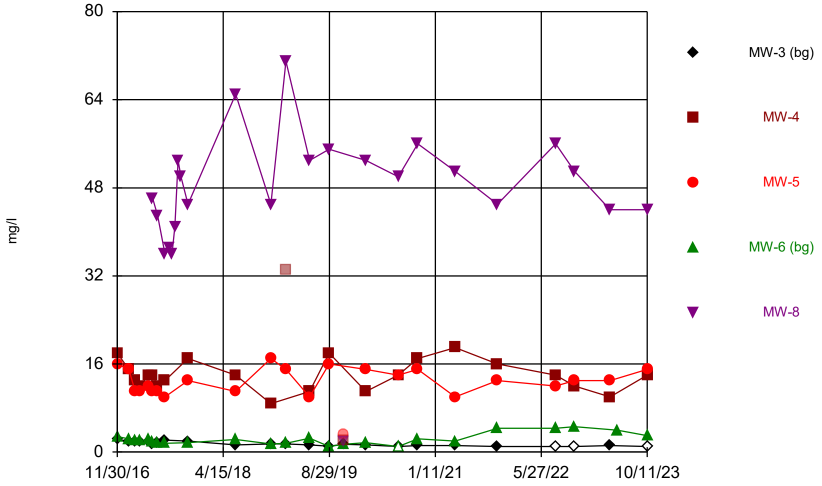


Time Series Analysis Run 11/20/2023 3:31 PM

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG
Hollow symbols indicate censored values.

Chloride

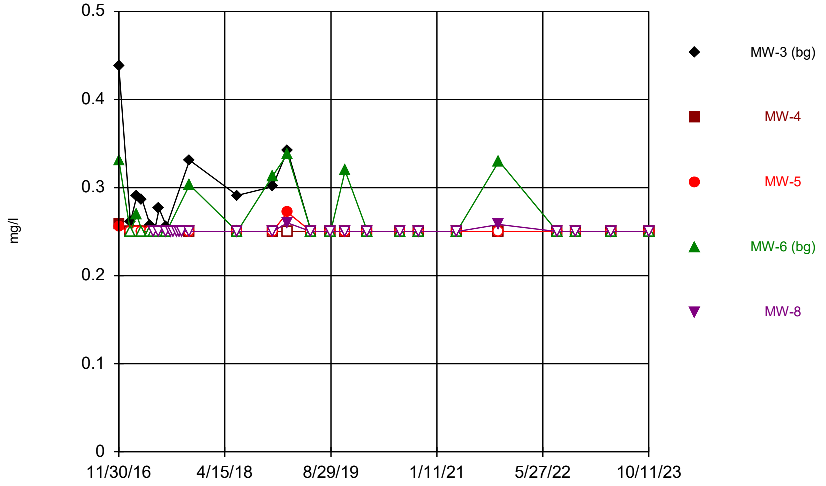


Time Series Analysis Run 11/20/2023 3:31 PM

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG
Hollow symbols indicate censored values.

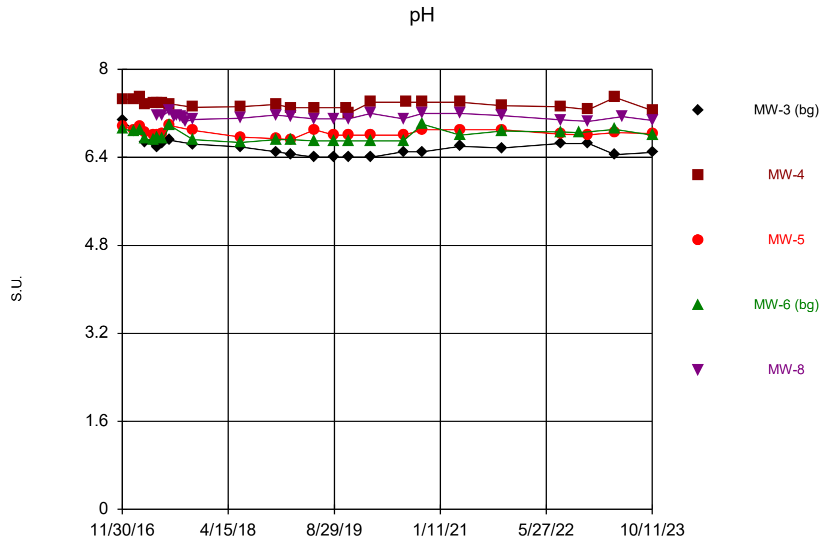
Fluoride



Time Series Analysis Run 11/20/2023 3:31 PM

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

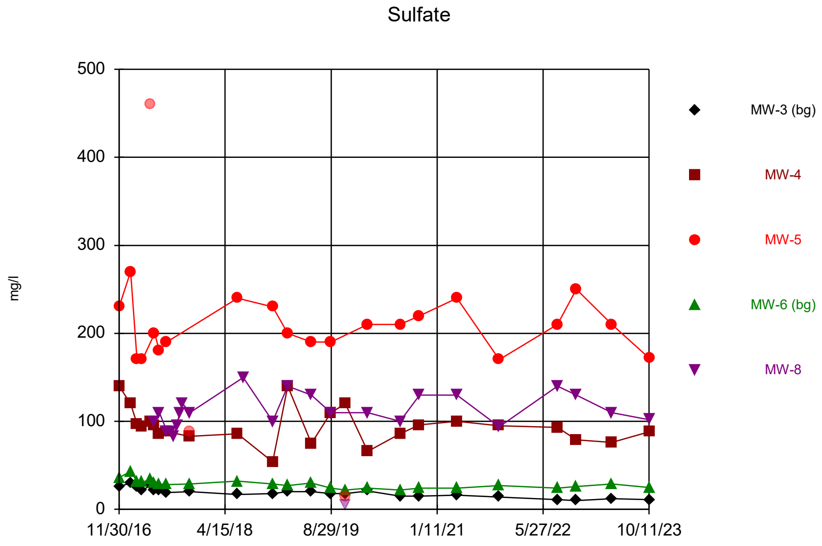
Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG



Time Series Analysis Run 11/20/2023 3:31 PM

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

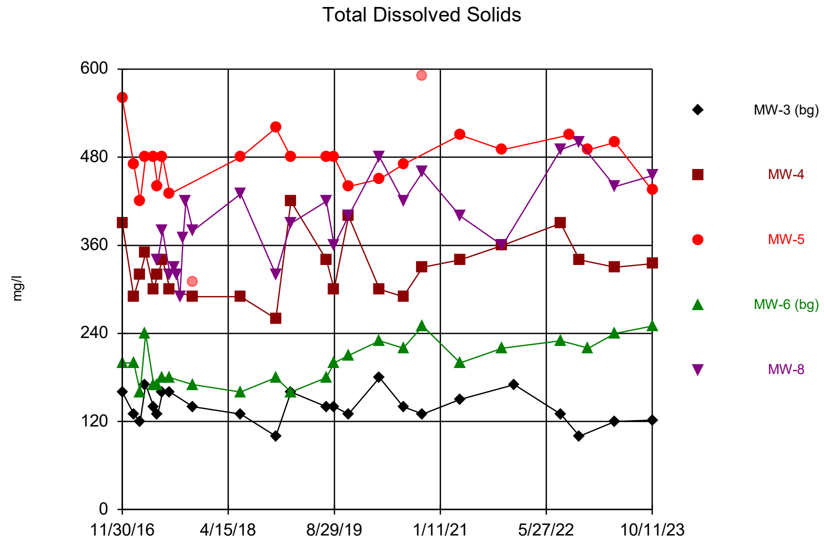
Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG



Time Series Analysis Run 11/20/2023 3:31 PM

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG



Time Series Analysis Run 11/20/2023 3:31 PM

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Appendix 6

Box and Whiskers Plots

Box & Whiskers Plot

SBMU-Sikeston Power Station   Client: GREDELL Engineering   Data: SBMU-SPS EDD File 09-28-17   Printed 11/21/2023, 8:42 AM

Constituent	Well	N	Mean	Std. Dev.	Std. Err.	Median	Min.	Max.	%NDs
Boron (ug/l)	MW-3 (bg)	24	25.54	10.15	2.071	23	12	54	0
Boron (ug/l)	MW-4	24	1089	208.8	42.62	1100	680	1500	0
Boron (ug/l)	MW-5	24	607.7	1086	221.7	395	280	5700	0
Boron (ug/l)	MW-6 (bg)	24	44.9	8.682	1.772	46	27	59	0
Boron (ug/l)	MW-8	24	479.7	44.4	9.064	480	400	550	0
Calcium (mg/l)	MW-3 (bg)	24	17.81	2.462	0.5025	17	14	24	0
Calcium (mg/l)	MW-4	24	77.09	8.719	1.78	77	61	100	0
Calcium (mg/l)	MW-5	24	115.1	29.63	6.048	110	72	240	0
Calcium (mg/l)	MW-6 (bg)	24	41.49	4.226	0.8627	41	30	49	0
Calcium (mg/l)	MW-8	24	93.56	11.37	2.321	92.5	74	120	0
Chloride (mg/l)	MW-3 (bg)	24	1.475	0.4152	0.08475	1.35	1	2.3	12.5
Chloride (mg/l)	MW-4	24	14.25	5.341	1.09	14	2.1	33	0
Chloride (mg/l)	MW-5	24	12.59	2.919	0.5959	13	3.2	17	0
Chloride (mg/l)	MW-6 (bg)	24	2.338	1.027	0.2096	2.1	1	4.6	4.167
Chloride (mg/l)	MW-8	24	47	12.74	2.601	48	2	71	0
Fluoride (mg/l)	MW-3 (bg)	24	0.2741	0.04397	0.008975	0.25	0.25	0.438	54.17
Fluoride (mg/l)	MW-4	24	0.2504	0.001837	0.000375	0.25	0.25	0.259	95.83
Fluoride (mg/l)	MW-5	24	0.2511	0.004562	0.0009312	0.25	0.25	0.272	91.67
Fluoride (mg/l)	MW-6 (bg)	24	0.2689	0.03234	0.006601	0.25	0.25	0.338	70.83
Fluoride (mg/l)	MW-8	24	0.2508	0.002558	0.0005222	0.25	0.25	0.26	91.67
pH (S.U.)	MW-3 (bg)	24	6.6	0.1742	0.03556	6.59	6.4	7.08	0
pH (S.U.)	MW-4	24	7.36	0.07295	0.01489	7.37	7.2	7.49	0
pH (S.U.)	MW-5	24	6.847	0.07006	0.0143	6.825	6.72	6.98	0
pH (S.U.)	MW-6 (bg)	24	6.793	0.09937	0.02028	6.745	6.67	7	0
pH (S.U.)	MW-8	24	7.134	0.05081	0.01037	7.14	7.05	7.25	0
Sulfate (mg/l)	MW-3 (bg)	24	18.71	5.328	1.088	18.5	10	30	0
Sulfate (mg/l)	MW-4	24	94.46	20.42	4.169	93.5	54	140	0
Sulfate (mg/l)	MW-5	24	204.8	75.53	15.42	205	15	460	0
Sulfate (mg/l)	MW-6 (bg)	24	28.38	4.853	0.9906	28.5	22	43	0
Sulfate (mg/l)	MW-8	24	107.8	28.39	5.796	110	4.5	150	0
Total Dissolved Solids (mg/l)	MW-3 (bg)	24	139.7	20.87	4.261	140	100	180	0
Total Dissolved Solids (mg/l)	MW-4	24	330.2	40.12	8.19	330	260	420	0
Total Dissolved Solids (mg/l)	MW-5	24	474.8	52.41	10.7	480	310	590	0
Total Dissolved Solids (mg/l)	MW-6 (bg)	24	200.8	29.77	6.077	200	160	250	0
Total Dissolved Solids (mg/l)	MW-8	24	394.8	58.6	11.96	395	290	500	0

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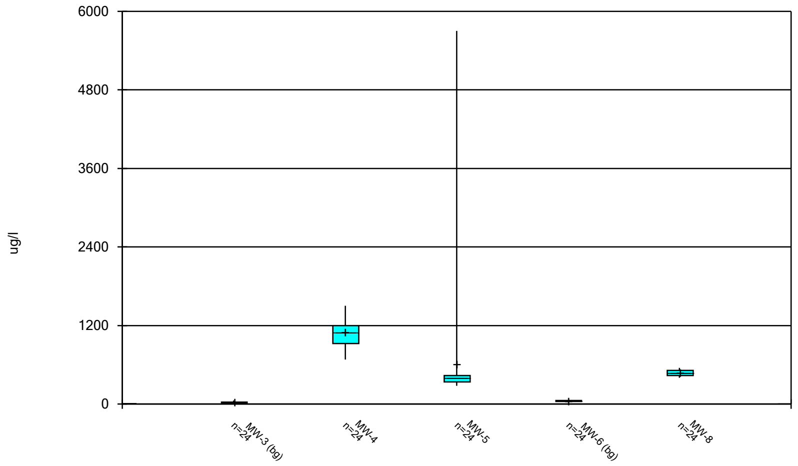
Boron



Box & Whiskers Plot   Analysis Run 11/21/2023 8:41 AM

SBMU-Sikeston Power Station   Client: GREDELL Engineering   Data: SBMU-SPS EDD File 09-28-17

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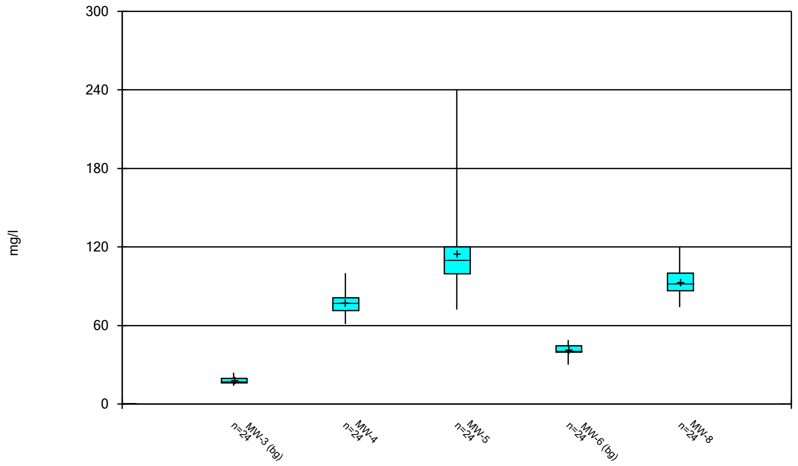
Calcium



Box & Whiskers Plot   Analysis Run 11/21/2023 8:41 AM

SBMU-Sikeston Power Station   Client: GREDELL Engineering   Data: SBMU-SPS EDD File 09-28-17

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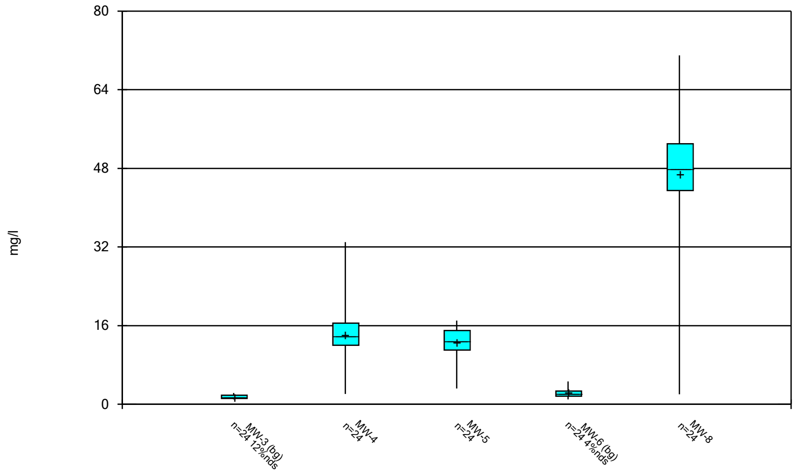
Chloride



Box & Whiskers Plot   Analysis Run 11/21/2023 8:41 AM

SBMU-Sikeston Power Station   Client: GREDELL Engineering   Data: SBMU-SPS EDD File 09-28-17

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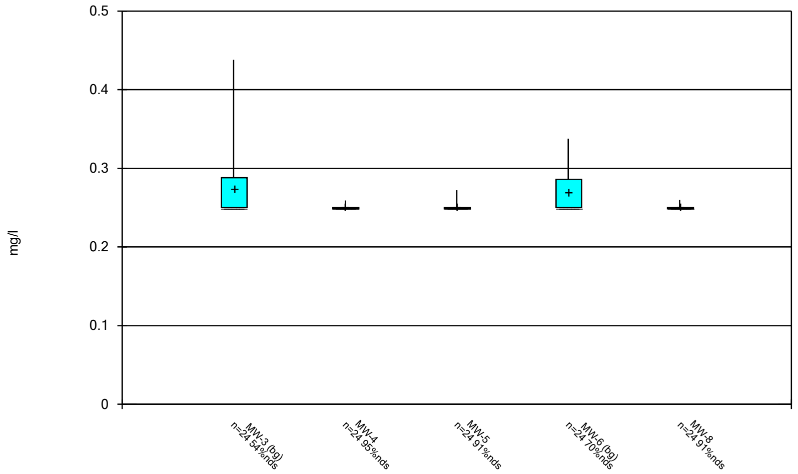
Fluoride



Box & Whiskers Plot   Analysis Run 11/21/2023 8:41 AM

SBMU-Sikeston Power Station   Client: GREDELL Engineering   Data: SBMU-SPS EDD File 09-28-17

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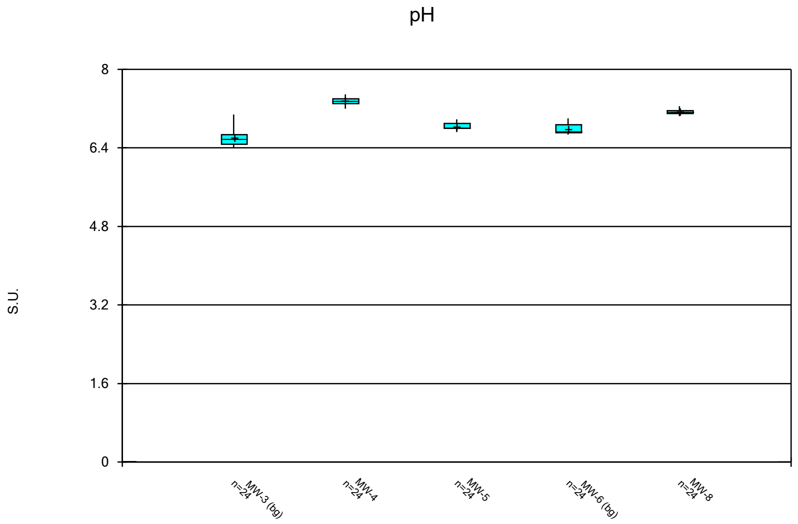

Box & Whiskers Plot Analysis Run 11/21/2023 8:41 AM

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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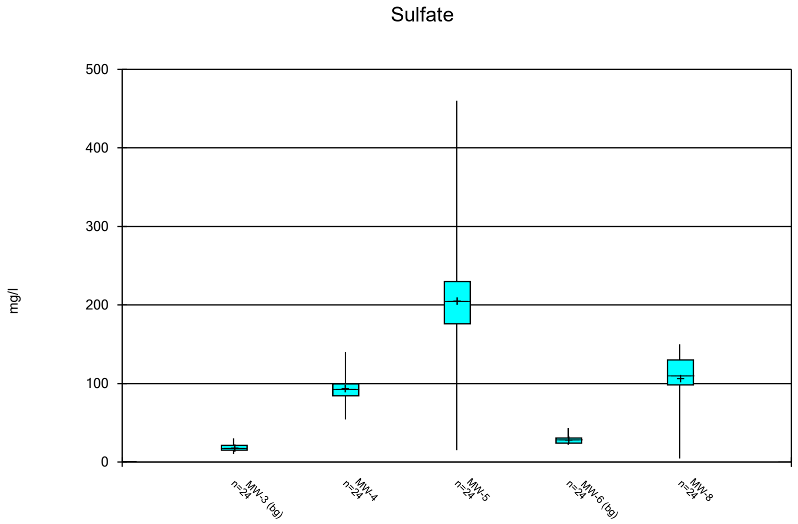

Box & Whiskers Plot Analysis Run 11/21/2023 8:41 AM

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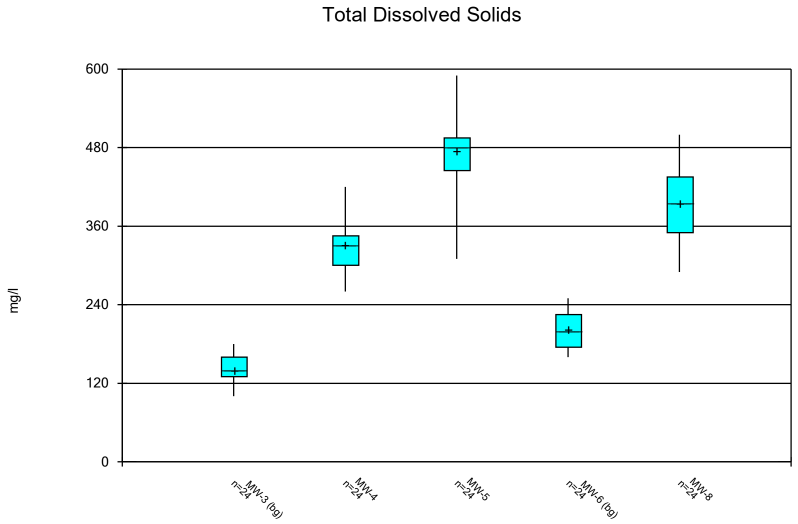

Box & Whiskers Plot Analysis Run 11/21/2023 8:41 AM

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Appendix 7

Prediction Limit Charts

Appendix 7a

Prediction Limit Charts
(Second 2022 Semi-annual Event)

Prediction Limit

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17 Printed 8/28/2023, 11:36 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Chloride (mg/l)	**MW-6**	**2.954**	**n/a**	**11/1/2022**	**4.6**	**Yes**	**18**	**5.556**	**No**	**0.001504**	**Param Intra 1 of 2**

Prediction Limit

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17 Printed 8/28/2023, 11:37 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (ug/l)	MW-3	52.07	n/a	11/1/2022	20	No	18	0	sqrt(x)	0.001504	Param Intra 1 of 2
Boron (ug/l)	MW-4	1549	n/a	11/1/2022	940	No	18	0	No	0.001504	Param Intra 1 of 2
Boron (ug/l)	MW-5	537.2	n/a	11/1/2022	420	No	17	0	No	0.001504	Param Intra 1 of 2
Boron (ug/l)	MW-8	577.9	n/a	11/1/2022	440	No	18	0	No	0.001504	Param Intra 1 of 2
Calcium (mg/l)	MW-3	23.56	n/a	11/1/2022	17	No	18	0	No	0.001504	Param Intra 1 of 2
Calcium (mg/l)	MW-4	97.16	n/a	11/1/2022	81	No	18	0	No	0.001504	Param Intra 1 of 2
Calcium (mg/l)	MW-5	132.9	n/a	11/1/2022	130	No	16	0	No	0.001504	Param Intra 1 of 2
Calcium (mg/l)	MW-6	48.81	n/a	12/13/2022	45	No	18	0	No	0.001504	Param Intra 1 of 2
Chloride (mg/l)	MW-3	2.43	n/a	11/1/2022	1ND	No	18	0	No	0.001504	Param Intra 1 of 2
Chloride (mg/l)	MW-4	19.57	n/a	11/1/2022	12	No	16	0	No	0.001504	Param Intra 1 of 2
Chloride (mg/l)	MW-5	19.46	n/a	11/1/2022	13	No	18	0	No	0.001504	Param Intra 1 of 2
Chloride (mg/l)	**MW-6**	**2.954**	**n/a**	**11/1/2022**	**4.6**	**Yes**	**18**	**5.556**	**No**	**0.001504**	**Param Intra 1 of 2**
Fluoride (mg/l)	MW-3	0.438	n/a	11/1/2022	0.25ND	No	18	38.89	n/a	0.005373	NP Intra (normality) ...
Fluoride (mg/l)	MW-4	0.259	n/a	11/1/2022	0.25ND	No	18	94.44	n/a	0.005373	NP Intra (NDs) 1 of 2
Fluoride (mg/l)	MW-5	0.272	n/a	11/1/2022	0.25ND	No	18	88.89	n/a	0.005373	NP Intra (NDs) 1 of 2
Fluoride (mg/l)	MW-6	0.338	n/a	11/1/2022	0.25ND	No	18	66.67	n/a	0.005373	NP Intra (NDs) 1 of 2
Fluoride (mg/l)	MW-8	0.26	n/a	11/1/2022	0.25ND	No	18	94.44	n/a	0.005373	NP Intra (NDs) 1 of 2
pH (S.U.)	MW-4	7.516	7.221	12/13/2022	7.27	No	17	0	No	0.000752	Param Intra 1 of 2
pH (S.U.)	MW-5	7.011	6.68	12/13/2022	6.81	No	18	0	No	0.000752	Param Intra 1 of 2
pH (S.U.)	MW-8	7.242	7.038	12/13/2022	7.05	No	18	0	No	0.000752	Param Intra 1 of 2
Sulfate (mg/l)	MW-3	29.71	n/a	11/1/2022	10	No	18	0	No	0.001504	Param Intra 1 of 2
Sulfate (mg/l)	MW-4	144.5	n/a	11/1/2022	79	No	18	0	No	0.001504	Param Intra 1 of 2
Sulfate (mg/l)	MW-5	267.4	n/a	11/1/2022	250	No	15	0	No	0.001504	Param Intra 1 of 2
Sulfate (mg/l)	MW-6	40.3	n/a	11/1/2022	26	No	18	0	No	0.001504	Param Intra 1 of 2
Sulfate (mg/l)	MW-8	149.9	n/a	11/1/2022	130	No	17	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-3	183.4	n/a	11/1/2022	100	No	18	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-4	414.6	n/a	11/1/2022	340	No	18	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-5	545.9	n/a	12/13/2022	490	No	16	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-6	251.5	n/a	12/13/2022	220	No	18	0	No	0.001504	Param Intra 1 of 2

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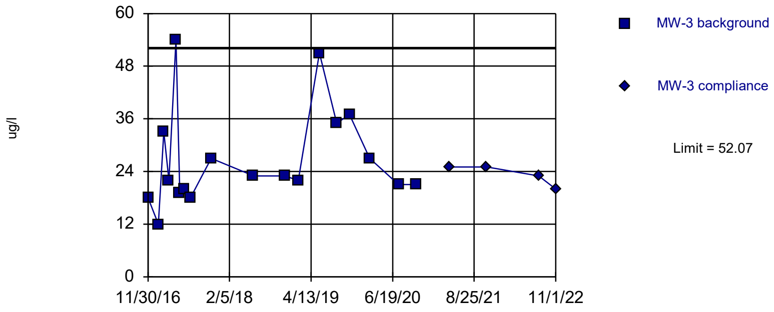
Within Limit

Boron

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=5.086, Std. Dev.=1.013, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8996, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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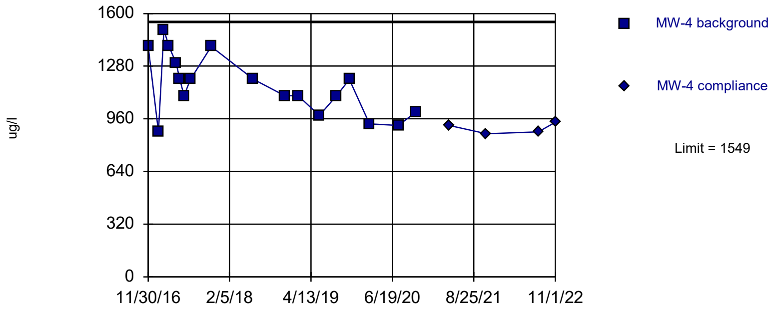
Within Limit

Boron

Intrawell Parametric



Background Data Summary: Mean=1162, Std. Dev.=184, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.948, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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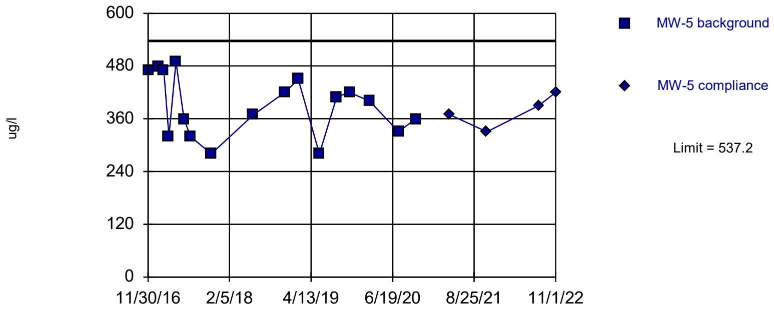
Within Limit

Boron

Intrawell Parametric



Background Data Summary: Mean=390, Std. Dev.=69.19, n=17. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9407, critical = 0.851. Kappa = 2.127 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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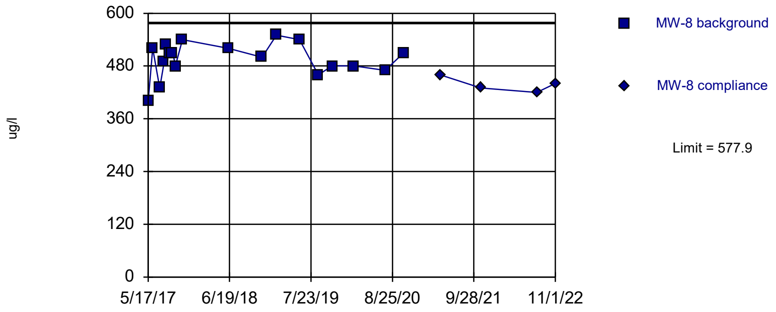
Within Limit

Boron

Intrawell Parametric



Background Data Summary: Mean=495.6, Std. Dev.=39.14, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9399, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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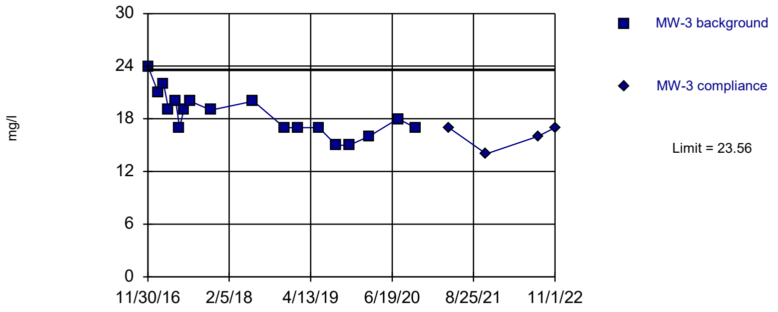
Within Limit

Calcium

Intrawell Parametric



Background Data Summary: Mean=18.5, Std. Dev.=2.407, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9507, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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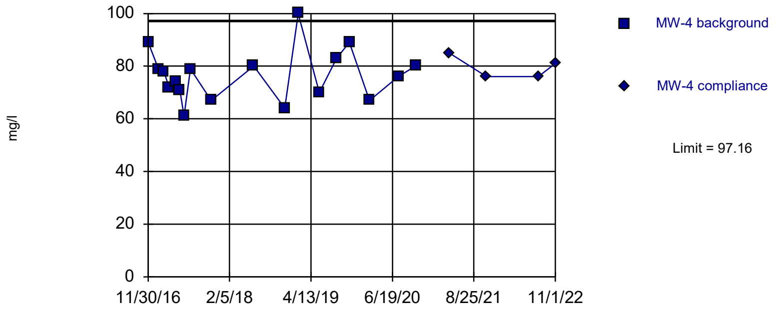
Within Limit

Calcium

Intrawell Parametric



Background Data Summary: Mean=76.61, Std. Dev.=9.769, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9656, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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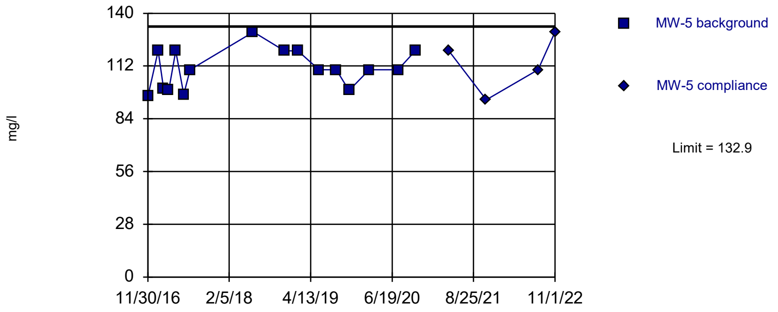
Within Limit

Calcium

Intrawell Parametric



Background Data Summary: Mean=110.7, Std. Dev.=10.33, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9039, critical = 0.844. Kappa = 2.15 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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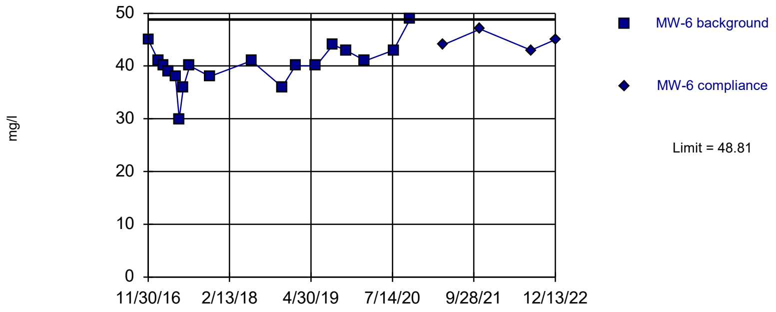
Within Limit

Calcium

Intrawell Parametric



Background Data Summary: Mean=40.22, Std. Dev.=4.081, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9539, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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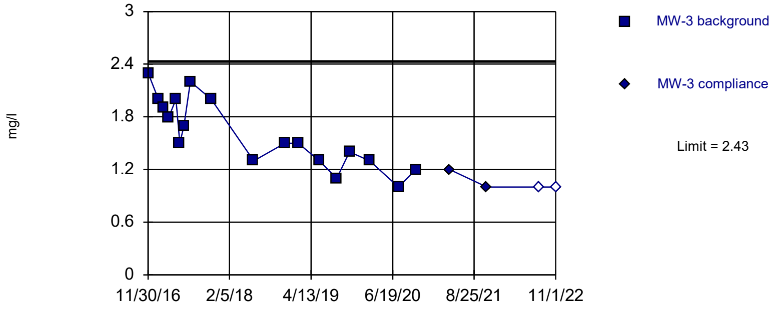
Hollow symbols indicate censored values.

