

November 28, 2023  
File No. 27223180.00

Mr. Mick Leat  
Iowa Department of Natural Resources  
Land Quality Bureau  
Wallace State Office Building  
502 East 9<sup>th</sup> Street  
Des Moines, Iowa 50319-0034

Subject: 2023 Annual Water Quality Report and  
Leachate Control System Performance Evaluation Report  
Heidelberg Materials CKD Monofill  
Permit No. 17-SDP-08-99P

Dear Mick,

SCS Engineers (SCS) has completed the required groundwater monitoring and statistical analyses at the Heidelberg Materials Cement Kiln Dust (CKD) Monofill for the 2023 calendar year. Our services were performed in general accordance with Iowa Administrative Code (IAC) 567-115.26 and the landfill permit requirements for implementation of the Hydrologic Monitoring System Plan (HMSP). Please find enclosed a copy of the 2023 Annual Water Quality Report for the above-referenced site.

Additionally, an evaluation of the leachate control system for the site is included in accordance with IAC 567-115.26. The 2023 Leachate Control System Performance Evaluation Report for the site is included as Appendix F to the Annual Water Quality Report.

If you have any questions about this report, please contact us as noted below.

Sincerely,



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Senior Project Professional  
SCS Engineers  
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KAJ/TCB

cc: Patrick Karamaga, Heidelberg Materials US Cement  
Wendy Krause, Heidelberg Materials US Cement



# 2023 Annual Water Quality Report

Heidelberg Materials US Cement CKD Monofill  
Solid Waste Permit No. 17-SDP-08-99P

Prepared for:

Heidelberg Materials US Cement  
700 25<sup>th</sup> Street NW  
Mason City, Iowa 50401

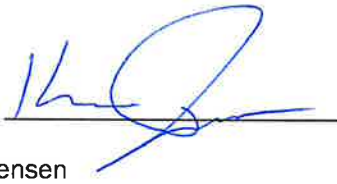
**SCS ENGINEERS**

27223180.00 | November 28, 2023


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# CERTIFICATION

Prepared by:   
Typed: Kevin Jensen

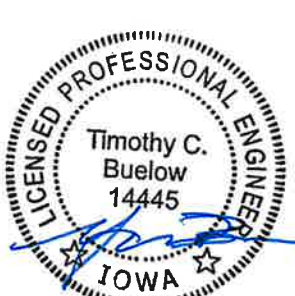

Date: 11-28-2023

Reviewed by:   
Typed: Timothy C. Buelow, P.E.

Date: 11/28/2023

Certification page (115.26(8)"d")

An annual report summarizing the effect of the facility on groundwater and surface water quality shall be submitted to the department each year. The summary is to be prepared by an engineer registered in the state of Iowa.

	<p>I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.</p>
	<p><u></u> Date: <u>11/28/23</u> Timothy C. Buelow, P.E. License No. 14445 My license renewal date is December 31, 2023. Pages or sheets covered by this seal: <u>All except Appendix B-1.</u></p>

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## **EXECUTIVE SUMMARY**

### **ES.1 PERIOD OF REPORT COVERAGE**

SCS Engineers (SCS), on behalf of Heidelberg Materials US Cement, has completed the required groundwater sampling of the Heidelberg Materials US Cement CKD Monofill (Monofill). The purpose of this Annual Water Quality Report (AWQR) is to document and statistically evaluate the groundwater sampling results since the 2022 AWQR up to and including the April and October 2023 semiannual sampling events. This AWQR was prepared in accordance with the requirements of Iowa Administrative Code (IAC) 567-115.26, the site permit, and current requirements for implementation of the Hydrologic Monitoring System Plan (HMSP).

### **ES.2 REPORT PRIORITY**

The following summarizes report priorities associated with groundwater compliance at the Monofill:

- Department review urgency: None.
- Department review impact on rules schedule: None.
- Actions or activities on hold pending Department review or comment: None.
- Actions and/or permit amendments needed: None.

### **ES.3 SITE STATUS AND APPLICABLE RULES**

- Monofill Status: Active, Operating Permit.
- Types of waste accepted: Industrial (Cement-Kiln Dust (CKD) waste).
- Applicable IAC rules: 567-115.26.

### **ES.4 COMMENTS**

The following summarizes points of special emphasis: None.

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## 1.0 ACRONYMS/ABBREVIATIONS

AL = Action Level  
CCV = Continuing Calibration Verification  
CL = Control Limit - Mean plus Two Standard Deviations  
DNR = Iowa Department of Natural Resources  
DO = Dissolved Oxygen  
GWPS = Groundwater Protection Standard  
GWQAP = Groundwater Quality Assessment Plan  
LEL = Lower Explosive Limit  
LCL = Lower Confidence Limit  
LCS = Laboratory Control Sample  
LN = Lognormal  
M+/-2SD = Mean Plus/Minus Two Standard Deviations  
MCL = EPA Maximum Contaminant Level  
MDL = Method Detection Limit  
N = Normal  
NC = No Change  
NM = Not Measured  
ORP = Oxidation-Reduction Potential  
PL = Prediction Limit  
QA = Quality Assurance  
QC = Quality Control  
RL = Reporting Limit  
SWS = DNR Statewide Standard for a Protected Groundwater Source  
SSI = Statistically Significant Increase Above Background  
SSL = Statistically Significant Level Above Groundwater Protection Standard  
SSS = Site-Specific Standard (Site-Specific GWPS)  
TSS = Total Suspended Solids  
UCL = Upper Confidence Limit

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## 2.0 SITE BACKGROUND

### 2.1 SITE LOCATION

The Heidelberg Materials US Cement manufacturing plant (formerly Lehigh Cement Company) is located near the north edge of Mason City, Iowa on the northwest corner of the intersection of 25<sup>th</sup> Street Northwest and U.S. Highway 65. The cement manufacturing waste monofill (Monofill) is located on this property. The legal description of the Monofill location is the North ½ of Section 32, Township 97 North, Range 20 West, Cerro Gordo County, Iowa.

### 2.2 FACILITY

Heidelberg Materials US Cement owns and operates a cement manufacturing waste monofill on their mining and manufacturing facility property in Mason City, Iowa. The Monofill was constructed in the summer of 2002 and authorization to begin filling was granted by DNR on October 31, 2002. The Monofill was developed within portions of the previous clay quarry.

Prior to filling of cement manufacturing waste, including cement kiln dust (CKD), in the Monofill, CKD was buried in several areas across the current and former site property. Five of these burial areas within the current property and on the property now operated by the Lime Creek Nature Center are regulated by the Environmental Protection Agency (EPA) as a Superfund site (EPA ID No. IAD005288634).

In accordance with the consent decrees issued by the Iowa Department of Water, Air, and Waste Management in April 1984 (Consent Order No. 84-A-001) and the EPA (Civil Action No. 2c 84-3030) in May 1986, Lehigh buried CKD in portions of the clay quarry over top of remaining in-situ clay which was approximately three to four feet thick.

### 2.3 GEOLOGY OF THE SITE

The following information pertaining to this section was obtained from the Landfill Hydrogeologic Investigation Report prepared by Barr Engineering Company, August 2001 (note that the referenced tables, figures, and appendices are part of the referenced report and not included herein):

*As indicated on the cross sections, the surficial deposits (i.e., unconsolidated material above the bedrock) at the site consist of two significant layers. The uppermost layer consists of brown, oxidized, generally mottled, clay till with zones of silt, sandy clay, sandy silty clay, and clayey sand. Bedding is not apparent in samples of the brown till. This brown clay till is present only in the unmined areas of the clay quarry. Thickness of the brown clay till varies from 5.5 ft. to 20.5 ft.*

*The stratigraphically lower second layer consists of greenish-gray clay. Based on field testing and observations, this clay was classified as likely being fat clay. However, laboratory testing indicated that the greenish-gray clay is lean clay. Thin bedding is visible in samples of the greenish-gray clay. Sandy zones were not seen in the greenish-gray clay samples. The greenish-gray clay is stiff but can be parted along bedding planes under manual pressure. This greenish-gray clay is homogeneous, unlike the overlying brown clay till, and may be consistent with a lacustrine depositional environment. An occasional gravel to small cobble sized rock was the only particle larger than clay size observed in the greenish-gray clay samples.*

*In some locations a "clay-shale" was encountered at the base of the greenish-gray clay, directly above the bedrock. This clay-shale was the same color as the clay immediately above it but was generally harder (based on standard penetration test blow counts) and less malleable than the overlying greenish-gray clay. Samples of the clay-shale also tended to break along bedding planes in thinner pieces than the overlying greenish-gray clay.*

*Bedrock encountered during drilling at the site consisted mainly of carbonate rocks. Core samples of the bedrock were obtained from wells MW-201, MW-202, and, MW-203. The upper portions of the cores consisted mainly of mottled dark gray to brown dolomite. This dolomitic portion of the cores contained numerous vugs and cavities. Calcite crystals and some small pyrite crystals were observed in vugs in this upper zone of the bedrock. Lower portions of the cored intervals appeared to consist of more limestone than dolomite. The limestone portion of the cores tended to have fewer open vugs/cavities than stratigraphically higher portions of the cores. A 0.5-foot thick shaley zone was encountered within the carbonate bedrock at well MW-202.*

## **2.4 HYDROLOGY OF THE SITE**

The following information pertaining to this section was obtained from the Landfill Hydrogeologic Investigation Report prepared by Barr Engineering Company, August 2001:

*A well-defined and continuous water table was not present in the unconsolidated material at the site. Some saturated zones were identified in the brown till during drilling; however, the saturated zones were not seen continuously across the site. Saturated zones were not observed in the greenish-gray clay during drilling. In order to fully evaluate the potential for saturated zones in the greenish-gray clay, the temporary piezometers and monitoring wells MW-101, MW-102, MW-103, and MW-104R were installed. The piezometers were installed in March 2001 and abandoned in June 2001. Piezometers were checked several times during this period to determine if there was any water in them. All the piezometers were dry when checked during the period March through June, except for piezometer PZ-1 at the end of June 2001.*

*When PZ-1 was checked on June 28 there was approximately 0.5 ft of water in the piezometer. The Barr geologist noted that the bentonite grout around the piezometer riser appeared to be desiccated and cracked and that the piezometer riser appeared to be loose (i.e., the riser pipe could be moved from side to side). Water was pumped out of piezometer PZ-1 with a whale pump until there was only about 0.1 ft of water remaining in the piezometer. Piezometer PZ-1 was checked again on June 29 and there was still only about 0.1 ft of water in the piezometer. As indicated in Appendix B, no saturated zones were observed in the greenish-gray clay when piezometer PZ-1 was installed. In light of the observations made at the time of piezometer installation, the lack of recharge in the piezometer suggests that the likely source of the water in piezometer PZ-1 was water leaking down the piezometer annulus from above through a compromised bentonite grout seal.*

*Water has not been detected in monitoring wells MW-102, MW-103, and MW-104R. Monitoring well MW-101 was constructed over a two-day period (Appendix B). No evidence of saturated zones in the greenish-gray clay was observed during the drilling of well MW-101. The driller noted some wet cuttings from a depth of approximately 7 feet. This depth appears consistent with the interpreted depth of the contact between*

the brown till and the greenish gray clay (Appendix B). After the cement grout had cured, well MW-101 was checked and there was approximately 0.5 feet of water in the well. As with piezometer PZ-1, well MW-101 was evacuated using a whale pump. One day later, there was still no water in the well. It appears likely that water detected in well MW-101 moved down the borehole from the contact between the brown till and greenish-gray clay during the installation of well MW 101.

Laboratory permeability tests were performed on shelly tube samples from both the brown till and the greenish-gray clay. As shown in Table 2, the permeability of the brown till ranged from  $1.3 \times 10^{-8}$  to  $1.6 \times 10^{-8}$  ft/min. Permeability of the greenish-gray clay ranged from  $1.3 \times 10^{-8}$  to  $7.8 \times 10^{-8}$  ft/min.

During the installation of wells MW-201, MW-202, and MW-203 no groundwater was encountered in the unconsolidated sediments. Steel casings were grouted into the top of the bedrock at each of these wells (Appendix B). Rock coring was then done through these casings after the grout had set. Groundwater entered the coreholes from the bedrock and rose up inside the outer casings several feet above the bedrock surface. As noted above, some of the soil borings terminated when the auger encountered the bedrock surface. Groundwater did not enter these boreholes. Thus, it appears that the uppermost portion of the bedrock, rather than the clay-shale or the greenish-gray clay, is the upper confining unit for the bedrock aquifer at the site.

Groundwater elevations were measured in wells MW-201, MW-202, and MW-203 on March 26, April 25, June 22, and July 25, 2001. Comparison of the measured groundwater elevations with the bedrock surface elevations at wells MW-201, MW-202, and MW-203 (e.g., Figure 8) indicates that the piezometric surface in the bedrock aquifer is approximately 9.7 to 14 ft above the bedrock surface. Piezometric surface elevation contours for the bedrock aquifer are shown on Figures 9, 10, 11, and 12. As shown on these figures, the groundwater flow direction in the bedrock aquifer beneath the site varied from approximately north to northeast. The horizontal hydraulic gradient in the bedrock aquifer varied from  $1.2 \times 10^{-4}$  ft/ft to  $1.5 \times 10^{-3}$  ft/ft.

As described in Section 2, single well recovery tests were performed in wells MW-201 and MW-203 at the site. The aquifer test data and evaluations are presented in Appendix E. Data gathered during the tests was used to calculate a specific capacity for each of the wells. Following the method described in Driscoll (1986), specific capacity data can be used to estimate aquifer transmissivity. These estimates are considered good first approximations to the aquifer transmissivity (Driscoll, 1986). Estimated transmissivities for wells MW-201 and MW-203 are shown in Table 6. The geometric mean of the bedrock transmissivity, as estimated from the specific capacities of the wells, is 69 ft<sup>2</sup>/day.

Recovery test data for each well were analyzed with the Theis recovery method (Theis, 1935) using the software package AQTESOLV (Duffield, 1999). The geometric mean of the bedrock transmissivity, as determined from the recovery tests, is 124 ft<sup>2</sup>/day. Using information obtained during this investigation, the groundwater flow velocity in the bedrock beneath the new landfill site has been estimated. To facilitate the calculation of an estimated groundwater flow velocity it has been assumed that 1) the bedrock porosity is 0.05 (this is within the typical range for limestone and dolomite presented by Freeze and Cherry (1979)) and 2) the carbonate aquifer is 290 feet thick. Thus, the hydraulic conductivity of the bedrock aquifer beneath the site is estimated

to be 0.43 ft/day. The groundwater flow velocity in the bedrock beneath the site is estimated to 2.5 ft/yr. (0.069 ft/day).

## **3.0 FIGURES DISCUSSION**

The following figures are attached.

### **3.1 FIGURE 1 – APPROVED MONITORING NETWORK**

The Landfill property and hydrological monitoring system plan (HMSP) network are depicted in **Figure 1**. **Figure 1** indicates the locations of each monitoring well.

### **3.2 FIGURES 2 & 3 – GROUNDWATER CONTOURS – CLAY UNIT**

Groundwater contour maps based on water levels measured in the clay unit during the April and October semiannual groundwater sampling events are included as **Figure 2** and **Figure 3**, respectively. **Figure 2** indicates a generally south-southeasterly flow direction and **Figure 3** indicates a generally southwesterly flow direction. Elevation measurements of the north pond during the April and October semiannual sampling events were recorded as 1,112.84 feet and 1,110.13 feet, respectively. The level of the north pond is controlled via manual pumping to the south pond and discharges through NPDES Outfall #4 and monitoring point SW-1 to Calamus Creek.

### **3.3 FIGURES 4 & 5 – GROUNDWATER CONTOURS – BEDROCK UNIT**

Groundwater contour maps based on water levels measured in the bedrock unit during the April and October semiannual groundwater sampling events are included as **Figure 4** and **Figure 5**, respectively. **Figure 4** and **Figure 5** indicate a generally north-northwesterly flow direction with flow beneath the Phase 1-3 area being away from the north pond. The vertical gradient within the nested monitoring well pair MW-102R/MW-202R appeared to be downward during both the April and October semiannual sampling events.



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## **4.0 QA/QC SUMMARY**

Date indicates the date(s) of sampling.

### **4.1 APRIL 27, 2023 (2023 APRIL SAMPLING EVENT)**

Based on the QA review, no samples were rejected as unusable due to QC failures. In general, the quality of the analytical data for this reporting period does not appear to have been compromised by analytical irregularities and results affected by QC anomalies are qualified with the appropriate data flags, which are listed in the laboratory report in **Appendix B-1**. Data validation documentation can be found in **Appendix B-2**.

### **4.2 OCTOBER 19, 2023 (2023 OCTOBER SAMPLING EVENT)**

Based on the QA review, no samples were rejected as unusable due to QC failures. In general, the quality of the analytical data for this reporting period does not appear to have been compromised by analytical irregularities and results affected by QC anomalies are qualified with the appropriate data flags, which are listed in the laboratory report in **Appendix B-1**. Data validation documentation can be found in **Appendix B-2**.

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## 5.0 DATA EVALUATION

Statistical analyses in accordance with the requirements of the 1989 IAC 567-103.2(8)"d" were conducted for the groundwater analytical data collected during the April and October 2023 semiannual sampling events. The statistical evaluation for samples collected during 2023 semiannual sampling events is located in **Appendix D** of this report.

### 5.1 DATA EVALUATION

Groundwater monitoring for the Monofill consists of sampling from two units. The clay unit contains one upgradient monitoring well (MW-101R) located on the west side of the Monofill and two downgradient monitoring wells; one located on the north side (MW-102R) and one located on the east side (MW-103R) of the Monofill. The bedrock unit contains two upgradient monitoring wells located on the south (MW-205) and far southwest (MW-203R) sides of the Monofill and four downgradient monitoring wells; one located on the southeast side (MW-201), one located along the east side (MW-204), one located on the north side (MW-202R), and one located on the west side (MW-206) of the Monofill.

A total of 39 control limit exceedances were detected based on 2023 semiannual sampling results as listed in **Table 1** and **Table 7** compared to 40 control limit exceedances detected based on 2022 semiannual sampling results reported in the 2022 AWQR. Almost half of the control limit exceedances detected based on 2023 semiannual sampling results were attributed to the two downgradient non-purged clay unit samples.

Exceedances of action or advisory levels were largely associated with sodium, sulfate, and total dissolved solids as listed in **Table 9**. The action levels for sodium, sulfate, and total dissolved solids were also exceeded in upgradient monitoring well MW-101R. Concentrations of sodium, sulfate, and total dissolved solids in monitoring well MW-101R were significantly lower in the recharge sample as compared to the initial no-purge sample where samples were available. No recharge samples were able to be collected from the downgradient clay monitoring wells MW-102R and MW-103R during recent sampling events. Noted exceedances of the action or advisory levels were based on a review of concentrations listed in the Summary of Groundwater Chemistry in **Appendix C** and information reported in Table 9.

### 5.2 TRENDING IN MONITORING WELLS

Statistically significant trends at a 99 percent confidence level ( $\alpha=0.01$ ) were identified in eight monitoring point – constituent pairs by Mann-Kendall analysis during this reporting period, two increasing and six decreasing. In addition to the groundwater monitoring wells, the leak detection risers (LDRs) and the surface water sampling point were included in the trend analysis. The trend analysis results using data through the October 2023 sampling event are included in **Appendix D**. The statistically significant trends were as follows:

Monitoring Point	Constituent	Trend
MW-201	Potassium	Decreasing
MW-201	Specific Conductance	Decreasing
MW-201	Sulfate	Decreasing
MW-201	Total Dissolved Solids	Decreasing
LDR-2	Potassium	Decreasing
LDR-2	Specific Conductance	Decreasing

Monitoring Point	Constituent	Trend
LDR-3	Chloride	Increasing
LDR-3	Potassium	Increasing

Although not necessarily statistically significant, the Mann-Kendall statistics can provide an indication of general trending in the data. Trend indications for wells in the monitoring program are shown in the table below. The statistics used to develop the general trending differ from the Mann-Kendall statistics used in the diagnostics section of the statistical evaluation in that a much lower trend threshold is applied for the general trending information ( $\alpha=0.20$  versus  $\alpha=0.01$ ). Trends classified as decreasing or increasing exhibited a statistically significant trend with 80% confidence using the most recent eight data points. Trends classified as stable did not exhibit a statistically significant trend with 80% confidence using the eight most recent data points. A summary of Mann-Kendall statistics by constituent in each monitoring point is included in **Appendix E** of this report.

Trending in Assessment Monitoring Wells					
Aquifer	Monitoring Well	Decreasing Trends	Stable Trends	Increasing Trends	Number of Constituents Analyzed
Clay Unit	MW-101R-NP (u)	11.11%	88.89%	0.00%	18
	MW-102R-NP	33.33%	66.67%	0.00%	15
	MW-103R-NP	18.75%	81.25%	0.00%	16
Bedrock Unit	MW-201	42.86%	47.62%	9.52%	21
	MW-202R	11.76%	82.35%	5.88%	17
	MW-203R (u)	6.67%	93.33%	0.00%	15
	MW-204	6.25%	87.50%	6.25%	16
	MW-205 (u)	6.25%	93.75%	0.00%	16
	MW-206	6.25%	93.75%	0.00%	16
Leak Detection Risers	LDR-1	4.55%	86.36%	9.09%	22
	LDR-2	41.18%	52.94%	5.88%	17
	LDR-3	0.00%	68.42%	31.58%	19
Surface Water	SW-1	0.00%	85.00%	15.00%	20
<b>Combined</b>	<b>Site Wide</b>	<b>14.47%</b>	<b>78.51%</b>	<b>7.02%</b>	<b>228</b>

(u) indicates an upgradient monitoring point.

Review of the Mann-Kendall statistics indicated that approximately 93 percent of the Mann-Kendall statistics were considered stable or decreasing following the 2023 annual statistical evaluation with none of the decreasing trends being pH. Decreasing pH trends may be related to reduced impact by cement manufacturing waste, which is characterized by a high pH as indicated by the pH measurements taken in the Phase 1, 2, & 3 sumps composite listed in the Summary of Groundwater Chemistry in **Appendix C**. Although concentrations of calcium, chloride, potassium, and magnesium have continued to rise in leak detection riser LDR-3, concentrations of these constituents in the groundwater at nearby monitoring well MW-201 are stable to decreasing.

## 6.0 RECOMMENDATIONS

### 6.1 SITE IMPACT ON GROUNDWATER

Based on the data collected during the 2023 sampling events, it appears the Monofill may be having a limited impact on the surrounding groundwater in isolated areas. Historical placement of CKD in the area could also be an influencing factor. Due to the nature of the impact, the industrial use of the site, and the lack of receptors in the area, additional assessment does not appear necessary at this time.

Precautions have continued to be implemented to ensure ponding around MW-201 is limited by diverting and, when necessary, pumping surface water to the north pond on an as-needed basis. Potential improvement of groundwater quality in monitoring well MW-201 was noted by the decreasing trends at 99% confidence level and lower concentrations of chloride, potassium, sodium, and sulfate detected in the 2023 sampling events compared to recent sampling events evidenced in the time series graphs included in **Appendix D** and the historical concentrations listed in the Summary of Groundwater Chemistry in **Appendix C**.

In response to item #1 of the DNR letter dated May 2, 2023 (Doc # 106510), the static water level measured in monitoring well MW-101R was lower in elevation than the static water level measured in monitoring wells MW-102R and MW-103R during the October 2023 sampling event and it was slightly below the elevation of MW-102R, but above MW-103R during the April sampling event. Still, concentrations of most constituents remained lower in monitoring well MW-101R compared to monitoring wells MW-102R and MW-103R. It appears monitoring well MW-101R is still functioning as a background monitoring well for statistical analyses of the clay unit monitoring wells and does not appear to be affected by the Monofill. Furthermore, concentrations of several constituents in monitoring well MW-101R were significantly lower in the recharge sample as compared to the initial no-purge sample where samples were available. No recharge samples were able to be collected from the downgradient clay monitoring wells MW-102R and MW-103R during recent sampling events.

In response to item #2 of the DNR letter dated May 2, 2023 (Doc # 106510), the reason for the steadily increasing concentrations of calcium, chloride, total hardness, magnesium, potassium, specific conductance, sulfate, and TDS at LDR-3, as well as the consistently elevated concentrations of several of those constituents, and sodium, at this point when compared to the other lysimeters and monitoring wells is unknown. The increasing concentrations of chloride, potassium, specific conductance, sulfate and TDS are consistent with elevated concentrations of these constituents in the leachate samples; however, the trending and/or concentrations of calcium, magnesium, bicarbonate alkalinity, pH (generally slightly acidic), and total hardness are not consistent with the leachate samples. It should be noted that volumes of water within LDR-3 have continually recharged faster than can be expelled during the post-sampling purge events. As noted in Section 5.2, groundwater at the nearest compliance point, bedrock monitoring well MW-201, appears to be unaffected by the conditions at LDR-3. Additional evaluation in the form of geochemical analysis of the water in LDR-3 compared to leachate and uncontaminated groundwater will be included in the 2024 AWQR.

### 6.2 PROPOSED MONITORING

The groundwater monitoring program is summarized in **Table 1**. No changes to the HMSP monitoring program are recommended at this time. It is recommended that sampling continue for calendar year 2024 as summarized in **Table 2**. Geochemical samples will be collected from LDR-3, leachate, and uncontaminated groundwater for analysis in the 2024 AWQR.

### **6.3 PROPOSED MONITORING WELL CHANGES**

Monitoring well performance is summarized in **Table 4**. No proposed changes to the monitoring wells are recommended at this time.

## Tables

- 1 Monitoring Program Summary
- 2 Monitoring Program Implementation Schedule
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- 7 Summary Table of Ongoing and Newly Identified Control Limit Exceedances
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- 10 Groundwater Quality Assessment Plan Trend Analysis



**Table 1**  
**Monitoring Program Summary**  
**2023 Annual Water Quality Report**  
**Heidelberg Materials US Cement CKD Monofill**  
**Permit No. 17-SDP-08-99P**

Monitoring Well	Formation	Current Monitoring Program	Change for Next Sampling Event	Control Limit Exceedances	Total Number of Samples in Each Monitoring Program Since January 1, 2018		
					Routine	Supplemental	Remedial Action
<b>Clay Unit</b>							
MW-101R	Gray Clay	Background	None		9	-	-
MW-102R	Gray Clay	Detection	None	Total Alkalinity, Bicarbonate, Calcium, Magnesium, Specific Conductance, Sulfate, Total Dissolved Solids, Total Hardness	8	-	-
MW-103R	Gray Clay	Detection	None	Total Alkalinity, Bicarbonate, Calcium, Chloride, Magnesium, Nitrate/Nitrite as N, Potassium, Specific Conductance, Sulfate, Total Dissolved Solids, Total Hardness	12	-	-
<b>Bedrock Unit</b>							
MW-201	Dolomite	Detection	None	Arsenic, Lead, Magnesium, Nitrate/Nitrite as N, Potassium, Selenium, Sodium, Sulfate, Total Dissolved Solids	12	-	-
MW-202R	Dolomite	Detection	None	Total Alkalinity, Carbonate, Magnesium, Sodium, Sulfate	12	-	-
MW-203R	Dolomite	Background	None		12	-	-
MW-204	Dolomite	Detection	None	Magnesium, Potassium, Sulfate, Total Dissolved Solids	12	-	-
MW-205	Dolomite	Background	None		12	-	-
MW-206	Dolomite	Detection	None	Sulfate	12	-	-
<b>Lysimeters</b>							
LDR-1	Not Applicable	Detection	None	Not Evaluated	12	-	-
LDR-2	Not Applicable	Detection	None	Not Evaluated	12	-	-
LDR-3	Not Applicable	Detection	None	Not Evaluated	12	-	-
<b>Surface Water</b>							
SW-1	Surface Water	Detection	None	Not Evaluated	9	-	-

Notes: Control limit exceedances listed are based on at least one exceedance during the reporting period.



**Table 2 - continued**  
**Monitoring Program Implementation Schedule**  
**2023 Annual Water Quality Report**  
**Heidelberg Materials US Cement CKD Monofill**  
**Permit No. 17-SDP-08-99P**

Regime	Monitoring Well	Recent Sampling Dates and Constituents		Upcoming Sampling Dates and Constituents	
		4/27/2023	10/19/2023	2024 Spring Event	2024 Fall Event
Lysimeters	LDR-1	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters
	LDR-2	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters
	LDR-3	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters
Surface Water	SW-1	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters
Leachate	Phase 1, 2, & 3 Sump Composite	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters	None	Total alkalinity, ammonia-nitrogen, chloride, hardness, nitrate/nitrite, pH, total phosphorus, specific conductance, sulfate, TDS, TKN, TOC, TSS, Total inorganic parameters	None

Notes: Total inorganic parameters include: aluminum, arsenic, calcium, chromium, lead, magnesium, potassium, selenium, and sodium.  
Phase 1, 2, and 3 Sump Composite sampled annually.

**Table 3**  
**Monitoring Well Maintenance and Performance Re-Evaluation Schedule**  
**2023 Annual Water Quality Report**  
**Heidelberg Materials US Cement CKD Monofill**  
**Permit No. 17-SDP-08-99P**

<b>Compliance with:</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
567 IAC 114.21(2)"a" high and low water levels (annually)	Completed	Completed	Included	Scheduled
567 IAC 114.21(2)"b" changes in the hydrologic setting and flow paths	Completed	Completed	Included	Scheduled
567 IAC 114.21(2)"c" well depths	Completed	Completed	Included	Scheduled
567 IAC 114.21(2)"d" well recharge rates <sup>(1)</sup>	Completed		Included	

Notes:

<sup>(1)</sup> In-situ permeability testing was replaced with biennial well recharge rate evaluation in DNR correspondence dated July 22, 2020 (Doc# 98114).

**Table 4**  
**Monitoring Well Performance and Maintenance Summary**  
**2023 Annual Water Quality Report**  
**Heidelberg Materials US Cement CKD Monofill**  
**Permit No. 17-SDP-08-99P**

Regime	Well	Top of Casing	Top of Screen	Total Depth	Description	Date of Measurements	Maximum Depth Discrepancy (ft)	Initial Flow Rate (L/min) <sup>2</sup>	Recent Flow Rate (L/min)	
						10/19/2023		4/26/2017	10/19/2023	% Change
Clay Unit	MW-101R	1129.88	1111.53	28.9	Groundwater Level (ft)	21.23	-2.4	Grab and Purge Dry		
					Groundwater Elevation (Ft MSL)	1108.65				
					Measured Well Depth (ft)	26.5				
					Submerged screen	N				
	MW-102R	1128.29	1105.96	27.3	Groundwater Level (ft)	14.20	1.6	Grab and Purge Dry		
					Groundwater Elevation (Ft MSL)	1114.09				
					Measured Well Depth (ft)	28.9				
					Submerged screen	Y				
	MW-103R	1125.10	1106.90	26.0	Groundwater Level (ft)	10.29	0.1	Grab and Purge Dry		
Groundwater Elevation (Ft MSL)					1114.81					
Measured Well Depth (ft)					26.1					
Submerged screen					Y					
Bedrock Unit	MW-201	1126.13	1094.41	42.0	Groundwater Level (ft)	16.38	-0.2	0.183	0.167	-9%
					Groundwater Elevation (Ft MSL)	1109.75				
					Measured Well Depth (ft)	41.8				
					Submerged screen	Y				
	MW-202R	1128.58	1094.96	43.8	Groundwater Level (ft)	18.54	1.5	0.213	0.167	-22%
					Groundwater Elevation (Ft MSL)	1110.04				
					Measured Well Depth (ft)	45.3				
					Submerged screen	Y				
	MW-203R	1149.85	1092.01	68.1	Groundwater Level (ft)	37.87	-5.6	0.138	0.175	27%
					Groundwater Elevation (Ft MSL)	1111.98				
					Measured Well Depth (ft)	62.5				
					Submerged screen	Y				
	MW-204	1123.80	1090.24	43.6	Groundwater Level (ft)	13.61	0.1	0.300	0.158	-47%
					Groundwater Elevation (Ft MSL)	1110.19				
					Measured Well Depth (ft)	43.7				
					Submerged screen	Y				
	MW-205	1124.47	1088.82	45.7	Groundwater Level (ft)	14.21	0.7	0.216	0.175	-19%
					Groundwater Elevation (Ft MSL)	1110.26				
					Measured Well Depth (ft)	46.4				
					Submerged screen	Y				
	MW-206	1128.80	1099.97	39.0	Groundwater Level (ft)	19.61	0.4	0.250	0.150	-40%
					Groundwater Elevation (Ft MSL)	1109.19				
					Measured Well Depth (ft)	39.4				
					Submerged screen	Y				

Comments:

- 1) Measured well depths were within 1.0 foot of the installed depths where measured with the following exceptions:
  - (Shallower) MW-101R:** This monitoring well has consistently measured approximately 2.5 feet shallower than the installed depth; however, since the monitoring well produces sufficient groundwater for sampling it is likely that the well is functioning properly.
  - (Shallower) MW-203R:** This monitoring well was measured approximately 5.6 feet shallower than the installed depth during the October 2023 sampling event; however, it was measured approximately 0.6 feet deeper than the installed depth during the spring sampling event. Therefore, it is likely an error in measurement occurred during the fall 2023 sampling event. Furthermore, since the monitoring well produced sufficient groundwater for sampling it is likely that the well is functioning properly.
  - (Deeper) MW-102R & MW-202R:** These monitoring wells have consistently measured approximately 1.5 feet deeper than the installed depth. It is likely either the well construction information was recorded incorrectly or the wells were extended post-installation and the extensions were not recorded.
- 2) It should be noted that baseline recharge rates were calculated from the first semi-annual sampling event utilizing low-flow sampling apparatuses and should not be considered necessarily representative of a monitoring well's recharge rate under all water level conditions.

**Table 5**  
**Background and GWPS Summary**  
**2023 Annual Water Quality Report**  
**Heidelberg Materials US Cement CKD Monofill**  
**Permit No. 17-SDP-08-99P**

**Interwell Background/GWPS (Clay Unit: MW-101R)**

Constituent	Units	Samples	Detections	Background Level	Statistical Test	Action Level	Source
Alkalinity, Total	mg/L	14	14	499.2	M+2SD		
Aluminum	mg/L	13	7	0.445	M+2SD	0.05 mg/L	SMCL
Ammonia as N	mg/L	28	10	0.327	M+2SD	30.0 mg/L	HAL
Arsenic	mg/L	13	8	0.003	M+2SD	0.01 mg/L	MCL
Bicarbonate	mg/L	7	7	503.8	M+2SD		
Calcium	mg/L	14	14	231.9	M+2SD		
Carbonate	mg/L	7	0	6.6	M+2SD		
Chloride	mg/L	32	26	14.9	M+2SD	250 mg/L	SMCL
Chromium	mg/L	13	3	0.0073	M+2SD	0.1 mg/L	SWS
Lead	mg/L	13	6	0.0034	M+2SD	.015 mg/L	SWS
Magnesium	mg/L	14	14	130.6	M+2SD		
Nitrate/Nitrite as N	mg/L	14	7	0.184	M+2SD		
pH	S.U.	23	23	6.29 - 8.56	M+/-2SD	6.5 - 8.5	SMCL
Phosphorus, Total	mg/L	13	2	0.060	M+2SD		
Potassium	mg/L	14	14	11.12	M+2SD		
Selenium	mg/L	13	1	0.0030	M+2SD		
Sodium	mg/L	14	14	64.3	M+2SD	20 mg/L	DWA
Specific Conductance	µS/cm	24	24	2797	M+2SD		
Sulfate	mg/L	14	14	726	M+2SD	250 mg/L	SMCL
Total Dissolved Solids	mg/L	30	30	2267	M+2SD	500 mg/L	SMCL
Total Hardness	mg/L	13	13	1019	M+2SD		
Total Kjeldahl Nitrogen	mg/L	13	0	0.50	M+2SD		
Total Organic Carbon	mg/L	13	12	2.19	M+2SD		

**Interwell Background/GWPS (Bedrock Unit: MW-203R, MW-205)**

Constituent	Units	Samples	Detections	Background Level	Statistical Test	Action Level	Source
Alkalinity, Total	mg/L	43	45	385.0	M+2SD		
Aluminum	mg/L	36	4	0.139	M+2SD	0.05 mg/L	SMCL
Ammonia as N	mg/L	67	65	0.630	M+2SD	30.0 mg/L	HAL
Arsenic	mg/L	36	1	0.001	M+2SD	0.01 mg/L	MCL
Bicarbonate	mg/L	16	18	374.024	M+2SD		
Calcium	mg/L	36	38	139.287	M+2SD		
Carbonate	mg/L	16	0	6.323	M+2SD		
Chloride	mg/L	67	47	30.733	M+2SD	250 mg/L	SMCL
Chromium	mg/L	36	5	0.020	M+2SD	0.1 mg/L	SWS
Lead	mg/L	36	5	0.002	M+2SD	.015 mg/L	SWS
Magnesium	mg/L	36	38	44.2	M+2SD		
Nitrate/Nitrite as N	mg/L	43	0	0.1	M+2SD		
pH	S.U.	57	57	5.52 - 10.22	M+/-2SD	6.5 - 8.5	SMCL
Phosphorus, Total	mg/L	43	3	0.2	M+2SD		
Potassium	mg/L	36	38	10.866	M+2SD		
Selenium	mg/L	36	3	0.003	M+2SD		
Sodium	mg/L	36	38	20.7	M+2SD	20 mg/L	DWA
Specific Conductance	µS/cm	56	56	1785.0	M+2SD		
Sulfate	mg/L	43	25	24	M+2SD	250 mg/L	SMCL
Total Dissolved Solids	mg/L	67	69	489.1	M+2SD	500 mg/L	SMCL
Total Hardness	mg/L	43	45	518	M+2SD		
Total Kjeldahl Nitrogen	mg/L	43	14	1	M+2SD		
Total Organic Carbon	mg/L	43	38	2.90	M+2SD		

Notes:

- 1) Background levels based on most recent calculated control limits or reporting limit, as applicable.

Acronyms/Abbreviations:

RL = Reporting Limit	MCL = EPA Maximum Contaminant Level
GWPS = Groundwater Protection Standard	SMCL = Secondary Maximum Contaminant Level
SSS = Site-Specific GWPS	HAL = Health Advisory Level
SWS = Statewide Standard	DWA = Drinking Water Advisory
SD = Standard Deviation	ND = Non-Detection

Comments:

- 1) **Water quality results and effectiveness of the statistical data evaluation criteria:** Statistical evaluations consist of control limits which consist of the mean plus two standard deviations (plus and minus two standard deviations for pH).
- 2) **Changes to the previous statistical method during reporting period:** None.

**Table 6**

**Summary of Well/Detected Constituent Pairs With No Immediately Preceding Control Limit Exceedances  
2023 Annual Water Quality Report  
Heidelberg Materials US Cement CKD Monofill  
Permit No. 17-SDP-08-99P**

**Spring 2023**

<b>Well</b>	<b>Constituent</b>	<b>Units</b>	<b>Result</b>	<b>Background Standard</b>
<b>Bedrock Unit</b>				
MW-201	Nitrate/Nitrite as N	mg/L	0.478	0.05

**Fall 2023**

<b>Well</b>	<b>Constituent</b>	<b>Units</b>	<b>Result</b>	<b>Background Standard</b>
<b>Bedrock Unit</b>				
MW-201	Arsenic	mg/L	0.00535	0.0012
MW-201	Lead	mg/L	0.00326	0.00225
MW-201	Selenium	mg/L	0.00767	0.00297
MW-202R	Total Alkalinity	mg/L	259	385
MW-202R	Carbonate	mg/L	10.2	6.47

Note: Tables include control limit exceedances identified during the 2023 sampling events that were not identified as control limit exceedances in the previous year.

Comments:

- 1) **Problems with the current HMSP network:** None.
- 2) **Schedule to implement remedies:** Not applicable.
- 3) **Alternative constituent or sample frequency changes:** None.
- 4) **Significant changes to prediction limits:** None.

**Table 7**  
**Summary Table of Ongoing and Newly Identified Control Limit Exceedances**  
**2023 Annual Water Quality Report**  
**Heidelberg Materials US Cement CKD Monofill**  
**Permit No. 17-SDP-08-99P**

Key

	Denotes ongoing control limit exceedances that were identified as control limit exceedances during this reporting period and the previous reporting period at least once during each reporting period.
	Denotes newly identified control limit exceedances in the 2023 reporting period. Newly identified is defined as occurring at least once in the current reporting period but not in the immediately preceding reporting period.

Well	Constituent	Units	Result	Background Standard	Action Level/ Statewide Standard
MW-102R-NP	Alkalinity, Total	mg/L	621	499.2	-
	Bicarbonate	mg/L	613	503.8	-
	Calcium	mg/L	313	231.9	-
	Magnesium	mg/L	248	130.6	-
	Specific Conductance	µS/cm	2679	2797	-
	Sulfate	mg/L	1480	725.7	250 mg/L
	Total Dissolved Solids	mg/L	2800	2267	500 mg/L
	Total Hardness	mg/L	1800	1019	-
MW-103R-NP	Alkalinity, Total	mg/L	628	499.2	-
	Bicarbonate	mg/L	621	503.8	-
	Calcium	mg/L	520	231.9	-
	Chloride	mg/L	16.4	14.92	250 mg/L
	Magnesium	mg/L	295	130.6	-
	Nitrate/Nitrite as N	mg/L	0.37	0.184	-
	Potassium	mg/L	25.4	11.12	-
	Specific Conductance	µS/cm	2978	2797	-
	Sulfate	mg/L	1810	725.7	250 mg/L
	Total Dissolved Solids	mg/L	3180	2267	500 mg/L
	Total Hardness	mg/L	2510	1019	-
MW-201	Arsenic	mg/L	0.00535	0.0012	0.01 mg/L
	Lead	mg/L	0.00326	0.00225	0.015 mg/L
	Magnesium	mg/L	47.4	44.25	-
	Nitrate/Nitrite as N	mg/L	0.057	0.05	-
	Potassium	mg/L	22.4	10.87	-
	Selenium	mg/L	0.00767	0.00297	-
	Sodium	mg/L	24.7	20.72	-
	Sulfate	mg/L	121	23.98	250 mg/L
	Total Dissolved Solids	mg/L	576	489.1	500 mg/L
	Total Hardness	mg/L	436	518	-
MW-202R	Total Alkalinity	mg/L	259	385	-
	Carbonate	mg/L	10.2	6.47	-
	Magnesium	mg/L	62.6	44.25	-
	Sodium	mg/L	24.7	20.72	-
	Sulfate	mg/L	86.7	23.98	250 mg/L
MW-204	Magnesium	mg/L	54.3	44.25	-
	Potassium	mg/L	11.3	10.87	-
	Sulfate	mg/L	148	23.98	250 mg/L
	Total Dissolved Solids	mg/L	590	489.1	500 mg/L
MW-206	Sulfate	mg/L	27	23.98	250 mg/L

Comments:

- 1) **Problems with the current HMSP network:** None.
- 2) **Proposed remedies:** None.
- 3) **Alternative constituent or sample frequency changes:** None.
- 4) **Plume delineation strategies:** Not Applicable.
- 5) **Property owner notifications:** Not applicable.



**Table 8**  
**Summary of Groundwater Chemistry**  
**2023 Annual Water Quality Report**  
**Heidelberg Materials US Cement CKD Monofill**  
**Permit No. 17-SDP-08-99P**

The Summary of Groundwater Chemistry is located in Appendix C.

**Table 9**  
**Historical Control Limit & Action Level Exceedances**  
**2023 Annual Water Quality Report**  
**Heidelberg Materials US Cement CKD Monofill**  
**Permit No. 17-SDP-08-99P**

Key

	Control Limit Exceedance
<b>X</b>	Action Level Exceedance

Well	Constituent	2020	2021	2022	2023
MW-102R-NP	Alkalinity, Total				
	Bicarbonate				
	Calcium				
	Magnesium				
	pH				
	Potassium				
	Sodium	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
	Specific Conductance				
	Sulfate	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
	Total Dissolved Solids	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
	Total Hardness				
	Total Organic Carbon				
MW-103R-NP	Alkalinity, Total				
	Bicarbonate				
	Calcium				
	Chloride				
	Magnesium				
	Nitrate/Nitrite as N				
	Potassium				
	Sodium	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
	Specific Conductance				
	Sulfate	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
	Total Dissolved Solids	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
	Total Hardness				
Total Organic Carbon					
MW-201	Alkalinity, Total				
	Ammonia as N				
	Arsenic				
	Bicarbonate				
	Chloride				
	Lead				
	Magnesium				
	Nitrate/Nitrite as N				
	pH				<b>X</b>
	Potassium				
	Selenium				
	Sodium	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
	Sulfate				
Total Dissolved Solids	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	
Total Hardness					
MW-202R	Total Alkalinity				
	Bicarbonate				
	Carbonate				
	Magnesium				
	pH			<b>X</b>	<b>X</b>
	Sodium	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
	Sulfate				
Total Hardness					
MW-204	Total Alkalinity				
	Bicarbonate				
	Magnesium				
	Phosphorus, Total [as P]				
	Potassium				
	Sodium	<b>X</b>	<b>X</b>		<b>X</b>
	Sulfate				
Total Dissolved Solids	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	
Total Hardness					
MW-206	Bicarbonate				
	Sodium		<b>X</b>		
	Sulfate				
	Total Hardness				

Comments: Action level exceedances for upgradeint monitoring wells not included.

**Table 10**  
**Groundwater Quality Assessment Plan Trend Analysis**  
**2023 Annual Water Quality Report**  
**Heidelberg Materials US Cement CKD Monofill**  
**Permit No. 17-SDP-08-99P**

See Appendix E for Mann-Kendall Trend Analysis

## Figures

- 1 Approved Monitoring Network
- 2 Groundwater Contours – Clay Unit - April 2023
- 3 Groundwater Contours – Clay Unit - October 2023
- 4 Groundwater Contours – Bedrock Unit - April 2023
- 5 Groundwater Contours – Bedrock Unit - October 2023



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environmental consultants and contractors

## Spring Groundwater Contours (Clay)

Legend		
Approximate Groundwater Contours Based on Field Measurements Taken April 27, 2023	Leachate Piezometer	FML Liner Boundary
Monitoring Well	Leak Detection Lysimeter	Future Waste Boundary
	Waste Boundary	Property Boundary
	Existing Cell Boundary	

Lehigh Cement Company  
Mason City, Iowa  
Project No: 27223180.00  
Drawing Date: November  
2023

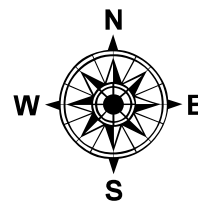


Figure 2

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### Fall Groundwater Contours (Clay)

Legend		Lehigh Cement Company Mason City, Iowa Project No: 27223180.00 Drawing Date: November 2023	
Approximate Groundwater Contours Based on Field Measurements Taken October 19, 2023	Leachate Piezometer	FML Liner Boundary	
Monitoring Well	Leak Detection Lysimeter	Future Waste Boundary	
	Waste Boundary	Property Boundary	
	Existing Cell Boundary		



**Figure 3**

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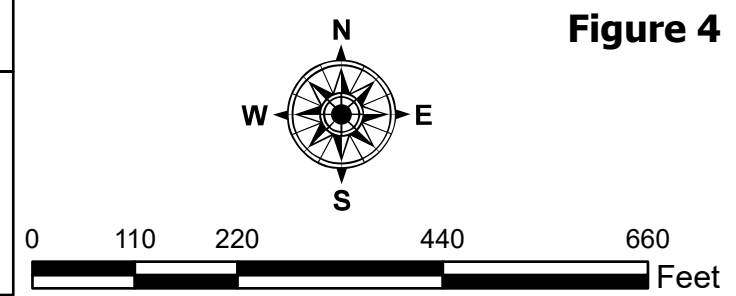
## Spring Groundwater Contours (Bedrock)



### Legend

- |   |                          |                       |
|---|--------------------------|-----------------------|
| Approximate Groundwater Contours Based on Field Measurements Taken April 27, 2023 | Leachate Piezometer      | FML Liner Boundary    |
| Monitoring Well   | Leak Detection Lysimeter | Future Waste Boundary |
|   | Waste Boundary           | Property Boundary     |
|   | Existing Cell Boundary   |                       |

Lehigh Cement Company  
Mason City, Iowa  
Project No: 27223180.00  
Drawing Date: November 2023



**Figure 4**



Date Saved: 11/21/2023 10:54 AM User: bmadson

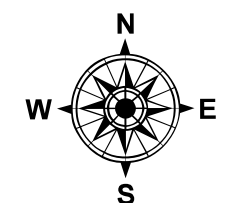


## Fall Groundwater Contours (Bedrock)


### Legend

- |   |                          |                       |
|---|--------------------------|-----------------------|
| Approximate Groundwater Contours Based on Field Measurements Taken October 19, 2023 | Leachate Piezometer      | FML Liner Boundary    |
| Monitoring Well   | Leak Detection Lysimeter | Future Waste Boundary |
|   | Waste Boundary           | Property Boundary     |
|   | Existing Cell Boundary   |                       |

Lehigh Cement Company  
 Mason City, Iowa  
 Project No: 27223180.00  
 Drawing Date: November 2023



**Figure 5**



Appendix A  
Field Sampling Forms

### FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>		
Monitoring Well/Piezometer ID:	<b>MW-101R-NO PURGE</b>	Date:	<b>4/27/2023</b>
Gradient:	Up	Sampler:	Chad Dentlinger

**A. MW/PIEZOMETER CONDITIONS**

Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

**B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)**

Measured Well Total Depth (feet):	26.6
Initial Static Water Level (feet):	16.66
Initial Groundwater Elevation (ft-amsl):	1113.22
Equipment Used:	Dedicated Tubing – Peristaltic Pump

**C. WELL PURGING**

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
9:47 PM	Purging start time.						
9:50 PM	10.5	1.3	1000.4	8.19	23.1	8.3	
9:53 PM	10.5	0.8	969.9	8.20	-28.7	13.5	
9:56 PM	10.5	0.6	929.3	8.21	-43.7	20.1	
9:59 PM	10.5	0.6	905.9	8.19	-52.7	12.2	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.2
Was well pumped/bailed dry?	Yes
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	179.17

**D. WELL MAINTENANCE**

Does the well require any future maintenance?	No
If yes, explain:	

Additional Comments:	
----------------------	--

## FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>		
Monitoring Well/Piezometer ID:	<b>MW-101R-RECHARGE</b>	Date:	<b>4/29/2023</b>
Gradient:	Up	Sampler:	Chad Dentlinger

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	26.6
Initial Static Water Level (feet):	16.57
Initial Groundwater Elevation (ft-amsl):	1113.31
Equipment Used:	Dedicated Tubing – Peristaltic Pump

### C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
1:50 PM	Purging start time.						
1:53 PM	10.3	1.8	702.6	7.96	-1.8	5.3	
1:56 PM	10.4	1.3	701.2	7.85	-45.9	6.5	
1:59 PM	10.5	1.1	709.9	7.78	-58.4	8.7	
2:02 PM	10.5	0.9	725.0	7.76	-66.9	6.2	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.2
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	183.33

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	

## FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>		
Monitoring Well/Piezometer ID:	<b>MW-102R-NO PURGE</b>	Date:	<b>4/27/2023</b>
Gradient:	Up	Sampler:	Chad Dentlinger

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	28.9
Initial Static Water Level (feet):	14.35
Initial Groundwater Elevation (ft-amsl):	1113.94
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING
-----------------

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
9:00 PM	Purging start time.						
9:03 PM	10.1	4.2	2842.8	8.01	117.8	4.6	
9:06 PM	10.1	3.7	2834.9	7.96	123.2	5.4	
9:09 PM	10.1	3.6	2834.7	7.95	126.1	6.0	
9:12 PM	10.3	3.5	2832.7	7.91	128.0	6.3	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.1
Was well pumped/bailed dry?	Yes
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	170.83

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	

## FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>	
Monitoring Well/Piezometer ID:	<b>MW-103R-NO PURGE</b>	Date: <b>4/27/2023</b>
Gradient: Down	Sampler:	Chad Dentlinger

**A. MW/PIEZOMETER CONDITIONS**

Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

**B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)**

Measured Well Total Depth (feet):	26.2
Initial Static Water Level (feet):	12.38
Initial Groundwater Elevation (ft-amsl):	1112.72
Equipment Used:	Dedicated Tubing – Peristaltic Pump

**C. WELL PURGING**

**FIELD PARAMETERS** [stabilization criteria] RECORD EVERY 3 MINUTES

Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)
7:18 PM	Purging start time.					
7:21 PM	10.8	3.6	3168.7	8.11	92.0	4.8
7:24 PM	10.8	3.0	3159.2	7.97	106.4	5.8
7:27 PM	10.6	3.0	3157.9	7.93	114.5	8.3
7:30 PM	10.6	2.9	3158.4	7.90	119.8	5.2
Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.3
Was well pumped/bailed dry?	Yes
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	191.67

**D. WELL MAINTENANCE**

Does the well require any future maintenance?	No	
If yes, explain:		
Additional Comments:		

**FORM FOR GROUNDWATER SAMPLING**

Project:	<b>LCMNT</b>		
Monitoring Well/Piezometer ID:	<b>MW-201</b>	Date:	<b>4/29/2023</b>
Gradient:	Down	Sampler:	Chad Dentlinger

**A. MW/PIEZOMETER CONDITIONS**

Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

**B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)**

Measured Well Total Depth (feet):	41.3
Initial Static Water Level (feet):	12.83
Initial Groundwater Elevation (ft-amsl):	1113.30
Equipment Used:	Dedicated Tubing – Peristaltic Pump

**C. WELL PURGING**

**FIELD PARAMETERS** [stabilization criteria] RECORD EVERY 3 MINUTES

Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
12:52 PM	Purging start time.						
12:55 PM	9.3	1.6	834.4	8.52	28.3	3.5	
12:58 PM	9.1	1.1	836.2	8.56	27.8	3.6	
1:01 PM	9.3	0.9	836.3	8.58	25.5	3.6	
1:04 PM	9.7	0.8	838.1	8.54	21.1	3.6	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.1
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	170.83

**D. WELL MAINTENANCE**

Does the well require any future maintenance?	No
If yes, explain:	

Additional Comments:	
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## FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>		
Monitoring Well/Piezometer ID:	<b>MW-202R</b>	Date:	<b>4/28/2023</b>
Gradient:	Down	Sampler:	Chad Dentlinger

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	43.4
Initial Static Water Level (feet):	15.26
Initial Groundwater Elevation (ft-amsl):	1113.32
Equipment Used:	Dedicated Tubing – Peristaltic Pump

### C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
7:32 PM	Purging start time.						
7:35 PM	9.1	1.8	742.4	8.36	-186.7	3.7	
7:38 PM	9.0	1.0	747.0	8.40	-235.1	3.7	
7:41 PM	9.1	0.8	747.5	8.43	-259.7	3.7	
7:44 PM	9.1	0.6	747.6	8.46	-274.2	3.7	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.1
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	175.00

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	Water had a sulfur odor.



## FORM FOR GROUNDWATER SAMPLING

Project:	LCMNT		
Monitoring Well/Piezometer ID:	MW-203R	Date:	4/28/2023
Gradient:	Down	Sampler:	Chad Dentlinger

### A. MW/PIEZOMETER CONDITIONS

Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

### B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)

Measured Well Total Depth (feet):	68.7
Initial Static Water Level (feet):	34.28
Initial Groundwater Elevation (ft-amsl):	1115.57
Equipment Used:	Dedicated Submersible

### C. WELL PURGING

#### FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)
10:51 AM	Purging start time.					
10:54 AM	11.3	1.2	592.3	7.15	-32.5	7.4
10:57 AM	11.7	0.8	597.0	7.27	-76.4	6.1
11:00 AM	11.6	0.8	598.1	7.38	-99.6	5.2
11:03 AM	11.4	0.7	595.0	7.50	-113.3	4.8
11:06 AM	11.5	0.6	591.7	7.55	-121.1	4.6
11:09 AM	11.4	0.5	588.0	7.58	-125.9	4.6
Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	3.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	18:00
Average Purge Rate (mL/min):	211.11

### D. WELL MAINTENANCE

Does the well require any future maintenance?	No
If yes, explain:	

Additional Comments:	
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## FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>	Monitoring Well/Piezometer ID:	<b>MW-205</b>	Date:	<b>4/28/2023</b>
Gradient:	Down	Sampler:	Chad Dentlinger		

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	46.4
Initial Static Water Level (feet):	10.96
Initial Groundwater Elevation (ft-amsl):	1113.51
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING							
FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
5:51 PM	Purging start time.						
5:54 PM	9.0	1.6	605.8	7.78	-92.1	4.0	
5:57 PM	8.9	0.9	612.1	7.85	-106.4	4.0	
6:00 PM	8.9	0.7	613.8	7.95	-109.6	4.0	
6:03 PM	8.9	0.6	614.5	7.99	-109.5	4.1	
6:06 PM	8.8	0.6	614.7	8.02	-109.5	4.2	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.7
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	15:00
Average Purge Rate (mL/min):	180.00

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	

## FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>		
Monitoring Well/Piezometer ID:	<b>MW-206</b>	Date:	<b>4/28/2023</b>
Gradient:	Down	Sampler:	Chad Dentlinger

### A. MW/PIEZOMETER CONDITIONS

Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

### B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)

Measured Well Total Depth (feet):	39.5
Initial Static Water Level (feet):	16.48
Initial Groundwater Elevation (ft-amsl):	1112.32
Equipment Used:	Dedicated Tubing – Peristaltic Pump

### C. WELL PURGING

#### FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
6:44 PM	Purging start time.						
6:47 PM	9.4	2.4	649.9	7.81	10.4	4.0	
6:50 PM	9.4	1.6	652.4	7.90	-1.7	4.4	
6:53 PM	9.3	1.2	652.8	7.96	-6.7	5.0	
6:56 PM	9.3	1.0	653.0	8.00	-9.7	5.6	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.3
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	191.67

### D. WELL MAINTENANCE

Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	
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## FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>		
Monitoring Well/Piezometer ID:	<b>LDR-1</b>	Date:	<b>4/28/2023</b>
Gradient:	Down	Sampler:	Chad Dentlinger

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	20.2
Initial Static Water Level (feet):	11.57
Initial Groundwater Elevation (ft-amsl):	1114.24
Equipment Used:	Non-Dedicated Submersible

### C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
4:33 PM	Purging start time.						
4:36 PM	9.6	5.9	2975.8	7.75	77.5	84.8	
4:39 PM	9.6	5.3	2995.8	7.77	79.6	121.9	
4:42 PM	9.7	5.2	3001.0	7.77	80.4	136.9	
4:45 PM	9.7	5.0	3005.5	7.78	80.9	113.1	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.1
Was well pumped/bailed dry?	Yes
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	175.00

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	

Additional Comments:	Purge water was light grey and very cloudy, sample water was cloudy. Volume Evacuated: 49 gallons
----------------------	--

## FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>		
Monitoring Well/Piezometer ID:	<b>LDR-2</b>	Date:	<b>4/28/2023</b>
Gradient:	Down	Sampler:	Chad Dentlinger

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	13.1
Initial Static Water Level (feet):	6.30
Initial Groundwater Elevation (ft-amsl):	1116.10
Equipment Used:	Non-Dedicated Submersible

C. WELL PURGING							
FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
1:58 PM	Purging start time.						
2:01 PM	12.1	6.0	3192.5	7.53	37.9	18.9	
2:04 PM	11.6	5.9	3193.6	7.43	49.8	17.9	
2:07 PM	11.9	5.9	3195.0	7.37	55.9	16.2	
2:10 PM	10.1	5.9	3191.4	7.52	60.7	15.9	
2:13 PM	10.8	5.8	3187.0	7.46	63.6	16.4	
2:16 PM	10.6	5.7	3184.3	7.47	66.3	13.4	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	3.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	18:00
Average Purge Rate (mL/min):	211.11

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	Volume Evacuated: 45 gallons

## FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>	
Monitoring Well/Piezometer ID:	<b>LDR-3</b>	Date: <b>4/28/2023</b>
Gradient:	Down	Sampler: Chad Dentlinger

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	16.9
Initial Static Water Level (feet):	13.70
Initial Groundwater Elevation (ft-amsl):	1109.89
Equipment Used:	Non-Dedicated Submersible

**C. WELL PURGING**

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
3:13 PM	Purging start time.						
3:16 PM	12.6	6.1	5030.9	7.28	63.2	71.4	
3:19 PM	11.5	6.1	5056.6	7.31	72.4	45.3	
3:22 PM	11.8	5.7	5023.3	7.25	75.9	37.6	
3:25 PM	11.6	5.5	5059.0	7.26	78.6	34.1	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	Yes
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	

Additional Comments:	Purge water was light brown and cloudy at start, caused higher turbidity values. Sample water was only slightly cloudy. Volume Evacuated: 40 gallons
----------------------	---

**FORM FOR SURFACE WATER SAMPLING**

Site Name Heidelberg Materials US Cement Monofill Permit No. 17-SDP-08-99P  
 Surface Monitoring Point No. SW-1 Date 4-29-23

Name of Person Sampling Chad Dentinger

**A. TYPE OF MONITORING POINT**

Stream X Open Tile \_\_\_\_\_  
 Road Ditch \_\_\_\_\_ Tile with Riser \_\_\_\_\_  
 Drainage Ditch \_\_\_\_\_ Other \_\_\_\_\_

**B. PURPOSE OF MONITORING POINT**

Upstream \_\_\_\_\_ feet Downstream X  
 Within Landfill \_\_\_\_\_ feet Other \_\_\_\_\_

**C. MONITORING POINT CONDITIONS**

General description/condition of monitoring point  
SW-1 is NPDES Outfall #4 to Calmus Creek  
1 mile East of Monofill at outlet to Calmus Creek

Was monitoring point dry? No Too little water to sample? No  
 Was water flowing? Yes If yes, estimate quantity (ft<sup>3</sup>/ps) \_\_\_\_\_  
 If yes, estimate depth (in) 12"

Was water discolored? No  
 Does water have odor? No  
 Was ground discolored? No  
 Litter present? No

1' deep x 5' wide  
~ 1' per second surface filter

Comments \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**D. FIELD MEASUREMENTS**

Weather Conditions 50° F, 16 mph NW wind, mostly cloudy

Field Measurements: Time: 11:15

Temperature 14.0 Units Celsius  
 Equipment Used YSI ProDSS

pH 7.70 Units Standard Units  
 Equipment Used YSI ProDSS

Spec. Conductance 968.1 Units uS/cm  
 Equipment Used YSI ProDSS

**COMMENTS** Diss. Oxygen = 8.79 mg/L ; ORP = 138.6 mV ; Turbidity = 17.95 NTU



## FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>	
Monitoring Well/Piezometer ID:	<b>MW-101R-NO PURGE</b>	Date: <b>10/19/2023</b>
Gradient:	Up	Sampler: Konner Roth

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	26.5
Initial Static Water Level (feet):	21.23
Initial Groundwater Elevation (ft-amsl):	1108.65
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING							
FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
1:35 PM	Purging start time.						
1:38 PM	11.6	1.9	1152.3	6.95	19.0	5.4	
1:41 PM	11.6	1.8	933.4	7.04	-3.5	130.9	
1:44 PM	11.7	1.8	930.4	7.00	-17.8	122.4	
1:47 PM	11.9	0.9	882.2	6.96	-42.2	114.7	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	1.9
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	158.33

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	Color- Clear Odor-None.

# FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>	
Monitoring Well/Piezometer ID:	<b>MW-102R-NO PURGE</b>	Date: <b>10/19/2023</b>
Gradient: Up	Sampler: Konner Roth	

<b>A. MW/PIEZOMETER CONDITIONS</b>	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

<b>B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)</b>	
Measured Well Total Depth (feet):	28.9
Initial Static Water Level (feet):	14.20
Initial Groundwater Elevation (ft-amsl):	1114.09
Equipment Used:	Dedicated Tubing – Peristaltic Pump

<b>C. WELL PURGING</b>							
<b>FIELD PARAMETERS</b> [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) <b>10%</b>	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) <b>+/- 10%</b>	pH (S.U.) <b>+/- 0.1</b>	ORP (mV)	Turbidity (FNU)	
12:47 PM	Purging start time.						
12:50 PM	12.4	1.1	2690.3	6.55	188.9	8.1	
12:53 PM	12.3	0.4	2684.5	6.54	143.4	6.7	
12:56 PM	12.3	0.2	2680.7	6.54	134.8	6.9	
12:59 PM	12.3	0.2	2678.9	6.54	134.2	6.8	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	150.00

<b>D. WELL MAINTENANCE</b>	
Does the well require any future maintenance?	No
If yes, explain:	

Additional Comments:	Color- Clear Odor-None.
----------------------	-------------------------

### FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>		
Monitoring Well/Piezometer ID:	<b>MW-103R-NO PURGE</b>	Date:	<b>10/19/2023</b>
Gradient:	Down	Sampler:	Konner Roth

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	26.1
Initial Static Water Level (feet):	10.29
Initial Groundwater Elevation (ft-amsl):	1114.81
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING	
-----------------	--

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
11:13 AM	Purging start time.						
11:16 AM	13.7	3.1	2948.4	6.46	273.4	2.5	
11:19 AM	13.9	2.7	2968.2	6.57	270.0	4.0	
11:22 AM	13.9	2.8	2971.0	6.60	268.3	4.9	
11:25 AM	13.8	2.6	2977.9	6.60	267.6	8.0	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	Color- Clear Odor-None.

## FORM FOR GROUNDWATER SAMPLING

<b>Project: LCMNT</b>	
Monitoring Well/Piezometer ID: <b>MW-201</b>	Date: <b>10/19/2023</b>
Gradient: <b>Down</b>	Sampler: <b>Konner Roth</b>

<b>A. MW/PIEZOMETER CONDITIONS</b>	
Well/Piezometer Capped? <b>Yes</b>	
Litter/Standing Water? <b>No</b>	

<b>B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)</b>	
Measured Well Total Depth (feet):	41.8
Initial Static Water Level (feet):	16.38
Initial Groundwater Elevation (ft-amsl):	1109.75
Equipment Used: <b>Dedicated Tubing – Peristaltic Pump</b>	

<b>C. WELL PURGING</b>							
<b>FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES</b>							
Time	Temperature (°C) <b>10%</b>	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) <b>+/- 10%</b>	pH (S.U.) <b>+/- 0.1</b>	ORP (mV)	Turbidity (FNU)	
6:08 PM	Purging start time.						
6:11 PM	12.2	0.9	829.7	7.08	-112.1	5.0	
6:14 PM	12.1	0.3	835.9	7.14	-121.1	6.9	
6:17 PM	12.0	0.1	837.4	7.17	-129.8	10.4	
6:20 PM	11.9	0.0	838.8	7.19	-136.2	16.0	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

<b>D. WELL MAINTENANCE</b>	
Does the well require any future maintenance? <span style="margin-left: 200px;"><b>No</b></span>	
If yes, explain:	
Additional Comments:	

## FORM FOR GROUNDWATER SAMPLING

Project: <b>LCMNT</b>	
Monitoring Well/Piezometer ID: <b>MW-202R</b>	Date: <b>10/19/2023</b>
Gradient: <b>Down</b>	Sampler: <b>Konner Roth</b>

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped? <b>Yes</b>	
Litter/Standing Water? <b>No</b>	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	45.3
Initial Static Water Level (feet):	18.54
Initial Groundwater Elevation (ft-amsl):	1110.04
Equipment Used: <b>Dedicated Tubing – Peristaltic Pump</b>	

C. WELL PURGING	
<b>FIELD PARAMETERS</b> [stabilization criteria] RECORD EVERY 3 MINUTES	

Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)
3:23 PM	Purging start time.					
3:26 PM	13.1	1.5	593.6	9.05	23.1	7.5
3:29 PM	13.2	0.4	584.6	9.04	19.2	5.0
3:32 PM	13.1	0.2	588.9	8.87	18.3	4.6
3:35 PM	12.9	0.1	596.0	8.64	16.3	3.5
Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	

Additional Comments:	
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## FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>	
Monitoring Well/Piezometer ID:	<b>MW-203R</b>	Date: <b>10/19/2023</b>
Gradient:	Down	Sampler: Konner Roth

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	62.5
Initial Static Water Level (feet):	37.87
Initial Groundwater Elevation (ft-amsl):	1111.98
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING
-----------------

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
4:10 PM	Purging start time.						
4:13 PM	10.6	0.7	549.6	7.11	-99.0	7.4	
4:16 PM	10.8	0.2	544.8	7.05	-100.8	7.5	
4:19 PM	10.8	0.1	540.4	7.04	-101.8	6.7	
4:22 PM	10.8	0.0	539.1	7.03	-103.9	9.2	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.1
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	175.00

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	

## FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>	
Monitoring Well/Piezometer ID:	<b>MW-204</b>	Date: <b>10/19/2023</b>
Gradient:	Down	Sampler: Konner Roth

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	43.7
Initial Static Water Level (feet):	13.61
Initial Groundwater Elevation (ft-amsl):	1110.19
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING							
FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
2:20 PM	Purging start time.						
2:23 PM	12.8	1.2	797.7	7.15	-89.8	4.0	
2:26 PM	12.8	0.4	813.9	6.98	-71.7	3.1	
2:29 PM	12.8	0.2	821.2	6.94	-64.9	2.7	
2:32 PM	12.8	0.1	824.1	6.93	-62.6	3.1	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	1.9
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	158.33

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	

## FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>	
Monitoring Well/Piezometer ID:	<b>MW-205</b>	Date: <b>10/19/2023</b>
Gradient:	Down	Sampler: Konner Roth

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	46.4
Initial Static Water Level (feet):	14.21
Initial Groundwater Elevation (ft-amsl):	1110.26
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING
-----------------

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
5:32 PM	Purging start time.						
5:35 PM	12.2	0.9	570.3	7.06	-84.9	2.4	
5:38 PM	12.0	0.3	572.8	7.01	-81.1	2.0	
5:41 PM	12.0	0.1	574.0	6.99	-77.2	2.1	
5:44 PM	12.0	0.0	574.0	6.99	-75.6	2.3	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	



## FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>		
Monitoring Well/Piezometer ID:	<b>MW-206</b>	Date:	<b>10/19/2023</b>
Gradient:	Down	Sampler:	Konner Roth

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	39.4
Initial Static Water Level (feet):	19.61
Initial Groundwater Elevation (ft-amsl):	1109.19
Equipment Used: <span style="float: right;">Dedicated Tubing – Peristaltic Pump</span>	

C. WELL PURGING
-----------------

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
4:48 PM	Purging start time.						
4:51 PM	12.4	1.5	603.0	6.95	-48.2	1.9	
4:54 PM	12.5	0.5	608.4	6.92	-42.8	2.6	
4:57 PM	12.5	0.2	608.6	6.92	-39.9	3.7	
5:00 PM	12.4	0.1	608.2	6.92	-35.2	5.4	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	150.00

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	

# FORM FOR GROUNDWATER SAMPLING

Project:	<b>LCMNT</b>		
Monitoring Well/Piezometer ID:	<b>LDR-1</b>	Date:	<b>10/20/2023</b>
Gradient:	Down	Sampler:	Konner Roth

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	20.5
Initial Static Water Level (feet):	11.36
Initial Groundwater Elevation (ft-amsl):	1114.45
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING
-----------------

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
9:49 AM	Purging start time.						
9:52 AM	12.9	0.9	2905.8	6.45	-45.8	297.4	
9:55 AM	13.0	0.3	2880.4	6.50	-37.2	145.4	
9:58 AM	13.0	0.2	2866.3	6.50	-22.6	101.2	
10:01 AM	13.1	0.1	2862.3	6.50	-13.2	72.3	
10:04 AM	13.5	0.6	26.7	7.34	-24.8	9.5	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.4
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	200.00

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	

Additional Comments:	Color-Clear/cloudy Odor-Sulfur/fishy smell. Volume Evacuated: 6 gallons
----------------------	--

### FORM FOR GROUNDWATER SAMPLING

Project: <b>LCMNT</b>	
Monitoring Well/Piezometer ID: <b>LDR-2</b>	Date: <b>10/20/2023</b>
Gradient: <b>Down</b>	Sampler: <b>Konner Roth</b>

<b>A. MW/PIEZOMETER CONDITIONS</b>	
Well/Piezometer Capped? <b>Yes</b>	
Litter/Standing Water? <b>No</b>	

<b>B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)</b>	
Measured Well Total Depth (feet):	13.7
Initial Static Water Level (feet):	4.67
Initial Groundwater Elevation (ft-amsl):	1117.73
Equipment Used:	Dedicated Tubing – Peristaltic Pump

**C. WELL PURGING**

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
10:37 AM	Purging start time.						
10:40 AM	15.0	2.7	3006.2	6.34	83.4	8.6	
10:43 AM	15.1	2.5	3005.7	6.33	113.9	5.1	
10:46 AM	15.2	2.4	3003.5	6.33	126.2	4.6	
10:49 AM	15.2	2.4	3001.1	6.33	133.7	5.4	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.1
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	175.00

<b>D. WELL MAINTENANCE</b>	
Does the well require any future maintenance?	No

If yes, explain:	
------------------	--

Additional Comments:	Color-Clear Odor-None. Volume Evacuated: 8 gallons
----------------------	---

## FORM FOR GROUNDWATER SAMPLING

Project:	LCMNT	Monitoring Well/Piezometer ID:	LDR-3	Date:	10/20/2023
Gradient:	Down	Sampler:	Konner Roth		

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	16.8
Initial Static Water Level (feet):	12.48
Initial Groundwater Elevation (ft-amsl):	1111.11
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING							
FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
11:27 AM	Purging start time.						
11:30 AM	16.3	3.0	4868.2	6.40	28.8	19.7	
11:33 AM	16.5	2.5	4871.5	6.39	32.4	12.1	
11:36 AM	16.9	2.5	4895.5	6.40	32.4	9.6	
11:39 AM	16.5	1.7	4864.6	6.40	31.1	13.2	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.3
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	191.67

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	Color-Clear Odor-None. Volume Evacuated: 24 gallons

**FORM FOR SURFACE WATER SAMPLING**

Site Name Heidelberg Materials US Cement Monofill  
 Surface Monitoring Point No. SW-1

Permit No. 17-SDP-08-99P  
 Date 10/19/23

Name of Person Sampling Konner

**A. TYPE OF MONITORING POINT**

Stream \_\_\_\_\_ X \_\_\_\_\_  
 Road Ditch \_\_\_\_\_  
 Drainage Ditch \_\_\_\_\_  
 Open Tile \_\_\_\_\_  
 Tile with Riser \_\_\_\_\_  
 Other \_\_\_\_\_

**B. PURPOSE OF MONITORING POINT**

Upstream \_\_\_\_\_ feet  
 Within Landfill \_\_\_\_\_ feet  
 Downstream \_\_\_\_\_ X \_\_\_\_\_  
 Other \_\_\_\_\_

**C. MONITORING POINT CONDITIONS**

General description/condition of monitoring point  
SW-1 is NPDES Outfall #4 to Calmus Creek  
1 mile East of Monofill at outlet to Calmus Creek

Was monitoring point dry? Yes  
 Too little water to sample? \_\_\_\_\_  
 Was water flowing? \_\_\_\_\_  
 If yes, estimate quantity (ft<sup>3</sup>/ps) \_\_\_\_\_  
 If yes, estimate depth (in) \_\_\_\_\_  
 Was water discolored? \_\_\_\_\_  
 Does water have odor? \_\_\_\_\_  
 Was ground discolored? \_\_\_\_\_  
 Litter present? \_\_\_\_\_

Comments Dry

**D. FIELD MEASUREMENTS**


Weather Conditions 54°F, 5-10mph wind Sunny

Field Measurements:

Temperature \_\_\_\_\_ Units Celsius  
 Equipment Used \_\_\_\_\_  
 pH \_\_\_\_\_ Units Standard Units  
 Equipment Used \_\_\_\_\_  
 Spec. Conductance \_\_\_\_\_ Units uS/cm  
 Equipment Used \_\_\_\_\_

**COMMENTS**

Diss. Oxygen = \_\_\_\_\_ mg/L ; ORP = \_\_\_\_\_ mV ; Turbidity = \_\_\_\_\_ NTU



Appendix B1  
Laboratory Analytical Data Sheets

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Kevin Jensen  
SCS Engineers  
1690 All State Court  
Suite 100  
West Des Moines, Iowa 50265

Generated 5/23/2023 10:06:03 AM

**JOB DESCRIPTION**

Heidelberg (Lehigh) Monofill Sampling-2023 Spring

**JOB NUMBER**

310-254657-1

# Eurofins Cedar Falls

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



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5/23/2023 10:06:03 AM

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Authorized for release by  
Meredith Liechti, Service Center Manager  
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(319)277-2401



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# Case Narrative

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254657-1

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## Job ID: 310-254657-1

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Laboratory: Eurofins Cedar Falls

### Narrative

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#### Job Narrative 310-254657-1

#### Receipt

The sample was received on 4/28/2023 2:45 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.8°C

#### HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

#### Metals

Method 6020B: The following samples were received with insufficient preservation: Phase 1, 2, 3 Sump-Composite (310-254657-1). The client was contacted and preservative was added by the laboratory, but the sample remained strongly basic. No further attempt was made to acidify the sample, as it would have diluted the sample. This does not meet regulatory requirements.

Method 6020B: The following samples were diluted due to the nature of the sample matrix: Phase 1, 2, 3 Sump-Composite (310-254657-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

#### General Chemistry

Method 353.2: The reference method requires samples to be preserved to a pH of <2. The following samples were received with insufficient preservation at a pH of >2: Phase 1, 2, 3 Sump-Composite (310-254657-1). The sample(s) was preserved to the appropriate pH in the laboratory.

Method 365.1: The reference method requires samples to be preserved to a pH of <2. The following samples were received with insufficient preservation at a pH of >2: Phase 1, 2, 3 Sump-Composite (310-254657-1). The sample(s) was preserved to the appropriate pH in the laboratory.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



# Sample Summary

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023  
Spring

Job ID: 310-254657-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-254657-1	Phase 1, 2, 3 Sump-Composite	Ground Water	04/27/23 21:45	04/28/23 14:45

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

# Detection Summary

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254657-1

**Client Sample ID: Phase 1, 2, 3 Sump-Composite**

**Lab Sample ID: 310-254657-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	1830		500	225	mg/L	500		9056A	Total/NA
Sulfate	6700		500	210	mg/L	500		9056A	Total/NA
Aluminum	0.455	J	1.00	0.340	mg/L	20		6020B	Total/NA
Arsenic	0.287		0.0400	0.0106	mg/L	20		6020B	Total/NA
Calcium	9.44	J	10.0	3.80	mg/L	20		6020B	Total/NA
Chromium	0.269		0.100	0.0220	mg/L	20		6020B	Total/NA
Lead	0.00540	J	0.0100	0.00480	mg/L	20		6020B	Total/NA
Potassium	9400		100	30.0	mg/L	200		6020B	Total/NA
Selenium	0.324		0.100	0.0280	mg/L	20		6020B	Total/NA
Sodium	517		20.0	9.20	mg/L	20		6020B	Total/NA
Total Hardness	23.6		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Ammonia	4.11	F1	0.200	0.100	mg/L	1		350.1	Total/NA
Total Kjeldahl Nitrogen	10.4		1.00	0.550	mg/L	1		351.2	Total/NA
Nitrate Nitrite as N	1.01		1.00	0.540	mg/L	10		353.2	Total/NA
Total Phosphorus as P	4.98		0.500	0.310	mg/L	1		365.1	Total/NA
Total Organic Carbon - Duplicates	55.7		20.0	9.40	mg/L	20		9060A	Total/NA
Total Suspended Solids	75.0		7.50	2.55	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	4860		50.0	25.0	mg/L	10		SM 2320B	Total/NA
Carbonate Alkalinity as CaCO3	3020		50.0	25.0	mg/L	10		SM 2320B	Total/NA
Total Dissolved Solids	23800		2500	1700	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

# Quantitation Limit Exceptions Summary

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254657-1

The requested project specific reporting limits listed below were less than laboratory standard quantitation limits (PQL) but greater than or equal to the laboratory method detection limits (MDL). It must be noted that results reported below lab standard quantitation limits may result in false positive/false negative values and less accurate quantitation. Routine laboratory procedures do not indicate corrective action for detections below the laboratory's PQL.

Method	Analyte	Matrix	Prep Type	Unit	Client RL	Lab PQL
SM 2340B	Total Hardness	Ground Water	Total/NA	mg/L	0.500	3.3

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254657-1

## Client Sample ID: Phase 1, 2, 3 Sump-Composite

Lab Sample ID: 310-254657-1

Date Collected: 04/27/23 21:45

Matrix: Ground Water

Date Received: 04/28/23 14:45

### Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1830		500	225	mg/L			05/08/23 17:07	500
Sulfate	6700		500	210	mg/L			05/08/23 17:07	500

### Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.455	J	1.00	0.340	mg/L		05/02/23 08:45	05/19/23 15:38	20
Arsenic	0.287		0.0400	0.0106	mg/L		05/02/23 08:45	05/19/23 15:38	20
Calcium	9.44	J	10.0	3.80	mg/L		05/02/23 08:45	05/19/23 15:38	20
Chromium	0.269		0.100	0.0220	mg/L		05/02/23 08:45	05/19/23 15:38	20
Lead	0.00540	J	0.0100	0.00480	mg/L		05/02/23 08:45	05/19/23 15:38	20
Magnesium	<10.0		10.0	3.00	mg/L		05/02/23 08:45	05/19/23 15:38	20
Potassium	9400		100	30.0	mg/L		05/02/23 08:45	05/20/23 20:08	200
Selenium	0.324		0.100	0.0280	mg/L		05/02/23 08:45	05/19/23 15:38	20
Sodium	517		20.0	9.20	mg/L		05/02/23 08:45	05/19/23 15:38	20

### Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	23.6		2.06	0.618	mg/L			05/01/23 09:44	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	4.11	F1	0.200	0.100	mg/L			05/03/23 18:56	1
Total Kjeldahl Nitrogen (EPA 351.2)	10.4		1.00	0.550	mg/L		05/04/23 07:39	05/04/23 20:15	1
Nitrate Nitrite as N (EPA 353.2)	1.01		1.00	0.540	mg/L			05/03/23 11:12	10
Total Phosphorus as P (EPA 365.1)	4.98		0.500	0.310	mg/L		05/01/23 12:24	05/01/23 22:42	1
Total Organic Carbon - Duplicates (SW846 9060A)	55.7		20.0	9.40	mg/L			05/09/23 01:34	20
Total Suspended Solids (USGS I-3765-85)	75.0		7.50	2.55	mg/L			05/02/23 08:33	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	4860		50.0	25.0	mg/L			05/04/23 07:55	10
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	<50.0		50.0	25.0	mg/L			05/04/23 07:55	10
Carbonate Alkalinity as CaCO3 (SM 2320B)	3020		50.0	25.0	mg/L			05/04/23 07:55	10
Total Dissolved Solids (SM 2540C)	23800		2500	1700	mg/L			05/02/23 15:34	1

# Definitions/Glossary

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254657-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254657-1

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 310-387079/3**  
**Matrix: Water**  
**Analysis Batch: 387079**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00	0.450	mg/L			05/08/23 11:27	1
Sulfate	<1.00		1.00	0.420	mg/L			05/08/23 11:27	1

**Lab Sample ID: LCS 310-387079/4**  
**Matrix: Water**  
**Analysis Batch: 387079**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.919		mg/L		99	90 - 110

**Lab Sample ID: LCS 310-387079/47**  
**Matrix: Water**  
**Analysis Batch: 387079**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	10.0	9.029		mg/L		90	90 - 110

## Method: 6020B - Metals (ICP/MS)

**Lab Sample ID: MB 310-386032/1-A**  
**Matrix: Water**  
**Analysis Batch: 388122**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 386032**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/02/23 08:45	05/19/23 14:14	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/02/23 08:45	05/19/23 14:14	1
Calcium	<0.500		0.500	0.190	mg/L		05/02/23 08:45	05/19/23 14:14	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/02/23 08:45	05/19/23 14:14	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/02/23 08:45	05/19/23 14:14	1
Magnesium	<0.500		0.500	0.150	mg/L		05/02/23 08:45	05/19/23 14:14	1
Potassium	<0.500		0.500	0.150	mg/L		05/02/23 08:45	05/19/23 14:14	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/02/23 08:45	05/19/23 14:14	1
Sodium	<1.00		1.00	0.460	mg/L		05/02/23 08:45	05/19/23 14:14	1

**Lab Sample ID: LCS 310-386032/2-A**  
**Matrix: Water**  
**Analysis Batch: 388122**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 386032**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.200	0.1937		mg/L		97	80 - 120
Arsenic	0.200	0.1875		mg/L		94	80 - 120
Calcium	2.00	1.840		mg/L		92	80 - 120
Chromium	0.100	0.09281		mg/L		93	80 - 120
Lead	0.200	0.1945		mg/L		97	80 - 120
Magnesium	2.00	1.955		mg/L		98	80 - 120
Potassium	2.00	1.994		mg/L		100	80 - 120
Selenium	0.400	0.3799		mg/L		95	80 - 120
Sodium	2.00	1.959		mg/L		98	80 - 120



# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254657-1

## Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-386326/81  
 Matrix: Water  
 Analysis Batch: 386326

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	<0.200		0.200	0.100	mg/L			05/03/23 18:54	1

Lab Sample ID: LCS 310-386326/82  
 Matrix: Water  
 Analysis Batch: 386326

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	7.80	7.634		mg/L		98	90 - 110

Lab Sample ID: 310-254657-1 MS  
 Matrix: Ground Water  
 Analysis Batch: 386326

Client Sample ID: Phase 1, 2, 3 Sump-Composite  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	4.11	F1	1.00	4.620	4	mg/L		50	90 - 110

Lab Sample ID: 310-254657-1 MSD  
 Matrix: Ground Water  
 Analysis Batch: 386326

Client Sample ID: Phase 1, 2, 3 Sump-Composite  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Ammonia	4.11	F1	1.00	4.600	4	mg/L		49	90 - 110	0	10

## Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 310-386358/1-A  
 Matrix: Water  
 Analysis Batch: 386490

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 386358

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	<1.00		1.00	0.550	mg/L		05/04/23 07:39	05/04/23 20:09	1

Lab Sample ID: LCS 310-386358/2-A  
 Matrix: Water  
 Analysis Batch: 386490

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 386358

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Kjeldahl Nitrogen	4.01	3.787		mg/L		95	90 - 110

## Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 310-386239/48  
 Matrix: Water  
 Analysis Batch: 386239

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	<0.100		0.100	0.0540	mg/L			05/03/23 10:36	1

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254657-1

## Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 310-386239/49  
 Matrix: Water  
 Analysis Batch: 386239

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	7.21	7.302		mg/L		101	90 - 110

## Method: 365.1 - Phosphorus, Total

Lab Sample ID: MB 310-386003/1-A  
 Matrix: Water  
 Analysis Batch: 386045

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 386003

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Phosphorus as P	<0.100		0.100	0.0620	mg/L		05/01/23 12:24	05/01/23 22:36	1

Lab Sample ID: LCS 310-386003/2-A  
 Matrix: Water  
 Analysis Batch: 386045

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 386003

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Phosphorus as P	1.00	0.9984		mg/L		100	90 - 110

## Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 500-712510/28  
 Matrix: Water  
 Analysis Batch: 712510

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	<1.00		1.00	0.470	mg/L			05/08/23 23:45	1

Lab Sample ID: LCS 500-712510/29  
 Matrix: Water  
 Analysis Batch: 712510

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Duplicates	50.0	49.65		mg/L		99	86 - 116

## Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-386081/1  
 Matrix: Water  
 Analysis Batch: 386081

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			05/02/23 08:33	1

Lab Sample ID: LCS 310-386081/2  
 Matrix: Water  
 Analysis Batch: 386081

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	96.00		mg/L		96	75 - 116

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254657-1

## Method: SM 2320B - Alkalinity

**Lab Sample ID: MB 310-386364/1**  
**Matrix: Water**  
**Analysis Batch: 386364**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Bicarbonate Alkalinity as CaCO3	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Carbonate Alkalinity as CaCO3	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1

**Lab Sample ID: LCS 310-386364/2**  
**Matrix: Water**  
**Analysis Batch: 386364**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3 to pH 4.5	1000	945.8		mg/L		95	90 - 110

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 310-386161/1**  
**Matrix: Water**  
**Analysis Batch: 386161**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0	34.0	mg/L			05/02/23 15:34	1

**Lab Sample ID: LCS 310-386161/2**  
**Matrix: Water**  
**Analysis Batch: 386161**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	958.0		mg/L		96	90 - 110

# QC Association Summary

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254657-1

## HPLC/IC

### Analysis Batch: 387079

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254657-1	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	9056A	
MB 310-387079/3	Method Blank	Total/NA	Water	9056A	
LCS 310-387079/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 310-387079/47	Lab Control Sample	Total/NA	Water	9056A	

## Metals

### Analysis Batch: 385971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254657-1	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	SM 2340B	

### Prep Batch: 386032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254657-1	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	3005A	
MB 310-386032/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-386032/2-A	Lab Control Sample	Total/NA	Water	3005A	

### Analysis Batch: 388122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254657-1	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	6020B	386032
MB 310-386032/1-A	Method Blank	Total/NA	Water	6020B	386032
LCS 310-386032/2-A	Lab Control Sample	Total/NA	Water	6020B	386032

### Analysis Batch: 388161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254657-1	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	6020B	386032

## General Chemistry

### Prep Batch: 386003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254657-1	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	365.2/365.3/365	
MB 310-386003/1-A	Method Blank	Total/NA	Water	365.2/365.3/365	
LCS 310-386003/2-A	Lab Control Sample	Total/NA	Water	365.2/365.3/365	

### Analysis Batch: 386045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254657-1	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	365.1	386003
MB 310-386003/1-A	Method Blank	Total/NA	Water	365.1	386003
LCS 310-386003/2-A	Lab Control Sample	Total/NA	Water	365.1	386003

### Analysis Batch: 386081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254657-1	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	I-3765-85	
MB 310-386081/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-386081/2	Lab Control Sample	Total/NA	Water	I-3765-85	

### Analysis Batch: 386161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254657-1	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	SM 2540C	
MB 310-386161/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-386161/2	Lab Control Sample	Total/NA	Water	SM 2540C	

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# QC Association Summary

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254657-1

## General Chemistry

### Analysis Batch: 386239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254657-1	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	353.2	
MB 310-386239/48	Method Blank	Total/NA	Water	353.2	
LCS 310-386239/49	Lab Control Sample	Total/NA	Water	353.2	

### Analysis Batch: 386326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254657-1	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	350.1	
MB 310-386326/81	Method Blank	Total/NA	Water	350.1	
LCS 310-386326/82	Lab Control Sample	Total/NA	Water	350.1	
310-254657-1 MS	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	350.1	
310-254657-1 MSD	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	350.1	

### Prep Batch: 386358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254657-1	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	351.2	
MB 310-386358/1-A	Method Blank	Total/NA	Water	351.2	
LCS 310-386358/2-A	Lab Control Sample	Total/NA	Water	351.2	

### Analysis Batch: 386364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254657-1	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	SM 2320B	
MB 310-386364/1	Method Blank	Total/NA	Water	SM 2320B	
LCS 310-386364/2	Lab Control Sample	Total/NA	Water	SM 2320B	

### Analysis Batch: 386490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254657-1	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	351.2	386358
MB 310-386358/1-A	Method Blank	Total/NA	Water	351.2	386358
LCS 310-386358/2-A	Lab Control Sample	Total/NA	Water	351.2	386358

### Analysis Batch: 712510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254657-1	Phase 1, 2, 3 Sump-Composite	Total/NA	Ground Water	9060A	
MB 500-712510/28	Method Blank	Total/NA	Water	9060A	
LCS 500-712510/29	Lab Control Sample	Total/NA	Water	9060A	

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254657-1

**Client Sample ID: Phase 1, 2, 3 Sump-Composite**

**Lab Sample ID: 310-254657-1**

**Date Collected: 04/27/23 21:45**

**Matrix: Ground Water**

**Date Received: 04/28/23 14:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		500	387079	QTZ5	EET CF	05/08/23 17:07
Total/NA	Prep	3005A			386032	DHM5	EET CF	05/02/23 08:45
Total/NA	Analysis	6020B		20	388122	ZRI4	EET CF	05/19/23 15:38
Total/NA	Prep	3005A			386032	DHM5	EET CF	05/02/23 08:45
Total/NA	Analysis	6020B		200	388161	A6US	EET CF	05/20/23 20:08
Total/NA	Analysis	SM 2340B		1	385971	HE7K	EET CF	05/01/23 09:44
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 18:56
Total/NA	Prep	351.2			386358	W9YR	EET CF	05/04/23 07:39
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:15
Total/NA	Analysis	353.2		10	386239	HE7K	EET CF	05/03/23 11:12
Total/NA	Prep	365.2/365.3/365			386003	MAQ3	EET CF	05/01/23 12:24
Total/NA	Analysis	365.1		1	386045	ZJX4	EET CF	05/01/23 22:42
Total/NA	Analysis	9060A		20	712510	BC	EET CHI	05/09/23 01:34
Total/NA	Analysis	I-3765-85		1	386081	DGU1	EET CF	05/02/23 08:33
Total/NA	Analysis	SM 2320B		10	386364	MAQ3	EET CF	05/04/23 07:55
Total/NA	Analysis	SM 2540C		1	386161	ENB7	EET CF	05/02/23 15:34

**Laboratory References:**

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

# Accreditation/Certification Summary

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254657-1

## Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

## Laboratory: Eurofins Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	082	05-01-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9060A		Ground Water	Total Organic Carbon - Duplicates



# Method Summary

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254657-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
351.2	Nitrogen, Total Kjeldahl	EPA	EET CF
353.2	Nitrogen, Nitrate-Nitrite	EPA	EET CF
365.1	Phosphorus, Total	EPA	EET CF
9060A	Organic Carbon, Total (TOC)	SW846	EET CHI
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 2320B	Alkalinity	SM	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
351.2	Nitrogen, Total Kjeldahl	EPA	EET CF
365.2/365.3/365	Phosphorus, Total	EPA	EET CF

#### Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

#### Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200





Environment Testing  
America



310-254657 Chain of Custody

### Cooler/Sample Receipt and Temperature Log Form


<b>Client Information</b>			
Client: <u>SLS</u>			
City/State:	CITY	STATE	Project:
<b>Receipt Information</b>			
Date/Time Received:	DATE <u>4/28/23</u>	TIME <u>1445</u>	Received By: <u>AM</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>P</u>		Correction Factor (°C): <u>+0.2</u>	
• <b>Temp Blank Temperature</b> – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>1.6</u>		Corrected Temp (°C): <u>1.8</u>	
• <b>Sample Container Temperature</b>			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			



TestAmerica Des Moines SC  
214

Eurofins Environment Testing North Central, LLC


3019 Venture Way, Cedar Falls, Iowa 50613  
Phone 319-277-2401  
Direct: 319-595-2013

SAMPLER: Chad Dent-Higa      REPORT TO: Kevin Jensen (kjensen@scsengineers.com)  
 SITE NAME: Heidelberg Materials US Cement, LLC - Monofill      COMPANY NAME: SCS Engineers  
 ADDRESS: \_\_\_\_\_      PROJECT NAME: Heidelberg (Lehigh) Monofill Sampling - 2023 Spring  
 CITY/STATE/ZIP: Mason City, IA      PROJECT NUMBER: Heidelberg Monofill - 27223180  
 TELEPHONE NUMBER: \_\_\_\_\_      ADDRESS: 1690 All-State Court, Suite 100  
 SIGNATURE:       CITY/STATE/ZIP: West Des Moines, IA 50265

Sample ID	Date Sampled	Time Sampled	# of Containers Shipped	Grab	Composite	Field Filtered	Ice	HNO <sub>3</sub> (red & White Label)	HCl (Blue & White Label)	Preservative								Matrix						Analyze For:																								
										NaOH (Orange & White Label)	H <sub>2</sub> SO <sub>4</sub> Plastic (Yellow & White Label)	H <sub>2</sub> SO <sub>4</sub> Glass (Yellow & White Label)	None (Black & White Label)	Other (Specify)	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (Specify: Lab grade water)	Total Alkalinity	Ammonia Nitrogen	Chloride	Hardness	Nitrate/Nitrite	Total Phosphorus	Sulfate	Total Dissolved Solids	Total Kjeldahl Nitrogen	Total Organic Carbon	Total Suspended Solids																	
MW-201				X			X											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
MW-202R				X			X											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
MW-203R				X			X											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
MW-204				X			X											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-205				X			X											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-206				X			X											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
LDR-1				X			X											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
LDR-2				X			X											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
LDR-3				X			X											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
SW-1				X			X											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Phase 1, 2, 3 Sump - Composite	4-27	2:15			X		X											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-D				X			X											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

SHIPPED VIA: \_\_\_\_\_

SAMPLING COMMENTS: \_\_\_\_\_

Relinquished by:       Date: 4-28-23      Time: 12:30  
 Relinquished by: \_\_\_\_\_      Date: \_\_\_\_\_      Time: \_\_\_\_\_

Received for lab by: ST      Date: 4/28/23      Time: 1:45  
 Received for lab by: \_\_\_\_\_      Date: \_\_\_\_\_      Time: \_\_\_\_\_

LABORATORY COMMENTS: \_\_\_\_\_

Eurofins Environment Testing North Central, LLC

3019 Venture Way, Cedar Falls, Iowa 50613

Phone. 319-277-2401

Direct: 319-595-2013

TestAmerica Des Moines SC

214

SAMPLER: Chad Dentlinger

SITE NAME: Heidelberg Materials US Cement, LLC - Monofill

ADDRESS: \_\_\_\_\_

CITY/STATE/ZIP: Mason City, IA

TELEPHONE NUMBER: \_\_\_\_\_

SIGNATURE: [Signature]

Fax: \_\_\_\_\_

REPORT TO: Kevin Jensen (kjensen@scsengineers.com)

COMPANY NAME: SCS Engineers

PROJECT NAME: Heidelberg (Lehigh) Monofill Sampling - 2023 Spring

PROJECT NUMBER: Heidelberg Monofill - 27223180

ADDRESS: 1690 All-State Court, Suite 100

CITY/STATE/ZIP: West Des Moines, IA 50265

Sample ID	Date Sampled	Time Sampled	# of Containers Shipped	Grab	Composite	Field Filtered	Ice	Preservative									HNO <sub>3</sub> (Red & White Label)	HCl (Blue & White Label)	NaOH (Orange & White Label)	H <sub>2</sub> O <sub>2</sub> Plastic (Yellow & White Label)	H <sub>2</sub> O <sub>2</sub> Glass (Yellow & White Label)	None (Yellow & White Label)	Other (Black & White Label)	Other (Specify: Lab grade water)	Matrix							Analyze For																									
								Other (Specify)	None	H <sub>2</sub> O <sub>2</sub> Glass	H <sub>2</sub> O <sub>2</sub> Plastic	H <sub>2</sub> O <sub>2</sub> Glass	H <sub>2</sub> O <sub>2</sub> Plastic	Drinking Water	Sludge	Soil									Groundwater	Wastewater	Total Aluminum	Total Arsenic	Total Calcium	Total Chromium	Total Lead	Total Magnesium	Total Potassium	Total Selenium	Total Sodium																						
MW-201				X			X																X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X									
MW-202R				X			X																X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-203R				X			X																X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-204				X			X																X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-205				X			X																X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-206				X			X																X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
LDR-1				X			X																X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
LDR-2				X			X																X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
LDR-3				X			X																X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-1				X			X																X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Phase 1, 2, 3 Sump - Composite	4-27	21:45			X		X																X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-D				X			X																X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

SAMPLING COMMENTS SHIPPED VIA.

Relinquished by: [Signature] Date: 4-28-23 Time: 12:30

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Received for lab by: SJ Date: 4/28/23 Time: 1445

LABORATORY COMMENTS: \_\_\_\_\_



Eurofins Cedar Falls

3019 Venture Way  
Cedar Falls IA 50613  
Phone 319-277-2401 Fax 319-277-2425

Chain of Custody Record



eurofins Environment Testing

<b>Client Information (Sub Contract Lab)</b>			Sampler: Liechi Meredith L Phone: meredith.liechi@et.eurofinsus.com   Iowa	Lab PM: 310-254657 COC E-Mail: meredith.liechi@et.eurofinsus.com   Iowa	(s):	COC No. 310-60878 1 Page: Page 1 of 1
Company: Eurofins Environment Testing North Central		Address: 2417 Bond Street, University Park, IL 60484		Accreditations Required (See note): State - Iowa State Program - Iowa		Job #: 310-254657-1
Due Date Requested: 5/11/2023		TAT Requested (days):		Analysis Requested		
Project Name: Heidelberg (Lehigh) Monofill Sampling-2023 Spring		Project #: 31005782		Preservation Codes: A HCL      M Hexane B NaOH      N None C Zn Acetate      O AsNaO2 D Nitric Acid      P Na2O4S E NaHSO4      Q Na2SO3 F MeOH      R Na2S2O3 G Amchlor      S H2SO4 H Ascorbic Acid      T TSP Dodecahydrate I Ice      U Acetone J DI Water      V MCAA K EDTA      W pH 4-5 L EDA      Y Trizma Z other (specify)		
Site:		SSOW#:		Other:		
<b>Sample Identification - Client ID (Lab ID)</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=Comp, G=grab)</b>	<b>Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)</b>	<b>Special Instructions/Note:</b>
Phase 1 2 3 Sump-Composite (310-254657-1)		4/27/23	21 45 Central		Water	
Field Filtered Sample (Yes or No):		Perform MS/MSD (Yes or No):		9060A/ (MOD) Local Method		Total Number of containers: 2
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central LLC.						
<b>Possible Hazard Identification</b>				<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>		
Unconfirmed				Return To Client      Disposal By Lab      Archive For      Months		
Deliverable Requested I II III IV Other (specify)		Primary Deliverable Rank. 2		Special Instructions/QC Requirements		
Empty Kit Relinquished by:		Date	Time	Method of Shipment:		
Relinquished by: <i>T. S. [Signature]</i>		Date/Time: 5/12/23 1240	Company:	Received by: <i>Stephanie Hemondy</i>		Date/Time: 5/12/23 1010 Company: EETA
Relinquished by:		Date/Time:	Company:	Received by:		Company:
Custody Seals Intact: Δ Yes Δ No		Custody Seal No		Cooler Temperature(s) °C and Other Remarks: 0.1+0.5		

## Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-254657-1

**Login Number: 254657**

**List Source: Eurofins Cedar Falls**

**List Number: 1**

**Creator: Tucker, Sarah L**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-254657-1

**Login Number: 254657**

**List Number: 2**

**Creator: Hernandez, Stephanie**

**List Source: Eurofins Chicago**

**List Creation: 05/02/23 04:42 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# ANALYTICAL REPORT

## PREPARED FOR

Attn: Kevin Jensen  
SCS Engineers  
1690 All State Court  
Suite 100  
West Des Moines, Iowa 50265

Generated 5/19/2023 12:39:11 PM

## JOB DESCRIPTION

Heidelberg (Lehigh) Monofill Sampling-2023 Spring

## JOB NUMBER

310-254660-1

# Eurofins Cedar Falls

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



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Authorized for release by  
Meredith Liechti, Service Center Manager  
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# Case Narrative

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

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**Job ID: 310-254660-1**

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**Laboratory: Eurofins Cedar Falls**

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**Narrative**

**Job Narrative  
310-254660-1**

**Receipt**

The samples were received on 4/28/2023 2:45 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.7°C

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**Metals**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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# Sample Summary

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023  
Spring

Job ID: 310-254660-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-254660-1	MW-101R-No Purge	Ground Water	04/27/23 21:29	04/28/23 14:45
310-254660-2	MW-102R-No Purge	Ground Water	04/27/23 20:42	04/28/23 14:45
310-254660-3	MW-103R-No Purge	Ground Water	04/27/23 19:00	04/28/23 14:45

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# Detection Summary

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

## Client Sample ID: MW-101R-No Purge

## Lab Sample ID: 310-254660-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	3.80	J	5.00	2.25	mg/L	5			9056A	Total/NA
Sulfate	278		5.00	2.10	mg/L	5			9056A	Total/NA
Arsenic	0.00116	J	0.00200	0.000530	mg/L	1			6020B	Total/NA
Calcium	143		0.500	0.190	mg/L	1			6020B	Total/NA
Magnesium	74.9		0.500	0.150	mg/L	1			6020B	Total/NA
Potassium	8.39		0.500	0.150	mg/L	1			6020B	Total/NA
Selenium	0.00148	J	0.00500	0.00140	mg/L	1			6020B	Total/NA
Sodium	49.5		1.00	0.460	mg/L	1			6020B	Total/NA
Total Hardness	666		2.06	0.618	mg/L	1			SM 2340B	Total/NA
Total Organic Carbon - Duplicates	0.878	J	1.00	0.470	mg/L	1			9060A	Total/NA
Total Suspended Solids	8.25		1.88	0.638	mg/L	1			I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	394		5.00	2.50	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	394		5.00	2.50	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids	734		50.0	34.0	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: MW-102R-No Purge

## Lab Sample ID: 310-254660-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	4.81	J	5.00	2.25	mg/L	5			9056A	Total/NA
Sulfate	1560		20.0	8.40	mg/L	20			9056A	Total/NA
Calcium	386		0.500	0.190	mg/L	1			6020B	Total/NA
Magnesium	212		2.00	0.600	mg/L	4			6020B	Total/NA
Potassium	10.7		0.500	0.150	mg/L	1			6020B	Total/NA
Potassium	14.5		2.00	0.600	mg/L	4			6020B	Total/NA
Sodium	44.8		1.00	0.460	mg/L	1			6020B	Total/NA
Total Hardness	1840		8.24	2.47	mg/L	1			SM 2340B	Total/NA
Total Organic Carbon - Duplicates	1.05		1.00	0.470	mg/L	1			9060A	Total/NA
Total Suspended Solids	1.13	J	1.88	0.638	mg/L	1			I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	613		5.00	2.50	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	613		5.00	2.50	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids	2720		250	170	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: MW-103R-No Purge

## Lab Sample ID: 310-254660-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	15.6		5.00	2.25	mg/L	5			9056A	Total/NA
Sulfate	1810		20.0	8.40	mg/L	20			9056A	Total/NA
Calcium	439		0.500	0.190	mg/L	1			6020B	Total/NA
Magnesium	250		2.00	0.600	mg/L	4			6020B	Total/NA
Potassium	19.0		0.500	0.150	mg/L	1			6020B	Total/NA
Potassium	21.3		2.00	0.600	mg/L	4			6020B	Total/NA
Sodium	54.5		1.00	0.460	mg/L	1			6020B	Total/NA
Total Hardness	2130		8.24	2.47	mg/L	1			SM 2340B	Total/NA
Nitrate Nitrite as N	0.307		0.100	0.0540	mg/L	1			353.2	Total/NA
Total Organic Carbon - Duplicates	0.782	J	1.00	0.470	mg/L	1			9060A	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	621		5.00	2.50	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	621		5.00	2.50	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids	2970		250	170	mg/L	1			SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

# Quantitation Limit Exceptions Summary

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

The requested project specific reporting limits listed below were less than laboratory standard quantitation limits (PQL) but greater than or equal to the laboratory method detection limits (MDL). It must be noted that results reported below lab standard quantitation limits may result in false positive/false negative values and less accurate quantitation. Routine laboratory procedures do not indicate corrective action for detections below the laboratory's PQL.

Method	Analyte	Matrix	Prep Type	Unit	Client RL	Lab PQL
SM 2340B	Total Hardness	Ground Water	Total/NA	mg/L	0.500	3.3

- 1
- 2
- 3
- 4
- 5
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- 13
- 14
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# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

**Client Sample ID: MW-101R-No Purge**

**Lab Sample ID: 310-254660-1**

Date Collected: 04/27/23 21:29

Matrix: Ground Water

Date Received: 04/28/23 14:45

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.80	J	5.00	2.25	mg/L			05/08/23 17:20	5
Sulfate	278		5.00	2.10	mg/L			05/08/23 17:20	5

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/02/23 08:45	05/16/23 21:50	1
Arsenic	0.00116	J	0.00200	0.000530	mg/L		05/02/23 08:45	05/16/23 21:50	1
Calcium	143		0.500	0.190	mg/L		05/02/23 08:45	05/16/23 21:50	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/02/23 08:45	05/16/23 21:50	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/02/23 08:45	05/16/23 21:50	1
Magnesium	74.9		0.500	0.150	mg/L		05/02/23 08:45	05/16/23 21:50	1
Potassium	8.39		0.500	0.150	mg/L		05/02/23 08:45	05/16/23 21:50	1
Selenium	0.00148	J	0.00500	0.00140	mg/L		05/02/23 08:45	05/16/23 21:50	1
Sodium	49.5		1.00	0.460	mg/L		05/02/23 08:45	05/16/23 21:50	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	666		2.06	0.618	mg/L			05/01/23 09:44	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			05/03/23 18:58	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		05/04/23 07:41	05/04/23 20:26	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			05/03/23 11:14	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		05/01/23 13:52	05/01/23 23:36	1
Total Organic Carbon - Duplicates (SW846 9060A)	0.878	J	1.00	0.470	mg/L			05/09/23 01:52	1
Total Suspended Solids (USGS I-3765-85)	8.25		1.88	0.638	mg/L			05/02/23 08:33	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	394		5.00	2.50	mg/L			05/01/23 20:38	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	394		5.00	2.50	mg/L			05/01/23 20:38	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			05/01/23 20:38	1
Total Dissolved Solids (SM 2540C)	734		50.0	34.0	mg/L			05/02/23 15:34	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

**Client Sample ID: MW-102R-No Purge**

**Lab Sample ID: 310-254660-2**

Date Collected: 04/27/23 20:42

Matrix: Ground Water

Date Received: 04/28/23 14:45

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.81	J	5.00	2.25	mg/L			05/08/23 17:34	5
Sulfate	1560		20.0	8.40	mg/L			05/10/23 14:09	20

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/02/23 08:45	05/09/23 02:02	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/02/23 08:45	05/09/23 02:02	1
Calcium	386		0.500	0.190	mg/L		05/02/23 08:45	05/09/23 02:02	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/02/23 08:45	05/09/23 02:02	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/02/23 08:45	05/09/23 02:02	1
Magnesium	212		2.00	0.600	mg/L		05/02/23 08:45	05/09/23 15:02	4
Potassium	10.7		0.500	0.150	mg/L		05/02/23 08:45	05/09/23 02:02	1
Potassium	14.5		2.00	0.600	mg/L		05/02/23 08:45	05/16/23 21:57	4
Selenium	<0.00500		0.00500	0.00140	mg/L		05/02/23 08:45	05/09/23 02:02	1
Sodium	44.8		1.00	0.460	mg/L		05/02/23 08:45	05/09/23 02:02	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	1840		8.24	2.47	mg/L			05/01/23 09:44	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			05/03/23 18:58	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		05/04/23 07:41	05/04/23 20:25	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			05/03/23 11:16	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		05/01/23 13:16	05/01/23 22:53	1
Total Organic Carbon - Duplicates (SW846 9060A)	1.05		1.00	0.470	mg/L			05/09/23 02:10	1
Total Suspended Solids (USGS I-3765-85)	1.13	J	1.88	0.638	mg/L			05/02/23 08:33	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	613		5.00	2.50	mg/L			05/01/23 21:01	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	613		5.00	2.50	mg/L			05/01/23 21:01	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			05/01/23 21:01	1
Total Dissolved Solids (SM 2540C)	2720		250	170	mg/L			05/02/23 15:34	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

**Client Sample ID: MW-103R-No Purge**

**Lab Sample ID: 310-254660-3**

Date Collected: 04/27/23 19:00

Matrix: Ground Water

Date Received: 04/28/23 14:45

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15.6		5.00	2.25	mg/L			05/08/23 17:47	5
Sulfate	1810		20.0	8.40	mg/L			05/10/23 14:22	20

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/02/23 08:45	05/09/23 02:06	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/02/23 08:45	05/09/23 02:06	1
Calcium	439		0.500	0.190	mg/L		05/02/23 08:45	05/09/23 02:06	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/02/23 08:45	05/09/23 02:06	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/02/23 08:45	05/09/23 02:06	1
Magnesium	250		2.00	0.600	mg/L		05/02/23 08:45	05/09/23 15:04	4
Potassium	19.0		0.500	0.150	mg/L		05/02/23 08:45	05/09/23 02:06	1
Potassium	21.3		2.00	0.600	mg/L		05/02/23 08:45	05/16/23 21:59	4
Selenium	<0.00500		0.00500	0.00140	mg/L		05/02/23 08:45	05/09/23 02:06	1
Sodium	54.5		1.00	0.460	mg/L		05/02/23 08:45	05/09/23 02:06	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	2130		8.24	2.47	mg/L			05/01/23 09:44	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			05/03/23 18:59	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		05/04/23 07:41	05/04/23 20:23	1
Nitrate Nitrite as N (EPA 353.2)	0.307		0.100	0.0540	mg/L			05/03/23 11:17	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		05/01/23 13:52	05/01/23 23:36	1
Total Organic Carbon - Duplicates (SW846 9060A)	0.782 J		1.00	0.470	mg/L			05/09/23 03:00	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88	0.638	mg/L			05/02/23 08:33	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	621		5.00	2.50	mg/L			05/01/23 21:16	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	621		5.00	2.50	mg/L			05/01/23 21:16	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			05/01/23 21:16	1
Total Dissolved Solids (SM 2540C)	2970		250	170	mg/L			05/02/23 15:34	1



# Definitions/Glossary

Client: SCS Engineers

Job ID: 310-254660-1

Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 310-387079/3**  
**Matrix: Water**  
**Analysis Batch: 387079**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00	0.450	mg/L			05/08/23 11:27	1
Sulfate	<1.00		1.00	0.420	mg/L			05/08/23 11:27	1

**Lab Sample ID: LCS 310-387079/4**  
**Matrix: Water**  
**Analysis Batch: 387079**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.919		mg/L		99	90 - 110

**Lab Sample ID: LCS 310-387079/47**  
**Matrix: Water**  
**Analysis Batch: 387079**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	10.0	9.029		mg/L		90	90 - 110

**Lab Sample ID: MB 310-387360/3**  
**Matrix: Water**  
**Analysis Batch: 387360**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00	0.450	mg/L			05/11/23 11:23	1
Sulfate	<1.00		1.00	0.420	mg/L			05/11/23 11:23	1

**Lab Sample ID: LCS 310-387360/4**  
**Matrix: Water**  
**Analysis Batch: 387360**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.766		mg/L		98	90 - 110
Sulfate	10.0	10.73		mg/L		107	90 - 110

## Method: 6020B - Metals (ICP/MS)

**Lab Sample ID: MB 310-386033/1-A**  
**Matrix: Water**  
**Analysis Batch: 386886**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 386033**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/02/23 08:45	05/09/23 00:49	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/02/23 08:45	05/09/23 00:49	1
Calcium	<0.500		0.500	0.190	mg/L		05/02/23 08:45	05/09/23 00:49	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/02/23 08:45	05/09/23 00:49	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/02/23 08:45	05/09/23 00:49	1
Magnesium	<0.500		0.500	0.150	mg/L		05/02/23 08:45	05/09/23 00:49	1
Potassium	<0.500		0.500	0.150	mg/L		05/02/23 08:45	05/09/23 00:49	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/02/23 08:45	05/09/23 00:49	1
Sodium	<1.00		1.00	0.460	mg/L		05/02/23 08:45	05/09/23 00:49	1

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

## Method: 6020B - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 310-386033/2-A**  
**Matrix: Water**  
**Analysis Batch: 387031**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 386033**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
Aluminum	0.200	0.1971		mg/L		99	80 - 120	
Arsenic	0.200	0.1800		mg/L		90	80 - 120	
Calcium	2.00	1.670		mg/L		84	80 - 120	
Chromium	0.100	0.09073		mg/L		91	80 - 120	
Lead	0.200	0.1860		mg/L		93	80 - 120	
Magnesium	2.00	1.768		mg/L		88	80 - 120	
Selenium	0.400	0.3636		mg/L		91	80 - 120	
Sodium	2.00	2.150		mg/L		107	80 - 120	

**Lab Sample ID: LCS 310-386033/2-A**  
**Matrix: Water**  
**Analysis Batch: 387791**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 386033**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
Aluminum	0.200	0.2331		mg/L		117	80 - 120	
Arsenic	0.200	0.2195		mg/L		110	80 - 120	
Calcium	2.00	2.408		mg/L		120	80 - 120	
Chromium	0.100	0.1072		mg/L		107	80 - 120	
Lead	0.200	0.2136		mg/L		107	80 - 120	
Magnesium	2.00	2.309		mg/L		115	80 - 120	
Selenium	0.400	0.4305		mg/L		108	80 - 120	

**Lab Sample ID: LCS 310-386033/2-A**  
**Matrix: Water**  
**Analysis Batch: 387916**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 386033**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
Potassium	2.00	2.378		mg/L		119	80 - 120	

**Lab Sample ID: 310-254660-1 MS**  
**Matrix: Ground Water**  
**Analysis Batch: 387791**

**Client Sample ID: MW-101R-No Purge**  
**Prep Type: Total/NA**  
**Prep Batch: 386033**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec	
									Limits	
Aluminum	<0.0500		0.200	0.2280		mg/L		114	75 - 125	
Arsenic	0.00116	J	0.200	0.2240		mg/L		111	75 - 125	
Calcium	143		2.00	147.0	4	mg/L		185	75 - 125	
Chromium	<0.00500		0.100	0.1047		mg/L		105	75 - 125	
Lead	<0.000500		0.200	0.2131		mg/L		107	75 - 125	
Magnesium	74.9		2.00	83.73	4	mg/L		440	75 - 125	
Potassium	8.39		2.00	11.38	4	mg/L		149	75 - 125	
Selenium	0.00148	J	0.400	0.4424		mg/L		110	75 - 125	
Sodium	49.5		2.00	53.52	4	mg/L		203	75 - 125	

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

## Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 310-254660-1 MSD  
 Matrix: Ground Water  
 Analysis Batch: 387791

Client Sample ID: MW-101R-No Purge  
 Prep Type: Total/NA  
 Prep Batch: 386033

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Aluminum	<0.0500		0.200	0.2208		mg/L		110	75 - 125	3	20
Arsenic	0.00116	J	0.200	0.2132		mg/L		106	75 - 125	5	20
Calcium	143		2.00	143.6	4	mg/L		18	75 - 125	2	20
Chromium	<0.00500		0.100	0.1002		mg/L		100	75 - 125	4	20
Lead	<0.000500		0.200	0.1950		mg/L		97	75 - 125	9	20
Magnesium	74.9		2.00	81.11	4	mg/L		310	75 - 125	3	20
Potassium	8.39		2.00	11.14	4	mg/L		138	75 - 125	2	20
Selenium	0.00148	J	0.400	0.4219		mg/L		105	75 - 125	5	20
Sodium	49.5		2.00	56.11	4	mg/L		333	75 - 125	5	20

## Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-386326/81  
 Matrix: Water  
 Analysis Batch: 386326

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ammonia	<0.200		0.200	0.100	mg/L			05/03/23 18:54	1

Lab Sample ID: LCS 310-386326/82  
 Matrix: Water  
 Analysis Batch: 386326

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Ammonia	7.80	7.634		mg/L		98	90 - 110

## Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 310-386359/1-A  
 Matrix: Water  
 Analysis Batch: 386490

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 386359

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Kjeldahl Nitrogen	<1.00		1.00	0.550	mg/L		05/04/23 07:41	05/04/23 20:20	1

Lab Sample ID: LCS 310-386359/2-A  
 Matrix: Water  
 Analysis Batch: 386490

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 386359

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Total Kjeldahl Nitrogen	4.01	3.996		mg/L		100	90 - 110

## Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 310-386239/48  
 Matrix: Water  
 Analysis Batch: 386239

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrate Nitrite as N	<0.100		0.100	0.0540	mg/L			05/03/23 10:36	1

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

## Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 310-386239/49  
 Matrix: Water  
 Analysis Batch: 386239

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	7.21	7.302		mg/L		101	90 - 110

## Method: 365.1 - Phosphorus, Total

Lab Sample ID: MB 310-386014/1-A  
 Matrix: Water  
 Analysis Batch: 386045

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 386014

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Phosphorus as P	<0.100		0.100	0.0620	mg/L		05/01/23 13:16	05/01/23 22:48	1

Lab Sample ID: LCS 310-386014/2-A  
 Matrix: Water  
 Analysis Batch: 386045

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 386014

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Phosphorus as P	1.00	1.011		mg/L		101	90 - 110

Lab Sample ID: MB 310-386018/1-A  
 Matrix: Water  
 Analysis Batch: 386045

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 386018

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Phosphorus as P	<0.100		0.100	0.0620	mg/L		05/01/23 13:52	05/01/23 23:34	1

Lab Sample ID: LCS 310-386018/2-A  
 Matrix: Water  
 Analysis Batch: 386045

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 386018

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Phosphorus as P	1.00	1.063		mg/L		106	90 - 110

## Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 500-712510/28  
 Matrix: Water  
 Analysis Batch: 712510

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	<1.00		1.00	0.470	mg/L			05/08/23 23:45	1

Lab Sample ID: LCS 500-712510/29  
 Matrix: Water  
 Analysis Batch: 712510

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Duplicates	50.0	49.65		mg/L		99	86 - 116

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

## Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-386081/1  
 Matrix: Water  
 Analysis Batch: 386081

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			05/02/23 08:33	1

Lab Sample ID: LCS 310-386081/2  
 Matrix: Water  
 Analysis Batch: 386081

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	96.00		mg/L		96	75 - 116

## Method: SM 2320B - Alkalinity

Lab Sample ID: MB 310-386079/3  
 Matrix: Water  
 Analysis Batch: 386079

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	<5.00		5.00	2.50	mg/L			05/01/23 17:15	1
Bicarbonate Alkalinity as CaCO3	<5.00		5.00	2.50	mg/L			05/01/23 17:15	1
Carbonate Alkalinity as CaCO3	<5.00		5.00	2.50	mg/L			05/01/23 17:15	1

Lab Sample ID: LCS 310-386079/2  
 Matrix: Water  
 Analysis Batch: 386079

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3 to pH 4.5	1000	993.2		mg/L		99	90 - 110

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-386161/1  
 Matrix: Water  
 Analysis Batch: 386161

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0	34.0	mg/L			05/02/23 15:34	1

Lab Sample ID: LCS 310-386161/2  
 Matrix: Water  
 Analysis Batch: 386161

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	958.0		mg/L		96	90 - 110

# QC Association Summary

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

## HPLC/IC

### Analysis Batch: 387079

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-1	MW-101R-No Purge	Total/NA	Ground Water	9056A	
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	9056A	
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	9056A	
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	9056A	
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	9056A	
MB 310-387079/3	Method Blank	Total/NA	Water	9056A	
LCS 310-387079/4	Lab Control Sample	Total/NA	Water	9056A	
LCS 310-387079/47	Lab Control Sample	Total/NA	Water	9056A	

### Analysis Batch: 387360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-387360/3	Method Blank	Total/NA	Water	9056A	
LCS 310-387360/4	Lab Control Sample	Total/NA	Water	9056A	

## Metals

### Analysis Batch: 385971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-1	MW-101R-No Purge	Total/NA	Ground Water	SM 2340B	
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	SM 2340B	
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	SM 2340B	

### Prep Batch: 386033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-1	MW-101R-No Purge	Total/NA	Ground Water	3005A	
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	3005A	
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	3005A	
MB 310-386033/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-386033/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-254660-1 MS	MW-101R-No Purge	Total/NA	Ground Water	3005A	
310-254660-1 MSD	MW-101R-No Purge	Total/NA	Ground Water	3005A	

### Analysis Batch: 386886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	6020B	386033
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	6020B	386033
MB 310-386033/1-A	Method Blank	Total/NA	Water	6020B	386033

### Analysis Batch: 387031

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	6020B	386033
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	6020B	386033
LCS 310-386033/2-A	Lab Control Sample	Total/NA	Water	6020B	386033

### Analysis Batch: 387791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-1	MW-101R-No Purge	Total/NA	Ground Water	6020B	386033
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	6020B	386033
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	6020B	386033
LCS 310-386033/2-A	Lab Control Sample	Total/NA	Water	6020B	386033
310-254660-1 MS	MW-101R-No Purge	Total/NA	Ground Water	6020B	386033

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# QC Association Summary

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

## Metals (Continued)

### Analysis Batch: 387791 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-1 MSD	MW-101R-No Purge	Total/NA	Ground Water	6020B	386033

### Analysis Batch: 387916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-386033/2-A	Lab Control Sample	Total/NA	Water	6020B	386033

## General Chemistry

### Prep Batch: 386014

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	365.2/365.3/365	
MB 310-386014/1-A	Method Blank	Total/NA	Water	365.2/365.3/365	
LCS 310-386014/2-A	Lab Control Sample	Total/NA	Water	365.2/365.3/365	

### Prep Batch: 386018

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-1	MW-101R-No Purge	Total/NA	Ground Water	365.2/365.3/365	
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	365.2/365.3/365	
MB 310-386018/1-A	Method Blank	Total/NA	Water	365.2/365.3/365	
LCS 310-386018/2-A	Lab Control Sample	Total/NA	Water	365.2/365.3/365	

### Analysis Batch: 386045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-1	MW-101R-No Purge	Total/NA	Ground Water	365.1	386018
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	365.1	386014
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	365.1	386018
MB 310-386014/1-A	Method Blank	Total/NA	Water	365.1	386014
MB 310-386018/1-A	Method Blank	Total/NA	Water	365.1	386018
LCS 310-386014/2-A	Lab Control Sample	Total/NA	Water	365.1	386014
LCS 310-386018/2-A	Lab Control Sample	Total/NA	Water	365.1	386018

### Analysis Batch: 386079

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-1	MW-101R-No Purge	Total/NA	Ground Water	SM 2320B	
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	SM 2320B	
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	SM 2320B	
MB 310-386079/3	Method Blank	Total/NA	Water	SM 2320B	
LCS 310-386079/2	Lab Control Sample	Total/NA	Water	SM 2320B	

### Analysis Batch: 386081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-1	MW-101R-No Purge	Total/NA	Ground Water	I-3765-85	
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	I-3765-85	
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	I-3765-85	
MB 310-386081/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-386081/2	Lab Control Sample	Total/NA	Water	I-3765-85	

### Analysis Batch: 386161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-1	MW-101R-No Purge	Total/NA	Ground Water	SM 2540C	
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	SM 2540C	

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# QC Association Summary

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

## General Chemistry (Continued)

### Analysis Batch: 386161 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	SM 2540C	
MB 310-386161/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-386161/2	Lab Control Sample	Total/NA	Water	SM 2540C	

### Analysis Batch: 386239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-1	MW-101R-No Purge	Total/NA	Ground Water	353.2	
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	353.2	
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	353.2	
MB 310-386239/48	Method Blank	Total/NA	Water	353.2	
LCS 310-386239/49	Lab Control Sample	Total/NA	Water	353.2	

### Analysis Batch: 386326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-1	MW-101R-No Purge	Total/NA	Ground Water	350.1	
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	350.1	
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	350.1	
MB 310-386326/81	Method Blank	Total/NA	Water	350.1	
LCS 310-386326/82	Lab Control Sample	Total/NA	Water	350.1	

### Prep Batch: 386359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-1	MW-101R-No Purge	Total/NA	Ground Water	351.2	
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	351.2	
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	351.2	
MB 310-386359/1-A	Method Blank	Total/NA	Water	351.2	
LCS 310-386359/2-A	Lab Control Sample	Total/NA	Water	351.2	

### Analysis Batch: 386490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-1	MW-101R-No Purge	Total/NA	Ground Water	351.2	386359
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	351.2	386359
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	351.2	386359
MB 310-386359/1-A	Method Blank	Total/NA	Water	351.2	386359
LCS 310-386359/2-A	Lab Control Sample	Total/NA	Water	351.2	386359

### Analysis Batch: 712510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254660-1	MW-101R-No Purge	Total/NA	Ground Water	9060A	
310-254660-2	MW-102R-No Purge	Total/NA	Ground Water	9060A	
310-254660-3	MW-103R-No Purge	Total/NA	Ground Water	9060A	
MB 500-712510/28	Method Blank	Total/NA	Water	9060A	
LCS 500-712510/29	Lab Control Sample	Total/NA	Water	9060A	

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

**Client Sample ID: MW-101R-No Purge**

**Lab Sample ID: 310-254660-1**

**Date Collected: 04/27/23 21:29**

**Matrix: Ground Water**

**Date Received: 04/28/23 14:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	387079	QTZ5	EET CF	05/08/23 17:20
Total/NA	Prep	3005A			386033	DHM5	EET CF	05/02/23 08:45
Total/NA	Analysis	6020B		1	387791	ZRI4	EET CF	05/16/23 21:50
Total/NA	Analysis	SM 2340B		1	385971	HE7K	EET CF	05/01/23 09:44
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 18:58
Total/NA	Prep	351.2			386359	W9YR	EET CF	05/04/23 07:41
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:26
Total/NA	Analysis	353.2		1	386239	HE7K	EET CF	05/03/23 11:14
Total/NA	Prep	365.2/365.3/365			386018	MAQ3	EET CF	05/01/23 13:52
Total/NA	Analysis	365.1		1	386045	ZJX4	EET CF	05/01/23 23:36
Total/NA	Analysis	9060A		1	712510	BC	EET CHI	05/09/23 01:52
Total/NA	Analysis	I-3765-85		1	386081	DGU1	EET CF	05/02/23 08:33
Total/NA	Analysis	SM 2320B		1	386079	MAQ3	EET CF	05/01/23 20:38
Total/NA	Analysis	SM 2540C		1	386161	ENB7	EET CF	05/02/23 15:34

**Client Sample ID: MW-102R-No Purge**

**Lab Sample ID: 310-254660-2**

**Date Collected: 04/27/23 20:42**

**Matrix: Ground Water**

**Date Received: 04/28/23 14:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	387079	QTZ5	EET CF	05/08/23 17:34
Total/NA	Analysis	9056A		20	387079	QTZ5	EET CF	05/10/23 14:09
Total/NA	Prep	3005A			386033	DHM5	EET CF	05/02/23 08:45
Total/NA	Analysis	6020B		1	386886	ZRI4	EET CF	05/09/23 02:02
Total/NA	Prep	3005A			386033	DHM5	EET CF	05/02/23 08:45
Total/NA	Analysis	6020B		4	387031	ZRI4	EET CF	05/09/23 15:02
Total/NA	Prep	3005A			386033	DHM5	EET CF	05/02/23 08:45
Total/NA	Analysis	6020B		4	387791	ZRI4	EET CF	05/16/23 21:57
Total/NA	Analysis	SM 2340B		1	385971	HE7K	EET CF	05/01/23 09:44
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 18:58
Total/NA	Prep	351.2			386359	W9YR	EET CF	05/04/23 07:41
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:25
Total/NA	Analysis	353.2		1	386239	HE7K	EET CF	05/03/23 11:16
Total/NA	Prep	365.2/365.3/365			386014	MAQ3	EET CF	05/01/23 13:16
Total/NA	Analysis	365.1		1	386045	ZJX4	EET CF	05/01/23 22:53
Total/NA	Analysis	9060A		1	712510	BC	EET CHI	05/09/23 02:10
Total/NA	Analysis	I-3765-85		1	386081	DGU1	EET CF	05/02/23 08:33
Total/NA	Analysis	SM 2320B		1	386079	MAQ3	EET CF	05/01/23 21:01
Total/NA	Analysis	SM 2540C		1	386161	ENB7	EET CF	05/02/23 15:34

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

**Client Sample ID: MW-103R-No Purge**

**Lab Sample ID: 310-254660-3**

Date Collected: 04/27/23 19:00

Matrix: Ground Water

Date Received: 04/28/23 14:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	387079	QTZ5	EET CF	05/08/23 17:47
Total/NA	Analysis	9056A		20	387079	QTZ5	EET CF	05/10/23 14:22
Total/NA	Prep	3005A			386033	DHM5	EET CF	05/02/23 08:45
Total/NA	Analysis	6020B		1	386886	ZRI4	EET CF	05/09/23 02:06
Total/NA	Prep	3005A			386033	DHM5	EET CF	05/02/23 08:45
Total/NA	Analysis	6020B		4	387031	ZRI4	EET CF	05/09/23 15:04
Total/NA	Prep	3005A			386033	DHM5	EET CF	05/02/23 08:45
Total/NA	Analysis	6020B		4	387791	ZRI4	EET CF	05/16/23 21:59
Total/NA	Analysis	SM 2340B		1	385971	HE7K	EET CF	05/01/23 09:44
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 18:59
Total/NA	Prep	351.2			386359	W9YR	EET CF	05/04/23 07:41
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:23
Total/NA	Analysis	353.2		1	386239	HE7K	EET CF	05/03/23 11:17
Total/NA	Prep	365.2/365.3/365			386018	MAQ3	EET CF	05/01/23 13:52
Total/NA	Analysis	365.1		1	386045	ZJX4	EET CF	05/01/23 23:36
Total/NA	Analysis	9060A		1	712510	BC	EET CHI	05/09/23 03:00
Total/NA	Analysis	I-3765-85		1	386081	DGU1	EET CF	05/02/23 08:33
Total/NA	Analysis	SM 2320B		1	386079	MAQ3	EET CF	05/01/23 21:16
Total/NA	Analysis	SM 2540C		1	386161	ENB7	EET CF	05/02/23 15:34

**Laboratory References:**

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

# Accreditation/Certification Summary

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

## Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

## Laboratory: Eurofins Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	082	05-01-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9060A		Ground Water	Total Organic Carbon - Duplicates



# Method Summary

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254660-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
351.2	Nitrogen, Total Kjeldahl	EPA	EET CF
353.2	Nitrogen, Nitrate-Nitrite	EPA	EET CF
365.1	Phosphorus, Total	EPA	EET CF
9060A	Organic Carbon, Total (TOC)	SW846	EET CHI
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 2320B	Alkalinity	SM	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
351.2	Nitrogen, Total Kjeldahl	EPA	EET CF
365.2/365.3/365	Phosphorus, Total	EPA	EET CF

#### Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

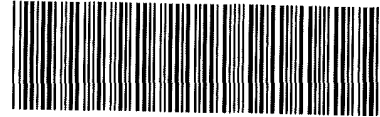
#### Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200



Environment Testing  
America



310-254660 Chain of Custody

### Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>SCS</u>			
City/State:	CITY	STATE	Project:
<b>Receipt Information</b>			
Date/Time Received:	DATE <u>4/28/23</u>	TIME <u>1445</u>	Received By: <u>AM</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler ID: _____			
Multiple Coolers? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Cooler # _____ of _____			
Cooler Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Sample Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Trip Blank Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Which VOA samples are in cooler? ↓			
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>P</u>		Correction Factor (°C): <u>+0.2</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>1.5</u>		Corrected Temp (°C): <u>1.7</u>	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			









**Eurofins Cedar Falls**

3019 Venture Way  
 Cedar Falls IA 50613  
 Phone: 319-277-2401 Fax: 319-277-2425

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler: Lab PM Liechti, Meredith L		310-254660 COC		Page 1 of 1																															
Client Contact: Shipping/Receiving		Phone: E-Mail: meredith.liechti@et.eurofinsus.com		Iowa		COC No: 310-60878 1																															
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State - Iowa State Program - Iowa		Job #: 310-254660-1		Page: Page 1 of 1																															
Address: 2417 Bond Street, City: University Park State Zip IL, 60484 Phone 708-534-5200(Tel) 708-534-5211(Fax) Email:		Due Date Requested: 5/11/2023 TAT Requested (days)		<b>Analysis Requested</b>		<table border="0" style="width:100%;"> <tr> <td colspan="2"><b>Preservation Codes</b></td> </tr> <tr> <td>A HCL</td> <td>M Hexane</td> </tr> <tr> <td>B NaOH</td> <td>N None</td> </tr> <tr> <td>C Zn Acetate</td> <td>O AsNaO2</td> </tr> <tr> <td>D Nitric Acid</td> <td>P Na2O4S</td> </tr> <tr> <td>E NaHSO4</td> <td>Q Na2SO3</td> </tr> <tr> <td>F MeOH</td> <td>R Na2S2O3</td> </tr> <tr> <td>G Amchlor</td> <td>S H2SO4</td> </tr> <tr> <td>H Ascorbic Acid</td> <td>T TSP Dodecahydrate</td> </tr> <tr> <td>I Ice</td> <td>U Acetone</td> </tr> <tr> <td>J DI Water</td> <td>V MCAA</td> </tr> <tr> <td>K EDTA</td> <td>W pH 4-5</td> </tr> <tr> <td>L EDA</td> <td>Y Trizma</td> </tr> <tr> <td></td> <td>Z other (specify)</td> </tr> <tr> <td colspan="2">Other:</td> </tr> </table>		<b>Preservation Codes</b>		A HCL	M Hexane	B NaOH	N None	C Zn Acetate	O AsNaO2	D Nitric Acid	P Na2O4S	E NaHSO4	Q Na2SO3	F MeOH	R Na2S2O3	G Amchlor	S H2SO4	H Ascorbic Acid	T TSP Dodecahydrate	I Ice	U Acetone	J DI Water	V MCAA	K EDTA	W pH 4-5	L EDA	Y Trizma		Z other (specify)	Other:	
<b>Preservation Codes</b>																																					
A HCL	M Hexane																																				
B NaOH	N None																																				
C Zn Acetate	O AsNaO2																																				
D Nitric Acid	P Na2O4S																																				
E NaHSO4	Q Na2SO3																																				
F MeOH	R Na2S2O3																																				
G Amchlor	S H2SO4																																				
H Ascorbic Acid	T TSP Dodecahydrate																																				
I Ice	U Acetone																																				
J DI Water	V MCAA																																				
K EDTA	W pH 4-5																																				
L EDA	Y Trizma																																				
	Z other (specify)																																				
Other:																																					
Project Name: Heidelberg (Lehigh) Monofill Sampling-2023 Spring Site:		Project #: 31005782 SSOW#																																			
Project Name: Heidelberg (Lehigh) Monofill Sampling-2023 Spring Site:		Project #: 31005782 SSOW#																																			
Project Name: Heidelberg (Lehigh) Monofill Sampling-2023 Spring Site:		Project #: 31005782 SSOW#																																			
<b>Sample Identification - Client ID (Lab ID)</b>		<b>Sample Date</b>		<b>Sample Time</b>		<b>Sample Type (C=Comp, G=grab)</b>		<b>Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)</b>		<b>Field Filtered Sample (Yes or No)</b>		<b>Perform MS/MSD (Yes or No)</b>		<b>Local Method</b>		<b>Total Number of Containers</b>		<b>Special Instructions/Note</b>																			
MW-101R-No Purge (310-254660-1)		4/27/23		21 29 Central				Water				X				3																					
MW-102R-No Purge (310-254660-2)		4/27/23		20 42 Central				Water				X				3																					
MW-103R-No Purge (310-254660-3)		4/27/23		19 00 Central				Water				X				3																					
<p>Note: Since laboratory accreditations are subject to change Eurofins Environment Testing North Central LLC places the ownership of method analyte &amp; accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing North Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central LLC.</p>																																					
<b>Possible Hazard Identification</b>										<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>																											
Unconfirmed										<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																											
Deliverable Requested I II III, IV Other (specify)										Primary Deliverable Rank. 2																											
Special Instructions/QC Requirements																																					
Empty Kit Relinquished by:					Date					Time					Method of Shipment:																						
Relinquished by: <i>[Signature]</i>					Date/Time: 5/23 1240					Company: <i>[Signature]</i>					Date/Time: 5/23 1010																						
Relinquished by:					Date/Time:					Company:					Received by:																						
Relinquished by:					Date/Time:					Company:					Received by:																						
Custody Seals Intact: Δ Yes Δ No					Custody Seal No.					Cooler Temperature(s) °C and Other Remarks: 0.1+0.5																											



## Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-254660-1

**Login Number: 254660**

**List Source: Eurofins Cedar Falls**

**List Number: 1**

**Creator: Tucker, Sarah L**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-254660-1

**Login Number: 254660**

**List Number: 2**

**Creator: Hernandez, Stephanie**

**List Source: Eurofins Chicago**

**List Creation: 05/02/23 04:42 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# ANALYTICAL REPORT

## PREPARED FOR

Attn: Kevin Jensen

SCS Engineers

1690 All State Court

Suite 100

West Des Moines, Iowa 50265

Generated 5/22/2023 10:21:28 AM Revision 1

## JOB DESCRIPTION

Heidelberg Materials US Cement, LLC

## JOB NUMBER

310-254727-1

# Eurofins Cedar Falls

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



Generated  
5/22/2023 10:21:28 AM  
Revision 1

Authorized for release by  
Brian Graettinger, Business Unit Manager  
[Brian.Graettinger@et.eurofinsus.com](mailto:Brian.Graettinger@et.eurofinsus.com)  
Designee for  
Meredith Liechti, Service Center Manager  
[meredith.liechti@et.eurofinsus.com](mailto:meredith.liechti@et.eurofinsus.com)  
(319)277-2401



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# Case Narrative

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-254727-1

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**Job ID: 310-254727-1**

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**Laboratory: Eurofins Cedar Falls**

## Narrative

**Job Narrative  
310-254727-1**

### REVISION

The report being provided is a revision of the original report sent on 5/16/2023. The client requested that MW-101R - No Purge be updated to MW-101R - Recharge.

### **Receipt**

The sample was received on 5/1/2023 5:10 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.7°C

### **HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

### **Metals**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

### **General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



# Sample Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-254727-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-254727-1	MW-101R - Recharge	Ground Water	04/29/23 14:02	05/01/23 17:10

1

2

3

4

5

6

7

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9

10

11

12

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14

15



# Detection Summary

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-254727-1

**Client Sample ID: MW-101R - Recharge**

**Lab Sample ID: 310-254727-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.45	J	5.00	2.25	mg/L	5		9056A	Total/NA
Sulfate	67.6		5.00	2.10	mg/L	5		9056A	Total/NA
Arsenic	0.00470		0.00200	0.000530	mg/L	1		6020B	Total/NA
Calcium	83.5		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	41.7		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	5.92		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	23.2		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	380		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Ammonia	0.243		0.200	0.100	mg/L	1		350.1	Total/NA
Total Organic Carbon - Duplicates	0.910	J	1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	3.87		1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	348	F1	5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	348		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	368		50.0	34.0	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

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# Quantitation Limit Exceptions Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-254727-1

The requested project specific reporting limits listed below were less than laboratory standard quantitation limits (PQL) but greater than or equal to the laboratory method detection limits (MDL). It must be noted that results reported below lab standard quantitation limits may result in false positive/false negative values and less accurate quantitation. Routine laboratory procedures do not indicate corrective action for detections below the laboratory's PQL.

Method	Analyte	Matrix	Prep Type	Unit	Client RL	Lab PQL
SM 2340B	Total Hardness	Ground Water	Total/NA	mg/L	0.500	3.3

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-254727-1

## Client Sample ID: MW-101R - Recharge

## Lab Sample ID: 310-254727-1

Date Collected: 04/29/23 14:02

Matrix: Ground Water

Date Received: 05/01/23 17:10

### Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.45	J	5.00	2.25	mg/L			05/10/23 10:26	5
Sulfate	67.6		5.00	2.10	mg/L			05/10/23 10:26	5

### Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/03/23 08:55	05/13/23 01:17	1
Arsenic	0.00470		0.00200	0.000530	mg/L		05/03/23 08:55	05/13/23 01:17	1
Calcium	83.5		0.500	0.190	mg/L		05/03/23 08:55	05/13/23 01:17	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/03/23 08:55	05/13/23 01:17	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/03/23 08:55	05/13/23 01:17	1
Magnesium	41.7		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 01:17	1
Potassium	5.92		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 01:17	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/03/23 08:55	05/13/23 01:17	1
Sodium	23.2		1.00	0.460	mg/L		05/03/23 08:55	05/13/23 01:17	1

### Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	380		2.06	0.618	mg/L			05/08/23 08:32	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	0.243		0.200	0.100	mg/L			05/03/23 19:00	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		05/04/23 07:41	05/04/23 20:25	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			05/03/23 11:34	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		05/03/23 13:32	05/04/23 09:49	1
Total Organic Carbon - Duplicates (SW846 9060A)	0.910	J	1.00	0.470	mg/L			05/11/23 00:47	1
Total Suspended Solids (USGS I-3765-85)	3.87		1.88	0.638	mg/L			05/02/23 09:57	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	348	F1	5.00	2.50	mg/L			05/04/23 07:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	348		5.00	2.50	mg/L			05/04/23 07:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Total Dissolved Solids (SM 2540C)	368		50.0	34.0	mg/L			05/03/23 14:02	1

# Definitions/Glossary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-254727-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-254727-1

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 310-387075/3**  
**Matrix: Water**  
**Analysis Batch: 387075**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00	0.450	mg/L			05/09/23 17:18	1
Sulfate	<1.00		1.00	0.420	mg/L			05/09/23 17:18	1

**Lab Sample ID: LCS 310-387075/4**  
**Matrix: Water**  
**Analysis Batch: 387075**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.871		mg/L		99	90 - 110
Sulfate	10.0	10.90		mg/L		109	90 - 110

## Method: 6020B - Metals (ICP/MS)

**Lab Sample ID: MB 310-386164/1-A**  
**Matrix: Water**  
**Analysis Batch: 387435**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 386164**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/03/23 08:55	05/13/23 00:45	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/03/23 08:55	05/13/23 00:45	1
Calcium	<0.500		0.500	0.190	mg/L		05/03/23 08:55	05/13/23 00:45	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/03/23 08:55	05/13/23 00:45	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/03/23 08:55	05/13/23 00:45	1
Magnesium	<0.500		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 00:45	1
Potassium	<0.500		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 00:45	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/03/23 08:55	05/13/23 00:45	1
Sodium	<1.00		1.00	0.460	mg/L		05/03/23 08:55	05/13/23 00:45	1

**Lab Sample ID: LCS 310-386164/2-A**  
**Matrix: Water**  
**Analysis Batch: 387435**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 386164**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.200	0.2084		mg/L		104	80 - 120
Arsenic	0.200	0.2053		mg/L		103	80 - 120
Calcium	2.00	1.807		mg/L		90	80 - 120
Chromium	0.100	0.09660		mg/L		97	80 - 120
Lead	0.200	0.1905		mg/L		95	80 - 120
Magnesium	2.00	1.882		mg/L		94	80 - 120
Potassium	2.00	1.856		mg/L		93	80 - 120
Selenium	0.400	0.3899		mg/L		97	80 - 120
Sodium	2.00	2.055		mg/L		103	80 - 120

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-254727-1

## Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-386326/81  
 Matrix: Water  
 Analysis Batch: 386326

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	<0.200		0.200	0.100	mg/L			05/03/23 18:54	1

Lab Sample ID: LCS 310-386326/82  
 Matrix: Water  
 Analysis Batch: 386326

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	7.80	7.634		mg/L		98	90 - 110

## Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 310-386359/1-A  
 Matrix: Water  
 Analysis Batch: 386490

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 386359

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	<1.00		1.00	0.550	mg/L		05/04/23 07:41	05/04/23 20:20	1

Lab Sample ID: LCS 310-386359/2-A  
 Matrix: Water  
 Analysis Batch: 386490

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 386359

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Kjeldahl Nitrogen	4.01	3.996		mg/L		100	90 - 110

## Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 310-386239/76  
 Matrix: Water  
 Analysis Batch: 386239

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	<0.100		0.100	0.0540	mg/L			05/03/23 11:22	1

Lab Sample ID: LCS 310-386239/77  
 Matrix: Water  
 Analysis Batch: 386239

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	7.21	7.585		mg/L		105	90 - 110

## Method: 365.1 - Phosphorus, Total

Lab Sample ID: MB 310-386279/1-A  
 Matrix: Water  
 Analysis Batch: 386401

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 386279

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Phosphorus as P	<0.100		0.100	0.0620	mg/L		05/03/23 13:32	05/04/23 09:44	1

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-254727-1

## Method: 365.1 - Phosphorus, Total (Continued)

Lab Sample ID: LCS 310-386279/2-A  
 Matrix: Water  
 Analysis Batch: 386401

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 386279

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Phosphorus as P	1.00	0.9709		mg/L		97	90 - 110

## Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 500-712690/28  
 Matrix: Water  
 Analysis Batch: 712690

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	<1.00		1.00	0.470	mg/L			05/10/23 23:39	1

Lab Sample ID: LCS 500-712690/29  
 Matrix: Water  
 Analysis Batch: 712690

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Duplicates	50.0	49.69		mg/L		99	86 - 116

## Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-386089/1  
 Matrix: Water  
 Analysis Batch: 386089

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			05/02/23 09:57	1

Lab Sample ID: LCS 310-386089/2  
 Matrix: Water  
 Analysis Batch: 386089

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	95.00		mg/L		95	75 - 116

## Method: SM 2320B - Alkalinity

Lab Sample ID: MB 310-386364/1  
 Matrix: Water  
 Analysis Batch: 386364

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Bicarbonate Alkalinity as CaCO3	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Carbonate Alkalinity as CaCO3	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-254727-1

## Method: SM 2320B - Alkalinity (Continued)

**Lab Sample ID: LCS 310-386364/2**  
**Matrix: Water**  
**Analysis Batch: 386364**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3 to pH 4.5	1000	945.8		mg/L		95	90 - 110

**Lab Sample ID: 310-254727-1 MS**  
**Matrix: Ground Water**  
**Analysis Batch: 386364**

**Client Sample ID: MW-101R - Recharge**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3 to pH 4.5	348	F1	100	415.6	F1	mg/L		68	71 - 130

**Lab Sample ID: 310-254727-1 MSD**  
**Matrix: Ground Water**  
**Analysis Batch: 386364**

**Client Sample ID: MW-101R - Recharge**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Alkalinity as CaCO3 to pH 4.5	348	F1	100	403.7	F1	mg/L		56	71 - 130	3	10

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 310-386284/1**  
**Matrix: Water**  
**Analysis Batch: 386284**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0	34.0	mg/L			05/03/23 14:02	1

**Lab Sample ID: LCS 310-386284/2**  
**Matrix: Water**  
**Analysis Batch: 386284**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	926.0		mg/L		93	90 - 110



# QC Association Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-254727-1

## HPLC/IC

### Analysis Batch: 387075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254727-1	MW-101R - Recharge	Total/NA	Ground Water	9056A	
MB 310-387075/3	Method Blank	Total/NA	Water	9056A	
LCS 310-387075/4	Lab Control Sample	Total/NA	Water	9056A	

## Metals

### Prep Batch: 386164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254727-1	MW-101R - Recharge	Total/NA	Ground Water	3005A	
MB 310-386164/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-386164/2-A	Lab Control Sample	Total/NA	Water	3005A	

### Analysis Batch: 386721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254727-1	MW-101R - Recharge	Total/NA	Ground Water	SM 2340B	

### Analysis Batch: 387435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254727-1	MW-101R - Recharge	Total/NA	Ground Water	6020B	386164
MB 310-386164/1-A	Method Blank	Total/NA	Water	6020B	386164
LCS 310-386164/2-A	Lab Control Sample	Total/NA	Water	6020B	386164

## General Chemistry

### Analysis Batch: 386089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254727-1	MW-101R - Recharge	Total/NA	Ground Water	I-3765-85	
MB 310-386089/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-386089/2	Lab Control Sample	Total/NA	Water	I-3765-85	

### Analysis Batch: 386239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254727-1	MW-101R - Recharge	Total/NA	Ground Water	353.2	
MB 310-386239/76	Method Blank	Total/NA	Water	353.2	
LCS 310-386239/77	Lab Control Sample	Total/NA	Water	353.2	

### Prep Batch: 386279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254727-1	MW-101R - Recharge	Total/NA	Ground Water	365.2/365.3/365	
MB 310-386279/1-A	Method Blank	Total/NA	Water	365.2/365.3/365	
LCS 310-386279/2-A	Lab Control Sample	Total/NA	Water	365.2/365.3/365	

### Analysis Batch: 386284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254727-1	MW-101R - Recharge	Total/NA	Ground Water	SM 2540C	
MB 310-386284/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-386284/2	Lab Control Sample	Total/NA	Water	SM 2540C	

### Analysis Batch: 386326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254727-1	MW-101R - Recharge	Total/NA	Ground Water	350.1	
MB 310-386326/81	Method Blank	Total/NA	Water	350.1	

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# QC Association Summary

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-254727-1

## General Chemistry (Continued)

### Analysis Batch: 386326 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-386326/82	Lab Control Sample	Total/NA	Water	350.1	

### Prep Batch: 386359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254727-1	MW-101R - Recharge	Total/NA	Ground Water	351.2	
MB 310-386359/1-A	Method Blank	Total/NA	Water	351.2	
LCS 310-386359/2-A	Lab Control Sample	Total/NA	Water	351.2	

### Analysis Batch: 386364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254727-1	MW-101R - Recharge	Total/NA	Ground Water	SM 2320B	
MB 310-386364/1	Method Blank	Total/NA	Water	SM 2320B	
LCS 310-386364/2	Lab Control Sample	Total/NA	Water	SM 2320B	
310-254727-1 MS	MW-101R - Recharge	Total/NA	Ground Water	SM 2320B	
310-254727-1 MSD	MW-101R - Recharge	Total/NA	Ground Water	SM 2320B	

### Analysis Batch: 386401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254727-1	MW-101R - Recharge	Total/NA	Ground Water	365.1	386279
MB 310-386279/1-A	Method Blank	Total/NA	Water	365.1	386279
LCS 310-386279/2-A	Lab Control Sample	Total/NA	Water	365.1	386279

### Analysis Batch: 386490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254727-1	MW-101R - Recharge	Total/NA	Ground Water	351.2	386359
MB 310-386359/1-A	Method Blank	Total/NA	Water	351.2	386359
LCS 310-386359/2-A	Lab Control Sample	Total/NA	Water	351.2	386359

### Analysis Batch: 712690

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254727-1	MW-101R - Recharge	Total/NA	Ground Water	9060A	
MB 500-712690/28	Method Blank	Total/NA	Water	9060A	
LCS 500-712690/29	Lab Control Sample	Total/NA	Water	9060A	

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-254727-1

**Client Sample ID: MW-101R - Recharge**

**Lab Sample ID: 310-254727-1**

**Date Collected: 04/29/23 14:02**

**Matrix: Ground Water**

**Date Received: 05/01/23 17:10**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	387075	QTZ5	EET CF	05/10/23 10:26
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		1	387435	ZRI4	EET CF	05/13/23 01:17
Total/NA	Analysis	SM 2340B		1	386721	HE7K	EET CF	05/08/23 08:32
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 19:00
Total/NA	Prep	351.2			386359	W9YR	EET CF	05/04/23 07:41
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:25
Total/NA	Analysis	353.2		1	386239	HE7K	EET CF	05/03/23 11:34
Total/NA	Prep	365.2/365.3/365			386279	MAQ3	EET CF	05/03/23 13:32
Total/NA	Analysis	365.1		1	386401	ENB7	EET CF	05/04/23 09:49
Total/NA	Analysis	9060A		1	712690	BC	EET CHI	05/11/23 00:47
Total/NA	Analysis	I-3765-85		1	386089	DGU1	EET CF	05/02/23 09:57
Total/NA	Analysis	SM 2320B		1	386364	MAQ3	EET CF	05/04/23 07:55
Total/NA	Analysis	SM 2540C		1	386284	ENB7	EET CF	05/03/23 14:02

**Laboratory References:**

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

# Accreditation/Certification Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-254727-1

## Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

## Laboratory: Eurofins Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	082	05-01-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9060A		Ground Water	Total Organic Carbon - Duplicates



# Method Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-254727-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
SM 2340B	Total Hardness (as CaCO <sub>3</sub> ) by calculation	SM	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
351.2	Nitrogen, Total Kjeldahl	EPA	EET CF
353.2	Nitrogen, Nitrate-Nitrite	EPA	EET CF
365.1	Phosphorus, Total	EPA	EET CF
9060A	Organic Carbon, Total (TOC)	SW846	EET CHI
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 2320B	Alkalinity	SM	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
351.2	Nitrogen, Total Kjeldahl	EPA	EET CF
365.2/365.3/365	Phosphorus, Total	EPA	EET CF

#### Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

#### Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200



Environment Testing  
America



310-254727 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>SCS Engineers</u>			
City/State:	CITY <u>Mason City</u>	STATE <u>IA</u>	Project: <u>Monofill</u>
<b>Receipt Information</b>			
Date/Time Received:	DATE <u>5-1-23</u>	TIME <u>1710</u>	Received By: <u>HED</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: <u>AA-51</u>	
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # ____ of ____	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>T</u>		Correction Factor (°C): <u>+0.1</u>	
• <b>Temp Blank Temperature</b> - If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>0.6</u>		Corrected Temp (°C): <u>0.7</u>	
• <b>Sample Container Temperature</b>			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			

**Eurofins Environment Testing North Central, LLC**



3019 Venture Way, Cedar Falls, Iowa 50613  
Phone 319-277-2401  
Direct 319-595-2013

SAMPLER Cheal DentHiger  
SITE NAME Heidelberg Materials US Cement LLC - Monofill  
ADDRESS \_\_\_\_\_  
CITY/STATE/ZIP Mason City, IA  
TELEPHONE NUMBER \_\_\_\_\_ FAX: \_\_\_\_\_  
SIGNATURE Cheal DentHiger

REPORT TO Kevin Jensen (kjensen@scsengineers.com)  
COMPANY NAME SCS Engineers  
PROJECT NAME Heidelberg (Lehigh) Monofill Sampling - 2023 Spring  
PROJECT NUMBER Heidelberg Monofill - 27223180  
ADDRESS 1690 All-State Court, Suite 100  
CITY/STATE/ZIP West Des Moines IA 50265

Sample ID	Date Sampled	Time Sampled	# of Containers Shipped	Grab	Composite	Field Filtered	Ice	HNO3 (Red & White Label)	HCl (Blue & White Label)	NaOH (Orange & White Label)	H2SO4 Plastic (Yellow & White Label)	H2SO4 Glass (Yellow & White Label)	None (Yellow & White Label)	Other (Black & White Label)	Matrix							Analyze For:								
															Other (Specify)	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (Specify) Lab grade water	Total Alkalinity	Ammonia Nitrogen	Chloride	Hardness	Nitrate/Nitrite	Total Phosphorus	Sulfate	Total Dissolved Solids	Total Kjeldahl Nitrogen
MW-101R No Purge	4-29	14:03		X			X								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-102R No Purge				X			X									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-103R - No Purge				X			X									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-101R Recharge				X			X									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-102R Recharge				X			X									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW 103R Recharge				X			X									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

SAMPLING COMMENTS: SHIPPED VIA \_\_\_\_\_

Retinquished by: 	Date: 5-1-23	Time: 14:00	Received by:	Date:	Time:
Retinquished for job by: 	Date: 5-1-23	Time: 17:10	Temperature Upon Receipt:	Date:	Time:

LABORATORY COMMENTS:



# Eurofins Environment Testing North Central, LLC

3019 Venture Way, Cedar Falls, Iowa 50613

Phone 319-277-2401

Direct 319-595-2013

REPORT TO  
 Kevin Jensen (kjensen@scsengineers.com)

COMPANY NAME  
 SCS Engineers

PROJECT NAME  
 Heidelberg (Lehigh) Monofill Sampling - 2023 Spring

PROJECT NUMBER  
 Heidelberg Monofill - 27223180

ADDRESS  
 1690 All-State Court, Suite 100

CITY/STATE/ZIP  
 West Des Moines IA 50265


SAMPLER:  
 Chad Pentecost

SITE NAME  
 Heidelberg Materials US Cement, LLC - Monofill

ADDRESS  
 Mason City, IA

CITY/STATE/ZIP  
 Mason City, IA

TELEPHONE NUMBER  
 Fax:

SIGNATURE:  


SAMPLE ID  
 MW-101R - No Purge

MW-102R - No Purge

MW-103R - No Purge

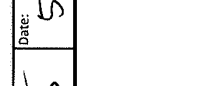

MW-101R - Recharge

MW-102R - Recharge

MW-103R - Recharge

Sample ID	Date Sampled	Time Sampled	# of Containers Shipped	Grab	Composite	Field Filtered	Ice	HNO <sub>3</sub> (Red & White Label)	HCl (Blue & White Label)	NaOH (Orange & White Label)	H <sub>2</sub> SO <sub>4</sub> Plastic (Yellow & White Label)	H <sub>2</sub> O <sub>2</sub> Glass (Yellow & White Label)	None (Yellow & White Label)	Other (Specify)	Matrix						Analyze For																	
															Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (Specify) Lab grade water	Total Aluminum	Total Arsenic	Total Calcium	Total Chromium	Total Lead	Total Magnesium	Total Potassium	Total Selenium	Total Sodium									
MW-101R - No Purge	4-29	14:02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
MW-102R - No Purge			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
MW-103R - No Purge			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
MW-101R - Recharge			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-102R - Recharge			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-103R - Recharge			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

SAMPLING COMMENTS  
 SHIPPED VIA

Relinquished by 	Date: 5-1-23	Time: 14:00	Received by:	Date:	Time:	Relinquished by:	Date:	Time:	
Received for job by 	Date: 5-1-23	Time: 17:10	Temperature Upon Receipt:	LABORATORY COMMENTS:					





**Eurofins Cedar Falls**

3019 Venture Way  
 Cedar Falls IA 50613  
 Phone 319-277-2401 Fax: 319-277-2425

**Chain of Custody Record**



Environment Test ing

<b>Client Information (Sub Contract Lab)</b>			Sampler:		Lab PM: Liechti Meredith L		310-254727 COC		lo(s).		COC No: 310-60904 1	
Client Contact:			Phone:		E-Mail: meredith.liechti@et.eurofinsus.com		Iowa				Page: Page 1 of 1	
Shipping/Receiving			Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State - Iowa: State Program - Iowa						Job #: 310-254727-1	
Address: 2417 Bond Street,			Due Date Requested: 5/15/2023		<b>Analysis Requested</b>						<b>Preservation Codes</b>	
City: University Park			TAT Requested (days):		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 9060A/ (MOD) Local Method		Total Number of Containers		A HCL		M Hexane	
State, Zip: IL 60484			PO #						B NaOH		N None	
Phone: 708-534-5200(Tel) 708-534-5211(Fax)			WO #						C Zn Acetate		O AsNaO2	
Email:			Project #: 31005782		D Nitric Acid		P Na2O4S		E NaHSO4		Q Na2SO3	
Project Name: Heidelberg Materials US Cement, LLC			SSOW#:		F MeOH		R Na2S2O3		G Amchlor		S H2SO4	
Site:					H Ascorbic Acid		T TSP Dodecahydrate		I Ice		U Acetone	
					J DI Water		V MCAA		K EDTA		W pH 4-5	
					L EDA		Y Trizma				Z other (specify)	
					Other:							
<b>Sample Identification - Client ID (Lab ID)</b>			<b>Sample Date</b>		<b>Sample Time</b>		<b>Sample Type (C=comp, G=grab)</b>		<b>Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)</b>		<b>Special Instructions/Note.</b>	
MW-101R - No Purge (310-254727-1)			4/29/23		14 02 Central		Water		X		3	

Note: Since laboratory accreditations are subject to change Eurofins Environment Testing North Central LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central LLC.

<b>Possible Hazard Identification</b>			<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>								
Unconfirmed			<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months								
Deliverable Requested I II III IV Other (specify)			Primary Deliverable Rank: 2			Special Instructions/QC Requirements					
Empty Krt Relinquished by:			Date:			Time:			Method of Shipment:		
Relinquished by: <i>[Signature]</i>			Date/Time: 5/23/23 No			Company: <i>[Signature]</i>			Date/Time: 5/13/23 1000		
Relinquished by:			Date/Time:			Company:			Date/Time:		
Relinquished by:			Date/Time:			Company:			Date/Time:		
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No			Cooler Temperature(s) °C and Other Remarks: 2.6+2.5					



# Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-254727-1

**Login Number: 254727**

**List Number: 1**

**Creator: Costello, Mackenzie K**

**List Source: Eurofins Cedar Falls**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-254727-1

**Login Number: 254727**

**List Number: 2**

**Creator: Hernandez, Stephanie**

**List Source: Eurofins Chicago**

**List Creation: 05/03/23 04:42 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# ANALYTICAL REPORT

## PREPARED FOR

Attn: Kevin Jensen  
SCS Engineers  
1690 All State Court  
Suite 100  
West Des Moines, Iowa 50265

Generated 5/19/2023 12:34:36 PM

## JOB DESCRIPTION

Heidelberg (Lehigh) Monofill Sampling-2023 Spring

## JOB NUMBER

310-254728-1

# Eurofins Cedar Falls

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



Generated  
5/19/2023 12:34:36 PM

Authorized for release by  
Meredith Liechti, Service Center Manager  
[meredith.liechti@et.eurofinsus.com](mailto:meredith.liechti@et.eurofinsus.com)  
(319)277-2401



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# Case Narrative

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

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**Job ID: 310-254728-1**

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**Laboratory: Eurofins Cedar Falls**

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**Narrative**

**Job Narrative  
310-254728-1**

**Receipt**

The samples were received on 5/1/2023 5:10 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were -0.3°C, 0.7°C, 1.4°C and 1.5°C

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**Metals**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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# Sample Summary

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023  
Spring

Job ID: 310-254728-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-254728-1	MW-201	Ground Water	04/29/23 13:04	05/01/23 17:10
310-254728-2	MW-202R	Ground Water	04/28/23 19:44	05/01/23 17:10
310-254728-3	MW-203R	Ground Water	04/28/23 11:09	05/01/23 17:10
310-254728-4	MW-204	Ground Water	04/29/23 11:56	05/01/23 17:10
310-254728-5	MW-205	Ground Water	04/28/23 18:06	05/01/23 17:10
310-254728-6	MW-206	Ground Water	04/28/23 18:56	05/01/23 17:10
310-254728-7	LDR-1	Ground Water	04/28/23 16:45	05/01/23 17:10
310-254728-8	LDR-2	Ground Water	04/28/23 14:16	05/01/23 17:10
310-254728-9	LDR-3	Ground Water	04/28/23 15:25	05/01/23 17:10
310-254728-10	SW-1	Ground Water	04/29/23 11:15	05/01/23 17:10
310-254728-11	MW-D	Ground Water	04/29/23 11:56	05/01/23 17:10



## Detection Summary

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

### Client Sample ID: MW-201

### Lab Sample ID: 310-254728-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	28.5		5.00	2.25	mg/L	5		9056A	Total/NA
Sulfate	147		5.00	2.10	mg/L	5		9056A	Total/NA
Calcium	68.2		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	51.2		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	27.4		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	26.2		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	381		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Nitrate Nitrite as N	0.478		0.100	0.0540	mg/L	1		353.2	Total/NA
Total Organic Carbon - Duplicates	1.34		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	3.75		1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	325		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	325		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	500		50.0	34.0	mg/L	1		SM 2540C	Total/NA

### Client Sample ID: MW-202R

### Lab Sample ID: 310-254728-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	16.1		5.00	2.25	mg/L	5		9056A	Total/NA
Sulfate	103		5.00	2.10	mg/L	5		9056A	Total/NA
Calcium	71.4		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	51.4		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	6.73		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	22.8		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	390		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Ammonia	0.181	J	0.200	0.100	mg/L	1		350.1	Total/NA
Total Organic Carbon - Duplicates	1.01		1.00	0.470	mg/L	1		9060A	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	324		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	324		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	398		50.0	34.0	mg/L	1		SM 2540C	Total/NA

### Client Sample ID: MW-203R

### Lab Sample ID: 310-254728-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	3.93	J	5.00	2.25	mg/L	5		9056A	Total/NA
Sulfate	3.27	J	5.00	2.10	mg/L	5		9056A	Total/NA
Calcium	70.7		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	32.5		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	5.11		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	16.3		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	310		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Ammonia	0.279		0.200	0.100	mg/L	1		350.1	Total/NA
Total Organic Carbon - Duplicates	1.02		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	2.13		1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	333		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	333		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	272		50.0	34.0	mg/L	1		SM 2540C	Total/NA

### Client Sample ID: MW-204

### Lab Sample ID: 310-254728-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	22.7		5.00	2.25	mg/L	5		9056A	Total/NA
Sulfate	165		5.00	2.10	mg/L	5		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

# Detection Summary

Client: SCS Engineers

Job ID: 310-254728-1

Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

## Client Sample ID: MW-204 (Continued)

Lab Sample ID: 310-254728-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	102		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	51.2		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	9.96		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	18.4		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	466		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Ammonia	0.313		0.200	0.100	mg/L	1		350.1	Total/NA
Total Organic Carbon - Duplicates	1.10		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	1.13	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	323		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	323		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	532		50.0	34.0	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW-205

Lab Sample ID: 310-254728-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.68	J	5.00	2.25	mg/L	5		9056A	Total/NA
Sulfate	18.0		5.00	2.10	mg/L	5		9056A	Total/NA
Calcium	73.0		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	34.2		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	5.51		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	16.6		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	323		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Ammonia	0.263		0.200	0.100	mg/L	1		350.1	Total/NA
Total Organic Carbon - Duplicates	0.910	J	1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	1.25	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	330		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	330		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	294		50.0	34.0	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW-206

Lab Sample ID: 310-254728-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.56	J	5.00	2.25	mg/L	5		9056A	Total/NA
Sulfate	28.3		5.00	2.10	mg/L	5		9056A	Total/NA
Calcium	79.2		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	37.0		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	6.35		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	16.9		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	350		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Nitrate Nitrite as N	0.0877	J	0.100	0.0540	mg/L	1		353.2	Total/NA
Total Organic Carbon - Duplicates	0.897	J	1.00	0.470	mg/L	1		9060A	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	352		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	352		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	322		50.0	34.0	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: LDR-1

Lab Sample ID: 310-254728-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	34.0		20.0	9.00	mg/L	20		9056A	Total/NA
Sulfate	1720		20.0	8.40	mg/L	20		9056A	Total/NA
Aluminum	0.0239	J	0.0500	0.0170	mg/L	1		6020B	Total/NA
Calcium	224		0.500	0.190	mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

## Detection Summary

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

### Client Sample ID: LDR-1 (Continued)

### Lab Sample ID: 310-254728-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Magnesium	232		2.00	0.600	mg/L	4		6020B	Total/NA
Potassium	23.1		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	13.4		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	1510		8.24	2.47	mg/L	1		SM 2340B	Total/NA
Nitrate Nitrite as N	0.115		0.100	0.0540	mg/L	1		353.2	Total/NA
Total Organic Carbon - Duplicates	1.06		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	22.4		1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	554		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	554		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	2650		250	170	mg/L	1		SM 2540C	Total/NA

### Client Sample ID: LDR-2

### Lab Sample ID: 310-254728-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	158		50.0	22.5	mg/L	50		9056A	Total/NA
Sulfate	1480		50.0	21.0	mg/L	50		9056A	Total/NA
Calcium	207		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	214		2.00	0.600	mg/L	4		6020B	Total/NA
Potassium	37.5		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	31.8		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	1400		8.24	2.47	mg/L	1		SM 2340B	Total/NA
Total Organic Carbon - Duplicates	1.43		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	2.63		1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	587		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	587		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	2640		250	170	mg/L	1		SM 2540C	Total/NA

### Client Sample ID: LDR-3

### Lab Sample ID: 310-254728-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	508		50.0	22.5	mg/L	50		9056A	Total/NA
Sulfate	2340		50.0	21.0	mg/L	50		9056A	Total/NA
Aluminum	0.0466	J	0.0500	0.0170	mg/L	1		6020B	Total/NA
Arsenic	0.00105	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Calcium	679		2.50	0.950	mg/L	5		6020B	Total/NA
Chromium	0.00384	J	0.00500	0.00110	mg/L	1		6020B	Total/NA
Lead	0.000431	J	0.000500	0.000240	mg/L	1		6020B	Total/NA
Magnesium	333		2.50	0.750	mg/L	5		6020B	Total/NA
Potassium	262		2.50	0.750	mg/L	5		6020B	Total/NA
Sodium	107		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	3070		10.3	3.09	mg/L	1		SM 2340B	Total/NA
Nitrate Nitrite as N	0.491		0.100	0.0540	mg/L	1		353.2	Total/NA
Total Organic Carbon - Duplicates	1.78		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	14.1		1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	611		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	611		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	4190		250	170	mg/L	1		SM 2540C	Total/NA

### Client Sample ID: SW-1

### Lab Sample ID: 310-254728-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	56.6		5.00	2.25	mg/L	5		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

## Detection Summary

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

### Client Sample ID: SW-1 (Continued)

Lab Sample ID: 310-254728-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	189		5.00	2.10	mg/L	5		9056A	Total/NA
Aluminum	0.0216	J	0.0500	0.0170	mg/L	1		6020B	Total/NA
Arsenic	0.00132	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Calcium	33.3		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	16.1		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	211		2.00	0.600	mg/L	4		6020B	Total/NA
Sodium	10.7		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	149		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Total Kjeldahl Nitrogen	1.01		1.00	0.550	mg/L	1		351.2	Total/NA
Nitrate Nitrite as N	0.296		0.100	0.0540	mg/L	1		353.2	Total/NA
Total Organic Carbon - Duplicates	6.80		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	10.6		3.00	1.02	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO <sub>3</sub> to pH 4.5	183		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO <sub>3</sub>	183		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	582		50.0	34.0	mg/L	1		SM 2540C	Total/NA

### Client Sample ID: MW-D

Lab Sample ID: 310-254728-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	22.0		5.00	2.25	mg/L	5		9056A	Total/NA
Sulfate	162		5.00	2.10	mg/L	5		9056A	Total/NA
Calcium	104		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	50.7		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	10.3		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	18.0		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	468		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Ammonia	0.297		0.200	0.100	mg/L	1		350.1	Total/NA
Total Organic Carbon - Duplicates	1.10		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	1.13	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO <sub>3</sub> to pH 4.5	333		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO <sub>3</sub>	333		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	546		50.0	34.0	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

# Quantitation Limit Exceptions Summary

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

The requested project specific reporting limits listed below were less than laboratory standard quantitation limits (PQL) but greater than or equal to the laboratory method detection limits (MDL). It must be noted that results reported below lab standard quantitation limits may result in false positive/false negative values and less accurate quantitation. Routine laboratory procedures do not indicate corrective action for detections below the laboratory's PQL.