Within Limit

Chloride

Intrawell Parametric



Background Data Summary: Mean=1.611, Std. Dev.=0.3894, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9507, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

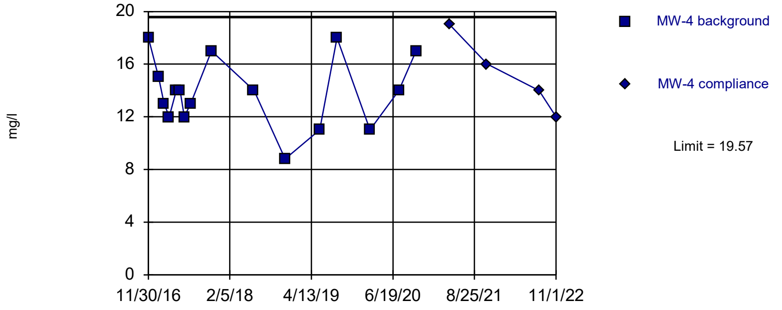
Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG

Within Limit

Chloride

Intrawell Parametric



Background Data Summary: Mean=13.86, Std. Dev.=2.655, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9515, critical = 0.844. Kappa = 2.15 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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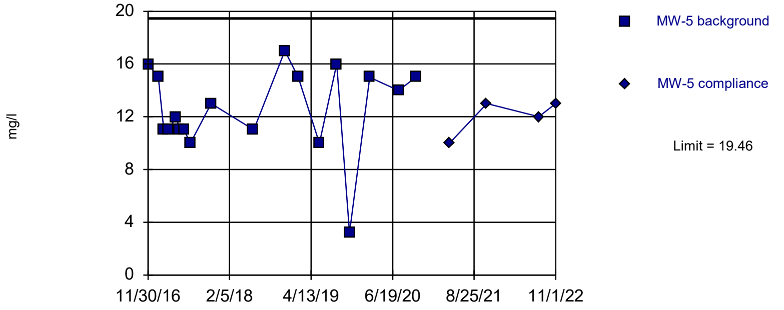
Within Limit

Chloride

Intrawell Parametric



Background Data Summary: Mean=12.57, Std. Dev.=3.278, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8761, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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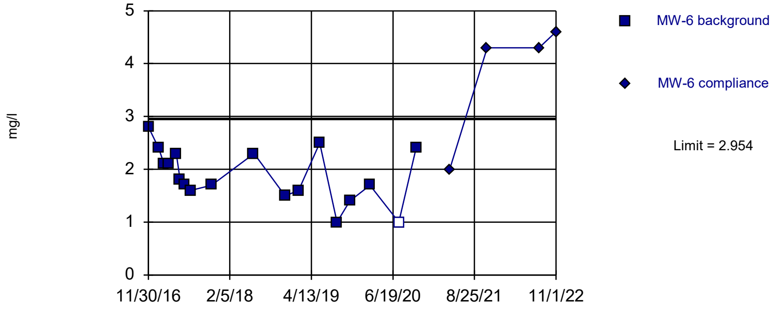
Hollow symbols indicate censored values.

Exceeds Limit

Chloride

Intrawell Parametric



Background Data Summary: Mean=1.883, Std. Dev.=0.509, n=18, 5.556% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9587, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

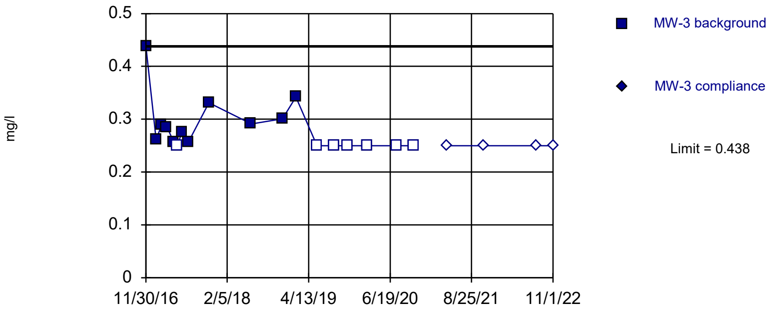
Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG
Hollow symbols indicate censored values.

Within Limit

Fluoride

Intrawell Non-parametric



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 18 background values. 38.89% NDs. Well-constituent pair annual alpha = 0.01072. Individual comparison alpha = 0.005373 (1 of 2).

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

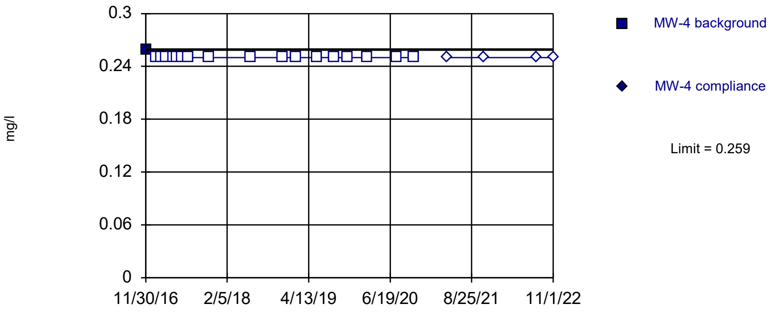
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG
Hollow symbols indicate censored values.

Within Limit

Fluoride

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 18 background values. 94.44% NDs. Well-constituent pair annual alpha = 0.01072. Individual comparison alpha = 0.005373 (1 of 2).

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

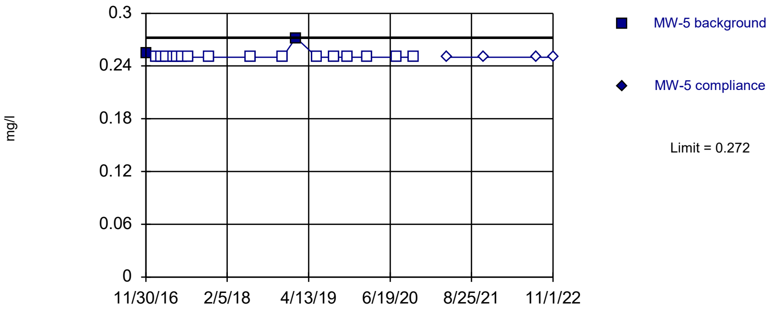
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG
Hollow symbols indicate censored values.

Within Limit

Fluoride

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 18 background values. 88.89% NDs. Well-constituent pair annual alpha = 0.01072. Individual comparison alpha = 0.005373 (1 of 2).

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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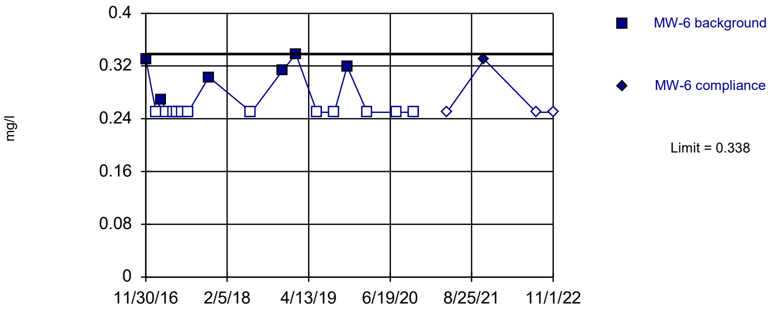
Hollow symbols indicate censored values.

Within Limit

Fluoride

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 18 background values. 66.67% NDs. Well-constituent pair annual alpha = 0.01072. Individual comparison alpha = 0.005373 (1 of 2).

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

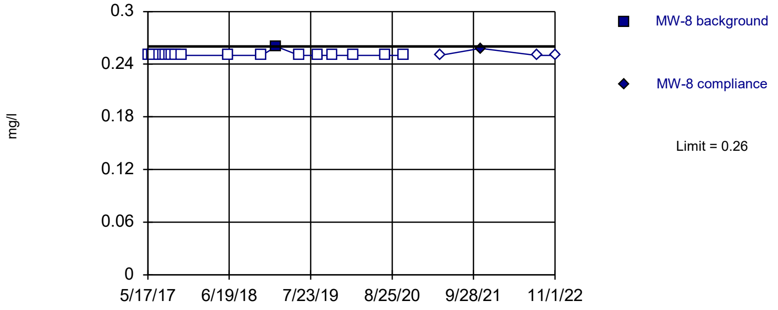
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG
Hollow symbols indicate censored values.

Within Limit

Fluoride

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 18 background values. 94.44% NDs. Well-constituent pair annual alpha = 0.01072. Individual comparison alpha = 0.005373 (1 of 2).

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

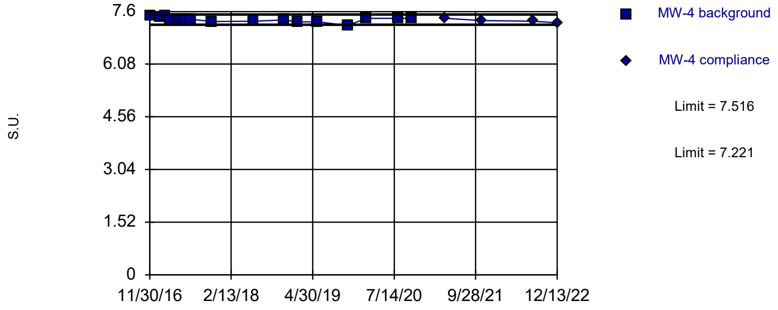
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG

Within Limits

pH

Intrawell Parametric



Background Data Summary: Mean=7.369, Std. Dev.=0.06927, n=17. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9505, critical = 0.851. Kappa = 2.127 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

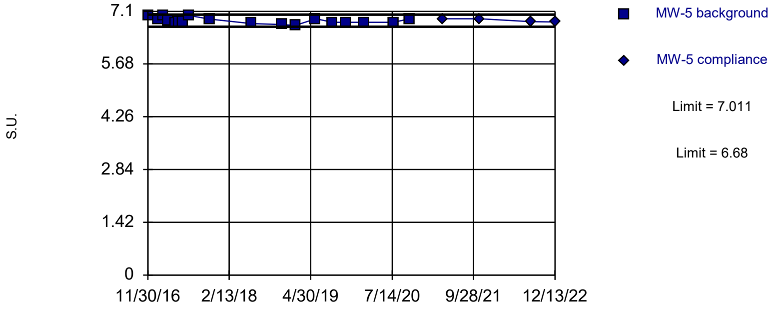
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG

Within Limits

pH

Intrawell Parametric



Background Data Summary: Mean=6.846, Std. Dev.=0.07853, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9237, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

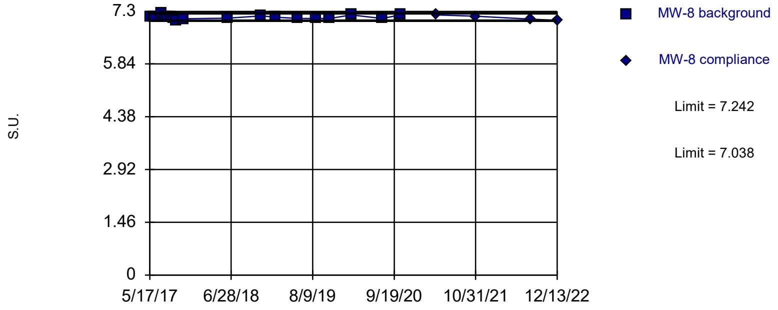
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG

Within Limits

pH

Intrawell Parametric



Background Data Summary: Mean=7.14, Std. Dev.=0.04826, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9628, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:30 AM View: Everything Minus Detrended Data

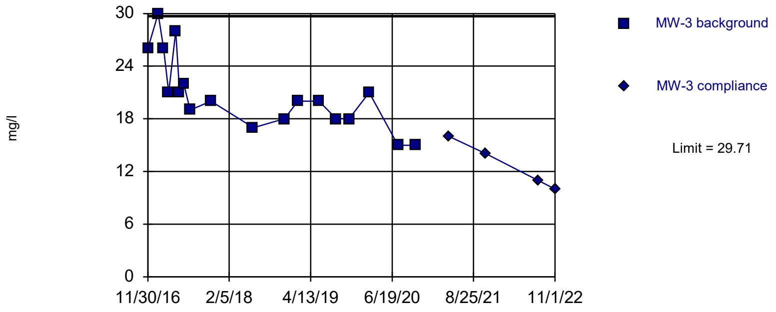
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG

Within Limit

Sulfate

Intrawell Parametric



Background Data Summary: Mean=20.83, Std. Dev.=4.218, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9206, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:31 AM View: Everything Minus Detrended Data

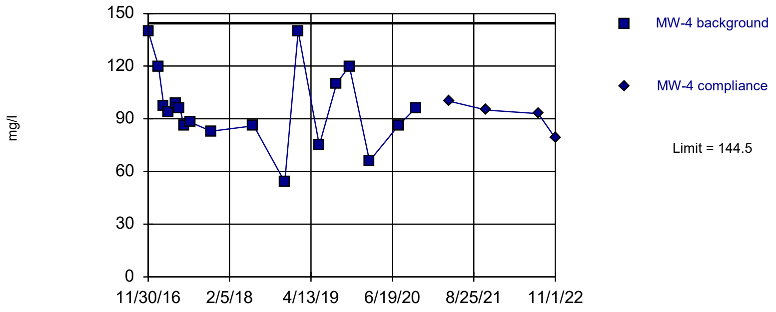
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG

Within Limit

Sulfate

Intrawell Parametric



Background Data Summary: Mean=96.44, Std. Dev.=22.84, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9502, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:31 AM View: Everything Minus Detrended Data

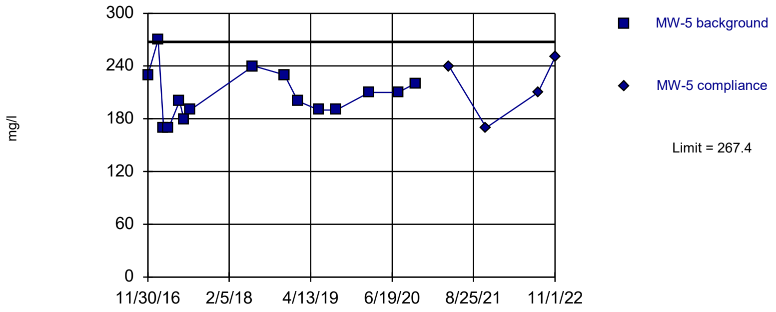
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG

Within Limit

Sulfate

Intrawell Parametric



Background Data Summary: Mean=206.7, Std. Dev.=27.69, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9482, critical = 0.835. Kappa = 2.193 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:31 AM View: Everything Minus Detrended Data

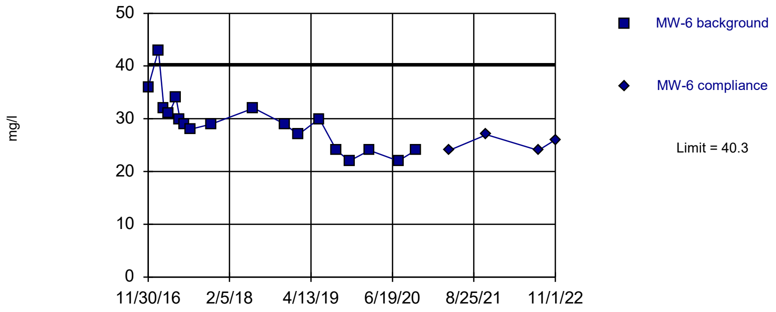
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG

Within Limit

Sulfate

Intrawell Parametric



Background Data Summary: Mean=29.22, Std. Dev.=5.264, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9321, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:31 AM View: Everything Minus Detrended Data

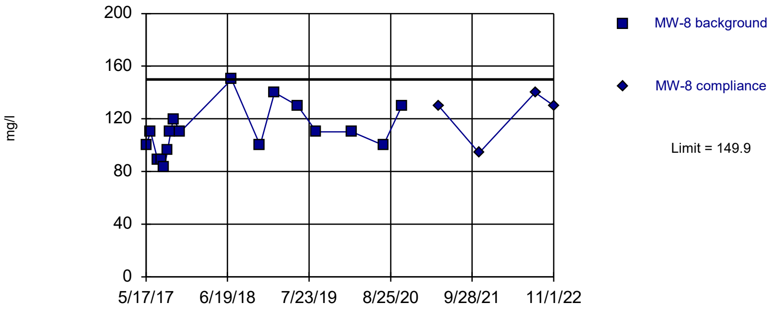
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG

Within Limit

Sulfate

Intrawell Parametric



Background Data Summary: Mean=110.4, Std. Dev.=18.55, n=17. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9427, critical = 0.851. Kappa = 2.127 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:31 AM View: Everything Minus Detrended Data

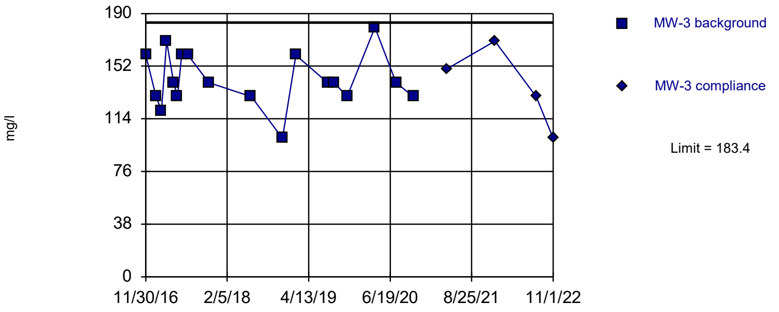
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG

Within Limit

Total Dissolved Solids

Intrawell Parametric



Background Data Summary: Mean=142.2, Std. Dev.=19.57, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9412, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:31 AM View: Everything Minus Detrended Data

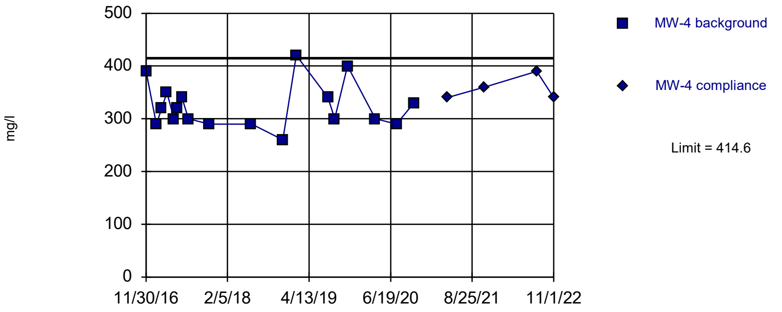
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG

Within Limit

Total Dissolved Solids

Intrawell Parametric



Background Data Summary: Mean=323.9, Std. Dev.=43.13, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8945, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:31 AM View: Everything Minus Detrended Data

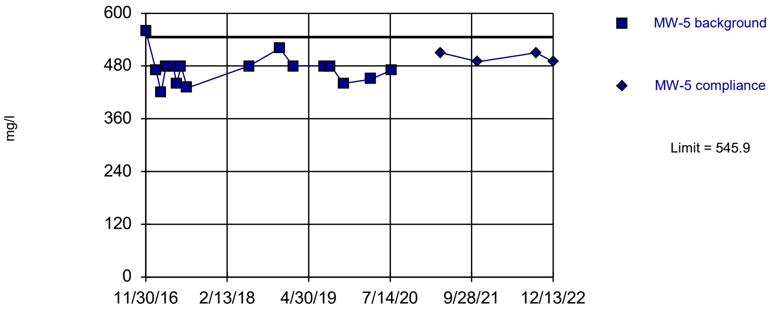
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG

Within Limit

Total Dissolved Solids

Intrawell Parametric



Background Data Summary: Mean=472.5, Std. Dev.=34.16, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8811, critical = 0.844. Kappa = 2.15 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

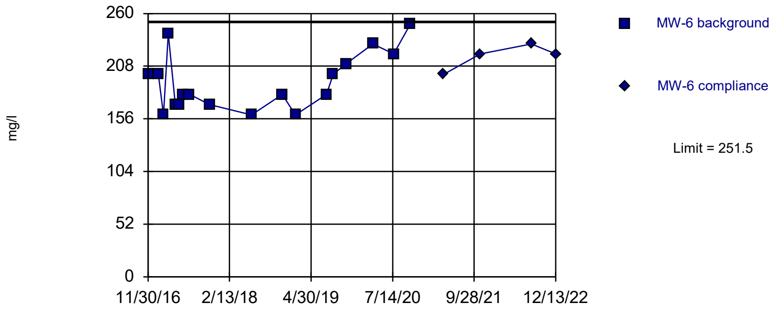
Prediction Limit Analysis Run 8/28/2023 11:31 AM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Within Limit

Total Dissolved Solids

Intrawell Parametric



Background Data Summary: Mean=192.2, Std. Dev.=28.19, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9055, critical = 0.858. Kappa = 2.104 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:31 AM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Intrawell Prediction Limit

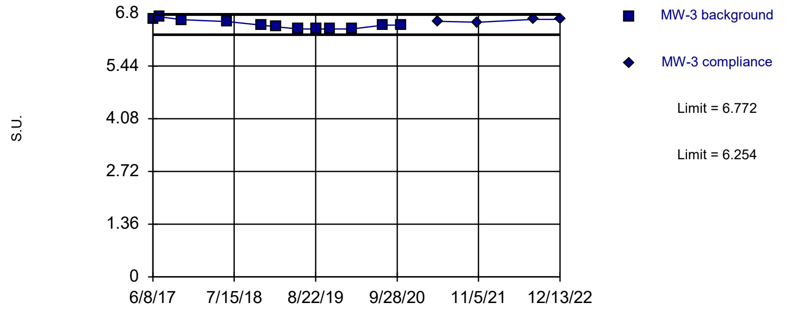
SBMU-Sikeston Power Station   Client: GREDELL Engineering   Data: SBMU-SPS EDD File 09-28-17   Printed 8/28/2023, 11:58 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
pH (S.U.)	MW-6	7	6.67	11/1/2022	6.85	No	17	0	n/a	0.01183	NP (normality) 1 of 2
pH (S.U.)	MW-3	6.772	6.254	12/13/2022	6.65	No	12	0	No	0.000752	Param 1 of 2
Boron (ug/l)	MW-6	58.99	n/a	11/1/2022	55	No	8	0	No	0.001504	Param 1 of 2
Chloride (mg/l)	MW-8	78.74	n/a	11/1/2022	51	No	8	0	No	0.001504	Param 1 of 2
Total Dissolved Solids (mg/l)	MW-8	547.4	n/a	11/1/2022	500	No	8	0	No	0.001504	Param 1 of 2
Calcium (mg/l)	MW-8	120	n/a	11/1/2022	110	No	8	0	No	0.001504	Param 1 of 2

Within Limits

pH

Intrawell Parametric



Background Data Summary: Mean=6.513, Std. Dev.=0.1115, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8763, critical = 0.805. Kappa = 2.322 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

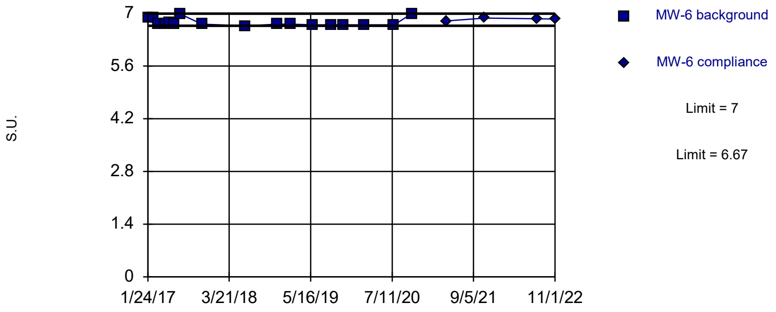
Prediction Limit Analysis Run 8/28/2023 11:46 AM View: 11th round detrended ph mw3

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Within Limits

pH

Intrawell Non-parametric



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. Limits are highest and lowest of 17 background values. Well-constituent pair annual alpha = 0.02359. Individual comparison alpha = 0.01183 (1 of 2).

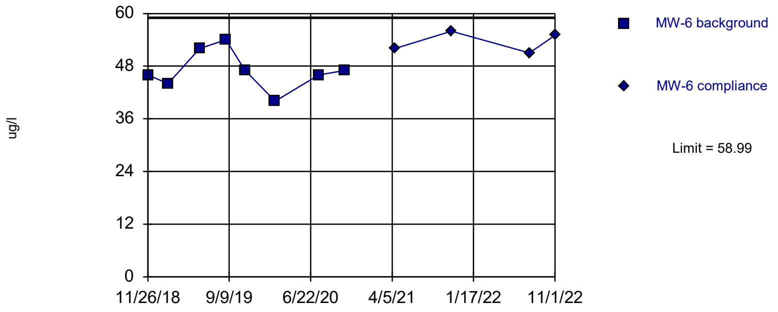
Prediction Limit   Analysis Run 8/28/2023 11:45 AM   View: 11th detrended ph mw6

SBMU-Sikeston Power Station   Client: GREDELL Engineering   Data: SBMU-SPS EDD File 09-28-17

Within Limit

Boron

Intrawell Parametric



Background Data Summary: Mean=47, Std. Dev.=4.375, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9419, critical = 0.749. Kappa = 2.74 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

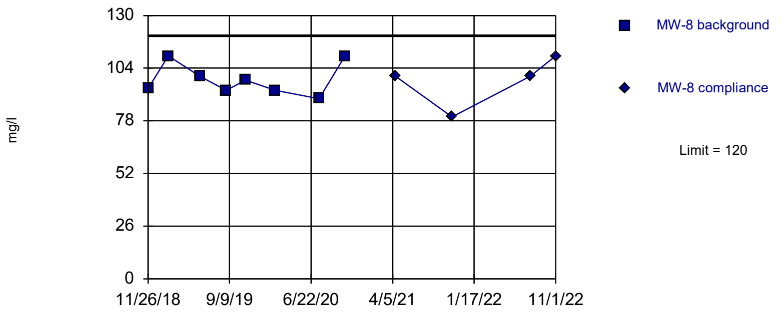
Prediction Limit Analysis Run 8/28/2023 11:48 AM View: 11th round detrended ph mw3

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Within Limit

Calcium

Intrawell Parametric

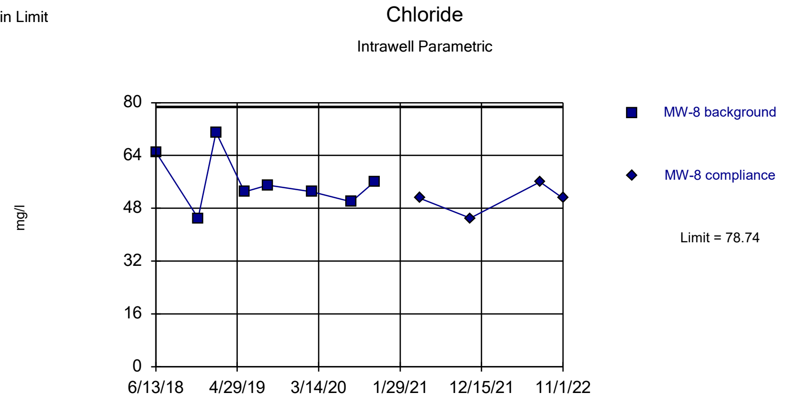


Background Data Summary: Mean=98.38, Std. Dev.=7.909, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8713, critical = 0.749. Kappa = 2.74 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:57 AM View: 11th Ca mw8

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Within Limit



Background Data Summary: Mean=56, Std. Dev.=8.298, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9251, critical = 0.749. Kappa = 2.74 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

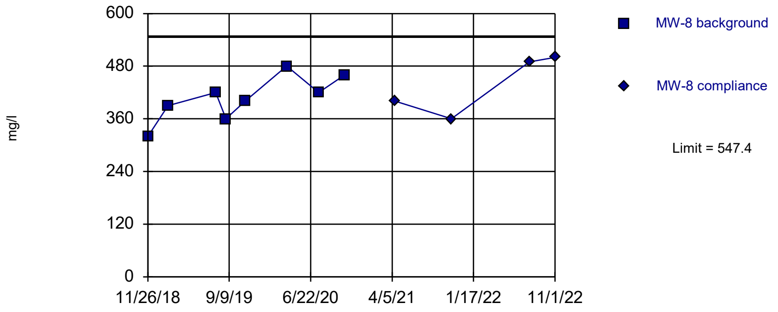
Prediction Limit Analysis Run 8/28/2023 11:50 AM View: 11th detrended boron MW6

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Within Limit

Total Dissolved Solids

Intrawell Parametric



Background Data Summary: Mean=406.3, Std. Dev.=51.53, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9779, critical = 0.749. Kappa = 2.74 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 11:53 AM View: 11th detrended tds mw-8

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Appendix 7b

Prediction Limit Charts
(First 2023 Semi-annual Event)

Prediction Limit

SBMU-Sikeston Power Station   Client: GREDELL Engineering   Data: SBMU-SPS EDD File 09-28-17   Printed 12/20/2023, 3:43 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (ug/l)	MW-3	47.74	n/a	4/18/2023	23	No	22	0	sqrt(x)	0.001504	Param Intra 1 of 2
Boron (ug/l)	MW-4	1511	n/a	4/18/2023	680	No	22	0	No	0.001504	Param Intra 1 of 2
Boron (ug/l)	MW-5	518	n/a	4/18/2023	340	No	21	0	No	0.001504	Param Intra 1 of 2
Boron (ug/l)	MW-8	571.3	n/a	4/18/2023	420	No	22	0	No	0.001504	Param Intra 1 of 2
Calcium (mg/l)	MW-3	23	n/a	4/18/2023	15	No	22	0	No	0.001504	Param Intra 1 of 2
Calcium (mg/l)	MW-4	95.44	n/a	4/18/2023	72	No	22	0	No	0.001504	Param Intra 1 of 2
Calcium (mg/l)	MW-5	137.6	n/a	4/18/2023	120	No	21	0	No	0.001504	Param Intra 1 of 2
Chloride (mg/l)	MW-3	2.354	n/a	4/18/2023	1.2	No	22	9.091	No	0.001504	Param Intra 1 of 2
Chloride (mg/l)	MW-4	19.7	n/a	4/18/2023	10	No	20	0	No	0.001504	Param Intra 1 of 2
Chloride (mg/l)	MW-5	17.47	n/a	4/18/2023	13	No	21	0	No	0.001504	Param Intra 1 of 2
Chloride (mg/l)	MW-6	4.382	n/a	5/23/2023	4	No	22	4.545	sqrt(x)	0.001504	Param Intra 1 of 2
Chloride (mg/l)	MW-8	67.53	n/a	4/18/2023	44	No	21	0	No	0.001504	Param Intra 1 of 2
Fluoride (mg/l)	MW-3	0.438	n/a	4/18/2023	0.25ND	No	22	50	n/a	0.003707	NP Intra (normality) ...
Fluoride (mg/l)	MW-4	0.259	n/a	4/18/2023	0.25ND	No	22	95.45	n/a	0.003707	NP Intra (NDs) 1 of 2
Fluoride (mg/l)	MW-5	0.272	n/a	4/18/2023	0.25ND	No	22	90.91	n/a	0.003707	NP Intra (NDs) 1 of 2
Fluoride (mg/l)	MW-6	0.338	n/a	4/18/2023	0.25ND	No	22	68.18	n/a	0.003707	NP Intra (NDs) 1 of 2
Fluoride (mg/l)	MW-8	0.26	n/a	4/18/2023	0.25ND	No	22	90.91	n/a	0.003707	NP Intra (NDs) 1 of 2
pH (S.U.)	MW-4	7.499	7.225	4/18/2023	7.49	No	21	0	No	0.000752	Param Intra 1 of 2
pH (S.U.)	MW-5	6.996	6.699	4/18/2023	6.85	No	22	0	No	0.000752	Param Intra 1 of 2
pH (S.U.)	MW-6	7	6.67	4/18/2023	6.91	No	22	0	n/a	0.007415	NP Intra (normality) ...
pH (S.U.)	MW-8	7.241	7.033	5/23/2023	7.14	No	22	0	No	0.000752	Param Intra 1 of 2
Sulfate (mg/l)	MW-3	29.65	n/a	4/18/2023	12	No	22	0	No	0.001504	Param Intra 1 of 2
Sulfate (mg/l)	MW-4	138.1	n/a	4/18/2023	76	No	22	0	No	0.001504	Param Intra 1 of 2
Sulfate (mg/l)	MW-5	269	n/a	4/18/2023	210	No	19	0	No	0.001504	Param Intra 1 of 2
Sulfate (mg/l)	MW-6	38.7	n/a	4/18/2023	29	No	22	0	No	0.001504	Param Intra 1 of 2
Sulfate (mg/l)	MW-8	151.9	n/a	4/18/2023	110	No	21	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-3	184	n/a	4/18/2023	120	No	22	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-4	415.2	n/a	4/18/2023	330	No	22	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-5	545.3	n/a	4/18/2023	500	No	20	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-6	253	n/a	4/18/2023	240	No	22	0	No	0.001504	Param Intra 1 of 2

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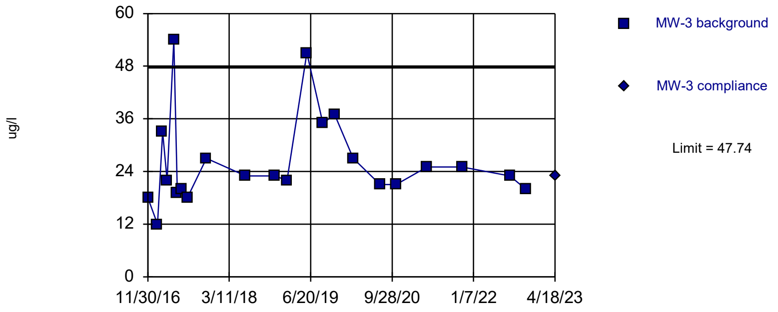
Within Limit

Boron

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=5.037, Std. Dev.=0.922, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8792, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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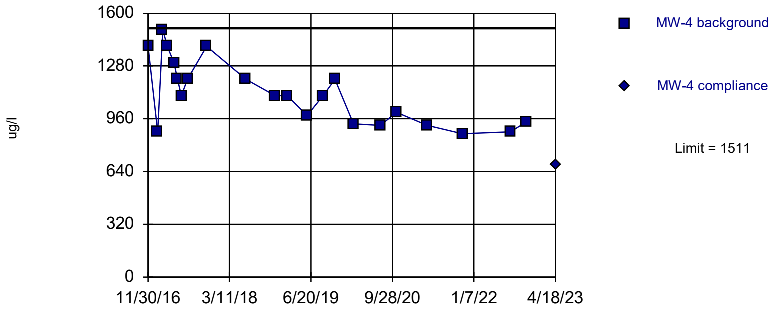
Within Limit

Boron

Intrawell Parametric



Background Data Summary: Mean=1115, Std. Dev.=195, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9191, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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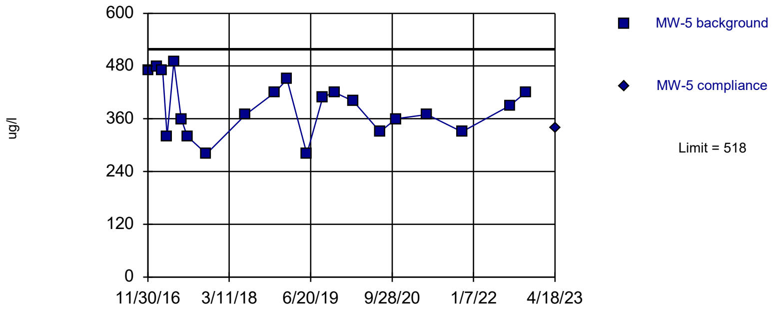
Within Limit

Boron

Intrawell Parametric



Background Data Summary: Mean=387.6, Std. Dev.=63.79, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.959, critical = 0.873. Kappa = 2.044 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

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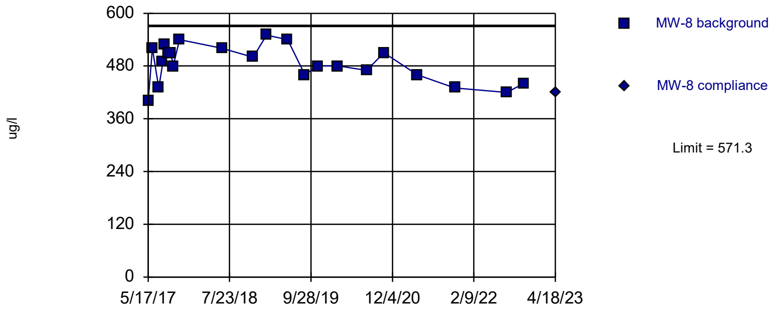
Within Limit

Boron

Intrawell Parametric



Background Data Summary: Mean=485, Std. Dev.=42.51, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9619, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

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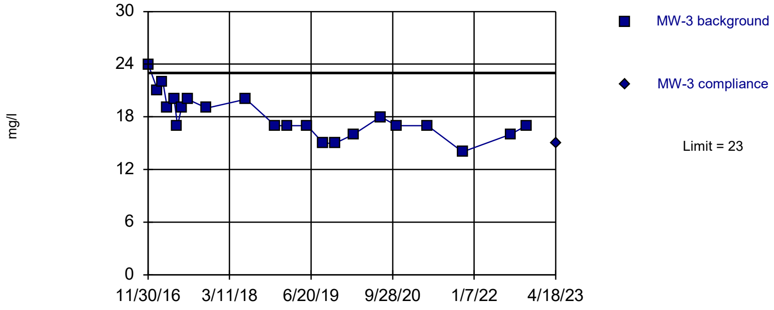
Within Limit

Calcium

Intrawell Parametric



Background Data Summary: Mean=18.05, Std. Dev.=2.439, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9506, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

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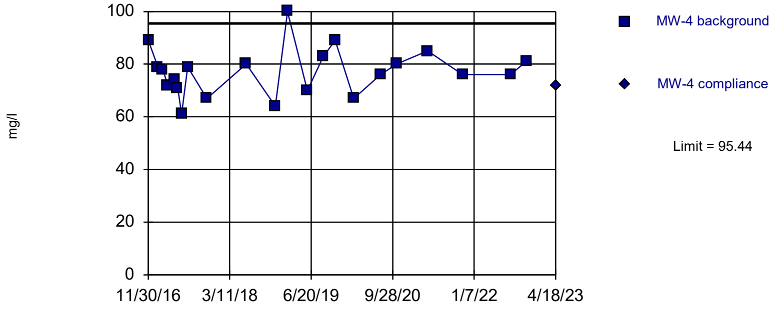
Within Limit

Calcium

Intrawell Parametric



Background Data Summary: Mean=77.14, Std. Dev.=9.015, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9748, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

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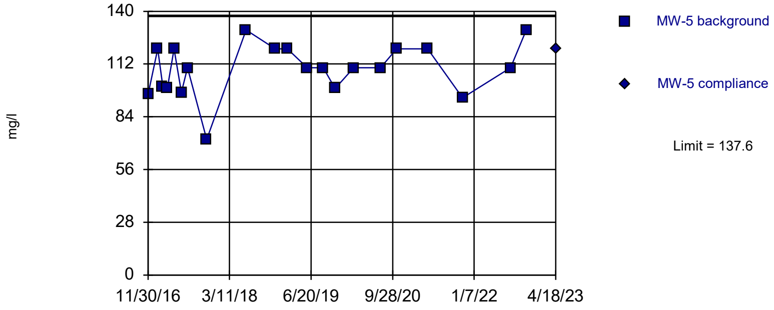
Within Limit

Calcium

Intrawell Parametric



Background Data Summary: Mean=109.4, Std. Dev.=13.78, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9172, critical = 0.873. Kappa = 2.044 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

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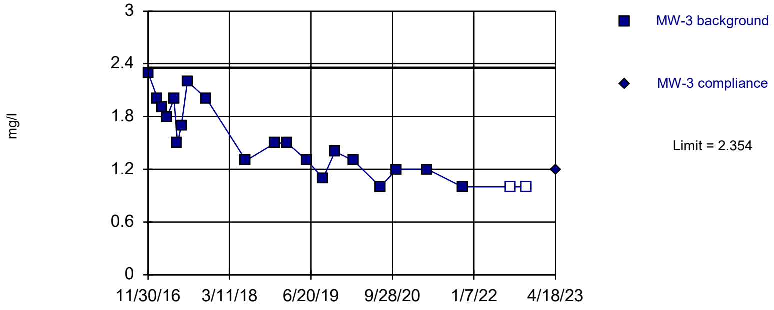
Hollow symbols indicate censored values.