Method	Analyte	Matrix	Prep Type	Unit	Client RL	Lab PQL
SM 2340B	Total Hardness	Ground Water	Total/NA	mg/L	0.500	3.3

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: MW-201**

**Lab Sample ID: 310-254728-1**

Date Collected: 04/29/23 13:04

Matrix: Ground Water

Date Received: 05/01/23 17:10

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	28.5		5.00	2.25	mg/L			05/10/23 10:42	5
Sulfate	147		5.00	2.10	mg/L			05/10/23 10:42	5

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/03/23 08:55	05/13/23 01:38	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/03/23 08:55	05/13/23 01:38	1
Calcium	68.2		0.500	0.190	mg/L		05/03/23 08:55	05/13/23 01:38	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/03/23 08:55	05/13/23 01:38	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/03/23 08:55	05/13/23 01:38	1
Magnesium	51.2		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 01:38	1
Potassium	27.4		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 01:38	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/03/23 08:55	05/13/23 01:38	1
Sodium	26.2		1.00	0.460	mg/L		05/03/23 08:55	05/13/23 01:38	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	381		2.06	0.618	mg/L			05/08/23 08:32	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			05/03/23 19:01	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		05/04/23 07:39	05/04/23 20:19	1
Nitrate Nitrite as N (EPA 353.2)	0.478		0.100	0.0540	mg/L			05/03/23 11:35	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		05/03/23 13:04	05/04/23 09:13	1
Total Organic Carbon - Duplicates (SW846 9060A)	1.34		1.00	0.470	mg/L			05/11/23 01:05	1
Total Suspended Solids (USGS I-3765-85)	3.75		1.88	0.638	mg/L			05/02/23 09:57	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	325		5.00	2.50	mg/L			05/04/23 07:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	325		5.00	2.50	mg/L			05/04/23 07:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Total Dissolved Solids (SM 2540C)	500		50.0	34.0	mg/L			05/03/23 14:02	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: MW-202R**

**Lab Sample ID: 310-254728-2**

Date Collected: 04/28/23 19:44

Matrix: Ground Water

Date Received: 05/01/23 17:10

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16.1		5.00	2.25	mg/L			05/10/23 10:57	5
Sulfate	103		5.00	2.10	mg/L			05/10/23 10:57	5

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/03/23 08:55	05/13/23 01:41	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/03/23 08:55	05/13/23 01:41	1
Calcium	71.4		0.500	0.190	mg/L		05/03/23 08:55	05/13/23 01:41	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/03/23 08:55	05/13/23 01:41	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/03/23 08:55	05/13/23 01:41	1
Magnesium	51.4		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 01:41	1
Potassium	6.73		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 01:41	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/03/23 08:55	05/13/23 01:41	1
Sodium	22.8		1.00	0.460	mg/L		05/03/23 08:55	05/13/23 01:41	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	390		2.06	0.618	mg/L			05/08/23 08:32	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	0.181	J	0.200	0.100	mg/L			05/03/23 19:03	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		05/04/23 07:41	05/04/23 20:29	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			05/03/23 11:37	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		05/03/23 13:04	05/04/23 09:13	1
Total Organic Carbon - Duplicates (SW846 9060A)	1.01		1.00	0.470	mg/L			05/11/23 01:51	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88	0.638	mg/L			05/02/23 09:57	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	324		5.00	2.50	mg/L			05/04/23 07:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	324		5.00	2.50	mg/L			05/04/23 07:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Total Dissolved Solids (SM 2540C)	398		50.0	34.0	mg/L			05/03/23 14:02	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: MW-203R**

**Lab Sample ID: 310-254728-3**

Date Collected: 04/28/23 11:09

Matrix: Ground Water

Date Received: 05/01/23 17:10

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.93	J	5.00	2.25	mg/L			05/10/23 11:13	5
Sulfate	3.27	J	5.00	2.10	mg/L			05/10/23 11:13	5

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/03/23 08:55	05/13/23 01:45	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/03/23 08:55	05/13/23 01:45	1
Calcium	70.7		0.500	0.190	mg/L		05/03/23 08:55	05/13/23 01:45	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/03/23 08:55	05/13/23 01:45	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/03/23 08:55	05/13/23 01:45	1
Magnesium	32.5		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 01:45	1
Potassium	5.11		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 01:45	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/03/23 08:55	05/13/23 01:45	1
Sodium	16.3		1.00	0.460	mg/L		05/03/23 08:55	05/13/23 01:45	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	310		2.06	0.618	mg/L			05/08/23 08:32	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	0.279		0.200	0.100	mg/L			05/03/23 19:04	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		05/04/23 07:39	05/04/23 20:17	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			05/03/23 11:39	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		05/03/23 13:04	05/04/23 09:14	1
Total Organic Carbon - Duplicates (SW846 9060A)	1.02		1.00	0.470	mg/L			05/11/23 02:09	1
Total Suspended Solids (USGS I-3765-85)	2.13		1.88	0.638	mg/L			05/02/23 09:57	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	333		5.00	2.50	mg/L			05/04/23 07:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	333		5.00	2.50	mg/L			05/04/23 07:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Total Dissolved Solids (SM 2540C)	272		50.0	34.0	mg/L			05/03/23 14:02	1



# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: MW-204**

**Lab Sample ID: 310-254728-4**

Date Collected: 04/29/23 11:56

Matrix: Ground Water

Date Received: 05/01/23 17:10

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	22.7		5.00	2.25	mg/L			05/10/23 11:28	5
Sulfate	165		5.00	2.10	mg/L			05/10/23 11:28	5

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/03/23 08:55	05/13/23 01:48	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/03/23 08:55	05/13/23 01:48	1
Calcium	102		0.500	0.190	mg/L		05/03/23 08:55	05/13/23 01:48	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/03/23 08:55	05/13/23 01:48	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/03/23 08:55	05/13/23 01:48	1
Magnesium	51.2		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 01:48	1
Potassium	9.96		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 01:48	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/03/23 08:55	05/13/23 01:48	1
Sodium	18.4		1.00	0.460	mg/L		05/03/23 08:55	05/13/23 01:48	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	466		2.06	0.618	mg/L			05/08/23 08:32	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	0.313		0.200	0.100	mg/L			05/03/23 19:05	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		05/04/23 07:39	05/04/23 20:16	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			05/03/23 11:40	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		05/03/23 13:04	05/04/23 09:14	1
Total Organic Carbon - Duplicates (SW846 9060A)	1.10		1.00	0.470	mg/L			05/11/23 02:26	1
Total Suspended Solids (USGS I-3765-85)	1.13 J		1.88	0.638	mg/L			05/02/23 09:57	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	323		5.00	2.50	mg/L			05/04/23 07:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	323		5.00	2.50	mg/L			05/04/23 07:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Total Dissolved Solids (SM 2540C)	532		50.0	34.0	mg/L			05/03/23 15:03	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: MW-205**

**Lab Sample ID: 310-254728-5**

Date Collected: 04/28/23 18:06

Matrix: Ground Water

Date Received: 05/01/23 17:10

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.68	J	5.00	2.25	mg/L			05/10/23 11:44	5
Sulfate	18.0		5.00	2.10	mg/L			05/10/23 11:44	5

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/03/23 08:55	05/13/23 01:52	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/03/23 08:55	05/13/23 01:52	1
Calcium	73.0		0.500	0.190	mg/L		05/03/23 08:55	05/13/23 01:52	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/03/23 08:55	05/13/23 01:52	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/03/23 08:55	05/13/23 01:52	1
Magnesium	34.2		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 01:52	1
Potassium	5.51		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 01:52	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/03/23 08:55	05/13/23 01:52	1
Sodium	16.6		1.00	0.460	mg/L		05/03/23 08:55	05/13/23 01:52	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	323		2.06	0.618	mg/L			05/08/23 08:32	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	0.263		0.200	0.100	mg/L			05/03/23 19:06	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		05/04/23 07:41	05/04/23 20:29	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			05/03/23 11:42	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		05/03/23 13:04	05/04/23 09:11	1
Total Organic Carbon - Duplicates (SW846 9060A)	0.910	J	1.00	0.470	mg/L			05/11/23 02:44	1
Total Suspended Solids (USGS I-3765-85)	1.25	J	1.88	0.638	mg/L			05/02/23 09:57	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	330		5.00	2.50	mg/L			05/04/23 07:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	330		5.00	2.50	mg/L			05/04/23 07:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Total Dissolved Solids (SM 2540C)	294		50.0	34.0	mg/L			05/03/23 15:03	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: MW-206**

**Lab Sample ID: 310-254728-6**

Date Collected: 04/28/23 18:56

Matrix: Ground Water

Date Received: 05/01/23 17:10

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.56	J	5.00	2.25	mg/L			05/10/23 11:59	5
Sulfate	28.3		5.00	2.10	mg/L			05/10/23 11:59	5

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/03/23 08:55	05/13/23 01:55	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/03/23 08:55	05/13/23 01:55	1
Calcium	79.2		0.500	0.190	mg/L		05/03/23 08:55	05/13/23 01:55	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/03/23 08:55	05/13/23 01:55	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/03/23 08:55	05/13/23 01:55	1
Magnesium	37.0		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 01:55	1
Potassium	6.35		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 01:55	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/03/23 08:55	05/13/23 01:55	1
Sodium	16.9		1.00	0.460	mg/L		05/03/23 08:55	05/13/23 01:55	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	350		2.06	0.618	mg/L			05/08/23 08:32	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			05/03/23 19:06	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		05/04/23 07:41	05/04/23 20:30	1
Nitrate Nitrite as N (EPA 353.2)	0.0877	J	0.100	0.0540	mg/L			05/03/23 11:43	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		05/03/23 13:04	05/04/23 09:15	1
Total Organic Carbon - Duplicates (SW846 9060A)	0.897	J	1.00	0.470	mg/L			05/11/23 03:30	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88	0.638	mg/L			05/02/23 09:57	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	352		5.00	2.50	mg/L			05/04/23 07:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	352		5.00	2.50	mg/L			05/04/23 07:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Total Dissolved Solids (SM 2540C)	322		50.0	34.0	mg/L			05/03/23 15:03	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: LDR-1**

**Lab Sample ID: 310-254728-7**

Date Collected: 04/28/23 16:45

Matrix: Ground Water

Date Received: 05/01/23 17:10

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	34.0		20.0	9.00	mg/L			05/10/23 12:15	20
Sulfate	1720		20.0	8.40	mg/L			05/10/23 12:15	20

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.0239	J	0.0500	0.0170	mg/L		05/03/23 08:55	05/13/23 02:10	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/03/23 08:55	05/13/23 02:10	1
Calcium	224		0.500	0.190	mg/L		05/03/23 08:55	05/13/23 02:10	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/03/23 08:55	05/13/23 02:10	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/03/23 08:55	05/13/23 02:10	1
Magnesium	232		2.00	0.600	mg/L		05/03/23 08:55	05/17/23 16:18	4
Potassium	23.1		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 02:10	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/03/23 08:55	05/13/23 02:10	1
Sodium	13.4		1.00	0.460	mg/L		05/03/23 08:55	05/13/23 02:10	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	1510		8.24	2.47	mg/L			05/08/23 08:32	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			05/03/23 19:08	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		05/04/23 07:39	05/04/23 20:19	1
Nitrate Nitrite as N (EPA 353.2)	0.115		0.100	0.0540	mg/L			05/03/23 11:45	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		05/03/23 13:04	05/04/23 09:12	1
Total Organic Carbon - Duplicates (SW846 9060A)	1.06		1.00	0.470	mg/L			05/11/23 03:48	1
Total Suspended Solids (USGS I-3765-85)	22.4		1.88	0.638	mg/L			05/02/23 09:57	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	554		5.00	2.50	mg/L			05/04/23 07:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	554		5.00	2.50	mg/L			05/04/23 07:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Total Dissolved Solids (SM 2540C)	2650		250	170	mg/L			05/03/23 15:03	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: LDR-2**

**Lab Sample ID: 310-254728-8**

Date Collected: 04/28/23 14:16

Matrix: Ground Water

Date Received: 05/01/23 17:10

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	158		50.0	22.5	mg/L			05/10/23 12:31	50
Sulfate	1480		50.0	21.0	mg/L			05/10/23 12:31	50

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/03/23 08:55	05/13/23 02:37	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/03/23 08:55	05/13/23 02:37	1
Calcium	207		0.500	0.190	mg/L		05/03/23 08:55	05/13/23 02:37	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/03/23 08:55	05/13/23 02:37	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/03/23 08:55	05/13/23 02:37	1
Magnesium	214		2.00	0.600	mg/L		05/03/23 08:55	05/17/23 16:22	4
Potassium	37.5		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 02:37	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/03/23 08:55	05/13/23 02:37	1
Sodium	31.8		1.00	0.460	mg/L		05/03/23 08:55	05/13/23 02:37	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	1400		8.24	2.47	mg/L			05/08/23 08:32	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			05/03/23 19:08	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		05/04/23 07:39	05/04/23 20:16	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			05/03/23 11:47	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		05/03/23 13:04	05/04/23 09:15	1
Total Organic Carbon - Duplicates (SW846 9060A)	1.43		1.00	0.470	mg/L			05/11/23 04:06	1
Total Suspended Solids (USGS I-3765-85)	2.63		1.88	0.638	mg/L			05/02/23 09:57	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	587		5.00	2.50	mg/L			05/04/23 07:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	587		5.00	2.50	mg/L			05/04/23 07:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Total Dissolved Solids (SM 2540C)	2640		250	170	mg/L			05/03/23 15:03	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: LDR-3**

**Lab Sample ID: 310-254728-9**

Date Collected: 04/28/23 15:25

Matrix: Ground Water

Date Received: 05/01/23 17:10

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	508		50.0	22.5	mg/L			05/10/23 13:17	50
Sulfate	2340		50.0	21.0	mg/L			05/10/23 13:17	50

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.0466	J	0.0500	0.0170	mg/L		05/03/23 08:55	05/13/23 02:40	1
Arsenic	0.00105	J	0.00200	0.000530	mg/L		05/03/23 08:55	05/13/23 02:40	1
Calcium	679		2.50	0.950	mg/L		05/03/23 08:55	05/17/23 16:25	5
Chromium	0.00384	J	0.00500	0.00110	mg/L		05/03/23 08:55	05/13/23 02:40	1
Lead	0.000431	J	0.000500	0.000240	mg/L		05/03/23 08:55	05/13/23 02:40	1
Magnesium	333		2.50	0.750	mg/L		05/03/23 08:55	05/17/23 16:25	5
Potassium	262		2.50	0.750	mg/L		05/03/23 08:55	05/17/23 16:25	5
Selenium	<0.00500		0.00500	0.00140	mg/L		05/03/23 08:55	05/13/23 02:40	1
Sodium	107		1.00	0.460	mg/L		05/03/23 08:55	05/13/23 02:40	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	3070		10.3	3.09	mg/L			05/08/23 08:32	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			05/03/23 19:08	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		05/04/23 07:39	05/04/23 20:18	1
Nitrate Nitrite as N (EPA 353.2)	0.491		0.100	0.0540	mg/L			05/03/23 11:52	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		05/03/23 13:04	05/04/23 09:10	1
Total Organic Carbon - Duplicates (SW846 9060A)	1.78		1.00	0.470	mg/L			05/11/23 04:24	1
Total Suspended Solids (USGS I-3765-85)	14.1		1.88	0.638	mg/L			05/02/23 09:57	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	611		5.00	2.50	mg/L			05/04/23 07:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	611		5.00	2.50	mg/L			05/04/23 07:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Total Dissolved Solids (SM 2540C)	4190		250	170	mg/L			05/03/23 15:03	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: SW-1**

**Lab Sample ID: 310-254728-10**

Date Collected: 04/29/23 11:15

Matrix: Ground Water

Date Received: 05/01/23 17:10

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	56.6		5.00	2.25	mg/L			05/10/23 13:33	5
Sulfate	189		5.00	2.10	mg/L			05/10/23 13:33	5

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.0216	J	0.0500	0.0170	mg/L		05/03/23 08:55	05/13/23 03:01	1
Arsenic	0.00132	J	0.00200	0.000530	mg/L		05/03/23 08:55	05/13/23 03:01	1
Calcium	33.3		0.500	0.190	mg/L		05/03/23 08:55	05/13/23 03:01	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/03/23 08:55	05/13/23 03:01	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/03/23 08:55	05/13/23 03:01	1
Magnesium	16.1		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 03:01	1
Potassium	211		2.00	0.600	mg/L		05/03/23 08:55	05/17/23 16:27	4
Selenium	<0.00500		0.00500	0.00140	mg/L		05/03/23 08:55	05/13/23 03:01	1
Sodium	10.7		1.00	0.460	mg/L		05/03/23 08:55	05/13/23 03:01	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	149		2.06	0.618	mg/L			05/08/23 08:32	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			05/03/23 19:10	1
Total Kjeldahl Nitrogen (EPA 351.2)	1.01		1.00	0.550	mg/L		05/04/23 07:39	05/04/23 20:18	1
Nitrate Nitrite as N (EPA 353.2)	0.296		0.100	0.0540	mg/L			05/03/23 11:53	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		05/03/23 13:04	05/04/23 09:12	1
Total Organic Carbon - Duplicates (SW846 9060A)	6.80		1.00	0.470	mg/L			05/11/23 04:37	1
Total Suspended Solids (USGS I-3765-85)	10.6		3.00	1.02	mg/L			05/02/23 09:57	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	183		5.00	2.50	mg/L			05/04/23 07:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	183		5.00	2.50	mg/L			05/04/23 07:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Total Dissolved Solids (SM 2540C)	582		50.0	34.0	mg/L			05/03/23 15:03	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: MW-D**

**Lab Sample ID: 310-254728-11**

Date Collected: 04/29/23 11:56

Matrix: Ground Water

Date Received: 05/01/23 17:10

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	22.0		5.00	2.25	mg/L			05/10/23 13:49	5
Sulfate	162		5.00	2.10	mg/L			05/10/23 13:49	5

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/03/23 08:55	05/13/23 03:05	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/03/23 08:55	05/13/23 03:05	1
Calcium	104		0.500	0.190	mg/L		05/03/23 08:55	05/13/23 03:05	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/03/23 08:55	05/13/23 03:05	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/03/23 08:55	05/13/23 03:05	1
Magnesium	50.7		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 03:05	1
Potassium	10.3		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 03:05	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/03/23 08:55	05/13/23 03:05	1
Sodium	18.0		1.00	0.460	mg/L		05/03/23 08:55	05/13/23 03:05	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	468		2.06	0.618	mg/L			05/08/23 08:32	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	0.297		0.200	0.100	mg/L			05/03/23 19:10	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		05/04/23 07:39	05/04/23 20:19	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			05/03/23 11:55	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		05/03/23 13:04	05/04/23 09:13	1
Total Organic Carbon - Duplicates (SW846 9060A)	1.10		1.00	0.470	mg/L			05/11/23 04:55	1
Total Suspended Solids (USGS I-3765-85)	1.13 J		1.88	0.638	mg/L			05/02/23 09:57	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	333		5.00	2.50	mg/L			05/04/23 07:55	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	333		5.00	2.50	mg/L			05/04/23 07:55	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Total Dissolved Solids (SM 2540C)	546		50.0	34.0	mg/L			05/03/23 15:03	1



# Definitions/Glossary

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Metals

Qualifier	Qualifier Description
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

## Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-387075/3  
 Matrix: Water  
 Analysis Batch: 387075

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	<1.00		1.00	0.450	mg/L			05/09/23 17:18	1
Sulfate	<1.00		1.00	0.420	mg/L			05/09/23 17:18	1

Lab Sample ID: LCS 310-387075/4  
 Matrix: Water  
 Analysis Batch: 387075

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Chloride	10.0	9.871		mg/L		99	90 - 110
Sulfate	10.0	10.90		mg/L		109	90 - 110

## Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-386164/1-A  
 Matrix: Water  
 Analysis Batch: 387435

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 386164

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aluminum	<0.0500		0.0500	0.0170	mg/L		05/03/23 08:55	05/13/23 00:45	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/03/23 08:55	05/13/23 00:45	1
Calcium	<0.500		0.500	0.190	mg/L		05/03/23 08:55	05/13/23 00:45	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/03/23 08:55	05/13/23 00:45	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/03/23 08:55	05/13/23 00:45	1
Magnesium	<0.500		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 00:45	1
Potassium	<0.500		0.500	0.150	mg/L		05/03/23 08:55	05/13/23 00:45	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/03/23 08:55	05/13/23 00:45	1
Sodium	<1.00		1.00	0.460	mg/L		05/03/23 08:55	05/13/23 00:45	1

Lab Sample ID: LCS 310-386164/2-A  
 Matrix: Water  
 Analysis Batch: 387435

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 386164

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Aluminum	0.200	0.2084		mg/L		104	80 - 120
Arsenic	0.200	0.2053		mg/L		103	80 - 120
Calcium	2.00	1.807		mg/L		90	80 - 120
Chromium	0.100	0.09660		mg/L		97	80 - 120
Lead	0.200	0.1905		mg/L		95	80 - 120
Magnesium	2.00	1.882		mg/L		94	80 - 120
Potassium	2.00	1.856		mg/L		93	80 - 120
Selenium	0.400	0.3899		mg/L		97	80 - 120
Sodium	2.00	2.055		mg/L		103	80 - 120

Lab Sample ID: 310-254728-7 DU  
 Matrix: Ground Water  
 Analysis Batch: 387435

Client Sample ID: LDR-1  
 Prep Type: Total/NA  
 Prep Batch: 386164

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD Limit
	Result	Qualifier	Result	Qualifier				
Aluminum	0.0239	J	0.04802	J F5	mg/L		67	20
Arsenic	<0.00200		<0.00200		mg/L		NC	20

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

## Method: 6020B - Metals (ICP/MS) (Continued)

**Lab Sample ID: 310-254728-7 DU**  
**Matrix: Ground Water**  
**Analysis Batch: 387435**

**Client Sample ID: LDR-1**  
**Prep Type: Total/NA**  
**Prep Batch: 386164**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Calcium	224		221.6		mg/L		0.9	20
Chromium	<0.00500		<0.00500		mg/L		NC	20
Lead	<0.000500		<0.000500		mg/L		NC	20
Potassium	23.1		23.00		mg/L		0.6	20
Selenium	<0.00500		<0.00500		mg/L		NC	20
Sodium	13.4		13.38		mg/L		0.4	20

**Lab Sample ID: 310-254728-7 DU**  
**Matrix: Ground Water**  
**Analysis Batch: 387918**

**Client Sample ID: LDR-1**  
**Prep Type: Total/NA**  
**Prep Batch: 386164**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Magnesium	232		241.3		mg/L		4	20

## Method: 350.1 - Nitrogen, Ammonia

**Lab Sample ID: MB 310-386326/81**  
**Matrix: Water**  
**Analysis Batch: 386326**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ammonia	<0.200		0.200	0.100	mg/L			05/03/23 18:54	1

**Lab Sample ID: LCS 310-386326/82**  
**Matrix: Water**  
**Analysis Batch: 386326**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

## Method: 351.2 - Nitrogen, Total Kjeldahl

**Lab Sample ID: MB 310-386358/1-A**  
**Matrix: Water**  
**Analysis Batch: 386490**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 386358**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Kjeldahl Nitrogen	<1.00		1.00	0.550	mg/L		05/04/23 07:39	05/04/23 20:09	1

**Lab Sample ID: LCS 310-386358/2-A**  
**Matrix: Water**  
**Analysis Batch: 386490**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 386358**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

## Method: 351.2 - Nitrogen, Total Kjeldahl (Continued)

Lab Sample ID: MB 310-386359/1-A  
 Matrix: Water  
 Analysis Batch: 386490

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 386359

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	<1.00		1.00	0.550	mg/L		05/04/23 07:41	05/04/23 20:20	1

Lab Sample ID: LCS 310-386359/2-A  
 Matrix: Water  
 Analysis Batch: 386490

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 386359

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Kjeldahl Nitrogen	4.01	3.996		mg/L		100	90 - 110

## Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 310-386239/76  
 Matrix: Water  
 Analysis Batch: 386239

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	<0.100		0.100	0.0540	mg/L			05/03/23 11:22	1

Lab Sample ID: LCS 310-386239/77  
 Matrix: Water  
 Analysis Batch: 386239

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	7.21	7.585		mg/L		105	90 - 110

## Method: 365.1 - Phosphorus, Total

Lab Sample ID: MB 310-386268/1-A  
 Matrix: Water  
 Analysis Batch: 386401

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 386268

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Phosphorus as P	<0.100		0.100	0.0620	mg/L		05/03/23 13:04	05/04/23 09:04	1

Lab Sample ID: LCS 310-386268/2-A  
 Matrix: Water  
 Analysis Batch: 386401

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 386268

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Phosphorus as P	1.00	1.000		mg/L		100	90 - 110

## Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 500-712690/28  
 Matrix: Water  
 Analysis Batch: 712690

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	<1.00		1.00	0.470	mg/L			05/10/23 23:39	1

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

## Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 500-712690/29  
 Matrix: Water  
 Analysis Batch: 712690

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Duplicates	50.0	49.69		mg/L		99	86 - 116

Lab Sample ID: 310-254728-1 MS  
 Matrix: Ground Water  
 Analysis Batch: 712690

Client Sample ID: MW-201  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Duplicates	1.34		50.0	52.28		mg/L		102	75 - 125

Lab Sample ID: 310-254728-1 MSD  
 Matrix: Ground Water  
 Analysis Batch: 712690

Client Sample ID: MW-201  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	1.34		50.0	50.92		mg/L		99	75 - 125	3	20

## Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-386089/1  
 Matrix: Water  
 Analysis Batch: 386089

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			05/02/23 09:57	1

Lab Sample ID: LCS 310-386089/2  
 Matrix: Water  
 Analysis Batch: 386089

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	95.00		mg/L		95	75 - 116

Lab Sample ID: 310-254728-10 DU  
 Matrix: Ground Water  
 Analysis Batch: 386089

Client Sample ID: SW-1  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	10.6		10.80		mg/L		2	35

## Method: SM 2320B - Alkalinity

Lab Sample ID: MB 310-386364/1  
 Matrix: Water  
 Analysis Batch: 386364

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1
Bicarbonate Alkalinity as CaCO3	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

## Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MB 310-386364/1  
 Matrix: Water  
 Analysis Batch: 386364

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity as CaCO3	<5.00		5.00	2.50	mg/L			05/04/23 07:55	1

Lab Sample ID: LCS 310-386364/2  
 Matrix: Water  
 Analysis Batch: 386364

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3 to pH 4.5	1000	945.8		mg/L		95	90 - 110

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-386284/1  
 Matrix: Water  
 Analysis Batch: 386284

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0	34.0	mg/L			05/03/23 14:02	1

Lab Sample ID: LCS 310-386284/2  
 Matrix: Water  
 Analysis Batch: 386284

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	926.0		mg/L		93	90 - 110

Lab Sample ID: MB 310-386304/1  
 Matrix: Water  
 Analysis Batch: 386304

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0	34.0	mg/L			05/03/23 15:03	1

Lab Sample ID: LCS 310-386304/2  
 Matrix: Water  
 Analysis Batch: 386304

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	906.0		mg/L		91	90 - 110

Lab Sample ID: 310-254728-4 DU  
 Matrix: Ground Water  
 Analysis Batch: 386304

Client Sample ID: MW-204  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	532		534.0		mg/L		0.4	20

# QC Sample Results

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 310-254728-11 DU  
Matrix: Ground Water  
Analysis Batch: 386304

Client Sample ID: MW-D  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Dissolved Solids	546		538.0		mg/L		1	20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# QC Association Summary

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

## HPLC/IC

### Analysis Batch: 387075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-1	MW-201	Total/NA	Ground Water	9056A	
310-254728-2	MW-202R	Total/NA	Ground Water	9056A	
310-254728-3	MW-203R	Total/NA	Ground Water	9056A	
310-254728-4	MW-204	Total/NA	Ground Water	9056A	
310-254728-5	MW-205	Total/NA	Ground Water	9056A	
310-254728-6	MW-206	Total/NA	Ground Water	9056A	
310-254728-7	LDR-1	Total/NA	Ground Water	9056A	
310-254728-8	LDR-2	Total/NA	Ground Water	9056A	
310-254728-9	LDR-3	Total/NA	Ground Water	9056A	
310-254728-10	SW-1	Total/NA	Ground Water	9056A	
310-254728-11	MW-D	Total/NA	Ground Water	9056A	
MB 310-387075/3	Method Blank	Total/NA	Water	9056A	
LCS 310-387075/4	Lab Control Sample	Total/NA	Water	9056A	

## Metals

### Prep Batch: 386164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-1	MW-201	Total/NA	Ground Water	3005A	
310-254728-2	MW-202R	Total/NA	Ground Water	3005A	
310-254728-3	MW-203R	Total/NA	Ground Water	3005A	
310-254728-4	MW-204	Total/NA	Ground Water	3005A	
310-254728-5	MW-205	Total/NA	Ground Water	3005A	
310-254728-6	MW-206	Total/NA	Ground Water	3005A	
310-254728-7	LDR-1	Total/NA	Ground Water	3005A	
310-254728-8	LDR-2	Total/NA	Ground Water	3005A	
310-254728-9	LDR-3	Total/NA	Ground Water	3005A	
310-254728-10	SW-1	Total/NA	Ground Water	3005A	
310-254728-11	MW-D	Total/NA	Ground Water	3005A	
MB 310-386164/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-386164/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-254728-7 DU	LDR-1	Total/NA	Ground Water	3005A	

### Analysis Batch: 386721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-1	MW-201	Total/NA	Ground Water	SM 2340B	
310-254728-2	MW-202R	Total/NA	Ground Water	SM 2340B	
310-254728-3	MW-203R	Total/NA	Ground Water	SM 2340B	
310-254728-4	MW-204	Total/NA	Ground Water	SM 2340B	
310-254728-5	MW-205	Total/NA	Ground Water	SM 2340B	
310-254728-6	MW-206	Total/NA	Ground Water	SM 2340B	
310-254728-7	LDR-1	Total/NA	Ground Water	SM 2340B	
310-254728-8	LDR-2	Total/NA	Ground Water	SM 2340B	
310-254728-9	LDR-3	Total/NA	Ground Water	SM 2340B	
310-254728-10	SW-1	Total/NA	Ground Water	SM 2340B	
310-254728-11	MW-D	Total/NA	Ground Water	SM 2340B	

### Analysis Batch: 387435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-1	MW-201	Total/NA	Ground Water	6020B	386164
310-254728-2	MW-202R	Total/NA	Ground Water	6020B	386164

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# QC Association Summary

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

## Metals (Continued)

### Analysis Batch: 387435 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-3	MW-203R	Total/NA	Ground Water	6020B	386164
310-254728-4	MW-204	Total/NA	Ground Water	6020B	386164
310-254728-5	MW-205	Total/NA	Ground Water	6020B	386164
310-254728-6	MW-206	Total/NA	Ground Water	6020B	386164
310-254728-7	LDR-1	Total/NA	Ground Water	6020B	386164
310-254728-8	LDR-2	Total/NA	Ground Water	6020B	386164
310-254728-9	LDR-3	Total/NA	Ground Water	6020B	386164
310-254728-10	SW-1	Total/NA	Ground Water	6020B	386164
310-254728-11	MW-D	Total/NA	Ground Water	6020B	386164
MB 310-386164/1-A	Method Blank	Total/NA	Water	6020B	386164
LCS 310-386164/2-A	Lab Control Sample	Total/NA	Water	6020B	386164
310-254728-7 DU	LDR-1	Total/NA	Ground Water	6020B	386164

### Analysis Batch: 387918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-7	LDR-1	Total/NA	Ground Water	6020B	386164
310-254728-8	LDR-2	Total/NA	Ground Water	6020B	386164
310-254728-9	LDR-3	Total/NA	Ground Water	6020B	386164
310-254728-10	SW-1	Total/NA	Ground Water	6020B	386164
310-254728-7 DU	LDR-1	Total/NA	Ground Water	6020B	386164

## General Chemistry

### Analysis Batch: 386089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-1	MW-201	Total/NA	Ground Water	I-3765-85	
310-254728-2	MW-202R	Total/NA	Ground Water	I-3765-85	
310-254728-3	MW-203R	Total/NA	Ground Water	I-3765-85	
310-254728-4	MW-204	Total/NA	Ground Water	I-3765-85	
310-254728-5	MW-205	Total/NA	Ground Water	I-3765-85	
310-254728-6	MW-206	Total/NA	Ground Water	I-3765-85	
310-254728-7	LDR-1	Total/NA	Ground Water	I-3765-85	
310-254728-8	LDR-2	Total/NA	Ground Water	I-3765-85	
310-254728-9	LDR-3	Total/NA	Ground Water	I-3765-85	
310-254728-10	SW-1	Total/NA	Ground Water	I-3765-85	
310-254728-11	MW-D	Total/NA	Ground Water	I-3765-85	
MB 310-386089/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-386089/2	Lab Control Sample	Total/NA	Water	I-3765-85	
310-254728-10 DU	SW-1	Total/NA	Ground Water	I-3765-85	

### Analysis Batch: 386239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-1	MW-201	Total/NA	Ground Water	353.2	
310-254728-2	MW-202R	Total/NA	Ground Water	353.2	
310-254728-3	MW-203R	Total/NA	Ground Water	353.2	
310-254728-4	MW-204	Total/NA	Ground Water	353.2	
310-254728-5	MW-205	Total/NA	Ground Water	353.2	
310-254728-6	MW-206	Total/NA	Ground Water	353.2	
310-254728-7	LDR-1	Total/NA	Ground Water	353.2	
310-254728-8	LDR-2	Total/NA	Ground Water	353.2	
310-254728-9	LDR-3	Total/NA	Ground Water	353.2	

# QC Association Summary

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

## General Chemistry (Continued)

### Analysis Batch: 386239 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-10	SW-1	Total/NA	Ground Water	353.2	
310-254728-11	MW-D	Total/NA	Ground Water	353.2	
MB 310-386239/76	Method Blank	Total/NA	Water	353.2	
LCS 310-386239/77	Lab Control Sample	Total/NA	Water	353.2	

### Prep Batch: 386268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-1	MW-201	Total/NA	Ground Water	365.2/365.3/365	
310-254728-2	MW-202R	Total/NA	Ground Water	365.2/365.3/365	
310-254728-3	MW-203R	Total/NA	Ground Water	365.2/365.3/365	
310-254728-4	MW-204	Total/NA	Ground Water	365.2/365.3/365	
310-254728-5	MW-205	Total/NA	Ground Water	365.2/365.3/365	
310-254728-6	MW-206	Total/NA	Ground Water	365.2/365.3/365	
310-254728-7	LDR-1	Total/NA	Ground Water	365.2/365.3/365	
310-254728-8	LDR-2	Total/NA	Ground Water	365.2/365.3/365	
310-254728-9	LDR-3	Total/NA	Ground Water	365.2/365.3/365	
310-254728-10	SW-1	Total/NA	Ground Water	365.2/365.3/365	
310-254728-11	MW-D	Total/NA	Ground Water	365.2/365.3/365	
MB 310-386268/1-A	Method Blank	Total/NA	Water	365.2/365.3/365	
LCS 310-386268/2-A	Lab Control Sample	Total/NA	Water	365.2/365.3/365	

### Analysis Batch: 386284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-1	MW-201	Total/NA	Ground Water	SM 2540C	
310-254728-2	MW-202R	Total/NA	Ground Water	SM 2540C	
310-254728-3	MW-203R	Total/NA	Ground Water	SM 2540C	
MB 310-386284/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-386284/2	Lab Control Sample	Total/NA	Water	SM 2540C	

### Analysis Batch: 386304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-4	MW-204	Total/NA	Ground Water	SM 2540C	
310-254728-5	MW-205	Total/NA	Ground Water	SM 2540C	
310-254728-6	MW-206	Total/NA	Ground Water	SM 2540C	
310-254728-7	LDR-1	Total/NA	Ground Water	SM 2540C	
310-254728-8	LDR-2	Total/NA	Ground Water	SM 2540C	
310-254728-9	LDR-3	Total/NA	Ground Water	SM 2540C	
310-254728-10	SW-1	Total/NA	Ground Water	SM 2540C	
310-254728-11	MW-D	Total/NA	Ground Water	SM 2540C	
MB 310-386304/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-386304/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-254728-4 DU	MW-204	Total/NA	Ground Water	SM 2540C	
310-254728-11 DU	MW-D	Total/NA	Ground Water	SM 2540C	

### Analysis Batch: 386326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-1	MW-201	Total/NA	Ground Water	350.1	
310-254728-2	MW-202R	Total/NA	Ground Water	350.1	
310-254728-3	MW-203R	Total/NA	Ground Water	350.1	
310-254728-4	MW-204	Total/NA	Ground Water	350.1	
310-254728-5	MW-205	Total/NA	Ground Water	350.1	

# QC Association Summary

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

## General Chemistry (Continued)

### Analysis Batch: 386326 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-6	MW-206	Total/NA	Ground Water	350.1	
310-254728-7	LDR-1	Total/NA	Ground Water	350.1	
310-254728-8	LDR-2	Total/NA	Ground Water	350.1	
310-254728-9	LDR-3	Total/NA	Ground Water	350.1	
310-254728-10	SW-1	Total/NA	Ground Water	350.1	
310-254728-11	MW-D	Total/NA	Ground Water	350.1	
MB 310-386326/81	Method Blank	Total/NA	Water	350.1	
LCS 310-386326/82	Lab Control Sample	Total/NA	Water	350.1	

### Prep Batch: 386358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-1	MW-201	Total/NA	Ground Water	351.2	
310-254728-3	MW-203R	Total/NA	Ground Water	351.2	
310-254728-4	MW-204	Total/NA	Ground Water	351.2	
310-254728-7	LDR-1	Total/NA	Ground Water	351.2	
310-254728-8	LDR-2	Total/NA	Ground Water	351.2	
310-254728-9	LDR-3	Total/NA	Ground Water	351.2	
310-254728-10	SW-1	Total/NA	Ground Water	351.2	
310-254728-11	MW-D	Total/NA	Ground Water	351.2	
MB 310-386358/1-A	Method Blank	Total/NA	Water	351.2	
LCS 310-386358/2-A	Lab Control Sample	Total/NA	Water	351.2	

### Prep Batch: 386359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-2	MW-202R	Total/NA	Ground Water	351.2	
310-254728-5	MW-205	Total/NA	Ground Water	351.2	
310-254728-6	MW-206	Total/NA	Ground Water	351.2	
MB 310-386359/1-A	Method Blank	Total/NA	Water	351.2	
LCS 310-386359/2-A	Lab Control Sample	Total/NA	Water	351.2	

### Analysis Batch: 386364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-1	MW-201	Total/NA	Ground Water	SM 2320B	
310-254728-2	MW-202R	Total/NA	Ground Water	SM 2320B	
310-254728-3	MW-203R	Total/NA	Ground Water	SM 2320B	
310-254728-4	MW-204	Total/NA	Ground Water	SM 2320B	
310-254728-5	MW-205	Total/NA	Ground Water	SM 2320B	
310-254728-6	MW-206	Total/NA	Ground Water	SM 2320B	
310-254728-7	LDR-1	Total/NA	Ground Water	SM 2320B	
310-254728-8	LDR-2	Total/NA	Ground Water	SM 2320B	
310-254728-9	LDR-3	Total/NA	Ground Water	SM 2320B	
310-254728-10	SW-1	Total/NA	Ground Water	SM 2320B	
310-254728-11	MW-D	Total/NA	Ground Water	SM 2320B	
MB 310-386364/1	Method Blank	Total/NA	Water	SM 2320B	
LCS 310-386364/2	Lab Control Sample	Total/NA	Water	SM 2320B	

### Analysis Batch: 386401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-1	MW-201	Total/NA	Ground Water	365.1	386268
310-254728-2	MW-202R	Total/NA	Ground Water	365.1	386268
310-254728-3	MW-203R	Total/NA	Ground Water	365.1	386268

Eurofins Cedar Falls

# QC Association Summary

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

## General Chemistry (Continued)

### Analysis Batch: 386401 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-4	MW-204	Total/NA	Ground Water	365.1	386268
310-254728-5	MW-205	Total/NA	Ground Water	365.1	386268
310-254728-6	MW-206	Total/NA	Ground Water	365.1	386268
310-254728-7	LDR-1	Total/NA	Ground Water	365.1	386268
310-254728-8	LDR-2	Total/NA	Ground Water	365.1	386268
310-254728-9	LDR-3	Total/NA	Ground Water	365.1	386268
310-254728-10	SW-1	Total/NA	Ground Water	365.1	386268
310-254728-11	MW-D	Total/NA	Ground Water	365.1	386268
MB 310-386268/1-A	Method Blank	Total/NA	Water	365.1	386268
LCS 310-386268/2-A	Lab Control Sample	Total/NA	Water	365.1	386268

### Analysis Batch: 386490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-1	MW-201	Total/NA	Ground Water	351.2	386358
310-254728-2	MW-202R	Total/NA	Ground Water	351.2	386359
310-254728-3	MW-203R	Total/NA	Ground Water	351.2	386358
310-254728-4	MW-204	Total/NA	Ground Water	351.2	386358
310-254728-5	MW-205	Total/NA	Ground Water	351.2	386359
310-254728-6	MW-206	Total/NA	Ground Water	351.2	386359
310-254728-7	LDR-1	Total/NA	Ground Water	351.2	386358
310-254728-8	LDR-2	Total/NA	Ground Water	351.2	386358
310-254728-9	LDR-3	Total/NA	Ground Water	351.2	386358
310-254728-10	SW-1	Total/NA	Ground Water	351.2	386358
310-254728-11	MW-D	Total/NA	Ground Water	351.2	386358
MB 310-386358/1-A	Method Blank	Total/NA	Water	351.2	386358
MB 310-386359/1-A	Method Blank	Total/NA	Water	351.2	386359
LCS 310-386358/2-A	Lab Control Sample	Total/NA	Water	351.2	386358
LCS 310-386359/2-A	Lab Control Sample	Total/NA	Water	351.2	386359

### Analysis Batch: 712690

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254728-1	MW-201	Total/NA	Ground Water	9060A	
310-254728-2	MW-202R	Total/NA	Ground Water	9060A	
310-254728-3	MW-203R	Total/NA	Ground Water	9060A	
310-254728-4	MW-204	Total/NA	Ground Water	9060A	
310-254728-5	MW-205	Total/NA	Ground Water	9060A	
310-254728-6	MW-206	Total/NA	Ground Water	9060A	
310-254728-7	LDR-1	Total/NA	Ground Water	9060A	
310-254728-8	LDR-2	Total/NA	Ground Water	9060A	
310-254728-9	LDR-3	Total/NA	Ground Water	9060A	
310-254728-10	SW-1	Total/NA	Ground Water	9060A	
310-254728-11	MW-D	Total/NA	Ground Water	9060A	
MB 500-712690/28	Method Blank	Total/NA	Water	9060A	
LCS 500-712690/29	Lab Control Sample	Total/NA	Water	9060A	
310-254728-1 MS	MW-201	Total/NA	Ground Water	9060A	
310-254728-1 MSD	MW-201	Total/NA	Ground Water	9060A	

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: MW-201**

**Lab Sample ID: 310-254728-1**

**Date Collected: 04/29/23 13:04**

**Matrix: Ground Water**

**Date Received: 05/01/23 17:10**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	387075	QTZ5	EET CF	05/10/23 10:42
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		1	387435	ZRI4	EET CF	05/13/23 01:38
Total/NA	Analysis	SM 2340B		1	386721	HE7K	EET CF	05/08/23 08:32
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 19:01
Total/NA	Prep	351.2			386358	W9YR	EET CF	05/04/23 07:39
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:19
Total/NA	Analysis	353.2		1	386239	HE7K	EET CF	05/03/23 11:35
Total/NA	Prep	365.2/365.3/365			386268	MAQ3	EET CF	05/03/23 13:04
Total/NA	Analysis	365.1		1	386401	ENB7	EET CF	05/04/23 09:13
Total/NA	Analysis	9060A		1	712690	BC	EET CHI	05/11/23 01:05
Total/NA	Analysis	I-3765-85		1	386089	DGU1	EET CF	05/02/23 09:57
Total/NA	Analysis	SM 2320B		1	386364	MAQ3	EET CF	05/04/23 07:55
Total/NA	Analysis	SM 2540C		1	386284	ENB7	EET CF	05/03/23 14:02

**Client Sample ID: MW-202R**

**Lab Sample ID: 310-254728-2**

**Date Collected: 04/28/23 19:44**

**Matrix: Ground Water**

**Date Received: 05/01/23 17:10**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	387075	QTZ5	EET CF	05/10/23 10:57
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		1	387435	ZRI4	EET CF	05/13/23 01:41
Total/NA	Analysis	SM 2340B		1	386721	HE7K	EET CF	05/08/23 08:32
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 19:03
Total/NA	Prep	351.2			386359	W9YR	EET CF	05/04/23 07:41
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:29
Total/NA	Analysis	353.2		1	386239	HE7K	EET CF	05/03/23 11:37
Total/NA	Prep	365.2/365.3/365			386268	MAQ3	EET CF	05/03/23 13:04
Total/NA	Analysis	365.1		1	386401	ENB7	EET CF	05/04/23 09:13
Total/NA	Analysis	9060A		1	712690	BC	EET CHI	05/11/23 01:51
Total/NA	Analysis	I-3765-85		1	386089	DGU1	EET CF	05/02/23 09:57
Total/NA	Analysis	SM 2320B		1	386364	MAQ3	EET CF	05/04/23 07:55
Total/NA	Analysis	SM 2540C		1	386284	ENB7	EET CF	05/03/23 14:02

**Client Sample ID: MW-203R**

**Lab Sample ID: 310-254728-3**

**Date Collected: 04/28/23 11:09**

**Matrix: Ground Water**

**Date Received: 05/01/23 17:10**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	387075	QTZ5	EET CF	05/10/23 11:13
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		1	387435	ZRI4	EET CF	05/13/23 01:45

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: MW-203R**

**Lab Sample ID: 310-254728-3**

Date Collected: 04/28/23 11:09

Matrix: Ground Water

Date Received: 05/01/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 2340B		1	386721	HE7K	EET CF	05/08/23 08:32
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 19:04
Total/NA	Prep	351.2			386358	W9YR	EET CF	05/04/23 07:39
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:17
Total/NA	Analysis	353.2		1	386239	HE7K	EET CF	05/03/23 11:39
Total/NA	Prep	365.2/365.3/365			386268	MAQ3	EET CF	05/03/23 13:04
Total/NA	Analysis	365.1		1	386401	ENB7	EET CF	05/04/23 09:14
Total/NA	Analysis	9060A		1	712690	BC	EET CHI	05/11/23 02:09
Total/NA	Analysis	I-3765-85		1	386089	DGU1	EET CF	05/02/23 09:57
Total/NA	Analysis	SM 2320B		1	386364	MAQ3	EET CF	05/04/23 07:55
Total/NA	Analysis	SM 2540C		1	386284	ENB7	EET CF	05/03/23 14:02

**Client Sample ID: MW-204**

**Lab Sample ID: 310-254728-4**

Date Collected: 04/29/23 11:56

Matrix: Ground Water

Date Received: 05/01/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	387075	QTZ5	EET CF	05/10/23 11:28
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		1	387435	ZRI4	EET CF	05/13/23 01:48
Total/NA	Analysis	SM 2340B		1	386721	HE7K	EET CF	05/08/23 08:32
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 19:05
Total/NA	Prep	351.2			386358	W9YR	EET CF	05/04/23 07:39
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:16
Total/NA	Analysis	353.2		1	386239	HE7K	EET CF	05/03/23 11:40
Total/NA	Prep	365.2/365.3/365			386268	MAQ3	EET CF	05/03/23 13:04
Total/NA	Analysis	365.1		1	386401	ENB7	EET CF	05/04/23 09:14
Total/NA	Analysis	9060A		1	712690	BC	EET CHI	05/11/23 02:26
Total/NA	Analysis	I-3765-85		1	386089	DGU1	EET CF	05/02/23 09:57
Total/NA	Analysis	SM 2320B		1	386364	MAQ3	EET CF	05/04/23 07:55
Total/NA	Analysis	SM 2540C		1	386304	ENB7	EET CF	05/03/23 15:03

**Client Sample ID: MW-205**

**Lab Sample ID: 310-254728-5**

Date Collected: 04/28/23 18:06

Matrix: Ground Water

Date Received: 05/01/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	387075	QTZ5	EET CF	05/10/23 11:44
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		1	387435	ZRI4	EET CF	05/13/23 01:52
Total/NA	Analysis	SM 2340B		1	386721	HE7K	EET CF	05/08/23 08:32
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 19:06

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: MW-205**

**Lab Sample ID: 310-254728-5**

Date Collected: 04/28/23 18:06

Matrix: Ground Water

Date Received: 05/01/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	351.2			386359	W9YR	EET CF	05/04/23 07:41
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:29
Total/NA	Analysis	353.2		1	386239	HE7K	EET CF	05/03/23 11:42
Total/NA	Prep	365.2/365.3/365			386268	MAQ3	EET CF	05/03/23 13:04
Total/NA	Analysis	365.1		1	386401	ENB7	EET CF	05/04/23 09:11
Total/NA	Analysis	9060A		1	712690	BC	EET CHI	05/11/23 02:44
Total/NA	Analysis	I-3765-85		1	386089	DGU1	EET CF	05/02/23 09:57
Total/NA	Analysis	SM 2320B		1	386364	MAQ3	EET CF	05/04/23 07:55
Total/NA	Analysis	SM 2540C		1	386304	ENB7	EET CF	05/03/23 15:03

**Client Sample ID: MW-206**

**Lab Sample ID: 310-254728-6**

Date Collected: 04/28/23 18:56

Matrix: Ground Water

Date Received: 05/01/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	387075	QTZ5	EET CF	05/10/23 11:59
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		1	387435	ZRI4	EET CF	05/13/23 01:55
Total/NA	Analysis	SM 2340B		1	386721	HE7K	EET CF	05/08/23 08:32
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 19:06
Total/NA	Prep	351.2			386359	W9YR	EET CF	05/04/23 07:41
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:30
Total/NA	Analysis	353.2		1	386239	HE7K	EET CF	05/03/23 11:43
Total/NA	Prep	365.2/365.3/365			386268	MAQ3	EET CF	05/03/23 13:04
Total/NA	Analysis	365.1		1	386401	ENB7	EET CF	05/04/23 09:15
Total/NA	Analysis	9060A		1	712690	BC	EET CHI	05/11/23 03:30
Total/NA	Analysis	I-3765-85		1	386089	DGU1	EET CF	05/02/23 09:57
Total/NA	Analysis	SM 2320B		1	386364	MAQ3	EET CF	05/04/23 07:55
Total/NA	Analysis	SM 2540C		1	386304	ENB7	EET CF	05/03/23 15:03

**Client Sample ID: LDR-1**

**Lab Sample ID: 310-254728-7**

Date Collected: 04/28/23 16:45

Matrix: Ground Water

Date Received: 05/01/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		20	387075	QTZ5	EET CF	05/10/23 12:15
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		1	387435	ZRI4	EET CF	05/13/23 02:10
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		4	387918	ZRI4	EET CF	05/17/23 16:18
Total/NA	Analysis	SM 2340B		1	386721	HE7K	EET CF	05/08/23 08:32
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 19:08

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: LDR-1**

**Lab Sample ID: 310-254728-7**

Date Collected: 04/28/23 16:45

Matrix: Ground Water

Date Received: 05/01/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	351.2			386358	W9YR	EET CF	05/04/23 07:39
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:19
Total/NA	Analysis	353.2		1	386239	HE7K	EET CF	05/03/23 11:45
Total/NA	Prep	365.2/365.3/365			386268	MAQ3	EET CF	05/03/23 13:04
Total/NA	Analysis	365.1		1	386401	ENB7	EET CF	05/04/23 09:12
Total/NA	Analysis	9060A		1	712690	BC	EET CHI	05/11/23 03:48
Total/NA	Analysis	I-3765-85		1	386089	DGU1	EET CF	05/02/23 09:57
Total/NA	Analysis	SM 2320B		1	386364	MAQ3	EET CF	05/04/23 07:55
Total/NA	Analysis	SM 2540C		1	386304	ENB7	EET CF	05/03/23 15:03

**Client Sample ID: LDR-2**

**Lab Sample ID: 310-254728-8**

Date Collected: 04/28/23 14:16

Matrix: Ground Water

Date Received: 05/01/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		50	387075	QTZ5	EET CF	05/10/23 12:31
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		1	387435	ZRI4	EET CF	05/13/23 02:37
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		4	387918	ZRI4	EET CF	05/17/23 16:22
Total/NA	Analysis	SM 2340B		1	386721	HE7K	EET CF	05/08/23 08:32
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 19:08
Total/NA	Prep	351.2			386358	W9YR	EET CF	05/04/23 07:39
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:16
Total/NA	Analysis	353.2		1	386239	HE7K	EET CF	05/03/23 11:47
Total/NA	Prep	365.2/365.3/365			386268	MAQ3	EET CF	05/03/23 13:04
Total/NA	Analysis	365.1		1	386401	ENB7	EET CF	05/04/23 09:15
Total/NA	Analysis	9060A		1	712690	BC	EET CHI	05/11/23 04:06
Total/NA	Analysis	I-3765-85		1	386089	DGU1	EET CF	05/02/23 09:57
Total/NA	Analysis	SM 2320B		1	386364	MAQ3	EET CF	05/04/23 07:55
Total/NA	Analysis	SM 2540C		1	386304	ENB7	EET CF	05/03/23 15:03

**Client Sample ID: LDR-3**

**Lab Sample ID: 310-254728-9**

Date Collected: 04/28/23 15:25

Matrix: Ground Water

Date Received: 05/01/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		50	387075	QTZ5	EET CF	05/10/23 13:17
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		1	387435	ZRI4	EET CF	05/13/23 02:40
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		5	387918	ZRI4	EET CF	05/17/23 16:25
Total/NA	Analysis	SM 2340B		1	386721	HE7K	EET CF	05/08/23 08:32



# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: LDR-3**

**Lab Sample ID: 310-254728-9**

Date Collected: 04/28/23 15:25

Matrix: Ground Water

Date Received: 05/01/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 19:08
Total/NA	Prep	351.2			386358	W9YR	EET CF	05/04/23 07:39
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:18
Total/NA	Analysis	353.2		1	386239	HE7K	EET CF	05/03/23 11:52
Total/NA	Prep	365.2/365.3/365			386268	MAQ3	EET CF	05/03/23 13:04
Total/NA	Analysis	365.1		1	386401	ENB7	EET CF	05/04/23 09:10
Total/NA	Analysis	9060A		1	712690	BC	EET CHI	05/11/23 04:24
Total/NA	Analysis	I-3765-85		1	386089	DGU1	EET CF	05/02/23 09:57
Total/NA	Analysis	SM 2320B		1	386364	MAQ3	EET CF	05/04/23 07:55
Total/NA	Analysis	SM 2540C		1	386304	ENB7	EET CF	05/03/23 15:03

**Client Sample ID: SW-1**

**Lab Sample ID: 310-254728-10**

Date Collected: 04/29/23 11:15

Matrix: Ground Water

Date Received: 05/01/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	387075	QTZ5	EET CF	05/10/23 13:33
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		1	387435	ZRI4	EET CF	05/13/23 03:01
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		4	387918	ZRI4	EET CF	05/17/23 16:27
Total/NA	Analysis	SM 2340B		1	386721	HE7K	EET CF	05/08/23 08:32
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 19:10
Total/NA	Prep	351.2			386358	W9YR	EET CF	05/04/23 07:39
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:18
Total/NA	Analysis	353.2		1	386239	HE7K	EET CF	05/03/23 11:53
Total/NA	Prep	365.2/365.3/365			386268	MAQ3	EET CF	05/03/23 13:04
Total/NA	Analysis	365.1		1	386401	ENB7	EET CF	05/04/23 09:12
Total/NA	Analysis	9060A		1	712690	BC	EET CHI	05/11/23 04:37
Total/NA	Analysis	I-3765-85		1	386089	DGU1	EET CF	05/02/23 09:57
Total/NA	Analysis	SM 2320B		1	386364	MAQ3	EET CF	05/04/23 07:55
Total/NA	Analysis	SM 2540C		1	386304	ENB7	EET CF	05/03/23 15:03

**Client Sample ID: MW-D**

**Lab Sample ID: 310-254728-11**

Date Collected: 04/29/23 11:56

Matrix: Ground Water

Date Received: 05/01/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	387075	QTZ5	EET CF	05/10/23 13:49
Total/NA	Prep	3005A			386164	DHM5	EET CF	05/03/23 08:55
Total/NA	Analysis	6020B		1	387435	ZRI4	EET CF	05/13/23 03:05
Total/NA	Analysis	SM 2340B		1	386721	HE7K	EET CF	05/08/23 08:32
Total/NA	Analysis	350.1		1	386326	ZJX4	EET CF	05/03/23 19:10

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

**Client Sample ID: MW-D**

**Lab Sample ID: 310-254728-11**

**Date Collected: 04/29/23 11:56**

**Matrix: Ground Water**

**Date Received: 05/01/23 17:10**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	351.2			386358	W9YR	EET CF	05/04/23 07:39
Total/NA	Analysis	351.2		1	386490	ZJX4	EET CF	05/04/23 20:19
Total/NA	Analysis	353.2		1	386239	HE7K	EET CF	05/03/23 11:55
Total/NA	Prep	365.2/365.3/365			386268	MAQ3	EET CF	05/03/23 13:04
Total/NA	Analysis	365.1		1	386401	ENB7	EET CF	05/04/23 09:13
Total/NA	Analysis	9060A		1	712690	BC	EET CHI	05/11/23 04:55
Total/NA	Analysis	I-3765-85		1	386089	DGU1	EET CF	05/02/23 09:57
Total/NA	Analysis	SM 2320B		1	386364	MAQ3	EET CF	05/04/23 07:55
Total/NA	Analysis	SM 2540C		1	386304	ENB7	EET CF	05/03/23 15:03

**Laboratory References:**

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401  
 EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200



# Accreditation/Certification Summary

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

## Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

## Laboratory: Eurofins Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	082	05-01-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9060A		Ground Water	Total Organic Carbon - Duplicates



# Method Summary

Client: SCS Engineers  
Project/Site: Heidelberg (Lehigh) Monofill Sampling-2023 Spring

Job ID: 310-254728-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
351.2	Nitrogen, Total Kjeldahl	EPA	EET CF
353.2	Nitrogen, Nitrate-Nitrite	EPA	EET CF
365.1	Phosphorus, Total	EPA	EET CF
9060A	Organic Carbon, Total (TOC)	SW846	EET CHI
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 2320B	Alkalinity	SM	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
351.2	Nitrogen, Total Kjeldahl	EPA	EET CF
365.2/365.3/365	Phosphorus, Total	EPA	EET CF

#### Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

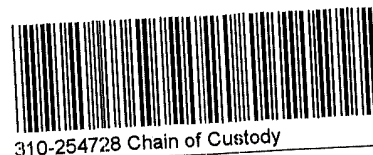
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

#### Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200



### Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>SCS Engineers</u>			
City/State:	<small>CITY</small> <u>Mason City</u>	<small>STATE</small> <u>IA</u>	Project: <u>Heidelberg Monofil</u>
<b>Receipt Information</b>			
Date/Time Received:	<small>DATE</small> <u>5-1-23</u>	<small>TIME</small> <u>1710</u>	Received By: <u>HED</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: <u>AD-1</u>	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>3</u> / <u>4</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>T</u>		Correction Factor (°C): <u>+0.1</u>	
• <b>Temp Blank Temperature</b> – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>-0.4</u>		Corrected Temp (°C): <u>-0.3</u>	
• <b>Sample Container Temperature</b>			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g , bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding If no, proceed with login			
<b>Additional Comments</b>			
<u>LDR-1, LDR-2, LDR-3</u>			



Environment Testing  
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Place COC scanning label  
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### Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>SCS Engineers</u>			
City/State:	CITY	STATE	Project:
<b>Receipt Information</b>			
Date/Time Received:	DATE	TIME	Received By:
	<u>5-1-23</u>	<u>1710</u>	<u>HED</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: <u>AB-51</u>	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>2</u> of <u>64</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>T</u>		Correction Factor (°C): <u>+0.1</u>	
• <b>Temp Blank Temperature</b> -- If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>1.4</u>		Corrected Temp (°C): <u>1.5</u>	
• <b>Sample Container Temperature</b>			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			
<u>MW-204, MW-D, MW-201</u>			



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### Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>SCS Engineers</u>			
City/State:	CITY	STATE	Project:
<b>Receipt Information</b>			
Date/Time Received:	DATE	TIME	Received By:
	<u>5-1-23</u>	<u>1710</u>	<u>HED</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>3</u> of <u>3/4</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>T</u>		Correction Factor (°C): <u>+0.1</u>	
• <b>Temp Blank Temperature</b> – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>1.3</u>		Corrected Temp (°C): <u>1.4</u>	
• <b>Sample Container Temperature</b>			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			
<u>MW-202R, MW-206, MW-205</u>			
<u>did not receive samples MW-203R, SW-1 HD 5-1-23</u>			



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### Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>SCS Engineers</u>			
City/State:	CITY	STATE	Project: <u>MonoFill</u>
<b>Receipt Information</b>			
Date/Time Received:	DATE <u>5-1-23</u>	TIME <u>1710</u>	Received By: <u>HED</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: <u>AA-51</u>	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>4</u> of <u>4</u>	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>T</u>		Correction Factor (°C): <u>+6.1</u>	
• <b>Temp Blank Temperature</b> – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>6.6</u>		Corrected Temp (°C): <u>0.7</u>	
• <b>Sample Container Temperature</b>			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE. If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			
<u>SW-MW-203R</u>			
<u>SWI + MW-203R</u>			





### Eurofins Environment Testing North Central, LLC

3019 Venture Way, Cedar Falls, Iowa 50613  
Phone 319-277-2401  
Direct 319-595-2013

SAMPLER: Chad Dentinger  
 SITE NAME: Heidelberg Materials US Cement, LLC - Monofill  
 ADDRESS: \_\_\_\_\_  
 CITY/STATE/ZIP: Mason City, IA  
 TELEPHONE NUMBER: \_\_\_\_\_ Fax: \_\_\_\_\_  
 SIGNATURE: [Signature]

REPORT TO: Kevin Jensen (kjensen@scsengineers.com)  
 COMPANY NAME: SCS Engineers  
 PROJECT NAME: Heidelberg (Lehigh) Monofill Sampling - 2023 Spring  
 PROJECT NUMBER: 1690 All-State Court, Suite 100  
 ADDRESS: West Des Moines IA 50265  
 CITY/STATE/ZIP: \_\_\_\_\_

Sample ID	Date Sampled	Time Sampled	# of Containers Shipped	Grab	Composite	Field Filtered	Ice	Preservative								Matrix						Analyze For												
								HNO <sub>3</sub> (Red & White Label)	HCl (Blue & White Label)	NaOH (Orange & White Label)	H <sub>2</sub> SO <sub>4</sub> Plastic (Yellow & White Label)	H <sub>2</sub> SO <sub>4</sub> Glass (Yellow & White Label)	Other (Specify):	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (Specify) Lab grade water	Total Aluminum	Total Arsenic	Total Calcium	Total Chromium	Total Lead	Total Magnesium	Total Potassium	Total Selenium	Total Sodium						
MW 201	4-29	13:01		X			X								X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW 202R	4-28	19:44		X			X								X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW 203R	4-28	11:09		X			X								X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW 204	4-29	11:56		X			X								X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW 205	4-28	18:06		X			X								X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW 206	4-28	18:56		X			X								X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
LDR 1	4-28	16:45		X			X								X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
LDR-2	4-28	14:16		X			X								X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
LDR 3	4-28	15:25		X			X								X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SM-1	4-29	11:15		X			X								X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Phase 1, 2, 3 Slump Composite					X		X								X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW D	4-29	11:56		X			X								X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

SAMPLING COMMENTS: SHIPPED VIA.

Relinquished by: <u>[Signature]</u>	Date: <u>5-1-23</u>	Time: <u>14:00</u>	Received by:	Date:	Time:
Received for Lab by: <u>[Signature]</u>	Date: <u>5-1-23</u>	Time: <u>17:10</u>	Temperature Upon Receipt:		



**Eurofins Cedar Falls**

3019 Venture Way  
 Cedar Falls IA 50613  
 Phone 319-277-2401 Fax 319-277-2425

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler		Lab PM. Liechti Meredith L		310-254728 COC No(s)		COC No: 310-60904 1	
Client Contact		Phone		E-Mail: meredith.liechti@et.eurofins.com		State of Origin: Iowa		Page: Page 1 of 2	
Shipping/Receiving		Company: Eurofins Environment Testing North Centr		Accreditations Required (See note) State - Iowa, State Program - Iowa		Job #		310-254728-1	
Address: 2417 Bond Street,		Due Date Requested: 5/15/2023		<b>Analysis Requested</b>		<b>Preservation Codes</b>		A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH R Na2S2O3 G Amchlor S H2SO4 H Ascorbic Acid T TSP Dodecahydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Y Trizma Z other (specify)	
City: University Park		TAT Requested (days)							
State Zip: IL 60484		PO #							
Phone: 708-534-5200(Tel) 708-534-5211(Fax)		WO #							
Email:		Project #		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of Containers	
Project Name: Heidelberg (Lehigh) Monofill Sampling-2023 Spring		Project #: 31005782		9660A/ (MOD) Local Method					
Site		SSOW#:							
<b>Sample Identification - Client ID (Lab ID)</b>		<b>Sample Date</b>		<b>Sample Time</b>		<b>Sample Type (C=comp, G=grab)</b>		<b>Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)</b>	
								<b>Special Instructions/Note:</b>	
MW-201 (310-254728-1)		4/29/23		13 04 Central		Water		X	
MW-202R (310-254728-2)		4/28/23		19 44 Central		Water		X	
MW-203R (310-254728-3)		4/28/23		11 09 Central		Water		X	
MW-204 (310-254728-4)		4/29/23		11 56 Central		Water		X	
MW-205 (310-254728-5)		4/28/23		18 06 Central		Water		X	
MW-206 (310-254728-6)		4/28/23		18 56 Central		Water		X	
LDR-1 (310-254728-7)		4/28/23		16 45 Central		Water		X	
LDR-2 (310-254728-8)		4/28/23		14 16 Central		Water		X	
LDR-3 (310-254728-9)		4/28/23		15 25 Central		Water		X	
Note: Since laboratory accreditations are subject to change Eurofins Environment Testing North Central LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing North Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.									
<b>Possible Hazard Identification</b>					<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>				
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Deliverable Requested I II III, IV Other (specify)					Primary Deliverable Rank. 2				
					Special Instructions/QC Requirements				
Empty Kit Relinquished by:			Date		Time		Method of Shipment:		
Relinquished by: <i>T. Depp</i>			Date/Time: 5/22/23 11:20		Company:		Received by: <i>Stephanie Hemondy</i> Date/Time: 5/13/23 10:00 Company: <i>EEIA</i>		
Relinquished by:			Date/Time:		Company:		Received by: Date/Time: Company:		
Relinquished by:			Date/Time:		Company:		Received by: Date/Time: Company:		
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.			Cooler Temperature(s) °C and Other Remarks: <i>2.1e + 2.5</i>				

**Eurofins Cedar Falls**

3019 Venture Way  
 Cedar Falls IA 50613  
 Phone 319-277-2401 Fax: 319-277-2425

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler	Lab PM Liechti, Meredith L	Carrier Tracking No(s)	COC No: 310-60904.2					
Client Contact		Phone	E-Mail meredith.liechti@et.eurofinsus.com	State of Origin Iowa	Page: Page 2 of 2					
Shipping/Receiving		Accreditations Required (See note) State - Iowa State Program - Iowa			Job #: 310-254728-1					
Company Eurofins Environment Testing North Centr		Due Date Requested 5/15/2023			<b>Analysis Requested</b>  <b>Preservation Codes</b> A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH R Na2S2O3 G Amchlor S H2SO4 H Ascorbic Acid T TSP Dodecahydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Y Trizma Z other (specify)  Other:					
Address 2417 Bond Street,		TAT Requested (days):								
City University Park		PO #:								
State Zip IL, 60484		WO #:								
Phone: 708-534-5200(Tel) 708-534-5211(Fax)		Project # 31005782								
Email:		SSOW#:								
Project Name Heidelberg (Lehigh) Monofill Sampling-2023 Spring		Site								
Site		SSOW#:								
<b>Sample Identification - Client ID (Lab ID)</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=comp, G=grab)</b>	<b>Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)</b>	<b>Field Filtered Sample (Yes or No)</b>	<b>Perform MS/MSD (Yes or No)</b>	<b>9060A (MOD) Local Method</b>	<b>Total Number of containers</b>	<b>Special Instructions/Note.</b>
<b>Preservation Code:</b>										
SW-1 (310-254728-10)		4/29/23	11 15 Central	Water	Water		X		2	
MW-D (310-254728-11)		4/29/23	11 56 Central	Water	Water		X		2	
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central LLC.										
<b>Possible Hazard Identification</b>					<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>					
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested I, II III IV Other (specify)					Primary Deliverable Rank 2					
Empty Kit Relinquished by					Special Instructions/QC Requirements.					
Date					Time					
Date					Method of Shipment:					
Relinquished by		Date/Time:		Company		Received by:		Date/Time:		Company
<i>T. Depp</i>		5/22/23 1120				<i>Stephanie Hemond</i>		5/13/23 1000		EEIA
Relinquished by		Date/Time:		Company		Received by:		Date/Time:		Company
Relinquished by		Date/Time:		Company		Received by:		Date/Time:		Company
Custody Seals Intact:		Custody Seal No.				Cooler Temperature(s) °C and Other Remarks:				
Δ Yes Δ No										



## Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-254728-1

**Login Number: 254728**

**List Source: Eurofins Cedar Falls**

**List Number: 1**

**Creator: Costello, Mackenzie K**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-254728-1

**Login Number: 254728**

**List Number: 2**

**Creator: Hernandez, Stephanie**

**List Source: Eurofins Chicago**

**List Creation: 05/03/23 04:42 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# ANALYTICAL REPORT

## PREPARED FOR

Attn: Kevin Jensen  
SCS Engineers  
1690 All State Court  
Suite 100

West Des Moines, Iowa 50265

Generated 11/2/2023 12:16:02 PM Revision 1

## JOB DESCRIPTION

Heidelberg Materials US Cement, LLC-Clay Wells

## JOB NUMBER

310-267792-1

# Eurofins Cedar Falls

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



Authorized for release by  
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# Case Narrative

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

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## Job ID: 310-267792-1

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### Laboratory: Eurofins Cedar Falls

#### Narrative

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#### Job Narrative 310-267792-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

#### Receipt

The samples were received on 10/20/2023 2:40 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.6°C and 2.4°C

#### HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

#### Metals

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

#### General Chemistry

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

# Sample Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-267792-1	MW-101R - No Purge	Water	10/19/23 13:31	10/20/23 14:40
310-267792-2	MW-102R - No Purge	Water	10/19/23 12:45	10/20/23 14:40
310-267792-3	MW-103R - No Purge	Water	10/19/23 11:40	10/20/23 14:40

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# Detection Summary

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

## Client Sample ID: MW-101R - No Purge

## Lab Sample ID: 310-267792-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	2.98		1.00	0.450	mg/L	1		9056A	Total/NA
Nitrate as N	0.119	J	0.200	0.0780	mg/L	1		9056A	Total/NA
Sulfate	196		100	42.0	mg/L	100		9056A	Total/NA
Arsenic	0.000621	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Calcium	114		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	61.2		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	7.48		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	41.0		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	537		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Nitrate Nitrite as N	0.199		0.100	0.0540	mg/L	1		353.2	Total/NA
Total Organic Carbon - Quad	0.866	J	1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	4.13		1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	367		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	650		50.0	34.0	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW-102R - No Purge

## Lab Sample ID: 310-267792-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.31		1.00	0.450	mg/L	1		9056A	Total/NA
Sulfate	1480		100	42.0	mg/L	100		9056A	Total/NA
Calcium	313		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	248		2.00	0.600	mg/L	4		6020B	Total/NA
Potassium	8.99		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	39.2		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	1800		8.24	2.47	mg/L	1		SM 2340B	Total/NA
Total Organic Carbon - Quad	1.30		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	1.38	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	621		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	2800		250	170	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW-103R - No Purge

## Lab Sample ID: 310-267792-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	16.4		1.00	0.450	mg/L	1		9056A	Total/NA
Nitrate as N	0.205		0.200	0.0780	mg/L	1		9056A	Total/NA
Sulfate	1810		100	42.0	mg/L	100		9056A	Total/NA
Calcium	520		2.00	0.760	mg/L	4		6020B	Total/NA
Magnesium	295		2.00	0.600	mg/L	4		6020B	Total/NA
Potassium	25.4		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	63.8		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	2510		8.24	2.47	mg/L	1		SM 2340B	Total/NA
Nitrate Nitrite as N	0.370		0.100	0.0540	mg/L	1		353.2	Total/NA
Total Organic Carbon - Quad	0.787	J	1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	1.00	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	628		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	3180		250	170	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

# Quantitation Limit Exceptions Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

The requested project specific reporting limits listed below were less than laboratory standard quantitation limits (PQL) but greater than or equal to the laboratory method detection limits (MDL). It must be noted that results reported below lab standard quantitation limits may result in false positive/false negative values and less accurate quantitation. Routine laboratory procedures do not indicate corrective action for detections below the laboratory's PQL.

Method	Analyte	Matrix	Prep Type	Unit	Client RL	Lab PQL
SM 2340B	Total Hardness	Water	Total/NA	mg/L	0.500	3.3

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# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

## Client Sample ID: MW-101R - No Purge

## Lab Sample ID: 310-267792-1

Date Collected: 10/19/23 13:31

Matrix: Water

Date Received: 10/20/23 14:40

### Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.98		1.00	0.450	mg/L			10/20/23 20:44	1
Nitrate as N	0.119	J	0.200	0.0780	mg/L			10/20/23 20:44	1
Nitrite as N	<0.200		0.200	0.0430	mg/L			10/20/23 20:44	1
Sulfate	196		100	42.0	mg/L			10/23/23 10:29	100

### Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		10/25/23 09:30	10/26/23 21:10	1
Arsenic	0.000621	J	0.00200	0.000530	mg/L		10/25/23 09:30	10/26/23 21:10	1
Calcium	114		0.500	0.190	mg/L		10/25/23 09:30	10/26/23 21:10	1
Chromium	<0.00500		0.00500	0.00110	mg/L		10/25/23 09:30	10/26/23 21:10	1
Lead	<0.000500		0.000500	0.000240	mg/L		10/25/23 09:30	10/26/23 21:10	1
Magnesium	61.2		0.500	0.150	mg/L		10/25/23 09:30	10/26/23 21:10	1
Potassium	7.48		0.500	0.150	mg/L		10/25/23 09:30	10/26/23 21:10	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/25/23 09:30	10/26/23 21:10	1
Sodium	41.0		1.00	0.460	mg/L		10/25/23 09:30	10/26/23 21:10	1

### Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	537		2.06	0.618	mg/L			10/26/23 21:10	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			10/24/23 20:24	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		10/25/23 06:38	10/26/23 15:40	1
Nitrate Nitrite as N (EPA 353.2)	0.199		0.100	0.0540	mg/L			11/01/23 16:07	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		10/25/23 09:02	10/25/23 23:39	1
Total Organic Carbon - Quad (SW846 9060A)	0.866	J	1.00	0.470	mg/L			11/01/23 19:23	1
Total Suspended Solids (USGS I-3765-85)	4.13		1.88	0.638	mg/L			10/24/23 09:41	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	367		5.00	2.50	mg/L			10/25/23 17:33	1
Total Dissolved Solids (SM 2540C)	650		50.0	34.0	mg/L			10/23/23 18:43	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

## Client Sample ID: MW-102R - No Purge

## Lab Sample ID: 310-267792-2

Date Collected: 10/19/23 12:45

Matrix: Water

Date Received: 10/20/23 14:40

### Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>4.31</b>		1.00	0.450	mg/L			10/20/23 20:56	1
Nitrate as N	<0.200		0.200	0.0780	mg/L			10/20/23 20:56	1
Nitrite as N	<0.200		0.200	0.0430	mg/L			10/20/23 20:56	1
<b>Sulfate</b>	<b>1480</b>		100	42.0	mg/L			10/23/23 10:41	100

### Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		10/25/23 09:30	10/26/23 21:34	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/25/23 09:30	10/26/23 21:34	1
<b>Calcium</b>	<b>313</b>		0.500	0.190	mg/L		10/25/23 09:30	10/26/23 21:34	1
Chromium	<0.00500		0.00500	0.00110	mg/L		10/25/23 09:30	10/26/23 21:34	1
Lead	<0.000500		0.000500	0.000240	mg/L		10/25/23 09:30	10/26/23 21:34	1
<b>Magnesium</b>	<b>248</b>		2.00	0.600	mg/L		10/25/23 09:30	10/27/23 13:27	4
<b>Potassium</b>	<b>8.99</b>		0.500	0.150	mg/L		10/25/23 09:30	10/26/23 21:34	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/25/23 09:30	10/26/23 21:34	1
<b>Sodium</b>	<b>39.2</b>		1.00	0.460	mg/L		10/25/23 09:30	10/26/23 21:34	1

### Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Hardness</b>	<b>1800</b>		8.24	2.47	mg/L			10/27/23 13:27	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			10/24/23 20:26	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		10/25/23 06:38	10/26/23 15:39	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			11/01/23 16:09	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		10/25/23 09:02	10/25/23 23:38	1
<b>Total Organic Carbon - Quad (SW846 9060A)</b>	<b>1.30</b>		1.00	0.470	mg/L			11/01/23 19:50	1
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>1.38 J</b>		1.88	0.638	mg/L			10/24/23 09:41	1
<b>Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)</b>	<b>621</b>		5.00	2.50	mg/L			10/25/23 17:43	1
<b>Total Dissolved Solids (SM 2540C)</b>	<b>2800</b>		250	170	mg/L			10/23/23 18:43	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

## Client Sample ID: MW-103R - No Purge

Lab Sample ID: 310-267792-3

Date Collected: 10/19/23 11:40

Matrix: Water

Date Received: 10/20/23 14:40

### Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16.4		1.00	0.450	mg/L			10/20/23 21:08	1
Nitrate as N	0.205		0.200	0.0780	mg/L			10/20/23 21:08	1
Nitrite as N	<0.200		0.200	0.0430	mg/L			10/20/23 21:08	1
Sulfate	1810		100	42.0	mg/L			10/23/23 10:53	100

### Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		10/25/23 09:30	10/26/23 21:36	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/25/23 09:30	10/26/23 21:36	1
Calcium	520		2.00	0.760	mg/L		10/25/23 09:30	10/27/23 13:29	4
Chromium	<0.00500		0.00500	0.00110	mg/L		10/25/23 09:30	10/26/23 21:36	1
Lead	<0.000500		0.000500	0.000240	mg/L		10/25/23 09:30	10/26/23 21:36	1
Magnesium	295		2.00	0.600	mg/L		10/25/23 09:30	10/27/23 13:29	4
Potassium	25.4		0.500	0.150	mg/L		10/25/23 09:30	10/26/23 21:36	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/25/23 09:30	10/26/23 21:36	1
Sodium	63.8		1.00	0.460	mg/L		10/25/23 09:30	10/26/23 21:36	1

### Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	2510		8.24	2.47	mg/L			10/27/23 13:29	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			10/24/23 20:26	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		10/25/23 06:38	10/26/23 15:32	1
Nitrate Nitrite as N (EPA 353.2)	0.370		0.100	0.0540	mg/L			11/01/23 16:10	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		10/25/23 09:02	10/25/23 23:25	1
Total Organic Carbon - Quad (SW846 9060A)	0.787	J	1.00	0.470	mg/L			11/01/23 20:17	1
Total Suspended Solids (USGS I-3765-85)	1.00	J	1.88	0.638	mg/L			10/24/23 09:41	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	628		5.00	2.50	mg/L			10/25/23 18:05	1
Total Dissolved Solids (SM 2540C)	3180		250	170	mg/L			10/23/23 18:43	1



# Definitions/Glossary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 310-403577/3**  
**Matrix: Water**  
**Analysis Batch: 403577**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00	0.450	mg/L			10/20/23 11:05	1
Sulfate	<1.00		1.00	0.420	mg/L			10/20/23 11:05	1

**Lab Sample ID: LCS 310-403577/4**  
**Matrix: Water**  
**Analysis Batch: 403577**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.660		mg/L		97	90 - 110
Sulfate	10.0	10.23		mg/L		102	90 - 110

## Method: 6020B - Metals (ICP/MS)

**Lab Sample ID: MB 310-403585/1-A**  
**Matrix: Water**  
**Analysis Batch: 403996**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 403585**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		10/25/23 09:30	10/26/23 20:49	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/25/23 09:30	10/26/23 20:49	1
Calcium	<0.500		0.500	0.190	mg/L		10/25/23 09:30	10/26/23 20:49	1
Chromium	<0.00500		0.00500	0.00110	mg/L		10/25/23 09:30	10/26/23 20:49	1
Lead	<0.000500		0.000500	0.000240	mg/L		10/25/23 09:30	10/26/23 20:49	1
Magnesium	<0.500		0.500	0.150	mg/L		10/25/23 09:30	10/26/23 20:49	1
Potassium	<0.500		0.500	0.150	mg/L		10/25/23 09:30	10/26/23 20:49	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/25/23 09:30	10/26/23 20:49	1
Sodium	<1.00		1.00	0.460	mg/L		10/25/23 09:30	10/26/23 20:49	1

**Lab Sample ID: LCS 310-403585/2-A ^10**  
**Matrix: Water**  
**Analysis Batch: 404057**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 403585**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	2.00	2.068		mg/L		103	80 - 120
Arsenic	2.00	2.152		mg/L		108	80 - 120
Calcium	20.0	19.65		mg/L		98	80 - 120
Chromium	1.00	1.066		mg/L		107	80 - 120
Lead	2.00	2.100		mg/L		105	80 - 120
Magnesium	20.0	19.90		mg/L		100	80 - 120
Potassium	20.0	20.67		mg/L		103	80 - 120
Selenium	4.00	4.211		mg/L		105	80 - 120
Sodium	20.0	22.60		mg/L		113	80 - 120

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

## Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-403608/137  
 Matrix: Water  
 Analysis Batch: 403608

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	<0.200		0.200	0.100	mg/L			10/24/23 20:17	1

Lab Sample ID: LCS 310-403608/138  
 Matrix: Water  
 Analysis Batch: 403608

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	8.55	8.401		mg/L		98	90 - 110

## Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 310-403621/1-A  
 Matrix: Water  
 Analysis Batch: 403915

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 403621

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	<1.00		1.00	0.550	mg/L		10/25/23 06:38	10/26/23 15:12	1

Lab Sample ID: LCS 310-403621/2-A  
 Matrix: Water  
 Analysis Batch: 403915

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 403621

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Kjeldahl Nitrogen	4.01	3.828		mg/L		96	90 - 110

## Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 310-404535/35  
 Matrix: Water  
 Analysis Batch: 404535

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	<0.100		0.100	0.0540	mg/L			11/01/23 15:41	1

Lab Sample ID: LCS 310-404535/38  
 Matrix: Water  
 Analysis Batch: 404535

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	2.07	2.209		mg/L		107	90 - 110

## Method: 365.1 - Phosphorus, Total

Lab Sample ID: MB 310-403653/1-A  
 Matrix: Water  
 Analysis Batch: 403765

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 403653

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Phosphorus as P	<0.100		0.100	0.0620	mg/L		10/25/23 09:02	10/25/23 23:10	1

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

## Method: 365.1 - Phosphorus, Total (Continued)

Lab Sample ID: LCS 310-403653/2-A  
 Matrix: Water  
 Analysis Batch: 403765

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 403653

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Phosphorus as P	1.00	0.9189		mg/L		92	90 - 110

## Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 500-740197/6  
 Matrix: Water  
 Analysis Batch: 740197

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Quad	<1.00		1.00	0.470	mg/L			11/01/23 18:09	1

Lab Sample ID: LCS 500-740197/7  
 Matrix: Water  
 Analysis Batch: 740197

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Quad	50.0	48.95		mg/L		98	86 - 116

## Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-403500/1  
 Matrix: Water  
 Analysis Batch: 403500

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			10/24/23 09:41	1

Lab Sample ID: LCS 310-403500/2  
 Matrix: Water  
 Analysis Batch: 403500

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	98.00		mg/L		98	75 - 116

## Method: SM 2320B - Alkalinity

Lab Sample ID: LCS 310-403899/25  
 Matrix: Water  
 Analysis Batch: 403899

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3 to pH 4.5	1000	913.1		mg/L		91	90 - 110

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 310-403445/1**  
**Matrix: Water**  
**Analysis Batch: 403445**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0	34.0	mg/L			10/23/23 18:43	1

**Lab Sample ID: LCS 310-403445/2**  
**Matrix: Water**  
**Analysis Batch: 403445**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	986.0		mg/L		99	90 - 110

**Lab Sample ID: 310-267792-2 DU**  
**Matrix: Water**  
**Analysis Batch: 403445**

**Client Sample ID: MW-102R - No Purge**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	2800		2680		mg/L		4	20

# QC Association Summary

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

## HPLC/IC

### Analysis Batch: 403577

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-1	MW-101R - No Purge	Total/NA	Water	9056A	
310-267792-1	MW-101R - No Purge	Total/NA	Water	9056A	
310-267792-2	MW-102R - No Purge	Total/NA	Water	9056A	
310-267792-2	MW-102R - No Purge	Total/NA	Water	9056A	
310-267792-3	MW-103R - No Purge	Total/NA	Water	9056A	
310-267792-3	MW-103R - No Purge	Total/NA	Water	9056A	
MB 310-403577/3	Method Blank	Total/NA	Water	9056A	
LCS 310-403577/4	Lab Control Sample	Total/NA	Water	9056A	

## Metals

### Analysis Batch: 403403

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-1	MW-101R - No Purge	Total/NA	Water	SM 2340B	
310-267792-2	MW-102R - No Purge	Total/NA	Water	SM 2340B	
310-267792-3	MW-103R - No Purge	Total/NA	Water	SM 2340B	

### Prep Batch: 403585

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-1	MW-101R - No Purge	Total/NA	Water	3005A	
310-267792-2	MW-102R - No Purge	Total/NA	Water	3005A	
310-267792-3	MW-103R - No Purge	Total/NA	Water	3005A	
MB 310-403585/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-403585/2-A ^10	Lab Control Sample	Total/NA	Water	3005A	

### Analysis Batch: 403996

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-1	MW-101R - No Purge	Total/NA	Water	6020B	403585
310-267792-2	MW-102R - No Purge	Total/NA	Water	6020B	403585
310-267792-3	MW-103R - No Purge	Total/NA	Water	6020B	403585
MB 310-403585/1-A	Method Blank	Total/NA	Water	6020B	403585

### Analysis Batch: 404057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-2	MW-102R - No Purge	Total/NA	Water	6020B	403585
310-267792-3	MW-103R - No Purge	Total/NA	Water	6020B	403585
LCS 310-403585/2-A ^10	Lab Control Sample	Total/NA	Water	6020B	403585

## General Chemistry

### Analysis Batch: 403445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-1	MW-101R - No Purge	Total/NA	Water	SM 2540C	
310-267792-2	MW-102R - No Purge	Total/NA	Water	SM 2540C	
310-267792-3	MW-103R - No Purge	Total/NA	Water	SM 2540C	
MB 310-403445/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-403445/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-267792-2 DU	MW-102R - No Purge	Total/NA	Water	SM 2540C	

### Analysis Batch: 403500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-1	MW-101R - No Purge	Total/NA	Water	I-3765-85	

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# QC Association Summary

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

## General Chemistry (Continued)

### Analysis Batch: 403500 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-2	MW-102R - No Purge	Total/NA	Water	I-3765-85	
310-267792-3	MW-103R - No Purge	Total/NA	Water	I-3765-85	
MB 310-403500/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-403500/2	Lab Control Sample	Total/NA	Water	I-3765-85	

### Analysis Batch: 403608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-1	MW-101R - No Purge	Total/NA	Water	350.1	
310-267792-2	MW-102R - No Purge	Total/NA	Water	350.1	
310-267792-3	MW-103R - No Purge	Total/NA	Water	350.1	
MB 310-403608/137	Method Blank	Total/NA	Water	350.1	
LCS 310-403608/138	Lab Control Sample	Total/NA	Water	350.1	

### Prep Batch: 403621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-1	MW-101R - No Purge	Total/NA	Water	351.2	
310-267792-2	MW-102R - No Purge	Total/NA	Water	351.2	
310-267792-3	MW-103R - No Purge	Total/NA	Water	351.2	
MB 310-403621/1-A	Method Blank	Total/NA	Water	351.2	
LCS 310-403621/2-A	Lab Control Sample	Total/NA	Water	351.2	

### Prep Batch: 403653

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-1	MW-101R - No Purge	Total/NA	Water	365.2/365.3/365	
310-267792-2	MW-102R - No Purge	Total/NA	Water	365.2/365.3/365	
310-267792-3	MW-103R - No Purge	Total/NA	Water	365.2/365.3/365	
MB 310-403653/1-A	Method Blank	Total/NA	Water	365.2/365.3/365	
LCS 310-403653/2-A	Lab Control Sample	Total/NA	Water	365.2/365.3/365	

### Analysis Batch: 403765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-1	MW-101R - No Purge	Total/NA	Water	365.1	403653
310-267792-2	MW-102R - No Purge	Total/NA	Water	365.1	403653
310-267792-3	MW-103R - No Purge	Total/NA	Water	365.1	403653
MB 310-403653/1-A	Method Blank	Total/NA	Water	365.1	403653
LCS 310-403653/2-A	Lab Control Sample	Total/NA	Water	365.1	403653

### Analysis Batch: 403899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-1	MW-101R - No Purge	Total/NA	Water	SM 2320B	
310-267792-2	MW-102R - No Purge	Total/NA	Water	SM 2320B	
310-267792-3	MW-103R - No Purge	Total/NA	Water	SM 2320B	
LCS 310-403899/25	Lab Control Sample	Total/NA	Water	SM 2320B	

### Analysis Batch: 403915

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-1	MW-101R - No Purge	Total/NA	Water	351.2	403621
310-267792-2	MW-102R - No Purge	Total/NA	Water	351.2	403621
310-267792-3	MW-103R - No Purge	Total/NA	Water	351.2	403621
MB 310-403621/1-A	Method Blank	Total/NA	Water	351.2	403621
LCS 310-403621/2-A	Lab Control Sample	Total/NA	Water	351.2	403621

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# QC Association Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

## General Chemistry

### Analysis Batch: 404535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-1	MW-101R - No Purge	Total/NA	Water	353.2	
310-267792-2	MW-102R - No Purge	Total/NA	Water	353.2	
310-267792-3	MW-103R - No Purge	Total/NA	Water	353.2	
MB 310-404535/35	Method Blank	Total/NA	Water	353.2	
LCS 310-404535/38	Lab Control Sample	Total/NA	Water	353.2	

### Analysis Batch: 740197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267792-1	MW-101R - No Purge	Total/NA	Water	9060A	
310-267792-2	MW-102R - No Purge	Total/NA	Water	9060A	
310-267792-3	MW-103R - No Purge	Total/NA	Water	9060A	
MB 500-740197/6	Method Blank	Total/NA	Water	9060A	
LCS 500-740197/7	Lab Control Sample	Total/NA	Water	9060A	



# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

**Client Sample ID: MW-101R - No Purge**

**Lab Sample ID: 310-267792-1**

**Date Collected: 10/19/23 13:31**

**Matrix: Water**

**Date Received: 10/20/23 14:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	403577	QTZ5	EET CF	10/20/23 20:44
Total/NA	Analysis	9056A		100	403577	QTZ5	EET CF	10/23/23 10:29
Total/NA	Prep	3005A			403585	KCK5	EET CF	10/25/23 09:30
Total/NA	Analysis	6020B		1	403996	A6US	EET CF	10/26/23 21:10
Total/NA	Analysis	SM 2340B		1	403403	HE7K	EET CF	10/26/23 21:10
Total/NA	Analysis	350.1		1	403608	ZJX4	EET CF	10/24/23 20:24
Total/NA	Prep	351.2			403621	W9YR	EET CF	10/25/23 06:38
Total/NA	Analysis	351.2		1	403915	ZJX4	EET CF	10/26/23 15:40
Total/NA	Analysis	353.2		1	404535	WZC8	EET CF	11/01/23 16:07
Total/NA	Prep	365.2/365.3/365			403653	MAQ3	EET CF	10/25/23 09:02
Total/NA	Analysis	365.1		1	403765	ZJX4	EET CF	10/25/23 23:39
Total/NA	Analysis	9060A		1	740197	TR	EET CHI	11/01/23 19:23
Total/NA	Analysis	I-3765-85		1	403500	DGU1	EET CF	10/24/23 09:41
Total/NA	Analysis	SM 2320B		1	403899	MAQ3	EET CF	10/25/23 17:33
Total/NA	Analysis	SM 2540C		1	403445	D7CP	EET CF	10/23/23 18:43

**Client Sample ID: MW-102R - No Purge**

**Lab Sample ID: 310-267792-2**

**Date Collected: 10/19/23 12:45**

**Matrix: Water**

**Date Received: 10/20/23 14:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	403577	QTZ5	EET CF	10/20/23 20:56
Total/NA	Analysis	9056A		100	403577	QTZ5	EET CF	10/23/23 10:41
Total/NA	Prep	3005A			403585	KCK5	EET CF	10/25/23 09:30
Total/NA	Analysis	6020B		1	403996	A6US	EET CF	10/26/23 21:34
Total/NA	Prep	3005A			403585	KCK5	EET CF	10/25/23 09:30
Total/NA	Analysis	6020B		4	404057	A6US	EET CF	10/27/23 13:27
Total/NA	Analysis	SM 2340B		1	403403	HE7K	EET CF	10/27/23 13:27
Total/NA	Analysis	350.1		1	403608	ZJX4	EET CF	10/24/23 20:26
Total/NA	Prep	351.2			403621	W9YR	EET CF	10/25/23 06:38
Total/NA	Analysis	351.2		1	403915	ZJX4	EET CF	10/26/23 15:39
Total/NA	Analysis	353.2		1	404535	WZC8	EET CF	11/01/23 16:09
Total/NA	Prep	365.2/365.3/365			403653	MAQ3	EET CF	10/25/23 09:02
Total/NA	Analysis	365.1		1	403765	ZJX4	EET CF	10/25/23 23:38
Total/NA	Analysis	9060A		1	740197	TR	EET CHI	11/01/23 19:50
Total/NA	Analysis	I-3765-85		1	403500	DGU1	EET CF	10/24/23 09:41
Total/NA	Analysis	SM 2320B		1	403899	MAQ3	EET CF	10/25/23 17:43
Total/NA	Analysis	SM 2540C		1	403445	D7CP	EET CF	10/23/23 18:43

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

**Client Sample ID: MW-103R - No Purge**

**Lab Sample ID: 310-267792-3**

**Date Collected: 10/19/23 11:40**

**Matrix: Water**

**Date Received: 10/20/23 14:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	403577	QTZ5	EET CF	10/20/23 21:08
Total/NA	Analysis	9056A		100	403577	QTZ5	EET CF	10/23/23 10:53
Total/NA	Prep	3005A			403585	KCK5	EET CF	10/25/23 09:30
Total/NA	Analysis	6020B		1	403996	A6US	EET CF	10/26/23 21:36
Total/NA	Prep	3005A			403585	KCK5	EET CF	10/25/23 09:30
Total/NA	Analysis	6020B		4	404057	A6US	EET CF	10/27/23 13:29
Total/NA	Analysis	SM 2340B		1	403403	HE7K	EET CF	10/27/23 13:29
Total/NA	Analysis	350.1		1	403608	ZJX4	EET CF	10/24/23 20:26
Total/NA	Prep	351.2			403621	W9YR	EET CF	10/25/23 06:38
Total/NA	Analysis	351.2		1	403915	ZJX4	EET CF	10/26/23 15:32
Total/NA	Analysis	353.2		1	404535	WZC8	EET CF	11/01/23 16:10
Total/NA	Prep	365.2/365.3/365			403653	MAQ3	EET CF	10/25/23 09:02
Total/NA	Analysis	365.1		1	403765	ZJX4	EET CF	10/25/23 23:25
Total/NA	Analysis	9060A		1	740197	TR	EET CHI	11/01/23 20:17
Total/NA	Analysis	I-3765-85		1	403500	DGU1	EET CF	10/24/23 09:41
Total/NA	Analysis	SM 2320B		1	403899	MAQ3	EET CF	10/25/23 18:05
Total/NA	Analysis	SM 2540C		1	403445	D7CP	EET CF	10/23/23 18:43

**Laboratory References:**

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401  
 EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

# Accreditation/Certification Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

## Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

## Laboratory: Eurofins Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	082	05-01-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9060A		Water	Total Organic Carbon - Quad



# Method Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC-Clay Wells

Job ID: 310-267792-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
SM 2340B	Total Hardness (as CaCO <sub>3</sub> ) by calculation	SM	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
351.2	Nitrogen, Total Kjeldahl	EPA	EET CF
353.2	Nitrogen, Nitrate-Nitrite	EPA	EET CF
365.1	Phosphorus, Total	EPA	EET CF
9060A	Organic Carbon, Total (TOC)	SW846	EET CHI
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 2320B	Alkalinity	SM	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
351.2	Nitrogen, Total Kjeldahl	EPA	EET CF
365.2/365.3/365	Phosphorus, Total	EPA	EET CF

#### Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

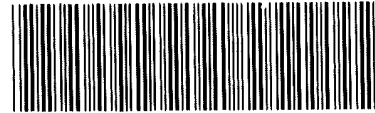
#### Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200



Environment Testing  
America



310-267792 Chain of Custody

### Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>SCS</u>			
City/State:	CITY	STATE	Project:
<b>Receipt Information</b>			
Date/Time Received:	DATE <u>10/20/23</u>	TIME <u>1440</u>	Received By: <u>AM</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
<b>Temperature Record</b>			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID:	<u>R</u>	Correction Factor (°C):	<u>0</u>
• <b>Temp Blank Temperature</b> – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>1.6</u>	Corrected Temp (°C):	<u>1.6</u>
• <b>Sample Container Temperature</b>			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			





Environment Testing  
America

Place COC scanning label  
here

### Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>GCS</u>			
City/State:	CITY	STATE	Project:
<b>Receipt Information</b>			
Date/Time Received:	DATE <u>10/20/23</u>	TIME <u>1440</u>	Received By: <u>AM</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>2</u> of <u>2</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID:	<u>R</u>	Correction Factor (°C): <u>0</u>	
• <b>Temp Blank Temperature</b> – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>2.4</u>	Corrected Temp (°C): <u>2.4</u>	
• <b>Sample Container Temperature</b>			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			



Eurofins Cedar Falls  
3019 Venture Way  
Cedar Falls, IA 50613  
Phone 319-277-2401 Fax 319-277-2425

# Chain of Custody Record



eurofins | environmental testing

<b>Client Information (Sub Contract Lab)</b>			Sampler		Lab PM Liechti, Meredith L		Carrier Tracking No(s)		COC No. 310-66555 1					
Client Contact Shipping/Receiving			Phone		E-Mail meredith.liechti@et.eurofins.com		State of Origin Iowa		Page Page 1 of 1					
Company Eurofins Environment Testing North Centr					Accreditations Required (See note) State - Iowa, State Program - Iowa					Job #: 310-267792-1				
Address 2417 Bond Street,		Due Date Requested 11/2/2023			<b>Analysis Requested</b>						Preservation Codes A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)  Other:			
City University Park		TAT Requested (days)												
State Zip IL, 60484		PO #:			Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		9060A / (MOD) Local Method		Total Number of Containers			
Phone 708-534-5200(Tel) 708-534-5211(Fa) 310-267792 COC		WO #:												
Email:		Project # 31005782			Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) Preservation Code	
Project Name: Heidelberg Materials US Cement, LLC-Clay Wells		SSOW#:												
Site:														

Sample ID	Sample Date	Sample Time	Sample Type	Matrix	Field Filtered	MS/MSD	9060A	Total Containers	Special Instructions/Note:
MW-101R - No Purge (310-267792-1)	10/19/23	13 31 Central	Water	Water	X	X		3	
MW-102R - No Purge (310-267792-2)	10/19/23	12 45 Central	Water	Water	X	X		3	
MW-103R - No Purge (310-267792-3)	10/19/23	11 40 Central	Water	Water	X	X		3	

Note: Since laboratory accreditations are subject to change Eurofins Environment Testing North Central LLC places the ownership of method, analyte & accreditation compliance upon our subcontractor laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.

<b>Possible Hazard Identification</b> Unconfirmed				<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Deliverable Requested I, II, III, IV, Other (specify)		Primary Deliverable Rank. 2		Special Instructions/QC Requirements			

Empty Kit Relinquished by		Date		Time		Method of Shipment:	
Relinquished by:		Date/Time: 10/22/23 1700		Company:		Received by:  Date/Time: 10/22/23 1015 Company:	
Relinquished by:		Date/Time:		Company:		Received by: Date/Time: Company:	
Relinquished by:		Date/Time:		Company:		Received by: Date/Time: Company:	

Custody Seals Intact Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks 2.9+2.7	
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# Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-267792-1

**Login Number: 267792**

**List Number: 1**

**Creator: Costello, Mackenzie K**

**List Source: Eurofins Cedar Falls**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-267792-1

**Login Number: 267792**

**List Number: 2**

**Creator: Scott, Sherri L**

**List Source: Eurofins Chicago**

**List Creation: 10/22/23 09:49 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	





# ANALYTICAL REPORT

## PREPARED FOR

Attn: Kevin Jensen  
SCS Engineers  
1690 All State Court  
Suite 100  
West Des Moines, Iowa 50265

Generated 11/3/2023 10:42:44 AM

## JOB DESCRIPTION

Heidelberg Materials US Cement, LLC

## JOB NUMBER

310-267793-1

# Eurofins Cedar Falls

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



Generated  
11/3/2023 10:42:44 AM

Authorized for release by  
Meredith Liechti, Service Center Manager  
[meredith.liechti@et.eurofinsus.com](mailto:meredith.liechti@et.eurofinsus.com)  
(319)277-2401



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# Case Narrative

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

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## Job ID: 310-267793-1

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### Laboratory: Eurofins Cedar Falls

#### Narrative

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#### Job Narrative 310-267793-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

#### Receipt

The samples were received on 10/20/2023 2:40 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 0.9°C, 1.9°C, 2.8°C and 5.8°C

#### Receipt Exceptions

Received 1 TOC vial broken for sample 5.

#### HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

#### Metals

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

#### General Chemistry

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

# Sample Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-267793-1	MW-201	Water	10/19/23 18:38	10/20/23 14:40
310-267793-2	MW-202R	Water	10/19/23 15:54	10/20/23 14:40
310-267793-3	MW-203R	Water	10/19/23 16:30	10/20/23 14:40
310-267793-4	MW-204	Water	10/19/23 15:12	10/20/23 14:40
310-267793-5	MW-205	Water	10/19/23 17:59	10/20/23 14:40
310-267793-6	MW-206	Water	10/19/23 17:19	10/20/23 14:40
310-267793-7	LDR-1	Water	10/20/23 10:14	10/20/23 14:40
310-267793-8	LDR-2	Water	10/20/23 11:02	10/20/23 14:40
310-267793-9	LDR-3	Water	10/20/23 11:45	10/20/23 14:40
310-267793-10	MW-D	Water	10/19/23 15:12	10/20/23 14:40

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# Detection Summary

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## Client Sample ID: MW-201

## Lab Sample ID: 310-267793-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	30.0		1.00	0.450	mg/L	1		9056A	Total/NA
Sulfate	121		50.0	21.0	mg/L	50		9056A	Total/NA
Aluminum	0.0285	J	0.0500	0.0170	mg/L	1		6020B	Total/NA
Arsenic	0.00535		0.00200	0.000530	mg/L	1		6020B	Total/NA
Calcium	96.4		0.500	0.190	mg/L	1		6020B	Total/NA
Chromium	0.00245	J	0.00500	0.00110	mg/L	1		6020B	Total/NA
Lead	0.00326		0.000500	0.000240	mg/L	1		6020B	Total/NA
Magnesium	47.4		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	22.4		0.500	0.150	mg/L	1		6020B	Total/NA
Selenium	0.00767		0.00500	0.00140	mg/L	1		6020B	Total/NA
Sodium	24.7		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	436		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Ammonia	0.625		0.200	0.100	mg/L	1		350.1	Total/NA
Total Kjeldahl Nitrogen	0.646	J	1.00	0.550	mg/L	1		351.2	Total/NA
Nitrate Nitrite as N	0.0573	J	0.100	0.0540	mg/L	1		353.2	Total/NA
Total Phosphorus as P	0.0790	J	0.100	0.0620	mg/L	1		365.1	Total/NA
Total Organic Carbon - Quad	1.49		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	5.88		1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	335		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	335		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	576		50.0	34.0	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW-202R

## Lab Sample ID: 310-267793-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	13.7		1.00	0.450	mg/L	1		9056A	Total/NA
Sulfate	86.7		1.00	0.420	mg/L	1		9056A	Total/NA
Arsenic	0.000645	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Calcium	22.6		0.500	0.190	mg/L	1		6020B	Total/NA
Lead	0.000451	J	0.000500	0.000240	mg/L	1		6020B	Total/NA
Magnesium	62.6		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	8.64		0.500	0.150	mg/L	1		6020B	Total/NA
Selenium	0.00196	J	0.00500	0.00140	mg/L	1		6020B	Total/NA
Sodium	41.8		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	314		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Nitrate Nitrite as N	0.0578	J	0.100	0.0540	mg/L	1		353.2	Total/NA
Total Organic Carbon - Quad	1.01		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	1.25	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	259		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	249		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Carbonate Alkalinity as CaCO3	10.2		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	356		50.0	34.0	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW-203R

## Lab Sample ID: 310-267793-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	2.40		1.00	0.450	mg/L	1		9056A	Total/NA
Sulfate	0.719	J	1.00	0.420	mg/L	1		9056A	Total/NA
Calcium	73.3		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	33.4		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	5.18		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	18.1		1.00	0.460	mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls



# Detection Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## Client Sample ID: MW-203R (Continued)

Lab Sample ID: 310-267793-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Hardness	321		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Ammonia	0.165	J	0.200	0.100	mg/L	1		350.1	Total/NA
Total Organic Carbon - Quad	0.971	J	1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	4.25		1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	321		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	321		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	314		50.0	34.0	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW-204

Lab Sample ID: 310-267793-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	24.1		1.00	0.450	mg/L	1		9056A	Total/NA
Sulfate	150		50.0	21.0	mg/L	50		9056A	Total/NA
Calcium	105		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	54.2		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	11.7		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	20.8		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	485		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Ammonia	0.255		0.200	0.100	mg/L	1		350.1	Total/NA
Total Organic Carbon - Quad	1.17		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	1.13	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	327		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	327		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	592		50.0	34.0	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW-205

Lab Sample ID: 310-267793-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	3.13		1.00	0.450	mg/L	1		9056A	Total/NA
Sulfate	16.7		1.00	0.420	mg/L	1		9056A	Total/NA
Calcium	75.5		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	36.9		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	6.47		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	19.2		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	340		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Ammonia	0.207		0.200	0.100	mg/L	1		350.1	Total/NA
Total Organic Carbon - Quad	0.895	J	1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	1.75	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	335		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	335		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	340		50.0	34.0	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW-206

Lab Sample ID: 310-267793-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	3.32		1.00	0.450	mg/L	1		9056A	Total/NA
Sulfate	27.0		1.00	0.420	mg/L	1		9056A	Total/NA
Calcium	80.6		0.500	0.190	mg/L	1		6020B	Total/NA
Lead	0.000437	J	0.000500	0.000240	mg/L	1		6020B	Total/NA
Magnesium	38.9		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	6.77		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	18.6		1.00	0.460	mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

# Detection Summary

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## Client Sample ID: MW-206 (Continued)

## Lab Sample ID: 310-267793-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Hardness	361		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Ammonia	0.132	J	0.200	0.100	mg/L	1		350.1	Total/NA
Total Organic Carbon - Quad	0.949	J	1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	0.875	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	346		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	346		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	370		50.0	34.0	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: LDR-1

## Lab Sample ID: 310-267793-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	31.2		1.00	0.450	mg/L	1		9056A	Total/NA
Nitrite as N	0.0546	J	0.200	0.0430	mg/L	1		9056A	Total/NA
Sulfate	1640		100	42.0	mg/L	100		9056A	Total/NA
Aluminum	0.0554		0.0500	0.0170	mg/L	1		6020B	Total/NA
Arsenic	0.000720	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Calcium	564		2.00	0.760	mg/L	4		6020B	Total/NA
Chromium	0.0451		0.00500	0.00110	mg/L	1		6020B	Total/NA
Magnesium	286		2.00	0.600	mg/L	4		6020B	Total/NA
Potassium	53.3		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	30.2		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	2590		8.24	2.47	mg/L	1		SM 2340B	Total/NA
Ammonia	0.385		0.200	0.100	mg/L	1		350.1	Total/NA
Total Phosphorus as P	0.101		0.100	0.0620	mg/L	1		365.1	Total/NA
Total Organic Carbon - Quad	1.13		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	74.5		3.75	1.28	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	609		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	609		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	2920		250	170	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: LDR-2

## Lab Sample ID: 310-267793-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	169		100	45.0	mg/L	100		9056A	Total/NA
Nitrite as N	0.244		0.200	0.0430	mg/L	1		9056A	Total/NA
Sulfate	1400		100	42.0	mg/L	100		9056A	Total/NA
Arsenic	0.000680	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Calcium	553		2.00	0.760	mg/L	4		6020B	Total/NA
Magnesium	276		2.00	0.600	mg/L	4		6020B	Total/NA
Potassium	62.2		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	49.6		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	2520		8.24	2.47	mg/L	1		SM 2340B	Total/NA
Nitrate Nitrite as N	0.124		0.100	0.0540	mg/L	1		353.2	Total/NA
Total Organic Carbon - Quad	1.37		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	2.50		1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	651		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	651		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	2920		250	170	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

# Detection Summary

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## Client Sample ID: LDR-3

## Lab Sample ID: 310-267793-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	550		100	45.0	mg/L	100		9056A	Total/NA
Nitrate as N	0.103	J	0.200	0.0780	mg/L	1		9056A	Total/NA
Nitrite as N	0.835		0.200	0.0430	mg/L	1		9056A	Total/NA
Sulfate	2170		100	42.0	mg/L	100		9056A	Total/NA
Aluminum	0.0249	J	0.0500	0.0170	mg/L	1		6020B	Total/NA
Arsenic	0.000898	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Calcium	835		3.50	1.33	mg/L	7		6020B	Total/NA
Magnesium	441		3.50	1.05	mg/L	7		6020B	Total/NA
Potassium	371		3.50	1.05	mg/L	7		6020B	Total/NA
Sodium	116		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	3900		14.4	4.32	mg/L	1		SM 2340B	Total/NA
Ammonia	0.654		0.200	0.100	mg/L	1		350.1	Total/NA
Nitrate Nitrite as N	0.213		0.100	0.0540	mg/L	1		353.2	Total/NA
Total Organic Carbon - Quad	1.88		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	9.87		1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	582		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	582		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	4620		250	170	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: MW-D

## Lab Sample ID: 310-267793-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	25.2		1.00	0.450	mg/L	1		9056A	Total/NA
Sulfate	146		50.0	21.0	mg/L	50		9056A	Total/NA
Calcium	108		0.500	0.190	mg/L	1		6020B	Total/NA
Magnesium	54.4		0.500	0.150	mg/L	1		6020B	Total/NA
Potassium	10.9		0.500	0.150	mg/L	1		6020B	Total/NA
Sodium	20.4		1.00	0.460	mg/L	1		6020B	Total/NA
Total Hardness	494		2.06	0.618	mg/L	1		SM 2340B	Total/NA
Ammonia	0.285		0.200	0.100	mg/L	1		350.1	Total/NA
Total Organic Carbon - Quad	1.27		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	1.38	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	332		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	332		5.00	2.50	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	588		50.0	34.0	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

# Quantitation Limit Exceptions Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

The requested project specific reporting limits listed below were less than laboratory standard quantitation limits (PQL) but greater than or equal to the laboratory method detection limits (MDL). It must be noted that results reported below lab standard quantitation limits may result in false positive/false negative values and less accurate quantitation. Routine laboratory procedures do not indicate corrective action for detections below the laboratory's PQL.

Method	Analyte	Matrix	Prep Type	Unit	Client RL	Lab PQL
SM 2340B	Total Hardness	Water	Total/NA	mg/L	0.500	3.3

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

**Client Sample ID: MW-201**

**Lab Sample ID: 310-267793-1**

Date Collected: 10/19/23 18:38

Matrix: Water

Date Received: 10/20/23 14:40

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>30.0</b>		1.00	0.450	mg/L			10/20/23 22:09	1
Nitrate as N	<0.200		0.200	0.0780	mg/L			10/20/23 22:09	1
Nitrite as N	<0.200		0.200	0.0430	mg/L			10/20/23 22:09	1
<b>Sulfate</b>	<b>121</b>		50.0	21.0	mg/L			10/23/23 12:30	50

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Aluminum</b>	<b>0.0285</b>	<b>J</b>	0.0500	0.0170	mg/L		10/26/23 10:00	10/26/23 18:55	1
<b>Arsenic</b>	<b>0.00535</b>		0.00200	0.000530	mg/L		10/26/23 10:00	10/26/23 18:55	1
<b>Calcium</b>	<b>96.4</b>		0.500	0.190	mg/L		10/26/23 10:00	10/26/23 18:55	1
<b>Chromium</b>	<b>0.00245</b>	<b>J</b>	0.00500	0.00110	mg/L		10/26/23 10:00	10/26/23 18:55	1
<b>Lead</b>	<b>0.00326</b>		0.000500	0.000240	mg/L		10/26/23 10:00	10/26/23 18:55	1
<b>Magnesium</b>	<b>47.4</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 18:55	1
<b>Potassium</b>	<b>22.4</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 18:55	1
<b>Selenium</b>	<b>0.00767</b>		0.00500	0.00140	mg/L		10/26/23 10:00	10/26/23 18:55	1
<b>Sodium</b>	<b>24.7</b>		1.00	0.460	mg/L		10/26/23 10:00	10/26/23 18:55	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Hardness</b>	<b>436</b>		2.06	0.618	mg/L			10/26/23 18:55	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Ammonia (EPA 350.1)</b>	<b>0.625</b>		0.200	0.100	mg/L			10/24/23 20:28	1
<b>Total Kjeldahl Nitrogen (EPA 351.2)</b>	<b>0.646</b>	<b>J</b>	1.00	0.550	mg/L		10/25/23 06:38	10/26/23 15:40	1
<b>Nitrate Nitrite as N (EPA 353.2)</b>	<b>0.0573</b>	<b>J</b>	0.100	0.0540	mg/L			11/01/23 16:12	1
<b>Total Phosphorus as P (EPA 365.1)</b>	<b>0.0790</b>	<b>J</b>	0.100	0.0620	mg/L		10/25/23 09:02	10/25/23 23:37	1
<b>Total Organic Carbon - Quad (SW846 9060A)</b>	<b>1.49</b>		1.00	0.470	mg/L			11/01/23 20:43	1
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>5.88</b>		1.88	0.638	mg/L			10/24/23 09:41	1
<b>Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)</b>	<b>335</b>		5.00	2.50	mg/L			10/25/23 13:52	1
<b>Bicarbonate Alkalinity as CaCO3 (SM 2320B)</b>	<b>335</b>		5.00	2.50	mg/L			10/25/23 13:52	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			10/25/23 13:52	1
<b>Total Dissolved Solids (SM 2540C)</b>	<b>576</b>		50.0	34.0	mg/L			10/23/23 18:43	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

**Client Sample ID: MW-202R**

**Lab Sample ID: 310-267793-2**

Date Collected: 10/19/23 15:54

Matrix: Water

Date Received: 10/20/23 14:40

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>13.7</b>		1.00	0.450	mg/L			10/20/23 22:21	1
Nitrate as N	<0.200		0.200	0.0780	mg/L			10/20/23 22:21	1
Nitrite as N	<0.200		0.200	0.0430	mg/L			10/20/23 22:21	1
<b>Sulfate</b>	<b>86.7</b>		1.00	0.420	mg/L			10/20/23 22:21	1

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		10/26/23 10:00	10/26/23 19:10	1
<b>Arsenic</b>	<b>0.000645</b>	<b>J</b>	0.00200	0.000530	mg/L		10/26/23 10:00	10/26/23 19:10	1
<b>Calcium</b>	<b>22.6</b>		0.500	0.190	mg/L		10/26/23 10:00	10/26/23 19:10	1
Chromium	<0.00500		0.00500	0.00110	mg/L		10/26/23 10:00	10/26/23 19:10	1
<b>Lead</b>	<b>0.000451</b>	<b>J</b>	0.000500	0.000240	mg/L		10/26/23 10:00	10/26/23 19:10	1
<b>Magnesium</b>	<b>62.6</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 19:10	1
<b>Potassium</b>	<b>8.64</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 19:10	1
<b>Selenium</b>	<b>0.00196</b>	<b>J</b>	0.00500	0.00140	mg/L		10/26/23 10:00	10/26/23 19:10	1
<b>Sodium</b>	<b>41.8</b>		1.00	0.460	mg/L		10/26/23 10:00	10/26/23 19:10	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Hardness</b>	<b>314</b>		2.06	0.618	mg/L			10/26/23 19:10	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			10/24/23 20:28	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		10/25/23 06:38	10/26/23 15:41	1
<b>Nitrate Nitrite as N (EPA 353.2)</b>	<b>0.0578</b>	<b>J</b>	0.100	0.0540	mg/L			11/01/23 16:14	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		10/25/23 09:02	10/25/23 23:36	1
<b>Total Organic Carbon - Quad (SW846 9060A)</b>	<b>1.01</b>		1.00	0.470	mg/L			11/01/23 21:10	1
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>1.25</b>	<b>J</b>	1.88	0.638	mg/L			10/24/23 09:41	1
<b>Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)</b>	<b>259</b>		5.00	2.50	mg/L			10/25/23 14:02	1
<b>Bicarbonate Alkalinity as CaCO3 (SM 2320B)</b>	<b>249</b>		5.00	2.50	mg/L			10/25/23 14:02	1
<b>Carbonate Alkalinity as CaCO3 (SM 2320B)</b>	<b>10.2</b>		5.00	2.50	mg/L			10/25/23 14:02	1
<b>Total Dissolved Solids (SM 2540C)</b>	<b>356</b>		50.0	34.0	mg/L			10/23/23 18:43	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

**Client Sample ID: MW-203R**

**Lab Sample ID: 310-267793-3**

Date Collected: 10/19/23 16:30

Matrix: Water

Date Received: 10/20/23 14:40

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>2.40</b>		1.00	0.450	mg/L			10/20/23 23:21	1
Nitrate as N	<0.200		0.200	0.0780	mg/L			10/20/23 23:21	1
Nitrite as N	<0.200		0.200	0.0430	mg/L			10/20/23 23:21	1
<b>Sulfate</b>	<b>0.719</b>	<b>J</b>	1.00	0.420	mg/L			10/20/23 23:21	1

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		10/26/23 10:00	10/26/23 19:14	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/26/23 10:00	10/26/23 19:14	1
<b>Calcium</b>	<b>73.3</b>		0.500	0.190	mg/L		10/26/23 10:00	10/26/23 19:14	1
Chromium	<0.00500		0.00500	0.00110	mg/L		10/26/23 10:00	10/26/23 19:14	1
Lead	<0.000500		0.000500	0.000240	mg/L		10/26/23 10:00	10/26/23 19:14	1
<b>Magnesium</b>	<b>33.4</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 19:14	1
<b>Potassium</b>	<b>5.18</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 19:14	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/26/23 10:00	10/26/23 19:14	1
<b>Sodium</b>	<b>18.1</b>		1.00	0.460	mg/L		10/26/23 10:00	10/26/23 19:14	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Hardness</b>	<b>321</b>		2.06	0.618	mg/L			10/26/23 19:14	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Ammonia (EPA 350.1)</b>	<b>0.165</b>	<b>J</b>	0.200	0.100	mg/L			10/24/23 20:29	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		10/25/23 06:38	10/26/23 15:42	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			11/01/23 16:15	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		10/25/23 09:02	10/25/23 23:35	1
<b>Total Organic Carbon - Quad (SW846 9060A)</b>	<b>0.971</b>	<b>J</b>	1.00	0.470	mg/L			11/01/23 21:37	1
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>4.25</b>		1.88	0.638	mg/L			10/24/23 09:41	1
<b>Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)</b>	<b>321</b>		5.00	2.50	mg/L			10/25/23 14:20	1
<b>Bicarbonate Alkalinity as CaCO3 (SM 2320B)</b>	<b>321</b>		5.00	2.50	mg/L			10/25/23 14:20	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			10/25/23 14:20	1
<b>Total Dissolved Solids (SM 2540C)</b>	<b>314</b>		50.0	34.0	mg/L			10/23/23 18:43	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

**Client Sample ID: MW-204**

**Lab Sample ID: 310-267793-4**

Date Collected: 10/19/23 15:12

Matrix: Water

Date Received: 10/20/23 14:40

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>24.1</b>		1.00	0.450	mg/L			10/20/23 23:58	1
Nitrate as N	<0.200		0.200	0.0780	mg/L			10/20/23 23:58	1
Nitrite as N	<0.200		0.200	0.0430	mg/L			10/20/23 23:58	1
<b>Sulfate</b>	<b>150</b>		50.0	21.0	mg/L			10/23/23 10:05	50

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		10/26/23 10:00	10/26/23 19:17	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/26/23 10:00	10/26/23 19:17	1
<b>Calcium</b>	<b>105</b>		0.500	0.190	mg/L		10/26/23 10:00	10/26/23 19:17	1
Chromium	<0.00500		0.00500	0.00110	mg/L		10/26/23 10:00	10/26/23 19:17	1
Lead	<0.000500		0.000500	0.000240	mg/L		10/26/23 10:00	10/26/23 19:17	1
<b>Magnesium</b>	<b>54.2</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 19:17	1
<b>Potassium</b>	<b>11.7</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 19:17	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/26/23 10:00	10/26/23 19:17	1
<b>Sodium</b>	<b>20.8</b>		1.00	0.460	mg/L		10/26/23 10:00	10/26/23 19:17	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Hardness</b>	<b>485</b>		2.06	0.618	mg/L			10/26/23 19:17	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Ammonia (EPA 350.1)</b>	<b>0.255</b>		0.200	0.100	mg/L			10/24/23 20:30	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		10/25/23 06:38	10/26/23 15:43	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			11/01/23 16:17	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		10/25/23 09:02	10/25/23 23:22	1
<b>Total Organic Carbon - Quad (SW846 9060A)</b>	<b>1.17</b>		1.00	0.470	mg/L			11/02/23 02:55	1
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>1.13 J</b>		1.88	0.638	mg/L			10/24/23 09:41	1
<b>Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)</b>	<b>327</b>		5.00	2.50	mg/L			10/25/23 14:29	1
<b>Bicarbonate Alkalinity as CaCO3 (SM 2320B)</b>	<b>327</b>		5.00	2.50	mg/L			10/25/23 14:29	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			10/25/23 14:29	1
<b>Total Dissolved Solids (SM 2540C)</b>	<b>592</b>		50.0	34.0	mg/L			10/23/23 18:43	1



# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

**Client Sample ID: MW-205**

**Lab Sample ID: 310-267793-5**

Date Collected: 10/19/23 17:59

Matrix: Water

Date Received: 10/20/23 14:40

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>3.13</b>		1.00	0.450	mg/L			10/21/23 00:10	1
Nitrate as N	<0.200		0.200	0.0780	mg/L			10/21/23 00:10	1
Nitrite as N	<0.200		0.200	0.0430	mg/L			10/21/23 00:10	1
<b>Sulfate</b>	<b>16.7</b>		1.00	0.420	mg/L			10/21/23 00:10	1

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		10/26/23 10:00	10/26/23 19:33	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/26/23 10:00	10/26/23 19:33	1
<b>Calcium</b>	<b>75.5</b>		0.500	0.190	mg/L		10/26/23 10:00	10/26/23 19:33	1
Chromium	<0.00500		0.00500	0.00110	mg/L		10/26/23 10:00	10/26/23 19:33	1
Lead	<0.000500		0.000500	0.000240	mg/L		10/26/23 10:00	10/26/23 19:33	1
<b>Magnesium</b>	<b>36.9</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 19:33	1
<b>Potassium</b>	<b>6.47</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 19:33	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/26/23 10:00	10/26/23 19:33	1
<b>Sodium</b>	<b>19.2</b>		1.00	0.460	mg/L		10/26/23 10:00	10/26/23 19:33	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Hardness</b>	<b>340</b>		2.06	0.618	mg/L			10/26/23 19:33	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Ammonia (EPA 350.1)</b>	<b>0.207</b>		0.200	0.100	mg/L			10/24/23 20:31	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		10/25/23 06:41	10/25/23 16:57	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			11/01/23 16:19	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		10/25/23 09:02	10/25/23 23:41	1
<b>Total Organic Carbon - Quad (SW846 9060A)</b>	<b>0.895 J</b>		1.00	0.470	mg/L			11/02/23 02:28	1
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>1.75 J</b>		1.88	0.638	mg/L			10/24/23 09:41	1
<b>Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)</b>	<b>335</b>		5.00	2.50	mg/L			10/25/23 14:39	1
<b>Bicarbonate Alkalinity as CaCO3 (SM 2320B)</b>	<b>335</b>		5.00	2.50	mg/L			10/25/23 14:39	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			10/25/23 14:39	1
<b>Total Dissolved Solids (SM 2540C)</b>	<b>340</b>		50.0	34.0	mg/L			10/23/23 18:43	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

**Client Sample ID: MW-206**

**Lab Sample ID: 310-267793-6**

Date Collected: 10/19/23 17:19

Matrix: Water

Date Received: 10/20/23 14:40

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>3.32</b>		1.00	0.450	mg/L			10/21/23 00:22	1
Nitrate as N	<0.200		0.200	0.0780	mg/L			10/21/23 00:22	1
Nitrite as N	<0.200		0.200	0.0430	mg/L			10/21/23 00:22	1
<b>Sulfate</b>	<b>27.0</b>		1.00	0.420	mg/L			10/21/23 00:22	1

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		10/26/23 10:00	10/26/23 19:37	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/26/23 10:00	10/26/23 19:37	1
<b>Calcium</b>	<b>80.6</b>		0.500	0.190	mg/L		10/26/23 10:00	10/26/23 19:37	1
Chromium	<0.00500		0.00500	0.00110	mg/L		10/26/23 10:00	10/26/23 19:37	1
<b>Lead</b>	<b>0.000437</b>	<b>J</b>	0.000500	0.000240	mg/L		10/26/23 10:00	10/26/23 19:37	1
<b>Magnesium</b>	<b>38.9</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 19:37	1
<b>Potassium</b>	<b>6.77</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 19:37	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/26/23 10:00	10/26/23 19:37	1
<b>Sodium</b>	<b>18.6</b>		1.00	0.460	mg/L		10/26/23 10:00	10/26/23 19:37	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Hardness</b>	<b>361</b>		2.06	0.618	mg/L			10/26/23 19:37	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Ammonia (EPA 350.1)</b>	<b>0.132</b>	<b>J</b>	0.200	0.100	mg/L			10/24/23 20:31	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		10/25/23 06:41	10/25/23 16:57	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			11/01/23 16:20	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		10/25/23 09:02	10/25/23 23:12	1
<b>Total Organic Carbon - Quad (SW846 9060A)</b>	<b>0.949</b>	<b>J</b>	1.00	0.470	mg/L			11/01/23 23:48	1
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>0.875</b>	<b>J</b>	1.88	0.638	mg/L			10/23/23 13:21	1
<b>Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)</b>	<b>346</b>		5.00	2.50	mg/L			10/25/23 14:49	1
<b>Bicarbonate Alkalinity as CaCO3 (SM 2320B)</b>	<b>346</b>		5.00	2.50	mg/L			10/25/23 14:49	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			10/25/23 14:49	1
<b>Total Dissolved Solids (SM 2540C)</b>	<b>370</b>		50.0	34.0	mg/L			10/23/23 18:43	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

**Client Sample ID: LDR-1**  
 Date Collected: 10/20/23 10:14  
 Date Received: 10/20/23 14:40

**Lab Sample ID: 310-267793-7**  
 Matrix: Water

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>31.2</b>		1.00	0.450	mg/L			10/20/23 21:20	1
Nitrate as N	<0.200		0.200	0.0780	mg/L			10/20/23 21:20	1
<b>Nitrite as N</b>	<b>0.0546</b>	<b>J</b>	0.200	0.0430	mg/L			10/20/23 21:20	1
<b>Sulfate</b>	<b>1640</b>		100	42.0	mg/L			10/23/23 11:05	100

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Aluminum</b>	<b>0.0554</b>		0.0500	0.0170	mg/L		10/26/23 10:00	10/26/23 19:40	1
<b>Arsenic</b>	<b>0.000720</b>	<b>J</b>	0.00200	0.000530	mg/L		10/26/23 10:00	10/26/23 19:40	1
<b>Calcium</b>	<b>564</b>		2.00	0.760	mg/L		10/26/23 10:00	10/27/23 14:50	4
<b>Chromium</b>	<b>0.0451</b>		0.00500	0.00110	mg/L		10/26/23 10:00	10/26/23 19:40	1
Lead	<0.000500		0.000500	0.000240	mg/L		10/26/23 10:00	10/26/23 19:40	1
<b>Magnesium</b>	<b>286</b>		2.00	0.600	mg/L		10/26/23 10:00	10/27/23 14:50	4
<b>Potassium</b>	<b>53.3</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 19:40	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/26/23 10:00	10/26/23 19:40	1
<b>Sodium</b>	<b>30.2</b>		1.00	0.460	mg/L		10/26/23 10:00	10/26/23 19:40	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Hardness</b>	<b>2590</b>		8.24	2.47	mg/L			10/27/23 14:50	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Ammonia (EPA 350.1)</b>	<b>0.385</b>		0.200	0.100	mg/L			10/24/23 20:33	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		10/25/23 06:41	10/25/23 16:58	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			11/01/23 16:25	1
<b>Total Phosphorus as P (EPA 365.1)</b>	<b>0.101</b>		0.100	0.0620	mg/L		10/25/23 09:02	10/25/23 23:26	1
<b>Total Organic Carbon - Quad (SW846 9060A)</b>	<b>1.13</b>		1.00	0.470	mg/L			11/02/23 00:15	1
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>74.5</b>		3.75	1.28	mg/L			10/26/23 10:34	1
<b>Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)</b>	<b>609</b>		5.00	2.50	mg/L			10/25/23 14:59	1
<b>Bicarbonate Alkalinity as CaCO3 (SM 2320B)</b>	<b>609</b>		5.00	2.50	mg/L			10/25/23 14:59	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			10/25/23 14:59	1
<b>Total Dissolved Solids (SM 2540C)</b>	<b>2920</b>		250	170	mg/L			10/24/23 13:07	1

# Client Sample Results

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

**Client Sample ID: LDR-2**

**Lab Sample ID: 310-267793-8**

Date Collected: 10/20/23 11:02

Matrix: Water

Date Received: 10/20/23 14:40

## Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>169</b>		100	45.0	mg/L			10/23/23 11:54	100
Nitrate as N	<0.200		0.200	0.0780	mg/L			10/20/23 21:33	1
<b>Nitrite as N</b>	<b>0.244</b>		0.200	0.0430	mg/L			10/20/23 21:33	1
<b>Sulfate</b>	<b>1400</b>		100	42.0	mg/L			10/23/23 11:54	100

## Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		10/26/23 10:00	10/26/23 19:43	1
<b>Arsenic</b>	<b>0.000680</b>	<b>J</b>	0.00200	0.000530	mg/L		10/26/23 10:00	10/26/23 19:43	1
<b>Calcium</b>	<b>553</b>		2.00	0.760	mg/L		10/26/23 10:00	10/27/23 14:52	4
Chromium	<0.00500		0.00500	0.00110	mg/L		10/26/23 10:00	10/26/23 19:43	1
Lead	<0.000500		0.000500	0.000240	mg/L		10/26/23 10:00	10/26/23 19:43	1
<b>Magnesium</b>	<b>276</b>		2.00	0.600	mg/L		10/26/23 10:00	10/27/23 14:52	4
<b>Potassium</b>	<b>62.2</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 19:43	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/26/23 10:00	10/26/23 19:43	1
<b>Sodium</b>	<b>49.6</b>		1.00	0.460	mg/L		10/26/23 10:00	10/26/23 19:43	1

## Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Hardness</b>	<b>2520</b>		8.24	2.47	mg/L			10/27/23 14:52	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			10/24/23 20:33	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		10/25/23 06:41	10/25/23 16:59	1
<b>Nitrate Nitrite as N (EPA 353.2)</b>	<b>0.124</b>		0.100	0.0540	mg/L			11/01/23 16:27	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		10/25/23 09:02	10/25/23 23:27	1
<b>Total Organic Carbon - Quad (SW846 9060A)</b>	<b>1.37</b>		1.00	0.470	mg/L			11/02/23 00:41	1
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>2.50</b>		1.88	0.638	mg/L			10/24/23 09:41	1
<b>Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)</b>	<b>651</b>		5.00	2.50	mg/L			10/25/23 15:11	1
<b>Bicarbonate Alkalinity as CaCO3 (SM 2320B)</b>	<b>651</b>		5.00	2.50	mg/L			10/25/23 15:11	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			10/25/23 15:11	1
<b>Total Dissolved Solids (SM 2540C)</b>	<b>2920</b>		250	170	mg/L			10/24/23 13:07	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

**Client Sample ID: LDR-3**

**Lab Sample ID: 310-267793-9**

Date Collected: 10/20/23 11:45

Matrix: Water

Date Received: 10/20/23 14:40

### Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	550		100	45.0	mg/L			10/23/23 12:06	100
Nitrate as N	0.103	J	0.200	0.0780	mg/L			10/20/23 21:45	1
Nitrite as N	0.835		0.200	0.0430	mg/L			10/20/23 21:45	1
Sulfate	2170		100	42.0	mg/L			10/23/23 12:06	100

### Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.0249	J	0.0500	0.0170	mg/L		10/26/23 10:00	10/26/23 19:46	1
Arsenic	0.000898	J	0.00200	0.000530	mg/L		10/26/23 10:00	10/26/23 19:46	1
Calcium	835		3.50	1.33	mg/L		10/26/23 10:00	10/27/23 14:54	7
Chromium	<0.00500		0.00500	0.00110	mg/L		10/26/23 10:00	10/26/23 19:46	1
Lead	<0.000500		0.000500	0.000240	mg/L		10/26/23 10:00	10/26/23 19:46	1
Magnesium	441		3.50	1.05	mg/L		10/26/23 10:00	10/27/23 14:54	7
Potassium	371		3.50	1.05	mg/L		10/26/23 10:00	10/27/23 14:54	7
Selenium	<0.00500		0.00500	0.00140	mg/L		10/26/23 10:00	10/26/23 19:46	1
Sodium	116		1.00	0.460	mg/L		10/26/23 10:00	10/26/23 19:46	1

### Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Hardness	3900		14.4	4.32	mg/L			10/27/23 14:54	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	0.654		0.200	0.100	mg/L			10/24/23 20:36	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		10/25/23 06:41	10/25/23 16:59	1
Nitrate Nitrite as N (EPA 353.2)	0.213		0.100	0.0540	mg/L			11/02/23 12:10	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		10/25/23 09:02	10/25/23 23:28	1
Total Organic Carbon - Quad (SW846 9060A)	1.88		1.00	0.470	mg/L			11/02/23 01:08	1
Total Suspended Solids (USGS I-3765-85)	9.87		1.88	0.638	mg/L			10/26/23 10:34	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	582		5.00	2.50	mg/L			10/25/23 15:24	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	582		5.00	2.50	mg/L			10/25/23 15:24	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			10/25/23 15:24	1
Total Dissolved Solids (SM 2540C)	4620		250	170	mg/L			10/24/23 13:07	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

**Client Sample ID: MW-D**

**Lab Sample ID: 310-267793-10**

Date Collected: 10/19/23 15:12

Matrix: Water

Date Received: 10/20/23 14:40

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>25.2</b>		1.00	0.450	mg/L			10/20/23 21:57	1
Nitrate as N	<0.200		0.200	0.0780	mg/L			10/20/23 21:57	1
Nitrite as N	<0.200		0.200	0.0430	mg/L			10/20/23 21:57	1
<b>Sulfate</b>	<b>146</b>		50.0	21.0	mg/L			10/23/23 12:18	50

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		10/26/23 10:00	10/26/23 19:49	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/26/23 10:00	10/26/23 19:49	1
<b>Calcium</b>	<b>108</b>		0.500	0.190	mg/L		10/26/23 10:00	10/26/23 19:49	1
Chromium	<0.00500		0.00500	0.00110	mg/L		10/26/23 10:00	10/26/23 19:49	1
Lead	<0.000500		0.000500	0.000240	mg/L		10/26/23 10:00	10/26/23 19:49	1
<b>Magnesium</b>	<b>54.4</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 19:49	1
<b>Potassium</b>	<b>10.9</b>		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 19:49	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/26/23 10:00	10/26/23 19:49	1
<b>Sodium</b>	<b>20.4</b>		1.00	0.460	mg/L		10/26/23 10:00	10/26/23 19:49	1

**Method: SM 2340B - Total Hardness (as CaCO3) by calculation**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Hardness</b>	<b>494</b>		2.06	0.618	mg/L			10/26/23 19:49	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Ammonia (EPA 350.1)</b>	<b>0.285</b>		0.200	0.100	mg/L			10/24/23 20:36	1
Total Kjeldahl Nitrogen (EPA 351.2)	<1.00		1.00	0.550	mg/L		10/25/23 06:38	10/26/23 15:31	1
Nitrate Nitrite as N (EPA 353.2)	<0.100		0.100	0.0540	mg/L			11/02/23 12:11	1
Total Phosphorus as P (EPA 365.1)	<0.100		0.100	0.0620	mg/L		10/25/23 09:02	10/25/23 23:24	1
<b>Total Organic Carbon - Quad (SW846 9060A)</b>	<b>1.27</b>		1.00	0.470	mg/L			11/02/23 01:35	1
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>1.38 J</b>		1.88	0.638	mg/L			10/24/23 09:41	1
<b>Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)</b>	<b>332</b>		5.00	2.50	mg/L			10/25/23 15:45	1
<b>Bicarbonate Alkalinity as CaCO3 (SM 2320B)</b>	<b>332</b>		5.00	2.50	mg/L			10/25/23 15:45	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.50	mg/L			10/25/23 15:45	1
<b>Total Dissolved Solids (SM 2540C)</b>	<b>588</b>		50.0	34.0	mg/L			10/23/23 18:43	1

# Definitions/Glossary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 310-403573/3**  
**Matrix: Water**  
**Analysis Batch: 403573**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00	0.450	mg/L			02/23/33 22:33	1
Sulfate	<1.00		1.00	0.420	mg/L			02/23/33 22:33	1

**Lab Sample ID: LCS 310-403573/4**  
**Matrix: Water**  
**Analysis Batch: 403573**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.591		mg/L		96	90 - 110
Sulfate	10.0	10.28		mg/L		103	90 - 110

**Lab Sample ID: 310-267793-3 MS**  
**Matrix: Water**  
**Analysis Batch: 403573**

**Client Sample ID: MW-203R**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.40		5.00	6.942		mg/L		91	80 - 120
Nitrate as N	<0.200		1.00	0.9649		mg/L		96	80 - 120
Nitrate as N	<0.200		1.00	0.9649		mg/L		96	80 - 120
Nitrite as N	<0.200		1.00	0.9715		mg/L		97	80 - 120
Nitrite as N	<0.200		1.00	0.9715		mg/L		97	80 - 120
Sulfate	0.719	J	5.00	5.542		mg/L		96	80 - 120

**Lab Sample ID: 310-267793-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 403573**

**Client Sample ID: MW-203R**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	2.40		5.00	6.951		mg/L		91	80 - 120	0	15
Nitrate as N	<0.200		1.00	0.9697		mg/L		97	80 - 120	0	15
Nitrate as N	<0.200		1.00	0.9697		mg/L		97	80 - 120	0	15
Nitrite as N	<0.200		1.00	0.9801		mg/L		98	80 - 120	1	15
Nitrite as N	<0.200		1.00	0.9801		mg/L		98	80 - 120	1	15
Sulfate	0.719	J	5.00	5.557		mg/L		97	80 - 120	0	15

**Lab Sample ID: MB 310-403577/3**  
**Matrix: Water**  
**Analysis Batch: 403577**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00	0.450	mg/L			10/20/23 11:05	1
Sulfate	<1.00		1.00	0.420	mg/L			10/20/23 11:05	1

**Lab Sample ID: LCS 310-403577/4**  
**Matrix: Water**  
**Analysis Batch: 403577**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.660		mg/L		97	90 - 110
Sulfate	10.0	10.23		mg/L		102	90 - 110

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## Method: 6020B - Metals (ICP/MS)

**Lab Sample ID: MB 310-403755/1-A**  
**Matrix: Water**  
**Analysis Batch: 403991**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 403755**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500	0.0170	mg/L		10/26/23 10:00	10/26/23 18:48	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/26/23 10:00	10/26/23 18:48	1
Calcium	<0.500		0.500	0.190	mg/L		10/26/23 10:00	10/26/23 18:48	1
Chromium	<0.00500		0.00500	0.00110	mg/L		10/26/23 10:00	10/26/23 18:48	1
Lead	<0.000500		0.000500	0.000240	mg/L		10/26/23 10:00	10/26/23 18:48	1
Magnesium	<0.500		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 18:48	1
Potassium	<0.500		0.500	0.150	mg/L		10/26/23 10:00	10/26/23 18:48	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/26/23 10:00	10/26/23 18:48	1
Sodium	<1.00		1.00	0.460	mg/L		10/26/23 10:00	10/26/23 18:48	1

**Lab Sample ID: LCS 310-403755/2-A**  
**Matrix: Water**  
**Analysis Batch: 403991**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 403755**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Aluminum	0.200	0.2026		mg/L		101	80 - 120
Arsenic	0.200	0.2047		mg/L		102	80 - 120
Calcium	2.00	1.962		mg/L		98	80 - 120
Chromium	0.100	0.1036		mg/L		104	80 - 120
Lead	0.200	0.2067		mg/L		103	80 - 120
Magnesium	2.00	2.023		mg/L		101	80 - 120
Potassium	2.00	2.052		mg/L		103	80 - 120
Selenium	0.400	0.3677		mg/L		92	80 - 120
Sodium	2.00	2.035		mg/L		102	80 - 120

**Lab Sample ID: 310-267793-1 MS**  
**Matrix: Water**  
**Analysis Batch: 403991**

**Client Sample ID: MW-201**  
**Prep Type: Total/NA**  
**Prep Batch: 403755**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Aluminum	0.0285	J	0.200	0.2091		mg/L		90	75 - 125
Arsenic	0.00535		0.200	0.2223		mg/L		108	75 - 125
Calcium	96.4		2.00	100.0	4	mg/L		180	75 - 125
Chromium	0.00245	J	0.100	0.1067		mg/L		104	75 - 125
Lead	0.00326		0.200	0.2082		mg/L		102	75 - 125
Magnesium	47.4		2.00	50.37	4	mg/L		146	75 - 125
Potassium	22.4		2.00	24.87	4	mg/L		124	75 - 125
Selenium	0.00767		0.400	0.4003		mg/L		98	75 - 125
Sodium	24.7		2.00	27.24	4	mg/L		127	75 - 125

**Lab Sample ID: 310-267793-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 403991**

**Client Sample ID: MW-201**  
**Prep Type: Total/NA**  
**Prep Batch: 403755**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Aluminum	0.0285	J	0.200	0.2068		mg/L		89	75 - 125	1	20
Arsenic	0.00535		0.200	0.2152		mg/L		105	75 - 125	3	20
Calcium	96.4		2.00	96.82	4	mg/L		20	75 - 125	3	20
Chromium	0.00245	J	0.100	0.1038		mg/L		101	75 - 125	3	20

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 310-267793-1 MSD  
 Matrix: Water  
 Analysis Batch: 403991

Client Sample ID: MW-201  
 Prep Type: Total/NA  
 Prep Batch: 403755

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Lead	0.00326		0.200	0.1991		mg/L		98	75 - 125	4	20
Magnesium	47.4		2.00	48.56	4	mg/L		56	75 - 125	4	20
Potassium	22.4		2.00	24.36	4	mg/L		98	75 - 125	2	20
Selenium	0.00767		0.400	0.3927		mg/L		96	75 - 125	2	20
Sodium	24.7		2.00	26.42	4	mg/L		86	75 - 125	3	20

## Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-403608/137  
 Matrix: Water  
 Analysis Batch: 403608

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ammonia	<0.200		0.200	0.100	mg/L			10/24/23 20:17	1

Lab Sample ID: LCS 310-403608/138  
 Matrix: Water  
 Analysis Batch: 403608

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Ammonia	8.55	8.401		mg/L		98	90 - 110

## Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 310-403621/1-A  
 Matrix: Water  
 Analysis Batch: 403915

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 403621

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Kjeldahl Nitrogen	<1.00		1.00	0.550	mg/L		10/25/23 06:38	10/26/23 15:12	1

Lab Sample ID: LCS 310-403621/2-A  
 Matrix: Water  
 Analysis Batch: 403915

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 403621

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Total Kjeldahl Nitrogen	4.01	3.828		mg/L		96	90 - 110

Lab Sample ID: MB 310-403623/1-A  
 Matrix: Water  
 Analysis Batch: 403764

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 403623

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Kjeldahl Nitrogen	<1.00		1.00	0.550	mg/L		10/25/23 06:41	10/25/23 16:52	1

Lab Sample ID: LCS 310-403623/2-A  
 Matrix: Water  
 Analysis Batch: 403764

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 403623

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Total Kjeldahl Nitrogen	4.01	3.603		mg/L		90	90 - 110

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## Method: 353.2 - Nitrogen, Nitrate-Nitrite

**Lab Sample ID: MB 310-404535/35**  
**Matrix: Water**  
**Analysis Batch: 404535**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	<0.100		0.100	0.0540	mg/L			11/01/23 15:41	1

**Lab Sample ID: LCS 310-404535/38**  
**Matrix: Water**  
**Analysis Batch: 404535**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	2.07	2.209		mg/L		107	90 - 110

**Lab Sample ID: MB 310-404681/16**  
**Matrix: Water**  
**Analysis Batch: 404681**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	<0.100		0.100	0.0540	mg/L			11/02/23 11:32	1

**Lab Sample ID: LCS 310-404681/17**  
**Matrix: Water**  
**Analysis Batch: 404681**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	2.07	1.878		mg/L		91	90 - 110

## Method: 365.1 - Phosphorus, Total

**Lab Sample ID: MB 310-403653/1-A**  
**Matrix: Water**  
**Analysis Batch: 403765**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 403653**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Phosphorus as P	<0.100		0.100	0.0620	mg/L		10/25/23 09:02	10/25/23 23:10	1

**Lab Sample ID: LCS 310-403653/2-A**  
**Matrix: Water**  
**Analysis Batch: 403765**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 403653**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Phosphorus as P	1.00	0.9189		mg/L		92	90 - 110

**Lab Sample ID: 310-267793-6 MS**  
**Matrix: Water**  
**Analysis Batch: 403765**

**Client Sample ID: MW-206**  
**Prep Type: Total/NA**  
**Prep Batch: 403653**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Phosphorus as P	<0.100		1.00	0.9100		mg/L		91	90 - 110

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## Method: 365.1 - Phosphorus, Total (Continued)

Lab Sample ID: 310-267793-6 MSD  
 Matrix: Water  
 Analysis Batch: 403765

Client Sample ID: MW-206  
 Prep Type: Total/NA  
 Prep Batch: 403653

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Phosphorus as P	<0.100		1.00	0.9392		mg/L		94	90 - 110	3	13

## Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 500-740197/6  
 Matrix: Water  
 Analysis Batch: 740197

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Quad	<1.00		1.00	0.470	mg/L			11/01/23 18:09	1

Lab Sample ID: LCS 500-740197/7  
 Matrix: Water  
 Analysis Batch: 740197

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Quad	50.0	48.95		mg/L		98	86 - 116

Lab Sample ID: 310-267793-4 MS  
 Matrix: Water  
 Analysis Batch: 740197

Client Sample ID: MW-204  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Quad	1.17		50.0	48.04		mg/L		94	75 - 125

Lab Sample ID: 310-267793-4 MSD  
 Matrix: Water  
 Analysis Batch: 740197

Client Sample ID: MW-204  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Organic Carbon - Quad	1.17		50.0	48.53		mg/L		95	75 - 125	1	20

## Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-403412/1  
 Matrix: Water  
 Analysis Batch: 403412

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			10/23/23 13:21	1

Lab Sample ID: LCS 310-403412/2  
 Matrix: Water  
 Analysis Batch: 403412

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	105.0		mg/L		105	75 - 116

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## Method: I-3765-85 - Residue, Non-filterable (TSS) (Continued)

**Lab Sample ID: MB 310-403500/1**  
**Matrix: Water**  
**Analysis Batch: 403500**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			10/24/23 09:41	1

**Lab Sample ID: LCS 310-403500/2**  
**Matrix: Water**  
**Analysis Batch: 403500**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	98.00		mg/L		98	75 - 116

**Lab Sample ID: MB 310-403837/1**  
**Matrix: Water**  
**Analysis Batch: 403837**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			10/26/23 10:34	1

**Lab Sample ID: LCS 310-403837/2**  
**Matrix: Water**  
**Analysis Batch: 403837**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	96.00		mg/L		96	75 - 116

## Method: SM 2320B - Alkalinity

**Lab Sample ID: LCS 310-403899/2**  
**Matrix: Water**  
**Analysis Batch: 403899**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3 to pH 4.5	1000	911.2		mg/L		91	90 - 110

**Lab Sample ID: 310-267793-2 DU**  
**Matrix: Water**  
**Analysis Batch: 403899**

**Client Sample ID: MW-202R**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Alkalinity as CaCO3 to pH 4.5	259		270.6		mg/L		4	10
Bicarbonate Alkalinity as CaCO3	249		260.6		mg/L		5	
Carbonate Alkalinity as CaCO3	10.2		10.01		mg/L		2	

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 310-403445/1**  
**Matrix: Water**  
**Analysis Batch: 403445**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0	34.0	mg/L			10/23/23 18:43	1

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: LCS 310-403445/2**  
**Matrix: Water**  
**Analysis Batch: 403445**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	986.0		mg/L		99	90 - 110

**Lab Sample ID: MB 310-403562/1**  
**Matrix: Water**  
**Analysis Batch: 403562**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0	34.0	mg/L			10/24/23 13:07	1

**Lab Sample ID: LCS 310-403562/2**  
**Matrix: Water**  
**Analysis Batch: 403562**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	992.0		mg/L		99	90 - 110

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# QC Association Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## HPLC/IC

### Analysis Batch: 403573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-3	MW-203R	Total/NA	Water	9056A	
310-267793-4	MW-204	Total/NA	Water	9056A	
310-267793-4	MW-204	Total/NA	Water	9056A	
310-267793-5	MW-205	Total/NA	Water	9056A	
310-267793-6	MW-206	Total/NA	Water	9056A	
MB 310-403573/3	Method Blank	Total/NA	Water	9056A	
LCS 310-403573/4	Lab Control Sample	Total/NA	Water	9056A	
310-267793-3 MS	MW-203R	Total/NA	Water	9056A	
310-267793-3 MSD	MW-203R	Total/NA	Water	9056A	

### Analysis Batch: 403577

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-1	MW-201	Total/NA	Water	9056A	
310-267793-1	MW-201	Total/NA	Water	9056A	
310-267793-2	MW-202R	Total/NA	Water	9056A	
310-267793-7	LDR-1	Total/NA	Water	9056A	
310-267793-7	LDR-1	Total/NA	Water	9056A	
310-267793-8	LDR-2	Total/NA	Water	9056A	
310-267793-8	LDR-2	Total/NA	Water	9056A	
310-267793-9	LDR-3	Total/NA	Water	9056A	
310-267793-9	LDR-3	Total/NA	Water	9056A	
310-267793-10	MW-D	Total/NA	Water	9056A	
310-267793-10	MW-D	Total/NA	Water	9056A	
MB 310-403577/3	Method Blank	Total/NA	Water	9056A	
LCS 310-403577/4	Lab Control Sample	Total/NA	Water	9056A	

## Metals

### Analysis Batch: 403403

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-1	MW-201	Total/NA	Water	SM 2340B	
310-267793-2	MW-202R	Total/NA	Water	SM 2340B	
310-267793-3	MW-203R	Total/NA	Water	SM 2340B	
310-267793-4	MW-204	Total/NA	Water	SM 2340B	
310-267793-5	MW-205	Total/NA	Water	SM 2340B	
310-267793-6	MW-206	Total/NA	Water	SM 2340B	
310-267793-7	LDR-1	Total/NA	Water	SM 2340B	
310-267793-8	LDR-2	Total/NA	Water	SM 2340B	
310-267793-9	LDR-3	Total/NA	Water	SM 2340B	
310-267793-10	MW-D	Total/NA	Water	SM 2340B	

### Prep Batch: 403755

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-1	MW-201	Total/NA	Water	3005A	
310-267793-2	MW-202R	Total/NA	Water	3005A	
310-267793-3	MW-203R	Total/NA	Water	3005A	
310-267793-4	MW-204	Total/NA	Water	3005A	
310-267793-5	MW-205	Total/NA	Water	3005A	
310-267793-6	MW-206	Total/NA	Water	3005A	
310-267793-7	LDR-1	Total/NA	Water	3005A	
310-267793-8	LDR-2	Total/NA	Water	3005A	

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# QC Association Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## Metals (Continued)

### Prep Batch: 403755 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-9	LDR-3	Total/NA	Water	3005A	
310-267793-10	MW-D	Total/NA	Water	3005A	
MB 310-403755/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-403755/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-267793-1 MS	MW-201	Total/NA	Water	3005A	
310-267793-1 MSD	MW-201	Total/NA	Water	3005A	

### Analysis Batch: 403991

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-1	MW-201	Total/NA	Water	6020B	403755
310-267793-2	MW-202R	Total/NA	Water	6020B	403755
310-267793-3	MW-203R	Total/NA	Water	6020B	403755
310-267793-4	MW-204	Total/NA	Water	6020B	403755
310-267793-5	MW-205	Total/NA	Water	6020B	403755
310-267793-6	MW-206	Total/NA	Water	6020B	403755
310-267793-7	LDR-1	Total/NA	Water	6020B	403755
310-267793-8	LDR-2	Total/NA	Water	6020B	403755
310-267793-9	LDR-3	Total/NA	Water	6020B	403755
310-267793-10	MW-D	Total/NA	Water	6020B	403755
MB 310-403755/1-A	Method Blank	Total/NA	Water	6020B	403755
LCS 310-403755/2-A	Lab Control Sample	Total/NA	Water	6020B	403755
310-267793-1 MS	MW-201	Total/NA	Water	6020B	403755
310-267793-1 MSD	MW-201	Total/NA	Water	6020B	403755

### Analysis Batch: 404080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-7	LDR-1	Total/NA	Water	6020B	403755
310-267793-8	LDR-2	Total/NA	Water	6020B	403755
310-267793-9	LDR-3	Total/NA	Water	6020B	403755

## General Chemistry

### Analysis Batch: 403412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-6	MW-206	Total/NA	Water	I-3765-85	
MB 310-403412/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-403412/2	Lab Control Sample	Total/NA	Water	I-3765-85	

### Analysis Batch: 403445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-1	MW-201	Total/NA	Water	SM 2540C	
310-267793-2	MW-202R	Total/NA	Water	SM 2540C	
310-267793-3	MW-203R	Total/NA	Water	SM 2540C	
310-267793-4	MW-204	Total/NA	Water	SM 2540C	
310-267793-5	MW-205	Total/NA	Water	SM 2540C	
310-267793-6	MW-206	Total/NA	Water	SM 2540C	
310-267793-10	MW-D	Total/NA	Water	SM 2540C	
MB 310-403445/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-403445/2	Lab Control Sample	Total/NA	Water	SM 2540C	



# QC Association Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## General Chemistry

### Analysis Batch: 403500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-1	MW-201	Total/NA	Water	I-3765-85	
310-267793-2	MW-202R	Total/NA	Water	I-3765-85	
310-267793-3	MW-203R	Total/NA	Water	I-3765-85	
310-267793-4	MW-204	Total/NA	Water	I-3765-85	
310-267793-5	MW-205	Total/NA	Water	I-3765-85	
310-267793-8	LDR-2	Total/NA	Water	I-3765-85	
310-267793-10	MW-D	Total/NA	Water	I-3765-85	
MB 310-403500/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-403500/2	Lab Control Sample	Total/NA	Water	I-3765-85	

### Analysis Batch: 403562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-7	LDR-1	Total/NA	Water	SM 2540C	
310-267793-8	LDR-2	Total/NA	Water	SM 2540C	
310-267793-9	LDR-3	Total/NA	Water	SM 2540C	
MB 310-403562/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-403562/2	Lab Control Sample	Total/NA	Water	SM 2540C	

### Analysis Batch: 403608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-1	MW-201	Total/NA	Water	350.1	
310-267793-2	MW-202R	Total/NA	Water	350.1	
310-267793-3	MW-203R	Total/NA	Water	350.1	
310-267793-4	MW-204	Total/NA	Water	350.1	
310-267793-5	MW-205	Total/NA	Water	350.1	
310-267793-6	MW-206	Total/NA	Water	350.1	
310-267793-7	LDR-1	Total/NA	Water	350.1	
310-267793-8	LDR-2	Total/NA	Water	350.1	
310-267793-9	LDR-3	Total/NA	Water	350.1	
310-267793-10	MW-D	Total/NA	Water	350.1	
MB 310-403608/137	Method Blank	Total/NA	Water	350.1	
LCS 310-403608/138	Lab Control Sample	Total/NA	Water	350.1	

### Prep Batch: 403621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-1	MW-201	Total/NA	Water	351.2	
310-267793-2	MW-202R	Total/NA	Water	351.2	
310-267793-3	MW-203R	Total/NA	Water	351.2	
310-267793-4	MW-204	Total/NA	Water	351.2	
310-267793-10	MW-D	Total/NA	Water	351.2	
MB 310-403621/1-A	Method Blank	Total/NA	Water	351.2	
LCS 310-403621/2-A	Lab Control Sample	Total/NA	Water	351.2	

### Prep Batch: 403623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-5	MW-205	Total/NA	Water	351.2	
310-267793-6	MW-206	Total/NA	Water	351.2	
310-267793-7	LDR-1	Total/NA	Water	351.2	
310-267793-8	LDR-2	Total/NA	Water	351.2	
310-267793-9	LDR-3	Total/NA	Water	351.2	
MB 310-403623/1-A	Method Blank	Total/NA	Water	351.2	

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# QC Association Summary

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## General Chemistry (Continued)

### Prep Batch: 403623 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-403623/2-A	Lab Control Sample	Total/NA	Water	351.2	

### Prep Batch: 403653

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-1	MW-201	Total/NA	Water	365.2/365.3/365	
310-267793-2	MW-202R	Total/NA	Water	365.2/365.3/365	
310-267793-3	MW-203R	Total/NA	Water	365.2/365.3/365	
310-267793-4	MW-204	Total/NA	Water	365.2/365.3/365	
310-267793-5	MW-205	Total/NA	Water	365.2/365.3/365	
310-267793-6	MW-206	Total/NA	Water	365.2/365.3/365	
310-267793-7	LDR-1	Total/NA	Water	365.2/365.3/365	
310-267793-8	LDR-2	Total/NA	Water	365.2/365.3/365	
310-267793-9	LDR-3	Total/NA	Water	365.2/365.3/365	
310-267793-10	MW-D	Total/NA	Water	365.2/365.3/365	
MB 310-403653/1-A	Method Blank	Total/NA	Water	365.2/365.3/365	
LCS 310-403653/2-A	Lab Control Sample	Total/NA	Water	365.2/365.3/365	
310-267793-6 MS	MW-206	Total/NA	Water	365.2/365.3/365	
310-267793-6 MSD	MW-206	Total/NA	Water	365.2/365.3/365	

### Analysis Batch: 403764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-5	MW-205	Total/NA	Water	351.2	403623
310-267793-6	MW-206	Total/NA	Water	351.2	403623
310-267793-7	LDR-1	Total/NA	Water	351.2	403623
310-267793-8	LDR-2	Total/NA	Water	351.2	403623
310-267793-9	LDR-3	Total/NA	Water	351.2	403623
MB 310-403623/1-A	Method Blank	Total/NA	Water	351.2	403623
LCS 310-403623/2-A	Lab Control Sample	Total/NA	Water	351.2	403623

### Analysis Batch: 403765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-1	MW-201	Total/NA	Water	365.1	403653
310-267793-2	MW-202R	Total/NA	Water	365.1	403653
310-267793-3	MW-203R	Total/NA	Water	365.1	403653
310-267793-4	MW-204	Total/NA	Water	365.1	403653
310-267793-5	MW-205	Total/NA	Water	365.1	403653
310-267793-6	MW-206	Total/NA	Water	365.1	403653
310-267793-7	LDR-1	Total/NA	Water	365.1	403653
310-267793-8	LDR-2	Total/NA	Water	365.1	403653
310-267793-9	LDR-3	Total/NA	Water	365.1	403653
310-267793-10	MW-D	Total/NA	Water	365.1	403653
MB 310-403653/1-A	Method Blank	Total/NA	Water	365.1	403653
LCS 310-403653/2-A	Lab Control Sample	Total/NA	Water	365.1	403653
310-267793-6 MS	MW-206	Total/NA	Water	365.1	403653
310-267793-6 MSD	MW-206	Total/NA	Water	365.1	403653

### Analysis Batch: 403837

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-7	LDR-1	Total/NA	Water	I-3765-85	
310-267793-9	LDR-3	Total/NA	Water	I-3765-85	
MB 310-403837/1	Method Blank	Total/NA	Water	I-3765-85	

Eurofins Cedar Falls

# QC Association Summary

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## General Chemistry (Continued)

### Analysis Batch: 403837 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-403837/2	Lab Control Sample	Total/NA	Water	I-3765-85	

### Analysis Batch: 403899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-1	MW-201	Total/NA	Water	SM 2320B	
310-267793-2	MW-202R	Total/NA	Water	SM 2320B	
310-267793-3	MW-203R	Total/NA	Water	SM 2320B	
310-267793-4	MW-204	Total/NA	Water	SM 2320B	
310-267793-5	MW-205	Total/NA	Water	SM 2320B	
310-267793-6	MW-206	Total/NA	Water	SM 2320B	
310-267793-7	LDR-1	Total/NA	Water	SM 2320B	
310-267793-8	LDR-2	Total/NA	Water	SM 2320B	
310-267793-9	LDR-3	Total/NA	Water	SM 2320B	
310-267793-10	MW-D	Total/NA	Water	SM 2320B	
LCS 310-403899/2	Lab Control Sample	Total/NA	Water	SM 2320B	
310-267793-2 DU	MW-202R	Total/NA	Water	SM 2320B	

### Analysis Batch: 403915

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-1	MW-201	Total/NA	Water	351.2	403621
310-267793-2	MW-202R	Total/NA	Water	351.2	403621
310-267793-3	MW-203R	Total/NA	Water	351.2	403621
310-267793-4	MW-204	Total/NA	Water	351.2	403621
310-267793-10	MW-D	Total/NA	Water	351.2	403621
MB 310-403621/1-A	Method Blank	Total/NA	Water	351.2	403621
LCS 310-403621/2-A	Lab Control Sample	Total/NA	Water	351.2	403621

### Analysis Batch: 404535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-1	MW-201	Total/NA	Water	353.2	
310-267793-2	MW-202R	Total/NA	Water	353.2	
310-267793-3	MW-203R	Total/NA	Water	353.2	
310-267793-4	MW-204	Total/NA	Water	353.2	
310-267793-5	MW-205	Total/NA	Water	353.2	
310-267793-6	MW-206	Total/NA	Water	353.2	
310-267793-7	LDR-1	Total/NA	Water	353.2	
310-267793-8	LDR-2	Total/NA	Water	353.2	
MB 310-404535/35	Method Blank	Total/NA	Water	353.2	
LCS 310-404535/38	Lab Control Sample	Total/NA	Water	353.2	

### Analysis Batch: 404681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-9	LDR-3	Total/NA	Water	353.2	
310-267793-10	MW-D	Total/NA	Water	353.2	
MB 310-404681/16	Method Blank	Total/NA	Water	353.2	
LCS 310-404681/17	Lab Control Sample	Total/NA	Water	353.2	

### Analysis Batch: 740197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-1	MW-201	Total/NA	Water	9060A	
310-267793-2	MW-202R	Total/NA	Water	9060A	

Eurofins Cedar Falls

# QC Association Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## General Chemistry (Continued)

### Analysis Batch: 740197 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267793-3	MW-203R	Total/NA	Water	9060A	
310-267793-4	MW-204	Total/NA	Water	9060A	
310-267793-5	MW-205	Total/NA	Water	9060A	
310-267793-6	MW-206	Total/NA	Water	9060A	
310-267793-7	LDR-1	Total/NA	Water	9060A	
310-267793-8	LDR-2	Total/NA	Water	9060A	
310-267793-9	LDR-3	Total/NA	Water	9060A	
310-267793-10	MW-D	Total/NA	Water	9060A	
MB 500-740197/6	Method Blank	Total/NA	Water	9060A	
LCS 500-740197/7	Lab Control Sample	Total/NA	Water	9060A	
310-267793-4 MS	MW-204	Total/NA	Water	9060A	
310-267793-4 MSD	MW-204	Total/NA	Water	9060A	

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

**Client Sample ID: MW-201**  
**Date Collected: 10/19/23 18:38**  
**Date Received: 10/20/23 14:40**

**Lab Sample ID: 310-267793-1**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	403577	QTZ5	EET CF	10/20/23 22:09
Total/NA	Analysis	9056A		50	403577	QTZ5	EET CF	10/23/23 12:30
Total/NA	Prep	3005A			403755	KCK5	EET CF	10/26/23 10:00
Total/NA	Analysis	6020B		1	403991	A6US	EET CF	10/26/23 18:55
Total/NA	Analysis	SM 2340B		1	403403	HE7K	EET CF	10/26/23 18:55
Total/NA	Analysis	350.1		1	403608	ZJX4	EET CF	10/24/23 20:28
Total/NA	Prep	351.2			403621	W9YR	EET CF	10/25/23 06:38
Total/NA	Analysis	351.2		1	403915	ZJX4	EET CF	10/26/23 15:40
Total/NA	Analysis	353.2		1	404535	WZC8	EET CF	11/01/23 16:12
Total/NA	Prep	365.2/365.3/365			403653	MAQ3	EET CF	10/25/23 09:02
Total/NA	Analysis	365.1		1	403765	ZJX4	EET CF	10/25/23 23:37
Total/NA	Analysis	9060A		1	740197	TR	EET CHI	11/01/23 20:43
Total/NA	Analysis	I-3765-85		1	403500	DGU1	EET CF	10/24/23 09:41
Total/NA	Analysis	SM 2320B		1	403899	MAQ3	EET CF	10/25/23 13:52
Total/NA	Analysis	SM 2540C		1	403445	D7CP	EET CF	10/23/23 18:43

**Client Sample ID: MW-202R**  
**Date Collected: 10/19/23 15:54**  
**Date Received: 10/20/23 14:40**

**Lab Sample ID: 310-267793-2**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	403577	QTZ5	EET CF	10/20/23 22:21
Total/NA	Prep	3005A			403755	KCK5	EET CF	10/26/23 10:00
Total/NA	Analysis	6020B		1	403991	A6US	EET CF	10/26/23 19:10
Total/NA	Analysis	SM 2340B		1	403403	HE7K	EET CF	10/26/23 19:10
Total/NA	Analysis	350.1		1	403608	ZJX4	EET CF	10/24/23 20:28
Total/NA	Prep	351.2			403621	W9YR	EET CF	10/25/23 06:38
Total/NA	Analysis	351.2		1	403915	ZJX4	EET CF	10/26/23 15:41
Total/NA	Analysis	353.2		1	404535	WZC8	EET CF	11/01/23 16:14
Total/NA	Prep	365.2/365.3/365			403653	MAQ3	EET CF	10/25/23 09:02
Total/NA	Analysis	365.1		1	403765	ZJX4	EET CF	10/25/23 23:36
Total/NA	Analysis	9060A		1	740197	TR	EET CHI	11/01/23 21:10
Total/NA	Analysis	I-3765-85		1	403500	DGU1	EET CF	10/24/23 09:41
Total/NA	Analysis	SM 2320B		1	403899	MAQ3	EET CF	10/25/23 14:02
Total/NA	Analysis	SM 2540C		1	403445	D7CP	EET CF	10/23/23 18:43

**Client Sample ID: MW-203R**  
**Date Collected: 10/19/23 16:30**  
**Date Received: 10/20/23 14:40**

**Lab Sample ID: 310-267793-3**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	403573	QTZ5	EET CF	10/20/23 23:21

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

**Client Sample ID: MW-203R**

**Lab Sample ID: 310-267793-3**

**Date Collected: 10/19/23 16:30**

**Matrix: Water**

**Date Received: 10/20/23 14:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			403755	KCK5	EET CF	10/26/23 10:00
Total/NA	Analysis	6020B		1	403991	A6US	EET CF	10/26/23 19:14
Total/NA	Analysis	SM 2340B		1	403403	HE7K	EET CF	10/26/23 19:14
Total/NA	Analysis	350.1		1	403608	ZJX4	EET CF	10/24/23 20:29
Total/NA	Prep	351.2			403621	W9YR	EET CF	10/25/23 06:38
Total/NA	Analysis	351.2		1	403915	ZJX4	EET CF	10/26/23 15:42
Total/NA	Analysis	353.2		1	404535	WZC8	EET CF	11/01/23 16:15
Total/NA	Prep	365.2/365.3/365			403653	MAQ3	EET CF	10/25/23 09:02
Total/NA	Analysis	365.1		1	403765	ZJX4	EET CF	10/25/23 23:35
Total/NA	Analysis	9060A		1	740197	TR	EET CHI	11/01/23 21:37
Total/NA	Analysis	I-3765-85		1	403500	DGU1	EET CF	10/24/23 09:41
Total/NA	Analysis	SM 2320B		1	403899	MAQ3	EET CF	10/25/23 14:20
Total/NA	Analysis	SM 2540C		1	403445	D7CP	EET CF	10/23/23 18:43

**Client Sample ID: MW-204**

**Lab Sample ID: 310-267793-4**

**Date Collected: 10/19/23 15:12**

**Matrix: Water**

**Date Received: 10/20/23 14:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	403573	QTZ5	EET CF	10/20/23 23:58
Total/NA	Analysis	9056A		50	403573	QTZ5	EET CF	10/23/23 10:05
Total/NA	Prep	3005A			403755	KCK5	EET CF	10/26/23 10:00
Total/NA	Analysis	6020B		1	403991	A6US	EET CF	10/26/23 19:17
Total/NA	Analysis	SM 2340B		1	403403	HE7K	EET CF	10/26/23 19:17
Total/NA	Analysis	350.1		1	403608	ZJX4	EET CF	10/24/23 20:30
Total/NA	Prep	351.2			403621	W9YR	EET CF	10/25/23 06:38
Total/NA	Analysis	351.2		1	403915	ZJX4	EET CF	10/26/23 15:43
Total/NA	Analysis	353.2		1	404535	WZC8	EET CF	11/01/23 16:17
Total/NA	Prep	365.2/365.3/365			403653	MAQ3	EET CF	10/25/23 09:02
Total/NA	Analysis	365.1		1	403765	ZJX4	EET CF	10/25/23 23:22
Total/NA	Analysis	9060A		1	740197	TR	EET CHI	11/02/23 02:55
Total/NA	Analysis	I-3765-85		1	403500	DGU1	EET CF	10/24/23 09:41
Total/NA	Analysis	SM 2320B		1	403899	MAQ3	EET CF	10/25/23 14:29
Total/NA	Analysis	SM 2540C		1	403445	D7CP	EET CF	10/23/23 18:43

**Client Sample ID: MW-205**

**Lab Sample ID: 310-267793-5**

**Date Collected: 10/19/23 17:59**

**Matrix: Water**

**Date Received: 10/20/23 14:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	403573	QTZ5	EET CF	10/21/23 00:10
Total/NA	Prep	3005A			403755	KCK5	EET CF	10/26/23 10:00
Total/NA	Analysis	6020B		1	403991	A6US	EET CF	10/26/23 19:33

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

**Client Sample ID: MW-205**

**Lab Sample ID: 310-267793-5**

**Date Collected: 10/19/23 17:59**

**Matrix: Water**

**Date Received: 10/20/23 14:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 2340B		1	403403	HE7K	EET CF	10/26/23 19:33
Total/NA	Analysis	350.1		1	403608	ZJX4	EET CF	10/24/23 20:31
Total/NA	Prep	351.2			403623	W9YR	EET CF	10/25/23 06:41
Total/NA	Analysis	351.2		1	403764	ZJX4	EET CF	10/25/23 16:57
Total/NA	Analysis	353.2		1	404535	WZC8	EET CF	11/01/23 16:19
Total/NA	Prep	365.2/365.3/365			403653	MAQ3	EET CF	10/25/23 09:02
Total/NA	Analysis	365.1		1	403765	ZJX4	EET CF	10/25/23 23:41
Total/NA	Analysis	9060A		1	740197	TR	EET CHI	11/02/23 02:28
Total/NA	Analysis	I-3765-85		1	403500	DGU1	EET CF	10/24/23 09:41
Total/NA	Analysis	SM 2320B		1	403899	MAQ3	EET CF	10/25/23 14:39
Total/NA	Analysis	SM 2540C		1	403445	D7CP	EET CF	10/23/23 18:43

**Client Sample ID: MW-206**

**Lab Sample ID: 310-267793-6**

**Date Collected: 10/19/23 17:19**

**Matrix: Water**

**Date Received: 10/20/23 14:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	403573	QTZ5	EET CF	10/21/23 00:22
Total/NA	Prep	3005A			403755	KCK5	EET CF	10/26/23 10:00
Total/NA	Analysis	6020B		1	403991	A6US	EET CF	10/26/23 19:37
Total/NA	Analysis	SM 2340B		1	403403	HE7K	EET CF	10/26/23 19:37
Total/NA	Analysis	350.1		1	403608	ZJX4	EET CF	10/24/23 20:31
Total/NA	Prep	351.2			403623	W9YR	EET CF	10/25/23 06:41
Total/NA	Analysis	351.2		1	403764	ZJX4	EET CF	10/25/23 16:57
Total/NA	Analysis	353.2		1	404535	WZC8	EET CF	11/01/23 16:20
Total/NA	Prep	365.2/365.3/365			403653	MAQ3	EET CF	10/25/23 09:02
Total/NA	Analysis	365.1		1	403765	ZJX4	EET CF	10/25/23 23:12
Total/NA	Analysis	9060A		1	740197	TR	EET CHI	11/01/23 23:48
Total/NA	Analysis	I-3765-85		1	403412	DGU1	EET CF	10/23/23 13:21
Total/NA	Analysis	SM 2320B		1	403899	MAQ3	EET CF	10/25/23 14:49
Total/NA	Analysis	SM 2540C		1	403445	D7CP	EET CF	10/23/23 18:43

**Client Sample ID: LDR-1**

**Lab Sample ID: 310-267793-7**

**Date Collected: 10/20/23 10:14**

**Matrix: Water**

**Date Received: 10/20/23 14:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	403577	QTZ5	EET CF	10/20/23 21:20
Total/NA	Analysis	9056A		100	403577	QTZ5	EET CF	10/23/23 11:05
Total/NA	Prep	3005A			403755	KCK5	EET CF	10/26/23 10:00
Total/NA	Analysis	6020B		1	403991	A6US	EET CF	10/26/23 19:40
Total/NA	Prep	3005A			403755	KCK5	EET CF	10/26/23 10:00
Total/NA	Analysis	6020B		4	404080	A6US	EET CF	10/27/23 14:50

Eurofins Cedar Falls

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

**Client Sample ID: LDR-1**  
**Date Collected: 10/20/23 10:14**  
**Date Received: 10/20/23 14:40**

**Lab Sample ID: 310-267793-7**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 2340B		1	403403	HE7K	EET CF	10/27/23 14:50
Total/NA	Analysis	350.1		1	403608	ZJX4	EET CF	10/24/23 20:33
Total/NA	Prep	351.2			403623	W9YR	EET CF	10/25/23 06:41
Total/NA	Analysis	351.2		1	403764	ZJX4	EET CF	10/25/23 16:58
Total/NA	Analysis	353.2		1	404535	WZC8	EET CF	11/01/23 16:25
Total/NA	Prep	365.2/365.3/365			403653	MAQ3	EET CF	10/25/23 09:02
Total/NA	Analysis	365.1		1	403765	ZJX4	EET CF	10/25/23 23:26
Total/NA	Analysis	9060A		1	740197	TR	EET CHI	11/02/23 00:15
Total/NA	Analysis	I-3765-85		1	403837	DGU1	EET CF	10/26/23 10:34
Total/NA	Analysis	SM 2320B		1	403899	MAQ3	EET CF	10/25/23 14:59
Total/NA	Analysis	SM 2540C		1	403562	DGU1	EET CF	10/24/23 13:07

**Client Sample ID: LDR-2**  
**Date Collected: 10/20/23 11:02**  
**Date Received: 10/20/23 14:40**

**Lab Sample ID: 310-267793-8**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	403577	QTZ5	EET CF	10/20/23 21:33
Total/NA	Analysis	9056A		100	403577	QTZ5	EET CF	10/23/23 11:54
Total/NA	Prep	3005A			403755	KCK5	EET CF	10/26/23 10:00
Total/NA	Analysis	6020B		1	403991	A6US	EET CF	10/26/23 19:43
Total/NA	Prep	3005A			403755	KCK5	EET CF	10/26/23 10:00
Total/NA	Analysis	6020B		4	404080	A6US	EET CF	10/27/23 14:52
Total/NA	Analysis	SM 2340B		1	403403	HE7K	EET CF	10/27/23 14:52
Total/NA	Analysis	350.1		1	403608	ZJX4	EET CF	10/24/23 20:33
Total/NA	Prep	351.2			403623	W9YR	EET CF	10/25/23 06:41
Total/NA	Analysis	351.2		1	403764	ZJX4	EET CF	10/25/23 16:59
Total/NA	Analysis	353.2		1	404535	WZC8	EET CF	11/01/23 16:27
Total/NA	Prep	365.2/365.3/365			403653	MAQ3	EET CF	10/25/23 09:02
Total/NA	Analysis	365.1		1	403765	ZJX4	EET CF	10/25/23 23:27
Total/NA	Analysis	9060A		1	740197	TR	EET CHI	11/02/23 00:41
Total/NA	Analysis	I-3765-85		1	403500	DGU1	EET CF	10/24/23 09:41
Total/NA	Analysis	SM 2320B		1	403899	MAQ3	EET CF	10/25/23 15:11
Total/NA	Analysis	SM 2540C		1	403562	DGU1	EET CF	10/24/23 13:07

**Client Sample ID: LDR-3**  
**Date Collected: 10/20/23 11:45**  
**Date Received: 10/20/23 14:40**

**Lab Sample ID: 310-267793-9**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	403577	QTZ5	EET CF	10/20/23 21:45
Total/NA	Analysis	9056A		100	403577	QTZ5	EET CF	10/23/23 12:06



# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

**Client Sample ID: LDR-3**  
**Date Collected: 10/20/23 11:45**  
**Date Received: 10/20/23 14:40**

**Lab Sample ID: 310-267793-9**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			403755	KCK5	EET CF	10/26/23 10:00
Total/NA	Analysis	6020B		1	403991	A6US	EET CF	10/26/23 19:46
Total/NA	Prep	3005A			403755	KCK5	EET CF	10/26/23 10:00
Total/NA	Analysis	6020B		7	404080	A6US	EET CF	10/27/23 14:54
Total/NA	Analysis	SM 2340B		1	403403	HE7K	EET CF	10/27/23 14:54
Total/NA	Analysis	350.1		1	403608	ZJX4	EET CF	10/24/23 20:36
Total/NA	Prep	351.2			403623	W9YR	EET CF	10/25/23 06:41
Total/NA	Analysis	351.2		1	403764	ZJX4	EET CF	10/25/23 16:59
Total/NA	Analysis	353.2		1	404681	WZC8	EET CF	11/02/23 12:10
Total/NA	Prep	365.2/365.3/365			403653	MAQ3	EET CF	10/25/23 09:02
Total/NA	Analysis	365.1		1	403765	ZJX4	EET CF	10/25/23 23:28
Total/NA	Analysis	9060A		1	740197	TR	EET CHI	11/02/23 01:08
Total/NA	Analysis	I-3765-85		1	403837	DGU1	EET CF	10/26/23 10:34
Total/NA	Analysis	SM 2320B		1	403899	MAQ3	EET CF	10/25/23 15:24
Total/NA	Analysis	SM 2540C		1	403562	DGU1	EET CF	10/24/23 13:07

**Client Sample ID: MW-D**  
**Date Collected: 10/19/23 15:12**  
**Date Received: 10/20/23 14:40**

**Lab Sample ID: 310-267793-10**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	403577	QTZ5	EET CF	10/20/23 21:57
Total/NA	Analysis	9056A		50	403577	QTZ5	EET CF	10/23/23 12:18
Total/NA	Prep	3005A			403755	KCK5	EET CF	10/26/23 10:00
Total/NA	Analysis	6020B		1	403991	A6US	EET CF	10/26/23 19:49
Total/NA	Analysis	SM 2340B		1	403403	HE7K	EET CF	10/26/23 19:49
Total/NA	Analysis	350.1		1	403608	ZJX4	EET CF	10/24/23 20:36
Total/NA	Prep	351.2			403621	W9YR	EET CF	10/25/23 06:38
Total/NA	Analysis	351.2		1	403915	ZJX4	EET CF	10/26/23 15:31
Total/NA	Analysis	353.2		1	404681	WZC8	EET CF	11/02/23 12:11
Total/NA	Prep	365.2/365.3/365			403653	MAQ3	EET CF	10/25/23 09:02
Total/NA	Analysis	365.1		1	403765	ZJX4	EET CF	10/25/23 23:24
Total/NA	Analysis	9060A		1	740197	TR	EET CHI	11/02/23 01:35
Total/NA	Analysis	I-3765-85		1	403500	DGU1	EET CF	10/24/23 09:41
Total/NA	Analysis	SM 2320B		1	403899	MAQ3	EET CF	10/25/23 15:45
Total/NA	Analysis	SM 2540C		1	403445	D7CP	EET CF	10/23/23 18:43

**Laboratory References:**

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401  
 EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

# Accreditation/Certification Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

## Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

## Laboratory: Eurofins Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	082	05-01-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9060A		Water	Total Organic Carbon - Quad



# Method Summary

Client: SCS Engineers  
Project/Site: Heidelberg Materials US Cement, LLC

Job ID: 310-267793-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
351.2	Nitrogen, Total Kjeldahl	EPA	EET CF
353.2	Nitrogen, Nitrate-Nitrite	EPA	EET CF
365.1	Phosphorus, Total	EPA	EET CF
9060A	Organic Carbon, Total (TOC)	SW846	EET CHI
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 2320B	Alkalinity	SM	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
351.2	Nitrogen, Total Kjeldahl	EPA	EET CF
365.2/365.3/365	Phosphorus, Total	EPA	EET CF

#### Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

#### Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200



Environment Testing  
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**Cooler/Sample Receipt and Temperature Log Form**

<b>Client Information</b>			
Client: <u>SUS</u>			
City/State:	CITY	STATE	Project:
<b>Receipt Information</b>			
Date/Time Received:	DATE	TIME	Received By:
	<u>10/20/23</u>	<u>1440</u>	<u>AM</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee			
<input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>3-4</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
<b>Temperature Record</b>			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID:	<u>R</u>	Correction Factor (°C): <u>0</u>	
• <b>Temp Blank Temperature</b> – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>6.3</u>	Corrected Temp (°C): <u>6.3</u>	
• <b>Sample Container Temperature</b>			
Container(s) used:	<u>CONTAINER 1</u> <u>1 L plastic</u>	<u>CONTAINER 2</u> <u>1 L plastic</u>	
Uncorrected Temp (°C):	<u>5.8</u>	<u>5.0</u>	
Corrected Temp (°C):	<u>5.8</u>	<u>5.0</u>	
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			
<u>LDR-1, 2, 3</u>			



Environment Testing  
America

Place COC scanning label  
here

### Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>SLS</u>			
City/State:	CITY	STATE	Project:
<b>Receipt Information</b>			
Date/Time Received:	DATE	TIME	Received By:
	<u>10/20/23</u>	<u>1440</u>	<u>AM</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: <u>MC 10-2023</u>	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>2</u> of <u>3</u> <del>4</del>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID:	<u>R</u>	Correction Factor (°C):	<u>0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>1.9</u>	Corrected Temp (°C):	<u>1.9</u>
<b>• Sample Container Temperature</b>			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			



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### Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>SLS</u>			
City/State:	CITY	STATE	Project:
<b>Receipt Information</b>			
Date/Time Received:	DATE <u>10/20/23</u>	TIME <u>1440</u>	Received By: <u>MM</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:	<u>M6 10-20-23</u>
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler #	<u>3 of 4</u>
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler?	↓
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID:	<u>R</u>	Correction Factor (°C):	<u>0</u>
• <b>Temp Blank Temperature</b> – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>0.9</u>	Corrected Temp (°C):	<u>0.9</u>
• <b>Sample Container Temperature</b>			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			



Environment Testing  
America

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### Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>SLS</u>			
City/State:	CITY	STATE	Project:
<b>Receipt Information</b>			
Date/Time Received:	DATE: <u>10/20/23</u>	TIME: <u>1440</u>	Received By: <u>AM</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: <u>10 60 23</u>	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # <u>4</u> of <u>4</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID:	<u>R</u>	Correction Factor (°C):	<u>0</u>
• <b>Temp Blank Temperature</b> – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>2.8</u>	Corrected Temp (°C):	<u>2.8</u>
• <b>Sample Container Temperature</b>			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			

**Eurofins Environment Testing North Central, LLC**

3019 Venture Way, Cedar Falls, Iowa 50613

Phone 319-277-2401

Direct: 319-595-2013

SAMPLER: Konner  
 SITE NAME: Heidelberg Materials US Cement, LLC - Monofill  
 ADDRESS: \_\_\_\_\_  
 CITY/STATE/ZIP: Mason City, IA  
 TELEPHONE NUMBER: \_\_\_\_\_ Fax: \_\_\_\_\_  
 SIGNATURE: Konner Roth

REPORT TO: Kevin Jensen (kjensen@scsengineers.com)  
 COMPANY NAME: SCS Engineers  
 PROJECT NAME: Heidelberg (Lehigh) Monofill Sampling - Fall 2023  
 PROJECT NUMBER: Heidelberg Monofill - 27223180  
 ADDRESS: 1690 All-State Court, Suite 100  
 CITY/STATE/ZIP: West Des Moines, IA 50265

Sample ID	Date Sampled	Time Sampled	# of Containers Shipped	Grab	Composite	Field Filtered	Preservative								Matrix					Analyze For:																	
							Ice	HNO <sub>3</sub> (Red & White Label)	HCl (Blue & White Label)	NaOH (Orange & White Label)	H <sub>2</sub> SO <sub>4</sub> , Plastic (Yellow & White Label)	H <sub>2</sub> SO <sub>4</sub> , Glass (Yellow & White Label)	None (Black & White Label)	Other (Specify)	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (Specify) Lab grade water	Total Aluminum	Total Arsenic	Total Calcium	Total Chromium	Total Lead	Total Magnesium	Total Potassium	Total Selenium	Total Sodium								
MW-201	10/19/23	1838	9	X			X									X								X	X	X	X	X	X	X	X	X	X	X	X		
MW-202R	10/19/23	1554	9	X			X									X								X	X	X	X	X	X	X	X	X	X	X	X		
MW-203R	10/19/23	1630	9	X			X									X								X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-204	10/19/23	1512	9	X			X									X								X	X	X	X	X	X	X	X	X	X	X	X	X	
MW 205	10/19/23	1759	9	X			X									X								X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-206	10/19/23	1719	9	X			X									X								X	X	X	X	X	X	X	X	X	X	X	X	X	
LDR-1	10/20/23	1014	9	X			X									X								X	X	X	X	X	X	X	X	X	X	X	X	X	X
LDR-2	10/20/23	1102	9	X			X									X								X	X	X	X	X	X	X	X	X	X	X	X	X	X
LDR-3	10/20/23	1145	9	X			X									X								X	X	X	X	X	X	X	X	X	X	X	X	X	X
SW-1				X			X									X								X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-D	10/19/23	1512	9	X			X									X								X	X	X	X	X	X	X	X	X	X	X	X	X	X
SAMPLING COMMENTS												SHIPPED VIA.																									
Relinquished by: <u>Konner Roth</u>				Date: <u>10/20/23</u>		Time: <u>13:00</u>		Received by:				Date:		Time:		Relinquished by:				Date:		Time:															
Received for lab by: <u>MU</u>				Date: <u>10-20-23</u>		Time: <u>1440</u>		Temperature Upon Receipt:				LABORATORY COMMENTS:																									





**Eurofins Cedar Falls**

3019 Venture Way  
 Cedar Falls, IA 50613  
 Phone 319-277-2401 Fax 319-277-2425

**Chain of Custody Record**



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<b>Client Information (Sub Contract Lab)</b>	Sampler:	Lab PM:	Carrier Tracking No(s).	COC No:
Client Contact:	Phone	Liechti, Meredith L		310-66555 1
Shipping/Receiving	E-Mail:	meredith.liechti@et.eurofinsus.com	State of Origin:	Page:
			Iowa	Page 1 of 2

Company:	Accreditations Required (See note):	Job #:
Eurofins Environment Testing North Central	State - Iowa, State Program - Iowa	310-267793-1

Address:	Due Date Requested:	<b>Analysis Requested</b>	<b>Preservation Codes*</b>
2417 Bond Street,	11/2/2023		
City:	TAT Requested (days)		
University Park			
State Zip:	PO #:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)
IL, 60484	WO #:		
Phone:			
708-534-5200(Tel) 708-534-5211(Fa)			
Email:	Project #:		
	31005782		
Project Name:	SSOW#:		
Heidelberg Materials US Cement, LLC			
Site:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9660A/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
MW-201 (310-267793-1)	10/19/23	18 38 Central		Water	X			3	
MW-202R (310-267793-2)	10/19/23	15 54 Central		Water	X			3	
MW-203R (310-267793-3)	10/19/23	16 30 Central		Water	X			3	
MW-204 (310-267793-4)	10/19/23	15 12 Central		Water	X			3	
MW-205 (310-267793-5)	10/19/23	17 59 Central		Water	X			3	
MW-206 (310-267793-6)	10/19/23	17 19 Central		Water	X			3	
LDR-1 (310-267793-7)	10/20/23	10 14 Central		Water	X			3	
LDR-2 (310-267793-8)	10/20/23	11 02 Central		Water	X			3	
LDR-3 (310-267793-9)	10/20/23	11 45 Central		Water	X			3	

Note: Since laboratory accreditations are subject to change Eurofins Environment Testing North Central LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing North Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central LLC.