Within Limit

Chloride

Intrawell Parametric



Background Data Summary: Mean=1.509, Std. Dev.=0.4162, n=22, 9.091% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9209, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

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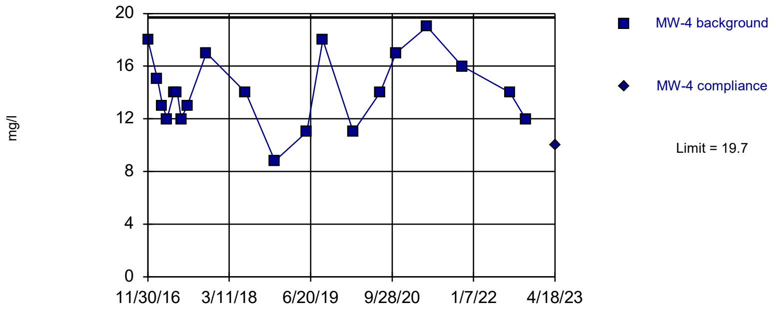
Within Limit

Chloride

Intrawell Parametric



Background Data Summary: Mean=14.14, Std. Dev.=2.701, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9646, critical = 0.868. Kappa = 2.058 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

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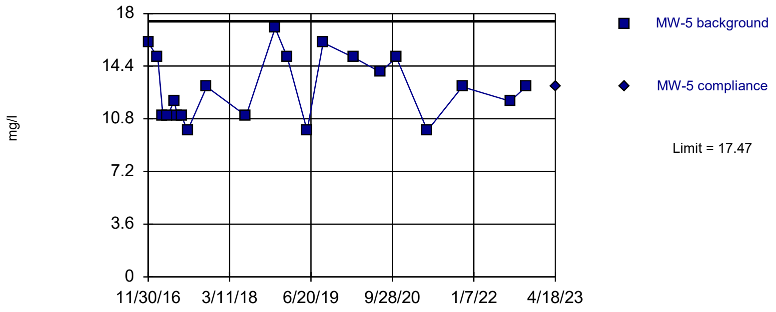
Within Limit

Chloride

Intrawell Parametric



Background Data Summary: Mean=12.9, Std. Dev.=2.234, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.917, critical = 0.873. Kappa = 2.044 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

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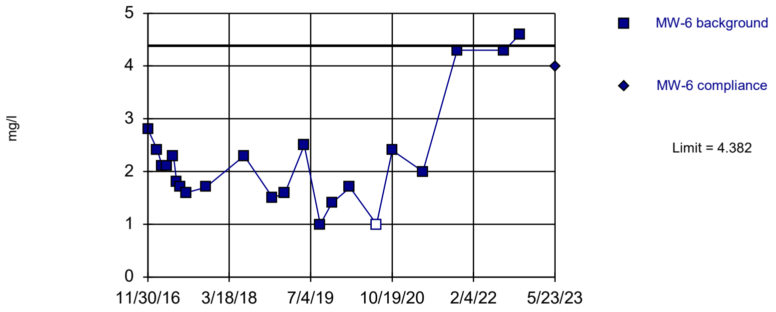
Hollow symbols indicate censored values.

Within Limit

Chloride

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=1.463, Std. Dev.=0.3105, n=22, 4.545% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

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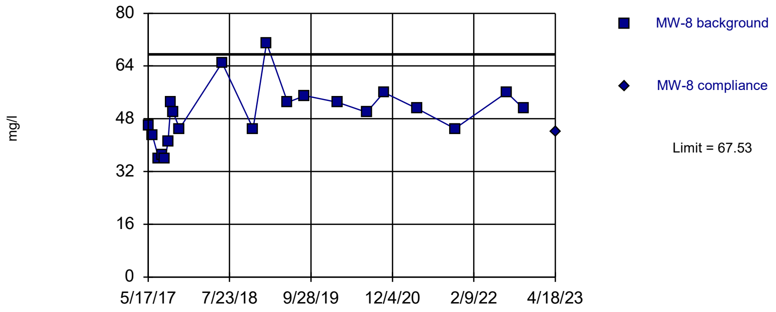
Within Limit

Chloride

Intrawell Parametric



Background Data Summary: Mean=49.43, Std. Dev.=8.852, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9495, critical = 0.873. Kappa = 2.044 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

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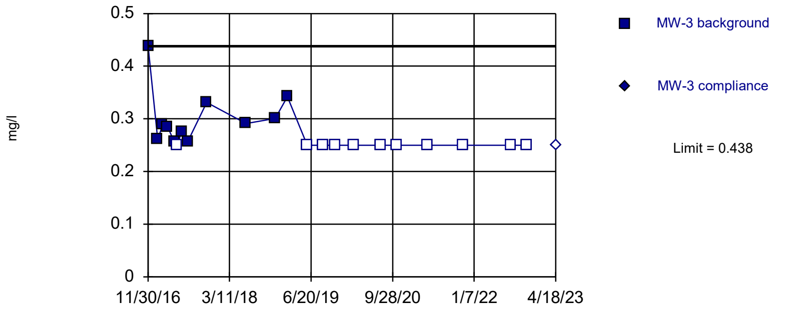
Hollow symbols indicate censored values.

Within Limit

Fluoride

Intrawell Non-parametric



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. 50% NDs. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2).

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

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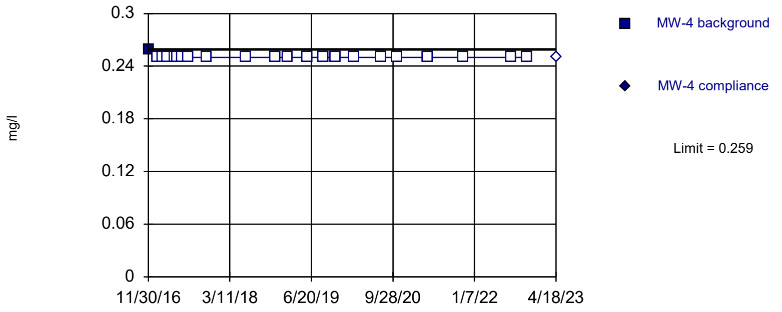
Hollow symbols indicate censored values.

Within Limit

Fluoride

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 95.45% NDs. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2).

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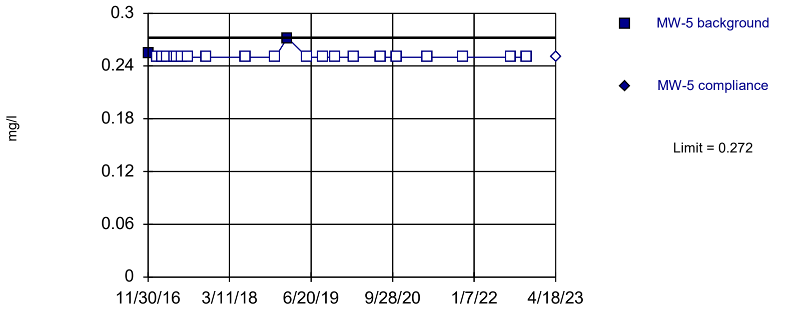
Hollow symbols indicate censored values.

Within Limit

Fluoride

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 90.91% NDs. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2).

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

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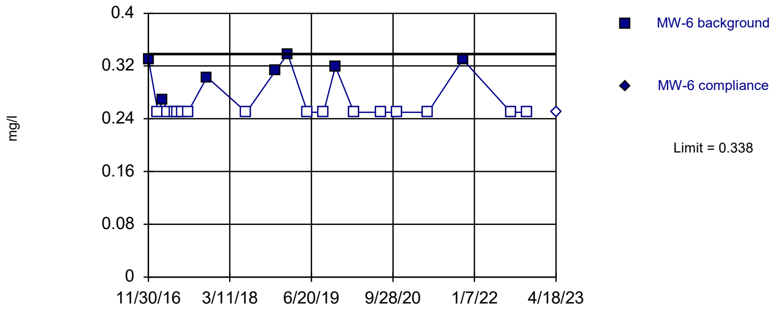
Hollow symbols indicate censored values.

Within Limit

Fluoride

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 68.18% NDs. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2).

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

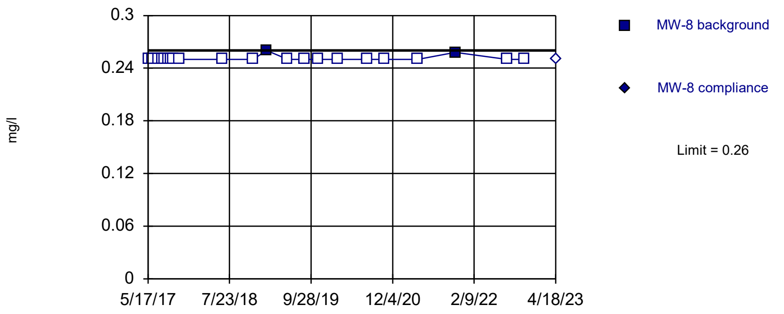
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Hollow symbols indicate censored values.

Within Limit

Fluoride

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 90.91% NDs. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2).

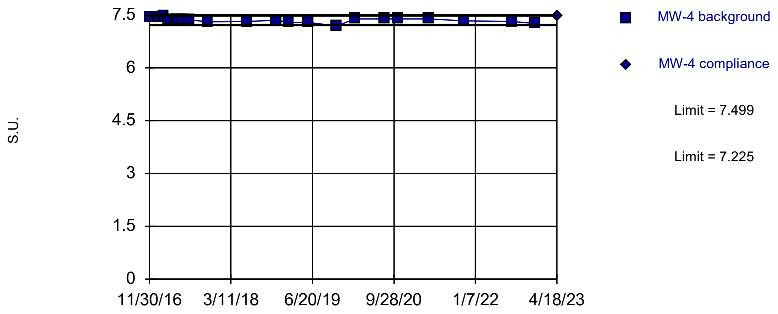
Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Within Limits

pH

Intrawell Parametric



Background Data Summary: Mean=7.362, Std. Dev.=0.06698, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9707, critical = 0.873. Kappa = 2.044 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

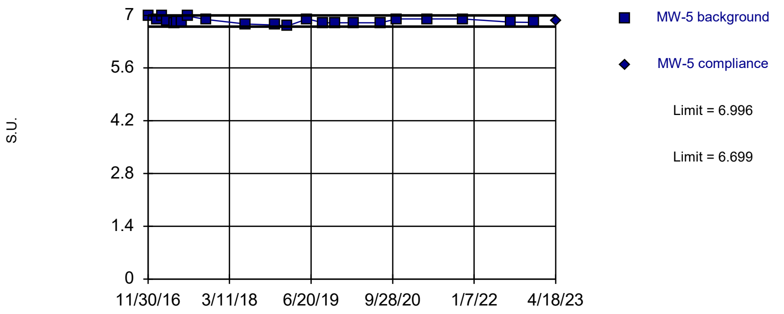
Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Within Limits

pH

Intrawell Parametric



Background Data Summary: Mean=6.848, Std. Dev.=0.07322, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9291, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

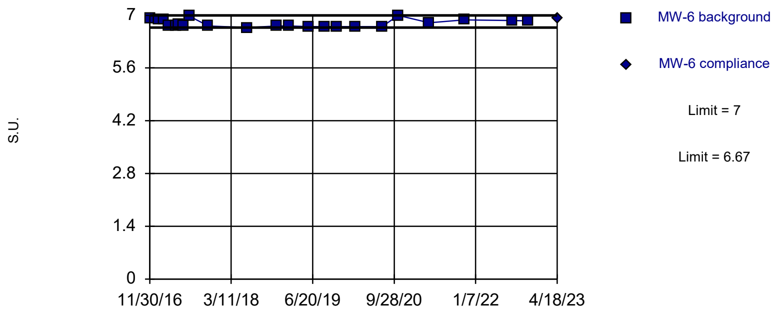
Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Within Limits

pH

Intrawell Non-parametric



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. Limits are highest and lowest of 22 background values. Well-constituent pair annual alpha = 0.0148. Individual comparison alpha = 0.007415 (1 of 2).

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

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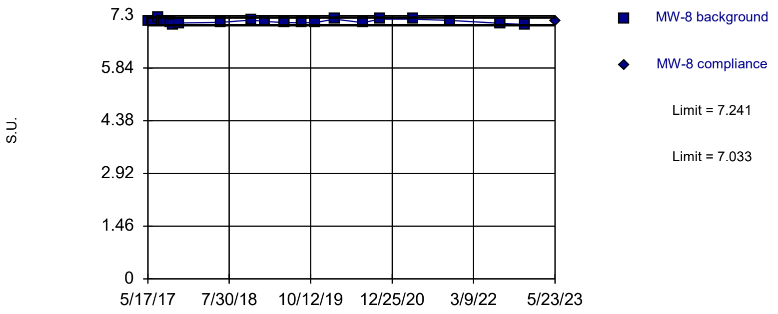
Within Limits

pH

Intrawell Parametric



Background Data Summary: Mean=7.137, Std. Dev.=0.05121, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9651, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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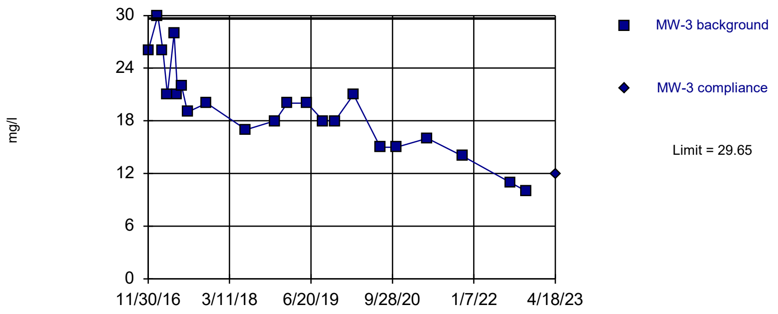
Within Limit

Sulfate

Intrawell Parametric



Background Data Summary: Mean=19.36, Std. Dev.=5.067, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9697, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

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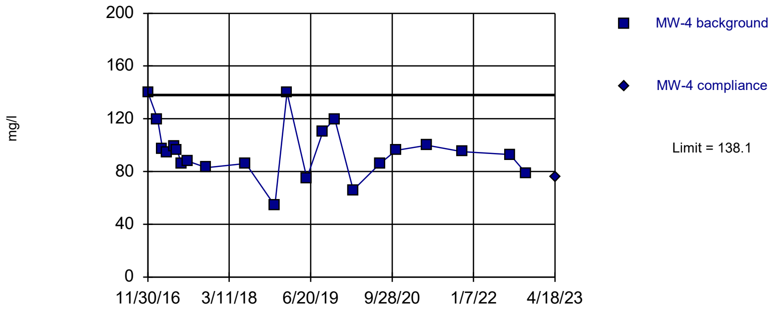
Within Limit

Sulfate

Intrawell Parametric



Background Data Summary: Mean=95.59, Std. Dev.=20.91, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9417, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

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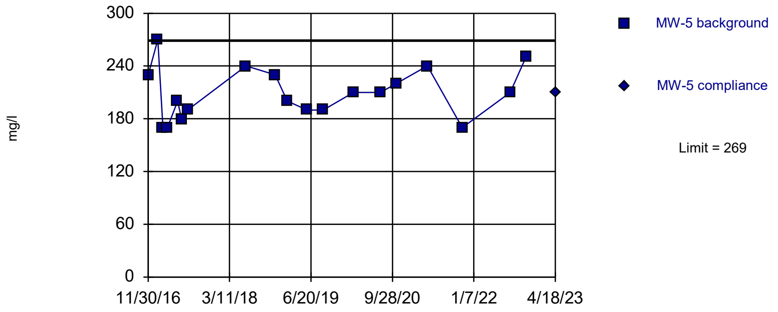
Within Limit

Sulfate

Intrawell Parametric



Background Data Summary: Mean=208.9, Std. Dev.=28.85, n=19. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9546, critical = 0.863. Kappa = 2.081 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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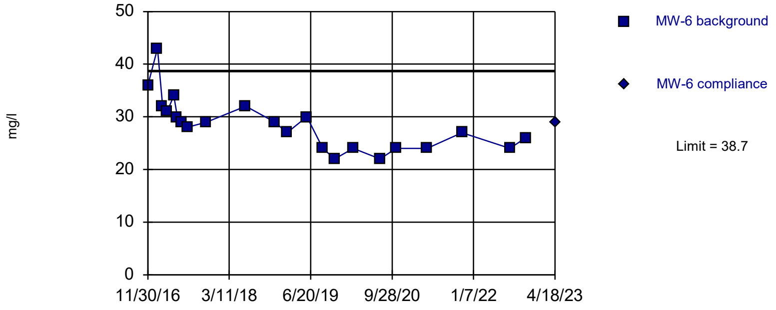
Within Limit

Sulfate

Intrawell Parametric



Background Data Summary: Mean=28.5, Std. Dev.=5.021, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9145, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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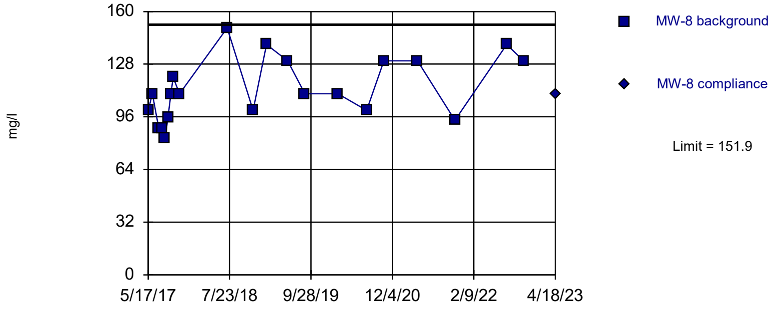
Within Limit

Sulfate

Intrawell Parametric



Background Data Summary: Mean=112.9, Std. Dev.=19.09, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9481, critical = 0.873. Kappa = 2.044 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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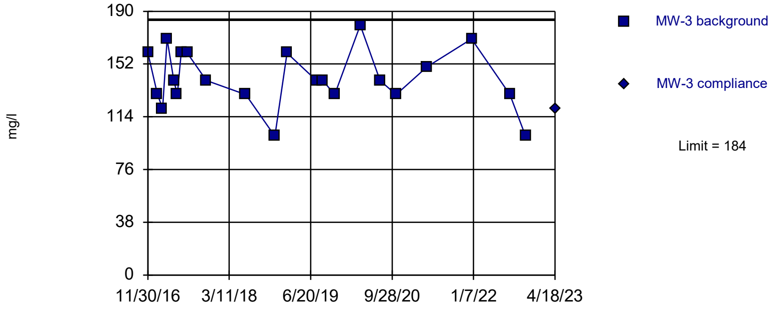
Within Limit

Total Dissolved Solids

Intrawell Parametric



Background Data Summary: Mean=141.4, Std. Dev.=21, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9443, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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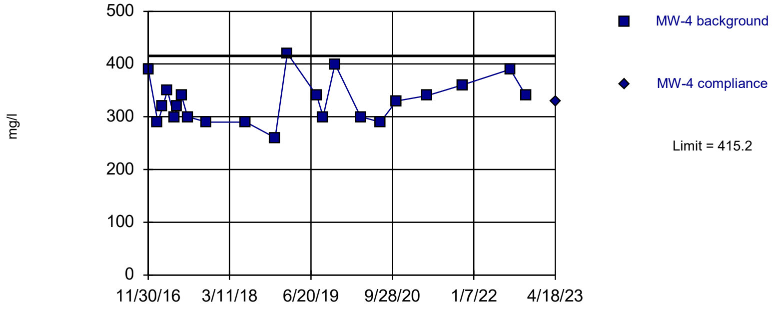
Within Limit

Total Dissolved Solids

Intrawell Parametric



Background Data Summary: Mean=330, Std. Dev.=41.98, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9368, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

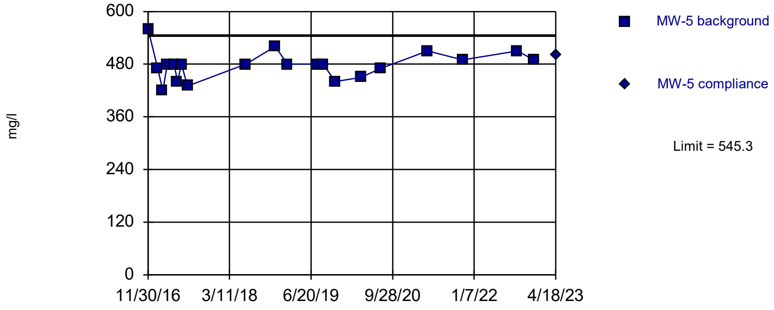
Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Within Limit

Total Dissolved Solids

Intrawell Parametric



Background Data Summary: Mean=478, Std. Dev.=32.7, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9392, critical = 0.868. Kappa = 2.058 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

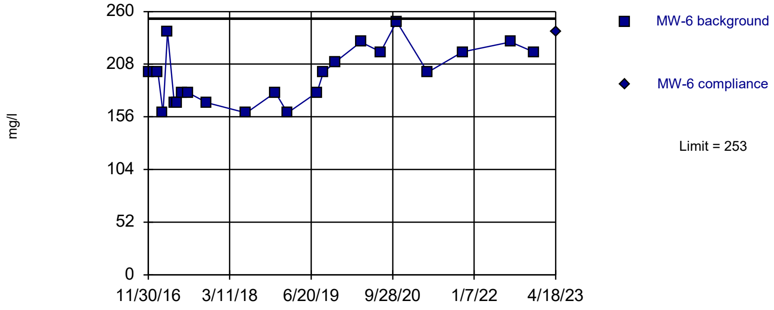
Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Within Limit

Total Dissolved Solids

Intrawell Parametric



Background Data Summary: Mean=196.8, Std. Dev.=27.67, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9346, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 12/20/2023 3:42 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Prediction Limit

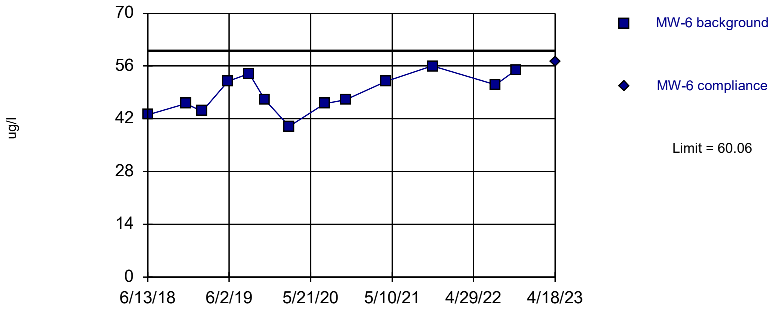
SBMU-Sikeston Power Station   Client: GREDELL Engineering   Data: SBMU-SPS EDD File 09-28-17   Printed 8/28/2023, 3:04 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Calcium (mg/l)	MW-8	120.6	n/a	4/18/2023	92	No	16	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-8	521.7	n/a	4/18/2023	440	No	16	0	No	0.001504	Param Intra 1 of 2
pH (S.U.)	MW-3	6.771	6.308	4/18/2023	6.45	No	16	0	No	0.000752	Param Intra 1 of 2
Calcium (mg/l)	MW-6	50.19	n/a	4/18/2023	46	No	11	0	No	0.001504	Param Intra 1 of 2
Boron (ug/l)	MW-6	60.06	n/a	4/18/2023	57	No	13	0	No	0.001504	Param Intra 1 of 2

Within Limit

Boron

Intrawell Parametric



Background Data Summary: Mean=48.69, Std. Dev.=4.99, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9532, critical = 0.814. Kappa = 2.279 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

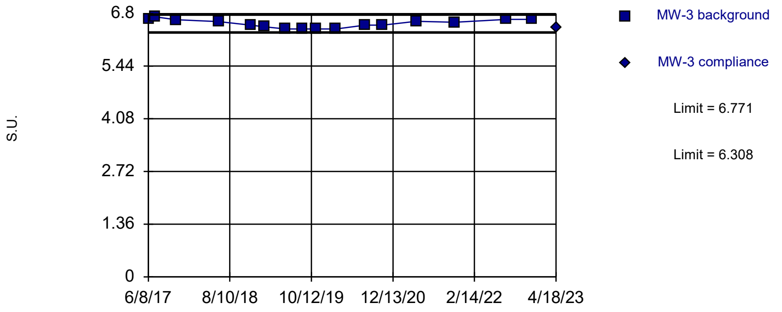
Prediction Limit Analysis Run 12/20/2023 3:27 PM View: MW-6 B

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Within Limits

pH

Intrawell Parametric



Background Data Summary: Mean=6.539, Std. Dev.=0.1077, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9034, critical = 0.844. Kappa = 2.15 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

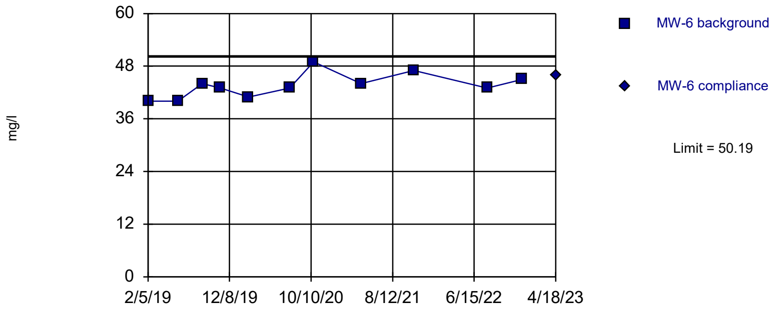
Prediction Limit Analysis Run 12/20/2023 3:29 PM View: MW3 pH

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Within Limit

Calcium

Intrawell Parametric



Background Data Summary: Mean=43.55, Std. Dev.=2.77, n=11. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9367, critical = 0.792. Kappa = 2.4 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 3:01 PM View: MW-6 Ca

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Prediction Limit

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17 Printed 8/28/2023, 2:56 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Calcium (mg/l)	MW-8	120.6	n/a	4/18/2023	92	No	16	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-8	521.7	n/a	4/18/2023	440	No	16	0	No	0.001504	Param Intra 1 of 2

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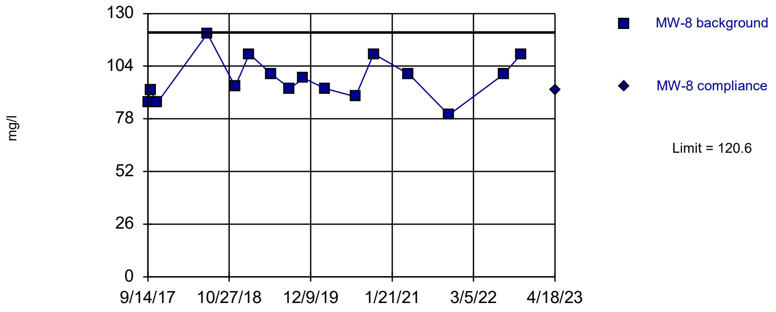
Within Limit

Calcium

Intrawell Parametric



Background Data Summary: Mean=97.56, Std. Dev.=10.71, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9582, critical = 0.844. Kappa = 2.15 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 2:55 PM View: MW-8 Ca, TDS

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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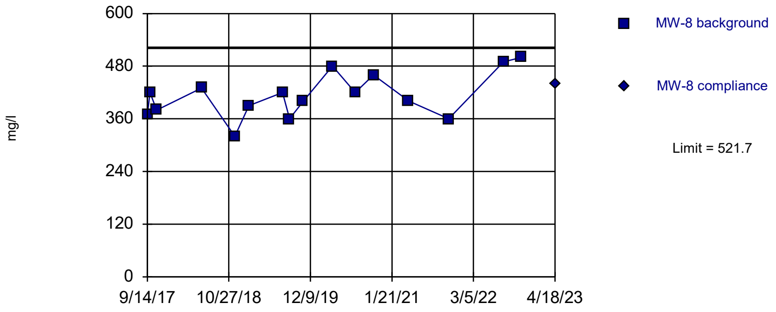
Within Limit

Total Dissolved Solids

Intrawell Parametric



Background Data Summary: Mean=412.5, Std. Dev.=50.79, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9656, critical = 0.844. Kappa = 2.15 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 8/28/2023 2:55 PM View: MW-8 Ca, TDS

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Appendix 7c

Prediction Limit Charts
(Second 2023 Semi-annual Event)

Prediction Limit

SBMU-Sikeston Power Station   Client: GREDELL Engineering   Data: SBMU-SPS EDD File 09-28-17   Printed 11/20/2023, 3:16 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (ug/l)	MW-3	47.74	n/a	10/11/2023	13.9	No	22	0	sqrt(x)	0.001504	Param Intra 1 of 2
Boron (ug/l)	MW-4	1511	n/a	10/11/2023	940	No	22	0	No	0.001504	Param Intra 1 of 2
Boron (ug/l)	MW-5	518	n/a	10/11/2023	405	No	21	0	No	0.001504	Param Intra 1 of 2
Boron (ug/l)	MW-8	571.3	n/a	10/11/2023	423	No	22	0	No	0.001504	Param Intra 1 of 2
Calcium (mg/l)	MW-3	23	n/a	10/11/2023	15.5	No	22	0	No	0.001504	Param Intra 1 of 2
Calcium (mg/l)	MW-4	95.44	n/a	10/11/2023	81.1	No	22	0	No	0.001504	Param Intra 1 of 2
Calcium (mg/l)	MW-5	137.6	n/a	10/11/2023	106	No	21	0	No	0.001504	Param Intra 1 of 2
Chloride (mg/l)	MW-3	2.354	n/a	10/11/2023	1ND	No	22	9.091	No	0.001504	Param Intra 1 of 2
Chloride (mg/l)	MW-4	19.7	n/a	10/11/2023	14	No	20	0	No	0.001504	Param Intra 1 of 2
Chloride (mg/l)	MW-5	17.47	n/a	10/11/2023	15	No	21	0	No	0.001504	Param Intra 1 of 2
Chloride (mg/l)	MW-6	4.382	n/a	10/11/2023	3J	No	22	4.545	sqrt(x)	0.001504	Param Intra 1 of 2
Chloride (mg/l)	MW-8	67.53	n/a	10/11/2023	44	No	21	0	No	0.001504	Param Intra 1 of 2
Fluoride (mg/l)	MW-3	0.438	n/a	10/11/2023	0.25ND	No	22	50	n/a	0.003707	NP Intra (normality) ...
Fluoride (mg/l)	MW-4	0.259	n/a	10/11/2023	0.25ND	No	22	95.45	n/a	0.003707	NP Intra (NDs) 1 of 2
Fluoride (mg/l)	MW-5	0.272	n/a	10/11/2023	0.25ND	No	22	90.91	n/a	0.003707	NP Intra (NDs) 1 of 2
Fluoride (mg/l)	MW-6	0.338	n/a	10/11/2023	0.25ND	No	22	68.18	n/a	0.003707	NP Intra (NDs) 1 of 2
Fluoride (mg/l)	MW-8	0.26	n/a	10/11/2023	0.25ND	No	22	90.91	n/a	0.003707	NP Intra (NDs) 1 of 2
pH (S.U.)	MW-4	7.499	7.225	10/11/2023	7.25	No	21	0	No	0.000752	Param Intra 1 of 2
pH (S.U.)	MW-5	6.996	6.699	10/11/2023	6.83	No	22	0	No	0.000752	Param Intra 1 of 2
pH (S.U.)	MW-6	7	6.67	10/11/2023	6.8	No	22	0	n/a	0.007415	NP Intra (normality) ...
pH (S.U.)	MW-8	7.241	7.033	10/11/2023	7.07	No	22	0	No	0.000752	Param Intra 1 of 2
Sulfate (mg/l)	MW-3	29.65	n/a	10/11/2023	11	No	22	0	No	0.001504	Param Intra 1 of 2
Sulfate (mg/l)	MW-4	138.1	n/a	10/11/2023	88	No	22	0	No	0.001504	Param Intra 1 of 2
Sulfate (mg/l)	MW-5	269	n/a	10/11/2023	172	No	19	0	No	0.001504	Param Intra 1 of 2
Sulfate (mg/l)	MW-6	38.7	n/a	10/11/2023	25	No	22	0	No	0.001504	Param Intra 1 of 2
Sulfate (mg/l)	MW-8	151.9	n/a	10/11/2023	102	No	21	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-3	184	n/a	10/11/2023	122	No	22	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-4	415.2	n/a	10/11/2023	335	No	22	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-5	545.3	n/a	10/11/2023	435	No	20	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-6	253	n/a	10/11/2023	250	No	22	0	No	0.001504	Param Intra 1 of 2