<b>Possible Hazard Identification</b>	<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>
Unconfirmed	<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Deliverable Requested I, II, III, IV, Other (specify)	Special Instructions/QC Requirements
Primary Deliverable Rank 2	

Empty Kit Relinquished by:	Date	Time	Method of Shipment:
Relinquished by: <i>[Signature]</i>	10/20/23	1700	
Relinquished by:	Date/Time	Company	Received by: <i>[Signature]</i> Date/Time: 10/21/23 1015 Company
Relinquished by:	Date/Time	Company	Received by: Date/Time: Company
Relinquished by:	Date/Time	Company	Received by: Date/Time: Company
Custody Seals Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks. 29+27	

**Eurofins Cedar Falls**

3019 Venture Way  
Cedar Falls, IA 50613  
Phone 319-277-2401 Fax 319-277-2425

**Chain of Custody Record**



LABORATORY

<b>Client Information (Sub Contract Lab)</b>		Sampler: Liechti, Meredith L		Lab PM: Liechti, Meredith L		Carrier Tracking No(s)		COC No: 310-66555 2			
Client Contact: Shipping/Receiving		Phone:		E-Mail: meredith.liechti@et.eurofinsus.com		State of Origin: Iowa		Page: Page 2 of 2			
Company: Eurofins Environment Testing North Centr				Accreditations Required (See note): State - Iowa, State Program - Iowa				Job #: 310-267793-1			
Address: 2417 Bond Street,		Due Date Requested: 11/2/2023		<b>Analysis Requested</b>						<b>Preservation Codes*</b> A - HCL M Hexane B NaOH N None C Zn Acetate O - AsNaO2 D Nitric Acid P Na2O4S E - NaHSO4 Q Na2SO3 F - MeOH R Na2S2O3 G - Amchlor S - H2SO4 H Ascorbic Acid T TSP Dodecahydrate I - Ice U - Acetone J - DI Water V MCAA K - EDTA W pH 4-5 L - EDA Y - Trizma Z other (specify)  Other:	
City: University Park		TAT Requested (days):									
State Zip: IL, 60484		PO #:									
Phone: 708-534-5200(Tel) 708-534-5211(Fax)		WO #:									
Email:		Project #: 31005782									
Project Name: Heidelberg Materials US Cement, LLC		SSOW#:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of Containers			
Site:				9060A/ (MOD) Local Method							
<b>Sample Identification - Client ID (Lab ID)</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=Comp, G=grab)</b>	<b>Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)</b>	<b>Field Filtered Sample (Yes or No)</b>	<b>Perform MS/MSD (Yes or No)</b>	<b>9060A/ (MOD) Local Method</b>	<b>Total Number of Containers</b>	<b>Special Instructions/Note:</b>	
MW-D (310-267793-10)		10/19/23	15 12 Central		Water	X	X		3		
<p>Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central LLC places the ownership of method analyte &amp; accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/ests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing North Central LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central LLC.</p>											
<b>Possible Hazard Identification</b>					<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>						
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested I, II, III, IV, Other (specify)					Primary Deliverable Rank 2						
Empty Kit Relinquished by					Special Instructions/QC Requirements						
Date					Time						
Relinquished by:		Date/Time: 10/20/23 1700		Company:		Received by:		Date/Time: 10/20/23 1015		Company:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Custody Seals Intact		Custody Seal No		Cooler Temperature(s) °C and Other Remarks							
Δ Yes Δ No											

# Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-267793-1

**Login Number: 267793**

**List Number: 1**

**Creator: Costello, Mackenzie K**

**List Source: Eurofins Cedar Falls**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-267793-1

**Login Number: 267793**

**List Number: 2**


**Creator: Scott, Sherri L**

**List Source: Eurofins Chicago**

**List Creation: 10/22/23 09:49 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	





Appendix B2  
Data Validation

Completed by: Kevin Jensen  
 Lab Report Date: 5/23/2023  
 Sampling Date: 4/27/2023  
 Lab Report Number: 310-254657-1

**OK NO N/A NOTES**

**Sample Collection and Sample Handling**

Chain of Custody  
 Temperature

Condition

Holding Times

Preservation

Reporting Limits

X			
X			
X			The sample was received on 4/28/2023 2:45 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.8°C
X			
	X		Method 6020B: The following samples were received with insufficient preservation: Phase 1, 2, 3 Sump-Composite (310-254657-1). The client was contacted and preservative was added by the laboratory, but the sample remained strongly basic. No further attempt was made to acidify the sample, as it would have diluted the sample. This does not meet regulatory requirements. Sample characteristics likely prevented proper preservation.
	X		Method 6020B: The following samples were diluted due to the nature of the sample matrix: Phase 1, 2, 3 Sump-Composite (310-254657-1). Elevated reporting limits (RLs) are provided.

**Analytical Sensitivity and Blanks**

Method Blank Detections  
 Trip Blank Detections

X			
		X	

**Accuracy**

ICV/CCV  
 LCS/LCSD

MS/MSD

Surrogates (organics only)

X			
X			
	X		Percent recovery for Ammonia was below the limit associated with analysis batch 386326.
		X	

**Precision**

QA/QC Sample RPDs  
 Field Duplicates

X			
		X	See laboratory validation for 310-254728-1.

Completed by: Kevin Jensen  
 Lab Report Date: 5/19/2023  
 Sampling Date 4/27/2023  
 Lab Report Number: 310-254660-1

**OK NO N/A NOTES**

**Sample Collection and Sample Handling**

Chain of Custody  
 Temperature

Condition

Holding Times  
 Preservation

Reporting Limits

X			
X			
X			The samples were received on 4/28/2023 2:45 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.7°C
X			
x			
x			

**Analytical Sensitivity and Blanks**

Method Blank Detections  
 Trip Blank Detections

X			
		X	

**Accuracy**

ICV/CCV  
 LCS/LCSD  
 MS/MSD  
 Surrogates (organics only)

X			
X			
x			
		X	

**Precision**

QA/QC Sample RPDs  
 Field Duplicates

X			
		X	See laboratory validation for 310-254728-1.

Completed by: Kevin Jensen  
 Lab Report Date: 5/22/2023  
 Sampling Date: 4/27/2023  
 Lab Report Number: 310-254727-1

**OK NO N/A NOTES**

**Sample Collection and Sample Handling**

Chain of Custody  
 Temperature

Condition

Holding Times  
 Preservation

Reporting Limits

X			
X			
X			The sample was received on 5/1/2023 5:10 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.7°C
X			
	X		
	X		

**Analytical Sensitivity and Blanks**

Method Blank Detections  
 Trip Blank Detections

X			
		X	

**Accuracy**

ICV/CCV  
 LCS/LCSD

MS/MSD

Surrogates (organics only)

X			
X			
	X		Percent recovery for Total Alkalinity was below the limit associated with analysis batch 386364.
		X	

**Precision**

QA/QC Sample RPDs  
 Field Duplicates

X			
		X	See laboratory validation for 310-254728-1.



Completed by: Kevin Jensen  
 Lab Report Date: 5/19/2023  
 Sampling Date 4/27/2023  
 Lab Report Number: 310-254728-1

**OK NO N/A NOTES**

**Sample Collection and Sample Handling**

Chain of Custody  
 Temperature

Condition

Holding Times  
 Preservation

Reporting Limits

X			
X			
X			The sample was received on 5/1/2023 5:10 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.7°C
X			
X			
X			

**Analytical Sensitivity and Blanks**

Method Blank Detections  
 Trip Blank Detections

X			
		X	

**Accuracy**

ICV/CCV  
 LCS/LCSD

MS/MSD

Surrogates (organics only)

X			
X			
X			
		X	

**Precision**

QA/QC Sample RPDs

Field Duplicates

	X		Relative percent difference for Aluminum was above the limit associated with analysis batch 387435.
X			Relative percent differences between MW-204 and the duplicate sample were within 50% for constituents detected above the reporting limit.

Completed by: Kevin Jensen  
 Lab Report Date: 11/2/2023  
 Sampling Date: 10/19/2023  
 Lab Report Number: 310-267792-1

**OK NO N/A NOTES**

**Sample Collection and Sample Handling**

Chain of Custody  
 Temperature

Condition

Holding Times  
 Preservation  
 Reporting Limits

X			
X			
X			The samples were received on 10/20/2023 2:40 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.6°C and 2.4°C
X			
X			
X			

**Analytical Sensitivity and Blanks**

Method Blank Detections  
 Trip Blank Detections

X			
		X	

**Accuracy**

ICV/CCV  
 LCS/LCSD  
 MS/MSD  
 Surrogates (organics only)

X			
X			
X			
		X	

**Precision**

QA/QC Sample RPDs  
 Field Duplicates

X			
		X	See laboratory validation for 310-267793-1.

Completed by: Kevin Jensen  
 Lab Report Date: 11/3/2023  
 Sampling Date 10/19/2023  
 Lab Report Number: 310-267793-1

**OK NO N/A NOTES**

**Sample Collection and Sample Handling**

Chain of Custody  
 Temperature

Condition

Holding Times  
 Preservation  
 Reporting Limits

**Analytical Sensitivity and Blanks**

Method Blank Detections  
 Trip Blank Detections

**Accuracy**

ICV/CCV  
 LCS/LCSD  
 MS/MSD  
 Surrogates (organics only)

**Precision**

QA/QC Sample RPDs


Field Duplicates

X			
X			
X			The samples were received on 10/20/2023 2:40 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 0.9°C, 1.9°C, 2.8°C and 5.8°C
X			
X			
X			

X			
		X	

X			
X			
X			
		X	

X			
		X	Relative percent differences between MW-204 and the duplicate sample were within 50% for constituents detected above the reporting limit.



Appendix C  
Summary of Groundwater Chemistry

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Summary of Groundwater Chemistry

Lehigh-Mason City Cement Manufacturing Waste Landfill - 17-SDP-08-99P

Total Metals Constituents	Sample Date	MW-101R-NP UPG	MW-101R-RC UPG	MW-203R UPG	MW-205 UPG	PHASE1,2,3UMP-C UPG	LDR-1 DNG	LDR-2 DNG	LDR-3 DNG	MW-102R-NP DNG	MW-103R-NP DNG	MW-201 DNG	MW-202R DNG	MW-204 DNG	MW-206 DNG	SW-1/OUTFALL4 DNG	
Aluminum, mg/L (CAS NO - 7429-90-5)	4/29/2015	N/A	N/A	0.333	0.0412	N/A	0.047	<0.05	N/A	N/A	N/A	0.0674	0.0254	<0.05	0.0113	N/A	
	11/9/2015	<0.1	<0.1	<0.1	<0.1	N/A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.181	
	4/19/2016	0.062	N/A	0.00468	<0.05	N/A	<0.05	<0.05	0.0364	<0.05	0.0388	<0.05	<0.05	<0.05	<0.05	0.0206	
	10/11/2016	0.137	N/A	<0.05	<0.05	N/A	0.0275	<0.05	<0.05	0.0444	0.0243	0.0494	<0.05	N/A	N/A	0.0466	
	4/26/2017	N/A	0.125	<0.05	<0.05	N/A	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.0502
	10/12/2017	0.116	N/A	<0.05	<0.05	N/A	0.134	<0.05	1.53	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	4/25/2018	N/A	0.564	<0.05	<0.05	N/A	0.126	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.0428
	10/18/2018	N/A	0.284	<0.05	<0.05	N/A	2.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.273
	4/26/2019	N/A	0.0926	<0.05	<0.05	N/A	0.903	<0.05	<0.05	0.2966	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.276
	10/25/2019	<0.05	0.146	<0.05	<0.05	N/A	2.28	<0.05	0.0472	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.129
	4/16/2020	<0.05	0.127	<0.05	<0.05	N/A	3.48	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.975
	10/22/2020	0.0212	N/A	<0.05	<0.05	N/A	6	<0.05	0.0409	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.35
	4/22/2021	<0.05	N/A	<0.05	<0.05	N/A	30.8	3.6	<0.2	0.0893*	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	0.255
	4/22/2021	N/A	N/A	<0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/21/2021	0.201	0.0275	<0.05	<0.05	N/A	0.107	0.0174*	0.2644	0.0225*	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	N/A
	10/21/2021	N/A	N/A	N/A	<0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/28/2022	0.179	0.0326*	<0.05	<0.05	N/A	9.54	0.351	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.0852*
	4/28/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/27/2022	0.0097	N/A	0.0366*	<0.05	N/A	0.495	<0.05	0.0381*	0.018*	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	N/A
	10/27/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/27/2023	<0.05	<0.05	<0.05	<0.05	N/A	0.455*	0.0239*	<0.05	0.0466*	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.0216*
4/27/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10/19/2023	<0.05	N/A	<0.05	<0.05	N/A	0.0554	<0.05	0.0249*	<0.05	<0.05	0.0285*	<0.05	<0.05	<0.05	<0.05	N/A	
10/19/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Arsenic, mg/L (CAS NO - 7440-38-2)	4/29/2015	N/A	N/A	0.0003	<0.002	N/A	<0.002	0.0013	<0.002	0.0013	<0.002	0.0014	<0.002	<0.002	<0.002	<0.002	
	11/9/2015	<0.002	N/A	<0.001	<0.001	N/A	<0.003	<0.003	N/A	<0.004	0.00234	<0.002	<0.002	<0.002	<0.002	0.013	
	4/19/2016	0.00255	N/A	0.000857	<0.002	N/A	0.00401	0.00404	0.00817	0.00109	<0.002	0.00032	0.000858	N/A	N/A	0.00157	
	10/11/2016	0.00273	N/A	<0.002	<0.002	N/A	0.000689	0.00742	0.0061	0.00103	<0.002	0.003	<0.002	N/A	N/A	0.00121	
	4/26/2017	N/A	0.00095	<0.002	<0.002	N/A	<0.002	0.00206	0.00338	<0.002	<0.002	0.00181	<0.002	<0.002	<0.002	<0.002	0.00135
	10/12/2017	0.00139	N/A	<0.002	<0.002	N/A	0.000689*	0.00184	0.00291	<0.002	<0.002	0.00236	<0.002	<0.002	<0.002	<0.002	0.0027
	4/25/2018	N/A	0.00846	<0.002	<0.002	N/A	0.127	<0.002	0.00078	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.000822
	10/18/2018	N/A	0.00522	<0.002	<0.002	N/A	<0.002	0.00268	0.00847	<0.002	<0.002	0.00194	<0.002	<0.002	<0.002	<0.002	0.00214
	4/26/2019	N/A	0.00471	<0.002	<0.002	N/A	0.403	0.00145	0.00252	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.00181
	10/25/2019	<0.002	0.00513	<0.002	<0.002	N/A	<0.008	0.00104	0.00209	<0.002	<0.002	0.00204	<0.002	<0.002	<0.002	<0.002	0.00112
	4/16/2020	<0.002	0.00463	<0.002	<0.002	N/A	0.261	<0.002	0.00162	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.00255
	10/22/2020	<0.002	0.00109	<0.002	<0.002	N/A	0.349	0.00294	0.000894*	<0.002	<0.002	0.00096*	<0.002	<0.002	<0.002	<0.002	0.00139
	4/22/2021	<0.002	N/A	<0.002	<0.002	N/A	0.349	0.00294	0.000894*	<0.002	<0.002	0.00096*	<0.002	<0.002	<0.002	<0.002	0.00158*
	4/22/2021	N/A	N/A	<0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/21/2021	0.00215	0.00734	<0.002	<0.002	N/A	0.00116*	<0.002	0.000921*	<0.002	<0.002	0.0014*	<0.002	<0.002	<0.002	<0.002	N/A
	10/21/2021	N/A	N/A	<0.002	<0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/28/2022	0.00089*	0.00574	<0.002	<0.002	N/A	0.154	<0.008	<0.008	<0.008	<0.008	0.00234	<0.002	<0.002	<0.002	<0.002	0.0008
	4/28/2022	N/A	N/A	<0.002	<0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/27/2022	0.00152*	N/A	<0.002	<0.002	N/A	0.00337	<0.002	0.000983*	<0.002	<0.002	0.00182*	<0.002	<0.002	<0.002	<0.002	N/A
	10/27/2022	N/A	N/A	<0.002	<0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4/27/2023	0.00116*	0.0047	<0.002	<0.002	N/A	0.287	<0.002	<0.002	0.00105*	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.00132*	
4/27/2023	N/A	N/A	<0.002	<0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10/19/2023	0.000624*	N/A	<0.002	<0.002	N/A	0.00077*	0.00058*	0.000988*	<0.002	<0.002	0.00085	<0.002	<0.002	<0.002	<0.002	N/A	
10/19/2023	N/A	N/A	<0.002	<0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Calcium, mg/L (CAS NO - 7440-70-2)	4/29/2015	N/A	76.2	248	359	374	249	359	374	249	359	63.1	85.6	110	80.1	74.7	
	6/17/2015	225	N/A	N/A	N/A	N/A	420	413	N/A	506	505	N/A	N/A	N/A	N/A	N/A	
	11/9/2015	172	N/A	71	74.9	N/A	410	409	N/A	486	490	64	92.1	119	81.8	116	
	4/19/2016	250	N/A	85	79.6	N/A	440	438	530	460	427	62.7	86.2	N/A	N/A	75.5	
	10/11/2016	336	N/A	78.5	79.4	N/A	424	417	538	457	522	52	81.1	N/A	N/A	86.1	
	4/26/2017	N/A	113	75.4	83.4	N/A	431	447	492	447	514	90.3	115	88.8	111	88.8	
	10/12/2017	154	N/A	75.4	77.1	N/A	441	447	571	445	489	131	84.3	106	79.9	135	
	4/25/2018	N/A	112	78	79.8	N/A	367	445	445	524	524	117	76.8	102	87.2	53.1	
	10/18/2018	N/A	111	72.7	74.9	N/A	477	429	472	487	519	122	86.4	100	90.1	80.8	
	4/26/2019	N/A	99.9	76.3	83.8	N/A	404	435	421	509	536	144	111	96.7	93.7	63.7	
	10/25/2019	181	N/A	84.6	76.7	N/A	537	427	538	427	454	54	102	84.5	105	83.3	
	4/16/2020	154	N/A	97.1	81.2	23.4	444	445	591	495	524	130	76.7	110	88.8	39.7	
	10/22/2020	134	N/A	68.1	73.8	N/A	441	422	563	403	464	109	44.6	95.4	78.9	33	
	4/22/2021	127	N/A	81.7	81.4	179	432	432	566	427	429	105	74.6	119	87.2	49.7	
	4/22/2021	N/A	N/A	78.5	78.4	N/A	N/A	N/A	549	408	548	128	N/A	N/A	N/A	N/A	N/A
	10/21/2021	241	N/A	96.6	76.4	N/A	449	449	548	408	548	128	N/A	N/A	N/A	N/A	N/A
	10/21/2021	N/A	N/A	N/A	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/28/2022	142	N/A	94.8	79.4	82.5	103	456	408	582	413	458	120	76.1	116	88.6	56.6

# SCS ENGINEERS

## Summary of Groundwater Chemistry

Lehigh-Mason City Cement Manufacturing Waste Landfill - 17-SDP-08-99P

Total Metals Constituents	Sample Date	MW-101R-NP UPG	MW-101R-RC UPG	MW-203R UPG	MW-205 UPG	PHASE1,2,3SUMP-C	LDR-1 DNG	LDR-2 DNG	LDR-3 DNG	MW-102R-NP DNG	MW-103R-NP DNG	MW-201 DNG	MW-202R DNG	MW-204 DNG	MW-206 DNG	SW-1/OUTFALL4 DNG		
Chromium, mg/L (CAS NO - 7440-47-3)	4/27/2023	< 0.005	< 0.005	< 0.005	< 0.005	0.269	< 0.005	< 0.005	0.00384*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		
	4/27/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	10/19/2023	< 0.005	< 0.005	< 0.005	< 0.005	N/A	0.000259	< 0.005	< 0.005	0.000549	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		
	10/19/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	10/19/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	4/29/2015	N/A	N/A	0.00154	0.000255	N/A	0.00127	< 0.0005	< 0.0005	N/A	N/A	N/A	0.000159	0.000415	0.00011	0.000108	N/A	
	11/9/2015	< 0.004	< 0.004	< 0.004	< 0.004	N/A	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	
	4/19/2016	0.00473	N/A	0.000257	0.000269	N/A	0.00381	< 0.0005	< 0.0005	0.000375	0.000224	0.000386	0.000411	N/A	N/A	N/A	0.000319	
	10/11/2016	0.000591	N/A	< 0.0005	< 0.0005	N/A	0.000259	< 0.0005	< 0.0005	0.000549	< 0.0005	0.000523	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A	
	4/26/2017	N/A	0.000534	< 0.0005	< 0.0005	N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.000434	
	10/12/2017	0.00106	N/A	< 0.0005	< 0.0005	N/A	< 0.0005	< 0.0005	0.00577	0.000614	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.000628	
	4/25/2018	N/A	0.00191	0.00485	< 0.0005	< 0.0005	< 0.02	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.000343	
	10/18/2018	N/A	0.000552	< 0.0005	< 0.0005	N/A	< 0.0005	< 0.0005	< 0.0005	< 0.002	< 0.002	< 0.0005	0.000289	< 0.0005	0.000451	0.00112	N/A	
	4/26/2019	N/A	< 0.0005	< 0.0005	< 0.0005	0.0092	0.000984	< 0.0005	< 0.0005	< 0.0005	0.000592	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.000674	
	10/25/2019	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A	< 0.002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
4/16/2020	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.00285	0.000519	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.000549		
10/22/2020	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.00215	0.000118	< 0.0005	< 0.0005	0.000198	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.000556		
4/22/2021	< 0.0005	N/A	< 0.0005	< 0.0005	0.133	0.00177	< 0.0005	0.00031*	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.000271*		
4/22/2021	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10/21/2021	0.000638	< 0.0005	< 0.0005	N/A	< 0.0005	0.000587	< 0.0005	< 0.0005	0.000373*	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A		
10/21/2021	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	0.000485*	< 0.0005	< 0.0005	< 0.0005	0.107	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.002		
4/28/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
10/27/2022	0.00081*	N/A	< 0.0005	< 0.0005	N/A	0.00159	< 0.0005	0.000257*	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A		
10/27/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A		
4/27/2023	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0004*	< 0.0005	< 0.0005	0.00051*	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A		
4/27/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A		
10/19/2023	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A	< 0.0005	< 0.0005	0.0005*	< 0.0005	< 0.0005	0.00326	0.000451*	< 0.0005	< 0.0005	0.000437*	N/A		
10/19/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A		
Magnesium, mg/L (CAS NO - 7439-94-5)	4/29/2015	N/A	N/A	60.3	37.3	N/A	225	154	N/A	N/A	N/A	34.9	59.3	61.6	40.2	23.4		
	6/17/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	11/9/2015	335	N/A	N/A	N/A	N/A	233	177	N/A	250	318	34.6	83.7	82.7	83.4	N/A		
	4/19/2016	311	N/A	33.6	37.9	N/A	242	179	N/A	362	326	34.2	63.2	60.7	63.4	N/A		
	4/19/2016	126	N/A	35.2	35.2	N/A	227	289	N/A	199	244	32.4	58.5	N/A	N/A	24.6		
	10/11/2016	55.8	N/A	32.2	33.7	N/A	217	174	N/A	140	205	31.3	52.2	N/A	N/A	13.5		
	4/26/2017	N/A	57.1	33.3	37.4	N/A	235	203	N/A	194	250	305	42.8	57.9	57.8	39.7	18.1	
	10/12/2017	85.7	N/A	31.2	32.8	N/A	203	185	N/A	227	221	274	57.6	51	50.8	34.3	32.8	
	4/25/2018	N/A	56.8	34.8	36.9	N/A	206	189	N/A	238	228	284	58.2	50.4	50.8	38.1	30.7	
	10/18/2018	N/A	57.4	31.4	34	N/A	243	282	N/A	221	250	298	61.9	59.3	50.3	40.7	15.4	
	4/26/2019	N/A	47.8	31	37.3	4.69	251	208	N/A	283	258	305	74.1	57.2	53.3	41.7	17.9	
	10/25/2019	68.3	44.4	33.9	34.9	N/A	271	203	N/A	294	226	268	65.6	53.6	50.6	37	20.7	
	4/16/2020	80.5	47.1	33.3	36.6	4.64	240	203	N/A	303	264	307	61	53.2	53.7	39.8	18	
	10/22/2020	71.6	N/A	29.5	32.9	N/A	245	208	N/A	216	267	267	51.8	46.9	47.4	35.5	18.3	
	4/22/2021	75.3	N/A	34.3	35.9	4.6	245	207	N/A	303	295	308	56.9	48.9	48.9	39.1	22.7	
	4/22/2021	N/A	N/A	33.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	10/21/2021	73	42.2	31.6	33.8	N/A	262	236	N/A	354	270	326	58.5	52.7	50.6	35.3	N/A	
	10/21/2021	N/A	N/A	N/A	33.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	4/28/2022	70.2	42.3	32.2	34.5	22.5	224	196	N/A	285	203	239	52.2	58.1	51.8	37.3	15.5	
	4/28/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	10/27/2022	84.5	N/A	33.4	35	N/A	277	246	N/A	356	286	339	63.3	55.9	48	37	24.7	
	10/27/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	4/27/2023	74.9	41.7	32.5	34.2	< 10	232	214	N/A	333	232	250	51.2	51.4	51.2	37	16.1	
	4/27/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	10/19/2023	85.8	N/A	34.5	36.9	N/A	268	276	N/A	358	288	339	59.5	52.4	54.2	38.5	N/A	
	10/19/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	Potassium, mg/L (CAS NO - 7440-09-7)	4/29/2015	N/A	N/A	18.5	6.57	N/A	30.7	9.88	N/A	N/A	N/A	17.3	7.12	14.9	6.6	N/A	
		6/17/2015	10.6	N/A	N/A	N/A	N/A	27.1	9.66	N/A	13.2	23.8	N/A	N/A	N/A	N/A	N/A	
		11/9/2015	10.5	N/A	7.44	6.71	N/A	37	12.5	N/A	17.5	19.9	16.7	7.01	13.5	7.04	145	
		4/19/2016	11.1	N/A	6.07	8.58	N/A	35.4	861	12.9	17.7	25.1	23.9	7.47	N/A	N/A	96.7	
		10/11/2016	7.5	N/A	6.42	6.37	N/A	35.2	674	17.2	13.3	25.3	26	7.22	N/A	N/A	111	
		4/26/2017	N/A	7.99	5.85	7.31	N/A	33.4	714	18.2	18	25.9	18.9	16.8	7.34	7.34	181	
		10/12/2017	8.51	N/A	5.8	6.18	N/A	38	133	19.4	12.6	25.1	8.8	7.13	14	6.3	128	
		4/25/2018	N/A	6.49	6.46	5.81	8200	38	89.4	20.8	11.8	23.1	20.5	5.6	15.4	6.55	106	
		10/18/2018	N/A	6.81	6	6.13	N/A	36.3	770	24.4	13.6	25.9	25.8	7.64	13	6.62	134	
		4/26/2019	N/A	7.22	6.31	7.03	18400	45.8	807	32.8	15.1	25.7	48.3	8.95	14.7	7.72	129	
		10/25/2019	7.88	6.81	6.03	6.13	N/A	52.4	510	12.8	12.8	24.6	44.1	7.45	12.7	6.87	111	
		4/16/2020	5.24	6.88	5.53	6.15	15700	41.6	445	40.9	18.8	24.6	36.2	7.21	12.2	7.64	281	
		10/22/2020	7.58	N/A	4.88	5.69	N/A	47.2	370	41.2	13.3	27	29.9	6.66	11.5	6.33	308	
		4/22/2021	8.47	N/A	6.1	6.48	14300	46.9	190	40.1	13	21.3	43.6	7.87	14.2	7.24	331	
		4/22/2021	N/A	N/A	8.06	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		10/21/2021	7.58	N/A	6.35	6.81	N/A	47.5	381	32.9	15.8	24.8	34.8	7.48	N/A	N/A	N/A	
		10/21/2021	N/A	N/A	N/A	5.71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		4/28/2022	7.57	5.61	6.01	6.01	8410	45.6	302	330	11.7	20.1	28.5	7.5	11.9	6.93	173	
		4/28/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		10/27/2022	7.49	N/A	5.66	6.13	N/A	35	98.5	221	12.7	25.2	24.1					

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Summary of Groundwater Chemistry  
 Lehigh-Mason City Cement Manufacturing Waste Landfill - 17-SDP-08-99P

Total Metals Constituents	Sample Date	MW-101R-NP UPG	MW-101R-RC UPG	MW-203R UPG	MW-205 UPG	PHASE1,2,3SUMP-C UPG	LDR-1 DNG	LDR-2 DNG	LDR-3 DNG	MW-102R-NP DNG	MW-103R-NP DNG	MW-201 DNG	MW-202R DNG	MW-204 DNG	MW-206 DNG	SW-1/OUTFALL4 DNG	
Selenium, mg/L (CAS NO - 7782-49-2)	4/28/2022	<0.005	<0.005	<0.005	<0.005	0.286	<0.02	<0.02	<0.02	<0.02	<0.02	<0.005	<0.005	<0.005	<0.005	<0.02	
	4/28/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.005	<0.005	<0.005	<0.005	N/A	
	10/27/2022	<0.005	<0.005	0.00131*	0.00164*	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	N/A
	10/27/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.005	N/A
	4/27/2023	0.00348*	<0.005	<0.005	<0.005	0.324	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	4/27/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.005	N/A
	10/19/2023	<0.005	<0.005	<0.005	<0.005	N/A	<0.005	<0.005	<0.005	<0.005	<0.005	0.00767	0.00196*	<0.005	<0.005	N/A	N/A
	10/19/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.005	N/A	N/A
	4/29/2015	N/A	N/A	21.7	18.1	N/A	22.8	13.4	N/A	N/A	N/A	18.9	22.9	22.2	17.6	N/A	N/A
	6/17/2015	62.9	N/A	N/A	N/A	N/A	21.9	18.6	N/A	N/A	54.2	81.6	N/A	N/A	N/A	N/A	N/A
	11/9/2015	55.5	N/A	18.3	17.9	N/A	26.5	18.2	N/A	60.3	84.5	18.3	21.3	22.9	19.5	15.8	N/A
	4/19/2016	95.6	N/A	18.3	21.4	N/A	42.1	79.5	N/A	53.4	62.4	18.3	23	N/A	N/A	8.93	N/A
	10/11/2016	81.1	N/A	18.2	18.1	N/A	24.9	37.2	129	55.2	84.5	17.2	26.6	N/A	N/A	6.91	N/A
	4/25/2017	N/A	28.6	17.3	18.8	N/A	26.4	26.8	190	14.3	80.5	21.6	29.7	21.8	28.5	7.53	N/A
	10/12/2017	89.9	N/A	17.3	16.8	N/A	20	32.8	167	53.5	77.9	29	23	19.7	16.7	6.79	N/A
	4/25/2018	N/A	26.2	16	17.2	480	25.6	26.4	146	46.8	71.6	27.9	22.7	17.8	17.5	7.96	N/A
	10/18/2018	N/A	28.1	17	18.6	N/A	27.6	58.6	139	57.7	78.5	32.2	35.2	19.7	18	7.42	N/A
4/26/2019	N/A	27.4	17.1	18.5	1310	30.1	77.2	129	48	62.5	35.4	26.9	20.1	19.3	10.2	N/A	
10/25/2019	42.3*	24.7	16.7	17.5	N/A	30.9	34.6	113	52.4	70.2	30.8	27.5	19.2	17.5	8.36	N/A	
4/16/2020	53.1	N/A	17.8	18.3	913	27.8	85.2	118	60.6	78.8	31.2	25	20.1	19.7	14.2	N/A	
10/22/2020	45.6	N/A	15.7	16.9	N/A	27.1	66.6	103	55.6	72.4	26.2	25	17.7	16.7	14.8	N/A	
4/22/2021	48.8	N/A	22.5	20.2	798	32.5	74.9	128	60.1	78.6	35.6	27.1	22.8	20.2	18.1	N/A	
4/22/2021	N/A	N/A	19.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10/21/2021	43.7	24.7	16.5	17.1	N/A	28	63.1	97.5	52.1	63.1	28.1	27.8	18.8	16.8	N/A	N/A	
10/21/2021	N/A	N/A	N/A	18.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
4/28/2022	44.6	25.2	17.1	17.2	463	26.4	62.2	101	46.4	57.2	27.2	26.9	19.4	18.1	10.4	N/A	
4/28/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10/27/2022	43.8	N/A	18.3	18	N/A	29.8	55.8	111	53.2	63.1	24.5	36.2	19	16.8	N/A	N/A	
10/27/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	16.6	N/A	
4/27/2023	25.3	25.3	16.3	16.6	347	13.4	34.6	54.7	44.8	54.3	26.2	28.8	18.1	18.7	18.7	N/A	
4/27/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18.1	N/A	
10/19/2023	45	N/A	16.1	15.2	N/A	30.2	49.6	116	39.2	63.8	24.7	41.8	20.4	18.6	N/A	N/A	
10/19/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20.8	N/A	N/A	
Total Suspended Solids, mg/L (CAS NO - TSS)	4/24/2001	N/A	N/A	45	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8	10	N/A	N/A	N/A	
	7/25/2001	N/A	N/A	150	N/A	N/A	N/A	N/A	N/A	N/A	N/A	44	30	N/A	N/A	N/A	
	10/23/2001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	39	29	N/A	N/A	N/A	
	1/8/2002	460	N/A	<10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<10	<10	N/A	N/A	N/A	
	10/23/2003	7300	N/A	360	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<10	290	N/A	N/A	N/A	
	4/27/2004	13000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	93	N/A	N/A	N/A	6.5	
	7/20/2004	1400	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	300	N/A	N/A	N/A	5.9	
	10/29/2004	37400	N/A	358	N/A	N/A	N/A	N/A	N/A	N/A	N/A	890	58.7	N/A	N/A	N/A	
	4/26/2005	375	N/A	23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	27.3	34.6	N/A	N/A	N/A	
	10/24/2005	820	N/A	69.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	193	N/A	17	N/A	N/A	
	4/24/2006	9770	N/A	61.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	177	N/A	170	N/A	8.67	
	10/25/2006	41000	N/A	374	N/A	N/A	N/A	N/A	N/A	N/A	N/A	288	N/A	85	48	N/A	N/A
	4/24/2007	884	N/A	50.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	28.3	N/A	10.5	N/A	27	N/A
	10/31/2007	N/A	N/A	19.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	124	N/A	N/A	N/A	4.95	N/A
	10/30/2008	3480	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	286	N/A	N/A	N/A	N/A	N/A
	4/16/2009	64.7	N/A	19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	16.7	N/A	296	N/A	N/A	5
	10/12/2009	N/A	N/A	72.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	55.3	N/A	135	238	N/A	<5
	10/12/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A	<5
	4/16/2010	237	N/A	132	N/A	N/A	N/A	N/A	N/A	N/A	N/A	361	56.7	N/A	N/A	N/A	13.7
	10/7/2010	3910	N/A	<5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	58	N/A	N/A	N/A	N/A	13.7
	4/21/2011	100	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	68.8	12.7	8.67	N/A	N/A	12
	10/11/2011	9	N/A	16.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	171	15.7	<15	<5	N/A	9
	4/24/2012	55.7	N/A	82	N/A	N/A	N/A	N/A	N/A	N/A	N/A	42	14.7	17.3	5.3	N/A	5
	10/4/2012	N/A	N/A	134	N/A	N/A	N/A	N/A	N/A	N/A	N/A	30	5.7	112	35	N/A	N/A
	11/1/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	58	N/A	N/A	N/A	N/A	N/A
	4/25/2013	N/A	N/A	188	N/A	N/A	N/A	N/A	N/A	N/A	N/A	30	<5	30	<5	N/A	<5
	10/1/2013	N/A	N/A	<5	8	N/A	480	<5	<5	N/A	N/A	N/A	7.3	<5	<5	<5	108
	4/15/2014	N/A	N/A	<5	26.3	N/A	27.7	<5	N/A	N/A	N/A	N/A	7.3	6	<5	<5	17
	10/2/2014	N/A	N/A	<5	6	N/A	38	7.3	N/A	N/A	N/A	N/A	14.8	<2.5	<2.5	<2.5	6.7
	4/29/2015	N/A	N/A	138	9.63	N/A	11	<5	N/A	N/A	N/A	18.4	8.93	2.75	1.88	<1.88	118
	6/17/2015	24.2	N/A	N/A	N/A	N/A	6400	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/9/2015	3.3	N/A	3.5	<1.9	N/A	71.5	<1.9	N/A	2.1	8.1	6.4	<1.9	<1.9	<1.9	<1.9	215
	4/19/2016	15.1	N/A	10.8	N/A	N/A	37.8	4.5	13.1	9.5	8.25	33.9	3.75	N/A	N/A	N/A	16.3
	10/11/2016	44	N/A	5.88	N/A	N/A	33.1	32.8	7.63	4.11	3.75	20.4	2.63	N/A	N/A	N/A	9.25
	4/26/2017	N/A	234	7	1.63	N/A	11.9	10.4	2.88	1.75	4.75	4.75	<1.88	1.88	<1.88	<1.88	14.5
	10/12/2017	86.8	N/A	9.87	7.8	N/A	20.7	3.39	10.95	1.39	1.39	7.37	<1.88	1.88	<1.88	<1.88	21.8
	4/25/2018	N/A	297	4.13	3.5	81	40.7	1.5	13.8	2.13	2.13	1	<1.88	1.13	<1.88	<1.88	7.34
	10/18/2018	N/A	129	2.38	1.5	N/A	10.8	4.13	38.3	1.5	1.39	<1.88	0.75	<1.88	0.75	<1.88	66.3
	4/26/2019	N/A	35.9	1.83	1.38	254	59.5	1.13	9.38	0.875	0.875	0.875	<1.88	0.75	<1.88	<1.88	17
	10/25/2019	14.6	45.3	4	0.875	N/A	150	0.75	9.87	2.25	2.25	4.75	<5	1	<1.88	<1.88	8.37
	4/16/2020	4.62	33.1	1.75	0.875	344	29.8	<1.88	2.25	0.875	1.88	1.98	<1.88	1.38	<1.88	<1.88	37
	10/22/2020	30.8	N/A	1.83	0.75	N/A	11.9	<1.88	8.18	1	1.88	<1.88	<1.88	1.88	<1.88	<1.88	21.8
	4/22/2021	5.25	N/A	0.75*	1310	N/A	113	15.5*	9.87*	1.25*							

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Summary of Groundwater Chemistry  
 Lehigh-Mason City Cement Manufacturing Waste Landfill - 17-SDP-08-99P

Other Constituents	Sample Date	MW-101R-NP UPG	MW-101R-RC UPG	MW-203R UPG	MW-205 UPG	PHASE1,2,SUMP-C UPG	LDR-1 DNG	LDR-2 DNG	LDR-3 DNG	MW-102R-NP DNG	MW-103R-NP DNG	MW-201 DNG	MW-202R DNG	MW-204 DNG	MW-206 DNG	SW-1/OUTFALL4 DNG		
Alkalinity, Total (CaCO3), mg/L (CAS NO - TALK)	4/25/2013	N/A	N/A	271	N/A	N/A	634	604	N/A	N/A	N/A	353	384	N/A	N/A	N/A		
	10/1/2013	N/A	N/A	298	372	N/A	635	636	N/A	N/A	N/A	356	366	351	382	N/A		
	4/15/2014	N/A	N/A	306	341	N/A	654	648	N/A	N/A	N/A	316	346	316	346	N/A		
	10/2/2014	N/A	N/A	341	361	N/A	578	614	N/A	N/A	N/A	320	340	340	361	N/A		
	4/29/2015	N/A	N/A	356	362	N/A	341	383	N/A	N/A	N/A	325	351	362	372	258		
	6/17/2015	484	N/A	N/A	N/A	N/A	623	659	N/A	541	633	N/A	N/A	N/A	N/A	N/A		
	11/9/2015	454	N/A	330	341	N/A	573	624	N/A	544	614	341	335	335	356	387		
	4/19/2016	474	N/A	371	371	N/A	346	396	N/A	494	618	338	361	N/A	N/A	N/A		
	10/11/2016	395	N/A	335	342	N/A	570	603	384	565	580	328	304	N/A	N/A	157		
	4/26/2017	N/A	N/A	397	345	350	N/A	530	680	505	623	349	350	314	355	366	196	
	10/12/2017	438	N/A	345	350	N/A	206	716	520	623	633	335	335	350	355	355	208	
	4/25/2018	N/A	N/A	378	362	4480	551	675	578	637	643	356	340	356	373	200		
	10/18/2018	N/A	N/A	371	345	345	N/A	597	1070	567	613	628	350	330	345	350	139	
	4/26/2019	N/A	N/A	336	337	337	3930	630	527	574	599	608	327	333	333	347	218	
	10/25/2019	458	N/A	351	351	N/A	644	650	554	659	664	371	354	355	376	258		
	4/16/2020	390	380	356	342	7240	523	760	618	637	665	342	318	342	342	228		
	10/22/2020	412	N/A	350	361	N/A	608	629	613	675	664	337	330	361	361	232		
	4/22/2021	380	N/A	326	336	7030	523	642	592	632	602	296	306	326	336	217		
	10/21/2021	N/A	N/A	348	348	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	10/21/2021	N/A	N/A	412	371	340	N/A	609	773	649	670	391	381	361	381	N/A		
	10/21/2021	N/A	N/A	N/A	N/A	361	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	4/28/2022	412	N/A	373	353	5050	N/A	578	627	657	686	647	323	323	362	372	274	
	4/28/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	10/27/2022	390	N/A	363	354	N/A	617	617	637	617	636	345	342	409	352	N/A		
	10/27/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	4/27/2023	394	348	333	330	4960	554	587	611	613	621	325	324	323	352	183		
	4/27/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	10/19/2023	367	N/A	321	335	N/A	609	651	582	621	628	335	259	332	346	N/A		
	10/19/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	Bicarbonate, mg/L (CAS NO - BICARB)	6/17/2015	881	N/A	N/A	N/A	N/A	N/A	N/A	N/A	541	633	N/A	N/A	N/A	N/A		
		4/16/2019	N/A	N/A	396	337	N/A	534	599	604	637	604	327	337	347	238		
		4/16/2020	390	390	356	342	< 25	523	760	618	637	665	342	319	342	242		
		4/22/2021	380	N/A	326	336	< 20	523	642	592	612	602	296	306	326	336	217	
4/22/2021		N/A	N/A	326	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
10/21/2021		474	412	371	361	N/A	609	773	649	651	670	391	381	361	381	N/A		
10/21/2021		N/A	N/A	N/A	N/A	340	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
4/28/2022		412	N/A	353	363	< 25	578	627	657	686	647	323	323	362	372	274		
4/28/2022		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
10/27/2022		390	N/A	363	354	N/A	617	617	637	617	636	345	342	409	352	N/A		
10/27/2022		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
4/27/2023		394	348	333	330	< 50	554	587	611	613	621	325	324	323	352	183		
4/27/2023		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
10/19/2023		N/A	N/A	321	335	N/A	609	651	582	621	628	335	259	332	346	N/A		
10/19/2023		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Carbonate, mg/L (CAS NO - CARB)		6/17/2015	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5	N/A	N/A	N/A	N/A		
		4/16/2019	N/A	< 5	< 5	< 5	3200	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5		
		4/16/2020	< 10	< 10	< 10	< 10	3400	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10		
		4/22/2021	< 5	N/A	< 5	< 10	3000	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10		
		4/22/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
		10/21/2021	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10		
		10/21/2021	N/A	N/A	N/A	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10		
		4/28/2022	< 10	< 10	< 10	< 10	3200	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10		
		4/28/2022	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10		
		10/27/2022	< 10	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10		
		10/27/2022	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10		
		4/27/2023	< 5	< 5	< 5	< 5	3020	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5		
		4/27/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
		10/19/2023	N/A	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	
		10/19/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5	N/A
		Ammonia as N, mg/L (CAS NO - 7664-41-7)	4/24/2001	N/A	N/A	0.34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.35	0.29	N/A	N/A	
			7/25/2001	N/A	N/A	0.38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.34	0.28	N/A	N/A	
			10/22/2001	N/A	N/A	0.32	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.19	0.32	N/A	N/A	
	1/8/2002		N/A	N/A	< 0.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.25	< 0.25	N/A	N/A		
	4/24/2002		N/A	N/A	< 0.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.25	< 0.25	N/A	N/A		
	10/23/2003		N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A		
	4/27/2004		0.46	N/A	0.38	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	0.24	N/A	N/A	< 0.2		
	7/20/2004		0.31	N/A	0.47	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	0.31	< 0.2	N/A	N/A		
	10/29/2004		0.24	N/A	0.55	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	0.31	< 0.2	N/A	N/A		
	4/26/2005		< 0.1	N/A	0.39	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	< 0.2	N/A	N/A	< 0.2		
	10/24/2005		0.282	N/A	0.39	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	< 0.2	N/A	N/A	< 0.2		
	4/24/2006		< 0.2	N/A	0.71	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	< 0.2	N/A	N/A	< 0.2		
	10/25/2006		0.31	N/A	0.352	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	0.379	0.25	N/A	N/A		
	4/24/2007		< 0.2	N/A	0.52	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	< 0.2	N/A	N/A	< 0.2		
	10/31/2007		N/A	N/A	0.836	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	< 0.2	N/A	N/A	N/A		
	10/30/2008		< 0.2	N/A	0.312	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	< 0.2	N/A	N/A	N/A		
	4/16/2009		< 0.2	N/A	0.389	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	< 0.2	N/A	N/A	N/A		
	10/12/2009		N/A	N/A	0.449	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	0.807	< 0.2	N/A	N/A		
4/16/2010	< 0.2		N/A	0.459	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	0.56	< 0.2	N/A	N/A			
10/7/2010	< 0.2		N/A	0.251	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	0.558	< 0.2	N/A	N/A			
4/21/2011	< 0.2		N/A	0.289	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	0.435	< 0.2	N/A	N/A			
10/11/2011	< 0.2		N/A	0.288	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	0.45	< 0.2	N/A	N/A			
4/24/2012	< 0.2		N/A	0.414	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	0.453	< 0.2	N/A	N/A			
10/4/2012	N/A																	







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## Summary of Groundwater Chemistry

Lehigh-Mason City Cement Manufacturing Waste Landfill - 17-SDP-08-99P

Other Constituents	Sample Date	MW-101R-NP UPG	MW-101R-RC UPG	MW-203R UPG	MW-205 UPG	PHASE1,2,SUMP-C UPG	LDR-1 DNG	LDR-2 DNG	LDR-3 DNG	MW-102R-NP DNG	MW-103R-NP DNG	MW-201 DNG	MW-202R DNG	MW-204 DNG	MW-206 DNG	SW-1/OUTFALL-4 DNG	
Specific Conductance, umhos/cm (CAS NO - SPECCON)	4/15/2014	N/A	N/A	738	573	N/A	2780	1900	N/A	N/A	N/A	645	879	1087	722	N/A	
	10/2/2014	N/A	N/A	678	725	N/A	2930	2500	N/A	N/A	N/A	693	850	1150	804	N/A	
	4/29/2015	N/A	N/A	799	665	N/A	2665	2378	N/A	N/A	N/A	829	858	1039	694	N/A	
	6/17/2015	3269	N/A	N/A	N/A	N/A	2648	2320	N/A	3372	2732	N/A	N/A	N/A	N/A	N/A	
	11/9/2015	1708	N/A	652	649	N/A	2580	2334	N/A	2908	3219	639	854	1024	697	1144	
	4/19/2016	3260	N/A	1112	1186	N/A	5154	8696	3421	5817	6570	1092	1519	N/A	N/A	1606	
	10/11/2016	1680	N/A	630	566	N/A	3231	2850	2850	3266	3774	687	794	N/A	N/A	744	
	4/26/2017	N/A	978	486	508	N/A	2384	2407	2342	2494	2842	584	669	843	585	394	
	10/13/2017	3475	N/A	617	634	N/A	2336	3240	2774	2997	3576	1078	726	946	669	1443	
	4/25/2018	N/A	899	N/A	N/A	33073	3890	3890	3890	4288	N/A	N/A	N/A	N/A	N/A	N/A	1329
	10/18/2018	N/A	1166	N/A	N/A	N/A	3131	5281	3768	3127	3896	N/A	N/A	N/A	N/A	N/A	748
	4/26/2019	1012.5	810	629	668	47146	3009	4350	3901	3045	3472	1289	792	914	702	858.6	
	10/25/2019	2079	N/A	650	688	N/A	3291	4080	4198	3212	3665	1368	783	944	718	986	
	4/16/2020	895.8	736.5	595.7	634.4	3999	2951.4	4061.3	4866.6	2974.6	3261.7	1136	763.4	891	671	1098	
	10/22/2020	905.3	N/A	600.8	636.9	N/A	3147.8	3957.3	4950.1	3015.1	3392.2	1081.1	724.8	901.5	721.2	1356	
	4/22/2021	920.1	N/A	599.1	627.8	3999	2994	3445.7	4199.5	2945.8	3318.5	1069.2	768.5	889	664.7	1364	
	10/21/2021	819	N/A	698.7	553.2	578.7	2837.8	3200.9	4041.5	2724.9	3048.4	1035	678.6	830.2	610.8	N/A	
	4/28/2022	887.9	873.6	752.3	590.3	621.8	N/A	2971.6	3167.1	4552	2918.3	3259.7	992.2	756.9	895.7	656.9	N/A
	10/27/2022	905.9	905.9	725	588	614.7	N/A	3005.5	3184.3	5059	2832.7	3138.4	838.1	747.6	953	741.6	N/A
	4/27/2023	882.2	N/A	530.1	574	N/A	26.7	3001.1	4864.6	2678.9	2977.9	838.8	596	624.1	608.2	N/A	
	4/25/2013	N/A	N/A	<5	N/A	N/A	1130	499	N/A	N/A	N/A	11.7	93.4	N/A	N/A	N/A	N/A
	10/1/2013	N/A	N/A	9.16	13.2	N/A	1100	489	N/A	N/A	N/A	11.4	97.2	189	44.2	N/A	N/A
	4/19/2014	N/A	N/A	<5	12.5	N/A	1130	584	N/A	N/A	N/A	10.8	108	188	33.8	N/A	N/A
	10/2/2014	N/A	N/A	<5	14.1	N/A	1399	599	N/A	N/A	N/A	11.4	114	214	36.1	N/A	N/A
	4/29/2015	N/A	N/A	<5	15.8	N/A	1180	874	N/A	N/A	N/A	19.5	104	195	35.2	183	N/A
	6/17/2015	755	N/A	N/A	N/A	N/A	1250	989	N/A	N/A	1810	1990	N/A	N/A	N/A	N/A	N/A
	11/9/2015	672	N/A	<5	15.2	N/A	1450	1010	N/A	N/A	1740	1930	16.1	108	183	31.8	168
	4/19/2016	575	N/A	<5	11.6	N/A	1420	1830	847	1690	1960	22.5	97.2	N/A	N/A	N/A	115
10/11/2016	354	N/A	<5	13.9	N/A	1430	1410	N/A	1470	1710	17	117	N/A	N/A	N/A	115	
4/26/2017	N/A	157	<5	18.5	N/A	1450	1420	1750	1670	2120	58.9	106	184	28.6	139	N/A	
10/12/2017	452	N/A	<5	17.1	N/A	1280	1410	1760	1640	2110	236	175	250	30.1	461	139	
4/25/2018	N/A	85.6	<5	20.8	9050	1600	1440	1870	1580	2090	193	101	138	30.3	256	N/A	
10/18/2018	N/A	<5	19.3	15.0	N/A	1580	1970	1570	2200	247	89.5	139	26.6	135	N/A	N/A	
4/26/2019	N/A	79.2	<5	19.9	7210	1640	1630	2110	1770	2160	119	99.3	138	27.1	143	N/A	
10/25/2019	N/A	86.7	<5	17.9	1490	1470	1490	1490	1490	1490	146	146	146	146	146	146	
4/16/2020	234	N/A	<5	19.1	7370	1630	1600	2050	1550	1890	243	107	147	27	214	N/A	
10/22/2020	218	N/A	<5	17.1	N/A	1590	1410	1990	1530	1820	210	93.9	146	25.3	260	N/A	
4/22/2021	244	N/A	<5	16.7	20100	1570	1440	2310	1670	2080	232	98.1	151	25.9	287	N/A	
4/22/2021	N/A	N/A	<5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10/21/2021	302	71.4	<5	18.1	N/A	1690	1690	1690	1590	1890	239	97.3	152	28.4	N/A	N/A	
10/21/2021	N/A	N/A	<5	17.7	N/A	1420	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
4/28/2022	225	77.4	<5	16.5	3960	1630	1440	2210	1750	2050	167	98.1	142	26.9	158	N/A	
4/28/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	154	N/A	N/A	N/A	N/A	N/A	
10/27/2022	258	N/A	<5	16.1	N/A	1930	1430	2120	1510	1810	144	93.1	147	25.7	N/A	N/A	
10/27/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
4/27/2023	276	97.4	3.27	18.8	N/A	1690	1690	1690	1590	1890	239	97.3	152	28.4	N/A	N/A	
4/27/2023	N/A	N/A	N/A	N/A	N/A	1490	N/A	N/A	1690	1690	239	97.3	152	28.4	N/A	N/A	
10/19/2023	256	N/A	N/A	N/A	N/A	1440	1400	2170	1490	1810	121	86.7	146	27	N/A	N/A	
10/19/2023	256	N/A	N/A	N/A	N/A	1440	1400	2170	1490	1810	121	86.7	146	27	N/A	N/A	
10/19/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
4/24/2001	N/A	N/A	N/A	400	N/A	N/A	N/A	N/A	N/A	N/A	390	590	N/A	N/A	N/A	N/A	
7/25/2001	N/A	N/A	N/A	360	N/A	N/A	N/A	N/A	N/A	N/A	370	590	N/A	N/A	N/A	N/A	
10/22/2001	N/A	N/A	N/A	230	N/A	N/A	N/A	N/A	N/A	N/A	340	590	N/A	N/A	N/A	N/A	
1/8/2002	2690	N/A	N/A	290	N/A	N/A	N/A	N/A	N/A	N/A	360	490	N/A	N/A	N/A	N/A	
4/24/2002	N/A	N/A	N/A	370	N/A	N/A	N/A	N/A	N/A	N/A	400	570	N/A	N/A	N/A	N/A	
10/23/2003	680	N/A	N/A	210	N/A	N/A	N/A	N/A	N/A	3500	N/A	370	920	N/A	N/A	N/A	
4/27/2004	1800	N/A	N/A	290	N/A	N/A	N/A	N/A	N/A	3500	N/A	1000	N/A	N/A	N/A	1100	
7/29/2004	1800	N/A	N/A	280	N/A	N/A	N/A	N/A	N/A	3300	N/A	340	N/A	N/A	N/A	890	
10/29/2004	2000	N/A	N/A	260	N/A	N/A	N/A	N/A	N/A	3100	N/A	370	880	N/A	N/A	N/A	
4/26/2005	1800	N/A	N/A	180	N/A	N/A	N/A	N/A	N/A	540	N/A	N/A	3100	N/A	N/A	N/A	
10/24/2005	1530	N/A	N/A	268	N/A	N/A	N/A	N/A	N/A	2870	N/A	N/A	464	N/A	N/A	620	
4/24/2006	1570	N/A	N/A	166	N/A	N/A	N/A	N/A	N/A	2300	N/A	406	514	N/A	N/A	552	
10/25/2006	1510	N/A	N/A	153	N/A	N/A	N/A	N/A	N/A	2800	N/A	404	532	N/A	N/A	N/A	
4/24/2007	1980	N/A	N/A	196	N/A	N/A	N/A	N/A	N/A	1990	N/A	580	N/A	N/A	N/A	488	
10/31/2007	N/A	N/A	N/A	90	N/A	N/A	N/A	N/A	N/A	2990	N/A	318	N/A	N/A	N/A	440	
10/30/2008	1130	N/A	N/A	304	N/A	N/A	N/A	N/A	N/A	2570	N/A	N/A	670	N/A	N/A	N/A	
4/16/2009	1410	N/A	N/A	292	N/A	N/A	N/A	N/A	N/A	2440	N/A	435	488	N/A	N/A	N/A	
10/12/2009	N/A	N/A	N/A	236	N/A	N/A	N/A	N/A	N/A	2540	N/A	364	476	N/A	N/A	N/A	
10/12/2009	N/A	N/A	N/A	221	N/A	N/A	N/A	N/A	N/A	2470	N/A	324	428	N/A	N/A	N/A	
4/16/2010	1680	N/A	N/A	180	N/A	N/A	N/A	N/A	N/A	N/A	334	430	N/A	N/A	N/A	N/A	
10/7/2010	1600	N/A	N/A	312	N/A	N/A	N/A	N/A	N/A	1790	360	372	N/A	N/A	N/A	N/A	
4/21/2011	1110	N/A	N/A	310	N/A	N/A	N/A	N/A	N/A	N/A	350	448	N/A	N/A	N/A	N/A	
10/11/2011	1260	N/A	N/A	185	N/A	N/A	N/A	N/A	N/A	2400	390	470	N/A	N/A	N/A	N/A	
4/24/2012	3280	N/A	N/A	234	N/A	N/A	N/A	N/A	N/A	2370	1890	342	466	N/A	N/A	N/A	
10/4/2012	N/A	N/A	N/A	236	N/A	N/A	N/A	N/A	N/A	2890	384	528	N/A	N/A	N/A	N/A	
11/7/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2520	N/A	N/A	N/A	N/A	N/A	N/A	
4/25/2013	N/A	N/A	N/A	272	N/A	N/A	2290	1340	N/A	N/A	N/A						

# SCS ENGINEERS

Summary of Groundwater Chemistry

Lehigh-Mason City Cement Manufacturing Waste Landfill - 17-SDP-08-99P

Other Constituents	Sample Date	MW-101R-NP UPG	MW-101R-RC UPG	MW-203R UPG	MW-205 UPG	PHASE1,2,3SUMP-C UPG	LDR-1 DNG	LDR-2 DNG	LDR-3 DNG	MW-102R-NP DNG	MW-103R-NP DNG	MW-201 DNG	MW-202R DNG	MW-204 DNG	MW-206 DNG	SW-1/OUTFALL4 DNG	
Total Dissolved Solids, mg/L (CAS NO - TDS)	10/21/2021	762	356	248	268	N/A	2520	2310	3730	2400	2390	684	392	504	284	N/A	
	10/21/2021	N/A	N/A	N/A	246	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	4/18/2022	630	402	N/A	314	17000	2660	2600	3790	2960	2900	482	400	520	302	N/A	
	4/28/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	596	N/A	N/A	N/A	N/A	
	10/27/2022	728	N/A	306	N/A	N/A	2790	2710	4120	2660	3230	540	396	522	318	N/A	
	10/27/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	330	N/A	
	4/27/2023	734	368	272	294	23800	2650	2640	4190	2720	2970	500	398	532	322	582	
	4/27/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	546	N/A	
	10/19/2023	650	N/A	334	340	N/A	2920	2920	4620	2920	3190	576	356	560	370	N/A	
	10/19/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	592	N/A	
	Total Hardness, mg/L (CAS NO - HARD)	4/25/2013	N/A	N/A	441	N/A	N/A	1730	1260	N/A	N/A	N/A	578	441	N/A	N/A	N/A
		10/1/2013	N/A	N/A	218	322	N/A	1750	1080	N/A	N/A	N/A	312	426	489	364	N/A
		4/15/2014	N/A	N/A	362	372	N/A	1750	1900	N/A	N/A	N/A	314	541	561	393	N/A
		10/2/2014	N/A	N/A	211	332	N/A	1880	1750	N/A	N/A	N/A	296	492	540	364	N/A
		4/29/2015	N/A	N/A	867	344	N/A	1850	1530	N/A	N/A	N/A	301	453	527	366	283
		11/9/2015	888	N/A	316	343	N/A	2020	1760	N/A	2290	2570	301	449	557	372	470
		4/19/2016	1140	N/A	349	344	N/A	2040	1790	1090	2150	2380	290	454	N/A	N/A	285
		10/11/2016	504	N/A	329	337	N/A	1980	1860	1410	1970	2420	299	393	N/A	N/A	151
		4/26/2017	N/A	538	325	362	N/A	2040	1990	1890	2270	2540	402	488	528	365	203
		10/12/2017	730	N/A	317	327	N/A	1980	1980	2360	2020	2380	564	420	474	341	472
		4/25/2018	N/A	488	318	334	43.6	1820	1870	1980	2060	2520	526	399	450	368	215
10/18/2018		N/A	513	311	327	N/A	2190	1820	2090	2240	2510	559	340	457	393	165	
4/26/2019		N/A	446	327	343	102	2270	1940	2430	2430	2630	426	496	466	413	233	
10/25/2019		609	407	318	335	N/A	2450	1900	2430	1990	2240	639	356	472	363	293	
4/16/2020		735	426	326	352	N/A	2300	2090	2730	2320	2730	578	450	490	389	285	
10/22/2020		629	N/A	292	320	N/A	2110	1910	2600	1900	2260	485	305	433	343	158	
4/22/2021		618	N/A	365	351	630	2060	1890	2660	2030	2130	537	417	527	379	218	
4/22/2021		N/A	N/A	336	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10/21/2021		653	390	317	330	N/A	2280	2090	3170	2230	2730	556	364	468	345	N/A	
10/21/2021		N/A	N/A	N/A	344	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
4/28/2022		648	433	338	344	350	2660	1830	2690	1870	2380	535	405	503	375	286	
4/28/2022		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	495	N/A	N/A	N/A	N/A	
10/27/2022		578	N/A	328	341	N/A	2610	2350	3400	2080	2450	459	319	465	347	N/A	
10/27/2022		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	347	N/A	
4/27/2023		666	380	310	323	23.6	1510	1400	3070	1840	2130	381	390	466	350	149	
4/27/2023		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10/19/2023		532	N/A	331	340	N/A	2580	2520	3900	1800	2310	436	314	494	361	N/A	
10/19/2023		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	485	N/A	
Total Kjeldahl Nitrogen, mg/L (CAS NO - TKN)		4/25/2013	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	N/A	N/A	<1	<1	N/A	N/A	N/A
		10/1/2013	N/A	N/A	<1	<1	N/A	<1	<1	N/A	N/A	N/A	<1	<1	<1	<1	N/A
		4/15/2014	N/A	N/A	<1	<1	N/A	<1	<1	N/A	N/A	N/A	<1	<1	<1	<1	N/A
		10/2/2014	N/A	N/A	<1	<1	N/A	<1	<1	N/A	N/A	N/A	<1	<1	<1	<1	N/A
		4/29/2015	N/A	N/A	0.625	<1	N/A	<1	<1	N/A	N/A	N/A	<1	<1	<1	<1	1.35
		11/9/2015	<1	N/A	<1	<1	N/A	<1	<1	N/A	<1	<1	<1	<1	<1	<1	1.62
		4/19/2016	<1	N/A	<1	<1	N/A	0.696	0.798	<1	<1	<1	<1	<1	<1	N/A	0.675
		10/11/2016	<1	N/A	<1	0.544	N/A	0.661	0.893	0.657	<1	<1	0.738	<1	0.952	N/A	0.95
		4/26/2017	N/A	<1	0.486	<1	N/A	<1	<1	0.593	<1	<1	0.649	<1	0.489	<1	1.13
		10/12/2017	<1	N/A	0.426	<1	N/A	<1	<1	0.595	<1	<1	0.618	<1	0.491	<1	1.04
		4/25/2018	N/A	0.773	0.555	0.53	6.54	<1	<1	0.637	0.819	<1	0.365	0.562	0.403	0.885	1.49
		10/18/2018	N/A	0.51	0.499	0.442	N/A	0.43	0.566	0.751	0.36	<1	0.403	0.342	0.341	0.484	1.49
		4/26/2019	N/A	<1	0.508	0.489	18.5	<1	0.444	<1	<1	<1	0.491	<1	0.552	<1	1.33
		10/25/2019	<1	<1	<1	<1	N/A	0.634	<1	0.509	<1	<1	1.16	<1	<1	<1	0.683
		4/16/2020	<1	<1	0.497	0.448	6.6	<1	<1	0.677	<1	<1	0.677	<1	0.622	<1	1.06
		10/22/2020	<1	N/A	0.458	<1	1.14	<1	<1	0.651	<1	<1	0.816	<1	0.443	<1	0.908
		4/22/2021	<1	N/A	<1	<1	15.1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.883
		4/22/2021	N/A	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		10/21/2021	<1	<1	<1	<1	N/A	0.479*	<1	<1	<1	<1	0.851*	<1	<1	<1	N/A
		10/21/2021	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	<1	N/A	<1	<1	<1	N/A
		4/28/2022	<1	<1	<1	<1	9.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.466*
		4/28/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	<1	<1	<1	N/A
		10/27/2022	<1	N/A	<1	<1	N/A	0.851*	<1	0.707*	<1	<1	0.774*	<1	0.427*	0.48*	N/A
		10/27/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
		4/27/2023	<1	<1	<1	<1	30.4	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.05
	4/27/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	<1	<1	<1	N/A	
	10/19/2023	<1	N/A	<1	<1	N/A	<1	<1	<1	<1	<1	0.646*	<1	<1	<1	N/A	
	10/19/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A	
	Total Organic Carbon, mg/L (CAS NO - TOC)	4/25/2013	N/A	N/A	1.84	N/A	N/A	<1	1.4	N/A	N/A	N/A	1	<1	N/A	N/A	N/A
		10/1/2013	N/A	N/A	1.58	<1	N/A	<1	1.44	N/A	N/A	1.01	<1	1.47	<1	<1	N/A
		4/15/2014	N/A	N/A	<1	<1	N/A	<1	1.25	N/A	N/A	<1	<1	1.2	<1	<1	N/A
		10/2/2014	N/A	N/A	<1	<1	N/A	<1	1.14	N/A	N/A	<1	<1	<1	<1	<1	N/A
		4/29/2015	N/A	N/A	1.14	0.724	N/A	0.785	1.28	N/A	N/A	1.01	1.34	0.765	6.9	<1	14.4
		11/9/2015	<1	N/A	<1	<1	N/A	<1	1.19	N/A	<1	<1	<1	<1	1.05	<1	14.4
		4/19/2016	2.24	N/A	5.51	3.87	N/A	17.5	2.81	13.2	2.84	2.75	14	2.28	N/A	N/A	13.4
		10/11/2016	1.22	N/A	0.847	0.657	N/A	0.842	1.07	7.86	0.962	0.701	1.21	0.994	1.04	5.89	1.49
		4/26/2017	N/A	0.685	0.685	0.59	N/A	0.808	1.39	6.96	0.751	0.661	1.13	0.761	1.26	0.813	4.58
		10/12/2017	0.888	N/A	0.594	0.725	N/A	0.504	0.725	6.04	0.776	0.526	1.26	0.737	7.8	<1	N/A
		4/25/2018	N/A	0.68	0.808	0.656	22.5	0.957	1.29	4.45	1.54	0.692	1.44	0.82	0.977	0.729	5.77
		10/18/2018	N/A	0.964	1.05	0.964	N/A	1.25	2.12	4.69	1.65	1.31	1.81	1.1	1.24	0.952	3.9
		4/26/2019	N/A	1.38</													

# SCS ENGINEERS

## Summary of Groundwater Chemistry

Lehigh-Mason City Cement Manufacturing Waste Landfill - 17-SDP-08-99P


Other Constituents	Sample Date	MW-101R-NP UPG	MW-101R-RC UPG	MW-203R UPG	MW-205 UPG	PHASE1,2,3SUMP-C UPG	LDR-1 DNG	LDR-2 DNG	LDR-3 DNG	MW-102R-NP DNG	MW-103R-NP DNG	MW-201 DNG	MW-202R DNG	MW-204 DNG	MW-206 DNG	SW-1/OUTFALL4 DNG
Total Organic Carbon, mg/L (CAS NO - TOC)	10/19/2023	0.866*	N/A	0.971*	0.895*	N/A	1.13	1.37	1.88	1.3	0.787**	1.49	1.01	1.27	0.949*	N/A
	10/19/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.17	N/A	N/A

Note: \* Indicates 'J' flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.

Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.



Appendix D  
Statistical Report

Attachment A  
Trend Test ( $\alpha=0.01$ )

# Trend Test

CKD Monofill    Client: Lehigh Cement Company    Data: LCMNT Master flat-AM2023    Printed 11/7/2023, 3:17 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Alpha</u>	<u>Method</u>
Alkalinity, Total [CaCO3] (mg/L)	LDR-1	12.81	7	21	No	8	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	LDR-2	-56.32	-14	-21	No	8	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	LDR-3	-6.834	-8	-21	No	8	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	MW-101R-NP (bg)	-6.859	-6	-21	No	8	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	MW-102R-NP	-7.91	-4	-21	No	8	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	MW-103R-NP	-11.74	-12	-21	No	8	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	MW-201	-3.385	-4	-21	No	8	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	MW-202R	-3.504	-2	-21	No	8	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	MW-203R (bg)	-7.731	-8	-21	No	8	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	MW-204	1.199	3	21	No	8	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	MW-205 (bg)	-3.228	-6	-21	No	8	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	MW-206	-5.922	-4	-21	No	8	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	SW-1/OUTFALL4	8.551	4	21	No	8	0	0.01	NP
Aluminum (mg/L)	LDR-1	-0.2641	-10	-21	No	8	0	0.01	NP
Aluminum (mg/L)	LDR-3	-0.001206	-2	-21	No	8	25	0.01	NP
Aluminum (mg/L)	MW-101R-NP (bg)	0	2	21	No	8	50	0.01	NP
Aluminum (mg/L)	SW-1/OUTFALL4	-0.05438	-12	-21	No	8	0	0.01	NP
Ammonia as N (mg/L)	LDR-1	0.02824	7	21	No	8	37.5	0.01	NP
Ammonia as N (mg/L)	LDR-3	0.07487	5	21	No	8	12.5	0.01	NP
Ammonia as N (mg/L)	MW-103R-NP	0	-5	-21	No	8	87.5	0.01	NP
Ammonia as N (mg/L)	MW-201	-0.0144	-1	-21	No	8	25	0.01	NP
Ammonia as N (mg/L)	MW-202R	-0.02005	-13	-21	No	8	25	0.01	NP
Ammonia as N (mg/L)	MW-203R (bg)	-0.02313	-9	-21	No	8	0	0.01	NP
Ammonia as N (mg/L)	MW-204	0.001391	2	21	No	8	0	0.01	NP
Ammonia as N (mg/L)	MW-205 (bg)	-0.03953	-10	-21	No	8	0	0.01	NP
Ammonia as N (mg/L)	MW-206	-0.02142	-9	-21	No	8	25	0.01	NP
Ammonia as N (mg/L)	SW-1/OUTFALL4	-0.001568	-6	-21	No	8	50	0.01	NP
Arsenic (mg/L)	LDR-1	-0.0001922	-7	-21	No	8	37.5	0.01	NP
Arsenic (mg/L)	LDR-2	-0.0001705	-11	-21	No	8	50	0.01	NP
Arsenic (mg/L)	MW-101R-NP (bg)	0	-1	-21	No	8	37.5	0.01	NP
Arsenic (mg/L)	MW-201	0.0004102	13	21	No	8	37.5	0.01	NP
Arsenic (mg/L)	SW-1/OUTFALL4	-0.00006968	-2	-21	No	8	12.5	0.01	NP
Bicarbonate (mg/L)	LDR-1	16.79	9	21	No	8	0	0.01	NP
Bicarbonate (mg/L)	LDR-2	-48.3	-16	-21	No	8	0	0.01	NP
Bicarbonate (mg/L)	LDR-3	0.6944	0	21	No	8	0	0.01	NP
Bicarbonate (mg/L)	MW-101R-NP (bg)	-9.838	-4	-18	No	7	0	0.01	NP
Bicarbonate (mg/L)	MW-102R-NP	9.197	12	21	No	8	0	0.01	NP
Bicarbonate (mg/L)	MW-103R-NP	-0.2985	0	21	No	8	0	0.01	NP
Bicarbonate (mg/L)	MW-201	0.3429	0	21	No	8	0	0.01	NP
Bicarbonate (mg/L)	MW-202R	1.491	2	21	No	8	0	0.01	NP
Bicarbonate (mg/L)	MW-203R (bg)	-1.407	-4	-21	No	8	0	0.01	NP
Bicarbonate (mg/L)	MW-204	2.266	4	21	No	8	0	0.01	NP
Bicarbonate (mg/L)	MW-205 (bg)	-0.4235	-2	-21	No	8	0	0.01	NP
Bicarbonate (mg/L)	MW-206	0.5699	1	21	No	8	0	0.01	NP
Bicarbonate (mg/L)	SW-1/OUTFALL4	-4.62	-2	-12	No	5	0	0.01	NP
Calcium (mg/L)	LDR-1	11.71	8	21	No	8	0	0.01	NP
Calcium (mg/L)	LDR-2	18.72	4	21	No	8	0	0.01	NP
Calcium (mg/L)	LDR-3	67.94	16	21	No	8	0	0.01	NP
Calcium (mg/L)	MW-101R-NP (bg)	-5.559	-8	-21	No	8	0	0.01	NP
Calcium (mg/L)	MW-102R-NP	-30.55	-14	-21	No	8	0	0.01	NP



# Trend Test

CKD Monofill    Client: Lehigh Cement Company    Data: LCMNT Master flat-AM2023    Printed 11/7/2023, 3:17 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Alpha</u>	<u>Method</u>
Calcium (mg/L)	MW-103R-NP	-2.55	-2	-21	No	8	0	0.01	NP
Calcium (mg/L)	MW-201	-11.23	-15	-21	No	8	0	0.01	NP
Calcium (mg/L)	MW-202R	-6.033	-12	-21	No	8	0	0.01	NP
Calcium (mg/L)	MW-203R (bg)	-0.9886	-6	-21	No	8	0	0.01	NP
Calcium (mg/L)	MW-204	-0.8287	-4	-21	No	8	0	0.01	NP
Calcium (mg/L)	MW-205 (bg)	-1.306	-6	-21	No	8	0	0.01	NP
Calcium (mg/L)	MW-206	-1.933	-6	-21	No	8	0	0.01	NP
Calcium (mg/L)	SW-1/OUTFALL4	-2.236	-6	-21	No	8	0	0.01	NP
Carbonate (mg/L)	MW-202R	0.772	11	21	No	8	87.5	0.01	NP
Chloride (mg/L)	LDR-1	1.934	14	21	No	8	0	0.01	NP
Chloride (mg/L)	LDR-2	-16.54	-14	-21	No	8	0	0.01	NP
<b>Chloride (mg/L)</b>	<b>LDR-3</b>	<b>93.76</b>	<b>24</b>	<b>21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>0.01</b>	<b>NP</b>
Chloride (mg/L)	MW-101R-NP (bg)	-0.1246	-4	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-102R-NP	-0.116	-6	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-103R-NP	0.5693	11	21	No	8	0	0.01	NP
Chloride (mg/L)	MW-201	-5.054	-20	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-202R	-0.2325	-3	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-203R (bg)	-0.244	-8	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-204	0.6462	14	21	No	8	0	0.01	NP
Chloride (mg/L)	MW-205 (bg)	-0.1065	-8	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-206	-0.09956	-3	-21	No	8	0	0.01	NP
Chloride (mg/L)	SW-1/OUTFALL4	6.635	10	21	No	8	0	0.01	NP
Chromium (mg/L)	LDR-1	0.0007025	3	21	No	8	37.5	0.01	NP
Chromium (mg/L)	SW-1/OUTFALL4	0	5	21	No	8	87.5	0.01	NP
Lead (mg/L)	LDR-1	-0.0002437	-13	-21	No	8	37.5	0.01	NP
Lead (mg/L)	LDR-3	0.00003379	7	21	No	8	37.5	0.01	NP
Lead (mg/L)	MW-101R-NP (bg)	0	0	21	No	8	62.5	0.01	NP
Lead (mg/L)	MW-201	0	7	21	No	8	87.5	0.01	NP
Lead (mg/L)	SW-1/OUTFALL4	-0.0001388	-9	-21	No	8	37.5	0.01	NP
Magnesium (mg/L)	LDR-1	8.612	4	21	No	8	0	0.01	NP
Magnesium (mg/L)	LDR-2	17.12	12	21	No	8	0	0.01	NP
Magnesium (mg/L)	LDR-3	29.08	12	21	No	8	0	0.01	NP
Magnesium (mg/L)	MW-101R-NP (bg)	-4.129	-13	-21	No	8	0	0.01	NP
Magnesium (mg/L)	MW-102R-NP	-3.076	-3	-21	No	8	0	0.01	NP
Magnesium (mg/L)	MW-103R-NP	-5.37	-4	-21	No	8	0	0.01	NP
Magnesium (mg/L)	MW-201	-4.347	-16	-21	No	8	0	0.01	NP
Magnesium (mg/L)	MW-202R	2.219	6	21	No	8	0	0.01	NP
Magnesium (mg/L)	MW-203R (bg)	0.4474	7	21	No	8	0	0.01	NP
Magnesium (mg/L)	MW-204	0.201	2	21	No	8	0	0.01	NP
Magnesium (mg/L)	MW-205 (bg)	0.3986	6	21	No	8	0	0.01	NP
Magnesium (mg/L)	MW-206	-0.2786	-6	-21	No	8	0	0.01	NP
Magnesium (mg/L)	SW-1/OUTFALL4	0.0915	2	21	No	8	0	0.01	NP
Nitrate/Nitrite as N (mg/L)	LDR-1	-0.00246	-6	-21	No	8	50	0.01	NP
Nitrate/Nitrite as N (mg/L)	LDR-2	-0.04751	-20	-21	No	8	12.5	0.01	NP
Nitrate/Nitrite as N (mg/L)	LDR-3	0.04873	18	21	No	8	12.5	0.01	NP
Nitrate/Nitrite as N (mg/L)	MW-101R-NP (bg)	-0.003298	-1	-21	No	8	25	0.01	NP
Nitrate/Nitrite as N (mg/L)	MW-102R-NP	0	-8	-21	No	8	62.5	0.01	NP
Nitrate/Nitrite as N (mg/L)	MW-103R-NP	0.003696	2	21	No	8	0	0.01	NP
Nitrate/Nitrite as N (mg/L)	MW-201	0	6	21	No	8	62.5	0.01	NP
Nitrate/Nitrite as N (mg/L)	MW-206	0	0	21	No	8	62.5	0.01	NP

# Trend Test

CKD Monofill    Client: Lehigh Cement Company    Data: LCMNT Master flat-AM2023    Printed 11/7/2023, 3:17 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Alpha</u>	<u>Method</u>
Nitrate/Nitrite as N (mg/L)	SW-1/OUTFALL4	0.0135	2	21	No	8	12.5	0.01	NP
pH (S.U.)	LDR-1	0.1759	9	21	No	8	0	0.01	NP
pH (S.U.)	LDR-2	-0.061	-6	-21	No	8	0	0.01	NP
pH (S.U.)	LDR-3	-0.03161	-4	-21	No	8	0	0.01	NP
pH (S.U.)	MW-101R-NP (bg)	0.01253	6	21	No	8	0	0.01	NP
pH (S.U.)	MW-102R-NP	0.007521	1	21	No	8	0	0.01	NP
pH (S.U.)	MW-103R-NP	-0.01495	-3	-21	No	8	0	0.01	NP
pH (S.U.)	MW-201	0.08779	11	21	No	8	0	0.01	NP
pH (S.U.)	MW-202R	0.4207	14	21	No	8	0	0.01	NP
pH (S.U.)	MW-203R (bg)	-0.01398	-4	-21	No	8	0	0.01	NP
pH (S.U.)	MW-204	0.01729	7	21	No	8	0	0.01	NP
pH (S.U.)	MW-205 (bg)	0.02065	5	21	No	8	0	0.01	NP
pH (S.U.)	MW-206	-0.0165	-1	-21	No	8	0	0.01	NP
Phosphorus, Total [as P] (mg/L)	LDR-1	-0.02109	-6	-21	No	8	12.5	0.01	NP
Phosphorus, Total [as P] (mg/L)	MW-201	0.003964	8	21	No	8	50	0.01	NP
Phosphorus, Total [as P] (mg/L)	SW-1/OUTFALL4	-0.007694	-12	-21	No	8	12.5	0.01	NP
Potassium (mg/L)	LDR-1	1.92	4	21	No	8	0	0.01	NP
<b>Potassium (mg/L)</b>	<b>LDR-2</b>	<b>-106</b>	<b>-26</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>0.01</b>	<b>NP</b>
<b>Potassium (mg/L)</b>	<b>LDR-3</b>	<b>88.59</b>	<b>26</b>	<b>21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>0.01</b>	<b>NP</b>
Potassium (mg/L)	MW-101R-NP (bg)	-0.3062	-16	-21	No	8	0	0.01	NP
Potassium (mg/L)	MW-102R-NP	-0.8301	-20	-21	No	8	0	0.01	NP
Potassium (mg/L)	MW-103R-NP	-0.4324	-2	-21	No	8	0	0.01	NP
Potassium (mg/L)	MW-201	-3.88	-20	-21	No	8	0	0.01	NP
Potassium (mg/L)	MW-202R	0.3342	12	21	No	8	0	0.01	NP
Potassium (mg/L)	MW-203R (bg)	-0.07296	-2	-21	No	8	0	0.01	NP
Potassium (mg/L)	MW-204	-0.4037	-16	-21	No	8	0	0.01	NP
Potassium (mg/L)	MW-205 (bg)	0.03309	0	21	No	8	0	0.01	NP
Potassium (mg/L)	MW-206	-0.1484	-6	-21	No	8	0	0.01	NP
Potassium (mg/L)	SW-1/OUTFALL4	26.61	10	21	No	8	0	0.01	NP
Selenium (mg/L)	LDR-2	0.000198	10	21	No	8	75	0.01	NP
Selenium (mg/L)	MW-201	0	7	21	No	8	87.5	0.01	NP
Sodium (mg/L)	LDR-1	-0.5754	-2	-21	No	8	0	0.01	NP
<b>Sodium (mg/L)</b>	<b>LDR-2</b>	<b>-10.73</b>	<b>-24</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>0.01</b>	<b>NP</b>
Sodium (mg/L)	LDR-3	1.081	2	21	No	8	0	0.01	NP
Sodium (mg/L)	MW-101R-NP (bg)	-1.755	-12	-21	No	8	0	0.01	NP
<b>Sodium (mg/L)</b>	<b>MW-102R-NP</b>	<b>-5.546</b>	<b>-22</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>0.01</b>	<b>NP</b>
Sodium (mg/L)	MW-103R-NP	-6.267	-14	-21	No	8	0	0.01	NP
Sodium (mg/L)	MW-201	-1.778	-15	-21	No	8	0	0.01	NP
Sodium (mg/L)	MW-202R	2.437	11	21	No	8	0	0.01	NP
Sodium (mg/L)	MW-203R (bg)	0.1415	2	21	No	8	0	0.01	NP
Sodium (mg/L)	MW-204	-0.1009	0	21	No	8	0	0.01	NP
Sodium (mg/L)	MW-205 (bg)	-0.009116	0	21	No	8	0	0.01	NP
Sodium (mg/L)	MW-206	-0.04919	-1	-21	No	8	0	0.01	NP
Sodium (mg/L)	SW-1/OUTFALL4	0.8685	14	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	LDR-1	-47.02	-4	-21	No	8	0	0.01	NP
<b>Specific Conductance (umhos/cm)</b>	<b>LDR-2</b>	<b>-281.8</b>	<b>-22</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>0.01</b>	<b>NP</b>
Specific Conductance (umhos/cm)	LDR-3	308.2	18	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-101R-NP (bg)	-3.881	-4	-21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-102R-NP	-70.07	-20	-21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-103R-NP	-85.57	-20	-21	No	8	0	0.01	NP

# Trend Test

CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023 Printed 11/7/2023, 3:17 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Alpha	Method
<b>Specific Conductance (umhos/cm)</b>	<b>MW-201</b>	<b>-87.32</b>	<b>-26</b>	<b>-21</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>0.01</b>	<b>NP</b>
Specific Conductance (umhos/cm)	MW-202R	-42.23	-14	-21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-203R (bg)	-7.445	-16	-21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-204	-4.067	-8	-21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-205 (bg)	-9.862	-18	-21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-206	-10.46	-18	-21	No	8	0	0.01	NP
Sulfate (mg/L)	LDR-1	51.43	18	21	No	8	0	0.01	NP
Sulfate (mg/L)	LDR-2	0	2	21	No	8	0	0.01	NP
Sulfate (mg/L)	LDR-3	55.64	8	21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-101R-NP (bg)	6.93	2	21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-102R-NP	-16.26	-7	-21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-103R-NP	-16.44	-13	-21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-201	-32.93	-20	-21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-202R	-2.853	-8	-21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-204	0.8455	7	21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-205 (bg)	-0.396	-9	-21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-206	0.289	5	21	No	8	0	0.01	NP
Sulfate (mg/L)	SW-1/OUTFALL4	21.32	16	21	No	8	0	0.01	NP
Total Dissolved Solids (mg/L)	LDR-1	-12.36	-2	-21	No	8	0	0.01	NP
Total Dissolved Solids (mg/L)	LDR-2	-34.82	0	21	No	8	0	0.01	NP
Total Dissolved Solids (mg/L)	LDR-3	217	12	21	No	8	0	0.01	NP
Total Dissolved Solids (mg/L)	MW-101R-NP (bg)	1.49	1	21	No	8	0	0.01	NP
Total Dissolved Solids (mg/L)	MW-102R-NP	-23.12	-4	-21	No	8	0	0.01	NP
Total Dissolved Solids (mg/L)	MW-103R-NP	-23.4	-4	-21	No	8	0	0.01	NP
Total Dissolved Solids (mg/L)	MW-201	-81.03	-20	-21	No	8	0	0.01	NP
Total Dissolved Solids (mg/L)	MW-202R	-11.36	-10	-21	No	8	0	0.01	NP
Total Dissolved Solids (mg/L)	MW-203R (bg)	-17.59	-6	-21	No	8	0	0.01	NP
Total Dissolved Solids (mg/L)	MW-204	-1.261	0	21	No	8	0	0.01	NP
Total Dissolved Solids (mg/L)	MW-205 (bg)	-11.34	-4	-21	No	8	0	0.01	NP
Total Dissolved Solids (mg/L)	MW-206	-5.71	-6	-21	No	8	0	0.01	NP
Total Dissolved Solids (mg/L)	SW-1/OUTFALL4	32.47	6	21	No	8	0	0.01	NP
Total Hardness (mg/L)	LDR-1	69.06	3	21	No	8	0	0.01	NP
Total Hardness (mg/L)	LDR-2	119.9	2	21	No	8	0	0.01	NP
Total Hardness (mg/L)	LDR-3	282.8	14	21	No	8	0	0.01	NP
Total Hardness (mg/L)	MW-101R-NP (bg)	-28.58	-10	-21	No	8	0	0.01	NP
Total Hardness (mg/L)	MW-102R-NP	-93.3	-16	-21	No	8	0	0.01	NP
Total Hardness (mg/L)	MW-103R-NP	-8.548	-3	-21	No	8	0	0.01	NP
Total Hardness (mg/L)	MW-201	-40.95	-18	-21	No	8	0	0.01	NP
Total Hardness (mg/L)	MW-202R	-10.64	-8	-21	No	8	0	0.01	NP
Total Hardness (mg/L)	MW-203R (bg)	-3.735	-5	-21	No	8	0	0.01	NP
Total Hardness (mg/L)	MW-204	-1.256	-2	-21	No	8	0	0.01	NP
Total Hardness (mg/L)	MW-205 (bg)	-3.206	-8	-21	No	8	0	0.01	NP
Total Hardness (mg/L)	MW-206	-4.673	-2	-21	No	8	0	0.01	NP
Total Hardness (mg/L)	SW-1/OUTFALL4	-7.066	-8	-21	No	8	0	0.01	NP
Total Kjeldahl Nitrogen (mg/L)	LDR-1	0	-2	-21	No	8	62.5	0.01	NP
Total Kjeldahl Nitrogen (mg/L)	LDR-3	0	-3	-21	No	8	75	0.01	NP
Total Kjeldahl Nitrogen (mg/L)	MW-201	-0.01485	-5	-21	No	8	37.5	0.01	NP
Total Kjeldahl Nitrogen (mg/L)	MW-202R	0	-7	-21	No	8	87.5	0.01	NP
Total Kjeldahl Nitrogen (mg/L)	MW-203R (bg)	0	11	21	No	8	75	0.01	NP
Total Kjeldahl Nitrogen (mg/L)	MW-204	0	-4	-21	No	8	62.5	0.01	NP

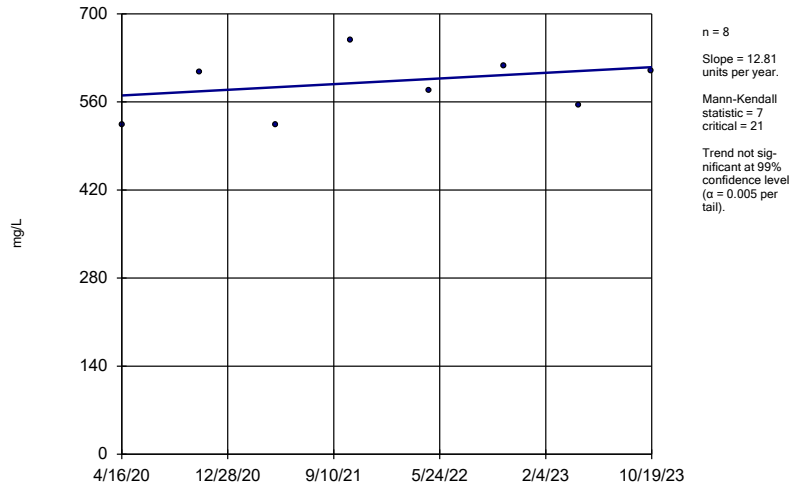
# Trend Test

CKD Monofill    Client: Lehigh Cement Company    Data: LCMNT Master flat-AM2023    Printed 11/7/2023, 3:17 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Alpha</u>	<u>Method</u>
Total Kjeldahl Nitrogen (mg/L)	MW-205 (bg)	0	7	21	No	8	87.5	0.01	NP
Total Kjeldahl Nitrogen (mg/L)	SW-1/OUTFALL4	-0.1817	-12	-21	No	8	0	0.01	NP
Total Organic Carbon (mg/L)	LDR-1	0.01404	1	21	No	8	0	0.01	NP
Total Organic Carbon (mg/L)	LDR-2	-0.2791	-12	-21	No	8	0	0.01	NP
Total Organic Carbon (mg/L)	LDR-3	-0.1574	-4	-21	No	8	0	0.01	NP
Total Organic Carbon (mg/L)	MW-101R-NP (bg)	-0.003554	-3	-21	No	8	0	0.01	NP
Total Organic Carbon (mg/L)	MW-102R-NP	0.001748	0	21	No	8	0	0.01	NP
Total Organic Carbon (mg/L)	MW-103R-NP	-0.04473	-2	-21	No	8	0	0.01	NP
Total Organic Carbon (mg/L)	MW-201	-0.2853	-12	-21	No	8	0	0.01	NP
Total Organic Carbon (mg/L)	MW-202R	-0.04427	-1	-21	No	8	0	0.01	NP
Total Organic Carbon (mg/L)	MW-203R (bg)	-0.1022	-6	-21	No	8	0	0.01	NP
Total Organic Carbon (mg/L)	MW-204	-0.08945	-6	-21	No	8	0	0.01	NP
Total Organic Carbon (mg/L)	MW-205 (bg)	-0.08402	-6	-21	No	8	0	0.01	NP
Total Organic Carbon (mg/L)	MW-206	-0.09295	-2	-21	No	8	0	0.01	NP
Total Organic Carbon (mg/L)	SW-1/OUTFALL4	0.6574	14	21	No	8	0	0.01	NP
Total Suspended Solids (mg/L)	LDR-1	5.147	0	21	No	8	0	0.01	NP
Total Suspended Solids (mg/L)	LDR-2	0.5594	14	21	No	8	25	0.01	NP
Total Suspended Solids (mg/L)	LDR-3	2.136	9	21	No	8	12.5	0.01	NP
Total Suspended Solids (mg/L)	MW-101R-NP (bg)	1.565	4	21	No	8	0	0.01	NP
Total Suspended Solids (mg/L)	MW-102R-NP	0.3052	12	21	No	8	0	0.01	NP
Total Suspended Solids (mg/L)	MW-103R-NP	0.01003	1	21	No	8	25	0.01	NP
Total Suspended Solids (mg/L)	MW-201	1.69	14	21	No	8	12.5	0.01	NP
Total Suspended Solids (mg/L)	MW-202R	0	9	21	No	8	75	0.01	NP
Total Suspended Solids (mg/L)	MW-203R (bg)	0.3116	8	21	No	8	0	0.01	NP
Total Suspended Solids (mg/L)	MW-204	0.1383	6	21	No	8	12.5	0.01	NP
Total Suspended Solids (mg/L)	MW-205 (bg)	0.2488	9	21	No	8	0	0.01	NP
Total Suspended Solids (mg/L)	MW-206	0	-3	-21	No	8	62.5	0.01	NP
Total Suspended Solids (mg/L)	SW-1/OUTFALL4	-5.034	-12	-21	No	8	0	0.01	NP

### Sen's Slope Estimator

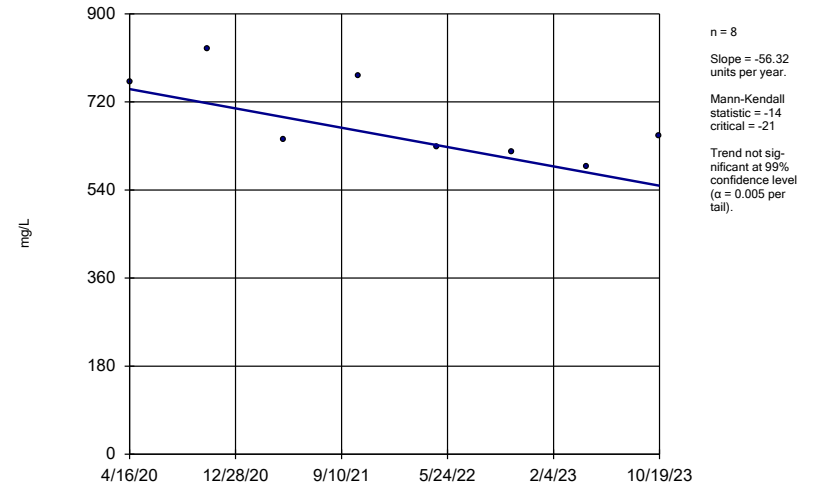
LDR-1



Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

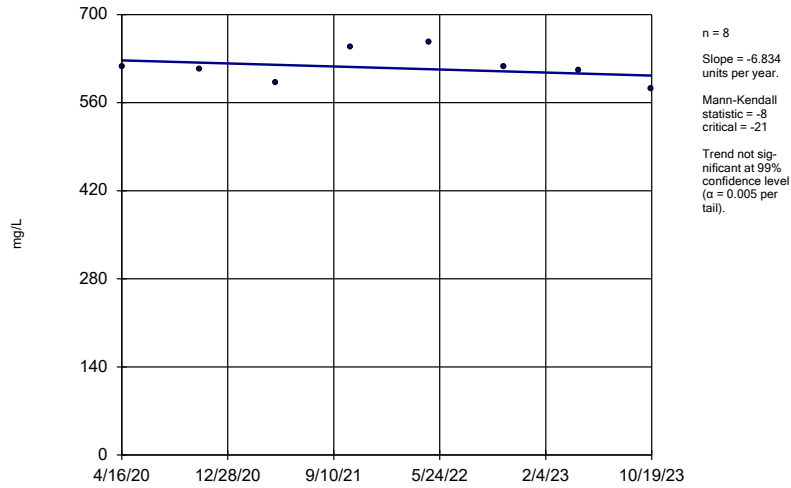
LDR-2



Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

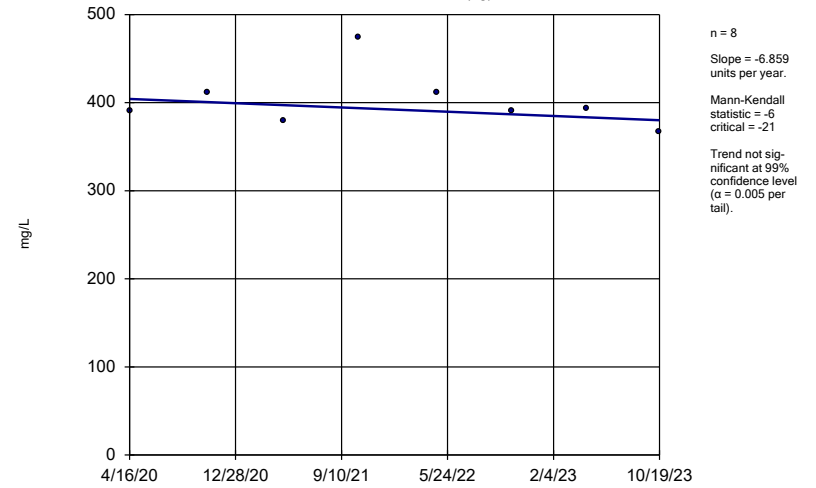
LDR-3



Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

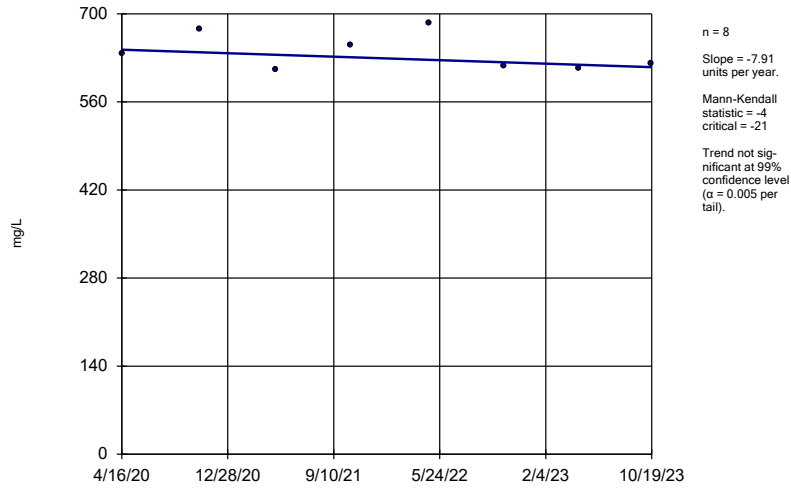
MW-101R-NP (bg)



Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

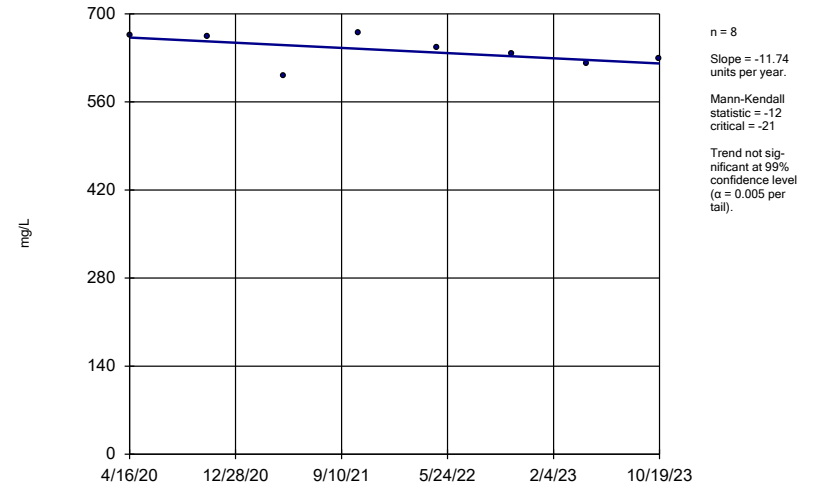
MW-102R-NP



Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

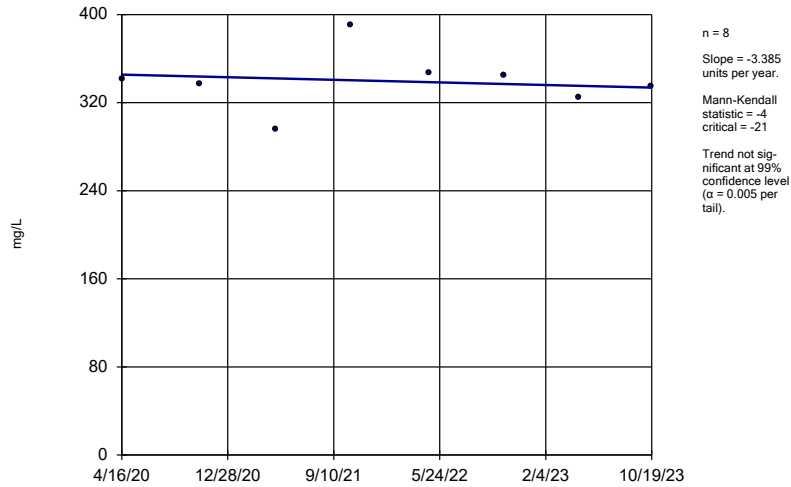
MW-103R-NP



Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

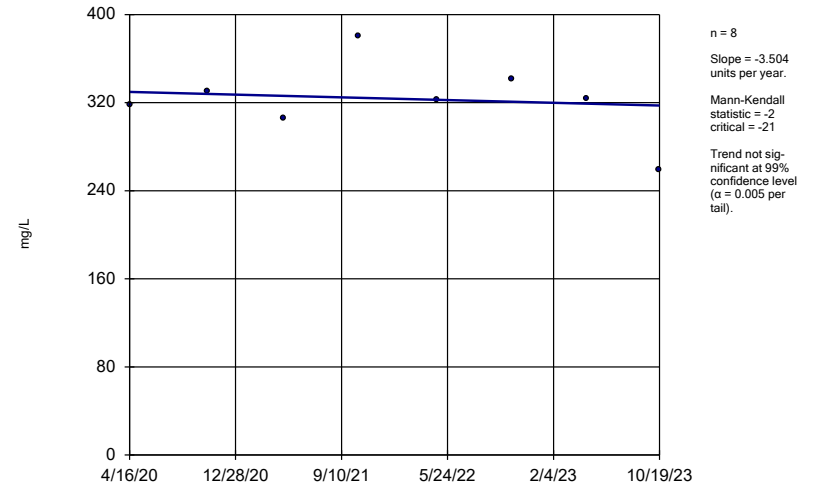
MW-201



Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

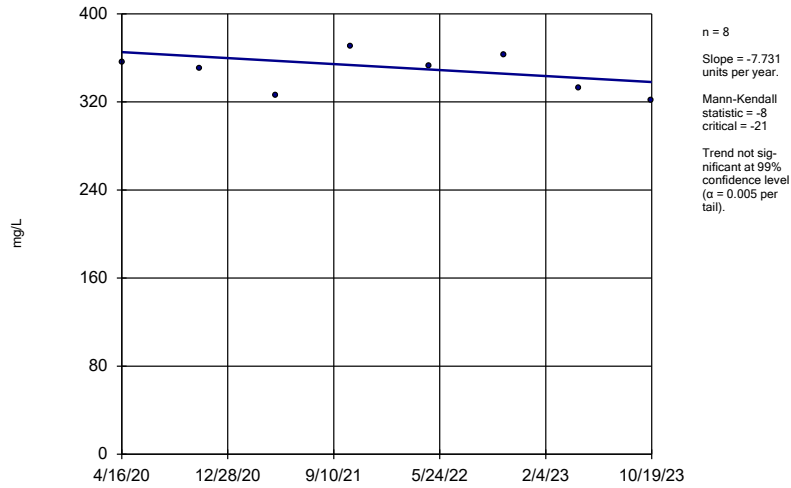
MW-202R



Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

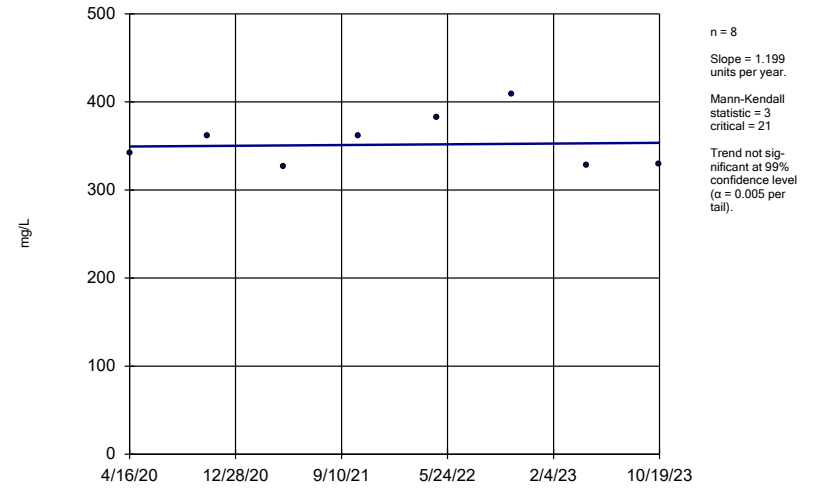
MW-203R (bg)



Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

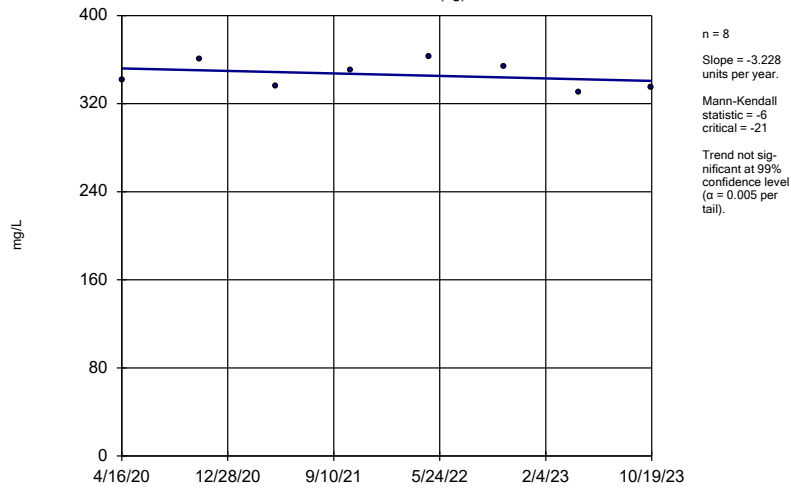
MW-204



Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

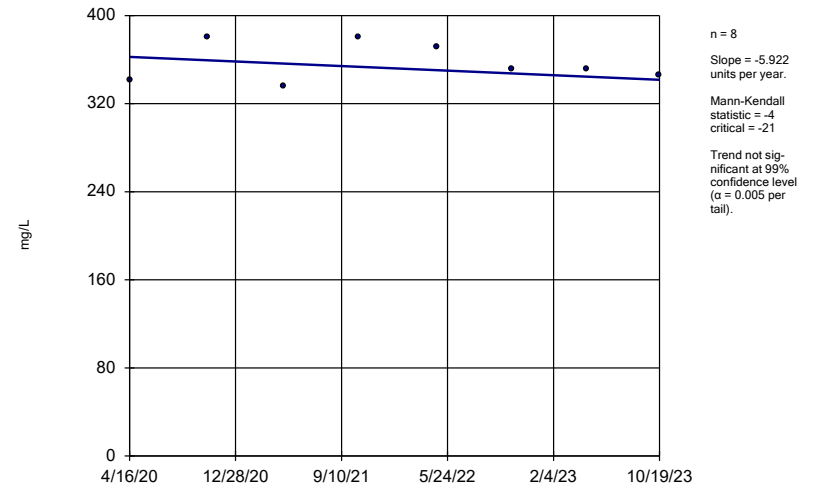
MW-205 (bg)



Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

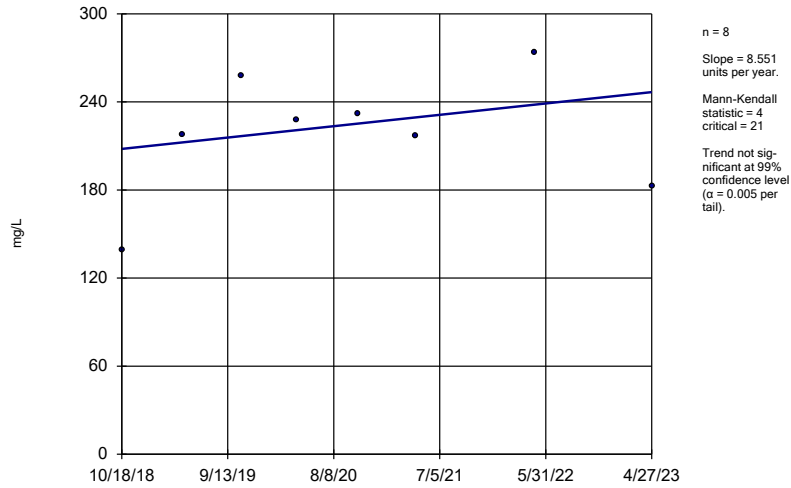
MW-206



Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

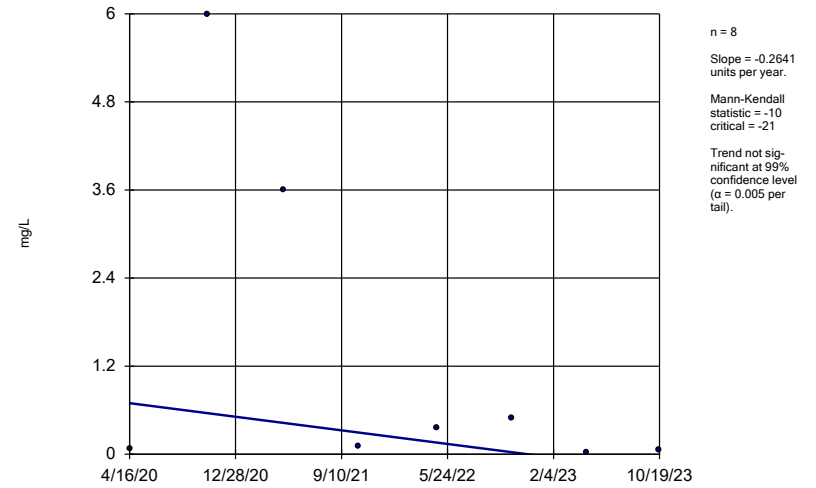
SW-1/OUTFALL4



Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

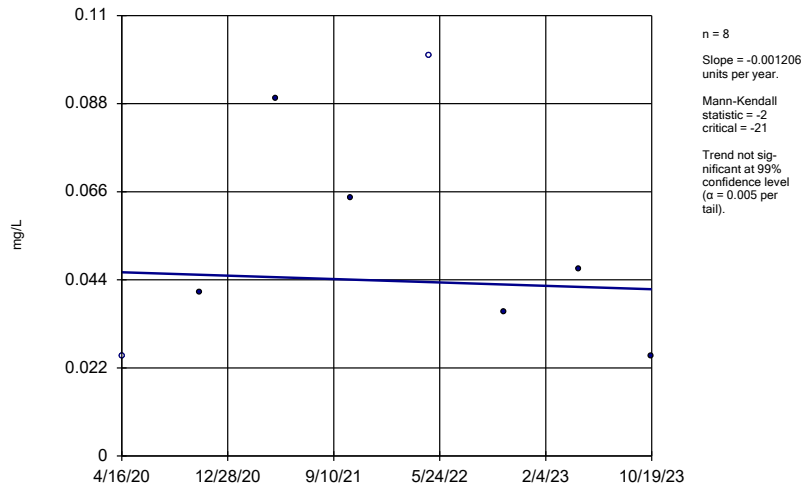
LDR-1



Constituent: Aluminum Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

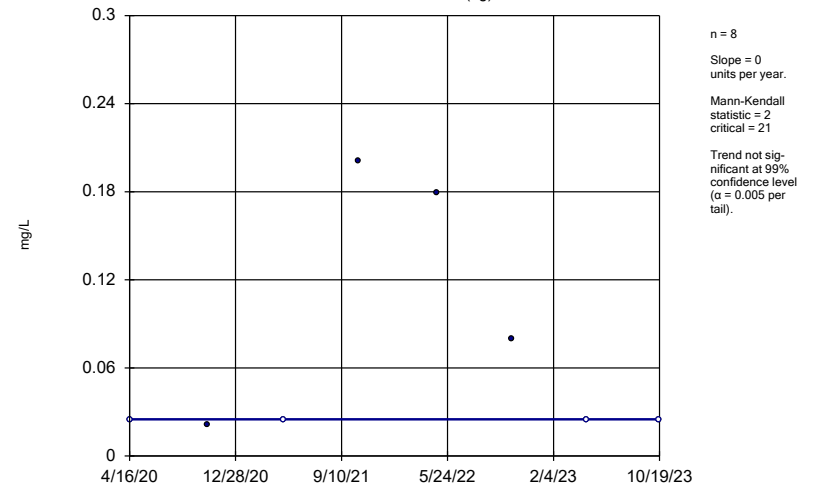
LDR-3



Constituent: Aluminum Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

MW-101R-NP (bg)

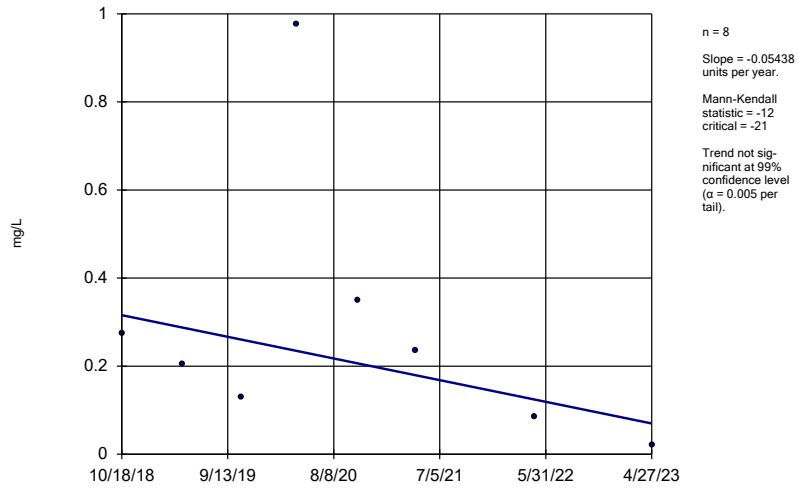


Constituent: Aluminum Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023



### Sen's Slope Estimator

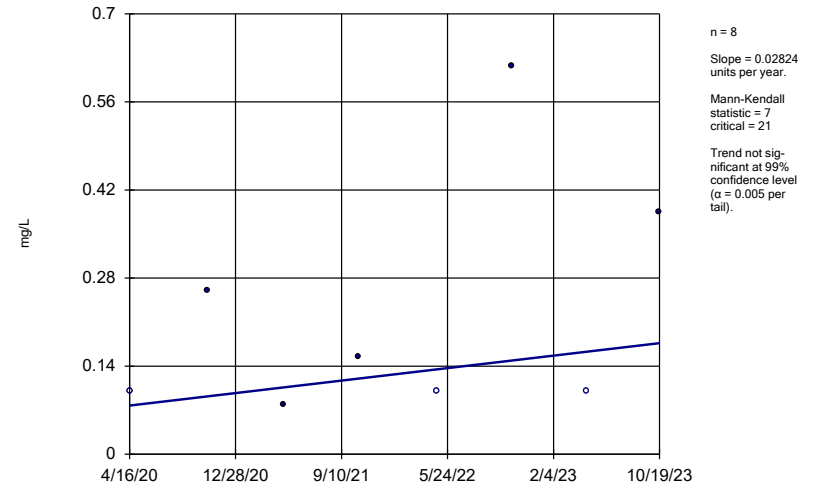
SW-1/OUTFALL4



Constituent: Aluminum Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

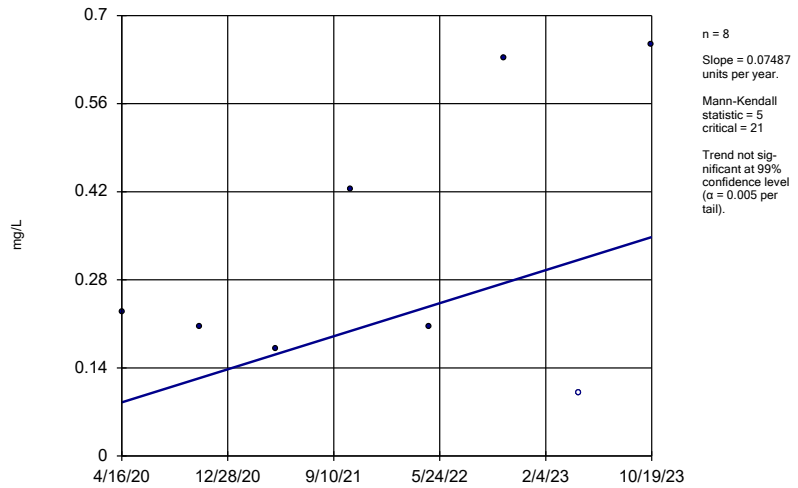
LDR-1



Constituent: Ammonia as N Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

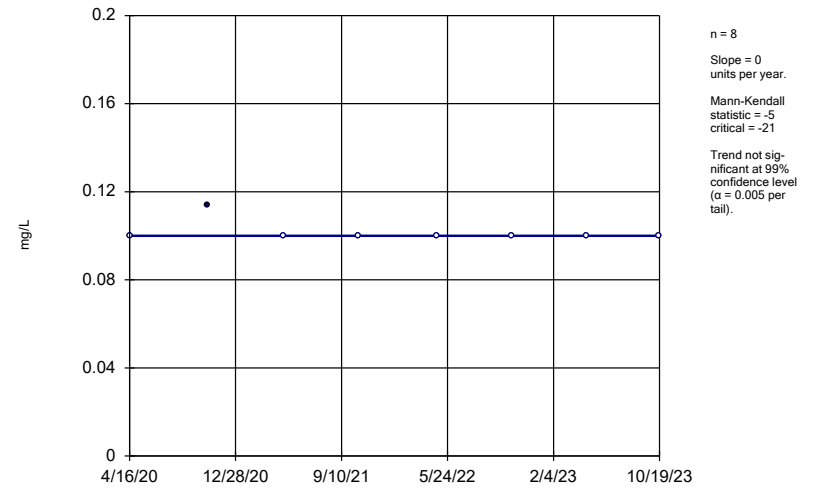
LDR-3



Constituent: Ammonia as N Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

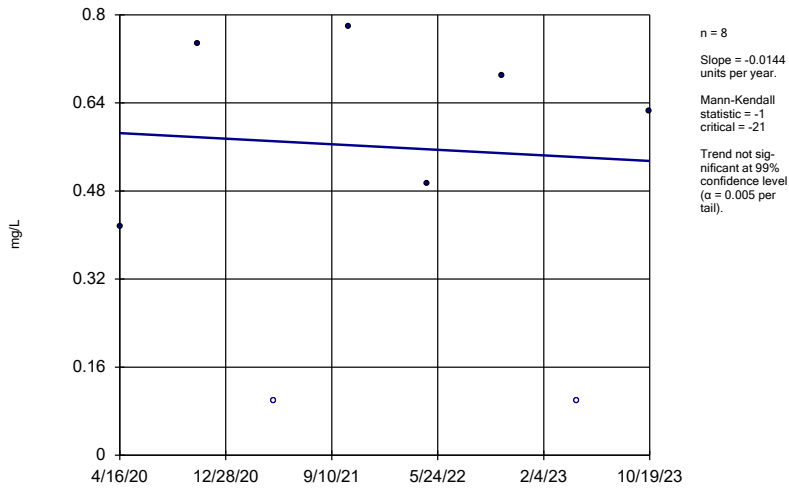
MW-103R-NP



Constituent: Ammonia as N Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

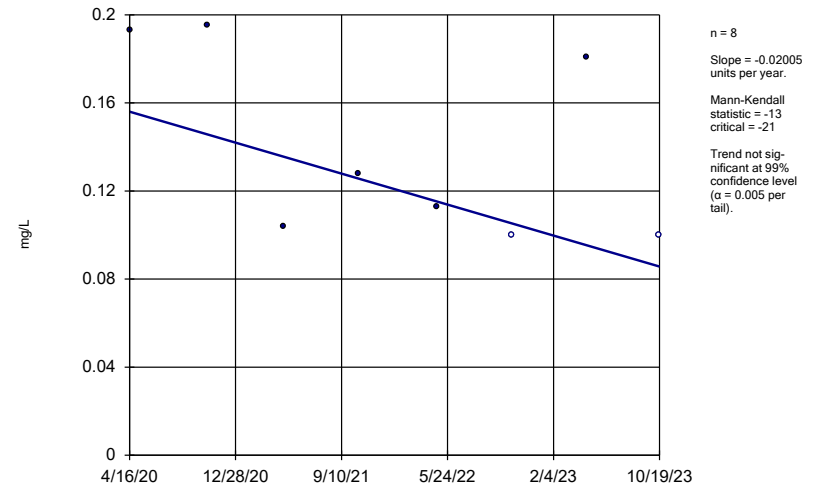
MW-201



Constituent: Ammonia as N Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

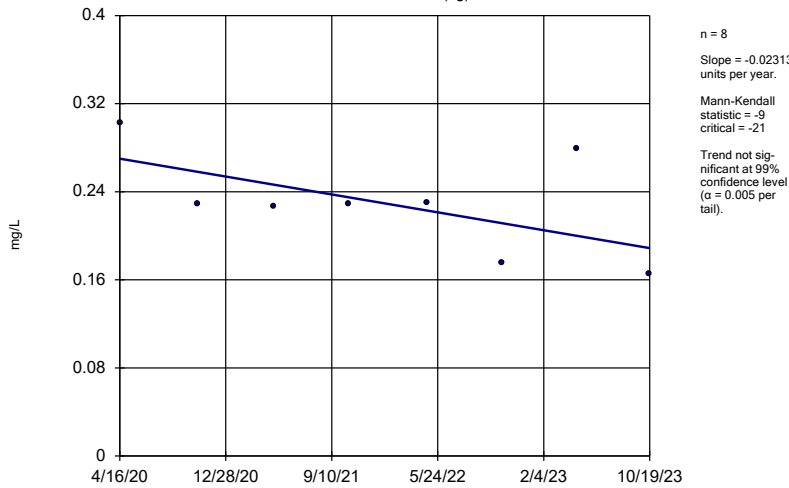
MW-202R



Constituent: Ammonia as N Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

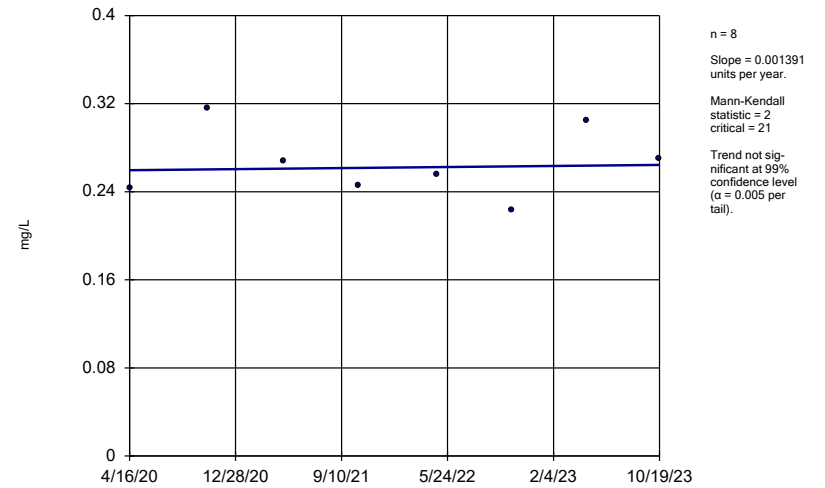
MW-203R (bg)



Constituent: Ammonia as N Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

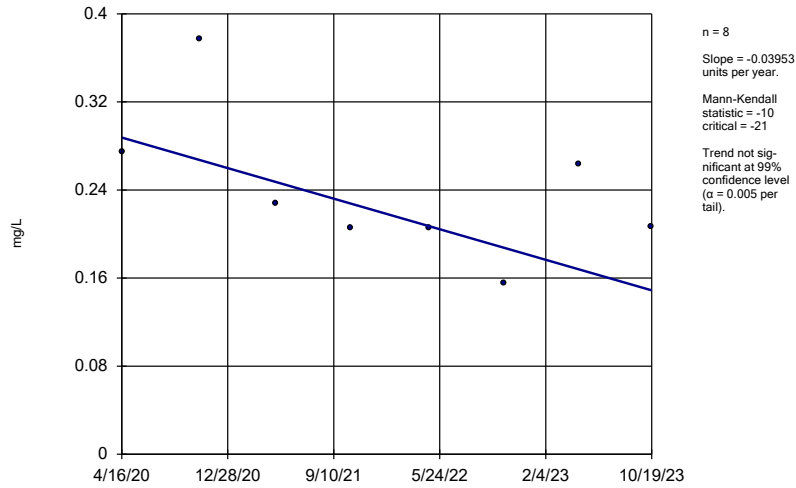
MW-204



Constituent: Ammonia as N Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

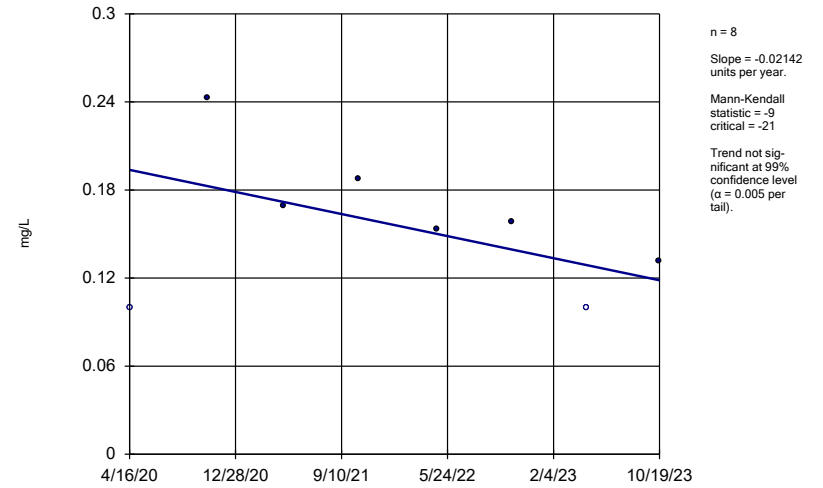
MW-205 (bg)



Constituent: Ammonia as N Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

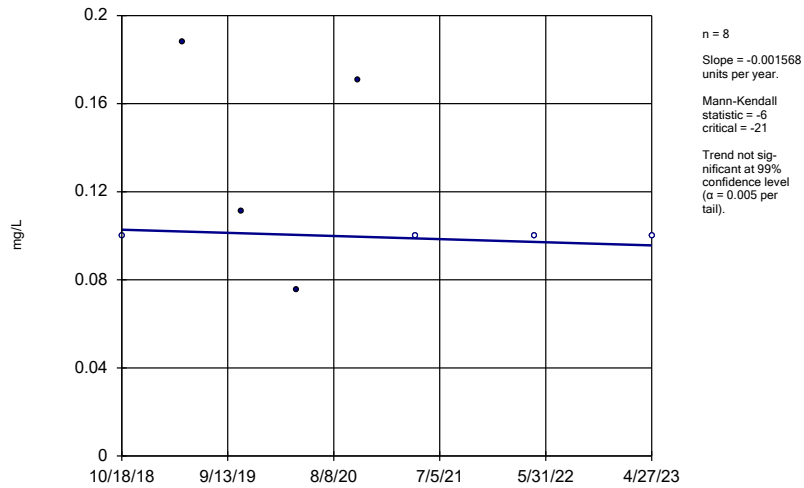
MW-206



Constituent: Ammonia as N Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

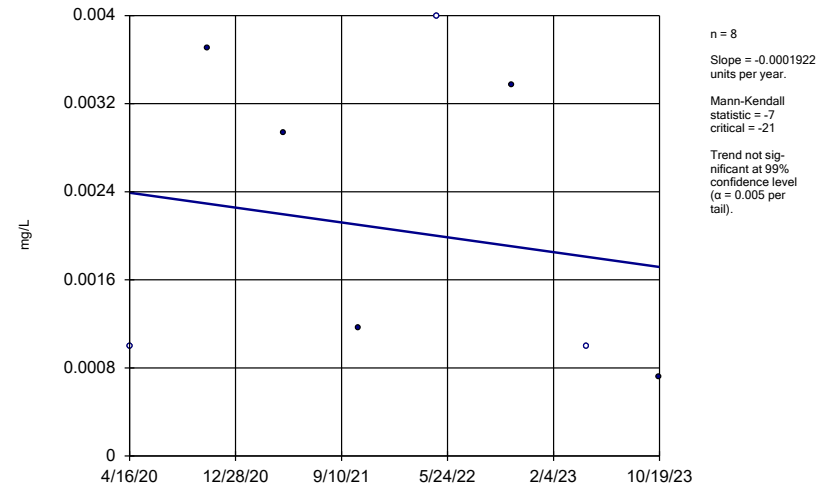
SW-1/OUTFALL4



Constituent: Ammonia as N Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

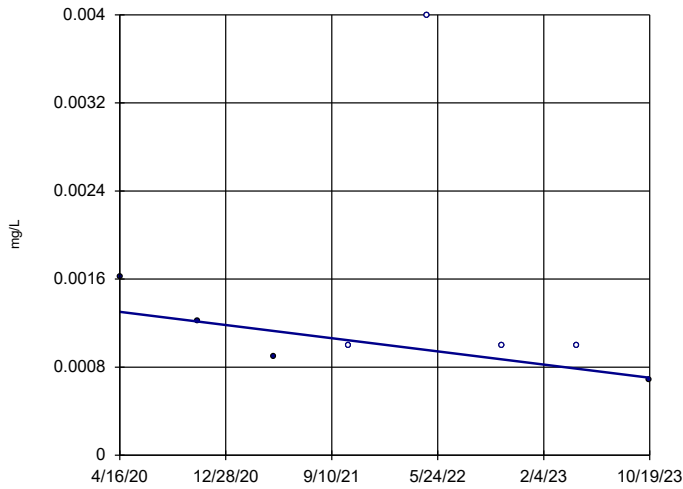
LDR-1



Constituent: Arsenic Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

LDR-2

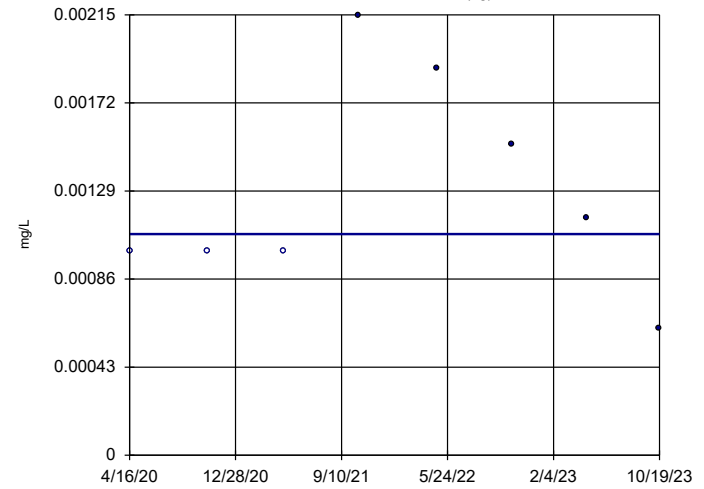


n = 8  
Slope = -0.0001705  
units per year.  
Mann-Kendall  
statistic = -11  
critical = -21  
Trend not sig-  
nificant at 99%  
confidence level  
( $\alpha = 0.005$  per  
tail).

Constituent: Arsenic Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

MW-101R-NP (bg)

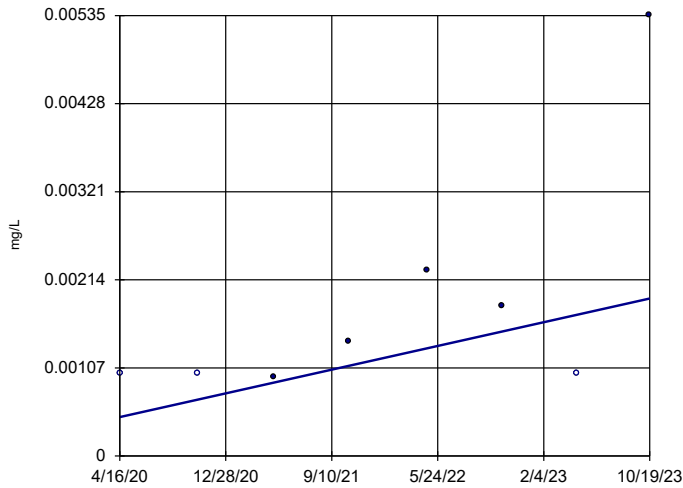


n = 8  
Slope = 0  
units per year.  
Mann-Kendall  
statistic = -1  
critical = -21  
Trend not sig-  
nificant at 99%  
confidence level  
( $\alpha = 0.005$  per  
tail).

Constituent: Arsenic Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

MW-201

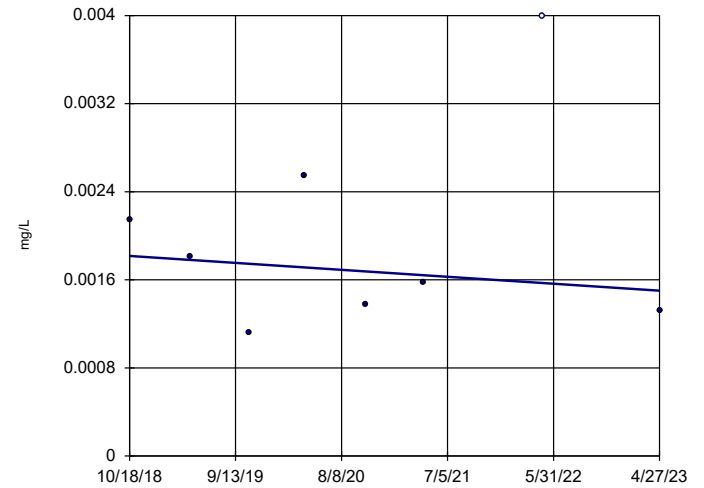


n = 8  
Slope = 0.0004102  
units per year.  
Mann-Kendall  
statistic = 13  
critical = 21  
Trend not sig-  
nificant at 99%  
confidence level  
( $\alpha = 0.005$  per  
tail).

Constituent: Arsenic Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

SW-1/OUTFALL4

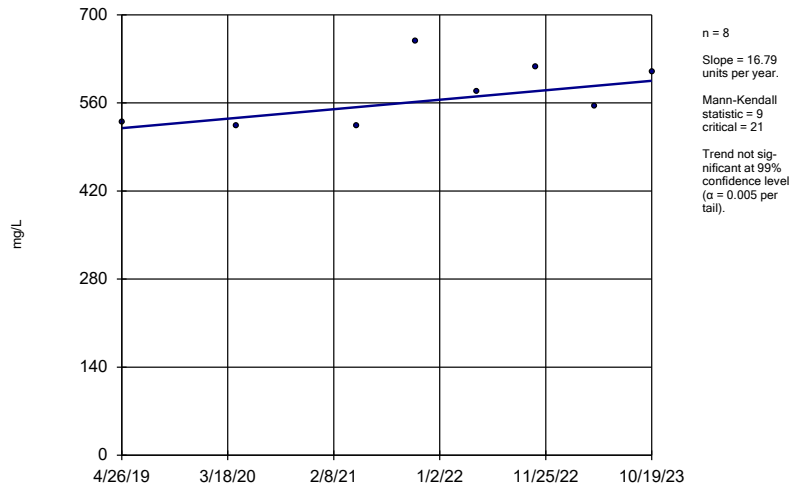


n = 8  
Slope = -0.00006968  
units per year.  
Mann-Kendall  
statistic = -2  
critical = -21  
Trend not sig-  
nificant at 99%  
confidence level  
( $\alpha = 0.005$  per  
tail).

Constituent: Arsenic Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

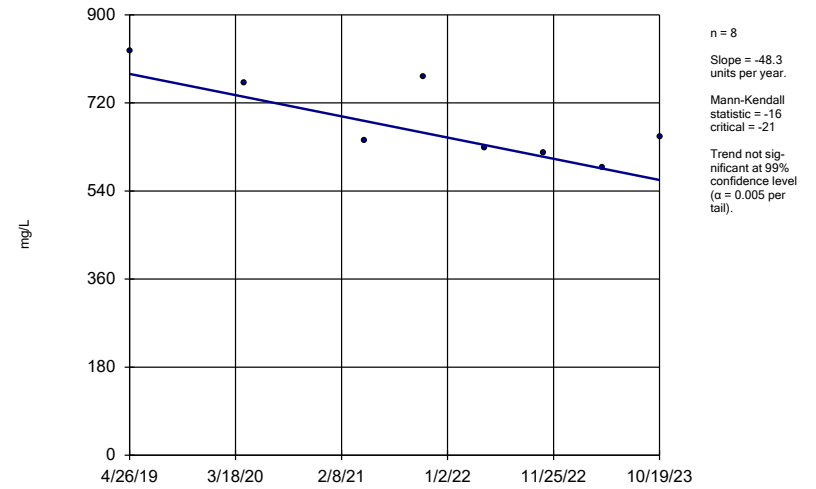
LDR-1



Constituent: Bicarbonate Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

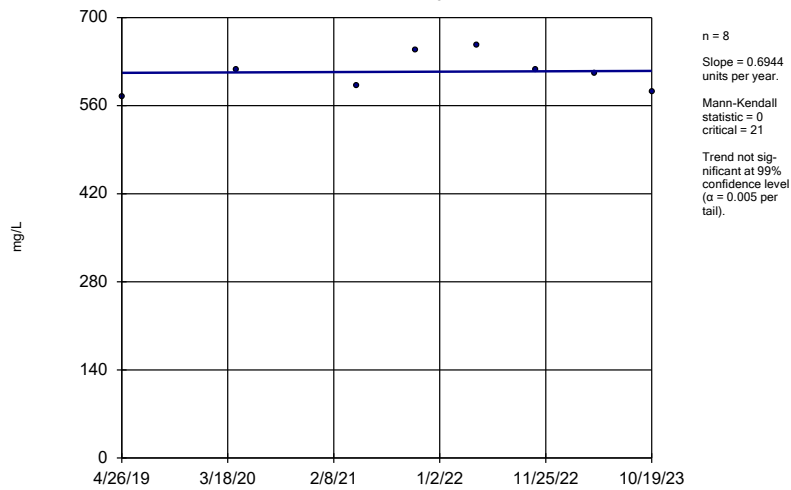
LDR-2



Constituent: Bicarbonate Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

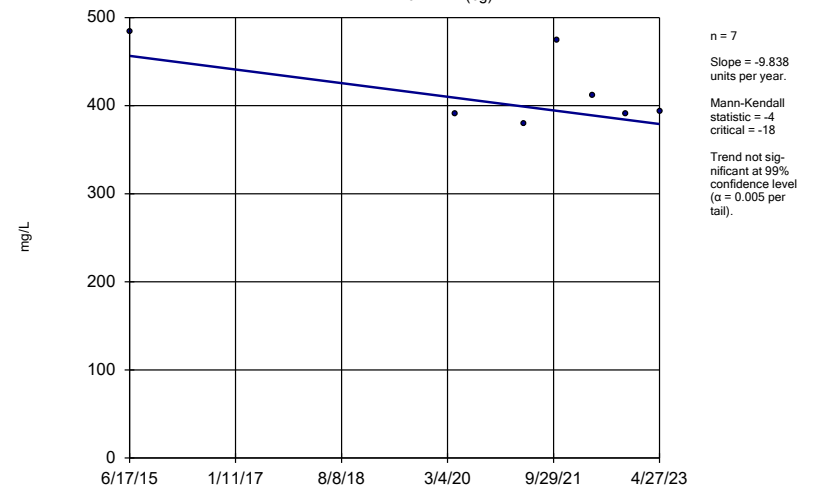
LDR-3



Constituent: Bicarbonate Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

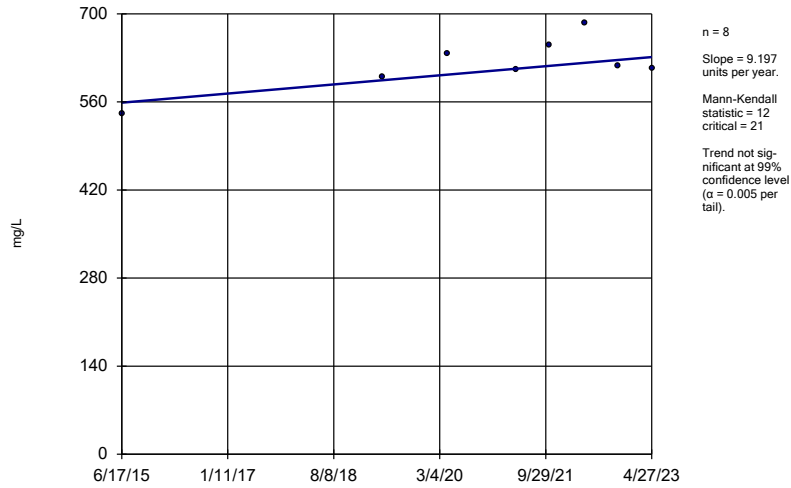
MW-101R-NP (bg)



Constituent: Bicarbonate Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

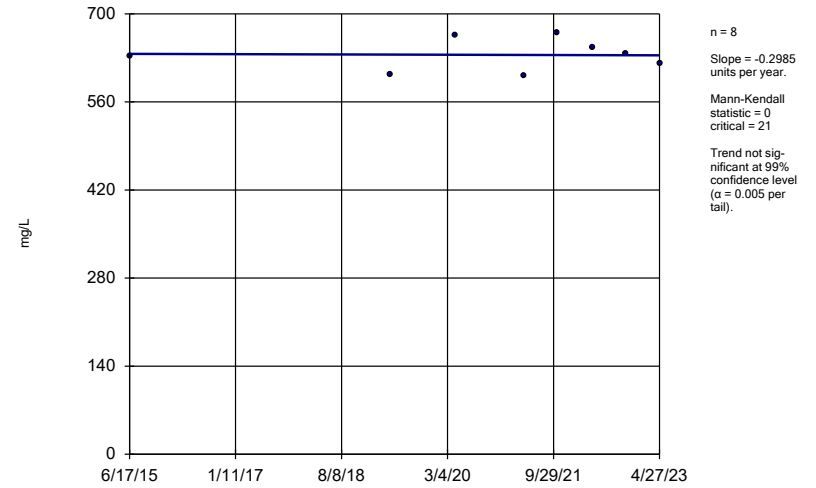
MW-102R-NP



Constituent: Bicarbonate Analysis Run 11/7/2023 3:12 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

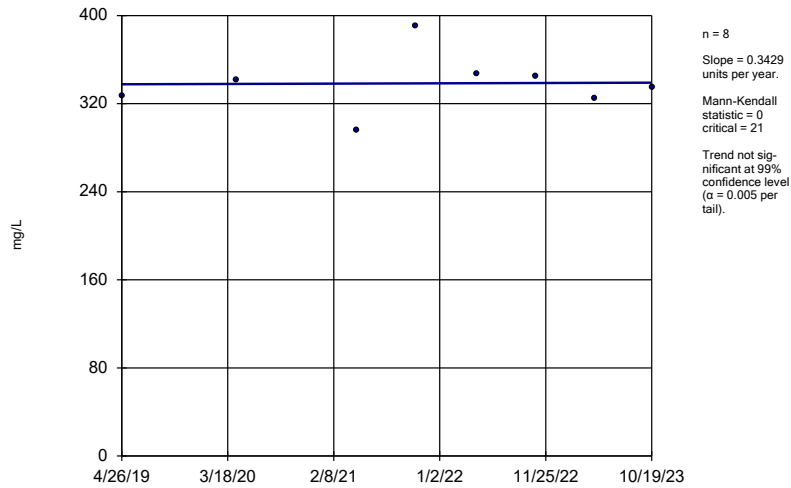
MW-103R-NP



Constituent: Bicarbonate Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

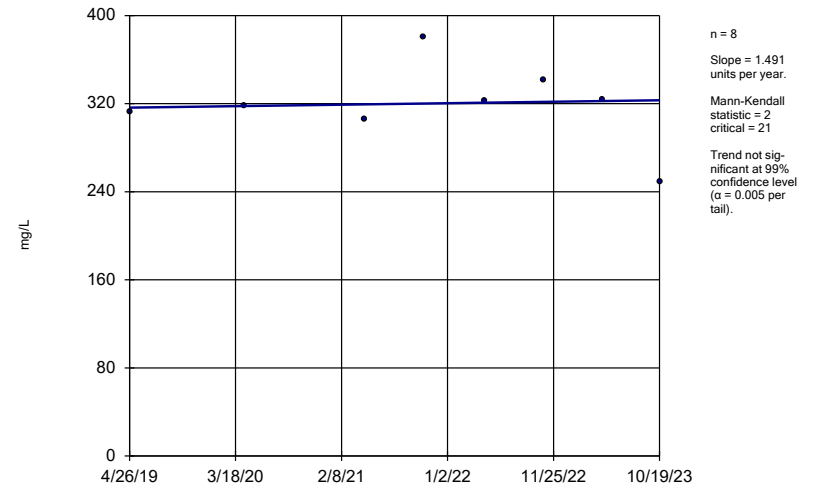
MW-201



Constituent: Bicarbonate Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

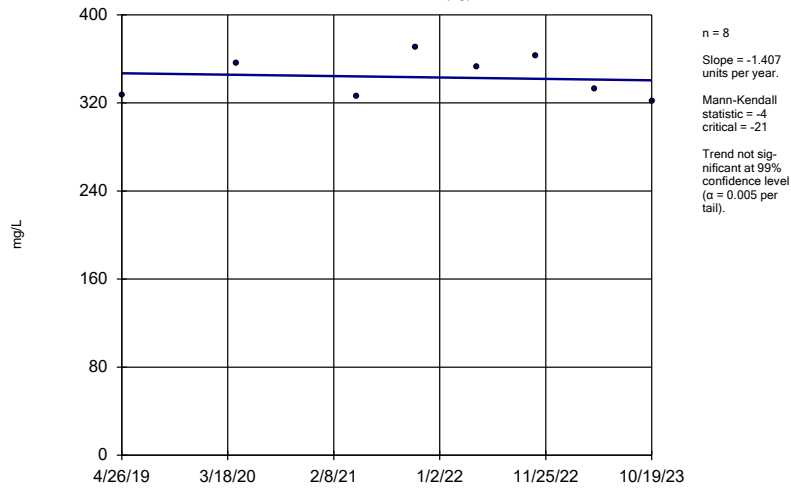
MW-202R



Constituent: Bicarbonate Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

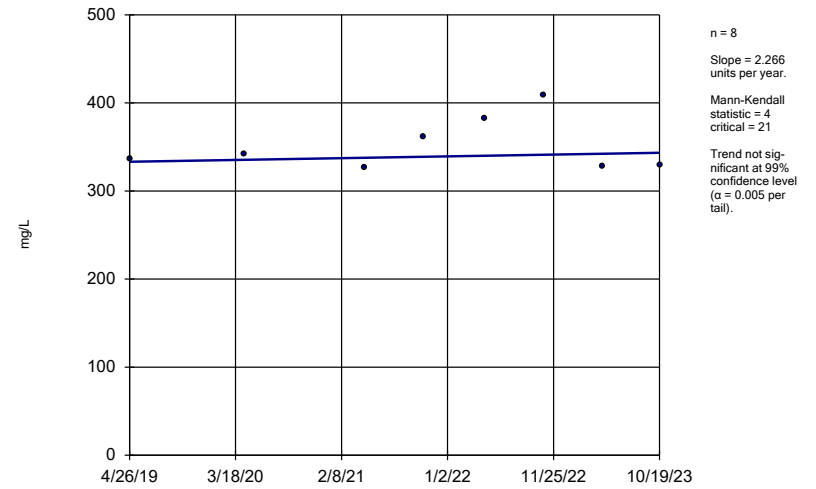
MW-203R (bg)



Constituent: Bicarbonate Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

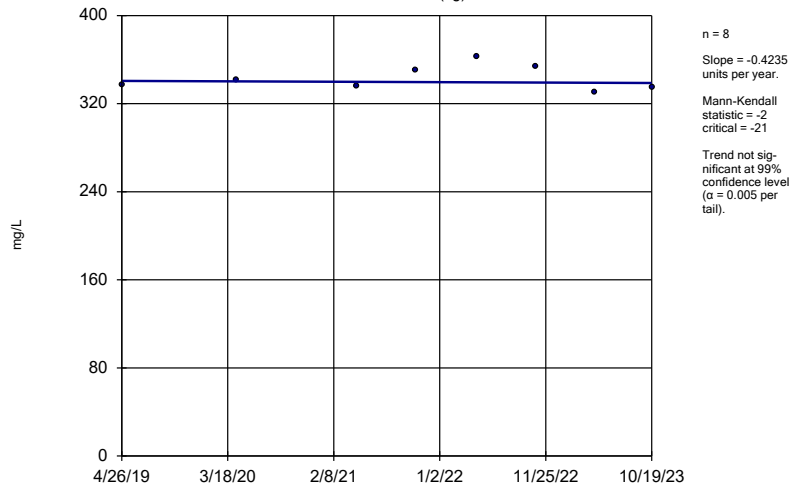
MW-204



Constituent: Bicarbonate Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

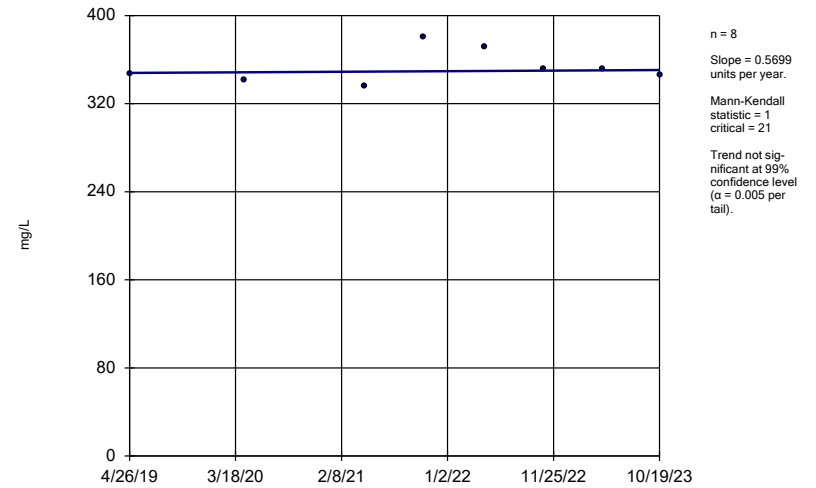
MW-205 (bg)



Constituent: Bicarbonate Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

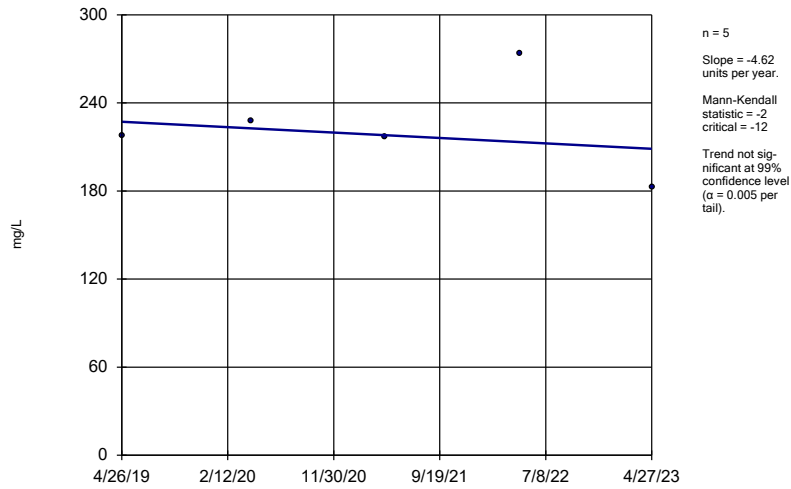
MW-206



Constituent: Bicarbonate Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

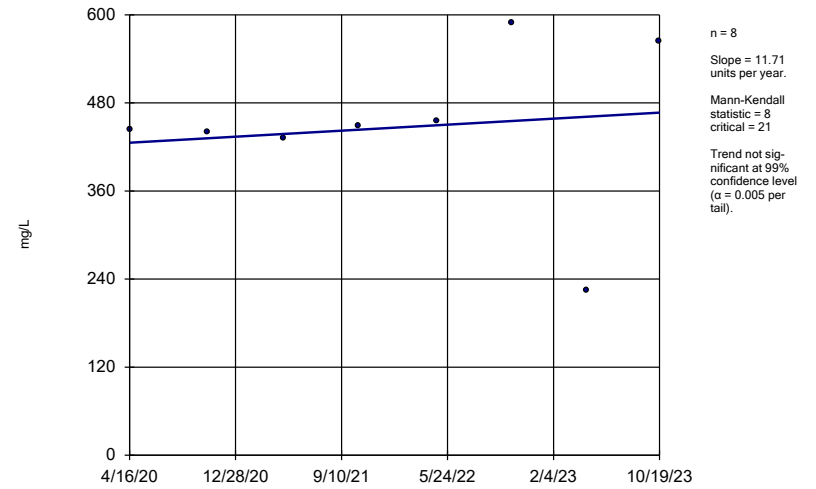
SW-1/OUTFALL4



Constituent: Bicarbonate Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

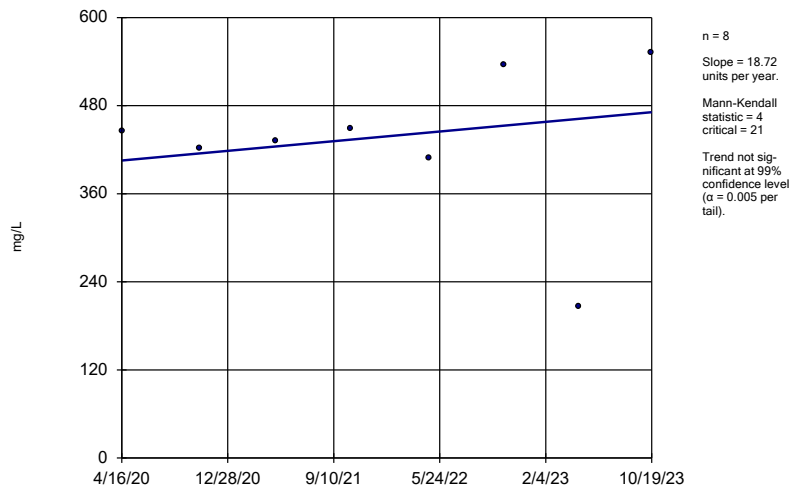
LDR-1



Constituent: Calcium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

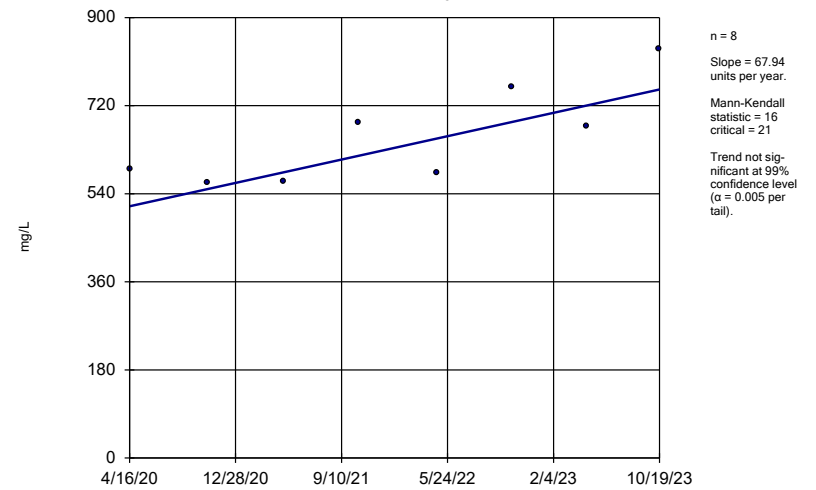
LDR-2



Constituent: Calcium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

LDR-3

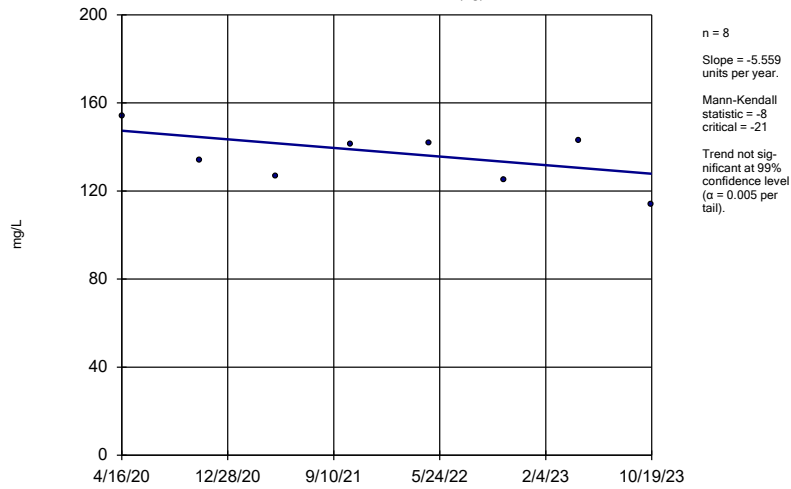


Constituent: Calcium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023



### Sen's Slope Estimator

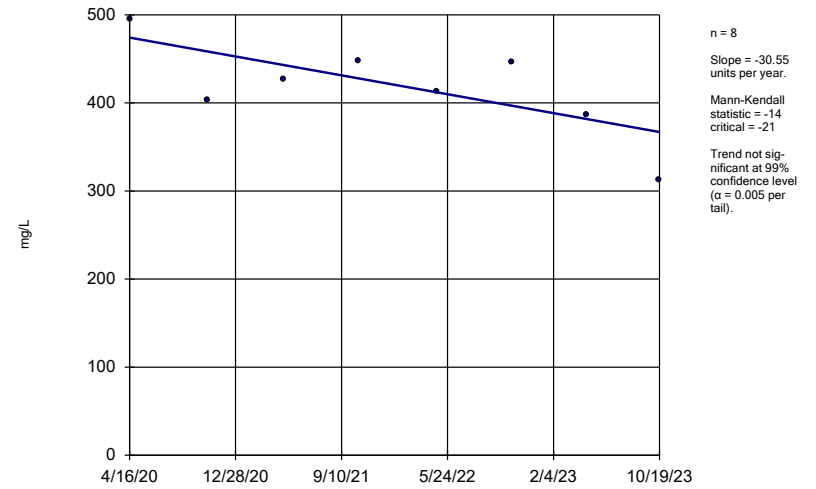
MW-101R-NP (bg)



Constituent: Calcium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

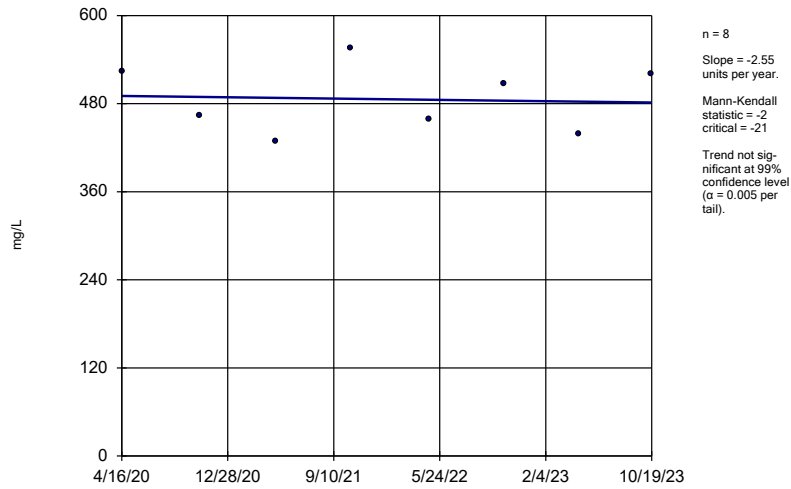
MW-102R-NP



Constituent: Calcium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

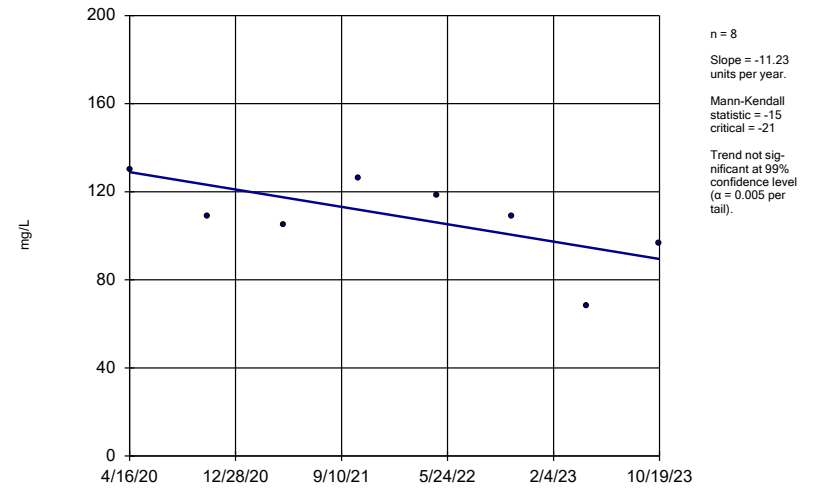
MW-103R-NP



Constituent: Calcium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

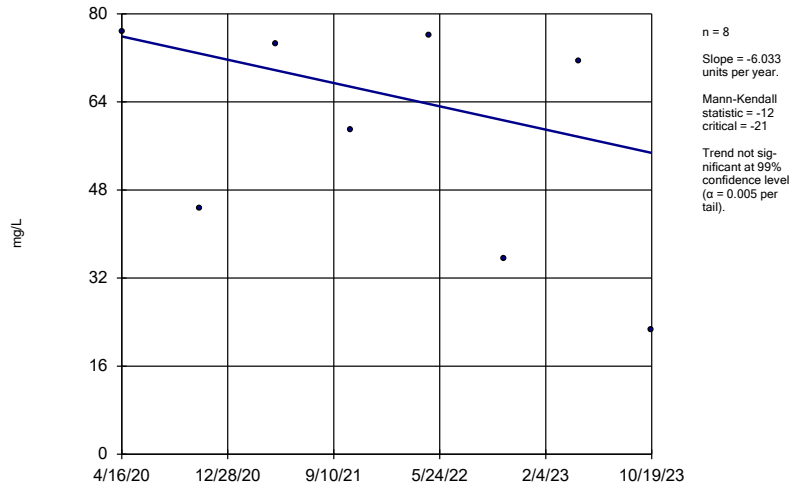
MW-201



Constituent: Calcium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

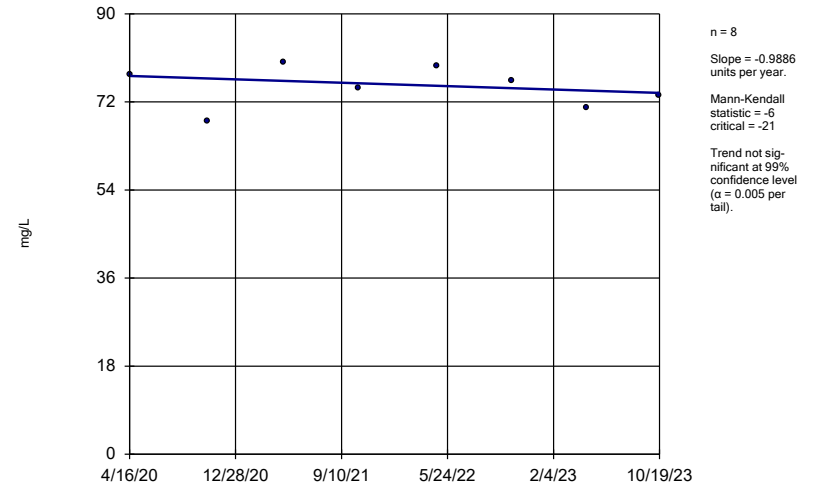
MW-202R



Constituent: Calcium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

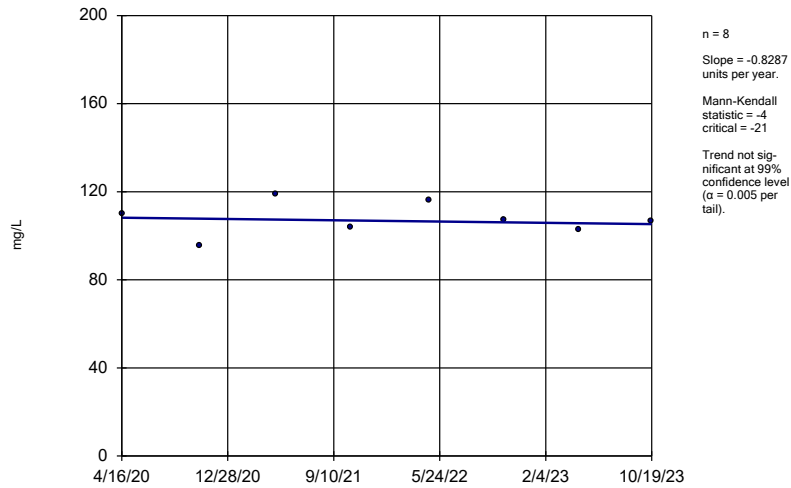
MW-203R (bg)



Constituent: Calcium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

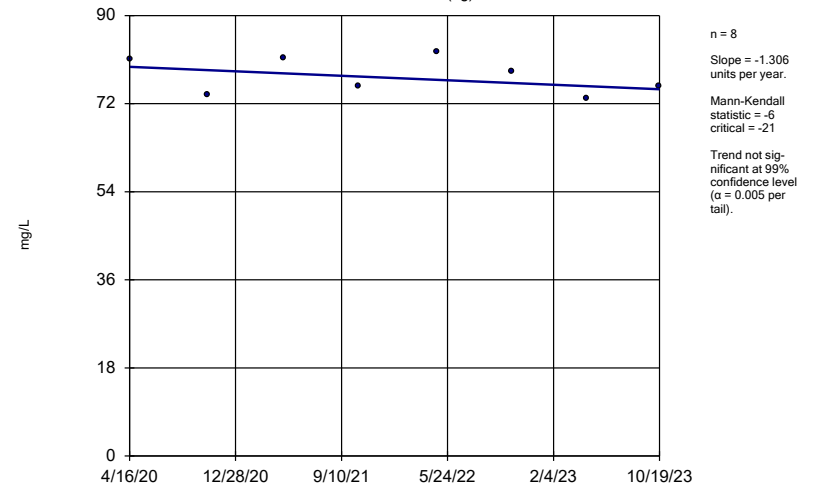
MW-204



Constituent: Calcium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

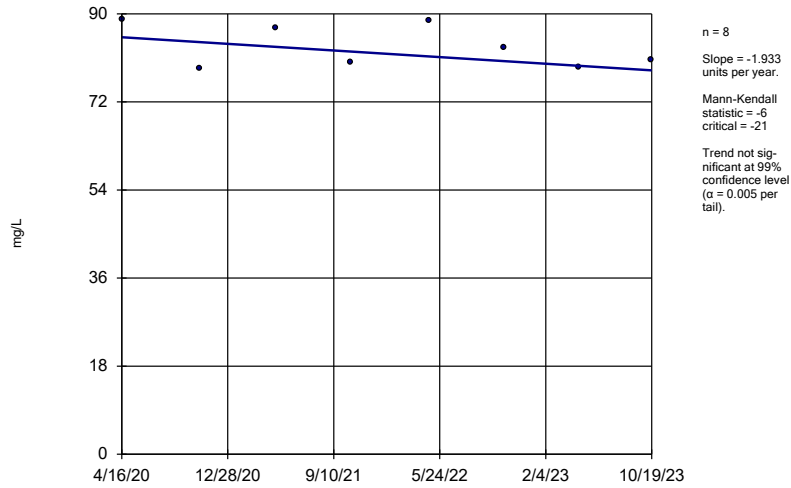
MW-205 (bg)



Constituent: Calcium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

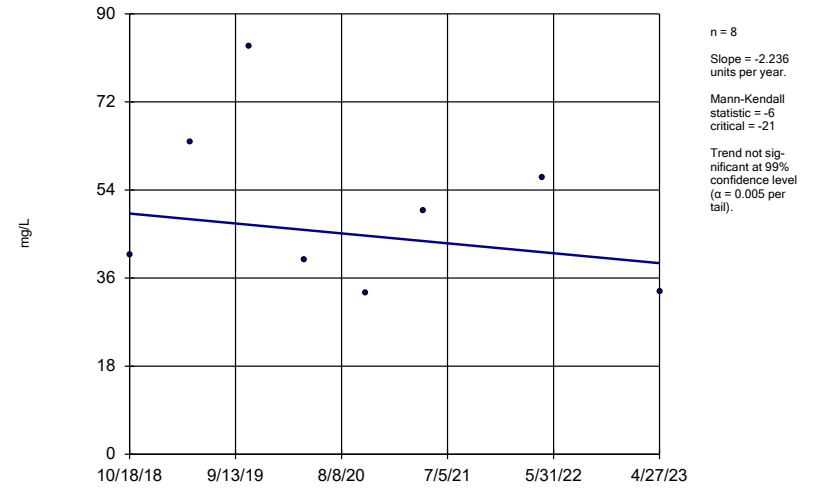
MW-206



Constituent: Calcium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

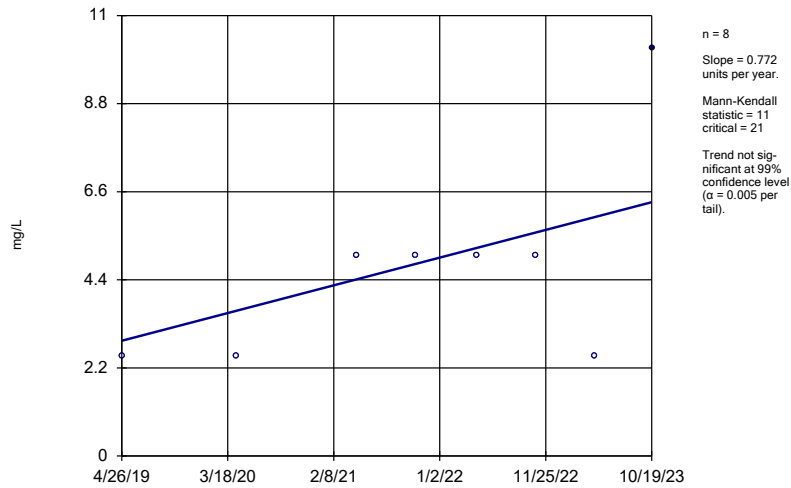
SW-1/OUTFALL4



Constituent: Calcium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

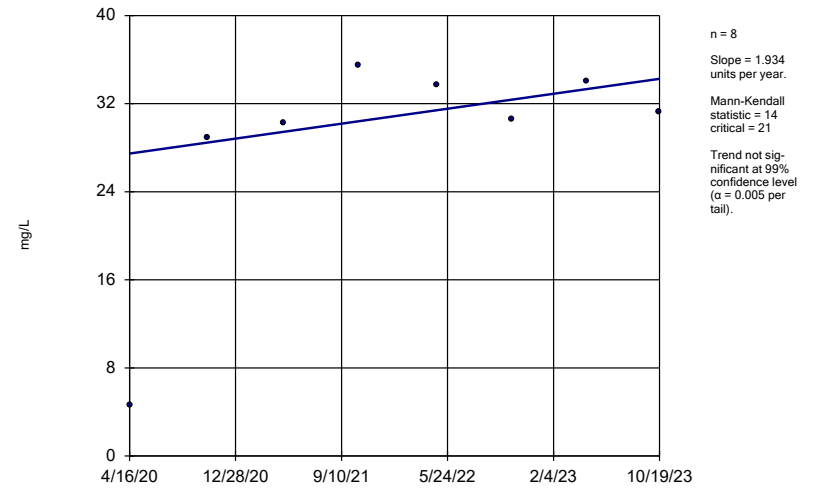
MW-202R



Constituent: Carbonate Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

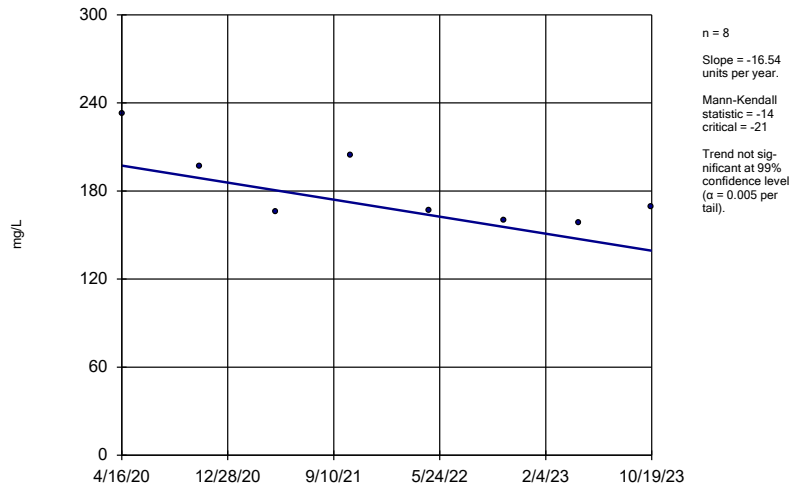
LDR-1



Constituent: Chloride Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

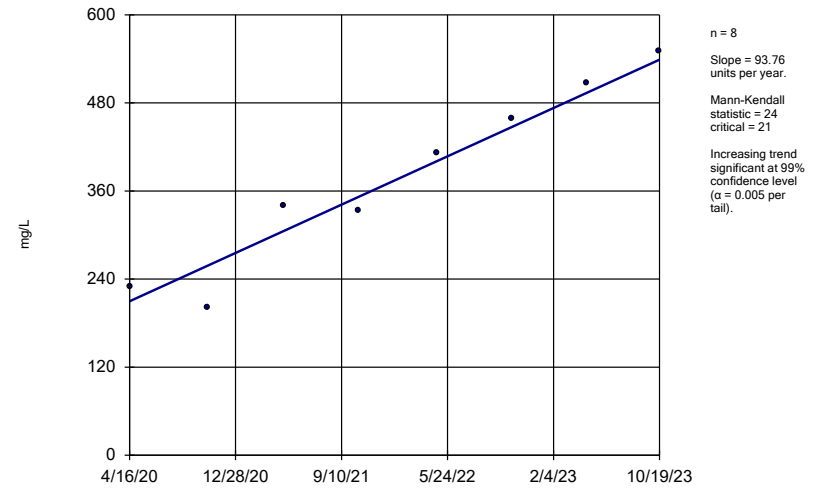
LDR-2



Constituent: Chloride Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

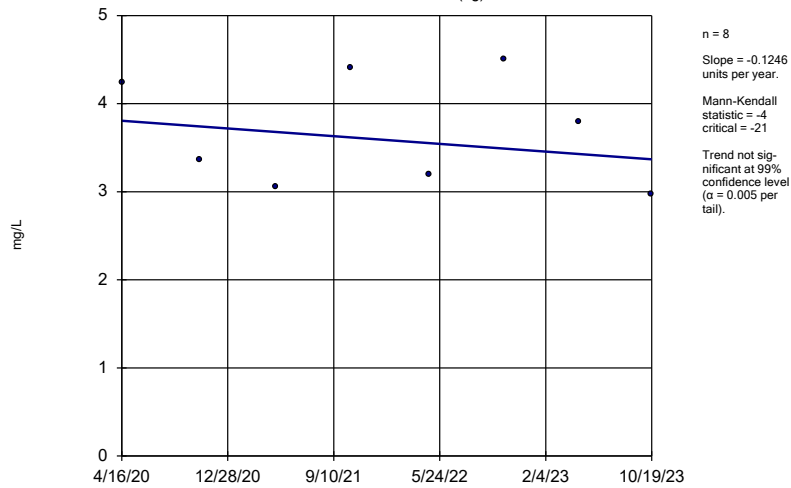
LDR-3



Constituent: Chloride Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

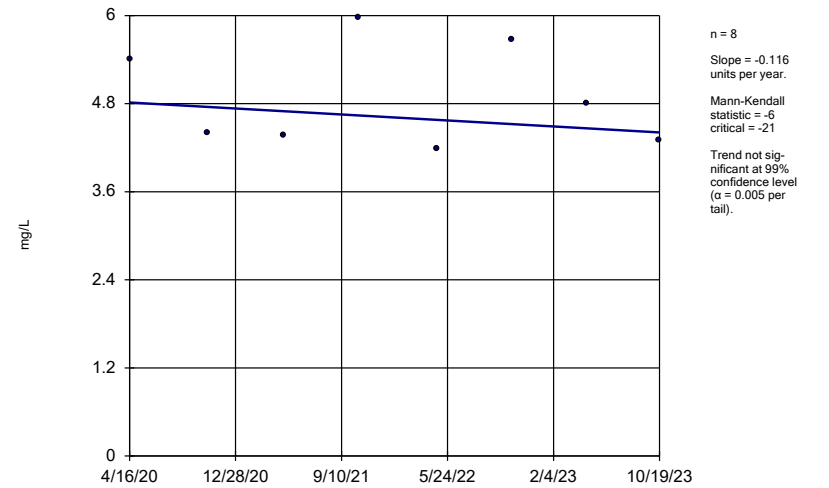
MW-101R-NP (bg)