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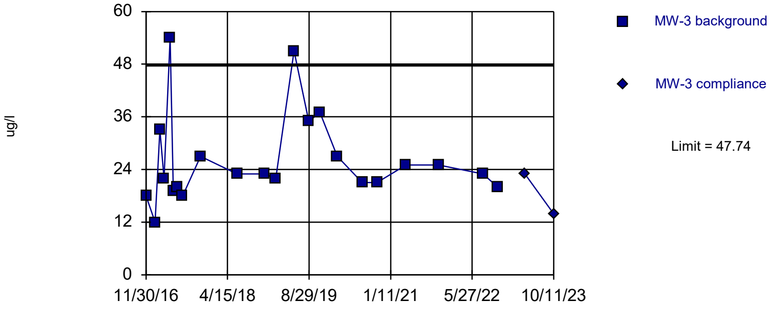
Within Limit

Boron

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=5.037, Std. Dev.=0.922, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8792, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

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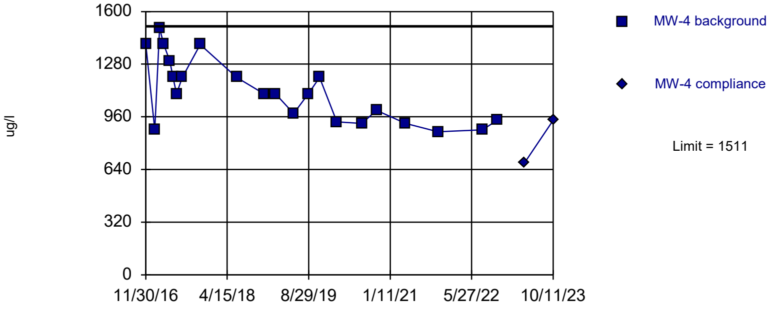
Within Limit

Boron

Intrawell Parametric



Background Data Summary: Mean=1115, Std. Dev.=195, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9191, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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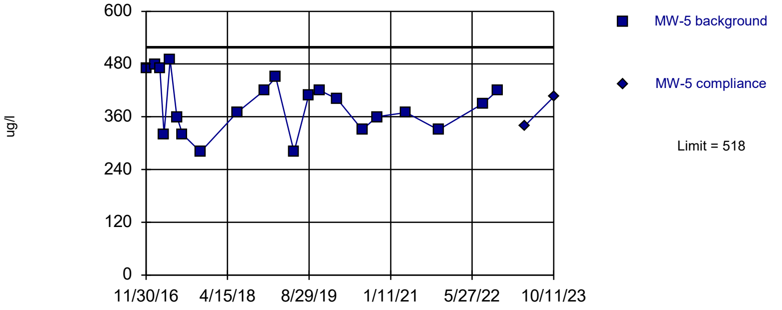
Within Limit

Boron

Intrawell Parametric



Background Data Summary: Mean=387.6, Std. Dev.=63.79, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.959, critical = 0.873. Kappa = 2.044 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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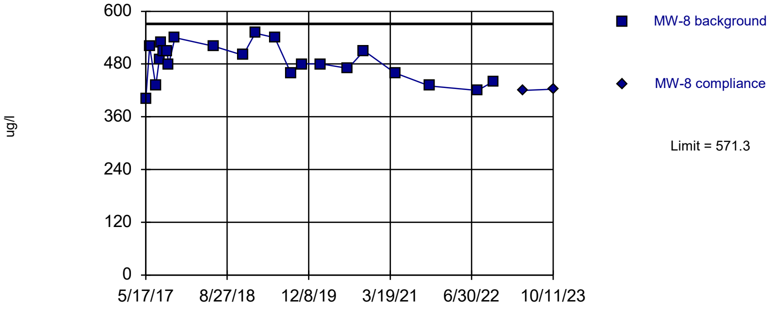
Within Limit

Boron

Intrawell Parametric



Background Data Summary: Mean=485, Std. Dev.=42.51, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9619, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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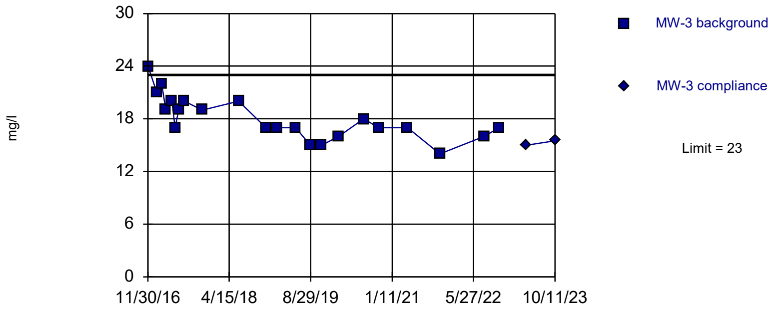
Within Limit

Calcium

Intrawell Parametric



Background Data Summary: Mean=18.05, Std. Dev.=2.439, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9506, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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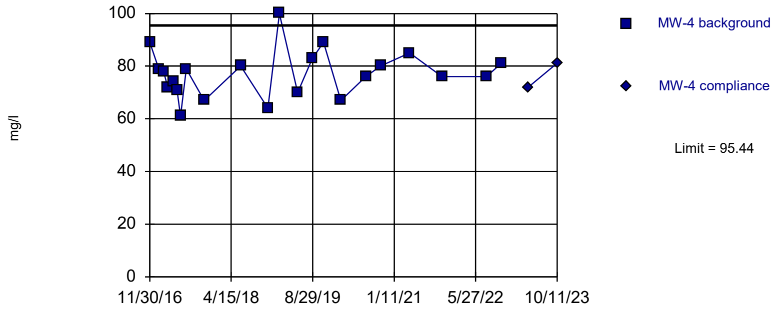
Within Limit

Calcium

Intrawell Parametric



Background Data Summary: Mean=77.14, Std. Dev.=9.015, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9748, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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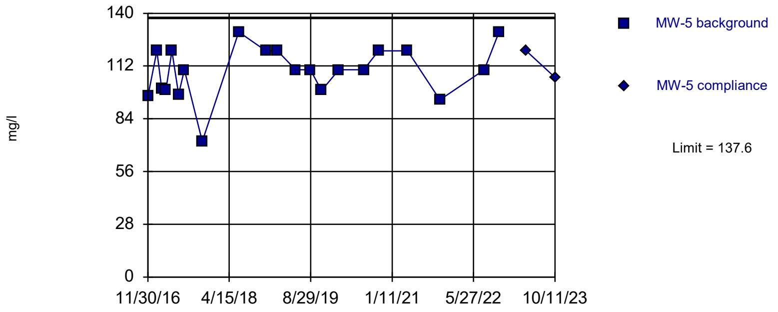
Within Limit

Calcium

Intrawell Parametric



Background Data Summary: Mean=109.4, Std. Dev.=13.78, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9172, critical = 0.873. Kappa = 2.044 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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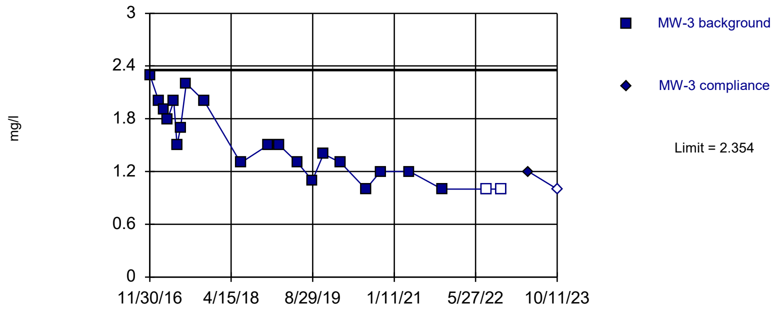
Hollow symbols indicate censored values.

Within Limit

Chloride

Intrawell Parametric



Background Data Summary: Mean=1.509, Std. Dev.=0.4162, n=22, 9.091% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9209, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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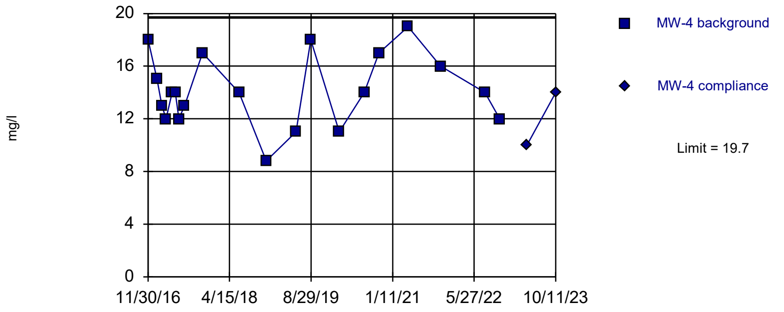
Within Limit

Chloride

Intrawell Parametric



Background Data Summary: Mean=14.14, Std. Dev.=2.701, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9646, critical = 0.868. Kappa = 2.058 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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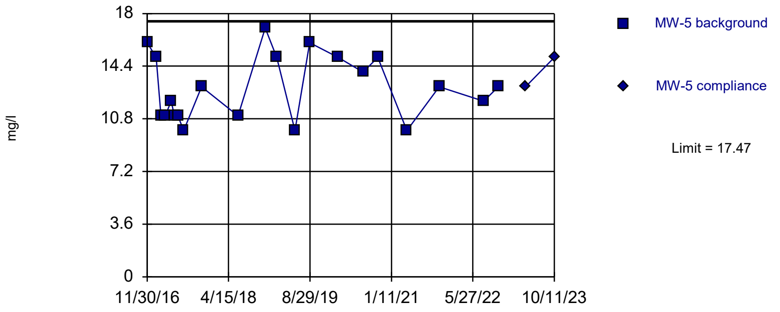
Within Limit

Chloride

Intrawell Parametric



Background Data Summary: Mean=12.9, Std. Dev.=2.234, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.917, critical = 0.873. Kappa = 2.044 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

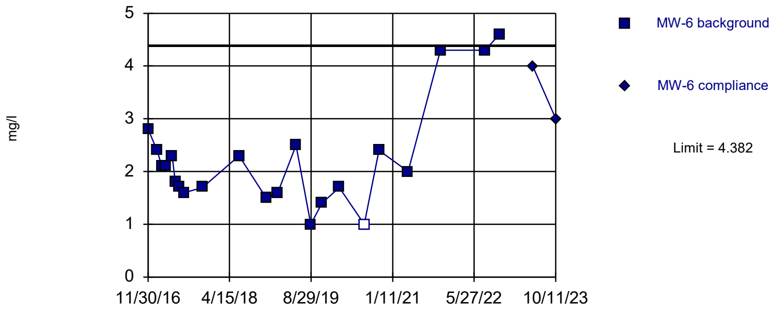
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG
Hollow symbols indicate censored values.

Within Limit

Chloride

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=1.463, Std. Dev.=0.3105, n=22, 4.545% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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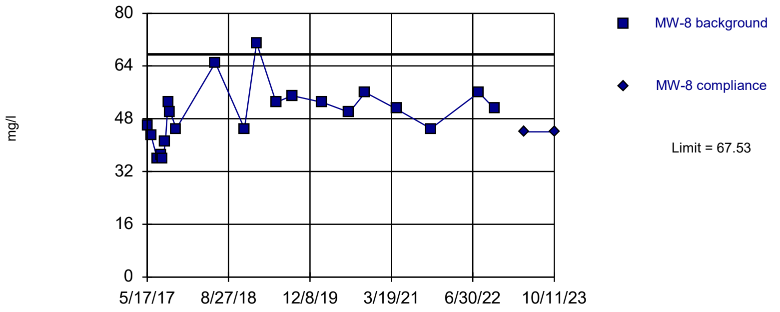
Within Limit

Chloride

Intrawell Parametric



Background Data Summary: Mean=49.43, Std. Dev.=8.852, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9495, critical = 0.873. Kappa = 2.044 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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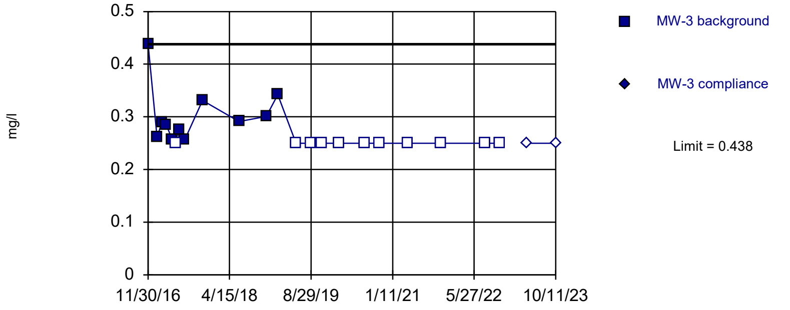
Hollow symbols indicate censored values.

Within Limit

Fluoride

Intrawell Non-parametric



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. 50% NDs. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2).

Prediction Limit   Analysis Run 11/20/2023 3:13 PM   View: Everything Minus Detrended Data
SBMU-Sikeston Power Station   Client: GREDELL Engineering   Data: SBMU-SPS EDD File 09-28-17

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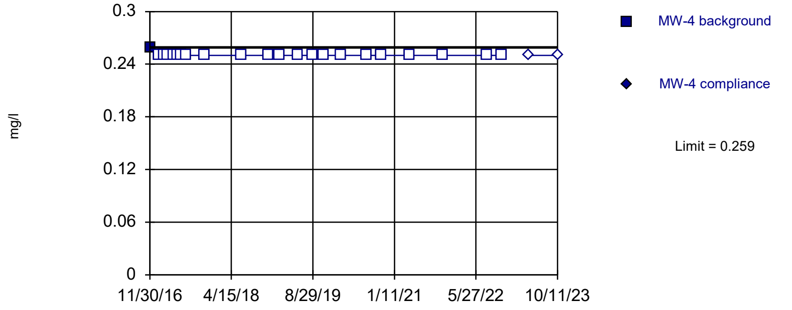
Hollow symbols indicate censored values.

Within Limit

Fluoride

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 95.45% NDs. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2).

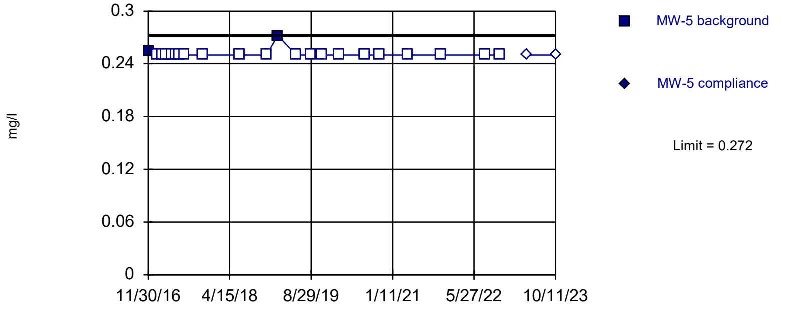
Prediction Limit   Analysis Run 11/20/2023 3:13 PM   View: Everything Minus Detrended Data
SBMU-Sikeston Power Station   Client: GREDELL Engineering   Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG
Hollow symbols indicate censored values.

Within Limit

Fluoride

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 90.91% NDs. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2).

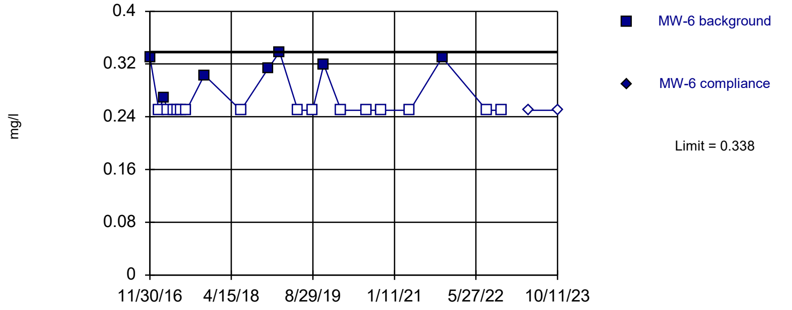
Prediction Limit   Analysis Run 11/20/2023 3:13 PM   View: Everything Minus Detrended Data
SBMU-Sikeston Power Station   Client: GREDELL Engineering   Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG
Hollow symbols indicate censored values.

Within Limit

Fluoride

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 68.18% NDs. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2).

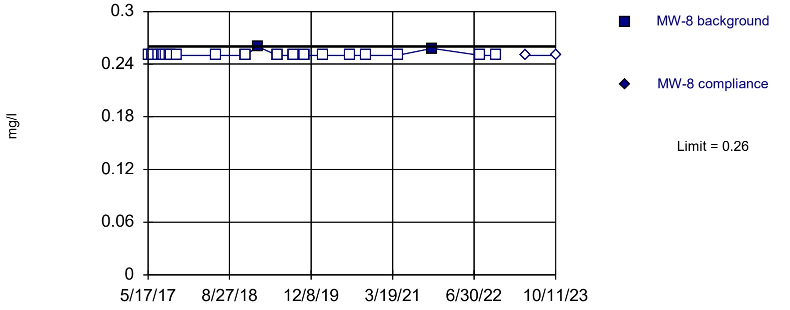
Prediction Limit   Analysis Run 11/20/2023 3:13 PM   View: Everything Minus Detrended Data
SBMU-Sikeston Power Station   Client: GREDELL Engineering   Data: SBMU-SPS EDD File 09-28-17

Sanitas™ v.9.6.37 Software licensed to GREDELL Engineering. UG
Hollow symbols indicate censored values.

Within Limit

Fluoride

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 90.91% NDs. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2).

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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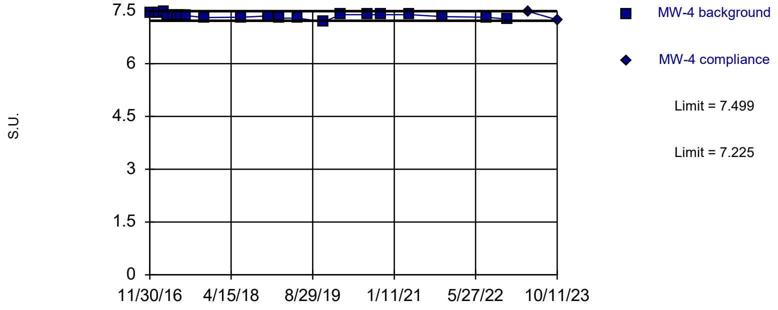
Within Limits

pH

Intrawell Parametric



Background Data Summary: Mean=7.362, Std. Dev.=0.06698, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9707, critical = 0.873. Kappa = 2.044 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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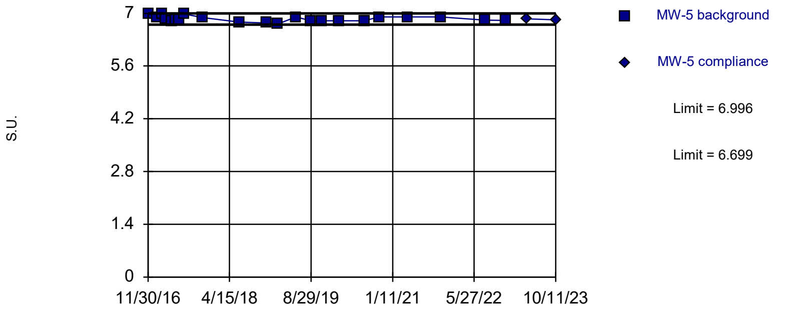
Within Limits

pH

Intrawell Parametric



Background Data Summary: Mean=6.848, Std. Dev.=0.07322, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9291, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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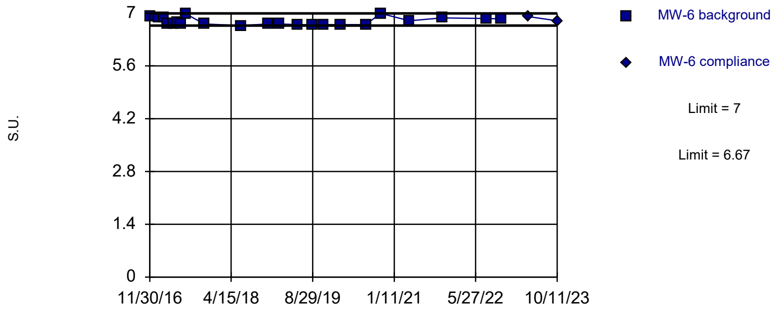
Within Limits

pH

Intrawell Non-parametric



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. Limits are highest and lowest of 22 background values. Well-constituent pair annual alpha = 0.0148. Individual comparison alpha = 0.007415 (1 of 2).

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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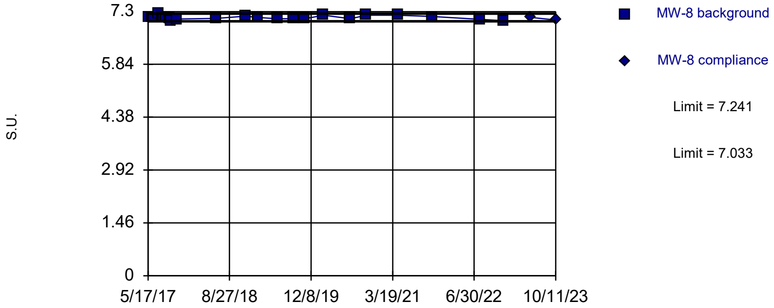
Within Limits

pH

Intrawell Parametric



Background Data Summary: Mean=7.137, Std. Dev.=0.05121, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9651, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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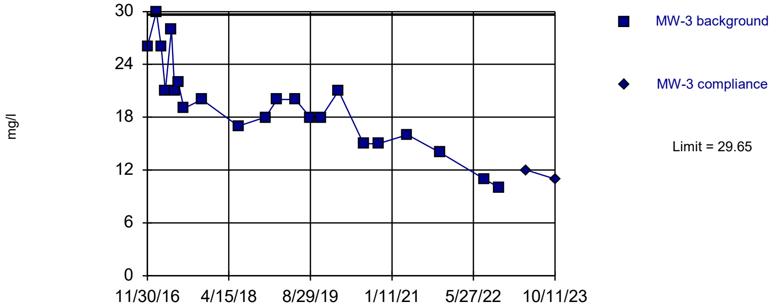
Within Limit

Sulfate

Intrawell Parametric



Background Data Summary: Mean=19.36, Std. Dev.=5.067, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9697, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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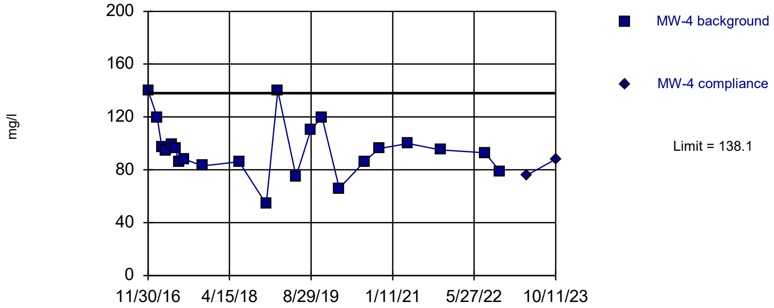
Within Limit

Sulfate

Intrawell Parametric



Background Data Summary: Mean=95.59, Std. Dev.=20.91, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9417, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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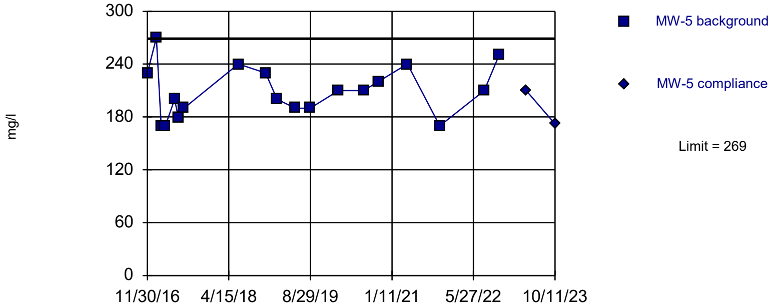
Within Limit

Sulfate

Intrawell Parametric



Background Data Summary: Mean=208.9, Std. Dev.=28.85, n=19. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9546, critical = 0.863. Kappa = 2.081 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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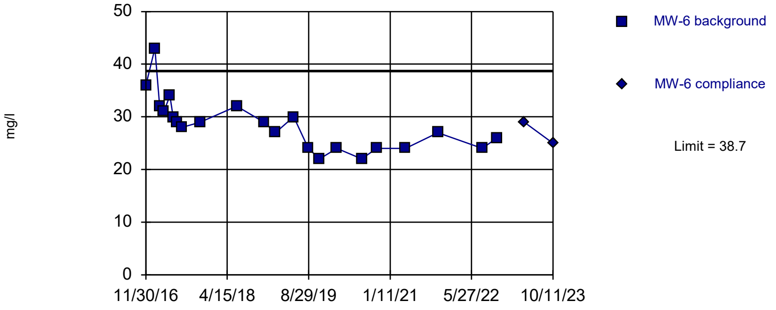
Within Limit

Sulfate

Intrawell Parametric



Background Data Summary: Mean=28.5, Std. Dev.=5.021, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9145, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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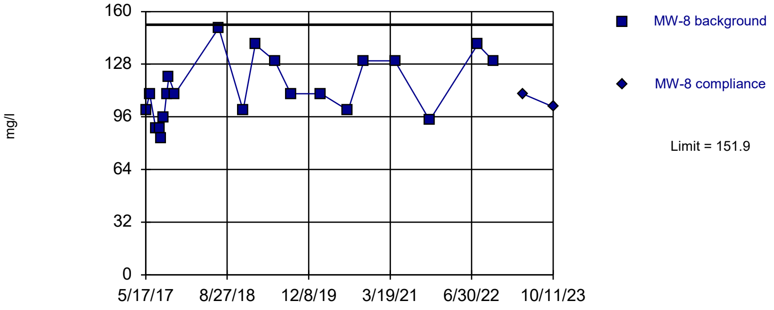
Within Limit

Sulfate

Intrawell Parametric



Background Data Summary: Mean=112.9, Std. Dev.=19.09, n=21. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9481, critical = 0.873. Kappa = 2.044 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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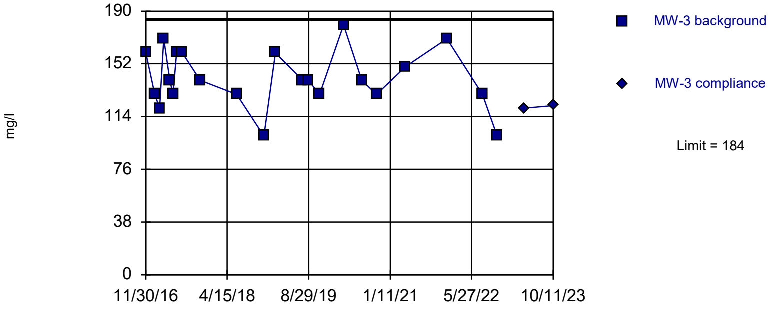
Within Limit

Total Dissolved Solids

Intrawell Parametric



Background Data Summary: Mean=141.4, Std. Dev.=21, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9443, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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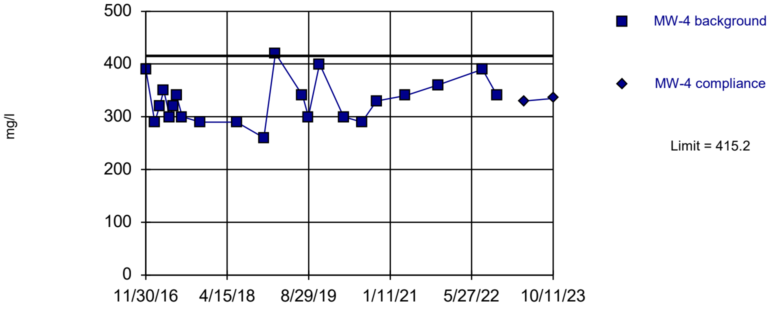
Within Limit

Total Dissolved Solids

Intrawell Parametric



Background Data Summary: Mean=330, Std. Dev.=41.98, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9368, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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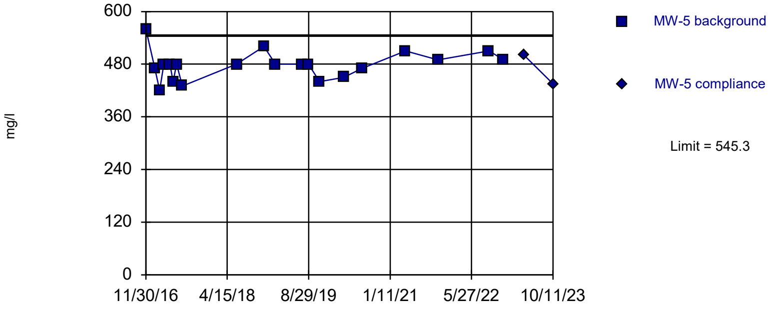
Within Limit

Total Dissolved Solids

Intrawell Parametric



Background Data Summary: Mean=478, Std. Dev.=32.7, n=20. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9392, critical = 0.868. Kappa = 2.058 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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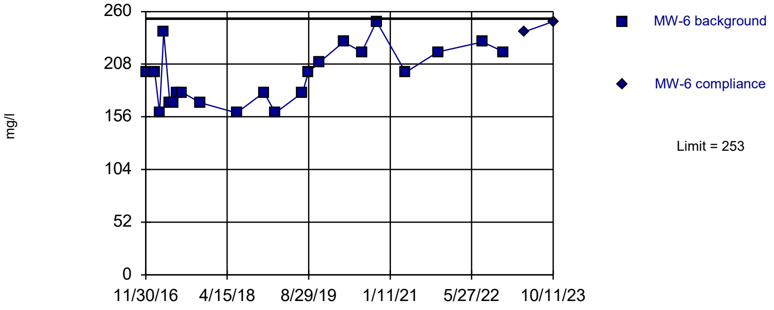
Within Limit

Total Dissolved Solids

Intrawell Parametric



Background Data Summary: Mean=196.8, Std. Dev.=27.67, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9346, critical = 0.878. Kappa = 2.031 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:13 PM View: Everything Minus Detrended Data

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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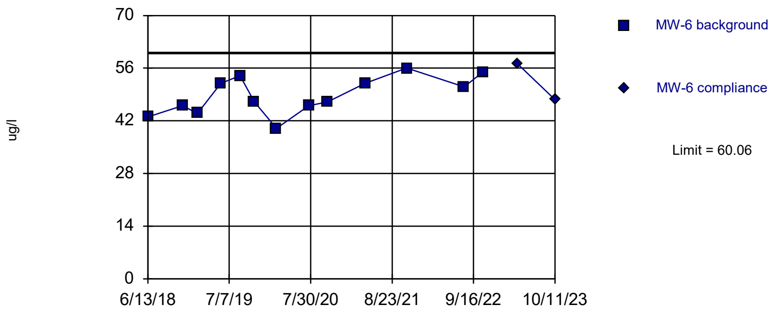
Within Limit

Boron

Intrawell Parametric



Background Data Summary: Mean=48.69, Std. Dev.=4.99, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9532, critical = 0.814. Kappa = 2.279 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:23 PM View: MW-6 B

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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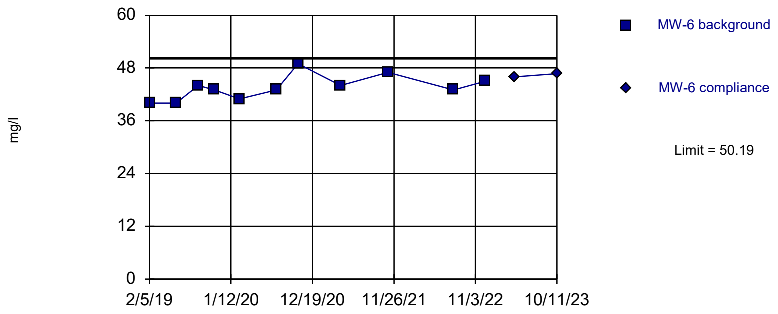
Within Limit

Calcium

Intrawell Parametric



Background Data Summary: Mean=43.55, Std. Dev.=2.77, n=11. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9367, critical = 0.792. Kappa = 2.4 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:23 PM View: MW-6 Ca

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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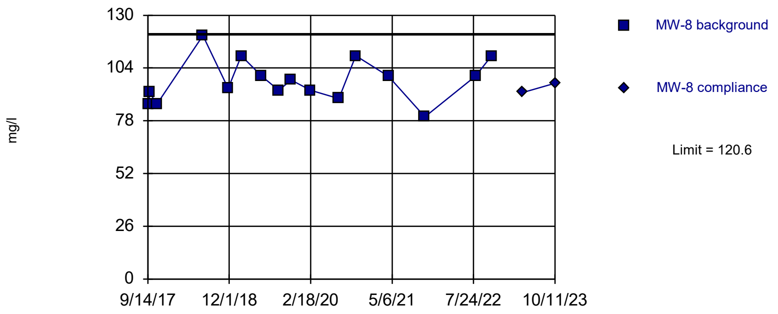
Within Limit

Calcium

Intrawell Parametric



Background Data Summary: Mean=97.56, Std. Dev.=10.71, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9582, critical = 0.844. Kappa = 2.15 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:24 PM View: MW-8 Ca, TDS

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

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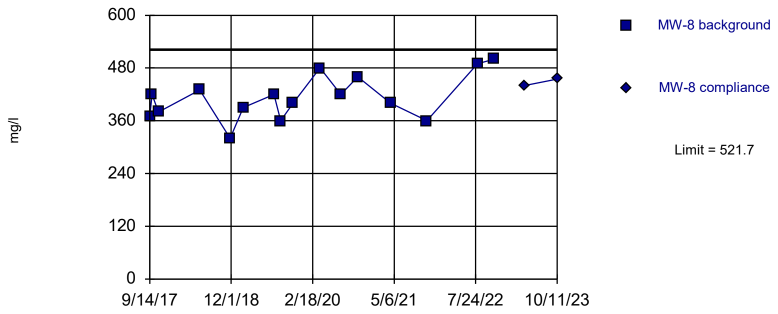
Within Limit

Total Dissolved Solids

Intrawell Parametric



Background Data Summary: Mean=412.5, Std. Dev.=50.79, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9656, critical = 0.844. Kappa = 2.15 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:24 PM View: MW-8 Ca, TDS

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Prediction Limit

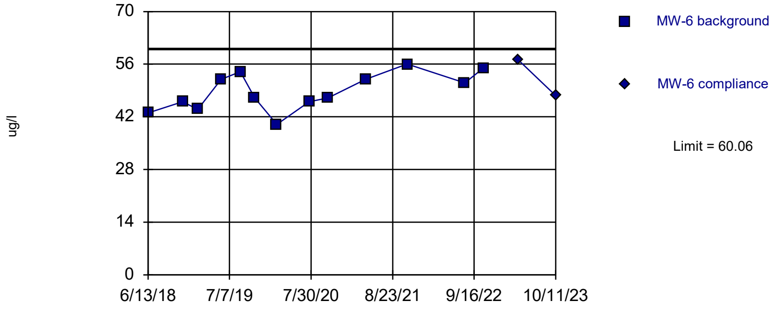
SBMU-Sikeston Power Station   Client: GREDELL Engineering   Data: SBMU-SPS EDD File 09-28-17   Printed 11/20/2023, 3:25 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Calcium (mg/l)	MW-8	120.6	n/a	10/11/2023	96.5	No	16	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-8	521.7	n/a	10/11/2023	455	No	16	0	No	0.001504	Param Intra 1 of 2

Within Limit

Boron

Intrawell Parametric



Background Data Summary: Mean=48.69, Std. Dev.=4.99, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9532, critical = 0.814. Kappa = 2.279 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

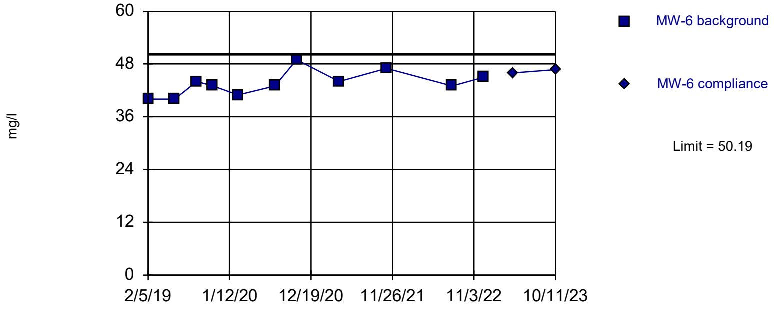
Prediction Limit Analysis Run 11/20/2023 3:26 PM View: MW-6 B

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Within Limit

Calcium

Intrawell Parametric



Background Data Summary: Mean=43.55, Std. Dev.=2.77, n=11. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9367, critical = 0.792. Kappa = 2.4 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

Prediction Limit Analysis Run 11/20/2023 3:26 PM View: MW-6 Ca

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Prediction Limit

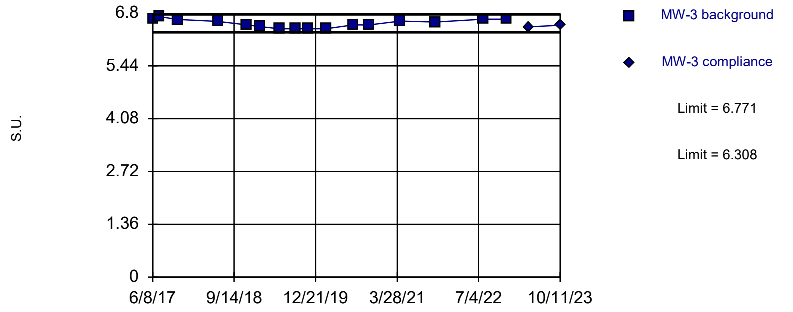
SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17 Printed 11/20/2023, 3:29 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Calcium (mg/l)	MW-8	120.6	n/a	10/11/2023	96.5	No	16	0	No	0.001504	Param Intra 1 of 2
Total Dissolved Solids (mg/l)	MW-8	521.7	n/a	10/11/2023	455	No	16	0	No	0.001504	Param Intra 1 of 2
Boron (ug/l)	MW-6	60.06	n/a	10/11/2023	47.6	No	13	0	No	0.001504	Param Intra 1 of 2
Calcium (mg/l)	MW-6	50.19	n/a	10/11/2023	46.7	No	11	0	No	0.001504	Param Intra 1 of 2
pH (S.U.)	MW-3	6.771	6.308	10/11/2023	6.49	No	16	0	No	0.000752	Param Intra 1 of 2
pH (S.U.)	MW-6	7	6.67	10/11/2023	6.8	No	21	0	n/a	0.007998	NP Intra (normality) ...