Constituent: Chloride Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

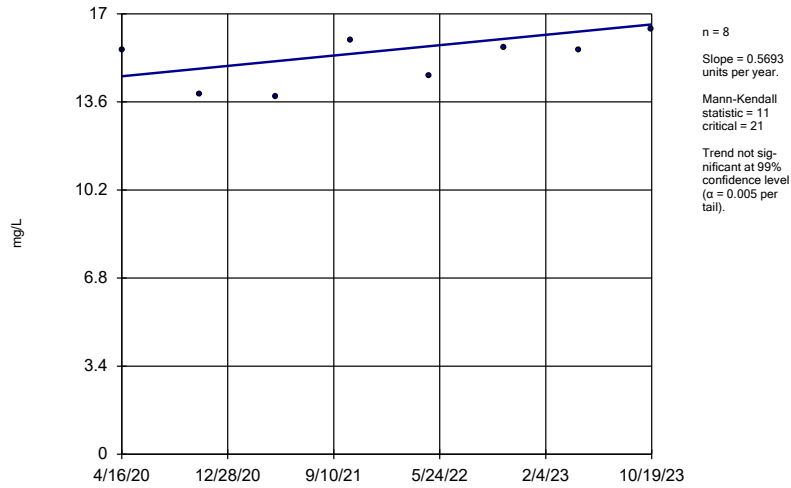
MW-102R-NP



Constituent: Chloride Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

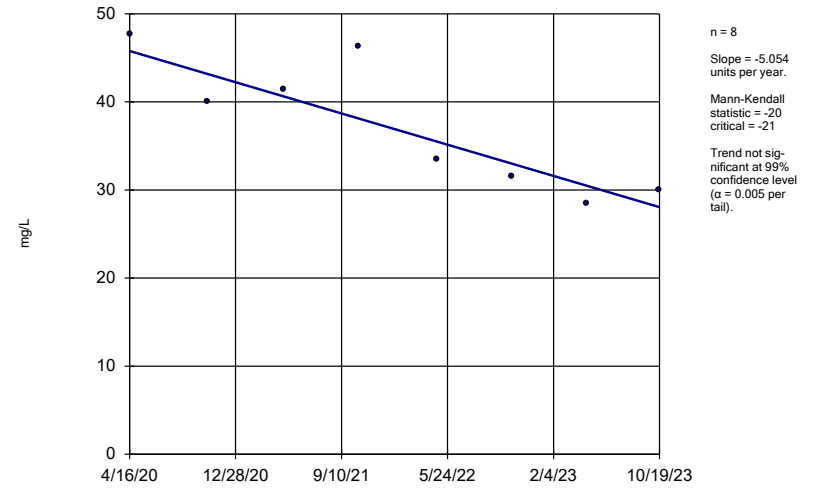
MW-103R-NP



Constituent: Chloride Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

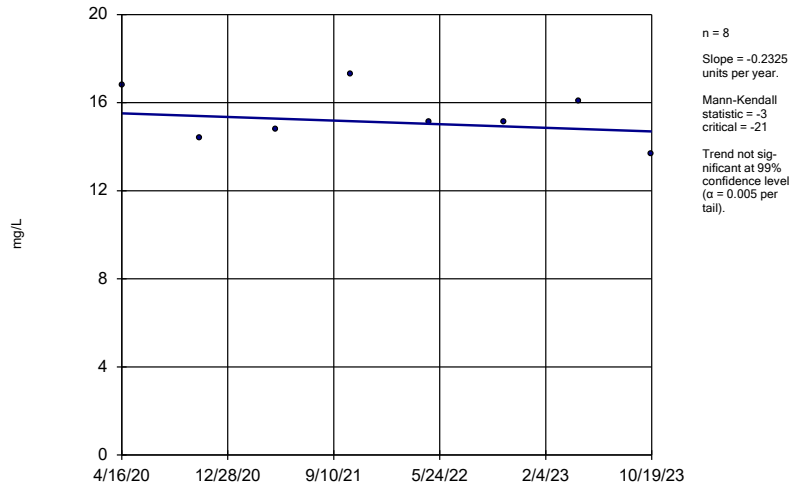
MW-201



Constituent: Chloride Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

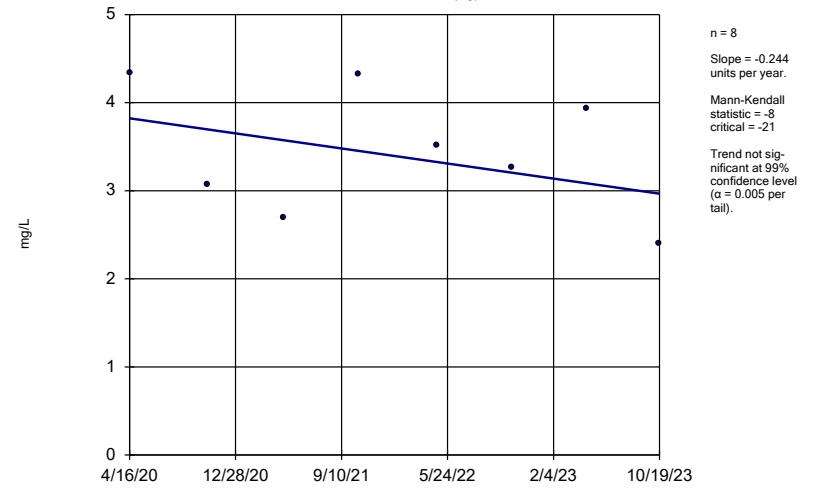
MW-202R



Constituent: Chloride Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

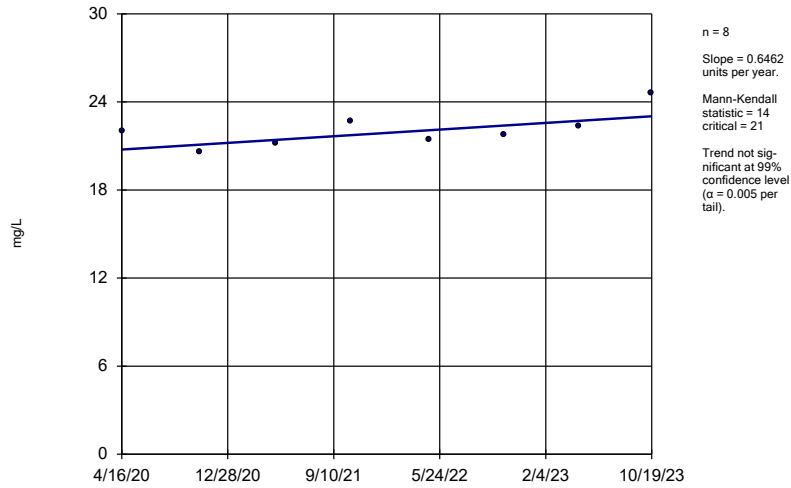
MW-203R (bg)



Constituent: Chloride Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

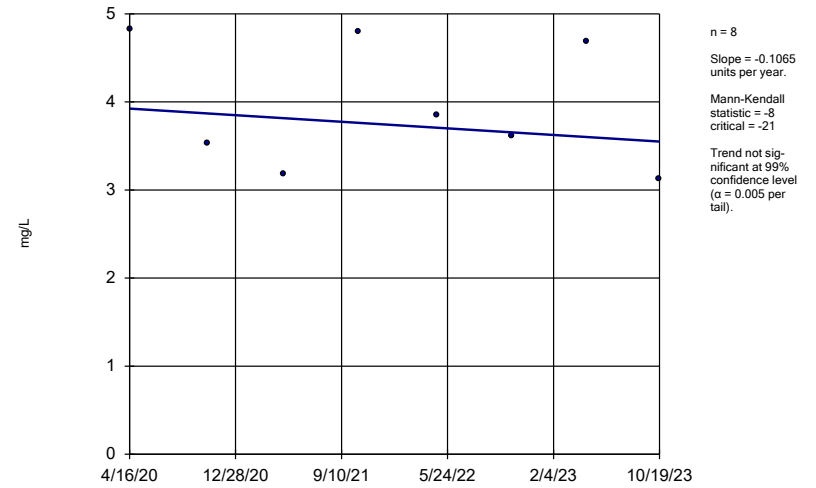
MW-204



Constituent: Chloride Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

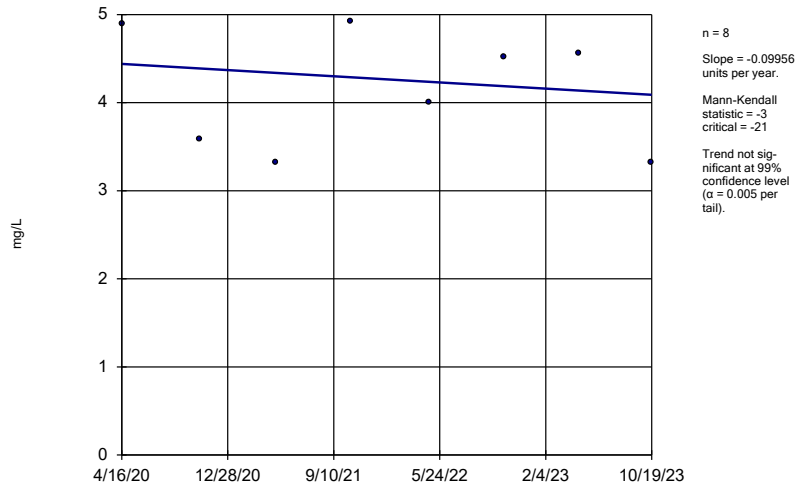
MW-205 (bg)



Constituent: Chloride Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

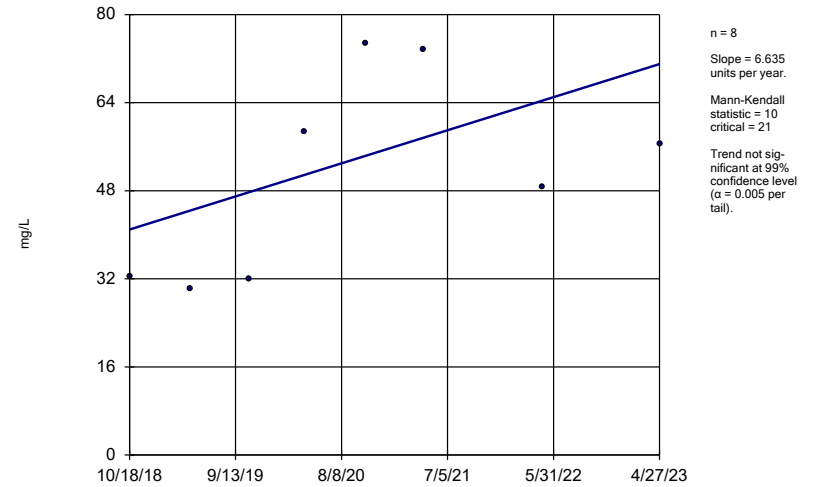
MW-206



Constituent: Chloride Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

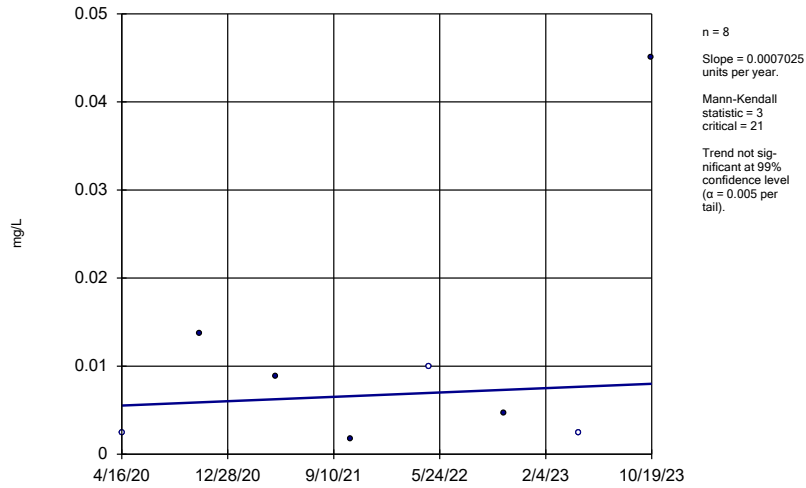
SW-1/OUTFALL4



Constituent: Chloride Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

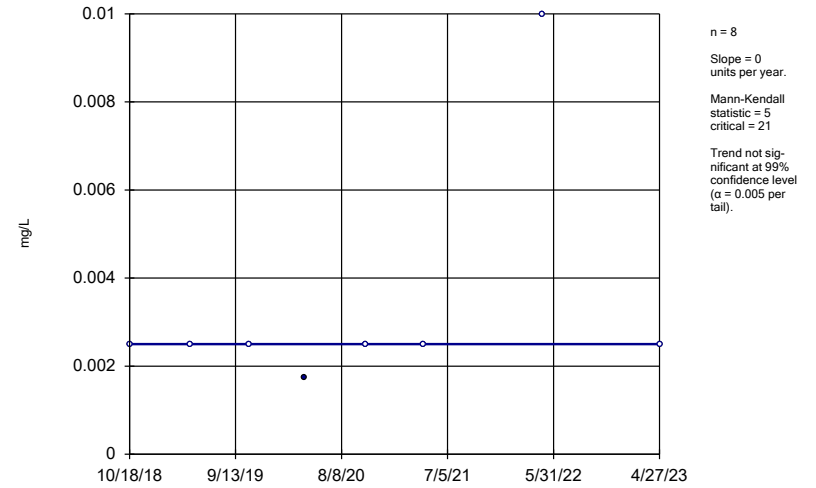
LDR-1



Constituent: Chromium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

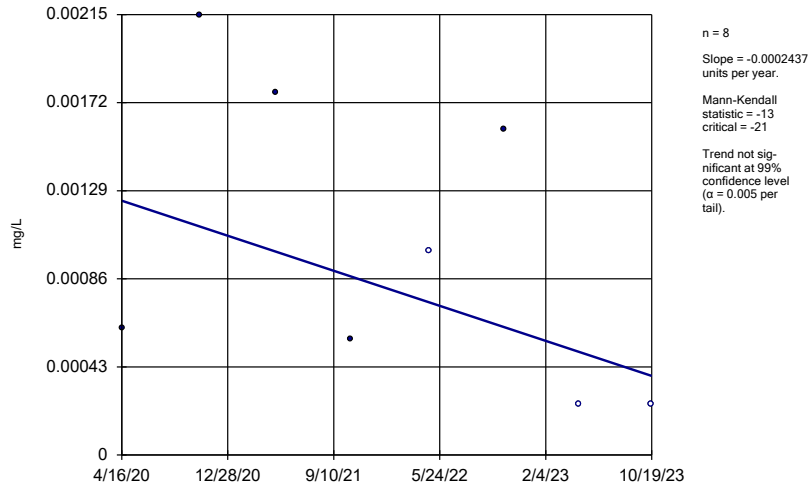
SW-1/OUTFALL4



Constituent: Chromium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

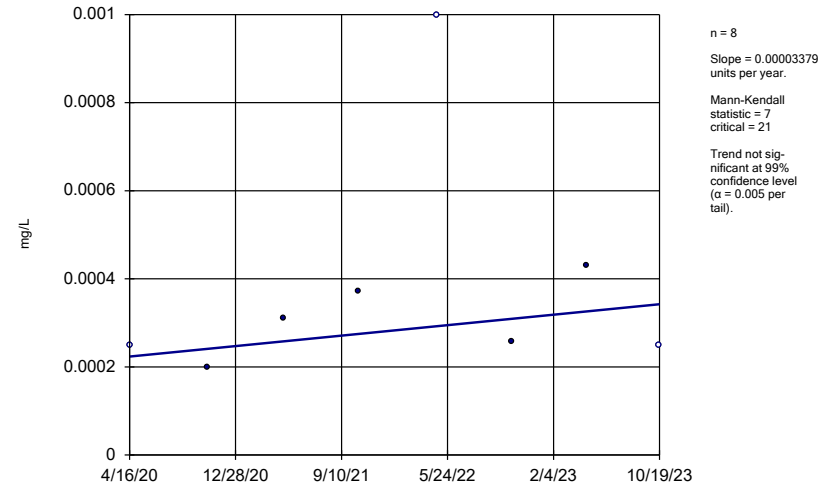
LDR-1



Constituent: Lead Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

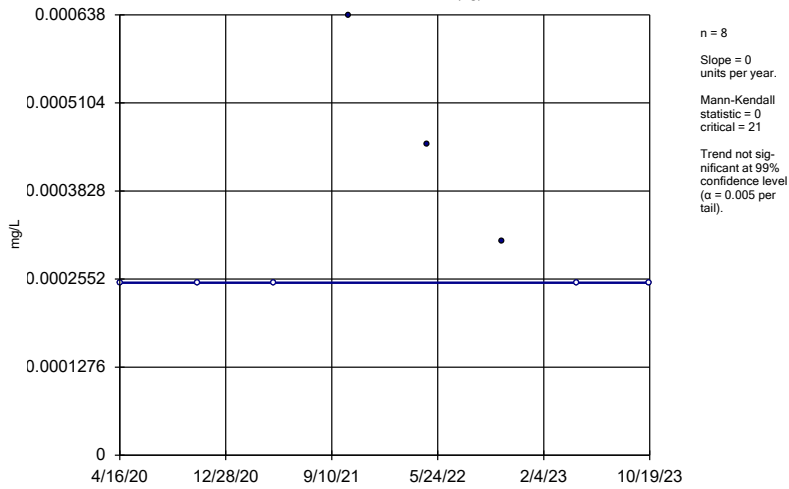
LDR-3



Constituent: Lead Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

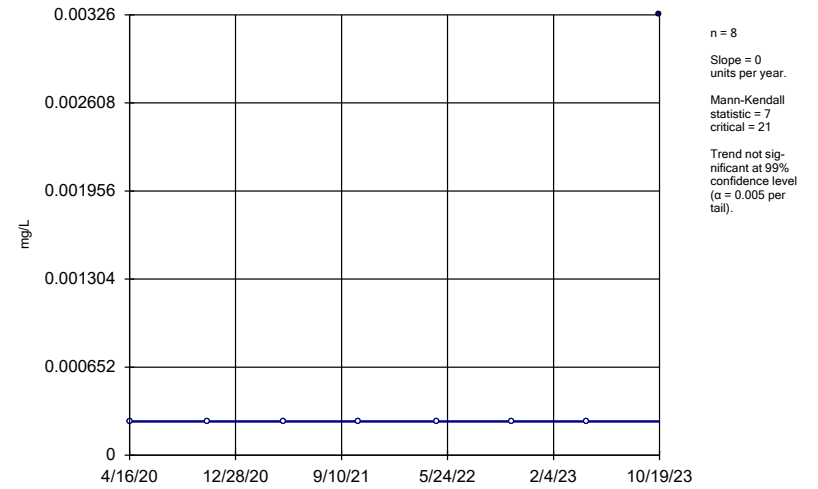
MW-101R-NP (bg)



Constituent: Lead Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

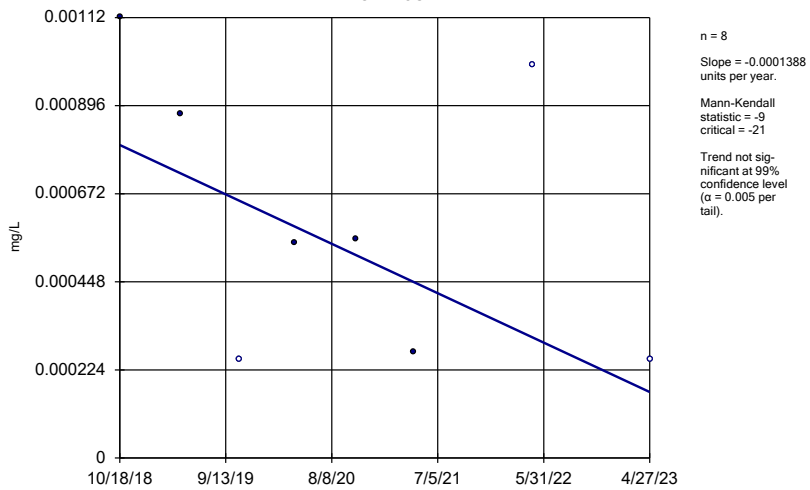
MW-201



Constituent: Lead Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

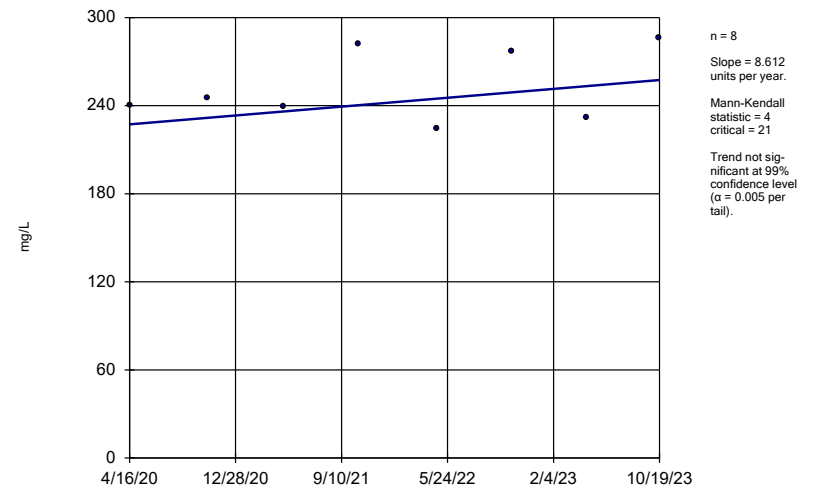
SW-1/OUTFALL4



Constituent: Lead Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

LDR-1

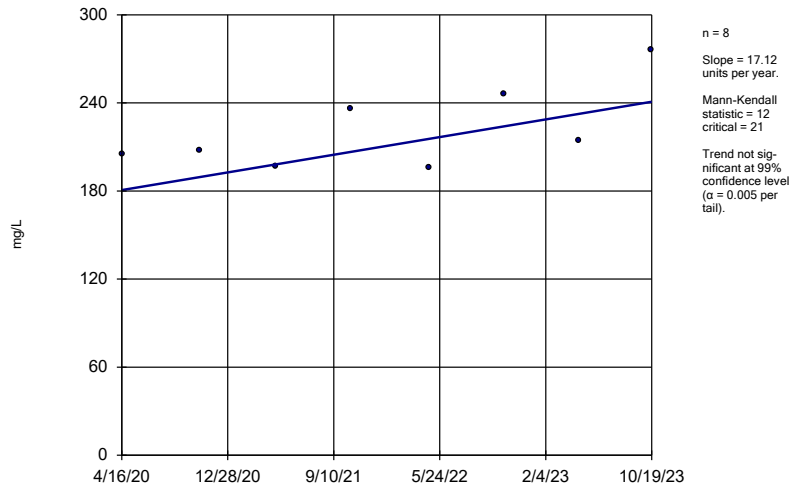


Constituent: Magnesium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023



### Sen's Slope Estimator

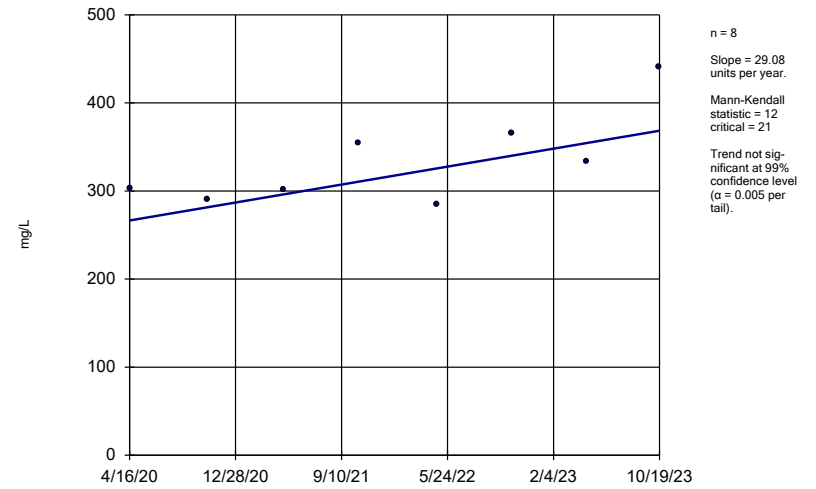
LDR-2



Constituent: Magnesium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

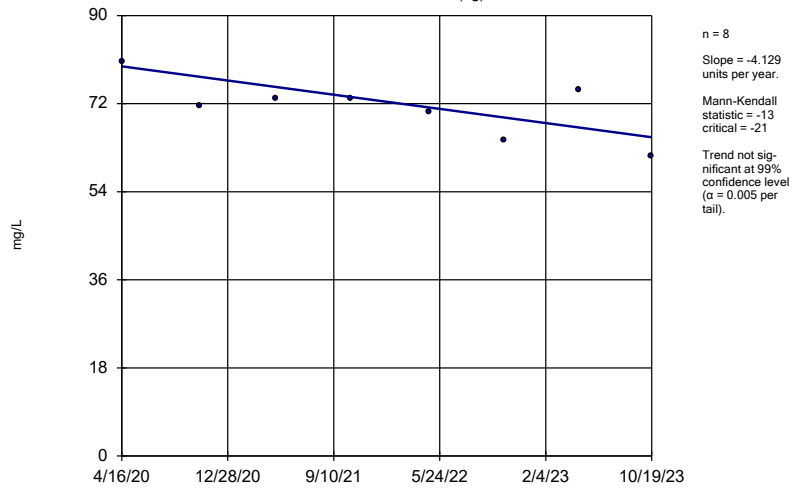
LDR-3



Constituent: Magnesium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

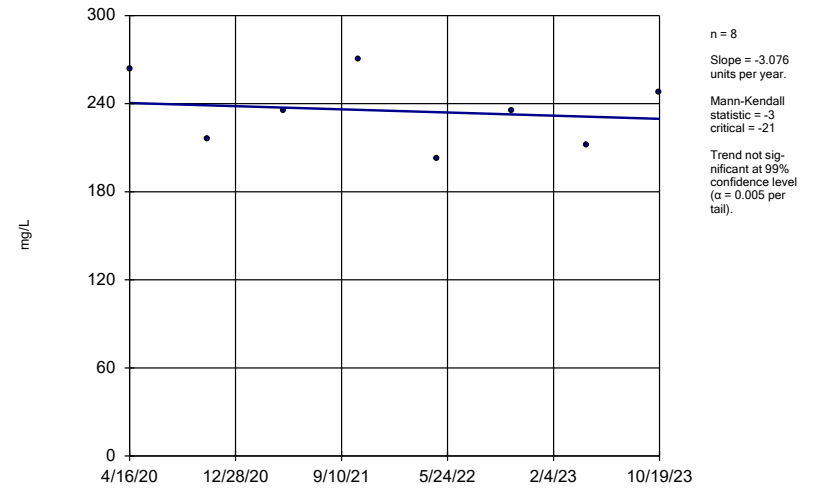
MW-101R-NP (bg)



Constituent: Magnesium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

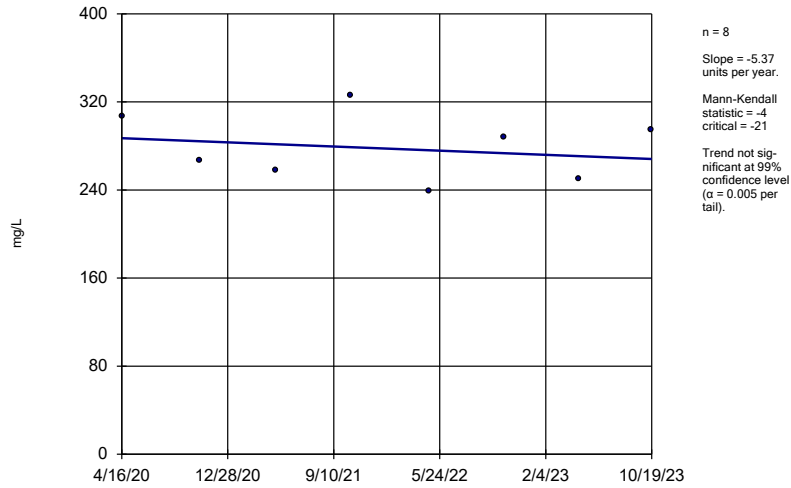
MW-102R-NP



Constituent: Magnesium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

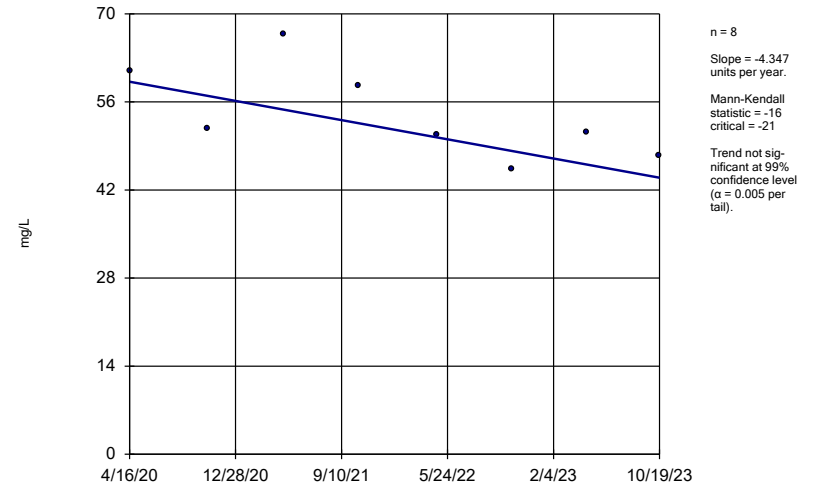
MW-103R-NP



Constituent: Magnesium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

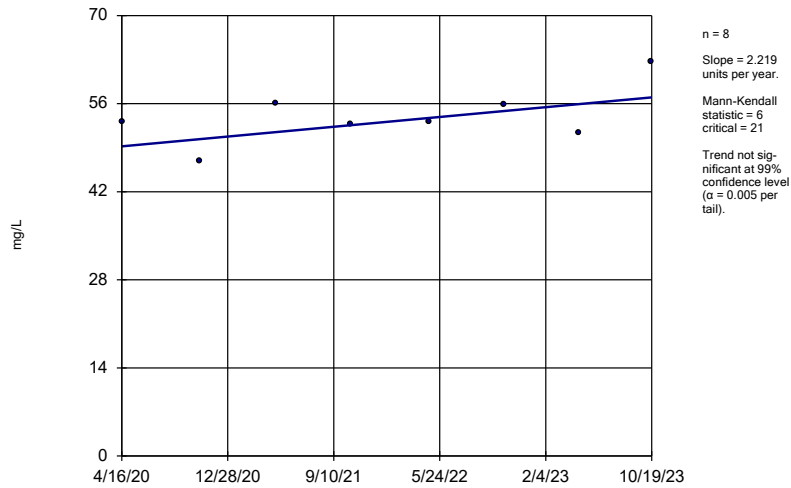
MW-201



Constituent: Magnesium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

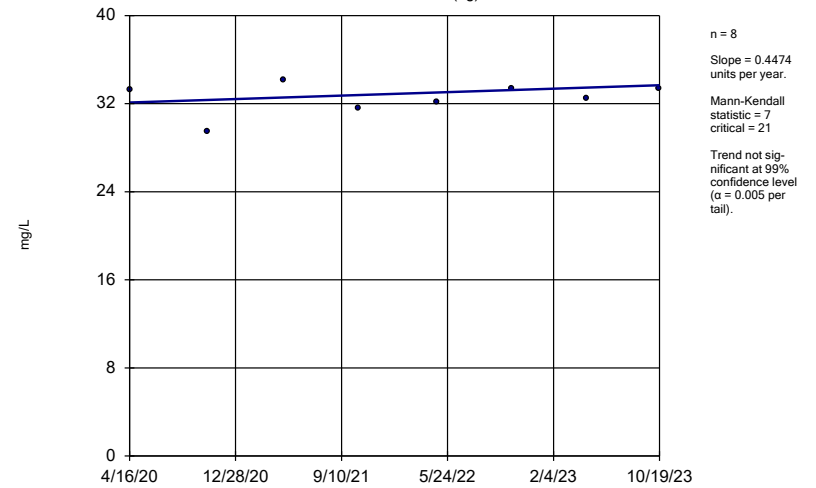
MW-202R



Constituent: Magnesium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

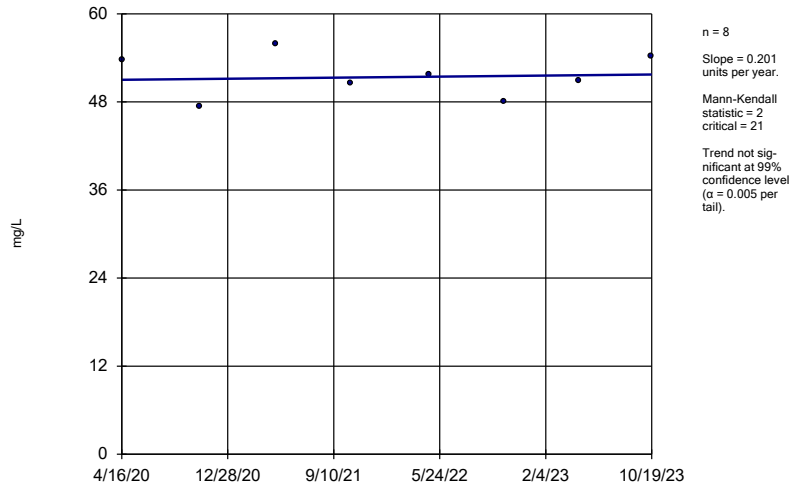
MW-203R (bg)



Constituent: Magnesium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

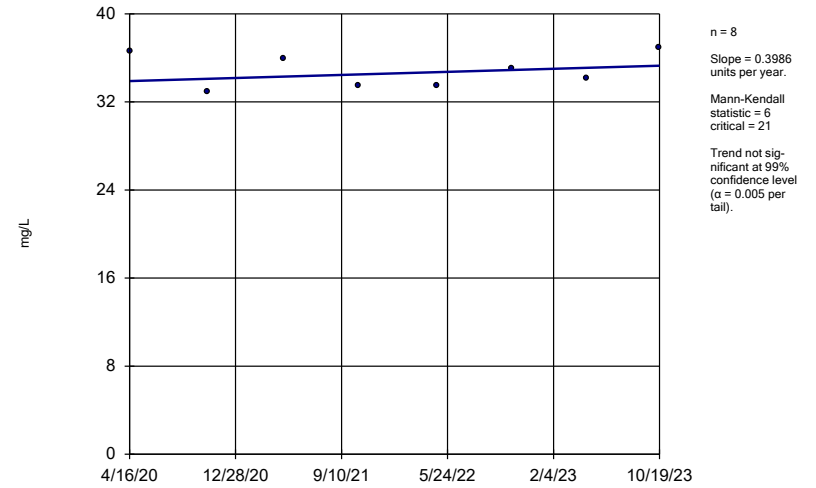
MW-204



Constituent: Magnesium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

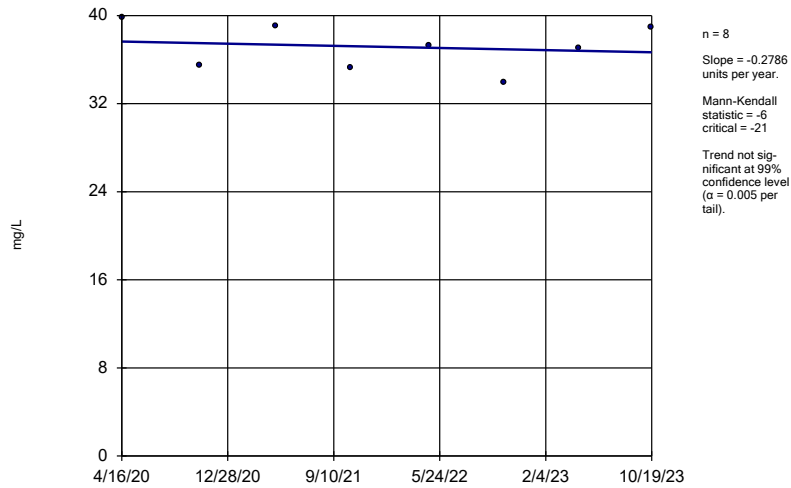
MW-205 (bg)



Constituent: Magnesium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

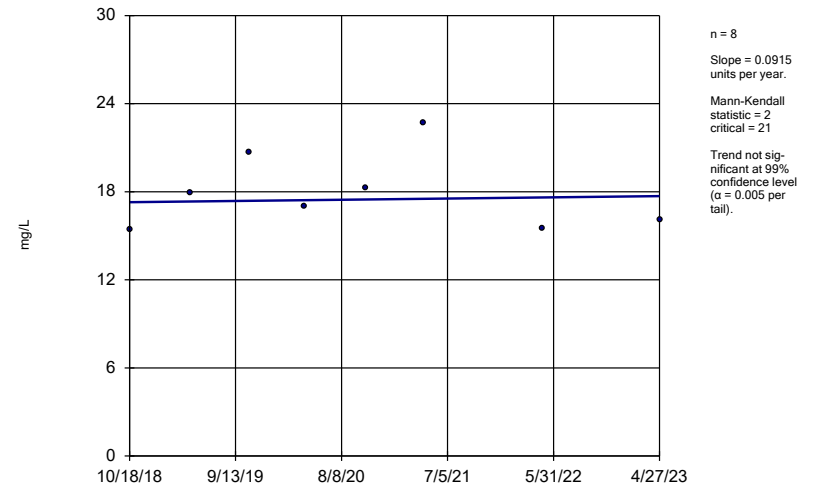
MW-206



Constituent: Magnesium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

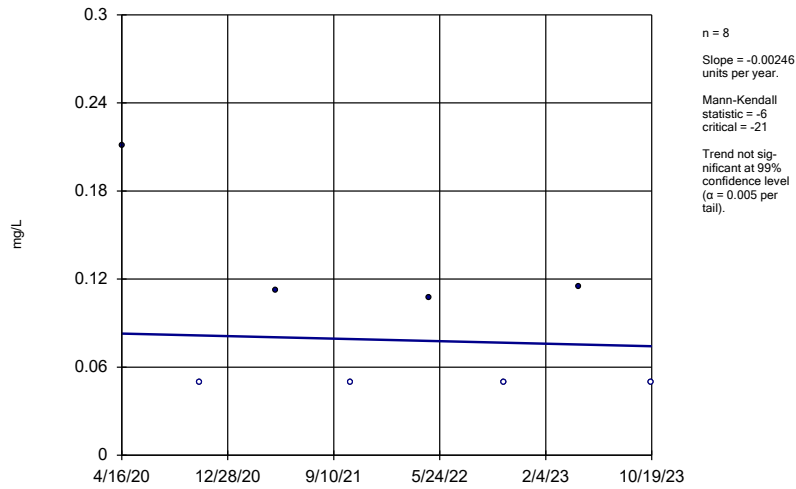
SW-1/OUTFALL4



Constituent: Magnesium Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

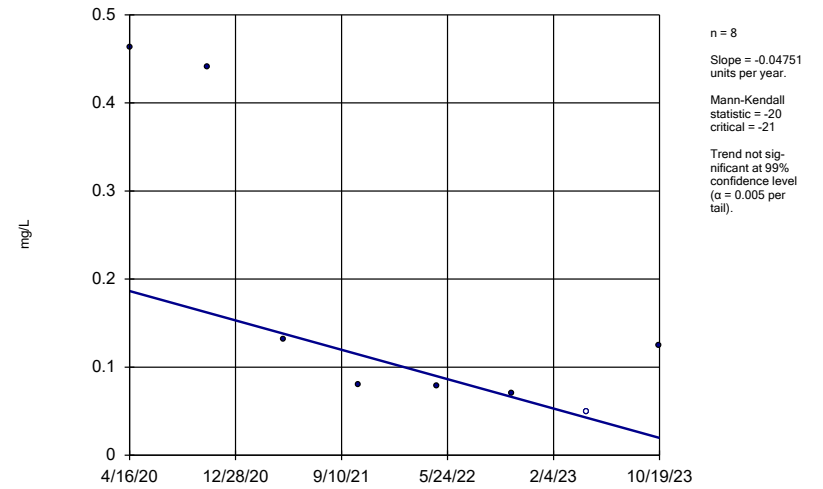
LDR-1



Constituent: Nitrate/Nitrite as N Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

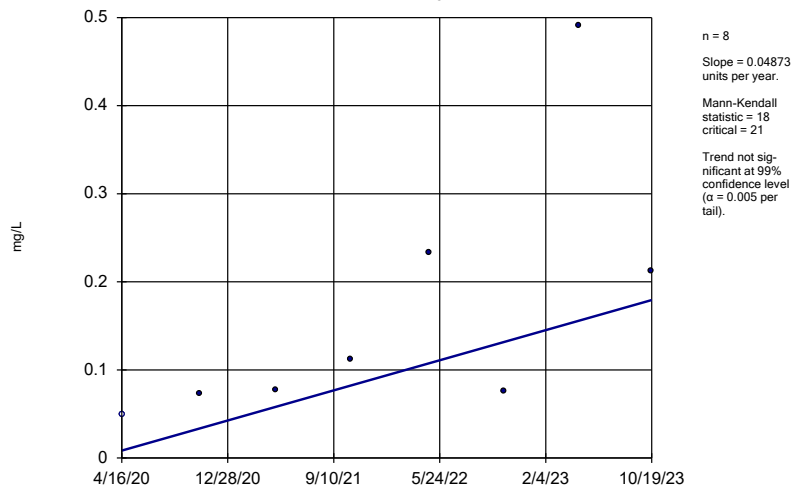
LDR-2



Constituent: Nitrate/Nitrite as N Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

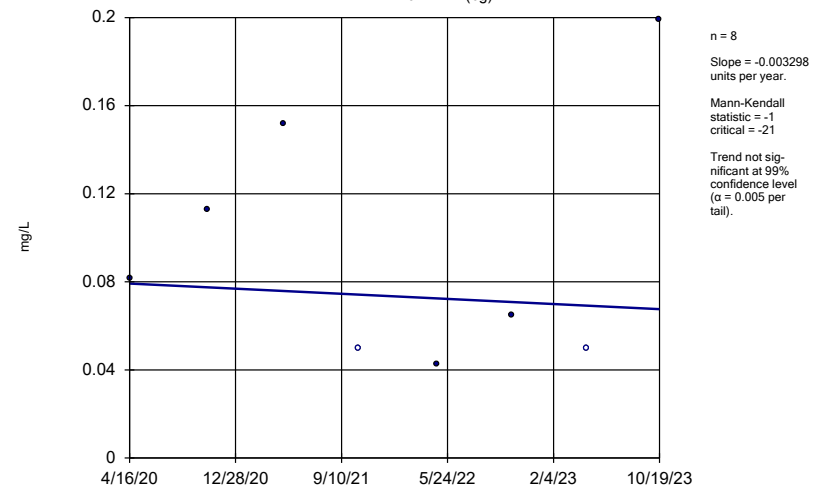
LDR-3



Constituent: Nitrate/Nitrite as N Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

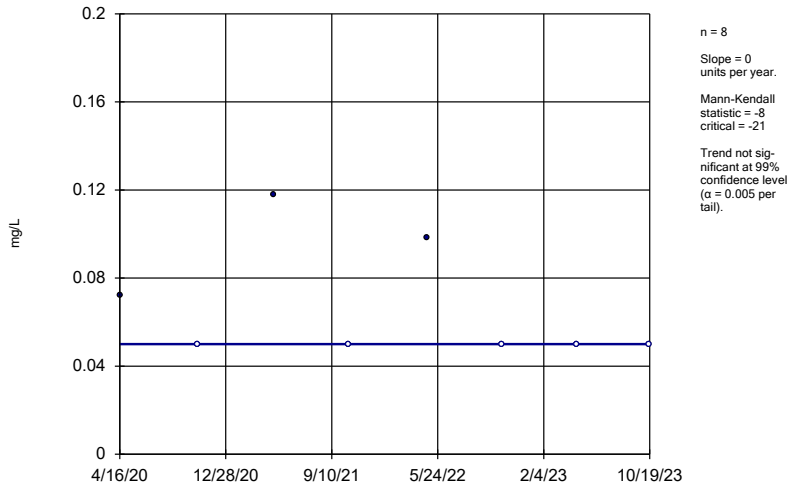
MW-101R-NP (bg)



Constituent: Nitrate/Nitrite as N Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

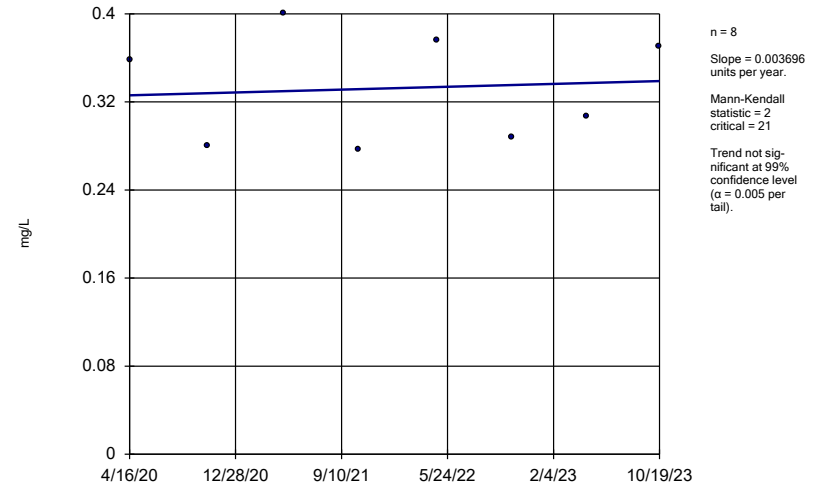
MW-102R-NP



Constituent: Nitrate/Nitrite as N Analysis Run 11/7/2023 3:13 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

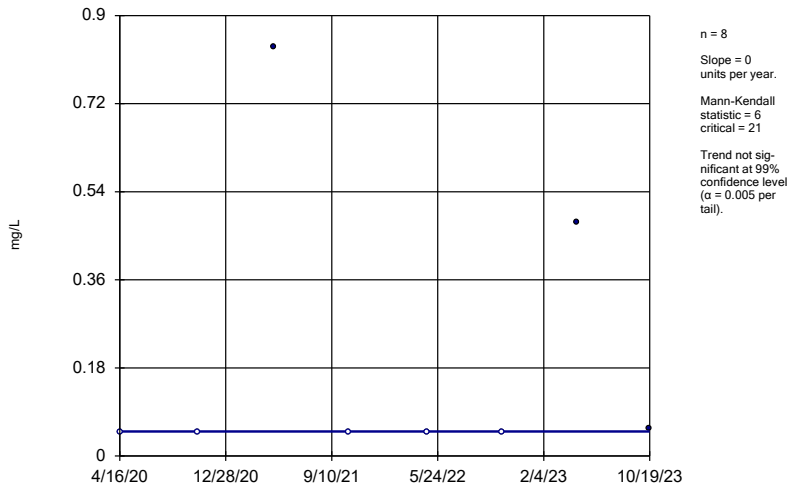
MW-103R-NP



Constituent: Nitrate/Nitrite as N Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

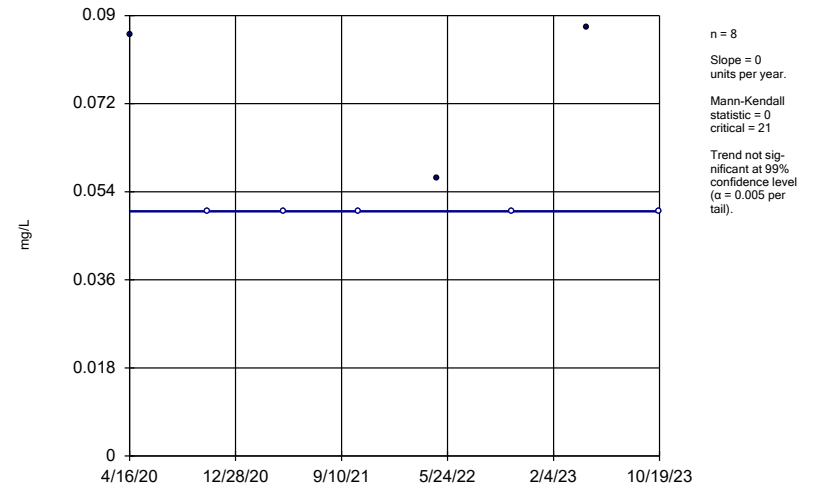
MW-201



Constituent: Nitrate/Nitrite as N Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

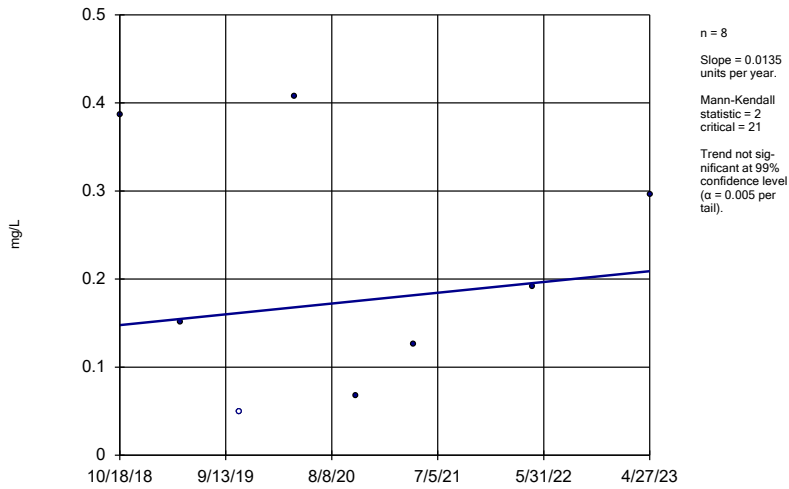
MW-206



Constituent: Nitrate/Nitrite as N Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

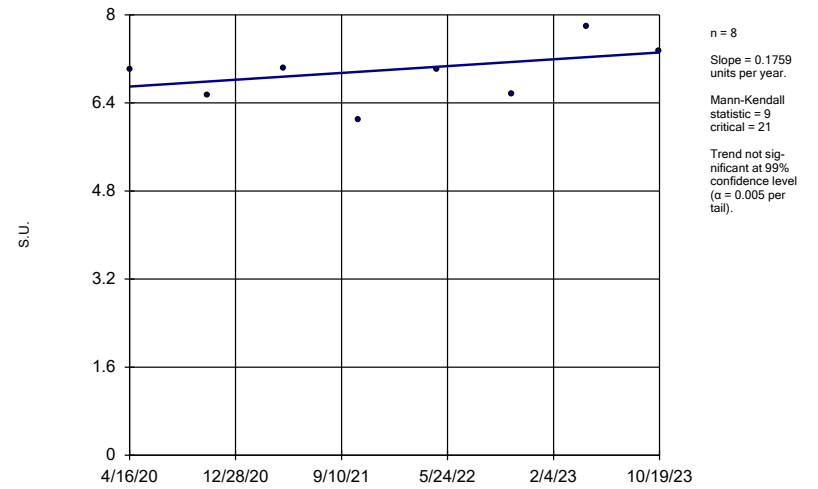
SW-1/OUTFALL4



Constituent: Nitrate/Nitrite as N Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

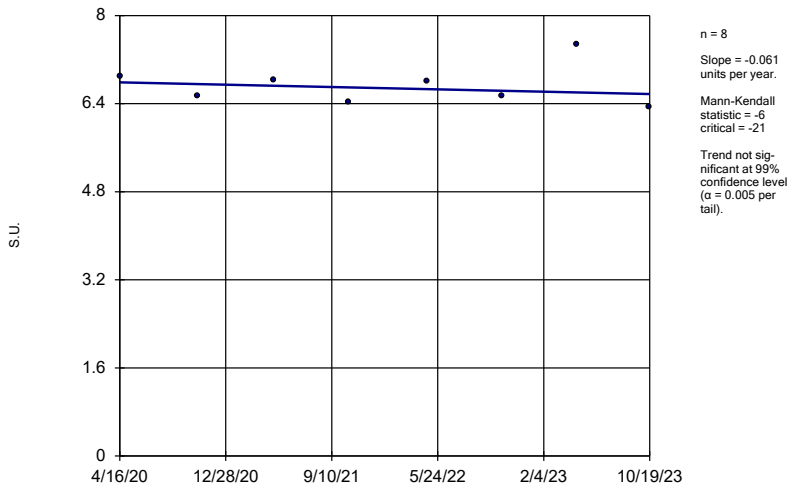
LDR-1



Constituent: pH Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

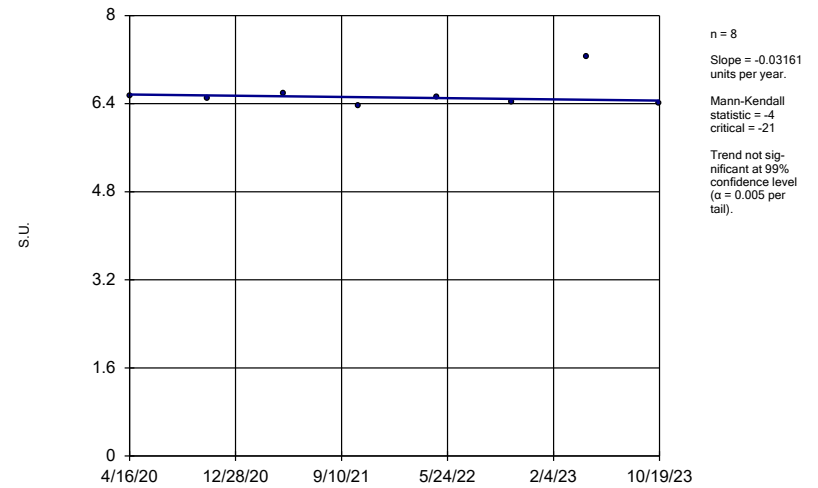
LDR-2



Constituent: pH Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

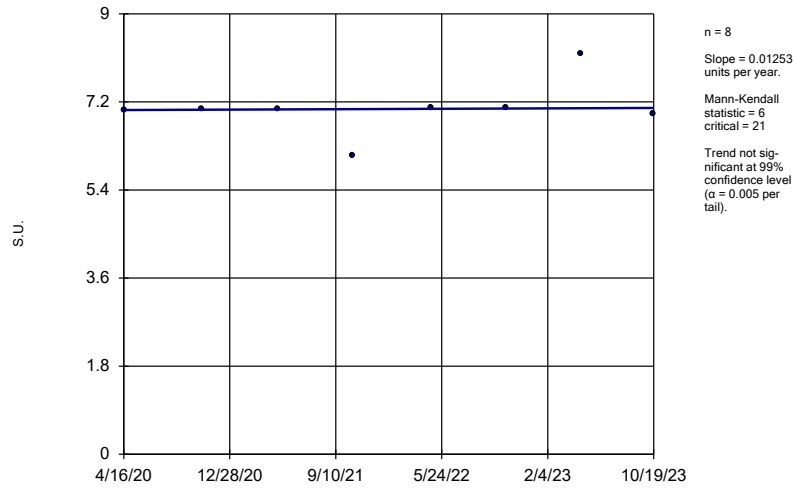
LDR-3



Constituent: pH Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

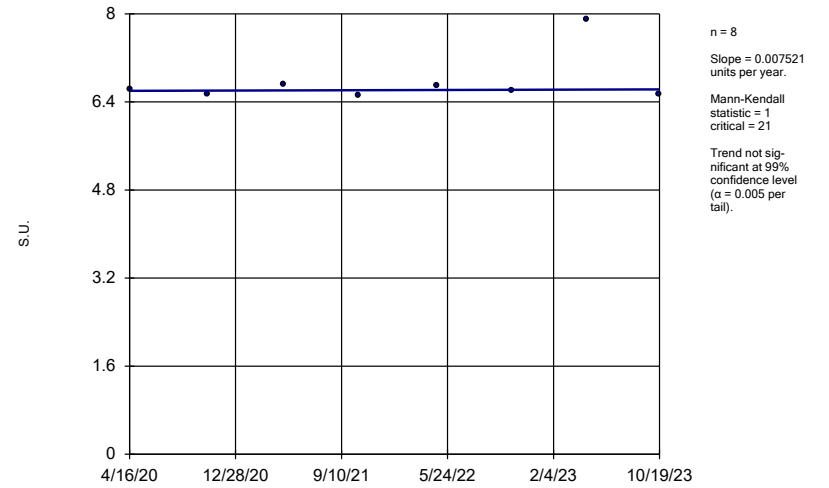
MW-101R-NP (bg)



Constituent: pH Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

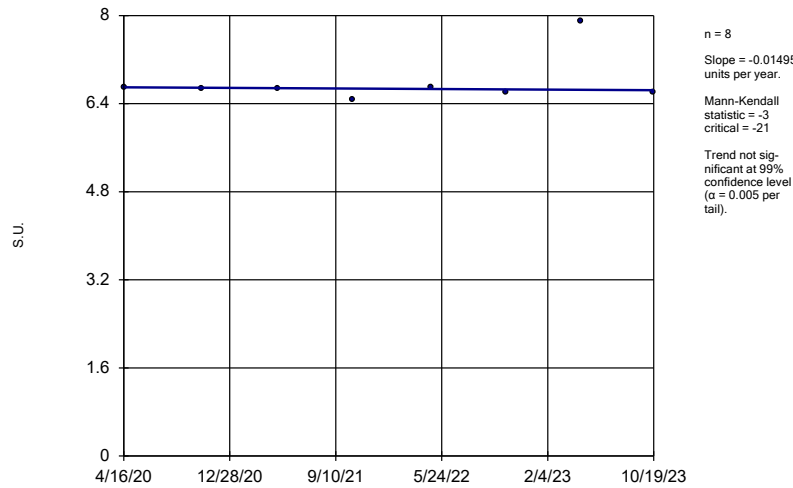
MW-102R-NP



Constituent: pH Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

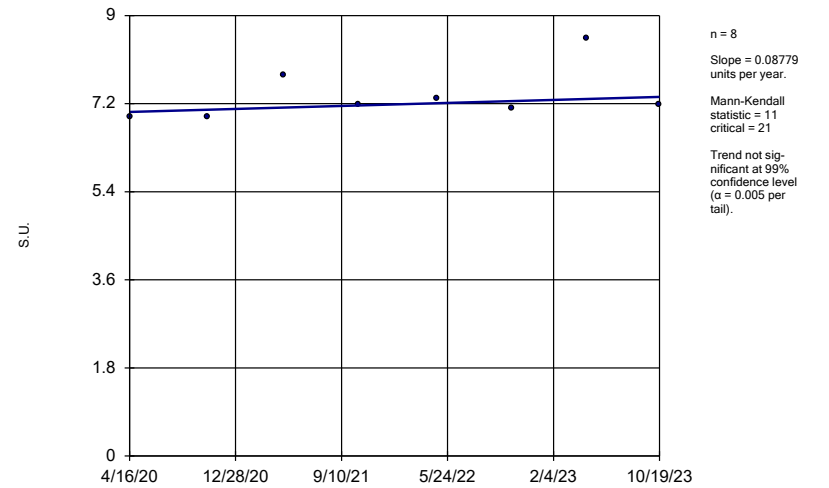
MW-103R-NP



Constituent: pH Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

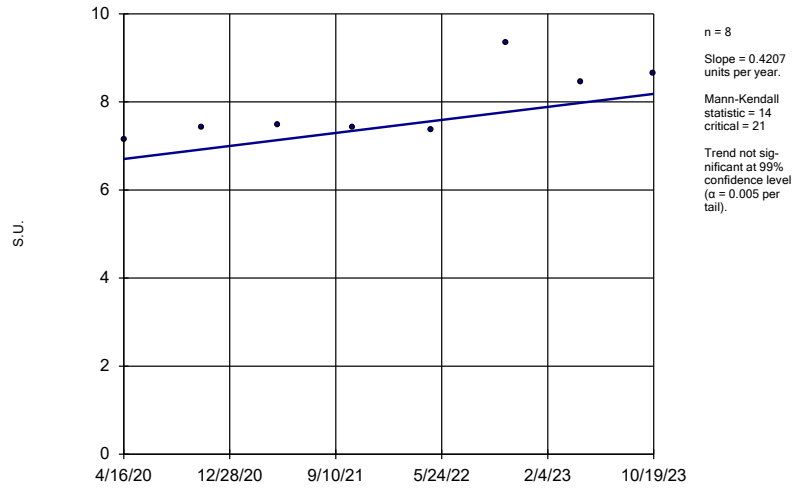
MW-201



Constituent: pH Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

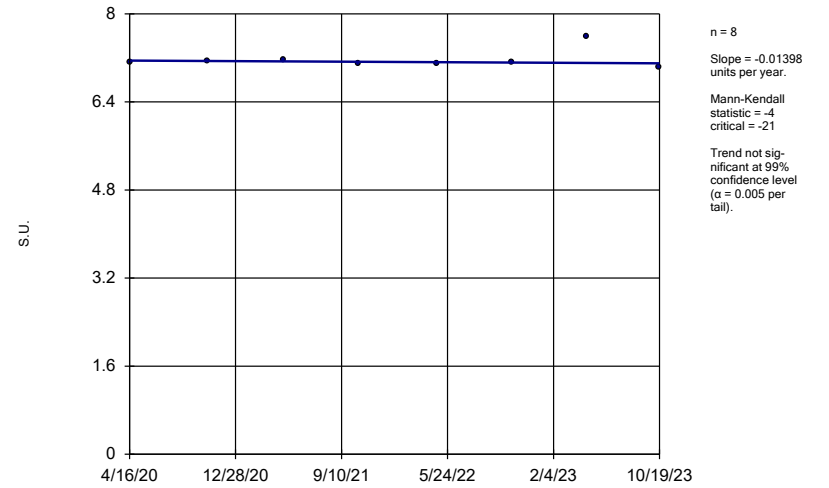
MW-202R



Constituent: pH Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

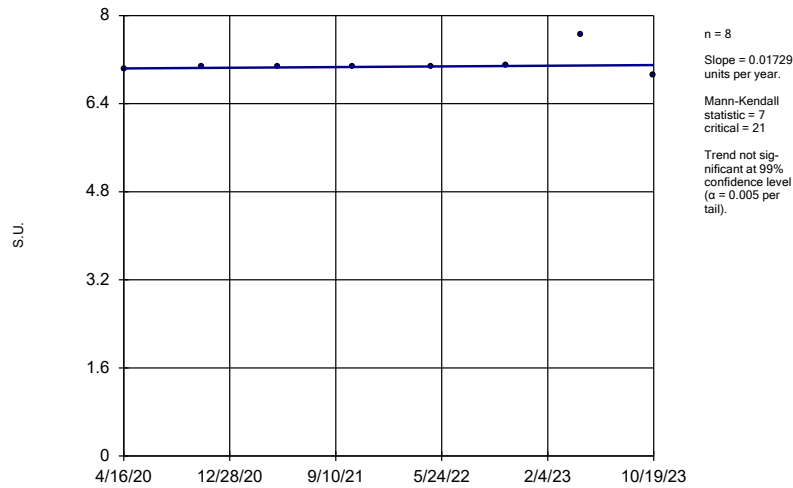
MW-203R (bg)



Constituent: pH Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

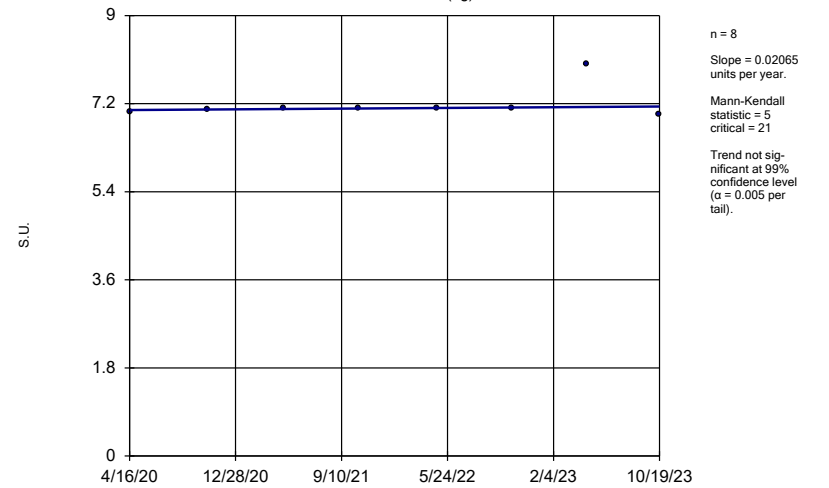
MW-204



Constituent: pH Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

MW-205 (bg)

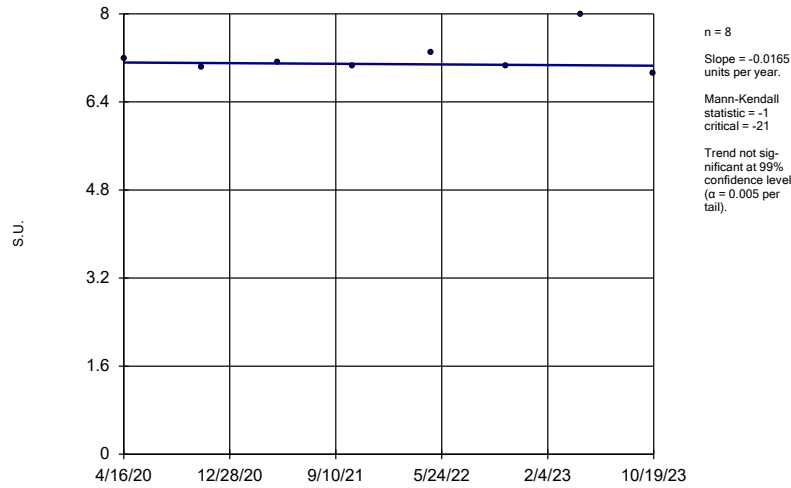


Constituent: pH Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023



### Sen's Slope Estimator

MW-206

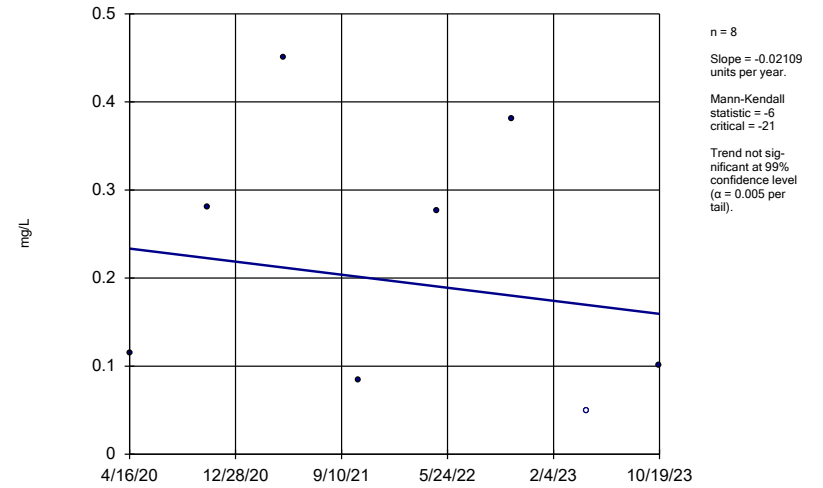


Constituent: pH Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

Hollow symbols indicate censored values.

### Sen's Slope Estimator

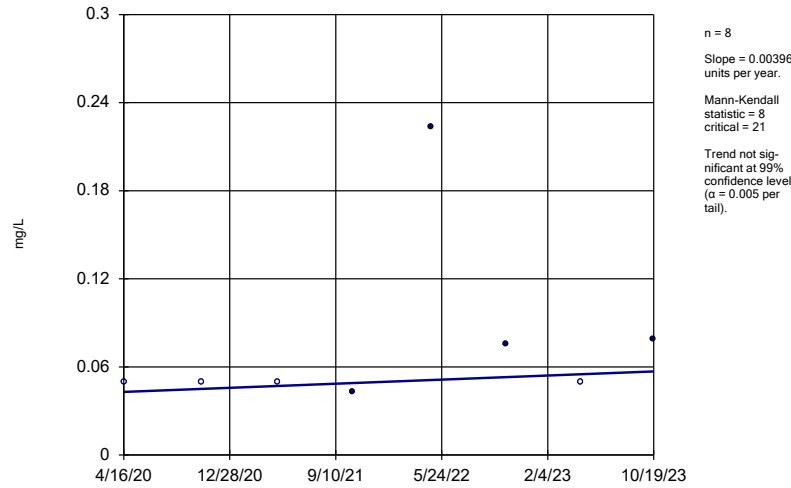
LDR-1



Constituent: Phosphorus, Total [as P] Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

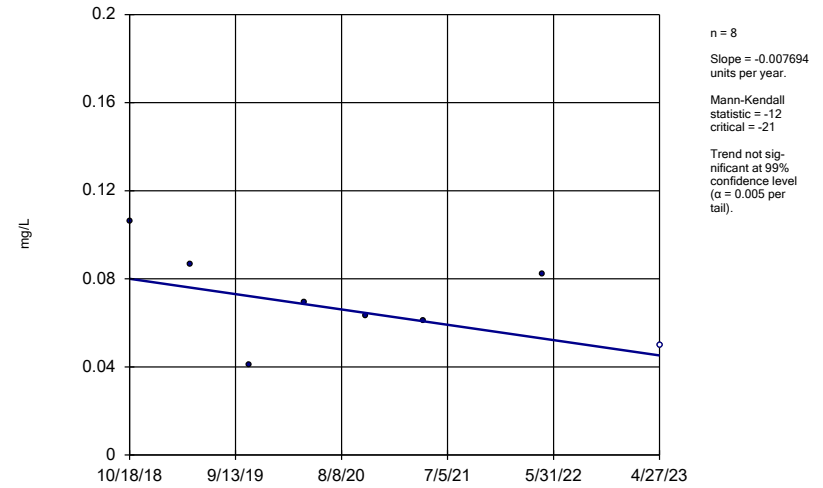
MW-201



Constituent: Phosphorus, Total [as P] Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

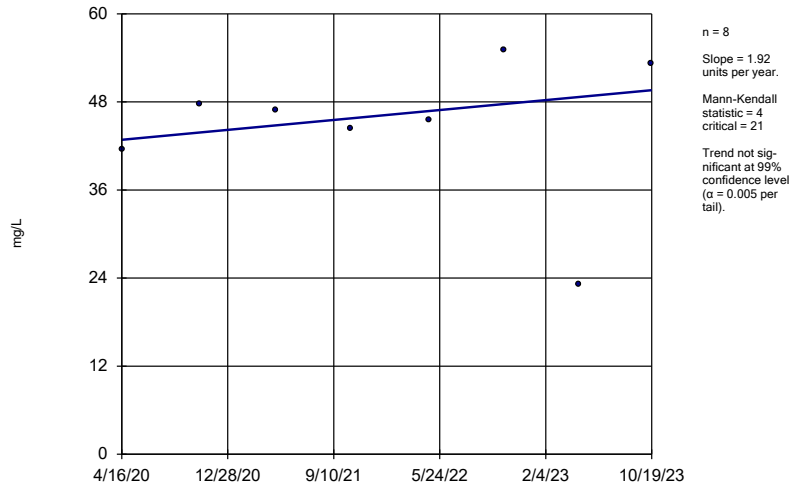
SW-1/OUTFALL4



Constituent: Phosphorus, Total [as P] Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

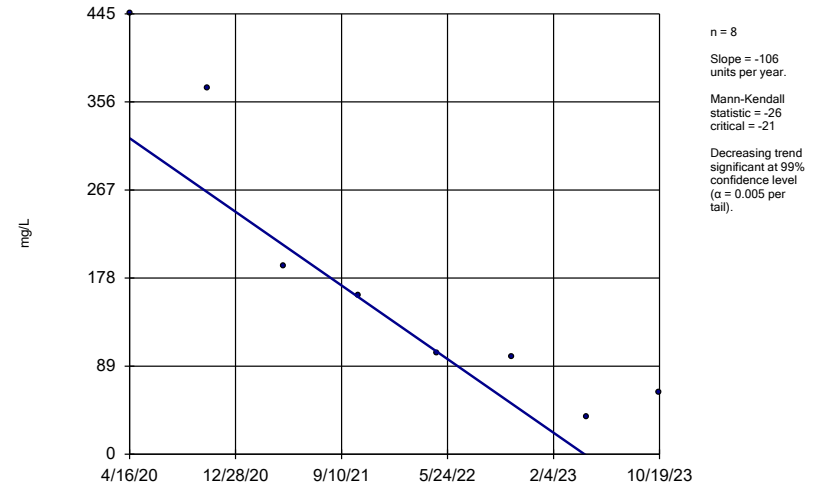
LDR-1



Constituent: Potassium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

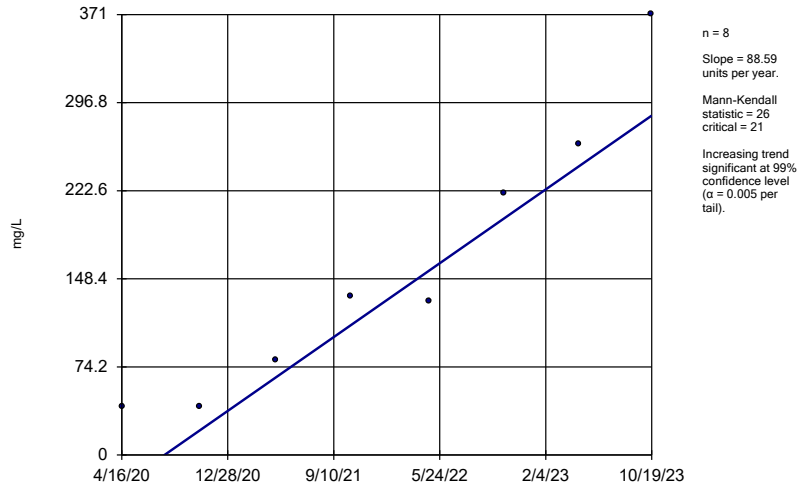
LDR-2



Constituent: Potassium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

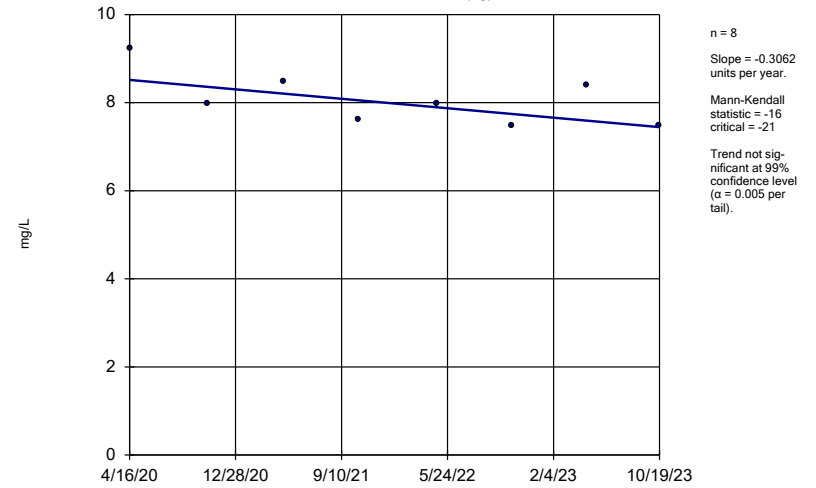
LDR-3



Constituent: Potassium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

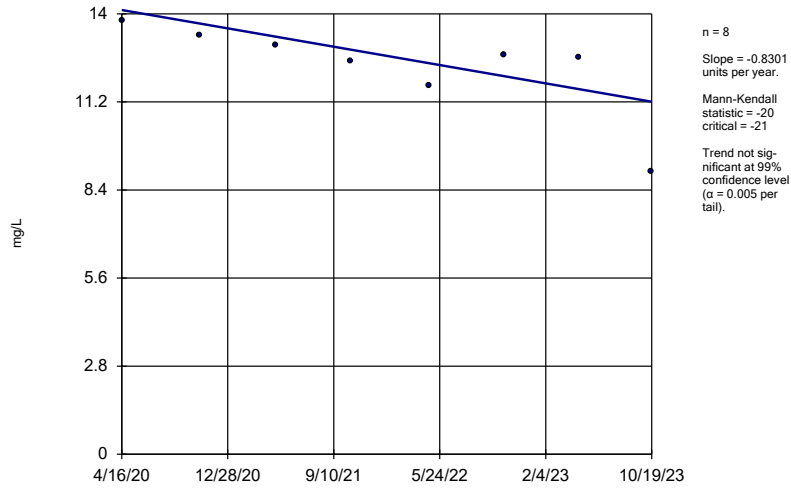
MW-101R-NP (bg)



Constituent: Potassium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

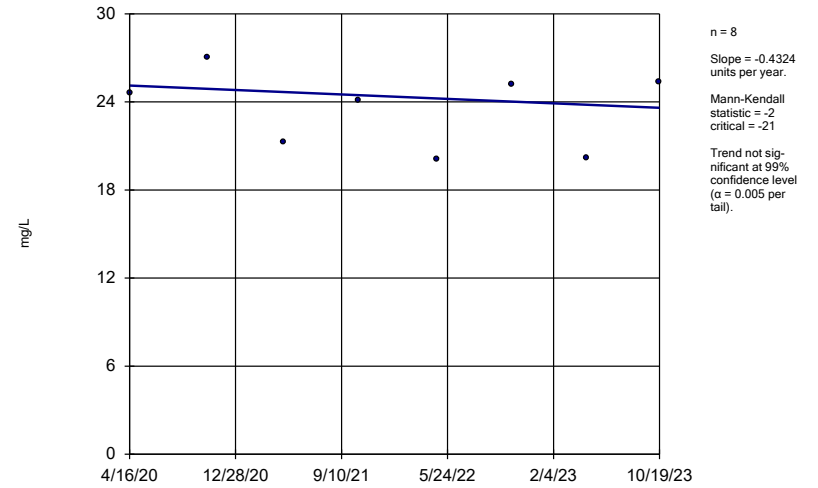
MW-102R-NP



Constituent: Potassium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

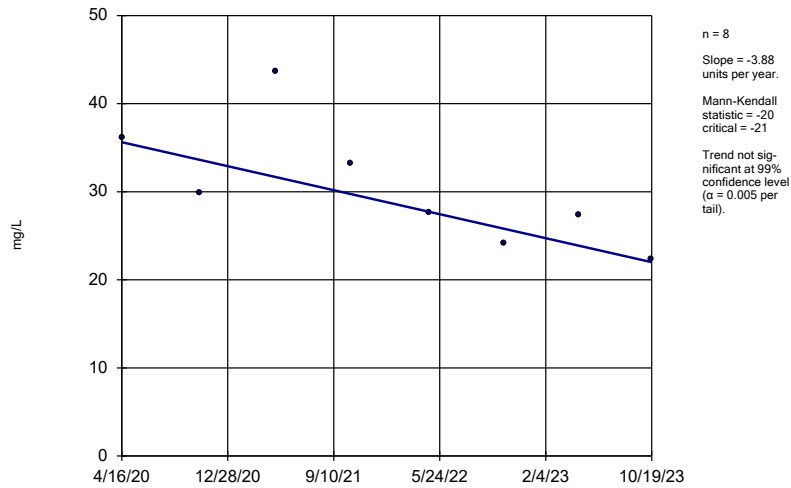
MW-103R-NP



Constituent: Potassium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

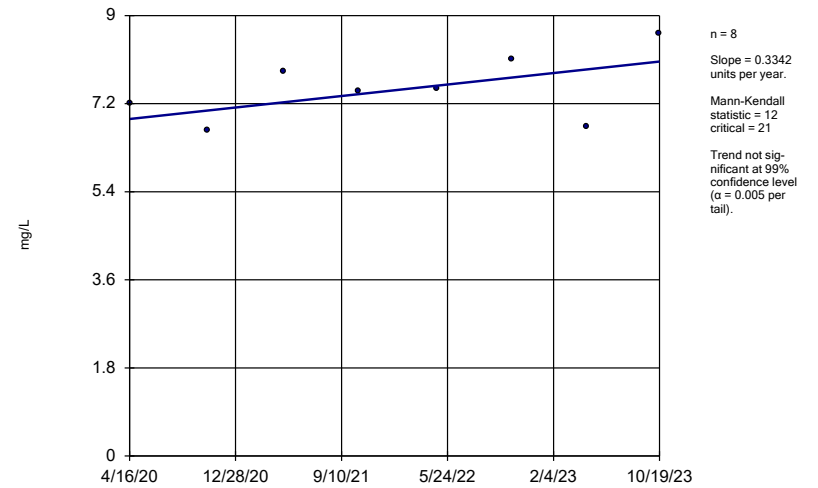
MW-201



Constituent: Potassium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

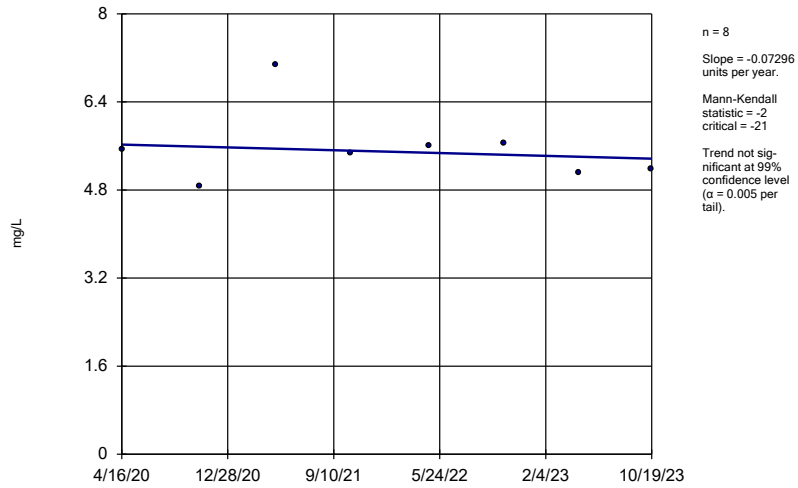
MW-202R



Constituent: Potassium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

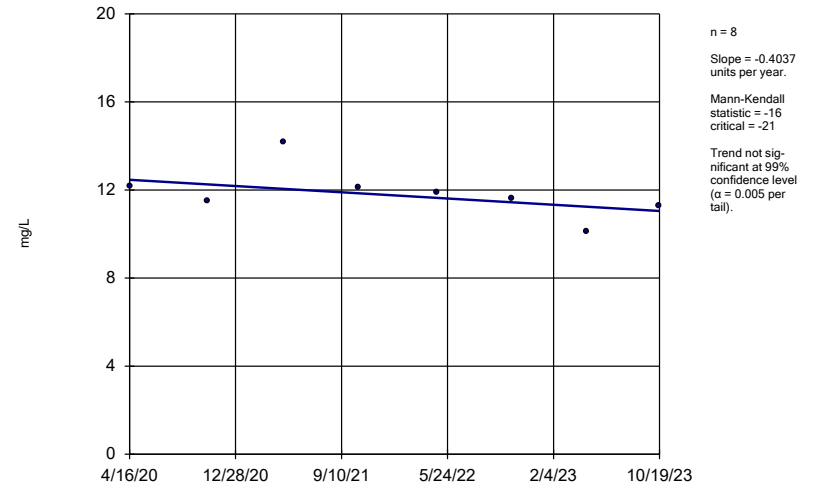
MW-203R (bg)



Constituent: Potassium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

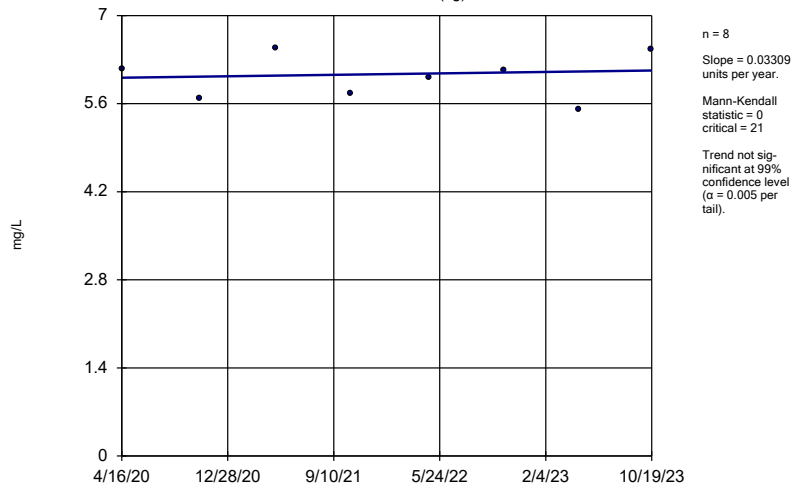
MW-204



Constituent: Potassium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

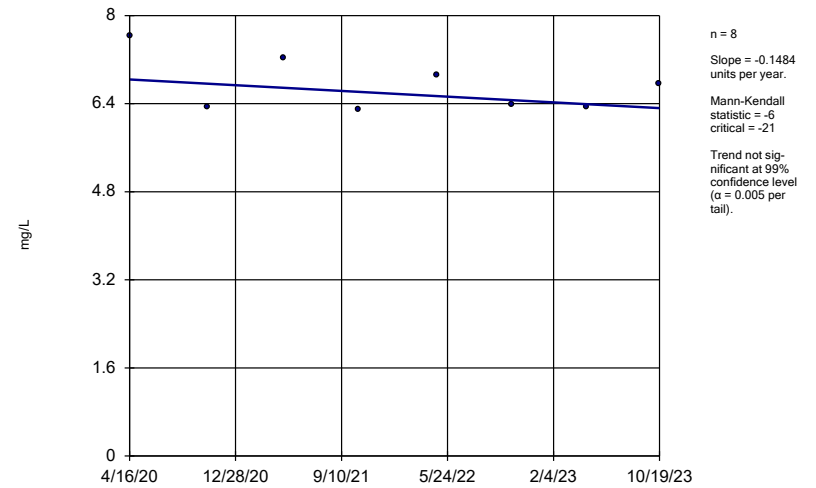
MW-205 (bg)



Constituent: Potassium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

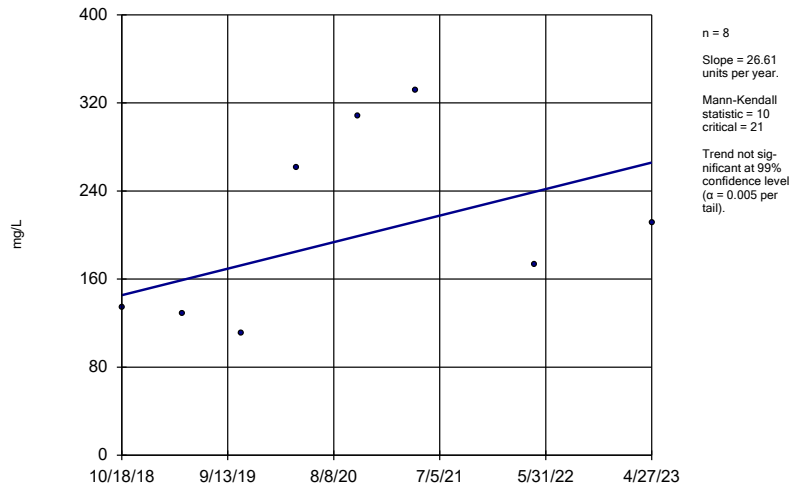
MW-206



Constituent: Potassium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

SW-1/OUTFALL4

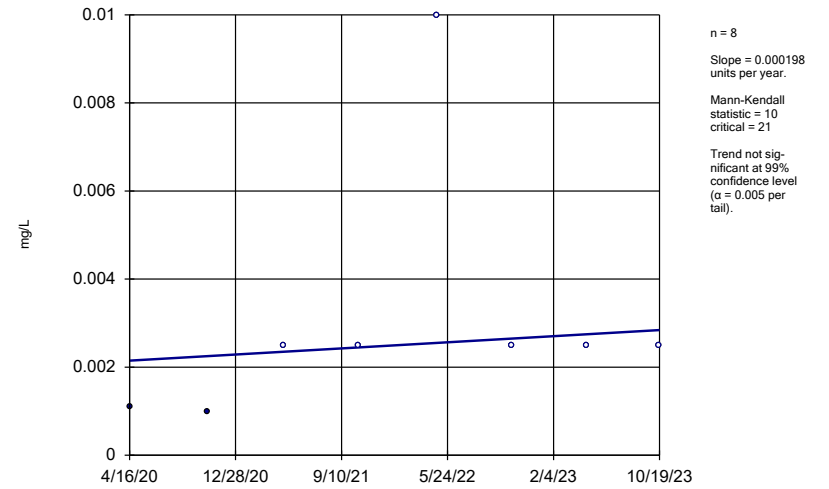


Constituent: Potassium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

Hollow symbols indicate censored values.