Within Limits

pH

Intrawell Parametric



Background Data Summary: Mean=6.539, Std. Dev.=0.1077, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9034, critical = 0.844. Kappa = 2.15 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504.

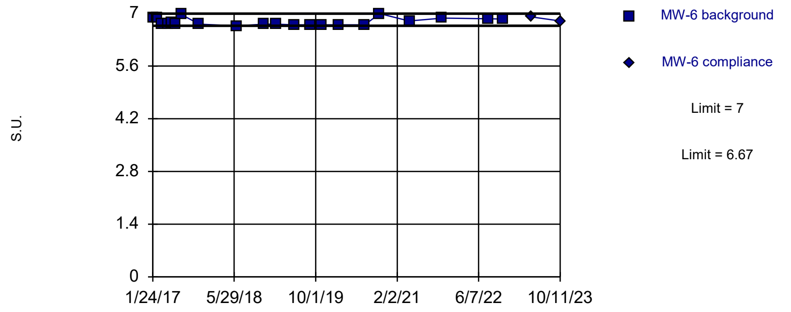
Prediction Limit Analysis Run 11/20/2023 3:27 PM View: MW3 pH

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Within Limits

pH

Intrawell Non-parametric



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. Limits are highest and lowest of 21 background values. Well-constituent pair annual alpha = 0.01596. Individual comparison alpha = 0.007998 (1 of 2).

Prediction Limit Analysis Run 11/20/2023 3:28 PM View: ph mw8

SBMU-Sikeston Power Station Client: GREDELL Engineering Data: SBMU-SPS EDD File 09-28-17

Appendix 8

Alternate Source Demonstration

1505 East High Street
Jefferson City, Missouri 65101
Telephone (573) 659-9078
www.ger-inc.biz

GREDELL Engineering Resources, Inc.

Sikeston Board of Municipal Utilities
Sikeston Power Station
Detection Monitoring Program for Bottom Ash Pond – Chloride in MW-6
Alternate Source Demonstration

Prepared for:

BMU Sikeston
Board of Municipal Utilities
Sikeston Power Station
1551 West Wakefield Avenue
Sikeston, MO 63801

STATE OF MISSOURI
THOMAS R. GREDELL
3-16-2023
NUMBER
PE-021137
PROFESSIONAL ENGINEER

STATE OF MISSOURI
MIKEL C. CARLSON
3-16-23
RG 0126
REGISTERED GEOLOGIST

March 2023

PROFESSIONAL ENGINEER'S CERTIFICATION

40 CFR 257.94(e)(2) Alternate Source Demonstration

I, Thomas R. Gredell, P.E., a professional engineer licensed in the State of Missouri, hereby certify in accordance with 40 CFR 257.94(e)(2) to the accuracy of the alternate source demonstration described in the following report for the Sikeston Board of Municipal Utilities, Sikeston Power Station, Bottom Ash Pond CCR unit. The report demonstrates that the statistically significant increase of Chloride in MW-6 is not the result of a release from the Bottom Ash Pond and is attributable to an alternate source. This demonstration successfully meets the requirements of 40 CFR 257.94(e) as found in federal regulation 40 CFR 257, Subpart D – Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments. In addition, the demonstration was made using EPA Unified Guidance (Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance: EPA 530/R-09-007) and generally accepted methods.

Name: Thomas R. Gredell, P.E.

Signature:

Date: 03-16-23

Registration Number: PE-021137
State of Registration: Missouri

THOMAS R. GREDELL
NUMBER PE-021137

Sikeston Board of Municipal Utilities
Sikeston Power Station
Detection Monitoring Program for
Bottom Ash Pond - Chloride in MW-6
Alternate Source Demonstration

March 2023

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1.0 INTRODUCTION

This Alternate Source Demonstration (ASD) Report has been prepared to address the results of the semi-annual sampling event initiated on November 1, 2022 at the Sikeston Board of Municipal Utilities (SBMU) Sikeston Power Station's (SPS) Bottom Ash Pond, a coal combustion residual (CCR) surface impoundment. Following receipt of final analytical data, it was apparent that the reported concentration of Total Dissolved Solids (TDS) in sample MW-5 and Chloride, TDS, and Calcium in sample MW-6 exceeded their respective prediction limits. Consequently, retesting for the aforementioned well constituent pairs was initiated on December 13, 2022. Following receipt of final analytical data from the retesting event, it was confirmed that the Chloride concentration in sample MW-6 represents a statistically significant increase (SSI) over background for this well. The retesting of MW-5 did not confirm an SSI. SBMU-SPS requested that Gredell Engineering conduct an evaluation of the confirmed SSI of Chloride in MW-6 and develop an ASD, if warranted.

As stated in §257.94(e)(2), an owner or operator may demonstrate that a source other than the CCR unit caused the apparent SSI over background for a constituent. The owner or operator must complete the written demonstration within 90 days of detecting an SSI over background to include obtaining a certification from a qualified professional engineer verifying the accuracy of the information in the report. If a successful demonstration is completed within the 90-day period, the owner of the CCR unit may continue with a detection monitoring program. The owner or operator must also include the certified demonstration in the annual groundwater monitoring report required by §257.90(e).

Gredell Engineering has completed an evaluation of the groundwater sampling events, analytical data results, and other potential factors, for the SBMU SPS Bottom Ash Pond groundwater monitoring system to determine if an alternate source is the cause of the apparent SSI of Chloride in MW-6. This report presents the results of that evaluation and includes supporting documentation.

2.0 OBSERVATIONS AND DATA COLLECTION

The Bottom Ash Pond groundwater monitoring system consists of five wells, designated MW-3, MW-4, MW-5, MW-6, and MW-8 (Figure 1). Monitoring wells MW-3, MW-4, MW-5, and MW-6 were installed in April 2016, and sampled on an approximate monthly basis beginning in November 2016 and ending in July 2017 to establish an initial background database. Monitoring well MW-8 was installed in April 2017 and was sampled at an increased frequency beginning in May 2017 and ending in September 2017. Additional information regarding these wells is available in the Groundwater Monitoring, Sampling and Analysis Plan (GMSAP) for the site.

The background data base for the Bottom Ash Pond is periodically updated in general accordance with U.S. Environmental Protection Agency (USEPA) Unified Guidance for statistical analysis of groundwater monitoring data (USEPA, 2009). The results of the eight initial background sampling events and ten additional sampling events included in updates to the background data base were evaluated in accordance with §257.93, and intra-well analysis using prediction limits was determined to be the most appropriate statistical analysis approach for detection monitoring. Following receipt of final analytical data reports from the contract laboratory, the reported concentration for each detection monitoring constituent from each well is compared to its respective prediction limit. If a constituent concentration exceeds the respective prediction limit for a particular well or is outside the predicted range (in the case of pH), SSI over background is suspected.

The statistical method selected and certified for evaluation of groundwater monitoring data at this site incorporates a 1-of-2 retesting strategy in accordance with Unified Guidance for statistical analysis of groundwater monitoring data (USEPA, 2009). Therefore, a suspected SSI is confirmed if, and only if, the constituent concentration in a second statistically independent sample (retest) from the same well is also demonstrated to exceed the prediction limit.

The SPS initiated its semiannual detection groundwater sampling event for the Bottom Ash Pond on November 1, 2022. The contracted laboratory received the samples on November 3, 2022 and issued final analytical results on November 22, 2022 (Appendix 1a). However, the TDS result for sample MW-5 and the Chloride, TDS, and Calcium results for sample MW-6 appeared elevated relative to their respective prediction limits for these well constituent pairs. Consequently, retesting was initiated for these well constituent pairs on December 13, 2022. The analytical laboratory received these samples on December 15, 2022 and issued the analytical report for the retesting event on December 30, 2022 (Appendix 1b).

The following table summarizes the analytical results for TDS in MW-5 and Chloride, TDS, and Calcium in MW-6 from the November 1, 2022 sampling and December 13, 2022 retesting events. Prediction limits for these well constituent pairs are also presented. The apparent SSIs of TDS in MW-5, and TDS and Calcium in MW-6 were not confirmed by retesting, however the Chloride concentration in

MW-6 represents a confirmed SSI. Therefore, an evaluation is presented to determine if an alternate source is the cause of the elevated Chloride concentration in MW-6 relative to its respective baseline data.

Table 1 -- Analytical Results and Prediction Limit Summary

Sampling Event Date	Well Constituent Pair	Analytical Result (mg/L)	Prediction Limit (mg/L)	SSI Suspected or Confirmed?
November 1, 2022	MW-5 TDS	670	539.8	Suspected
	MW-6 Chloride	4.6	2.956	Suspected
	MW-6 TDS	330	251.5	Suspected
	MW-6 Calcium	50	48.81	Suspected
December 13, 2022	MW-5 TDS	490	539.8	Not Confirmed
	MW-6 Chloride	4.0	2.956	Confirmed
	MW-6 TDS	220	251.5	Not Confirmed
	MW-6 Calcium	45	48.81	Not Confirmed

3.0 SUMMARY OF DATA ANALYSIS AND FINDINGS

The USEPA provides Unified Guidance for statistical analysis of groundwater monitoring data (USEPA, 2009). This Unified Guidance document was reviewed to assess the validity of the apparent SSI of Chloride in MW-6. Chapter 4 of the Unified Guidance discusses groundwater monitoring programs and statistical analysis of the associated data. A key component of statistical analysis is "*to determine whether or not the increase is actually due to a contaminant release*". Three of these considerations are pertinent to the data associated with Chloride testing, MW-6 sampling, and the Bottom Ash Pond groundwater monitoring system and are listed below.

1. Chapter 4, page 4-8: *Did the test correctly identify an actual release of an indicator or hazardous constituent?*
2. Chapter 4, page 4-8: *Could observed SSIs for naturally occurring analytes be due to longer term (i.e., seasonal, or multi-year) variation?*
3. Chapter 4, page 4-9: *Are any of these contaminants observed upgradient of the regulated units?*

Each of these considerations were evaluated to determine the validity of the apparent SSI for Chloride in MW-6. The results of this evaluation are discussed below.

Unified Guidance Consideration 1

Since completion of the hydrogeologic site characterization (Gredell Engineering, 2017), the piezometers installed for the characterization were converted to monitoring wells MW-1 through MW-6. As documented in that report, 12 groundwater maps were developed showing the direction of flow and hydraulic gradient based on the monthly groundwater elevations. These groundwater maps demonstrate a consistent west-southwestern direction of flow showing minimal variation in hydraulic gradient over the 12-month period extending from May 2016 to April 2017. Moreover, three additional monitoring wells (MW-7 through MW-9) were installed in locations shown on Figure 1 to provide sufficient downgradient monitoring of the ash ponds at the SPS and to further refine and confirm overall groundwater flow direction. Based on over five years of monitoring since 2016, the groundwater data consistently demonstrate that MW-6 is not downgradient of the Bottom Ash Pond and groundwater flow direction remains consistently to the west-southwest.

MW-6 was installed to monitor spatial variability of groundwater geochemistry upgradient of the Bottom Ash Pond. Based on the weight of evidence that MW-6 is not hydraulically downgradient from the Bottom Ash Pond, the well is not positioned to detect a release from the pond. Therefore, the conclusion to the first consideration question from Unified Guidance listed above is negative.

The analytical results for MW-6 could not have identified an actual release of Chloride from the Bottom Ash Pond.

Unified Guidance Consideration 2

Boswell et al. (1968) published a study of the Quaternary Aquifers in the Mississippi Embayment which documented characteristics of the alluvial aquifer underlying the regulated units (i.e., the Bottom Ash Pond and Fly Ash Pond) at the site. The study stated that while the chief source of recharge is precipitation, recharge also occurs from the upward movement of groundwater from underlying aquifers. While the alluvial and Wilcox Aquifers are discussed separately, Luckey (1985) notes that the alluvial aquifer and the underlying Wilcox Aquifer commonly are hydraulically interconnected. The hydraulic connection between the alluvial aquifer and Wilcox Aquifer is further demonstrated by the potentiometric contour maps presented by Luckey (1985), which demonstrate a similar flow direction (west-southwest) in both aquifers in the Sikeston area.

Drilling records for high-yield wells (Appendix 2) at the SPS and in areas east generally document permeable sand and gravel at and near the contact between the alluvial aquifer and the underlying Wilcox Aquifer. These permeable sands and gravels and the lack of a laterally continuous low-permeability aquitard between the two aquifers permit the upward movement and mixing of water between these aquifers near the SPS.

It is also noted that the high-yield Sikeston Municipal wells (Appendix 3) at Plant 3, which is located approximately one-half mile east of the SPS, are 142 to 145 feet deep and screened in the lower part of the alluvial aquifer. Appendix 3 documents between 30 and 34 feet of drawdown or reduction in hydraulic head in the alluvial aquifer as a result municipal well pumping. This reduction in hydraulic head results in an upward hydraulic gradient from the underlying Wilcox Aquifer. The rate of upward movement of groundwater from the Wilcox into the alluvial aquifer undoubtedly increases as these high-yield wells withdraw groundwater.

High-yield irrigation wells are common to support crop farming in southeast Missouri. Luckey and Fuller (1980) state that the alluvium is the only aquifer that is used for irrigation in the area. As shown on Figure 2, the irrigation wells near the SPS are generally 140 feet deep or less and are screened in the lower part of the alluvial aquifer. Demand on the aquifer increased in 2021 due to lower annual precipitation (43.63 inches) relative to calendar years 2020 and 2019 (56.04 and 57.38 inches, respectively). Even less precipitation occurred during the first 8 months 2022 (28.2 inches), compared to the first 8 months of 2021 (32.12 inches), 2020 (42.96 inches), and 2019 (41.32 inches). This additional demand on irrigation to support farming resulted in more drawdown on the alluvial aquifer in 2021 and 2022 relative to previous years. The additional drawdown reduces hydraulic head relative to the underlying Wilcox Aquifer and results in greater upward flow of groundwater from the Wilcox, which then mixes and interacts with groundwater in the alluvial aquifer.

Boswell et al. (1968) also states that the alluvial aquifer contains appreciable quantities of Chloride ranging from 0.3 to 1,870 mg/L, owing to chemical dissolution of soil and rocks. Such concentrations suggest that the Chloride concentration in MW-6 (4.6 mg/L) may be naturally occurring. Combined with the increased demand on groundwater in 2021 and 2022, the recent increase in Chloride is likely a temporal variation resulting from upward movement, co-mingling, and geochemical interaction of groundwater from the underlying Wilcox Aquifer. This geochemical variation is not represented by the background data set for the Bottom Ash Pond monitoring system. Consequently, the conclusion to the second consideration question from Unified Guidance listed above is affirmative.

Unified Guidance Consideration 3

Relatively high concentrations of Chloride are documented in irrigation wells, industrial supply wells, and SBMU municipal (i.e., public drinking water supply) wells located upgradient of the regulated units. Data published by the Missouri Department of Natural Resources in their 2020 Annual Water Quality Report for the SBMU municipal water system summarize location and construction of the public drinking water supply wells (Appendix 3). Several additional publications were reviewed to determine the natural occurrence and variability of Chloride in the alluvial and Wilcox Aquifers.

Luckey and Fuller (1980) presented comprehensive hydrogeologic data for the unconsolidated aquifers in southeastern Missouri. This study inventoried and sampled over 800 irrigation, high-yield industrial, and municipal wells and included data on the alluvial and Wilcox Aquifers underlying the regulated units (i.e., Bottom Ash Pond and Fly Ash Pond) at the SPS. While the alluvial and Wilcox Aquifers are typically discussed separately in the technical literature, Luckey (1985) states that these two aquifers commonly are hydraulically interconnected. This hydraulic connection between aquifers is also demonstrated by the drilling records in Appendix 2, which document permeable sand and gravel at the alluvium/Wilcox contact.

Luckey and Fuller (1980) summarize analytical data for Chloride in the alluvial and Wilcox Aquifers in the Sikeston area. Seven wells located upgradient of the Bottom Ash Pond were included in their study. Four of these wells were identified as irrigation or industrial supply wells and three were SBMU municipal wells located closer to the SPS.

Similarly, Brahana et al. (1985) presented a study of groundwater quality based on comprehensive sampling and analysis of samples from 42 wells set in the unconsolidated aquifers of the Northern Mississippi Embayment. The locations of these and other wells are indicated on Figure 2. Chloride data from these wells is summarized in Table 2 and on Figure 2.

Table 2 – Chloride Results in Upgradient Irrigation, Industrial and Municipal Wells

Well Type	Owner	Well Location	Formation	Chloride Concentration (mg/L)	Data Source
Irrigation or Industrial Supply	Roth	T26N R14E S11CBC	Alluvium	4.8	Luckey and Fuller (1980)
	Drury Dev.	T26N R14E S15CCD	Alluvium	5.3	
	Miner	T26N R14E S16DDD	Alluvium	13	
	Scott	T26N R14E S15DBB	Alluvium	9.8	
Municipal	Sikeston ID #19120	T26N R14E S19CDD	Wilcox	17	
	Sikeston ID #26235	T26N R14E S19DCB	Wilcox	7.8	
	Sikeston ID #2700	T26N R14E S19CDD	Wilcox	5.4	
	Sikeston ID #5941	T26N R14E S19CDD	Wilcox	5.2	Brahana et al. (1985)

These data demonstrate that local concentrations of Chloride up gradient of the site range from 4.8 mg/L to 17 mg/L. Therefore, the conclusion to the third consideration question from Unified Guidance listed above is affirmative.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Gredell Engineering concludes that the confirmed SSI of Chloride in MW-6 is not the result of a release from the Bottom Ash Pond and is attributable to an alternate source. The following supports this conclusion:

- MW-6 is not hydraulically downgradient of the Bottom Ash Pond and is not positioned to identify a release of an indicator (Chloride) from the regulated unit. Groundwater flow direction is consistently from the east-northeast to the west-southwest as documented during all monitoring events at the SPS.
- The reported Chloride concentration in MW-6 is within the range of naturally occurring concentrations and is due to temporal variation resulting from chemical dissolution of Chloride from soil or rocks, and variable upward groundwater movement from the underlying Wilcox Aquifer over a longer term (i.e., multi-year) than accounted for during the background sampling period of the regulated unit's monitoring system.
- Chloride is present in high-capacity wells located upgradient of the regulated units. Chloride concentrations range from 4.8 to 17 mg/L, as reported by the United States Department of the Interior Geological Survey and the Missouri Department of Natural Resources.

Based on these conclusions, Gredell Engineering recommends continuance of semi-annual detection monitoring in accordance with §257.94.

5.0 LIMITATIONS

This report has been prepared for the exclusive use of the client and GREDELL Engineering Resources, Inc. for the specific project discussed in accordance with generally accepted environmental practices common to this locale at this time. The report is applicable only to this specific project and identified site conditions as they existed at the time of report preparation. The use of this report by others to develop independent interpretations of data or conclusions not explicitly stated in this report are the sole responsibility of those firms or individuals.

This report is not a guarantee of subsurface conditions. Variations in subsurface conditions may be present that were not identified during this or previous investigations. Interpretations of data and recommendations made in this report are based on observations of data that were available and referred to in this report unless otherwise noted. No other warranties, expressed or implied, are provided.

6.0 REFERENCES

Boswell, E.H., Cushing, E.M., and Hosman, R.L., 1968, Quaternary Aquifers in the Mississippi Embayment *with a discussion of* Quality of the Water, by H.G. Jeffery: U.S. Geological Survey Professional Paper 448-E, 15p.

Brahana, J.V., Mesko, T.O., Busby, J.F., and Kraemer, T.F., 1985, Ground-Water Quality Data from the Northern Mississippi Embayment – Arkansas, Missouri, Kentucky, Tennessee, and Mississippi. United States Geological Survey Open-File Report 85-683, 1985

Freeze, R.A. and Cherry J.A., 1979, *Groundwater*: Prentice-Hall, Inc. Englewood Cliffs, New Jersey, 604 p.

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Luckey, R.R. and Fuller, D.L., 1980, Hydrogeologic Data for the Mississippi Embayment of Southeastern Missouri. United States Department of the Interior Geological Survey in cooperation with Missouri Department of Natural Resources, Division of Geology and land Survey Open-File Report 79-421, Rolla, Missouri, January 1980.

Luckey, R.R., 1985, Water Resources of the Southeast Lowlands, Missouri. United States Geological Survey Water-Resources Investigations Report 84-4277, Rolla, Missouri, 1985.

Sanitas Statistical Software, © 1992-2019 SANITAS TECHNOLOGIES, Alamosa Colorado 81101-0012.

USEPA, 2009, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance: EPA 530/R-09-007, Office of Resource Conservation and Recovery, Program Implementation and Information Division, Washington, D.C.

Figures

N

SCALE: 1" = 400'

0 200 400

LEGEND

PROPERTY LINE	——PL——
GROUNDWATER CONTOUR	————
MONITORING WELL	MW
UP GRADIENT MONITORING LOCATION	UG
DOWN GRADIENT MONITORING LOCATION	DG
GENERAL FLOW DIRECTION	◄———

NOTES:

1. IMAGE PROVIDED BY BING MAPS.
2. MONITORING WELL LOCATIONS, CASING ELEVATIONS & UNDERGROUND CULVERT ELEVATIONS SURVEYED BY BOWEN ENGINEERING & SURVEYING.
3. GROUNDWATER ELEVATIONS MEASURED BY SIKESTON POWER STATION STAFF ON AUGUST 3, 2022.
4. MAP DEVELOPMENT BASED ON CONTOURS GENERATED BY SURFER® SOFTWARE.
5. RANGE OF HYDRAULIC GRADIENT AS DETERMINED BY SURFER® SOFTWARE 0.0005 FT./FT. TO 0.001 FT./FT.

WELL ID	GROUNDWATER ELEVATION	CASING ELEVATION	NORTHING	EASTING
MW-3	296.52	308.55	381130.00	1079946.62
MW-4	293.79	305.61	380804.62	1077766.95
MW-5	294.40	305.91	379858.94	1078477.85
MW-6	295.47	307.72	379874.77	1079384.36
MW-8	293.87	304.77	380311.20	1077940.08

THE GEOLOGIST WHO REVIEWED AND APPROVED THIS REPORT ASSUMES RESPONSIBILITY ONLY FOR GEOLOGIC INTERPRETATIONS OF DATA APPEARING ON THE PAGE AND DISCLAIMS PURSUANT TO SECTION 256.456 RSMO ANY RESPONSIBILITY FOR ALL OTHER PLANS, SPECIFICATIONS, ESTIMATES, REPORTS OR OTHER DOCUMENTS OR INSTRUMENTS NOT PREPARED UNDER THE SUPERVISION OF THE GEOLOGIST RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS FIGURE REFERS.

FIGURE 1
GROUNDWATER CONTOUR MAP
AUGUST 3, 2022

PROJECT NAME	FILE NAME	SHEET #
SIKESTON/GWMAP/BAP	BAP ALT DEMONSTRATION	1 OF 1

SIKESTON POWER STATION
BOTTOM ASH POND - CHLORIDE IN MW-6
ALTERNATE SOURCE DEMONSTRATION

SURVEYED	DESIGNED	DRAWN	CHECKED	APPROVED	DATE	SCALE
NA	NA	CM	KE	MCC	10/2022	AS NOTED

GREDELL Engineering Resources, Inc.
ENVIRONMENTAL ENGINEERING LAND - AIR - WATER
1505 East High Street Telephone: (573) 659-9078
Jefferson City, Missouri Facsimile: (573) 659-9079
MO CORP. ENGINEERING LICENSE NO. E-2001001669-D

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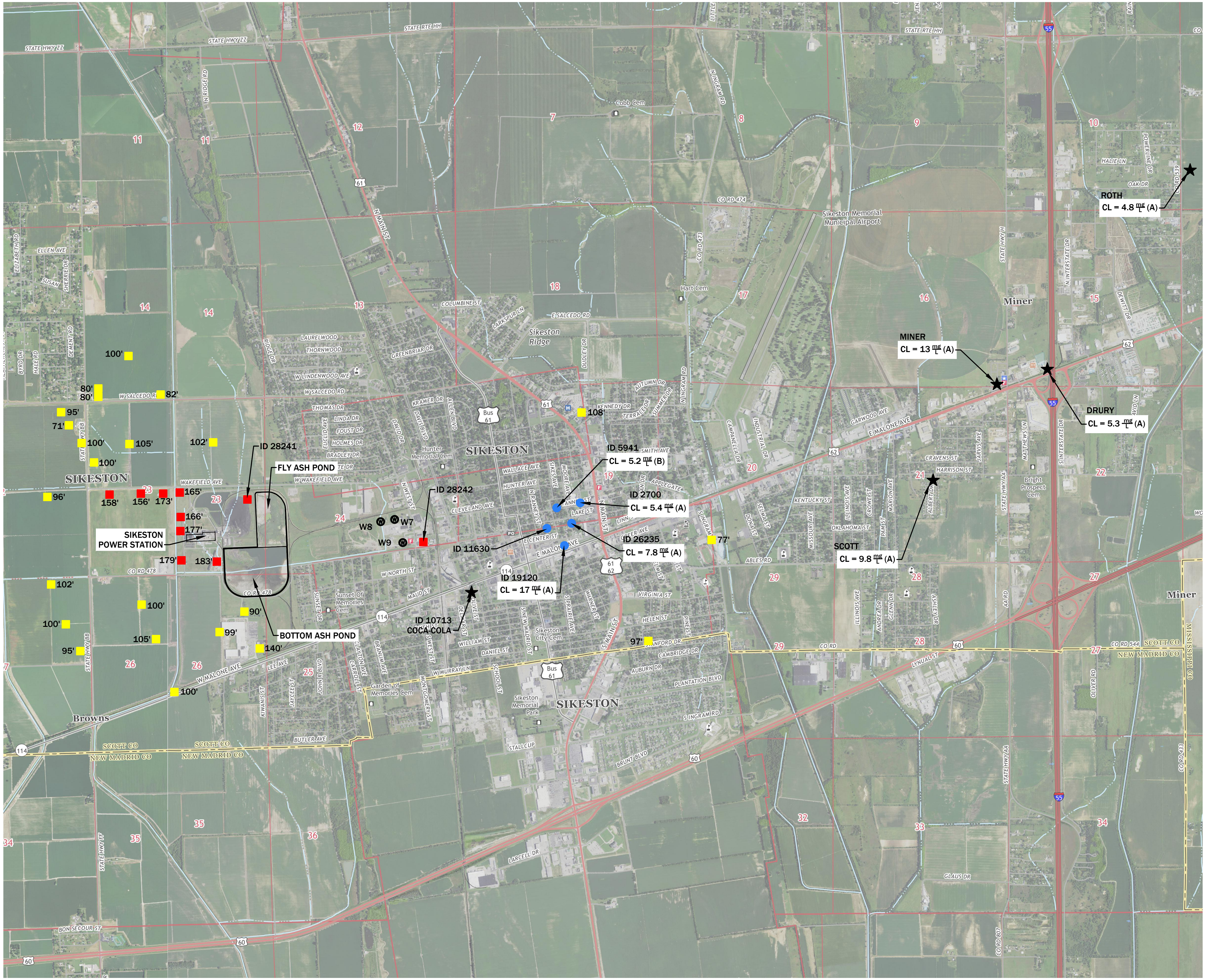

N

SCALE: 1" = 3000'

0 1500' 3000'

LEGEND:

CITY OF SIKESTON MUNICIPAL SUPPLY WELL MDNR WELL REFERENCE ID UNKNOWN SOURCE: CARES REPORT (APP 2)	Ⓦ
CITY OF SIKESTON MUNICIPAL SUPPLY WELL ID NUMBER CHLORIDE CONCENTRATION SEE NOTE 3	● 28242 CL = 17 $\frac{mg}{L}$ (A)
INDUSTRIAL SUPPLY OR IRRIGATION WELL WELL OWNER CHLORIDE CONCENTRATION SEE NOTE 3	★ SCOTT CL = 17 $\frac{mg}{L}$ (A)
IRRIGATION WELLS WELL DEPTH	🟨 108'
SIKESTON POWER STATION WELLS WELL DEPTH	🟥 179'

NOTES:

1. IMAGE PROVIDED BY USGS TOPO MAPS, SIKESTON NORTH QUADRANGLE, SIKESTON SOUTH QUADRANGLE, MOREHOUSE QUADRANGLE, AND VANDUSER QUADRAGLE, 7.5-MINUTE SERIES COMBINED TOGETHER.
2. MUNICIPAL WELL LOCATIONS PROVIDED BY MISSOURI DEPARTMENT OF NATURAL RESOURCES (MDNR) MISSOURI GEOLOGICAL SURVEY GEO-SCIENCES TECHNICAL RESOURCE ASSESSMENT TOOL (GEOSTRAT, 2022) AND CARES REPORT INFORMATION (APPENDIX 3).
3. CHLORIDE DATA SOURCES:
   A. LUCKEY AND FULLER, 1980
   B. BRAHANA ET AL, 1985

#	DATE	REVISION DESCRIPTION	BY

FIGURE 2
SITE LOCATION MAP
WITH HIGH-YIELD WELL
LOCATIONS AND CHLORIDE DATA

BOTTOM ASH POND
ALTERNATE SOURCE
DEMONSTRATION
SIKESTON POWER STATION

SURVEYED	DESIGNED	DRAWN	CHECKED	APPROVED	DATE	SCALE	PROJECT NAME	FILE NAME	SHEET #
N/A	KE	CM	KE	MCC	3/2022	1" = 3000'	SIKESTON	BAP DEMONONSTRATION	1 OF 1

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1505 East High Street Telephone: (573) 659-9078
Jefferson City, Missouri Facsimile: (573) 659-9079
MO CORP. ENGINEERING LICENSE NO. E-2001001669-D

PRINTED ON: 3/24/22 BY: cm

FILE PATH AND FILENAME: O:\CADDFiles\SIKESTON\GROUNDWATER MAP\BAP DEMONONSTRATION.dwg

Appendices

Appendix 1a

Laboratory Analytical Results and Quality Control Reports November 1, 2022 Sample Event

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

November 22, 2022

Luke St Mary
Sikeston BMU, Sikeston Power Station
1551 W Wakefield
Sikeston, MO 63801

RE: SIKESTON FLY BOTTOM ASH APP III

Dear Luke St Mary:

Please find enclosed the analytical results for the **7** sample(s) the laboratory received on **11/4/22 10:00 am** and logged in under work order **FK01101**. All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of Pace Analytical Services, LLC.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

Pace Analytical Services appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant, with any feedback you have about your experience with our laboratory at 309-683-1764 or lisa.grant@pacelabs.com.

Gail g Schindler

Gail Schindler
Project Manager
(309) 692-9688 x1716
gail.schindler@pacelabs.com

SAMPLE RECEIPT CHECK LIST

Items not applicable will be marked as in compliance

Work Order FK01101

YES	Samples received within temperature compliance when applicable
YES	COC present upon sample receipt
YES	COC completed & legible
YES	Sampler name & signature present
YES	Unique sample IDs assigned
YES	Sample collection location recorded
YES	Date & time collected recorded on COC
YES	Relinquished by client signature on COC
YES	COC & labels match
YES	Sample labels are legible
YES	Appropriate bottle(s) received
YES	Sufficient sample volume received
YES	Sample containers received undamaged
NO	Zero headspace, <6 mm present in VOA vials
NO	Trip blank(s) received
YES	All non-field analyses received within holding times
NO	Short hold time analysis
YES	Current PDC COC submitted
YES	Case narrative provided

Case Narrative

MW-3 TDS was originally analyzed within hold time but results did not meet acceptance criteria. The sample was reanalyzed outside hold time with passing QC.

ANALYTICAL RESULTS

Sample: FK01101-01
Name: MW-3
Matrix: Ground Water - Grab

Sampled: 11/01/22 07:51
Received: 11/04/22 10:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	< 1.0	mg/L		11/11/22 19:36	1	1.0	11/11/22 19:36	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		11/11/22 19:36	1	0.250	11/11/22 19:36	CRD	EPA 300.0 REV 2.1
Sulfate	10	mg/L		11/13/22 12:29	5	5.0	11/13/22 12:29	LAM	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	100	mg/L	H	11/09/22 14:09	1	17	11/09/22 15:02	HRF	SM 2540C
Total Metals - PIA									
Boron	20	ug/L		11/08/22 09:10	5	10	11/11/22 10:10	JMW	EPA 6020A
Calcium	17000	ug/L		11/08/22 09:10	5	200	11/10/22 17:30	JMW	EPA 6020A

Sample: FK01101-02
Name: MW-4
Matrix: Ground Water - Grab

Sampled: 11/01/22 11:21
Received: 11/04/22 10:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	12	mg/L		11/11/22 20:30	5	5.0	11/11/22 20:30	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		11/11/22 20:12	1	0.250	11/11/22 20:12	CRD	EPA 300.0 REV 2.1
Sulfate	79	mg/L		11/11/22 20:48	25	25	11/11/22 20:48	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	340	mg/L		11/07/22 09:30	1	26	11/07/22 10:54	HRF	SM 2540C
Total Metals - PIA									
Boron	940	ug/L		11/08/22 09:10	5	10	11/11/22 10:14	JMW	EPA 6020A
Calcium	81000	ug/L		11/08/22 09:10	5	200	11/10/22 17:34	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: FK01101-03
Name: MW-5
Matrix: Ground Water - Grab

Sampled: 11/01/22 10:10
Received: 11/04/22 10:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	13	mg/L		11/11/22 21:24	10	10	11/11/22 21:24	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		11/11/22 21:06	1	0.250	11/11/22 21:06	CRD	EPA 300.0 REV 2.1
Sulfate	250	mg/L		11/11/22 21:42	100	100	11/11/22 21:42	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	670	mg/L		11/07/22 11:55	1	26	11/07/22 12:59	HRF	SM 2540C
Total Metals - PIA									
Boron	420	ug/L		11/08/22 09:10	5	10	11/11/22 10:17	JMW	EPA 6020A
Calcium	130000	ug/L		11/08/22 09:10	5	200	11/10/22 17:38	JMW	EPA 6020A

Sample: FK01101-04
Name: MW-6
Matrix: Ground Water - Grab

Sampled: 11/01/22 08:43
Received: 11/04/22 10:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	4.6	mg/L		11/11/22 22:01	1	1.0	11/11/22 22:01	CRD	EPA 300.0 REV 2.1
Sulfate	26	mg/L		11/11/22 22:55	10	10	11/11/22 22:55	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Fluoride	< 0.250	mg/L		11/17/22 15:02	1	0.250	11/17/22 15:02	ANK	SM 4500F C 1997
Solids - total dissolved solids (TDS)	330	mg/L		11/07/22 11:55	1	26	11/07/22 12:59	HRF	SM 2540C
Total Metals - PIA									
Boron	55	ug/L		11/08/22 09:10	5	10	11/11/22 10:21	JMW	EPA 6020A
Calcium	50000	ug/L		11/08/22 09:10	5	200	11/10/22 17:41	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: FK01101-05
Name: MW-8
Matrix: Ground Water - Grab

Sampled: 11/01/22 10:43
Received: 11/04/22 10:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	51	mg/L		11/11/22 23:31	10	10	11/11/22 23:31	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		11/11/22 23:13	1	0.250	11/11/22 23:13	CRD	EPA 300.0 REV 2.1
Sulfate	130	mg/L		11/13/22 12:47	25	25	11/13/22 12:47	LAM	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	500	mg/L		11/07/22 11:55	1	26	11/07/22 12:59	HRF	SM 2540C
Total Metals - PIA									
Boron	440	ug/L		11/08/22 09:10	5	10	11/11/22 10:25	JMW	EPA 6020A
Calcium	110000	ug/L		11/08/22 09:10	5	200	11/10/22 17:45	JMW	EPA 6020A

Sample: FK01101-06
Name: DUPLICATE
Matrix: Ground Water - Grab

Sampled: 11/01/22 00:00
Received: 11/04/22 10:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	51	mg/L		11/12/22 00:07	10	10	11/12/22 00:07	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		11/11/22 23:49	1	0.250	11/11/22 23:49	CRD	EPA 300.0 REV 2.1
Sulfate	120	mg/L		11/12/22 00:25	100	100	11/12/22 00:25	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	520	mg/L		11/07/22 11:55	1	26	11/07/22 12:59	HRF	SM 2540C
Total Metals - PIA									
Boron	450	ug/L		11/08/22 09:10	5	10	11/11/22 10:28	JMW	EPA 6020A
Calcium	110000	ug/L		11/08/22 09:10	5	200	11/10/22 17:56	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: FK01101-07
Name: FIELD BLANK
Matrix: Ground Water - Grab

Sampled: 11/01/22 10:10
Received: 11/04/22 10:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	< 1.0	mg/L		11/12/22 00:43	1	1.0	11/12/22 00:43	CRD	EPA 300.0 REV 2.1
Fluoride	< 0.250	mg/L		11/12/22 00:43	1	0.250	11/12/22 00:43	CRD	EPA 300.0 REV 2.1
Sulfate	< 1.0	mg/L		11/12/22 00:43	1	1.0	11/12/22 00:43	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	37	mg/L		11/07/22 11:55	1	17	11/07/22 12:59	HRF	SM 2540C
Total Metals - PIA									
Boron	< 10	ug/L		11/09/22 07:40	5	10	11/11/22 11:34	JMW	EPA 6020A
Calcium	< 200	ug/L		11/09/22 07:40	5	200	11/10/22 18:14	JMW	EPA 6020A

NOTES

Specifications regarding method revisions, method modifications, and calculations used for analysis are available upon request. Please contact your project manager.

* Not a TNI accredited analyte

Certifications

CHI - McHenry, IL - 4314-A W. Crystal Lake Road, McHenry, IL 60050
TNI Accreditation for Drinking Water and Wastewater Fields of Testing through IL EPA Accreditation No. 100279
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL - 2231 W. Altorfer Drive, Peoria, IL 61615
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Drinking Water Certifications/Accreditations: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Solid and Hazardous Material Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - Hazelwood, MO - 944 Anglum Rd, Hazelwood, MO 63042
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through KS KDHE Certification No. E-10389
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. - 200080
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory, Registry No. 171050
Missouri Department of Natural Resources - Certificate of Approval for Microbiological Laboratory Service - No. 1050

Qualifiers

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

Gail J Schindler

Certified by: Gail Schindler, Project Manager

PACE ANALYTICAL SERVICES
WWW.PACELABS.COM

REGULATORY PROGRAM (CIRCLE):	NPDES
MORBCA	RCRA
CCDD	TACO: RES OR IND/COMM

CHAIN OF CUSTODY RECORD

STATE WHERE SAMPLE COLLECTED MO

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

① CLIENT: **SIKESTON BMU POWER STATION**

PROJECT NUMBER:

PROJECT LOCATION: **BOTTOM ASH**

PURCHASE ORDER #:

ADDRESS: **1551 W WAKEFIELD**

PHONE NUMBER: **573-475-3131**

E-MAIL:

DATE SHIPPED:

CITY STAT ZIP: **SIKESTON, MO 63801**

SAMPLER (PLEASE PRINT): Justin Lowes

SAMPLER'S SIGNATURE: Justin Lowes

CONTACT PERSON: **MR LUKE ST MARY**

MATRIX TYPES:
WW- WASTEWATER
DW- DRINKING WATER
GW- GROUND WATER
WWSL- SLUDGE
NAS- NON AQUEOUS SOLID
LCHT-LEACHATE
OIL-OIL
SO-SOIL
SOL-SOLID

③ ANALYSIS REQUESTED

④ (FOR LAB USE ONLY)
LOGIN # FK01101-7
LOGGED BY: lyp
CLIENT: SIKESTON BMU, SIKESTON POWER STATION
PROJECT: SIKESTON BOTTOM ASH 2022
PROJ. MGR.: GJ SCHINDLER

② SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE CLIENT PROVIDED	CL, F, SO4, TDS	B, CA						REMARKS
MW-3	11-1-22	0751	X		GW	2	3,6	X	X						
MW-4	11-1-22	1121	X		GW	2	3,6	X	X						
MW-5	11-1-22	1010	X		GW	2	3,6	X	X						
MW-6	11-1-22	0843	X		GW	2	3,6	X	X						
MW-8	11-1-22	1043	X		GW	2	3,6	X	X						
DUPLICATE	11-1-22		X		GW	2	3,6	X	X						
FIELD BLANK	11-1-22	1010	X		DI	2	3,6	X	X						

CHEMICAL PRESERVATION CODES: 1 – HCL 2 – H2SO4 3 – HNO3 4 – NAOH 5 – NA2S2O3 6 – UNPRESERVED 7 – OTHER

⑤ TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)

RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE

DATE RESULTS NEEDED

EMAIL IF DIFFERENT FROM ABOVE:

PHONE # IF DIFFERENT FROM ABOVE:

⑥ *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.*

PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) ________

⑦ RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
Patel	DATE TIME		DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED BY: (SIGNATURE)	DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED BY: (SIGNATURE)	DATE 11/5/22 TIME 1000

⑧ COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 1.5 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT [✓ Y] OR N

SAMPLE(S) RECEIVED ON ICE [✓ Y] OR N

SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED Y OR [✓ N]

UPS

DATE AND TIME TAKEN FROM SAMPLE BOTTLE ________

Appendix 1b

Laboratory Analytical Results and Quality Control Reports December 13, 2022 Retest Event

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

December 30, 2022

Luke St Mary
Sikeston BMU, Sikeston Power Station
1551 W Wakefield
Sikeston, MO 63801

RE: SIKESTON BOTTOM ASH RESAMPLES

Dear Luke St Mary:

Please find enclosed the analytical results for the **4** sample(s) the laboratory received on **12/15/22 4:00 pm** and logged in under work order **FL03252**. All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of Pace Analytical Services, LLC.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

Pace Analytical Services appreciates the opportunity to provide you with analytical expertise . We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant, with any feedback you have about your experience with our laboratory at 309-683-1764 or lisa.grant@pacelabs.com.

Gail g Schindler

Gail Schindler
Project Manager
(309) 692-9688 x1716
gail.schindler@pacelabs.com

SAMPLE RECEIPT CHECK LIST

Items not applicable will be marked as in compliance

Work Order FL03252

YES	Samples received within temperature compliance when applicable
YES	COC present upon sample receipt
YES	COC completed & legible
YES	Sampler name & signature present
YES	Unique sample IDs assigned
YES	Sample collection location recorded
YES	Date & time collected recorded on COC
YES	Relinquished by client signature on COC
YES	COC & labels match
YES	Sample labels are legible
YES	Appropriate bottle(s) received
YES	Sufficient sample volume received
YES	Sample containers received undamaged
NO	Zero headspace, <6 mm present in VOA vials
YES	Trip blank(s) received
YES	All non-field analyses received within holding times
NO	Short hold time analysis
YES	Current PDC COC submitted
NO	Case narrative provided

ANALYTICAL RESULTS

Sample: FL03252-01
Name: MW-5
Matrix: Ground Water - Grab

Sampled: 12/13/22 12:43
Received: 12/15/22 16:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	490	mg/L		12/16/22 14:41	1	26	12/16/22 15:25	HRF	SM 2540C

Sample: FL03252-02
Name: MW-5 DUPLICATE
Matrix: Ground Water - Grab

Sampled: 12/13/22 00:00
Received: 12/15/22 16:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	460	mg/L	M	12/16/22 14:41	1	26	12/16/22 15:25	HRF	SM 2540C

Sample: FL03252-03
Name: MW-6
Matrix: Ground Water - Grab

Sampled: 12/13/22 10:54
Received: 12/15/22 16:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	4.0	mg/L		12/23/22 23:56	1	1.0	12/23/22 23:56	LAM	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	220	mg/L		12/16/22 14:41	1	26	12/16/22 15:25	HRF	SM 2540C
Total Metals - PIA									
Calcium	45000	ug/L		12/20/22 12:10	5	200	12/21/22 10:30	JMW	EPA 6020A

ANALYTICAL RESULTS

Sample: FL03252-04
Name: FIELD BLANK
Matrix: Ground Water - Grab

Sampled: 12/13/22 10:54
Received: 12/15/22 16:00
PO #: 30965

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Chloride	< 1.0	mg/L		12/24/22 00:32	1	1.0	12/24/22 00:32	LAM	EPA 300.0 REV 2.1
General Chemistry - PIA									
Solids - total dissolved solids (TDS)	< 17	mg/L		12/16/22 14:41	1	17	12/16/22 15:25	HRF	SM 2540C
Total Metals - PIA									
Calcium	< 200	ug/L		12/27/22 09:01	5	200	12/27/22 14:40	JMW	EPA 6020A

NOTES

Specifications regarding method revisions, method modifications, and calculations used for analysis are available upon request. Please contact your project manager.

* Not a TNI accredited analyte

Certifications

CHI - McHenry, IL - 4314-A W. Crystal Lake Road, McHenry, IL 60050
TNI Accreditation for Drinking Water and Wastewater Fields of Testing through IL EPA Accreditation No. 100279
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USEPA DMR-QA Program

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Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory, Registry No. 171050
Missouri Department of Natural Resources - Certificate of Approval for Microbiological Laboratory Service - No. 1050

Qualifiers

M	Analyte failed to meet the required acceptance criteria for duplicate analysis.

Gail g Schindler

Certified by: Gail Schindler, Project Manager

NELAP ACCREDITED TNI LABORATORY

PACE ANALYTICAL SERVICES
WWW.PACECLABS.COM

REGULATORY PROGRAM (CIRCLE):	NPDES
MORBCA	RCRA
CCDD	TACO: RES OR IND/COMM

CHAIN OF COSTODY RECORD

STATE WHERE SAMPLE COLLECTED IL

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

① CLIENT: SIKESTON POWER STATION
ADDRESS: 1551 W WAKEFIELD
CITY STAT ZIP: SIKESTON, MO 63801
CONTACT PERSON: MR LUKE ST MARY

PROJECT NUMBER:
PROJECT LOCATION:
PURCHASE ORDER #:
PHONE NUMBER: 573-475-3131
E-MAIL:
DATE SHIPPED:
SAMPLER (PLEASE PRINT): Anthony Deuster
SAMPLER'S SIGNATURE:

MATRIX TYPES:
- WW- WASTEWATER
- DW- DRINKING WATER
- GW- GROUND WATER
- WWSL- SLUDGE
- NAS- NON AQUEOUS SOLID
- LCHT-LEACHATE
- OIL-OIL
- SO-SOIL
- SOL-SOLID

③ ANALYSIS REQUESTED

④ (FOR LAB USE ONLY)
LOGIN # FL03252-04
LOGGED BY: gg
SIKESTON BMU, SIKESTON POWER STATION
SIKESTON BOTTOM ASH 2022 RESAMPLES
GJ SCHINDLER

② SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE CLIENT PROVIDED	TDS	CL, CA	REMARKS
MW-5	12-13-22	1243	X		GW	1	6	X		
MW-5 DUPLICATE	12-13-22		X		GW	1	6	X		
MW-6	12-13-22	1054	X		GW	2	3,6	X	X	
FIELD BLANK	12-13-22	1054	X		DI	2	3,6	X	X	

CHEMICAL PRESERVATION CODES: 1 – HCL | 2 – H2SO4 | 3 – HNO3 | 4 – NAOH | 5 – NA2S2O3 | 6 – UNPRESERVED | 7 – OTHER

⑤ TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PACE LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE
EMAIL IF DIFFERENT FROM ABOVE:
PHONE # IF DIFFERENT FROM ABOVE:
DATE RESULTS NEEDED

⑥ *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may* ***NOT*** *be acceptable to report to all regulatory authorities.*
PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) ____________

⑦ RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
	DATE 10-14-22 TIME 0900		DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED BY: (SIGNATURE)	DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED BY: (SIGNATURE)	DATE 12/15/22 TIME 1600

⑧ COMMENTS: (FOR LAB USE ONLY)
SAMPLE TEMPERATURE UPON RECEIPT 1.7 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT [✓ Y] OR N
SAMPLE(S) RECEIVED ON ICE [✓ Y] OR N
SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED Y OR [✓ N]
DATE AND TIME TAKEN FROM SAMPLE BOTTLE ____________

courier

Appendix 2

Geologic Drilling Logs for High-Yield Wells Near SPS

164 WL-81-Spl5

STATE OF MISSOURI
DIVISION OF
GEOLOGICAL SURVEY AND WATER RESOURCES

LOG NO.	OWNER	
19120	City of Sikeston	
COUNTY	**FARM**	**WELL NO.**
Scott		6

T 26 | 14R ~~13E~~

DRILLER Layne-Arkansas Co.

DATE 8-10-60

ELEV Browning 330

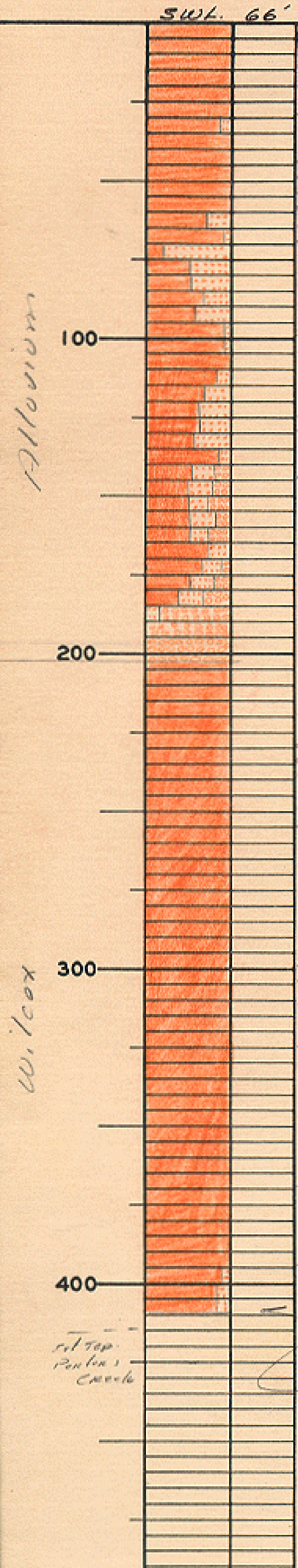
PROD. 1641 GPM.

Section 19

LOGGED BY J Wells 8-26-60

INDEX SHEET NO. 1

REMARKS 307' of 18" csg. 34" hole @ bottom.



SD. BRN, MED-CRSE
d/o
d/o
d/o
d/o w/occ GRAN.
SD. MED-V/CRSE w/GRAN.
d/o
d/o
d/o
d/o
d/o
d/o
SD BRN, MED to GRAN.
d/o
d/o
d/o
d/o
d/o
d/o
SD-CRSE to GRAN
d/o
d/o
d/o
d/o
d/o
d/o
do w/pea GRAVEL

SS

PDWP # 4010743

yellow fn to v/crse
d/o highly polished
d/o w/GRAN.
d/o
d/o
d/o
d/o
d/o
d/o
d/o
SD. v/fn to occ crse.

silty-

SD v/fn to med. silty. gray.
d/o
"
"
"
SD-gray v/fn to crse-silty-
SD gray v/fn to crse

SD-med to crse.

SD. v/fn to occ v/crse. silty
d/o increasing amts of v/crse to granules
d/o inc.

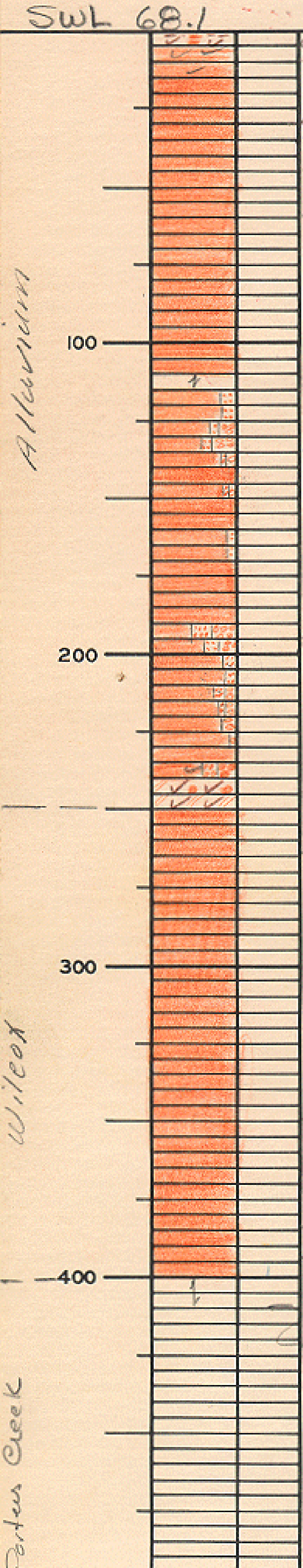
TD 409

WL-79-Spls

STATE OF MISSOURI
DIVISION OF
GEOLOGICAL SURVEY AND WATER RESOURCES

LOG NO. 26235
OWNER City of Sikeston Water Works
COUNTY Scott
FARM ½ blk N. of Water & Light Plant in alley
WELL NO. 7.
T 26 R 14E
Sikeston North
DRILLER Layne Arkansas
DATE 16-6-69 - Spls Rec: 23-6-69
19
0
ELEV. Siren map 327
PROD. ~~test~~ 1500 gpm 44 ft dd
LOGGED BY Wells July 1-69
REMARKS

SWL 68.1



CLAY & SOIL - BRN w/SAND
SAND - BRN - v/fn - fn - w/COARSE
" " " " dirty
SAND - CLEAN - well sort fn-med
do
do
SAND - CLEAN v/fn - fn - well sort
Do
SAND - CLEAN v/fn - well Sorted
do
do
SAND - CLEAN - v/fn - occ crse
Do.
SAND - CLEAN - fn - crse well sort
do - - Poorly sorted
- FN - v/crse - occ Gran.
Do.
Do.
Do.
- FN - crse
Do w/ occ v/crse.
Do & Gran.
fn - v/crse w/Gran.
Do
Do w/PEA Gravel.
Do - Basically - crse
CRSE - w/ occ Gran & P.G.
Crse - v/crse - w/ Gran & Pea Grav.
Crse - v/crse
Do
Do - w/Gran
Do
Do
Do
MED - crse w/ v/crse & Gran
Do
SAND - MED. w/Gran & Pea Grav.
Do
SAND - crse w/Gran
Do.
crse - v/crse w/Gran & Pea Grav.
MED - crse w/ Gran & Pea Gravel.
" - " w/PG.
med - v/crse w/ P.G
do
fn - crse w/ PG & Pebbles Dirty
CLAY - BRN w/ Pebbles
" " SILTY.
SAND - fn - med.
DO
SAND - v/fn - fn
Do -
Do
Do
SAND - TAN - v/fn - med.
Do
Do
Do
Do.
Do
Do
Do
Do
Do
Do
Do
Do
SAND - LT TAN - fn - med.
Do
Do - w/ Sm crse.
Do
SAND - TAN - fn - crse
Do
Do.
SAND - TAN - fn - v/crse
DO
SAND - Redish Brn - fn - crse
DO.

Driller logs "Blue clay 399-410'"

PDWP# 4010743

MISSOURI BUREAU OF GEOLOGY & MINES, ROLLA, MO.

MO SURVEY No 2700

OWNER City of Sikeston
Lon Swanner Water Commissioner

COUNTY Scott

FARM Municipal Plant of Sikeston

WELL No 3

T 26N R 14E

DRILLER Corless well supply Co.

DATE Dec. 1932

ELEVATION 327

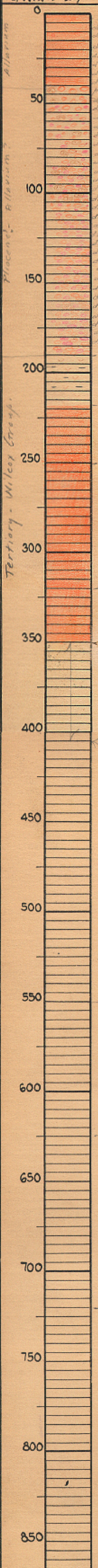
PRODUCTION

SAMPLES STUDIED 12-15-38 Hundhausen

Section 19

REMARKS

S.W.L. = 27'



sand, sub-ang. arkose - magnetite
do
do
do + garnet
do
do.
do + garnet magnetite
do.
pebbles. Igneous pebbles
do
do
do
do
do.
do
do
do
do
do crinoid stem
do
do
do
do
do
do
do
do
do
do
do
do silicified fossiliis
do
do
do
do
do

PDWP # 4010743

8/23/62
Temp 59°
Cond. 220 micromhos
pH 7.2
from USGS

1 sample 194' to 218'
Tan-grey clay - Lignite.

1 sample 218' - to 250'
medium coarse ang. sand

1 sample 260' to 320'
do.

1 sample 320' - 350'

T.D. = 405'

Midway
150'

Est. Top Ripley

625
325
300

Est. Top Paleozoic.

MISSOURI BUREAU OF GEOLOGY & MINES, ROLLA, MO.

MO SURVEY No 2700

OWNER City of Sikeston

COUNTY Scott

FARM @ Municipal Plant

WELL No 3

T 26N R 14E

DRILLER Corliss Well Co.

DATE Dec. 1932

ELEVATION 327

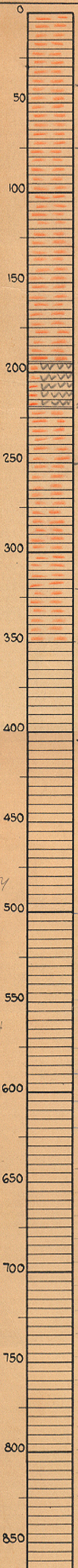
PRODUCTION 750 G.P.M.

SAMPLES STUDIED Farrar

Section 19

REMARKS From sples. submitted.

Elev. 300
B7-11A



Sand, polished in the larger grains some rounded fragments of granite with a small amt of green & dark colored igneous rock

PDWP # 7010743

Much coarser & less rounded igneous rock, fragments chiefly granitic.
Very fine sand in small amount mixed with this

Chiefly medium grained sand same coarse material as above

ANAL. No. 2091
T.D.S. 153.0
CL. 6.3
SO4 1.4

194 Polished clear qtz grains in small amt
Chiefly drab brownish grey clay which is somewhat micaceous.
218

Clear angular qtz sand some of the larger grains are polished.

250

one sple

320

One sple.

350

327
218
109

no sples.

-405 T.O

800 GPM - No decrease
SWL - 27 No change
P. Setting 100 4 132
N Same
Cook deep water turbine
1000 GPM Cap. - 400 M.
15 hrs - D.D. 3'
No device for meas.
SWL -
Quest. 9/27/34 - Rm.

Drilled 412' of 12" W I csg.
SWL 29' 15' Drawdown
Yield 920 Yield.
Top Seal Lead.
Drain or Ejector Eject.
Outlet of Drain Sewer
Pump Type Turbine
Mfg. Layne
Power Elec
Capacity 750

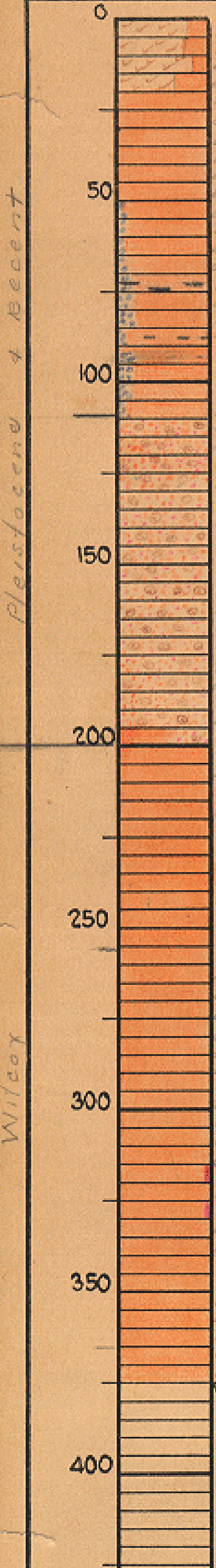
Letter 9-34 Basch.

W.L. 3

MISSOURI BUREAU OF GEOLOGY & MINES, ROLLA, MO.

MO SURVEY № 5941	OWNER City of Sikeston
COUNTY Scott	FARM Well located on NW corner of the Waterworks property — WELL № 4
T 26 N — R 14 E	DRILLER Careless Well Co.
	DATE 2-1-40 to 3-28-1940
19	ELEVATION 324' — PRODUCTION 905 GPM; D.D. 100'
	SAMPLES STUDIED 4-2-40 Hundhausen

REMARKS 60 ft of 8" Screen.
S.W.L. 40 feet.



SS

PDWP # 40107743

brn. silt-clay - arkosic sand magnetite
do.
do
do
sand - ang. arkosic - some chert. hy
do.
do
do
do
do. coarser grained
do. some limestone sand
do
do
do
do. + lignite
sand as above - limestone sand grains
do. coarser sand
do + lignite
very coarse grained sand - grits.
do
do
do
coarse gravel & sand - chert
do
do
do
very coarse
do
do
do
do
do
do
do
do
do
do
do
do
do - much finer grained sand
polished, poorly sorted ang. sand.
do.
do - kyanite
do
do
do coarser grained.
do some orange grains
do
do
very coarse - crackled grains
do finer grained.
med-grained - ang. sand
do
do
do
do
do
do
do
do
do
do
do
do
do
med. fine grained crackled sand. blk. ch.
do
do - black tourmaline
do
do
do
do - coarser grained
do
do
do
do + vermiculite ?
do

T.D. = 375

Am

WL 83 S

STATE OF MISSOURI
DIVISION OF
GEOLOGICAL SURVEY AND WATER RESOURCES

LOG NO. 11,630	**OWNER** City of Sikeston	
COUNTY Scott	**FARM**	**WELL** 5
T 26	**R** 14 ~~13~~E	**DRILLER** Layne Arkansas
		DATE 7-6 51 - 8-15 51
19	**ELEV.** 330 Browning ~~335 Banks~~	**PROD.** 880 gpm
	LOGGED BY S. Marinkovu August 29 '51	

REMARKS

330' of 12" csg
60' of 8" csg
80' of 8" screen

32" o 5
80' o 5 32" & 330' o 5 17' hole
At Water tank

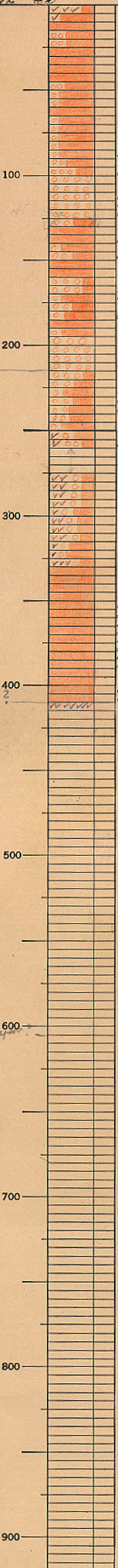
SWL 52'

Index Sheet #1

Pleistocene & Recent

Wilcox

Porter's Creek



soil and sand
rounded sand, igneous frag
do
gravel, coarse sand
do
rounded sand
do
do
do

SS

coarse sand, gravel
do
do
rounded sand
rounded sand, gravel
do
do
do
do
do
do

PDWP#
4010743

gravel of igneous fragments
do
do
do
do
gravel, coarse sand
coarse sand
do
do, gravel
do, gravel
coarse sand
do
gravel, coarse sand
do
do
do
do
medium coarse sand
gravel coarse sand
gravel
do
do
do
do sand
do
do
do
do
do
do
do, clay
do
clay, gravel, sand
do
do
do
do
do
clay, fine sand, gravel
do
do
do
do
fine clean sand, ang. to rounded
do
do
do
do
do
do
do
do
do
do
do
coarse rounded pol. sand
do
do
do
Gumbo according to drillers Log

T. D. ~~415~~ ft.
421' 7"

Screen
80' of 8"
Shutter type #8 slot.
Layne Co. screen

Air line
120'

Pump setting
100' column
4' pump bowls
20' suction pipe

Est. Top Paleo - from log # 2122

77

STATE OF MISSOURI
DIVISION OF
GEOLOGICAL SURVEY AND WATER RESOURCES

LOG NO. 28241

OWNER Sikeston Power Plant

COUNTY Scott

FARM

WELL NO. 2

T 26 R 13E

DRILLER Layne-Western

DATE

ELEV. 305' Fan=60'

PROD.

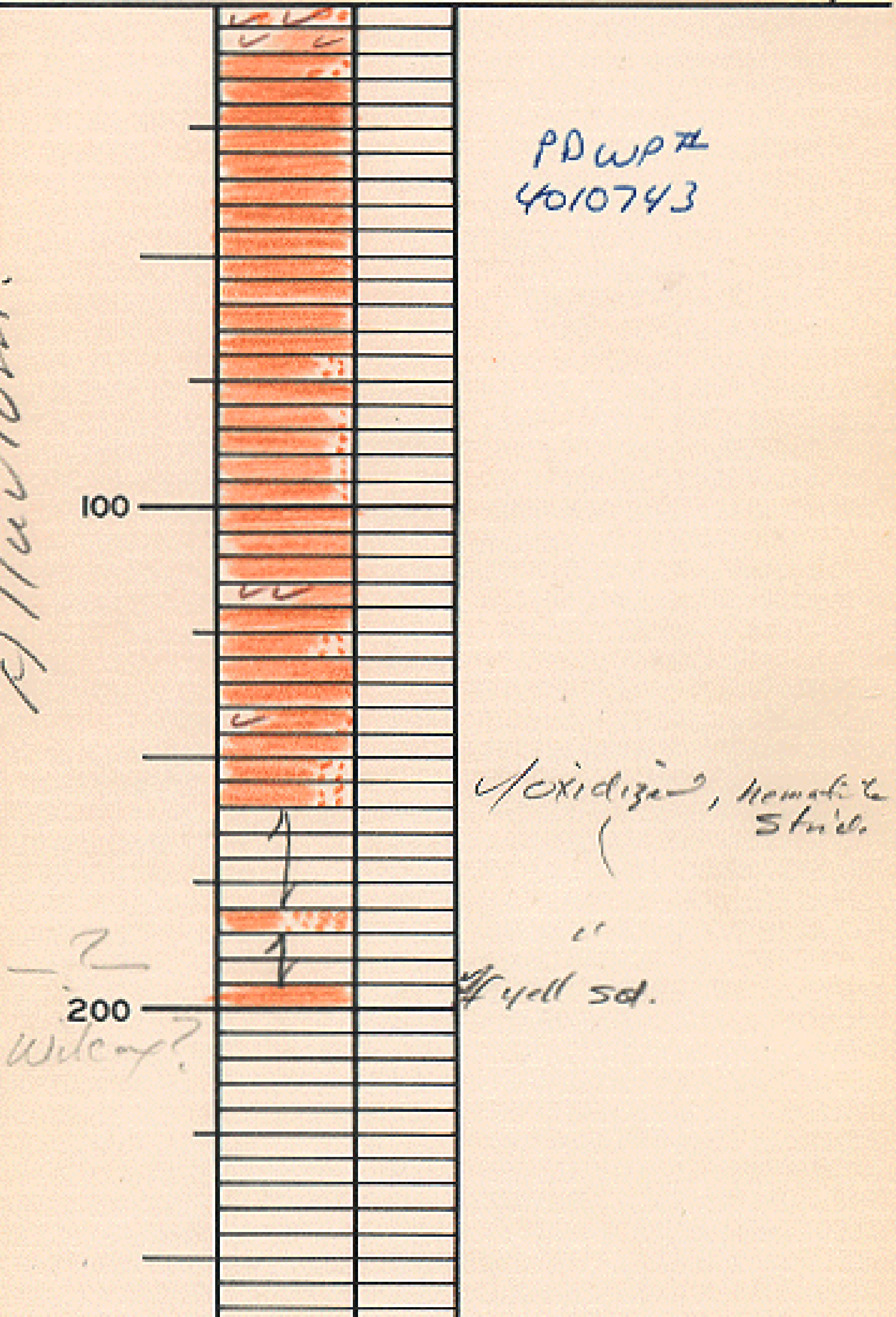
LOGGED BY Wells.

	23		•

REMARKS

80'W, 15'N of Well #2 location

PDWP# 4010743

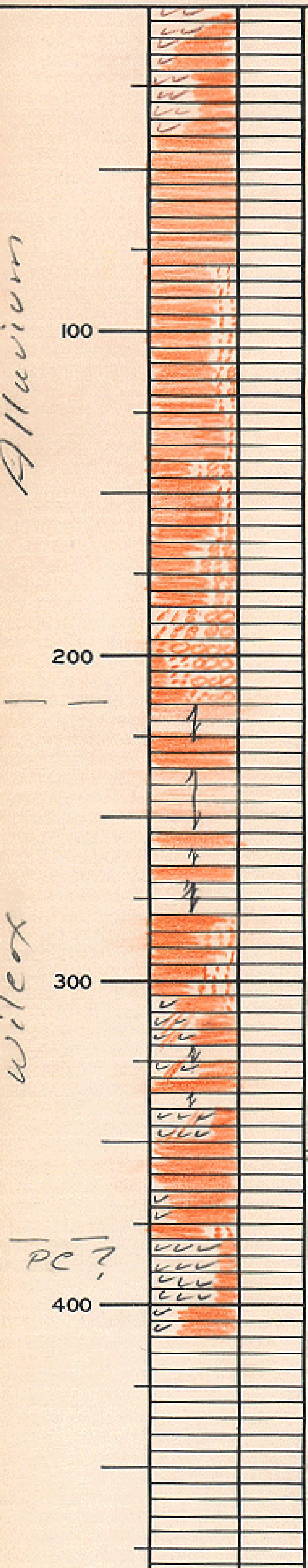


80

STATE OF MISSOURI
DIVISION OF
GEOLOGICAL SURVEY AND WATER RESOURCES

LOG NO. 28242	OWNER Sikeston Power Plant	
COUNTY Scott	FARM	WELL NO. 4-79
T 26 R 13E	DRILLER Layne-Western	
	DATE	
24	ELEV. 328 F.anz '80	PROD.
	LOGGED BY Wells	

REMARKS



√ Poor Spls -

PDWP#
40107743

Fn white wellsort sd.

fn - vfn white sd.

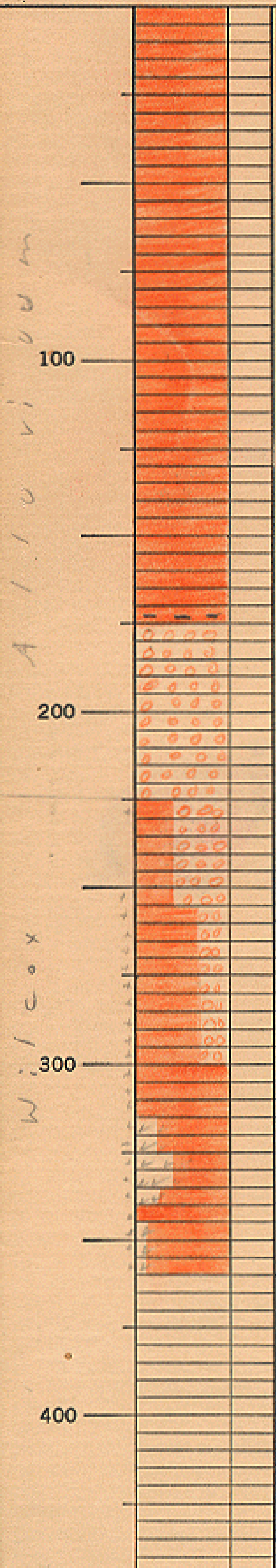
Am WL 71 S

STATE OF MISSOURI
DIVISION OF
GEOLOGICAL SURVEY AND WATER RESOURCES

LOG NO. 10713	**OWNER** Sikeston, Mo. Coca - Cola Bottling Co.	
COUNTY Scott	**FARM** 111-113 Concord St.	**WELL NO.**
T 26 **R** 14E	**DRILLER** Carloss Well Co. Memphis, Tenn.	
	DATE Mar. 1949	
19	**ELEV.** ~~Brewing~~ 328 ~~Rock~~	**PROD.**
	LOGGED BY McNeal 5/11/49	

REMARKS

Index Sheet No. 1



med to crs ang to rounded frosty to polished sd some igneous

SS

poss. ?

do trace lignite
gravel polished chts qtz igneous

do med to crs polished sd
trace med ang pyritic sst

do FeS_2

f to med ang sst FeS_2

do gry mica sh

→360'

Appendix 3a

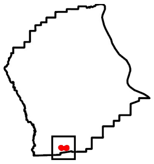
2020 Sikeston Public Well Assessment Reports (CARES)

Sikeston

General System Information

PWSS No. 4010743

Prepared by CARES, University of Missouri Extension

Name	Sikeston
PWSSID	MO4010743
Population Served	16,393
Primary County Served	Scott
Service Connections	7,908
Source(s) of Water	Southeast Missouri Lowlands Groundwater Province
System Classification	Community (C)
Primary Source Type	Groundwater (GW)
System Type	Municipality
System Treatment	4-log Treatment of Viruses, Fluoridation, Greensand Filtration, Sedimentation, Gaseous Pre-Chlorination, Permanganate, Slat Tray Aeration, Gaseous Post-Chlorination, Diffused Aeration, (Pre) pH Adjustment, pH Adjustment, Rapid Sand Filtration
DNR Region of Operations	Southeast Regional Office
Source Water/Wellhead Protection Plan	No
Drinking Water Watch	Drinking Water Watch
Reference Maps	 

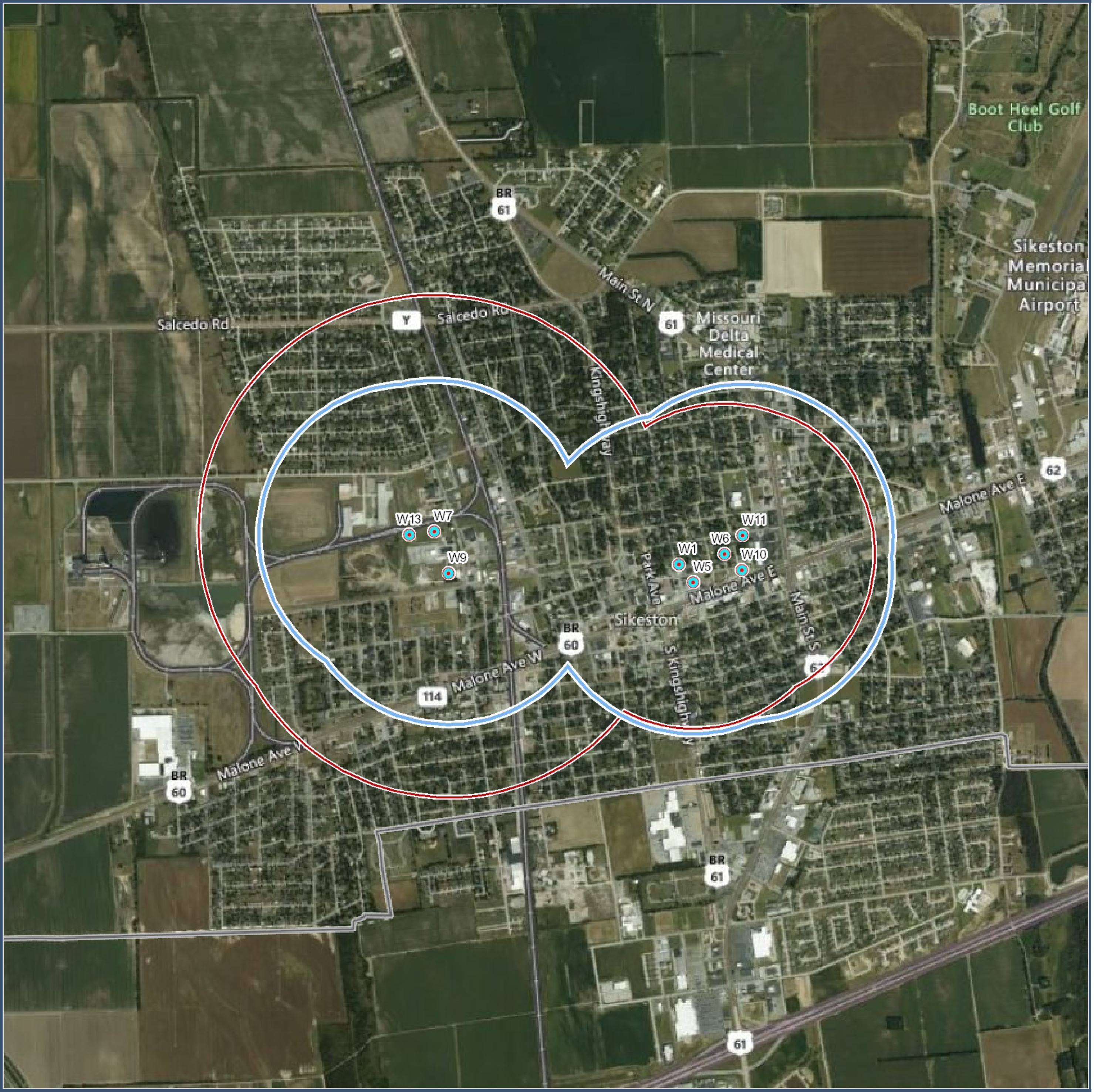
Sikeston

Overview Map (Aerial)
PWSS No. 4010743 - 8 Wells, Scott County

Map Prepared: Jun 11, 2020
Data Release: May 4, 2020

MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Prepared by CARES, University of Missouri Extension



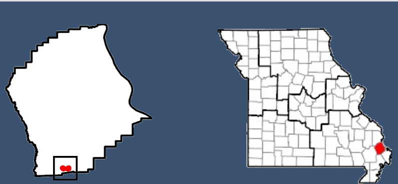
Groundwater System

● System Well

Source Water Protection Boundary

⭕ 20-Year Time of Travel

⭕ Half-Mile Buffer



0 0.5 1

Miles

SWAP - Source Water Assessment Plan -
http://drinkingwater.missouri.edu/swap
Aerial Photos: Bing Maps, Microsoft. Jun 11, 2020.

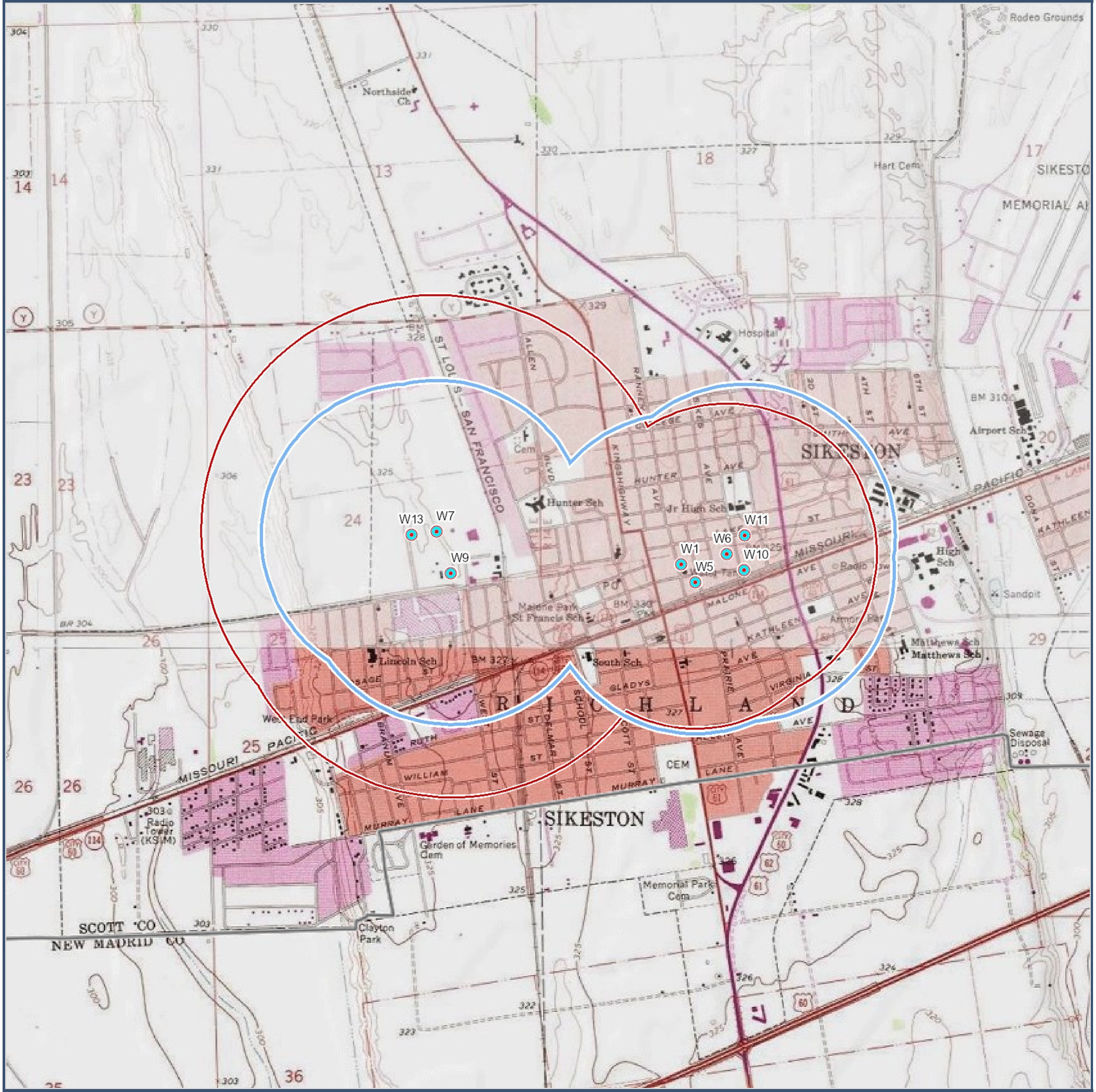
Sikeston

Overview Map (Topo)
PWSS No. 4010743 - 8 Wells, Scott County

Map Prepared: Jun 11, 2020
Data Release: May 4, 2020

MISSOURI DEPARTMENT OF NATURAL RESOURCES

Prepared by CARES, University of Missouri Extension



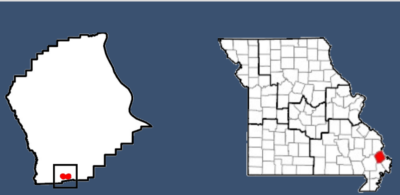
Groundwater System

● System Well

Source Water Protection Boundary

○ 20-Year Time of Travel

○ Half-Mile Buffer



SWAP - Source Water Assessment Plan - http://drinkingwater.missouri.edu/swap
For basemap symbols, see the U.S. Geological Survey (USGS) publication: Topographic Map Symbols.

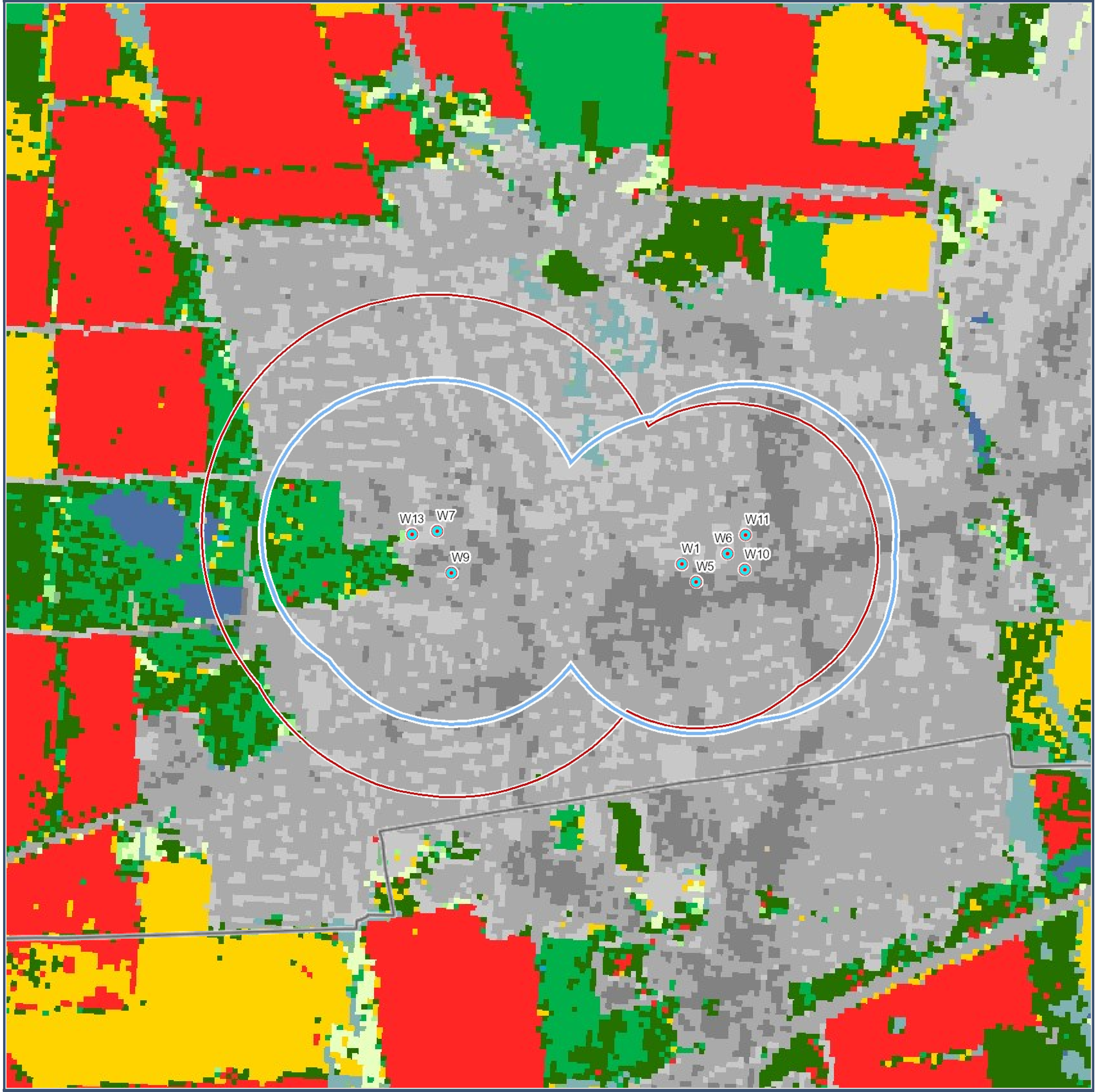
Sikeston

Overview Map (Land Use)
PWSS No. 4010743 - 8 Wells, Scott County

Map Prepared: Jun 11, 2020
Data Release: May 4, 2020

MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Prepared by CARES, University of Missouri Extension



Groundwater System

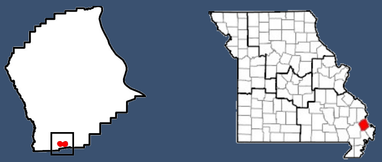
- ● System Well

Source Water Protection Boundary

- ○ 20-Year Time of Travel
- ○ Half-Mile Buffer

Land Use

- 🟨 Corn
- 🟥 Cotton
- 🟦 Rice
- 🟩 Soybeans
- 🟩 Other Crop
- 🟩 Other Hay/Non Alfalfa
- 🟨 Grassland/Pasture
- 🟩 Forest/Shrubland
- ⬛ Developed/High Intensity
- ⬜ Developed/Low-Med Intensity
- ⬜ Developed/Open Space
- 🟦 Open Water
- 🟦 Wetlands
- 🟫 Barren



N

0 0.5 1

Miles

SWAP - Source Water Assessment Plan -
http://drinkingwater.missouri.edu/swap
Aerial Photos: Bing Maps, Microsoft. Jun 11, 2020.

Sikeston

Land Use Statistics
PWSS No. 4010743

Map Prepared: Jun 11, 2020
Data Release: May 4, 2020

MISSOURI DEPARTMENT OF NATURAL RESOURCES
Prepared by CARES, University of Missouri Extension

Land Use	% Land Area, 2017	% Land Area, 2018	% Land Area, 2019	Avg. % Land Area
Corn	0	0	0	0
Cotton	0	0	0	0
Rice	0	0	0	0
Soybeans	0	0.04	0	0.01
Other Crop	0	0	0	0
Other Hay/Non-Alfalfa	0	0	0	0
Grassland/Pasture	0	0	0	0
Forest/Shrubland	0	0	0	0
Developed/High Intensity	23.04	22.78	23.04	22.95
Developed/Low-Med Intensity	62.14	61.83	61.3	61.76
Developed/Open Space	14.82	15.35	15.66	15.27
Open Water	0	0	0	0
Wetlands	0	0	0	0
Barren	0	0	0	0

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Sikeston

Well/Intake Data - PWSS No. 4010743

Sheet Prepared: Jun 11, 2020

Scott County, Sheet 1 of 2

MISSOURI DEPARTMENT OF NATURAL RESOURCES

Prepared by CARES, University of Missouri Extension

Well Number	W1	W5	W6	W7	W9
Local Well Name	Well #1, Plant #2	Well #6, Plant #2	Well #7, Plant #2	Well #8, Plant #3	Well #10, Plant #3
Well ID #	13051	13049	13048	13047	13045
DGLS ID #	0011630	0019120	0026235		
Status	Active	Active	Active	Active	Emergency
Latitude	36.879040	36.878180	36.879540	36.880623	36.878620
Longitude	-89.586450	-89.585580	-89.583700	-89.601124	-89.600250
12-Digit Hydrologic Unit	080202010305	080202010305	080202010305	080202040604	080202040604
County	Scott	Scott	Scott	Scott	Scott
MoDNR Region	Southeast	Southeast	Southeast	Southeast	Southeast
Groundwater Province[1]	Southeast Missouri Lowlands Gr	Southeast Missouri Lowlands Gr	Southeast Missouri Lowlands Gr	Southeast Missouri Lowlands Gr	Southeast Missouri Lowlands Gr
Source Aquifer(s)[2]	Wilcox aquifer	Wilcox aquifer	Wilcox aquifer	Alluvial aquifer	Alluvial aquifer
Confined/Unconfined[3]	Unconfined	Unconfined	Unconfined	Unconfined	Unconfined
Regional Drilling Area[4]	Area 5	Area 5	Area 5	Area 5	Area 5
Total Dissolved Solids[5]	undetermined	undetermined	undetermined	undetermined	undetermined
Date Drilled (year)	1951	1960	1969	1976	1959
Material (C/U)	Unconsolidated	Unconsolidated	Unconsolidated	Unconsolidated	Unconsolidated
Casing Base Formation	Wilcox	Wilcox	Wilcox	Alluvium	Alluvium
Total Depth Formation	Midway	Wilcox	Midway	Alluvium	Alluvium
Total Depth	421	401	404	145	142
Ground Elevation (ft)	327	326	326	325	325
Casing Depth (ft)	331	307	309	108	119
Casing Size (in)	12	18	18	18	12
Casing Type				Steel	Steel
Screen Length (ft)	81	80	80	30	21
Screen Size (in)	8	12	12	12	12
Static Water Level (ft)	60	66	65	27	30
Well Yield (gpm)	600	1100	1450	1300	1000
Head (ft)	90	69	105	57	34
Draw Down (ft)	60	54	59	33	
Pump Test Date (year)	1975	1960	1992	1976	1987
Pump Type	Vertical Turbine	Vertical Turbine	Vertical Turbine	Vertical Turbine	Vertical Turbine
Pump Manufacturer					
Pump Depth (ft)	150	135	170	84	64
Pump Capacity (gpm)	863	1500	1600	1350	1150
Pump Meter (Y/N)					
GWUDISW (Y/N)					
Surface Drainage					
State Approved (Y/N)					
Liquefaction Risk	High	High	High	High	High
Landslide Risk	Low	Low	Low	Low	Low
Collapse Risk	Low	Low	Low	Low	Low
Flood Risk	Low	Low	Low	Low	Low
Surface Contamination Risk	Low	Low	Low	Moderate	Moderate
Conduit Flow Risk[6]	K6	K6	K6	K6	K6

Sikeston

Well/Intake Data - PWSS No. 4010743
Scott County, Sheet 2 of 2

Sheet Prepared: Aug 12, 2020

MISSOURI DEPARTMENT OF NATURAL RESOURCES

Prepared by CARES, University of Missouri Extension

Well Number	W10	W11	W13
Local Well Name	Well #11, Plant #1	Well #12	Well #13 Plant #3
Well ID #	13044	13043	18782
DGLS ID #			
Status	Active	Active	Active
Latitude	36.878770	36.880440	36.880459
Longitude	-89.582680	-89.582630	-89.602615
12-Digit Hydrologic Unit	080202010305	080202010305	080202040604
County	Scott	Scott	Scott
MoDNR Region	Southeast	Southeast	Southeast
Groundwater Province[1]	Southeast Missouri Lowlands	Southeast Missouri Lowlands	Southeast Missouri Lowlands
Source Aquifer(s)[2]	Wilcox	Wilcox	Alluvial
Confined/Unconfined[3]	Unconfined	Unconfined	Unconfined
Regional Drilling Area[4]	Area 5	Area 5	Area 5
Total Dissolved Solids[5]	undetermined	undetermined	undetermined
Date Drilled (year)	1987	1991	2013
Material (C/U)	Unconsolidated	Unconsolidated	Unconsolidated
Casing Base Formation	Wilcox	Wilcox	Alluvium
Total Depth Formation	Wilcox	Wilcox	Alluvium
Total Depth	390	391	160
Ground Elevation (ft)	325	325	325
Casing Depth (ft)	300	292	111
Casing Size (in)	16	18	16
Casing Type	Steel	Steel	Steel
Screen Length (ft)	80	80	110
Screen Size (in)	10	12	
Static Water Level (ft)	65	80	31
Well Yield (gpm)	1062	835	2400
Head (ft)	109	94	69
Draw Down (ft)	43		
Pump Test Date (year)	1987	1991	
Pump Type	Vertical Turbine	Vertical Turbine	Vertical Turbine
Pump Manufacturer			
Pump Depth (ft)	174	174	100
Pump Capacity (gpm)	1000	1000	1000
Pump Meter (Y/N)			
GWUDISW (Y/N)			
Surface Drainage			
State Approved (Y/N)			
Liquefaction Risk	High	High	High
Landslide Risk	Low	Low	Low
Collapse Risk	Low	Low	Low
Flood Risk	Low	Low	Low
Surface Contamination Risk	Low	Low	Moderate
Conduit Flow Risk[6]	K6	K6	K6

Sikeston

Contaminant Summary
PWSS No. 4010743

Sheet Prepared: Jun 11, 2020

MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Prepared by CARES, University of Missouri Extension

57 potential contaminant sources in the listed databases (multiple databases may list the same contaminant source):

	Database
✔	ACRES (Assessment, Cleanup And Redevelopment Exchange System)
✔	AIR (Integrated Compliance Information System-Air)
✔	AIRS/AFS (Air Facility System)
✔	AIRS/AQS (Air Quality System)
	BR (Biennial Reporters)
	BRAC (Base Realignment And Closure)
✔	CAMDBS (Clean Air Markets Division Business Systems)
	CEDRI (Compliance And Emissions Data Reporting Interface)
	ECRM (Enforcement Criminal Records Management)
	E-GGRT (Electronic Greenhouse Gas Reporting Tool)
	EGRID (Emissions & Generation Resource Integrated Database)
✔	EIA-860 (Energy Information Administration-860 Database)
✔	EIS (Emission Inventory System)
	FFDOCKET (Federal Facility Hazardous Waste Compliance Docket)
✔	ICIS (Integrated Compliance Information System)
	LMOP (Landfill Methane Outreach Program)
	LUST-ARRA (Leaking Underground Storage Tank - American Recovery And Reinvestment Act)

	Database
	MN-TEMPO (Minnesota - Permitting, Compliance, & Enforcement)
✔	MO-DNR (Missouri Department Of Natural Resources)
✔	NCDB (National Compliance Database)
✔	NPDES (National Pollutant Discharge Elimination System)
	OTAQREG (Office Of Transportation And Air Quality Fuels Registration)
	RADINFO (Radiation Information System)
	RBLC (Ract/Bact/Laer Clearinghouse)
✔	RCRAINFO (Resource Conservation And Recovery Act Information System)
	RFS (Renewable Fuel Standard)
	RMP (Risk Management Plan)
✔	SEMS (Superfund Enterprise Management System)
✔	SFDW (Safe Drinking Water Information System)
	SSTS (Section Seven Tracking System)
	STATE (State Systems)
	TRIS (Toxics Release Inventory System)
	TSCA (Toxic Substances Control Act)
✔	SWIP (Source Water Inventory Project Field Inventory - see below)

60 potential contaminant sources in the SWIP Field Inventory:

Count	Site Type
0	Airport or abandoned airfield
0	Animal feedlot
0	Apartments and condominiums
0	Asphalt plant
6	Auto repair shop
8	Automotive dealership
0	Barber and beauty shop
0	Boat yard and marina
0	CAFO
0	Campground
2	Car wash
0	Cement Plant
0	Cemetery
0	Communication equipment mfg
0	Country club
3	Dry cleaner
1	Dumping and/or burning site
0	Electric equipment mfg or storage
0	Electric substation
0	Farm machinery storage
3	Feed/Fertilizer/Co-op
2	Fire station
2	Funeral service and crematory
1	Furniture manufacturer
0	Furniture repair or finishing shop
0	Garden and/or nursery
0	Garden, nursery, and/or florist
0	Gasoline service station
0	Golf courses
0	Government office
0	Grain bin
3	Hardware and lumber store
0	Hazardous waste (Federal facility)
1	Highway maintenance facility
0	Jewelry or metal plating shop
0	Junk yard or salvage yard
0	Lagoon (commercial)
0	Lagoon (industrial)
0	Lagoon (municipal)
0	Lagoon (residential)
0	Landfill (municipal)

Count	Site Type
0	Laundromat
0	Livestock auction
0	Machine or metalworking shop
2	Manufacturing (general)
0	Material stockpile (industrial)
0	Medical institution
0	Metal production facility
0	Mining operation
7	Other
1	Paint store
0	Park land
0	Parking lot
1	Petroleum production or storage
0	Pharmacies
0	Photography shop or processing lab
0	Pit toilet
0	Plastic material and synthetic mfg
1	Print shop
0	Railroad yard
0	Recycling/reduction facility
0	Research lab
0	Restaurant
1	Sawdust pile
0	School
0	Sports and hobby shop
0	Swimming pool
0	Tailing pond
5	Tank (above-ground fuel)
0	Tank (other)
0	Tank (pesticide)
6	Tank (underground fuel)
0	Trucking terminal
1	Veterinary service
0	Wastewater treatment facility
2	Well (abandoned)
1	Well (domestic)
0	Well (irrigation)
0	Well (livestock)
0	Well (monitoring)
0	Well (public water supply)
0	Well (unknown)

Sikeston

Susceptibility Determination
PWSS No. 4010743

Sheet Prepared: Jun 11, 2020

Prepared by CARES, University of Missouri Extension

The Missouri Department of Natural Resources (MoDNR) has assembled this information to assess the susceptibility of drinking water sources to contamination. There are many unforseen and unpredictable factors that may cause a source to be contaminated. MoDNR routinely monitors all public supplies to ensure public health is protected. Public water systems and local communities are encouraged to take all measures possible to reduce the susceptibility of their drinking water source to chemical contamination. For more information, call 1-800-361-4827.

Dots containing numeric values correspond to the number of individual wells or surface water intakes.

GROUND WATER

	Minimally Susceptible	Moderately Susceptible	Highly Susceptible	Undetermined
Geological and Hydrogeological Assessment Criteria				
Are any system wells deemed by the Public Drinking Water Branch to be under the direct influence of surface water?	○	○	○	●
Are any system wells potentially prone to karst conditions or solution flow?	●	○	○	○
Do any system wells draw water from a source with high total dissolved solids (TDS)?	○	○	○	●
Are any system wells located proximal to known subsurface or groundwater contamination?	○	○	○	●
Do any system wells draw water from an unconfined aquifer?	●	○	○	○
Based on known stratigraphic relationships for each well, the risk of contamination from surface sources is:	⑤	③	○	○
Well Construction and Maintenance Assessment Criteria				
Are all system wells state-approved?	○	○	○	●
Do any system wells exhibit structural defects, construction deficiencies, or other conditions that might allow contamination to enter the well at the wellhead?	○	○	○	●
Are security measures in place to prevent unauthorized tampering with all system wells?	○	○	○	●
Does the system have back-up, emergency power available?	○	○	○	●
Monitoring Assessment Criteria				
Have any system wells exhibited consistent detections for any of the following parameters in raw water?				
Volatile Organic Chemicals (VOC):	○	○	●	○
Synthetic Organic Chemicals (SOC):	●	○	○	○
Inorganic Compounds (IOC):	●	○	○	○
Nitrates/Nitrites:	●	○	○	○
Radionuclides:	●	○	○	○
Bacteria/Viruses/Microbial Pathogens:	○	○	○	●
Natural Hazard Assessment Criteria				
The number of system wells located in a region prone to flooding.	⑧	○	○	○
The number of system wells located in a region that may experience the following conditions in the event of a large-scale earthquake.				
Potential liquefaction risk:	○	○	⑧	○
Potential landslide risk:	⑧	○	○	○
Potential subsurface collapse/instability risk:	⑧	○	○	○
Are any system wells prone to declining water levels during a prolonged drought?	○	○	○	●
Do all system wells have lightning surge protection?	○	○	○	●
Potential Contaminant Inventory Assessment Criteria				
Potential sources of contamination exist within the wellhead protection area:	○	●	○	○
A system well is located in an area with a high density of transportation corridors:	○	①	⑦	○
A system well is located in an area that may have improperly maintained or faulty on-site septic systems:	○	○	○	●
Additional Assessment Criteria				
Does the system have a wellhead/source water protection plan endorsed by the Department of Natural Resources?	○	●	○	○
Does the system have an emergency interconnection with a neighboring public water system?	○	●	○	○

Sikeston

Notes
PWSS No. 4010743

Map Prepared: Jun 11, 2020
Data Release: May 4, 2020

Prepared by CARES, University of Missouri Extension

1 For additional information about Missouri's regional groundwater provinces, please visit the Missouri Department of Natural Resources' Water Resources Center Web page or contact the Missouri Geological Survey.

2 Source aquifers are determined from well log information, where available, and on general water quality characteristics for the regional groundwater province within which each well is located. Source aquifers for wells with little or no well log information are inferred based on best available information.

Additional Source Aquifer Notes:

- Water sources labeled "Cincinnatian, Pennsylvanian, or Devonian/Silurian" are not regionally extensive aquifer systems in Missouri. These represent isolated, localized water-bearing formations. Broad water quality descriptions are Not currently available for these sources. "Precambrian" water sources exhibit water quality characteristics similar to the St. Francois aquifer.
- The Springfield Plateau aquifer is regionally extensive only in southwest and west-central Missouri. Aquifers labeled "Mississippian" or "Springfield Plateau (equivalent)" refer to wells that draw water from the same geological formations that comprise the Springfield Plateau aquifer, but are located in areas of the state not hydraulically connected to the regional aquifer system. Broad water quality generalizations are not available for these isolated, localized water-bearing units.

3 Unconfined aquifers are generally more vulnerable to surface or shallow subsurface contamination and warrant additional protections around the wellhead. Confined aquifers are not as vulnerable to surface or shallow subsurface contamination, but may exhibit naturally elevated levels of dissolved minerals, radionuclides, or variations in other water quality parameters such as dissolved oxygen and pH.

4 Please refer to 10 CSR 23-3.090 and 10 CSR 23-3.100 for additional information about well construction standards for Missouri's regional well drilling areas.

5 TDS1 Total dissolved solids information is currently only available for the Ozark and Springfield Plateau aquifers. Information is based on broad, regional groundwater quality trends, rather than on well-specific monitoring.

6 K6 This well is not constructed in materials prone to conduit or solution flow.

Appendix 3b

2014 Sikeston Public Well Assessment Reports (CARES)

Sikeston

PWSS No. 4010743

8 Wells, Scott County

Prepared by:

CENTER FOR APPLIED RESEARCH AND ENVIRONMENTAL SYSTEMS
UNIVERSITY OF MISSOURI

Map Update: Jun 06, 2014

Missouri Department of
Natural Resources

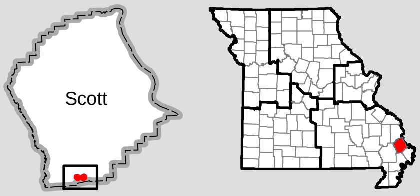
Well System

● System Well

SWAP Delineation Boundary

⬭ 20-year time of travel

⬭ Half-mile buffer



N

Miles
0 0.45 0.9

SWAP - Source Water Assessment Plan --
http://drinkingwater.missouri.edu/swap/
Aerial photos: USDA National Agriculture Inventory Program (NAIP), 2012.

Sikeston

PWSS No. 4010743

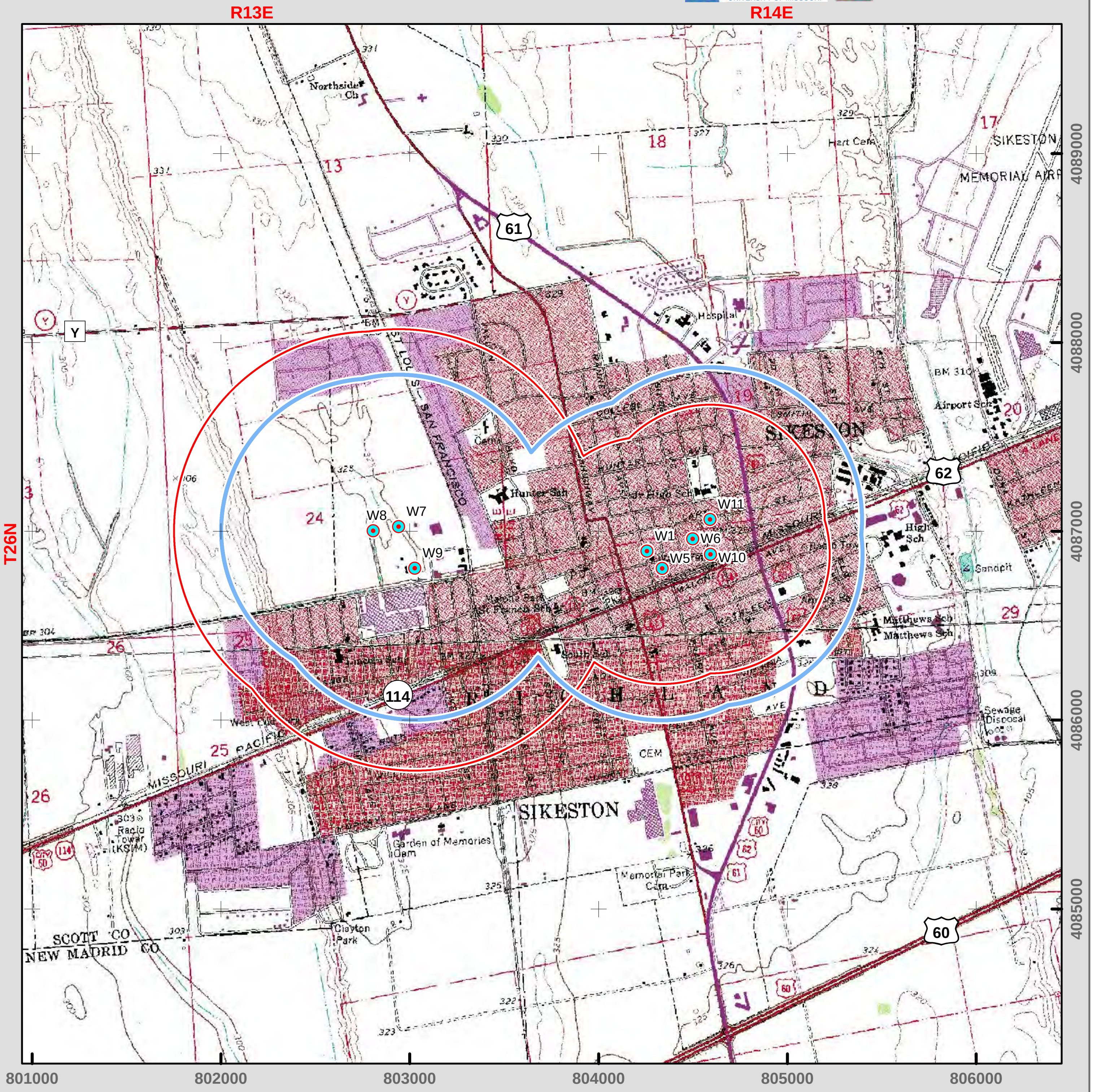
8 Wells, Scott County

Prepared by:

CENTER FOR APPLIED RESEARCH AND ENVIRONMENTAL SYSTEMS
UNIVERSITY OF MISSOURI

Map Update: Jun 06, 2014

Missouri Department of
Natural Resources



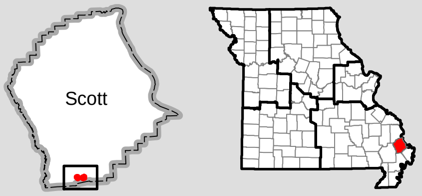
Well System

● System Well

SWAP Delineation Boundary

⭕ 20-year time of travel

⭕ Half-mile buffer



SWAP - Source Water Assessment Plan --
http://drinkingwater.missouri.edu/swap/
For basemap symbols, see the U.S. Geological Survey (USGS) publication: Topographic Map Symbols.

N

Miles
0 0.45 0.9

Sikeston

PWSS No. 4010743

Scott County, sheet 1 of 2

8 wells

Sheet Update: Jun 09, 2014

Prepared by:

CENTER FOR APPLIED RESEARCH AND ENVIRONMENTAL SYSTEMS
UNIVERSITY OF MISSOURI

Missouri Department of
Natural Resources

Well Number	W1	W5	W6	W7	W8
Extended PWS #	4010743101	4010743105	4010743106	4010743107	4010743108
Local Well Name	Well #1, Plant #2	Well #6, Plant #2	Well #7, Plant #2	Well #8, Plant #3	Well #9, Plant #3
Well ID #	13051	13049	13048	13047	13046
DGLS ID #	0011630	0019120	0026235		
Facility Type	City	City	City	City	City
Status	Active	Active	Active	Active	Active
Latitude	36.87904	36.87818	36.87954	36.8806231803	36.880473182
Longitude	-89.58645	-89.58558	-89.5837	-89.6011240613	-89.6026440566
Location Method	GPS	GPS	GPS	GPS	GPS
Method Accuracy (ft)	38	43	43	43	39
USGS 7.5 Quadrangle	Sikeston North	Sikeston North	Sikeston North	Sikeston North	Sikeston North
County	Scott	Scott	Scott	Scott	Scott
MoDNR Region	Southeast	Southeast	Southeast	Southeast	Southeast
Date Drilled (year)	1951	1960	1969	1976	1976
Material (C/U)	Unconsolidated	Unconsolidated	Unconsolidated	Unconsolidated	Unconsolidated
Base of Casing Formation	Wilcox	Wilcox	Wilcox	Alluvium	Alluvium
Total Depth Formation	Midway	Wilcox	Midway	Alluvium	Alluvium
Total Depth	421	401	404	145	143
Ground Elevation (ft)					
Top Seal					
Bottom Seal					
Casing Depth (ft)	331	307	309	108	108
Casing Size (in)	12	18	18	18	18
Casing Type				Steel	Steel
Elev. of Casing Top (ft)					
Outer Casing Depth (ft)					
Outer Casing Size (in)					
Screen Length (ft)	81	80	80	30	30
Screen Size (in)	8	12	12	12	12
Static Water Level (ft)	60	66	65	27	27
Well Yield (gpm)	600	1100	1450	1300	1300
Head (ft)					
Draw Down (ft)	60	54	59	33	34
Pump Test Date (year)	1975	1960	1992	1976	
Pump Type	Vertical Turbine	Vertical Turbine	Vertical Turbine	Vertical Turbine	Vertical Turbine
Pump Manufacturer					
Pump Depth (ft)	150	135	170	84	84
Pump Capacity (gpm)	863	1500	1600	1350	1350
Pump Meter (Y/N)					
VOC Detection (Y/N)	N	N	N	N	N
Nitrate Detection (Y/N)	N	N	N	N	N
Chlorination (Y/N)	Y	Y	Y	Y	Y
Filtration (Y/N)	Y	Y	Y	Y	Y
GWUDISW (Y/N)					
Surface Drainage					
State Approved(Y/N)					
Date Abandoned (year)					
Date Plugged (year)					

Sikeston

PWSS No. 4010743
Scott County, sheet 2 of 2
8 wells

Prepared by:
CENTER FOR APPLIED RESEARCH AND ENVIRONMENTAL SYSTEMS
UNIVERSITY OF MISSOURI

Sheet Update: Jun 09, 2014

Missouri Department of
Natural Resources

Well Number	W9	W10	W11
Extended PWS #	4010743109	4010743110	4010743111
Local Well Name	Well #10, Plant #3	Well #11, Plant #1	Well #12
Well ID #	13045	13044	13043
DGLS ID #			
Facility Type	City	City	City
Status	Active	Active	Active
Latitude	36.87862	36.87877	36.88044
Longitude	-89.60025	-89.58268	-89.58263
Location Method	GPS	GPS	GPS
Method Accuracy (ft)	65	44	45
USGS 7.5 Quadrangle	Sikeston North	Sikeston North	Sikeston North
County	Scott	Scott	Scott
MoDNR Region	Southeast	Southeast	Southeast
Date Drilled (year)	1959	1987	1991
Material (C/U)	Unconsolidated	Unconsolidated	Unconsolidated
Base of Casing Formation	Alluvium	Wilcox	Wilcox
Total Depth Formation	Alluvium	Wilcox	Wilcox
Total Depth	142	390	382
Ground Elevation (ft)			
Top Seal			
Bottom Seal			
Casing Depth (ft)	119	300	292
Casing Size (in)	12	16	18
Casing Type	Steel	Steel	Steel
Elev. of Casing Top (ft)			
Outer Casing Depth (ft)			
Outer Casing Size (in)			
Screen Length (ft)	21	80	80
Screen Size (in)	12	10	12
Static Water Level (ft)	30	65	
Well Yield (gpm)	1000	1062	
Head (ft)			
Draw Down (ft)		43	
Pump Test Date (year)	1987	1987	
Pump Type	Vertical Turbine	Vertical Turbine	Vertical Turbine
Pump Manufacturer			
Pump Depth (ft)	64	174	174
Pump Capacity (gpm)	1150	1000	1000
Pump Meter (Y/N)			
VOC Detection (Y/N)	N	N	N
Nitrate Detection (Y/N)	N	N	N
Chlorination (Y/N)	Y	Y	Y
Filtration (Y/N)	Y	Y	Y
GWUDISW (Y/N)			
Surface Drainage			
State Approved(Y/N)			
Date Abandoned (year)			
Date Plugged (year)			

Sikeston

PWSS No. 4010743

Scott County, sheet 1 of 4

162 potential contaminant sources

Sheet Update: Jun 09, 2014

Prepared by:
CENTER FOR APPLIED RESEARCH AND ENVIRONMENTAL SYSTEMS
UNIVERSITY OF MISSOURI

Missouri Department of
Natural Resources

Map C.No.	CARES ID	Site Name	Type	Location Code	Accuracy Code	Method Code	Database Code
C1	140966	Elanco Products		UN	NV	UN	Dealcov
C2	108627	Scott-New Madrid Electric Coop		UN	NV	UN	Chemcov
C3	108628	Coleman Plant		UN	NV	UN	Chemcov
C4	108630	Sikeston Bd of Municipal Utilities		UN	NV	UN	Chemcov
C5	110225	Board Of Municipal Utilities		UN	NV	UN	Tanks
C6	110226	Board Of Municipal Utilities		UN	NV	UN	Tanks
C7	110379	Boyer Construction Company		UN	NV	UN	Tanks
C8	110498	Bridger Equipment Company		UN	NV	UN	Tanks
C9	110543	Brown Sand & Gravel Co, Inc		UN	NV	UN	Tanks
C10	111299	Charles Terrell		UN	NV	UN	Tanks
C11	111413	City Garage		UN	NV	UN	Tanks
C12	111527	City Of Miner		UN	NV	UN	Tanks
C13	111831	Community Shelter Workshop		UN	NV	UN	Tanks
C14	111964	Cooney Equipment Company		UN	NV	UN	Tanks
C15	112305	Dekalb Ag Research		UN	NV	UN	Tanks
C16	112309	Dekalb-pfizer Genetics		UN	NV	UN	Tanks
C17	112488	Don King Equipment		UN	NV	UN	Tanks
C18	113154	Ferrell Excavating		UN	NV	UN	Tanks
C19	113947	Hale Auction Company		UN	NV	UN	Tanks
C20	114303	Holiday 66 Service		UN	NV	UN	Tanks
C21	114332	Home Oil Co		UN	NV	UN	Tanks
C22	114397	Hucks #139		UN	NV	UN	Tanks
C23	114828	Joe Williams		UN	NV	UN	Tanks
C24	115060	Kellett Oil Co.		UN	NV	UN	Tanks
C25	115145	Kimo's Office Building		UN	NV	UN	Tanks
C26	115609	Lewis Bros Bakeries, Inc		UN	NV	UN	Tanks
C27	115921	Malone & Hyde Drug Dist-never Owned		UN	NV	UN	Tanks
C28	116354	Mhtd Dist Garage		UN	NV	UN	Tanks
C29	116376	Mid South Tractor Parts		UN	NV	UN	Tanks
C30	117395	Par Gas (sinclair)		UN	NV	UN	Tanks
C31	117520	Pepsi Cola		UN	NV	UN	Tanks
C32	118701	Santie Wholesale Oil Co		UN	NV	UN	Tanks
C33	118714	Saunders System Inc		UN	NV	UN	Tanks
C34	118760	Scott Co R-v School Dist		UN	NV	UN	Tanks
C35	118765	Scott-new Madrid-mississippi El Cor		UN	NV	UN	Tanks
C36	118815	Semo Motor Company		UN	NV	UN	Tanks
C37	118816	Semo Nursing Center Inc		UN	NV	UN	Tanks
C38	119100	Sikeston		UN	NV	UN	Tanks
C39	119102	Sikeston Coca-cola Bottling Co		UN	NV	UN	Tanks
C40	119103	Sikeston Concrete Prods Co, Inc		UN	NV	UN	Tanks
C41	119104	Sikeston General Oil Co		UN	NV	UN	Tanks
C42	119106	Sikeston Maint Shed		UN	NV	UN	Tanks
C43	119107	Sikeston Pepsi Cola		UN	NV	UN	Tanks
C44	119381	Southwestern Bell		UN	NV	UN	Tanks
C45	120481	Todd Corporation		UN	NV	UN	Tanks
C46	120611	Trigg Shell		UN	NV	UN	Tanks
C47	120622	Troop E Satellite		UN	NV	UN	Tanks
C48	120761	Union Pacific		UN	NV	UN	Tanks
C49	120798	United Parcel Service, Inc		UN	NV	UN	Tanks
C50	120840	Uptown Shell		UN	NV	UN	Tanks

Method Codes

Code	Address Matching (Geocoding)
A2	Block/Group
A3	Street Centerline
A4	Nearest Street Intersection
A5	Primary Street Name
A6	Digitization
AO	Other Address Matching
Z1	ZIP Code Centroid
	Census - 1990
C1	Block Centroid
C2	Block/Group Centroid
C3	Tract Centroid

Code	Global Positioning System
G1	Static Mode
G2	Kinematic Mode
G3	Differential Post Processing
G4	Precise Positioning Service
G5	Signal Averaging
G6	Real Time Differential Processing
	Interpolation
I1	Topo Map
I2	Aerial Photography (DOQQ)
I3	Satellite Imagery

Code	Other
P1	Land Survey
S2	Quarter Description
UN	Unknown

Location Codes

BL	Building
CF	Center of Facility
IN	Intersection
LS	Lagoon or Pond
MG	Main Access Point (Gate)
MA	Main Office
OT	Other
PL	Pile
RD	Road
TK	Tank, Standpipe, or Tower
WL	Well
UN	Unknown

Accuracy Codes

Code	Metric
m	Meters
km	Kilometers
	English
ft	Feet
yd	Yards
mi	Miles
UN	Unknown
NF	Site not found at database position
NV	Site position not verified

Although all data in this dataset have been used by the Missouri Department of Natural Resources (MoDNR), no warranty, expressed or implied,is made by MoDNR as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by MoDNR in the use of these data or related materials. This sheet is subject to change as additional information is acquired. Additional information at: http://drinkingwater.missouri.edu

Sikeston

PWSS No. 4010743

Scott County, sheet 2 of 4

162 potential contaminant sources

Sheet Update: Jun 09, 2014

Prepared by:

CENTER FOR APPLIED RESEARCH AND ENVIRONMENTAL SYSTEMS UNIVERSITY OF MISSOURI

Missouri Department of Natural Resources

Map C.No.	CARES ID	Site Name	Type	Location Code	Accuracy Code	Method Code	Database Code
C51	120845	U-pump-it		UN	NV	UN	Tanks
C52	121651	Woodtruss		UN	NV	UN	Tanks
C53	121750	Quality Plating		UN	NV	UN	SMARS
C54	122606	Jerry James Trailers Inc.		UN	NV	UN	HW Gen
C55	123286	Scott-new Madrid-mississippi Electric		UN	NV	UN	HW Gen
C56	123833	Cooney Equipment Co.		UN	NV	UN	HW Gen
C57	123835	Semo Motor Co.		UN	NV	UN	HW Gen
C58	123836	Sikeston Dry Cleaners		UN	NV	UN	HW Gen
C59	123890	Todd, Inc.		UN	NV	UN	HW Gen
C60	124108	Satterfield Body Shop	Hazar Entry	CF	33 ft	I2	HW Gen
C61	124665	Missouri Delta Community Hospital		UN	NV	UN	HW Gen
C62	124814	Auto Tire & Parts		UN	NV	UN	HW Gen
C63	125054	Stricker Body Shop		UN	NV	UN	HW Gen
C64	125343	At&t		UN	NV	UN	HW Gen
C65	125753	King Cleaners		UN	NV	UN	HW Gen
C66	125930	Mid-south Tractor Parts		UN	NV	UN	HW Gen
C67	126133	Carnell's Body Shop		UN	NV	UN	HW Gen
C68	126233	Mo Dept Of Transportation		UN	NV	UN	HW Gen
C69	126406	Heritage American Homes		UN	NV	UN	HW Gen
C70	127163	One Day Cleaners		UN	NV	UN	HW Gen
C71	127545	Kelpro, Inc.		UN	NV	UN	HW Gen
C72	127758	Chamberlain's Amoco		UN	NV	UN	HW Gen
C73	127798	Canedy Sign Co., Inc.		UN	NV	UN	HW Gen
C74	127851	Faultless Cleaners		UN	NV	UN	HW Gen
C75	128391	Don King Salvage		UN	NV	UN	HW Gen
C76	128417	Bootheel Diesel Fuel Injection		UN	NV	UN	HW Gen
C77	128903	Sikeston Light And Water		UN	NV	UN	HW Gen
C78	128972	Missouri Highway & Transportation Dept.		UN	NV	UN	HW Gen
C79	129213	Media Press		UN	NV	UN	HW Gen
C80	129679	Dekalb Plant Genetics		UN	NV	UN	HW Gen
C81	129840	Quality Plating % Usepa Region Vii		UN	NV	UN	HW Gen
C82	130016	Central States Coca-cola		UN	NV	UN	HW Gen
C83	130088	Curtis H. Cline		UN	NV	UN	HW Gen
C84	130731	Dekalb Corp		UN	NV	UN	HW Gen
C85	132505	HANDY STREET CALCIUM ARSENATE SITE		UN	NV	UN	CERCLIS
C86	132606	MRM INDUSTRIES		UN	NV	UN	CERCLIS
C87	135413	Dekalb Agresearch Inc		UN	NV	UN	APCP
C88	136492	Mcmullin Gin Co Inc		UN	NV	UN	APCP
C89	136493	Sikeston Cotton Oil Mill Inc		UN	NV	UN	APCP
C90	136501	Missouri Delta Community Hospital		UN	NV	UN	APCP
C91	136502	Old Coal-fired Generator		UN	NV	UN	APCP
C92	136503	Sikeston Power Station		UN	NV	UN	APCP
C93	136505	Hendrick Concrete Products Corp		UN	NV	UN	APCP
C94	136506	Sikeston Woodworking		UN	NV	UN	APCP
C95	136510	Daily Standard		UN	NV	UN	APCP
C96	136514	Crowder Gin Company, Inc		UN	NV	UN	APCP
C97	136517	Marnor Aluminum Processing Inc		UN	NV	UN	APCP
C98	136521	Mrm Industries Inc		UN	NV	UN	APCP
C99	136528	Faultless Cleaners Inc		UN	NV	UN	APCP
C100	136537	Sikeston		UN	NV	UN	APCP

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Code	Global Positioning System
G1	Static Mode
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I1	Topo Map
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Code	Other
P1	Land Survey
S2	Quarter Description
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Location Codes

BL	Building
CF	Center of Facility
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LS	Lagoon or Pond
MG	Main Access Point (Gate)
MA	Main Office
OT	Other
PL	Pile
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UN	Unknown

Accuracy Codes

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Sikeston

PWSS No. 4010743

Scott County, sheet 3 of 4

162 potential contaminant sources

Sheet Update: Jun 09, 2014

Prepared by:

CENTER FOR APPLIED RESEARCH AND ENVIRONMENTAL SYSTEMS
UNIVERSITY OF MISSOURI

Missouri Department of
Natural Resources

Map C.No.	CARES ID	Site Name	Type	Location Code	Accuracy Code	Method Code	Database Code
C101	136539	King Laundry And Dry Cleaners		UN	NV	UN	APCP
C102	136540	Sikeston Dry Cleaners		UN	NV	UN	APCP
C103	385324	Magic Car Wash	Car wash	BL	33 ft	I2	CARES
C104	385325	Williams Auto Sales	Auto repair shop	BL	33 ft	I2	CARES
C105	385326	Rogers Auto Sales	Automotive dealership	BL	33 ft	I2	CARES
C106	385327	The House of Color	Paint store	BL	33 ft	I2	CARES
C107	385328	Drakes Auto Sales	Automotive dealership	BL	33 ft	I2	CARES
C108	385329	Hucks	Tank (underground fuel)	BL	33 ft	I2	CARES
C109	385330	Jim's Auto Sales	Automotive dealership	BL	33 ft	I2	CARES
C110	385331	Cox's Car Wash	Car wash	BL	33 ft	I2	CARES
C111	385332	Sinclair Gas	Tank (above-ground fuel)	BL	33 ft	I2	CARES
C112	385333	Midtown Motors	Automotive dealership	CF	33 ft	I2	CARES
C113	385334	C&C Motors	Automotive dealership	BL	33 ft	I2	CARES
C114	385335	Moll Priniting Company	Print shop	BL	33 ft	I2	CARES
C115	385336	Feeders Supply	Feed/Fertilizer/Co-op	BL	33 ft	I2	CARES
C116	385338	Meeks Print Shop	Other	BL	33 ft	I2	CARES
C117	385339	Cornell's Collision Repair	Auto repair shop	BL	33 ft	I2	CARES
C118	385340	FG Convienience Store	Tank (underground fuel)	BL	33 ft	I2	CARES
C119	385341	Rhodes Convienience Store	Tank (underground fuel)	BL	33 ft	I2	CARES
C120	385342	Animal Health Center	Veterinary service	BL	33 ft	I2	CARES
C121	385343	Elite Car Wash	Other	BL	33 ft	I2	CARES
C122	385344	Sikeston Fire Department	Fire station	BL	33 ft	I2	CARES
C123	385345	Allsops Woodworking	Furniture manufacturer	BL	33 ft	I2	CARES
C124	385346	Sonny's Solid Waste	Tank (above-ground fuel)	CF	33 ft	I2	CARES
C125	385349	Auto Repair	Auto repair shop	BL	33 ft	I2	CARES
C126	385350		Well (domestic)	WL	33 ft	I2	CARES
C127	385351	Riggs Building Supplies and Home Center	Hardware and lumber store	BL	33 ft	I2	CARES
C128	385352	Sabona Mfg.	Manufacturing (general)	BL	33 ft	I2	CARES
C129	385353	Janitrol/Janitor Supply	Other	BL	33 ft	I2	CARES
C130	385354	Patriot/Heritage Homes	Manufacturing (general)	BL	33 ft	I2	CARES
C131	385355	Sheltered Workshop	Sawdust pile	CF	33 ft	I2	CARES
C132	385356	Aramark	Dry cleaner	BL	33 ft	I2	CARES
C133	385357		Other	TK	33 ft	I2	CARES
C134	385358	Riggs Wholesale Co.	Hardware and lumber store	BL	33 ft	I2	CARES
C135	385359	Electric Substation	Other	CF	33 ft	I2	CARES
C136	385440	Sikeston Auto Service	Auto repair shop	BL	33 ft	I2	CARES
C137	385441	Sinclair Service Station	Tank (above-ground fuel)	BL	33 ft	I2	CARES
C138	385442	Phillips 66	Tank (underground fuel)	BL	33 ft	I2	CARES
C139	385443	Sikeston Laundry and Drycleaners	Dry cleaner	BL	33 ft	I2	CARES
C140	385444	C & K Building Materials	Hardware and lumber store	BL	33 ft	I2	CARES
C141	385445	King Laudry and Cleaners	Dry cleaner	BL	33 ft	I2	CARES
C142	385446	Moll Printing Co.	Other	BL	33 ft	I2	CARES
C143	385447	Premier Motor	Automotive dealership	BL	33 ft	I2	CARES
C144	385448	Amoco	Tank (underground fuel)	BL	33 ft	I2	CARES
C145	385449	Griffs Auto Sales	Automotive dealership	BL	33 ft	I2	CARES
C146	385450	Beaver Janitor Supply	Other	TK	33 ft	I2	CARES
C147	385451	Blanchard Funeral Parlor	Funeral service and crematory	BL	33 ft	I2	CARES
C148	385452	Service Station	Tank (underground fuel)	BL	33 ft	I2	CARES
C149	385453	Cargill	Feed/Fertilizer/Co-op	CF	33 ft	I2	CARES
C150	385454		Tank (above-ground fuel)	TK	33 ft	I2	CARES

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Although all data in this dataset have been used by the Missouri Department of Natural Resources (MoDNR), no warranty, expressed or implied,is made by MoDNR as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by MoDNR in the use of these data or related materials. This sheet is subject to change as additional information is acquired. Additional information at: http://drinkingwater.missouri.edu

Sikeston

PWSS No. 4010743

Scott County, sheet 4 of 4

162 potential contaminant sources

Sheet Update: Jun 09, 2014

Prepared by:
CENTER FOR APPLIED
RESEARCH AND
ENVIRONMENTAL SYSTEMS
UNIVERSITY OF MISSOURI

Missouri Department of
Natural Resources

Map C.No.	CARES ID	Site Name	Type	Location Code	Accuracy Code	Method Code	Database Code
C151	385455	Sikeston Seed Co., Inc.	Feed/Fertilizer/Co-op	BL	33 ft	I2	CARES
C152	385456	H & H Small Engine Repair	Auto repair shop	BL	33 ft	I2	CARES
C153	385457	Auto Repair	Auto repair shop	BL	33 ft	I2	CARES
C154	385458	J J Auto Sales	Automotive dealership	BL	33 ft	I2	CARES
C155	385459	Sikeston City Dump	Dumping and/or burning site	CF	33 ft	I2	CARES
C156	385460	William Farr and Purnell Funeral Home	Funeral service and crematory	BL	33 ft	I2	CARES
C157	385461		Well (abandoned)	BL	33 ft	I2	CARES
C158	385462		Well (abandoned)	BL	33 ft	I2	CARES
C159	385463	Sikeston Fire Station	Fire station	BL	33 ft	I2	CARES
C160	385464		Tank (above-ground fuel)	TK	33 ft	I2	CARES
C161	385465	Sikeston Highway Maintenence Facility	Highway maintenance facility	CF	33 ft	I2	CARES
C162	385466	Shell	Petroleum production or storage	BL	33 ft	I2	CARES

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Sikeston

PWSS No. 4010743

Contaminant Summary Sheet

162 potential contaminant sources

Sheet Update: Jun 09, 2014

Prepared by:
CENTER FOR APPLIED RESEARCH AND ENVIRONMENTAL SYSTEMS
UNIVERSITY OF MISSOURI

Missouri Department of
Natural Resources

162 Potential Contaminant Sources in the Listed Databases:

	AFS (EPA AIRS Facility Sites)
16	APCP (MoDNR Air Pollution Control Program Sites)
	APF (MoDNR Active Permitted Landfills & Transfer Stations)
2	CERCLIS (EPA CERCLIS)
3	Chemcov (VA Selected Chemical Sites)
1	Dealcov (MDA Pesticide Dealer Locations)
	Dioxin (MoDNR Confirmed Dioxin List)
	Grain B (USDA Former Grain Bin Sites)
31	HW Gen (MoDNR Hazardous Waste Generators)
	HW Tran (MoDNR Hazardous Waste Transporters)
	LUST (MoDNR Leaking Underground Storage Tanks)
	MoDOT (MoDOT Highway Maintenance Facilities)
	PADS (EPA PCB Activity Data Base System)

	Perchlo (MoDNR Perchlorate Sites in Missouri)
	Pest Ap (MDA Licensed Pesticide Applicators)
	RCRIS (EPA Resource Conservation and Recovery Information System)
	Silos (USGS Minuteman II Missile Silos)
1	SMARS (MoDNR Superfund Management and Registry System)
48	Tanks (MoDNR Petroleum Tank Database)
	Tier 2 (MERC Tier II Reports)
	Tire D (MoDNR Resolved and Unresolved Waste Tire Dumps)
	TRI (EPA Toxic Release Inventory)
	VCP (MoDNR Voluntary Cleanup Program Sites)
	WQIS (MoDNR Water Quality Information System)
60	SWIP Field Inventory (see below)

60 Potential Contaminant Sources in the SWIP Field Inventory:

0	Airport or abandoned airfield
0	Animal feedlot
0	Apartments and condominiums
0	Asphalt plant
6	Auto repair shop
8	Automotive dealership
0	Barber and beauty shop
0	Boat yard and marina
0	CAFO
0	Campground
2	Car wash
0	Cement Plant
0	Cemetery
0	Communication equipment mfg
0	Country club
3	Dry cleaner
1	Dumping and/or burning site
0	Electric equipment mfg or storage
0	Electric substation
0	Farm machinery storage
3	Feed/Fertilizer/Co-op
2	Fire station
2	Funeral service and crematory
1	Furniture manufacturer
0	Furniture repair or finishing shop
0	Garden and/or nursery
0	Garden, nursery, and/or florist
0	Gasoline service station
0	Golf courses
0	Government office
0	Grain bin
3	Hardware and lumber store
0	Hazardous waste (Federal facility)
1	Highway maintenance facility
0	Jewelry or metal plating shop
0	Junk yard or salvage yard
0	Lagoon (commercial)
0	Lagoon (industrial)
0	Lagoon (municipal)
0	Lagoon (residential)
0	Landfill (municipal)
0	Laundromat
0	Livestock auction

0	Machine or metalworking shop
2	Manufacturing (general)
0	Material stockpile (industrial)
0	Medical institution
0	Metal production facility
0	Mining operation
7	Other
1	Paint store
0	Park land
0	Parking lot
1	Petroleum production or storage
0	Pharmacies
0	Photography shop or processing lab
0	Pit toilet
0	Plastic material and synthetic mfg
1	Print shop
0	Railroad yard
0	Recycling/reduction facility
0	Research lab
0	Restaurant
1	Sawdust pile
0	School
0	Sports and hobby shop
0	Swimming pool
0	Tailing pond
5	Tank (above-ground fuel)
0	Tank (other)
0	Tank (pesticide)
6	Tank (underground fuel)
0	Trucking terminal
1	Veterinary service
0	Wastewater treatment facility
2	Well (abandoned)
1	Well (domestic)
0	Well (irrigation)
0	Well (livestock)
0	Well (monitoring)
0	Well (public water supply)
0	Well (unknown)

Sikeston

PWSS No. 4010743

Susceptibility Determination Sheet

8 wells

Sheet Update: Mar 14, 2014

Prepared by:
CENTER FOR APPLIED RESEARCH AND ENVIRONMENTAL SYSTEMS
UNIVERSITY OF MISSOURI

Missouri Department of
Natural Resources

The Missouri Department of Natural Resources (MoDNR) has assembled this information to assess the susceptibility of drinking water sources to contamination. There are many unforseen and unpredictable factors that may cause a source to be contaminated. MoDNR routinely monitors all public supplies to ensure public health is protected. Public water systems and local communities are encouraged to take all measures possible to reduce the susceptibility of their drinking water source to chemical contamination. For more information, call 1-800-361-4827.

	Not Susceptible	Moderately Susceptible	Highly Susceptible	Incomplete Data
A system is highly susceptible because of construction deficiencies if:				
A well was not constructed according to plans approved by MoDNR-PDWB,				X
A well was not cased to a depth approved by MoDNR,				X
A well casing is not of sufficient weight,				X
A well is not sufficiently sealed (grouted) around the casing, or A well has developed holes in the casing or other flaws that compromise its integrity.				X
A system is highly susceptible due to direct influence of surface water if:				
A well has tested positive for surface water indicators such as algae or high turbidity.				X
A system is highly susceptible to surface contaminants if:				
A well casing does not extend 12 inches above the well house floor, or 18 inches above the ground surface,				X
A well casing does not extend four feet above the 100-year flood level, or four feet above the highest known flood elevation,				X
A well is not provided with a properly screened vent, or				X
All openings in a well casing are not properly sealed.				X
A system is highly susceptible based on detection histories if:				
Volatile Organic Chemicals (VOCs) have been detected in a well,	X			
Synthetic Organic Chemicals (SOCs) have been detected in a well,				X
Inorganic Chemicals (IOCs) have been detected in a well above naturally occurring levels,				X
Nitrates have been detected at or above one-half the MCL,	X			
Bacteria has been consistently detected in a well, or				X
Viruses or microbiological contaminants are detected in a well.				X
A system is highly susceptible to weather, vandalism, and sabotage if:				
A well is not in a locked well house of adequate construction.				X (1)
A system is moderately susceptible due to local geology if:				
A producing aquifer is less than 100 feet below the surface,	X			
A producing aquifer has conduit flow conditions due to surficial karst topography,				X
A producing aquifer is not overlain by an impermeable confining layer,				X
A producing aquifer is overlain by a conductive (>5X10e-4) formation (including soil), or				X
A producing aquifer is confined, but there are open wells nearby penetrating that layer.				X
A system is moderately susceptible to contaminants if:				
Any contaminants listed in Appendix F-a are found in the source water area,		X (2)		
Septic systems are present in the source water area,				X
A well is indirectly connected to a surface water body,				X
A submersible well pump cannot be ruled out from containing PCBs or PHAs, or				X
There is a high density of transportation corridors in the source water area.				X
A system is highly susceptible to contamination if:				
Any contaminant sites identified in the source water area are known to have contaminated groundwater that may migrate toward a well.				X

(1) This system was not assessed to determine if adequate security devices such as padlocks, gates, and lighting are in place to deter vandals and saboteurs. All water systems should have this type of protection in place.

(2) A well (or wells) serving this system has been determined to be susceptible due to the presence of potential contaminant sources. The water system and the wellhead protection team should take extra care to ensure that all potential contaminants in the source water area are handled properly to avoid contamination of the drinking water supply.