### Sen's Slope Estimator

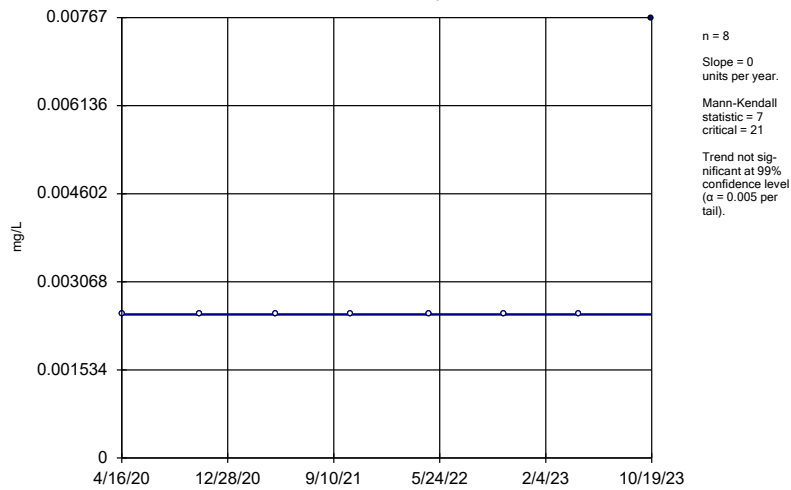
LDR-2



Constituent: Selenium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

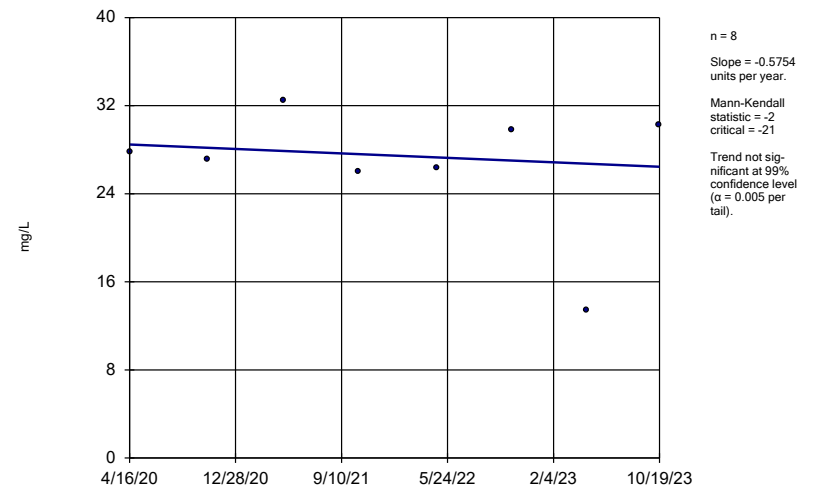
MW-201



Constituent: Selenium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

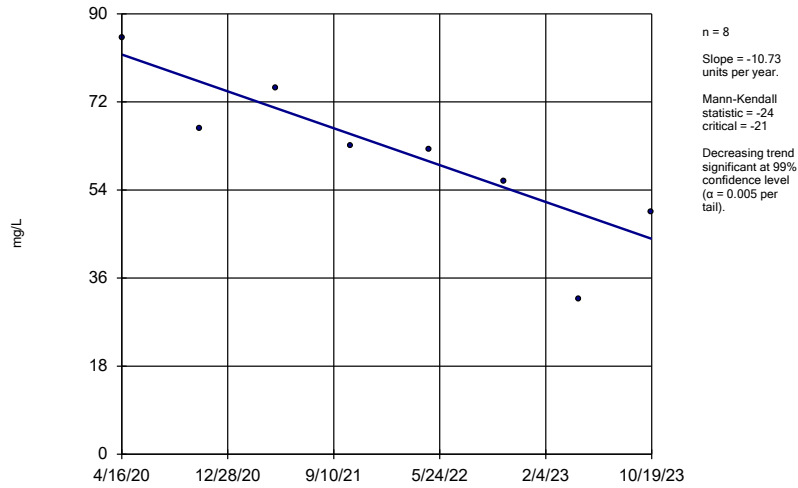
LDR-1



Constituent: Sodium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

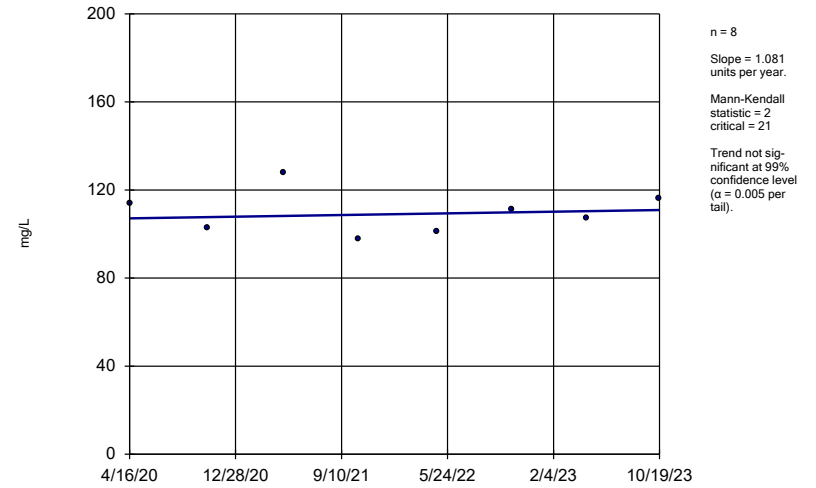
LDR-2



Constituent: Sodium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

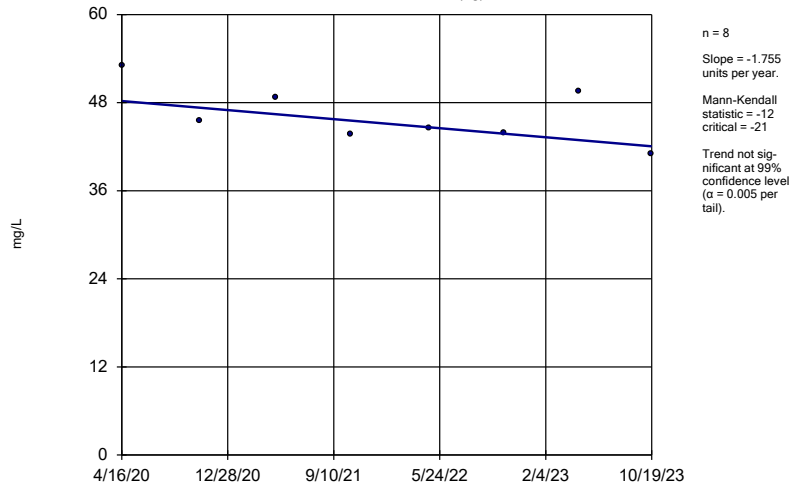
LDR-3



Constituent: Sodium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

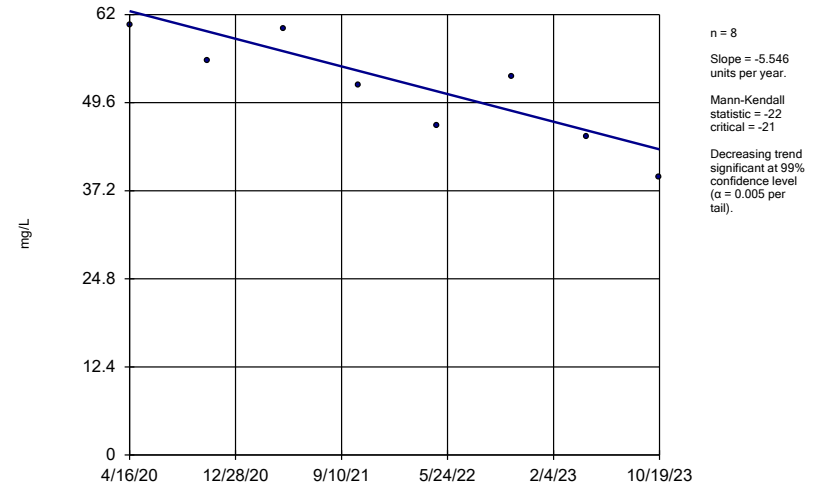
MW-101R-NP (bg)



Constituent: Sodium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

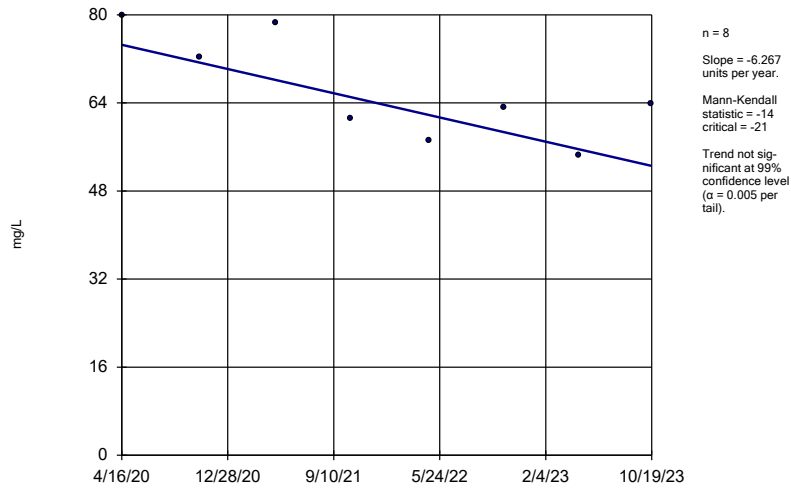
MW-102R-NP



Constituent: Sodium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

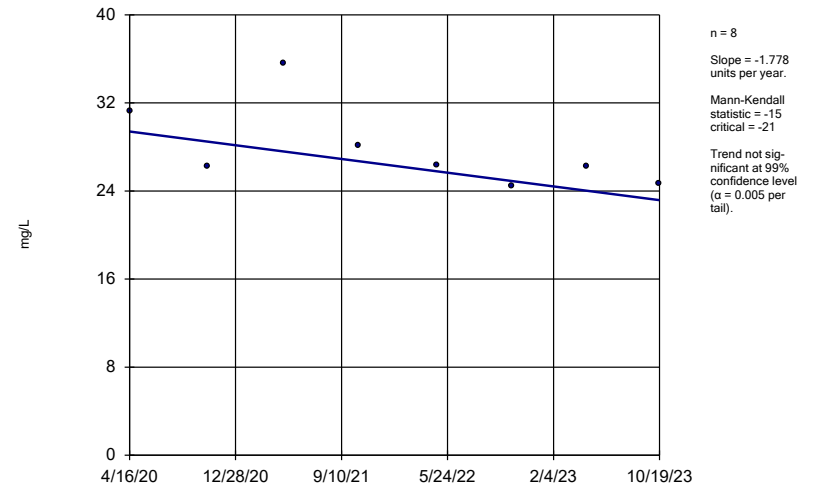
MW-103R-NP



Constituent: Sodium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

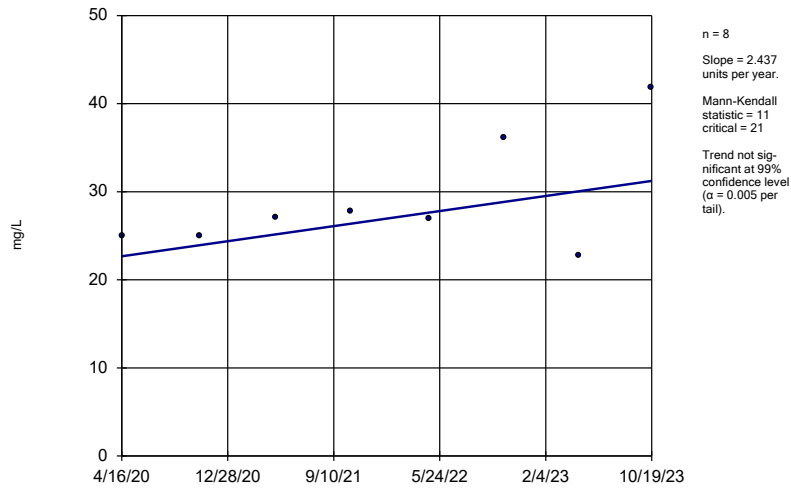
MW-201



Constituent: Sodium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

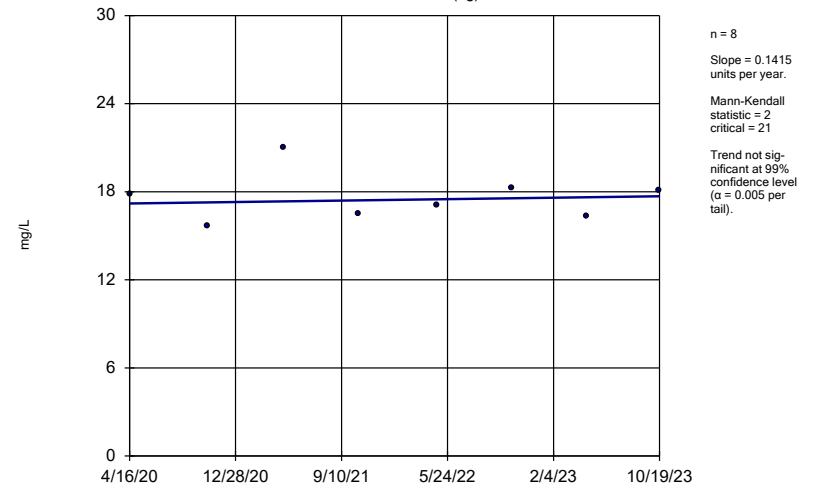
MW-202R



Constituent: Sodium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

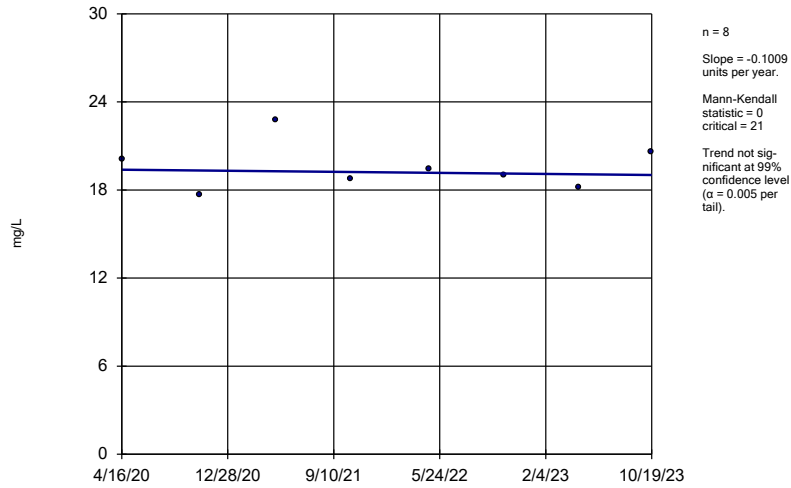
MW-203R (bg)



Constituent: Sodium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

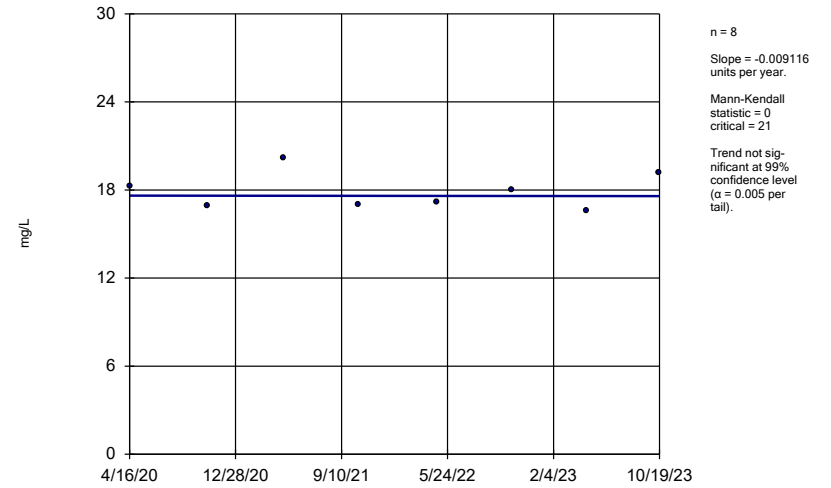
MW-204



Constituent: Sodium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

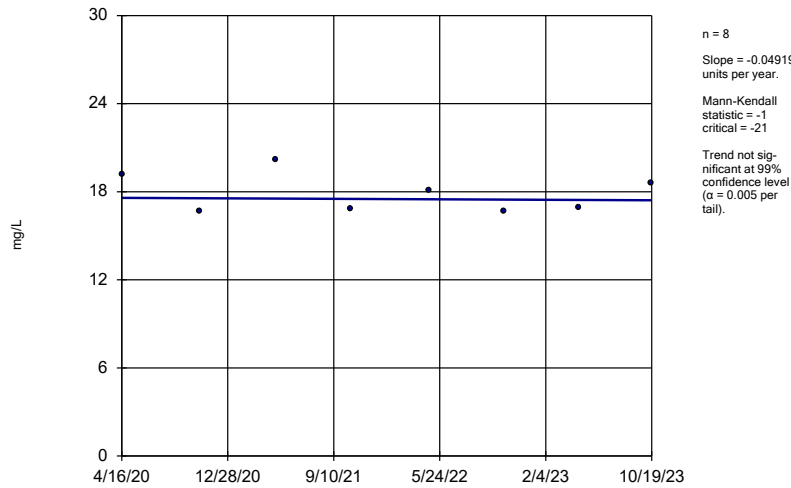
MW-205 (bg)



Constituent: Sodium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

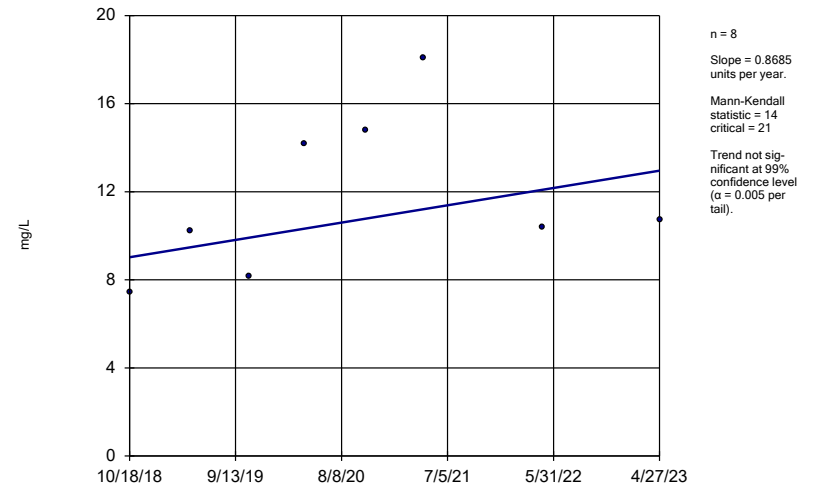
MW-206



Constituent: Sodium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

SW-1/OUTFALL4

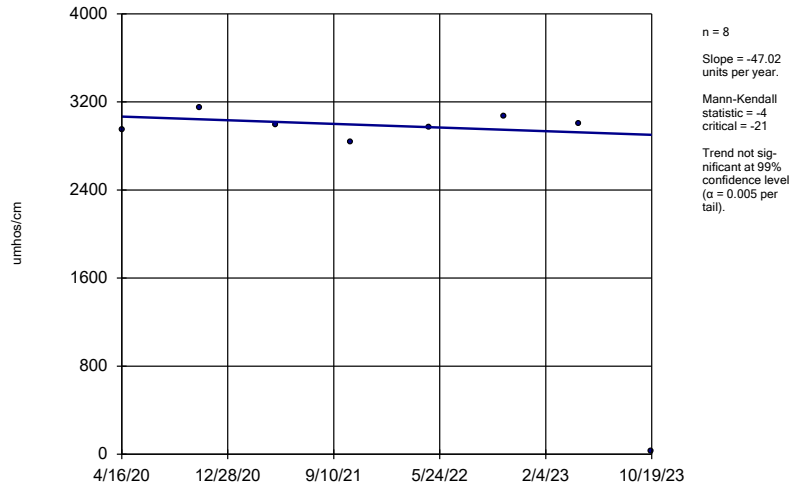


Constituent: Sodium Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023



### Sen's Slope Estimator

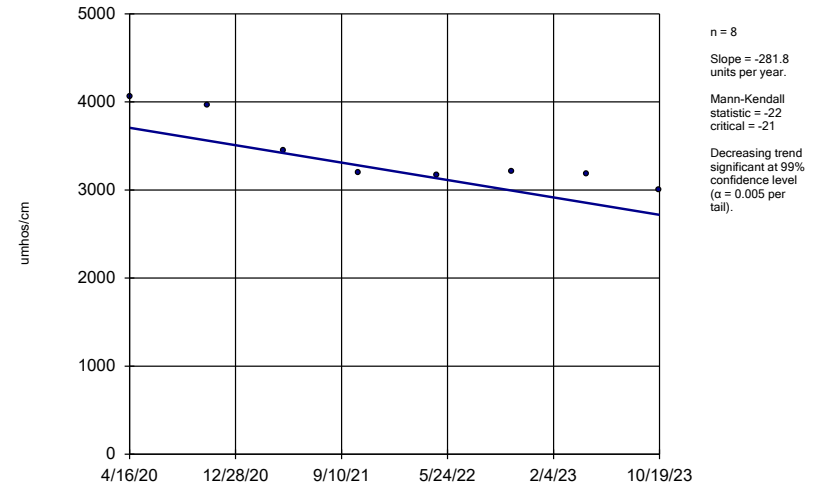
LDR-1



Constituent: Specific Conductance Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

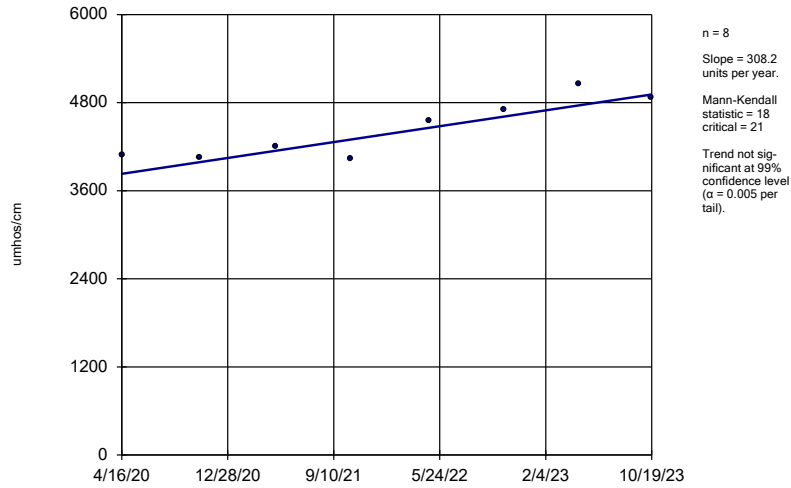
LDR-2



Constituent: Specific Conductance Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

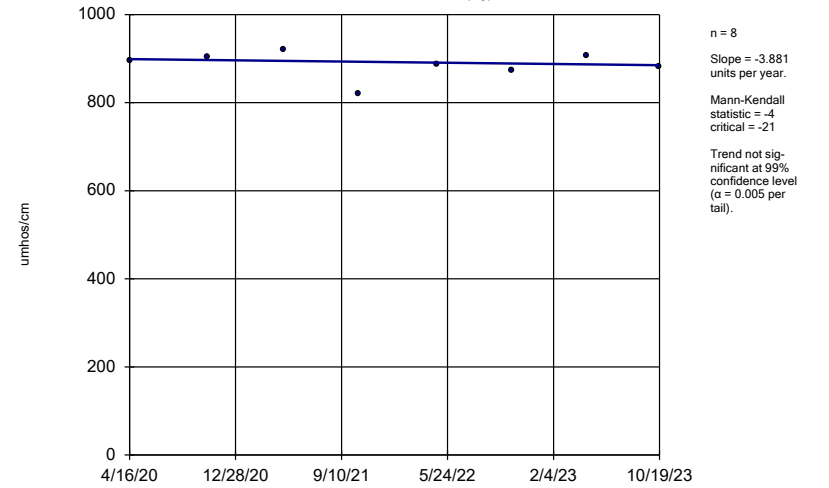
LDR-3



Constituent: Specific Conductance Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

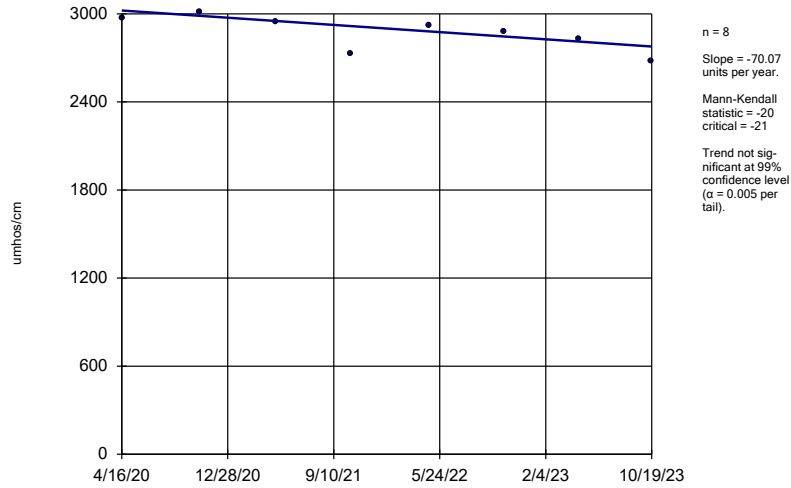
MW-101R-NP (bg)



Constituent: Specific Conductance Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

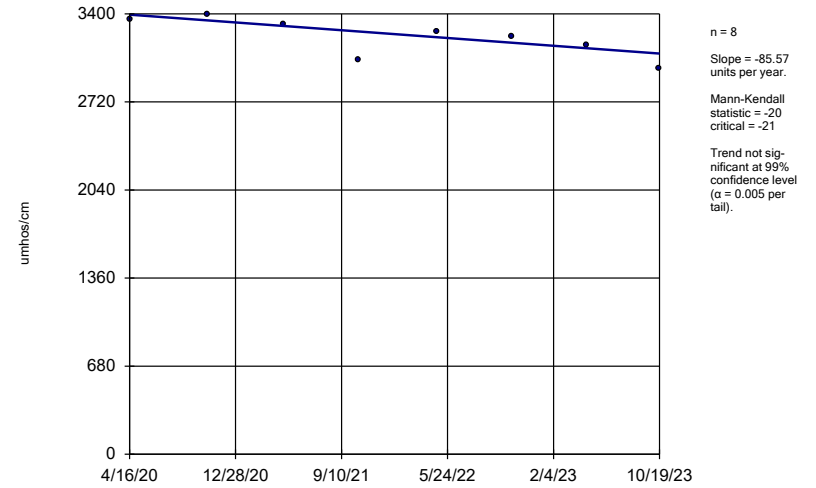
MW-102R-NP



Constituent: Specific Conductance Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

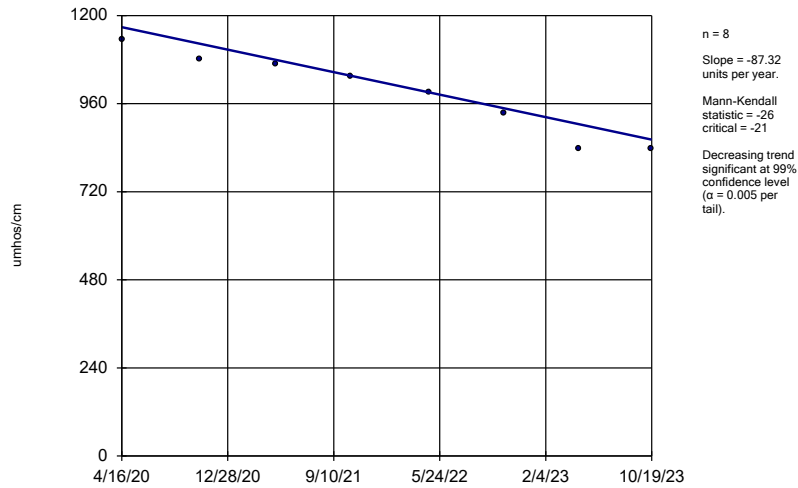
MW-103R-NP



Constituent: Specific Conductance Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

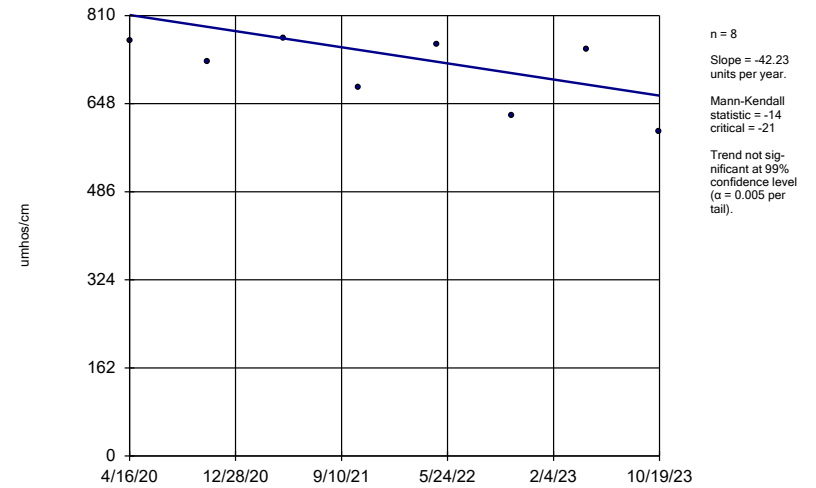
MW-201



Constituent: Specific Conductance Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

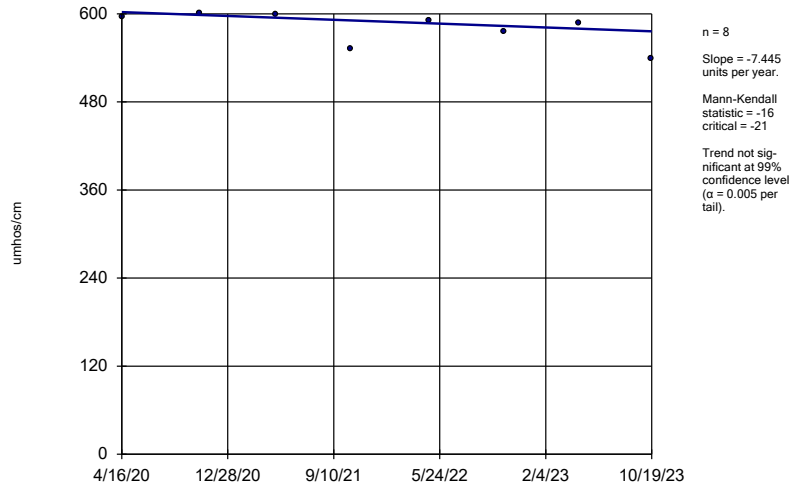
MW-202R



Constituent: Specific Conductance Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

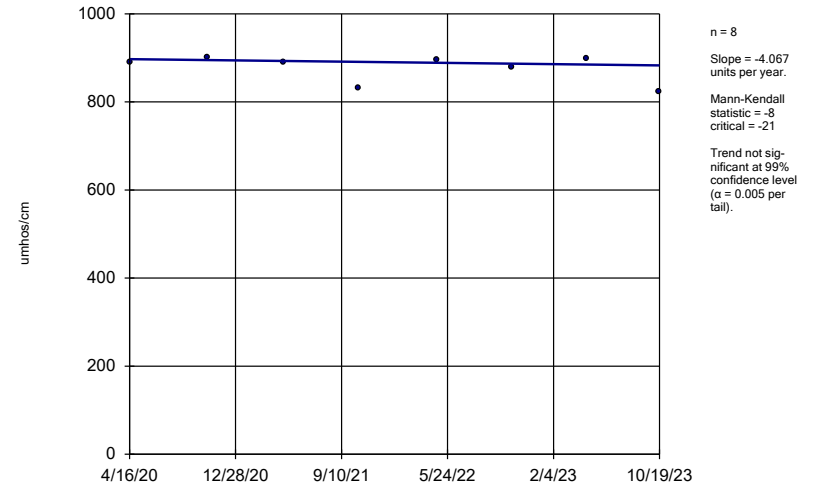
MW-203R (bg)



Constituent: Specific Conductance Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

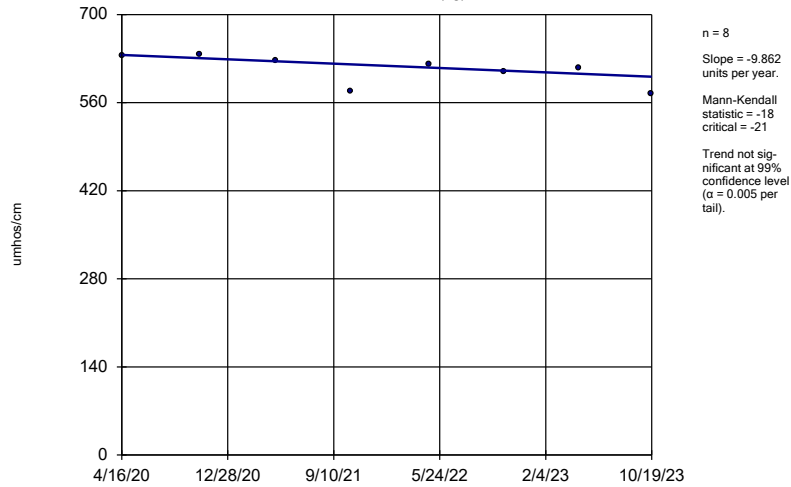
MW-204



Constituent: Specific Conductance Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

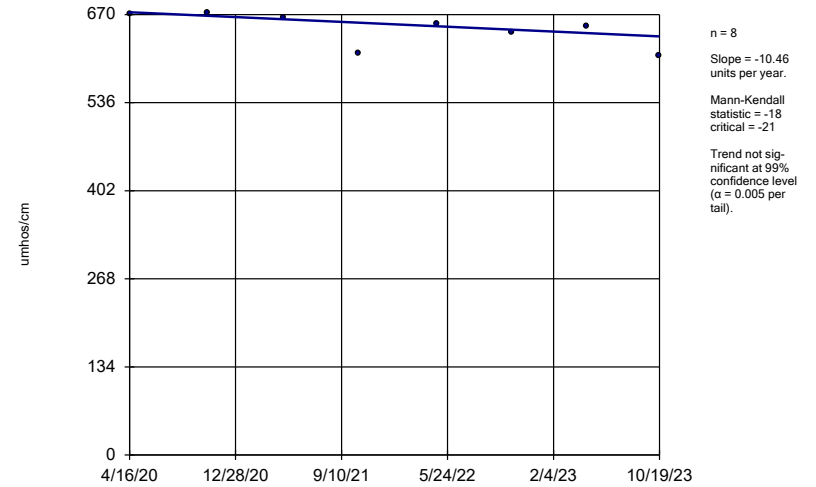
MW-205 (bg)



Constituent: Specific Conductance Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

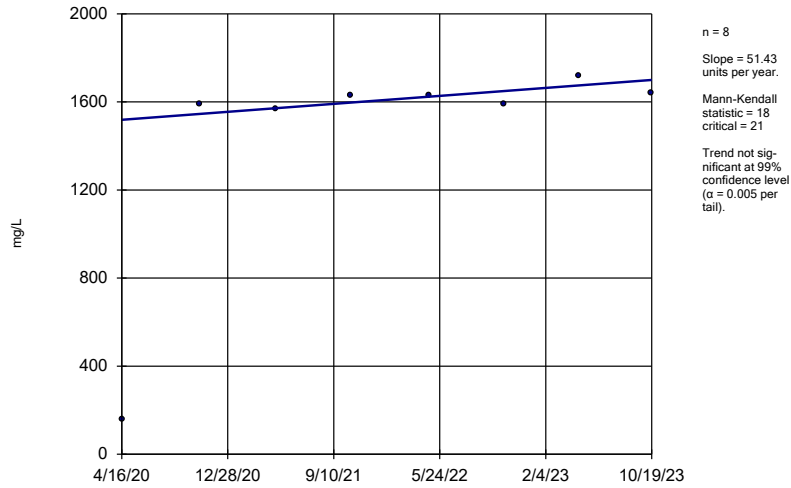
MW-206



Constituent: Specific Conductance Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

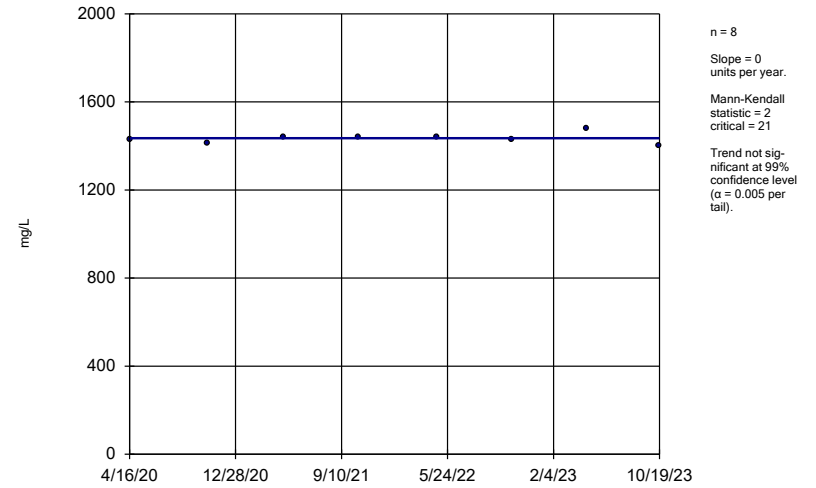
LDR-1



Constituent: Sulfate Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

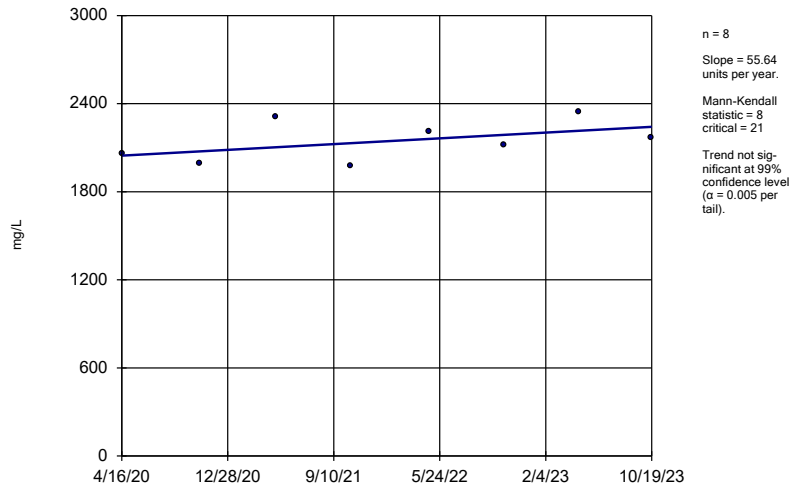
LDR-2



Constituent: Sulfate Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

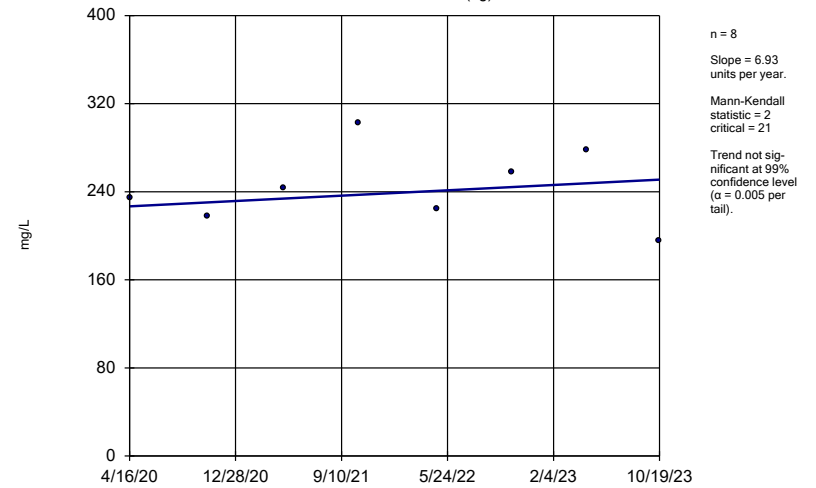
LDR-3



Constituent: Sulfate Analysis Run 11/7/2023 3:14 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

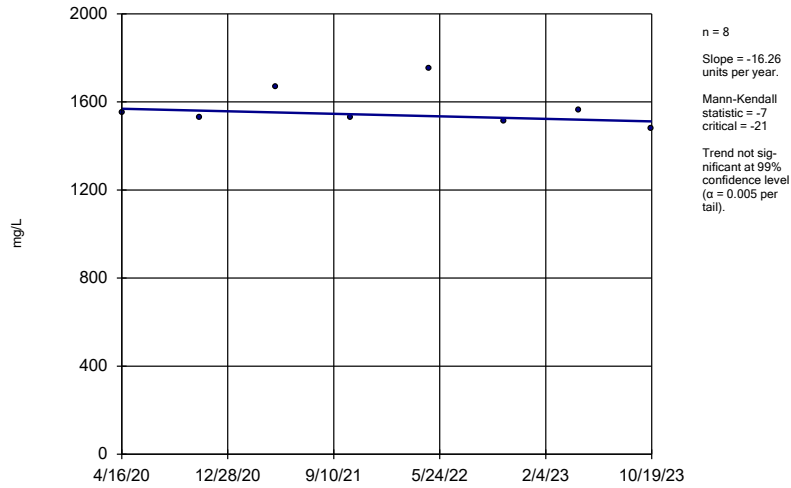
MW-101R-NP (bg)



Constituent: Sulfate Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

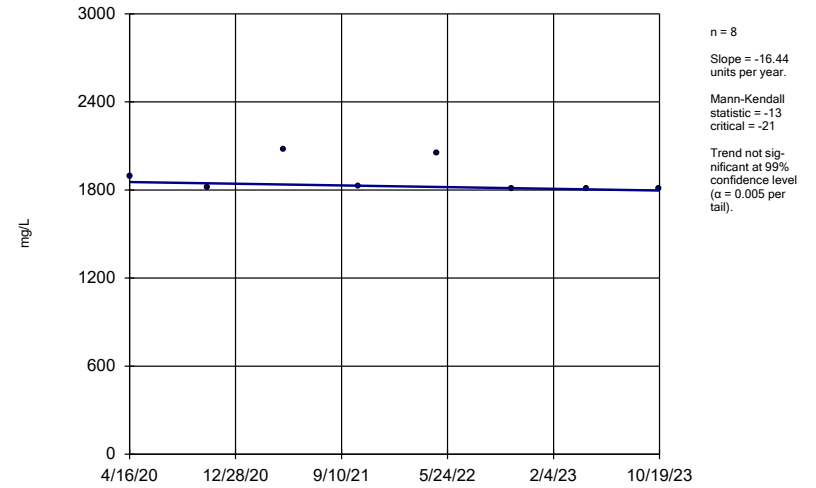
MW-102R-NP



Constituent: Sulfate Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

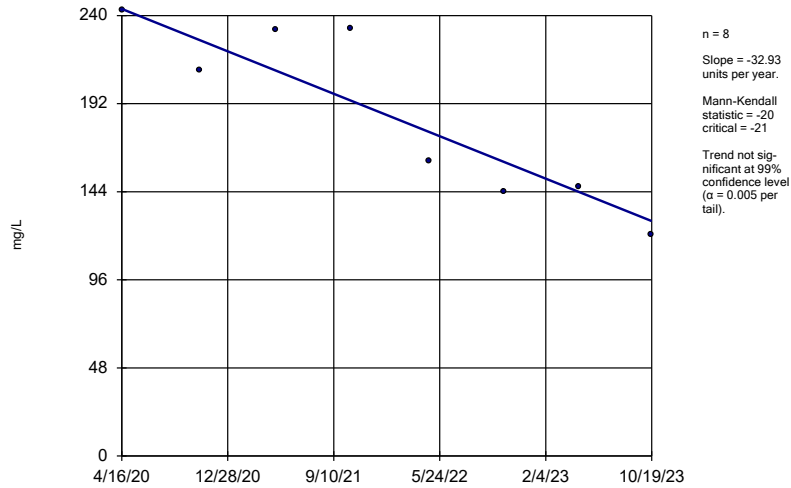
MW-103R-NP



Constituent: Sulfate Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

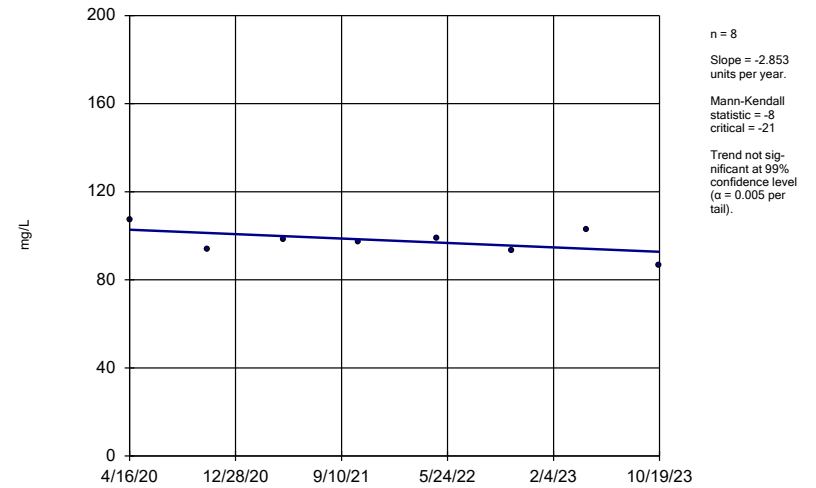
MW-201



Constituent: Sulfate Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

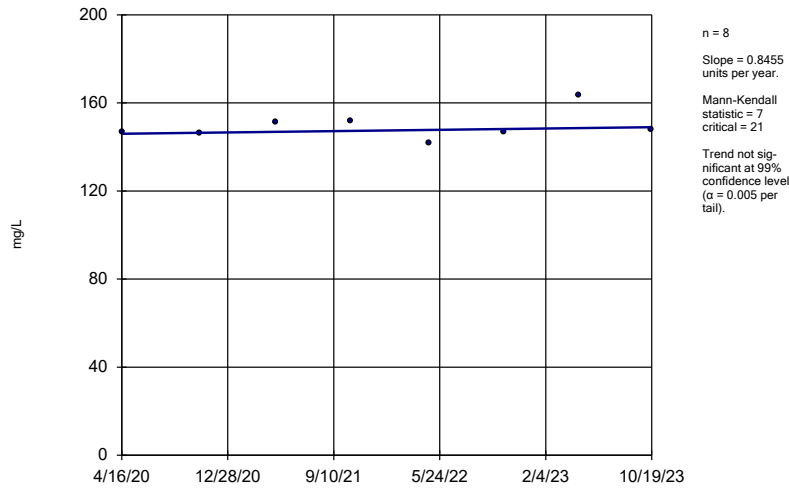
MW-202R



Constituent: Sulfate Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

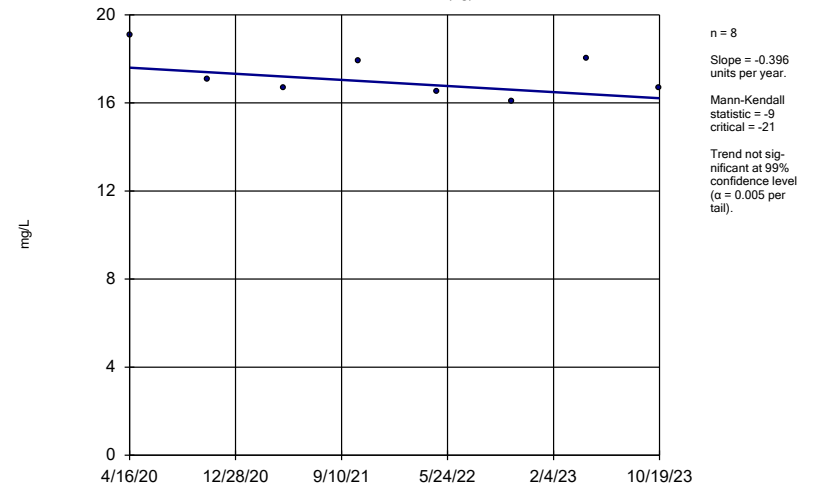
MW-204



Constituent: Sulfate Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

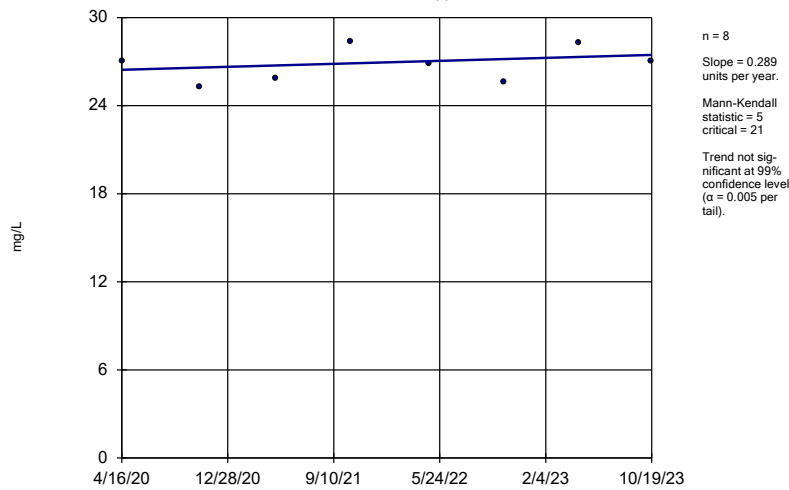
MW-205 (bg)



Constituent: Sulfate Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

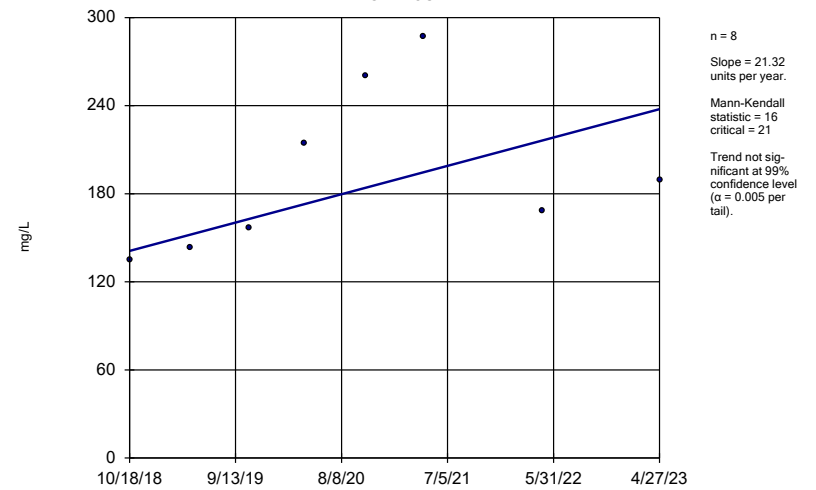
MW-206



Constituent: Sulfate Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

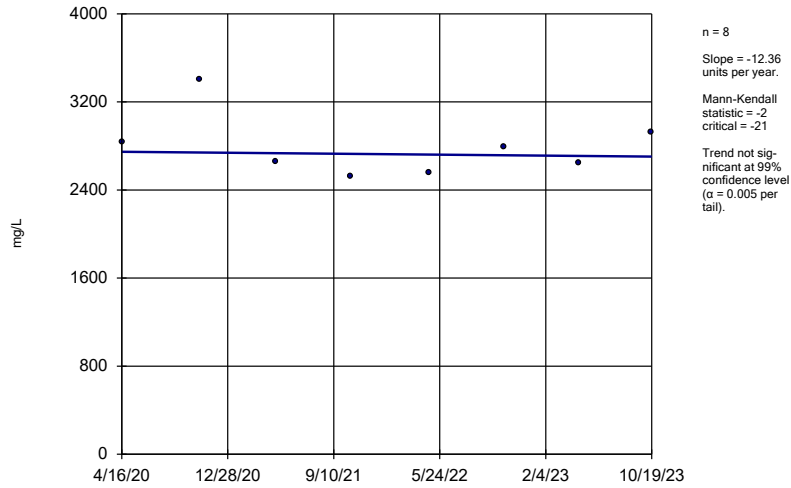
SW-1/OUTFALL4



Constituent: Sulfate Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

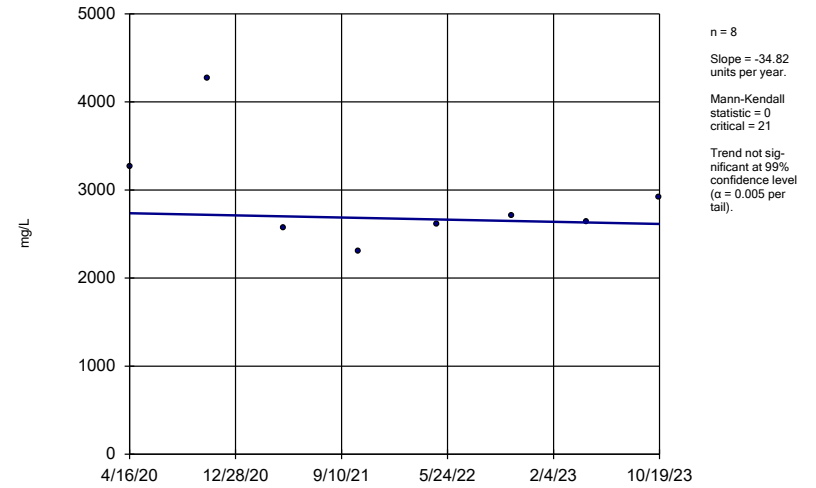
LDR-1



Constituent: Total Dissolved Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

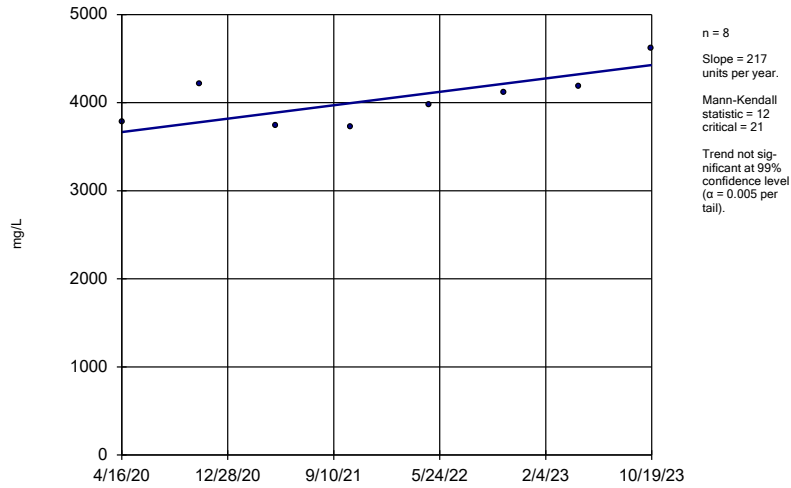
LDR-2



Constituent: Total Dissolved Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

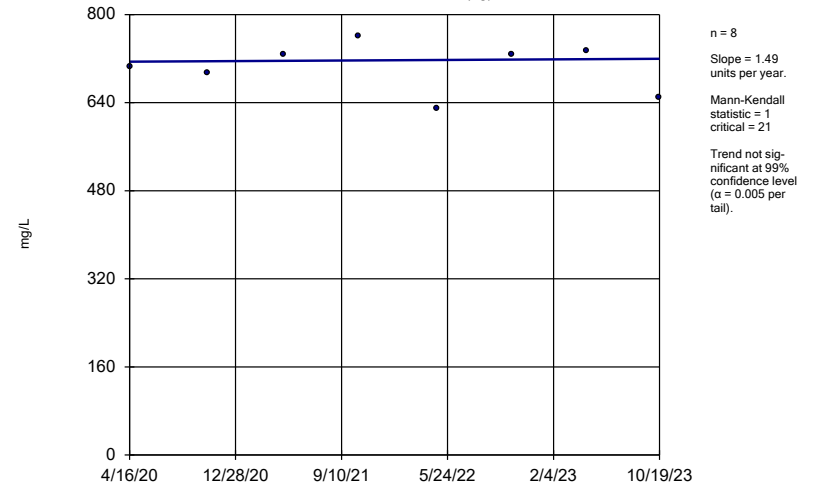
LDR-3



Constituent: Total Dissolved Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

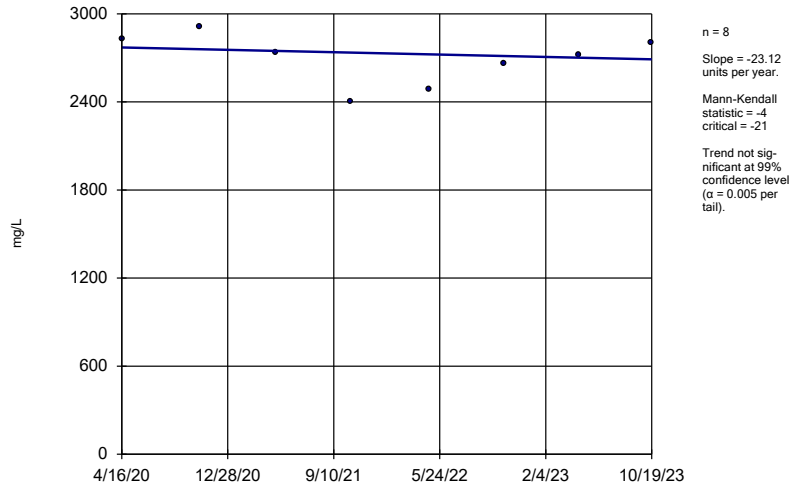
MW-101R-NP (bg)



Constituent: Total Dissolved Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

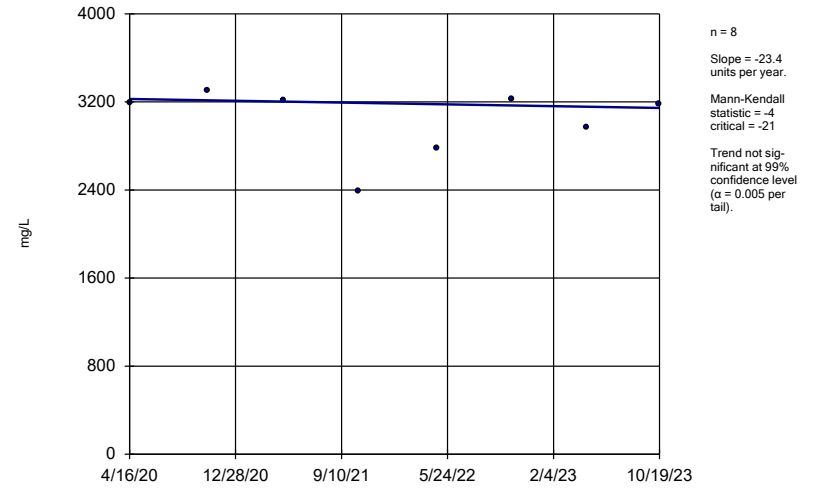
MW-102R-NP



Constituent: Total Dissolved Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

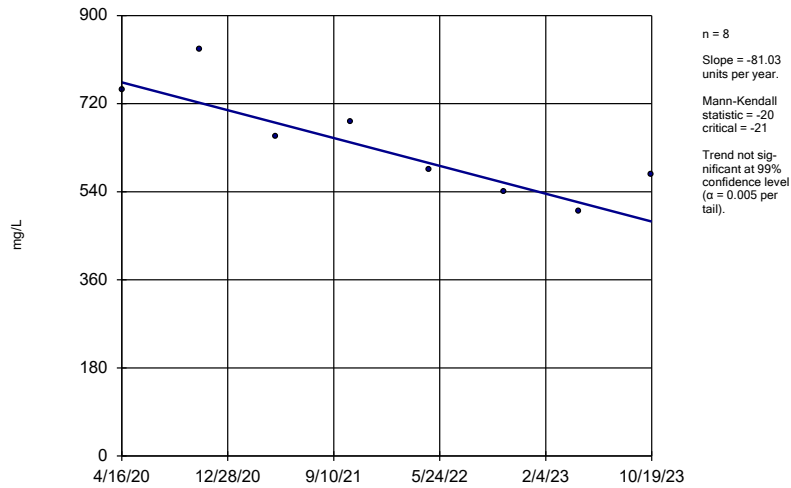
MW-103R-NP



Constituent: Total Dissolved Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

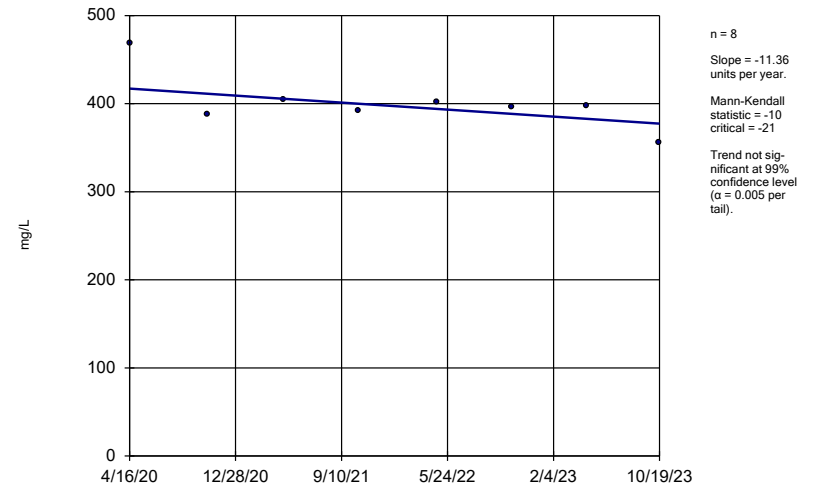
MW-201



Constituent: Total Dissolved Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

MW-202R

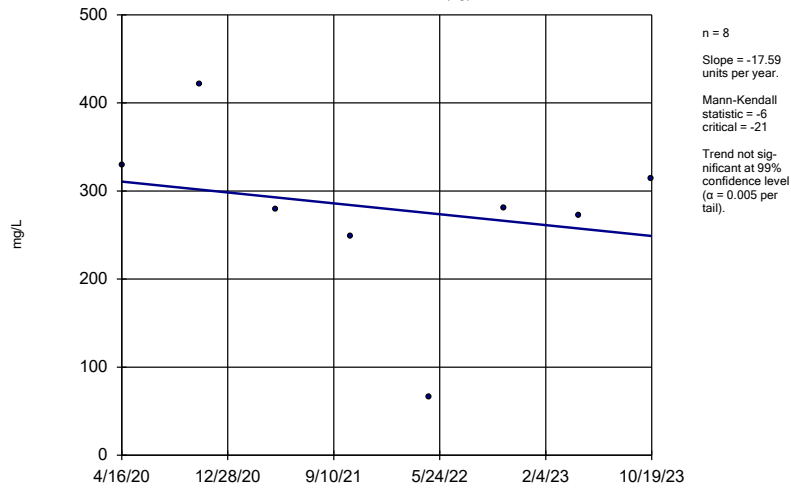


Constituent: Total Dissolved Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023



### Sen's Slope Estimator

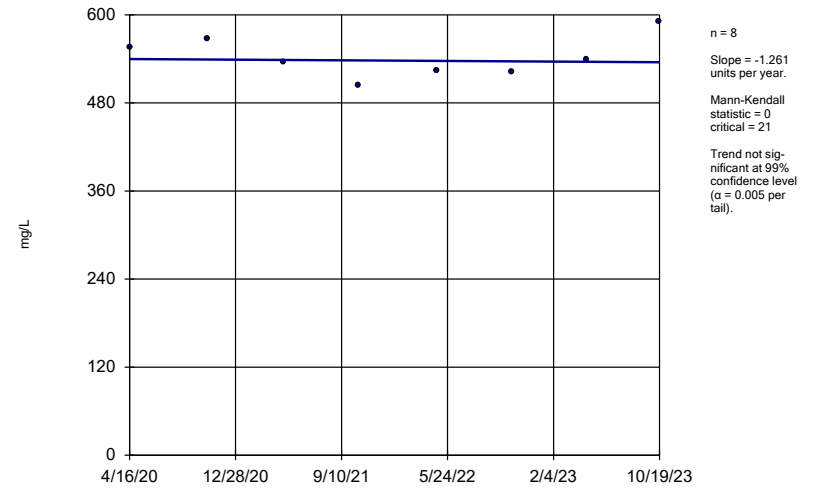
MW-203R (bg)



Constituent: Total Dissolved Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

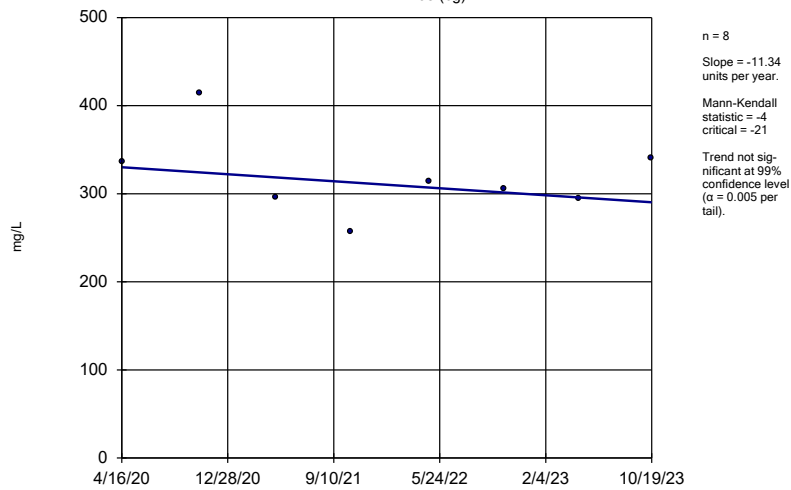
MW-204



Constituent: Total Dissolved Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

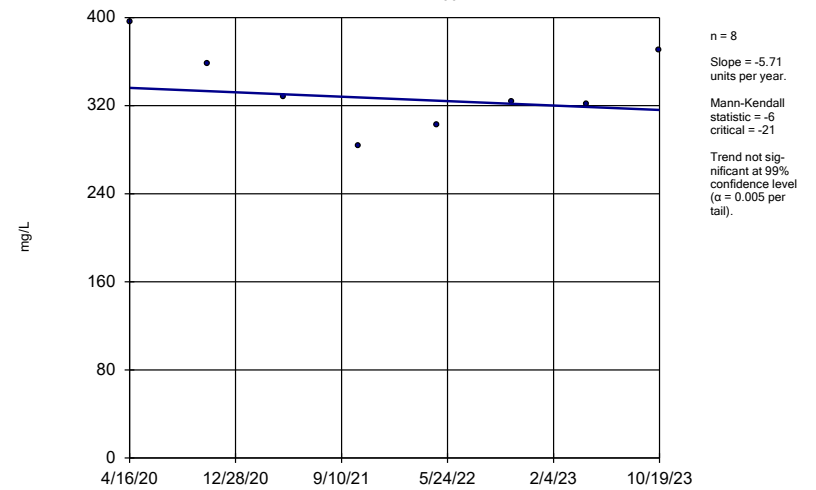
MW-205 (bg)



Constituent: Total Dissolved Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

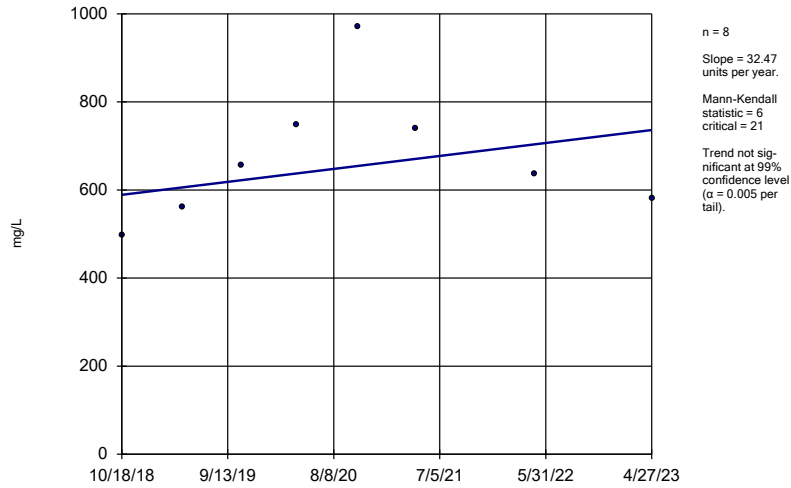
MW-206



Constituent: Total Dissolved Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

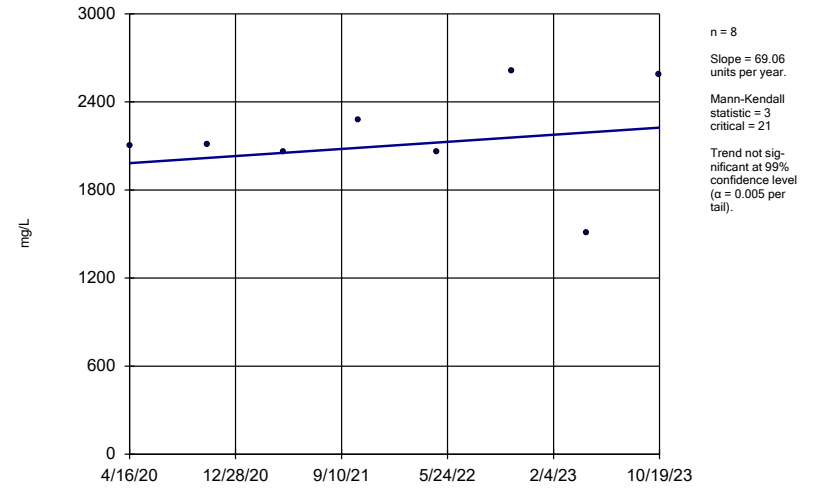
SW-1/OUTFALL4



Constituent: Total Dissolved Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

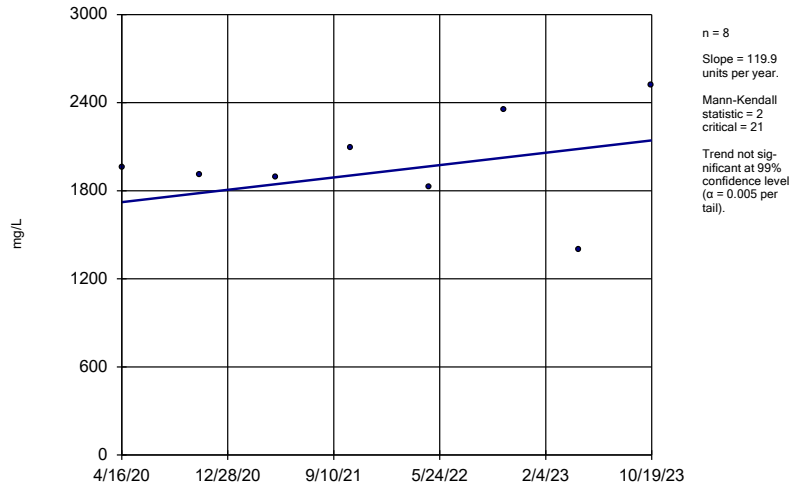
LDR-1



Constituent: Total Hardness Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

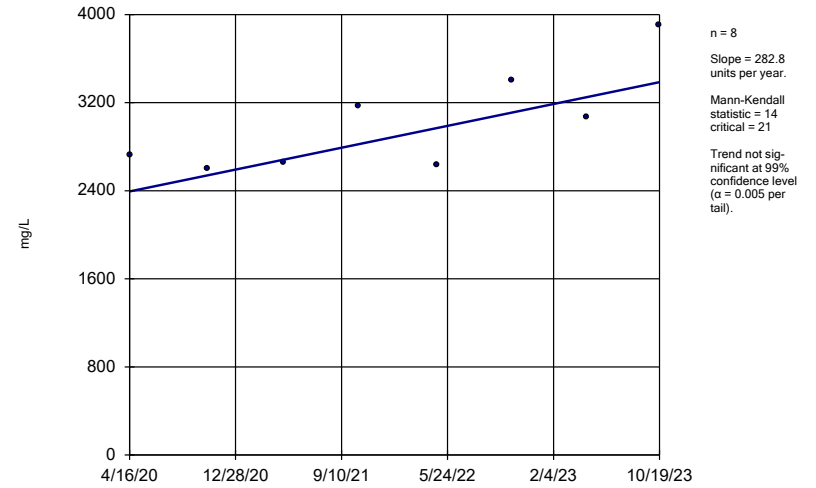
LDR-2



Constituent: Total Hardness Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

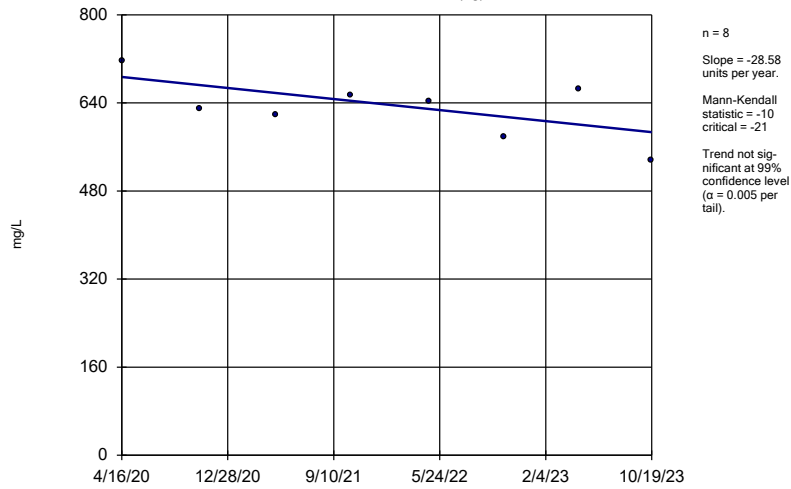
LDR-3



Constituent: Total Hardness Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

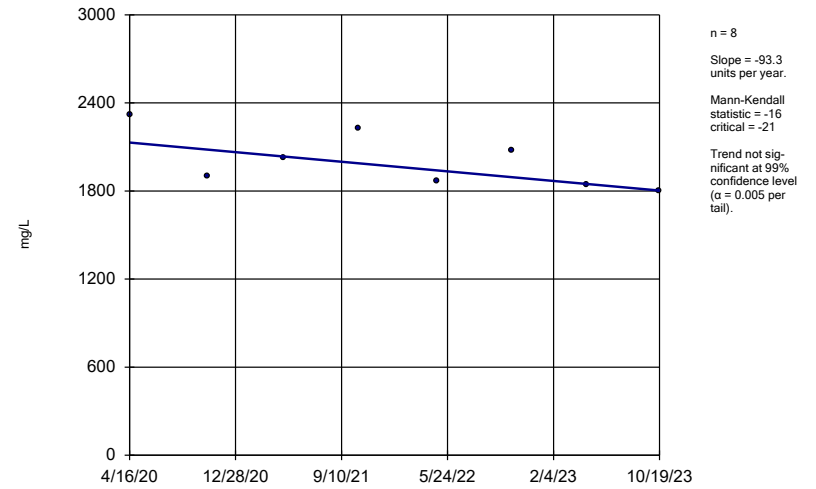
MW-101R-NP (bg)



Constituent: Total Hardness Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

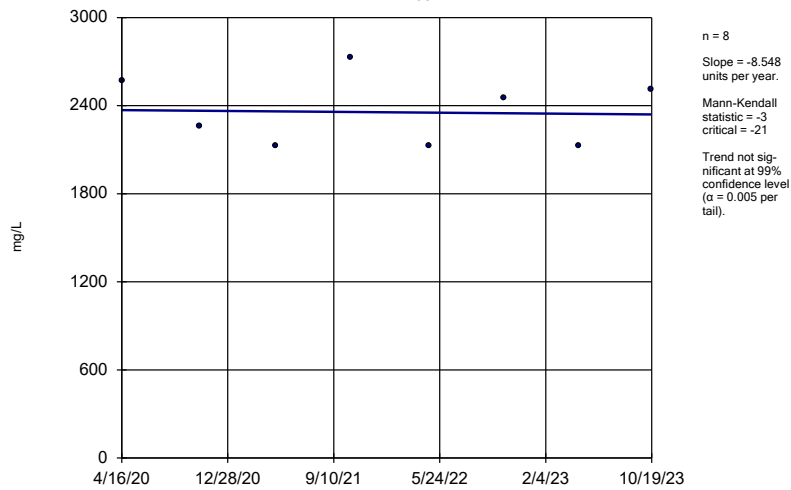
MW-102R-NP



Constituent: Total Hardness Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

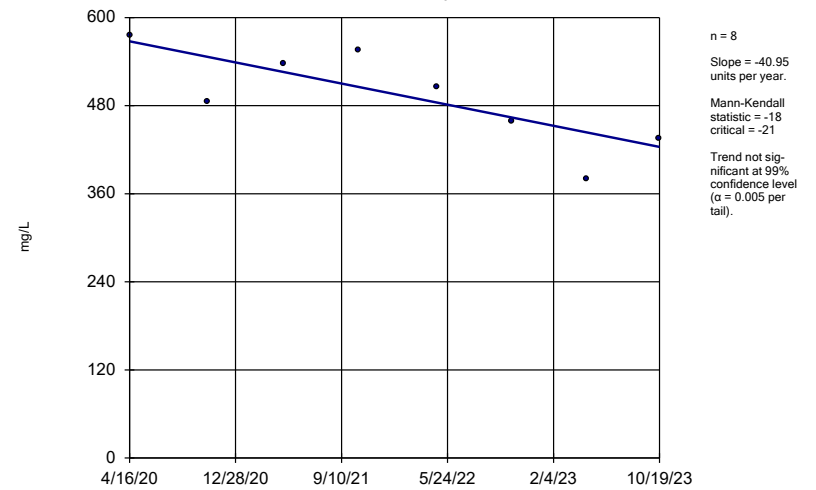
MW-103R-NP



Constituent: Total Hardness Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

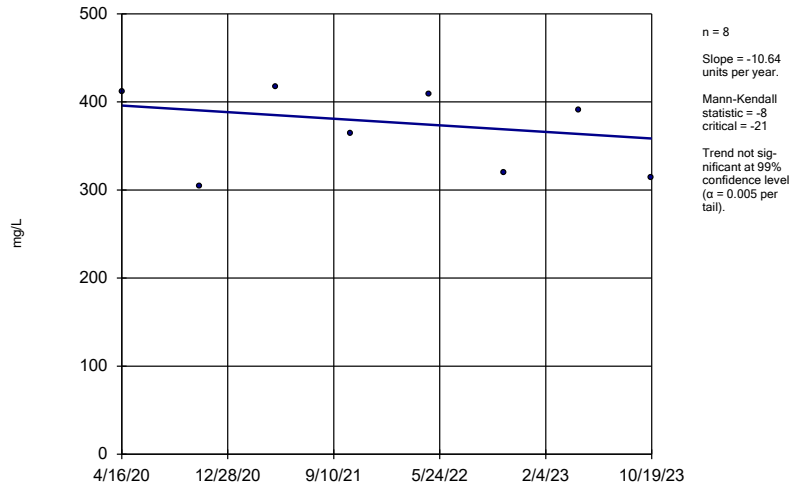
MW-201



Constituent: Total Hardness Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

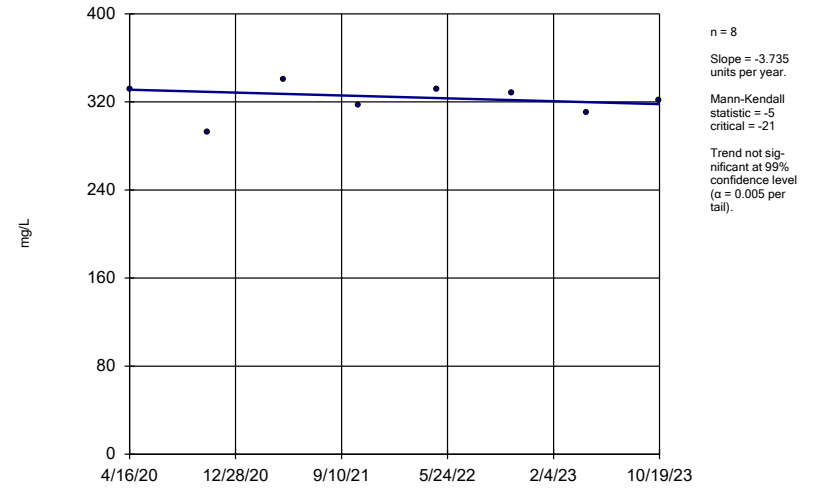
MW-202R



Constituent: Total Hardness Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

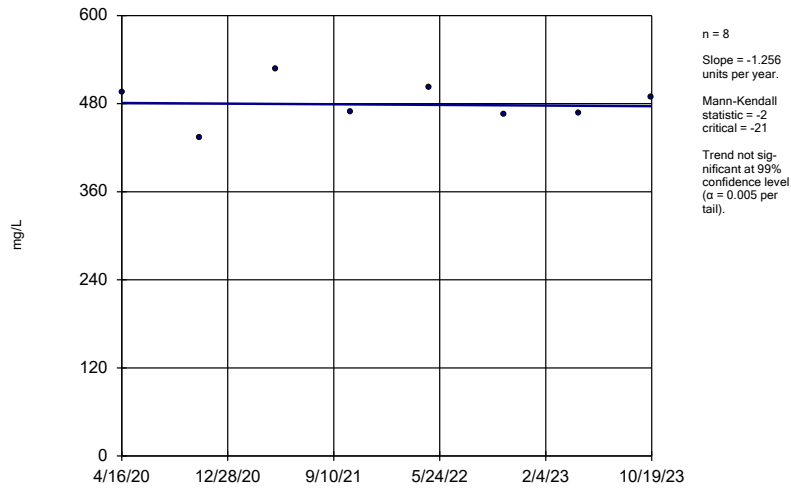
MW-203R (bg)



Constituent: Total Hardness Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

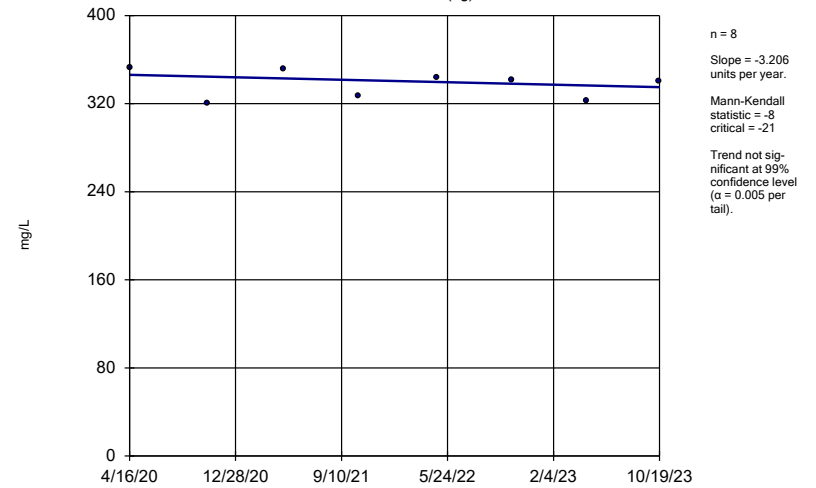
MW-204



Constituent: Total Hardness Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

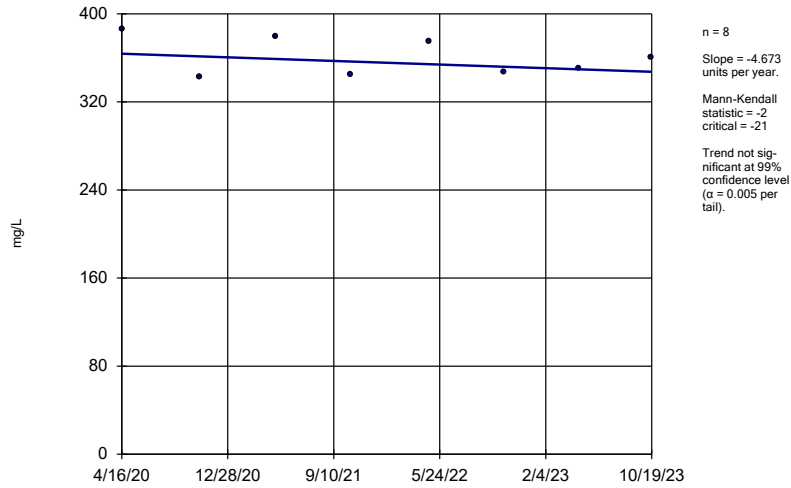
MW-205 (bg)



Constituent: Total Hardness Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

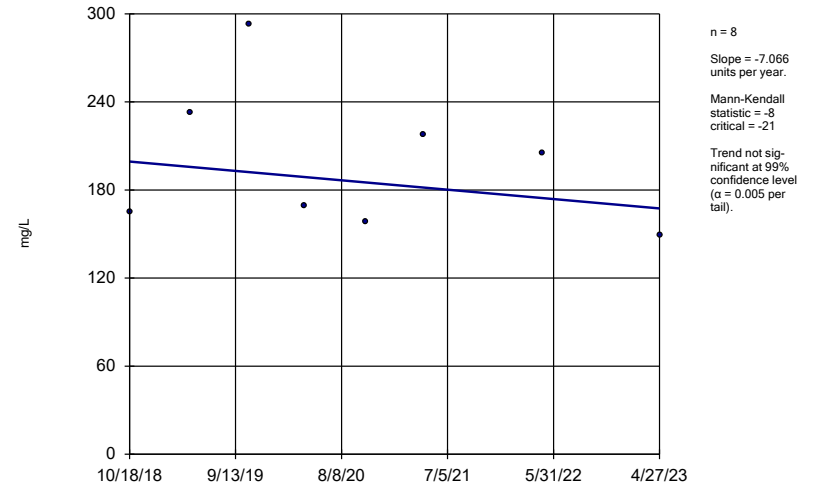
MW-206



Constituent: Total Hardness Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

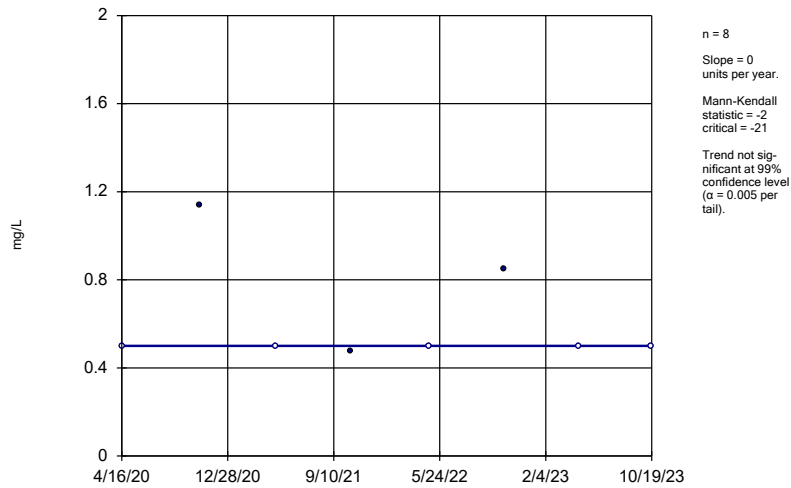
SW-1/OUTFALL4



Constituent: Total Hardness Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

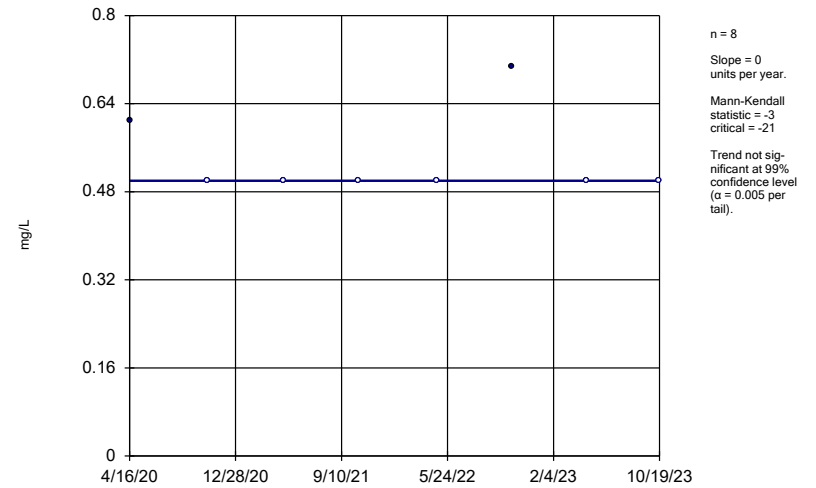
LDR-1



Constituent: Total Kjeldahl Nitrogen Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

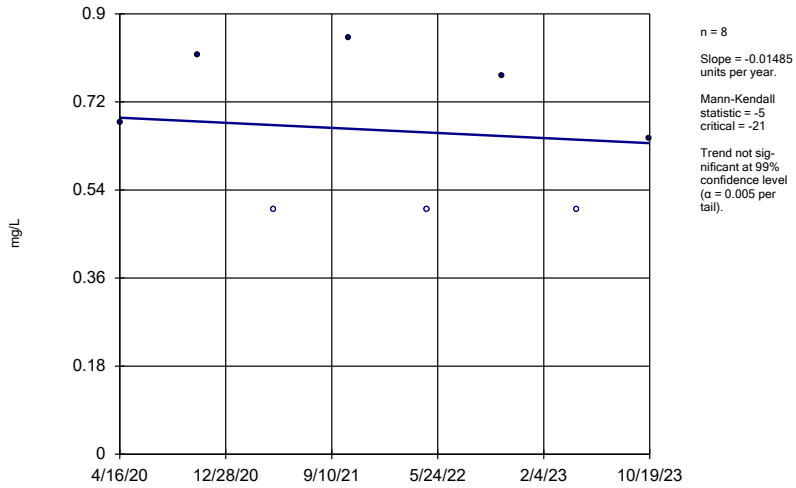
LDR-3



Constituent: Total Kjeldahl Nitrogen Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

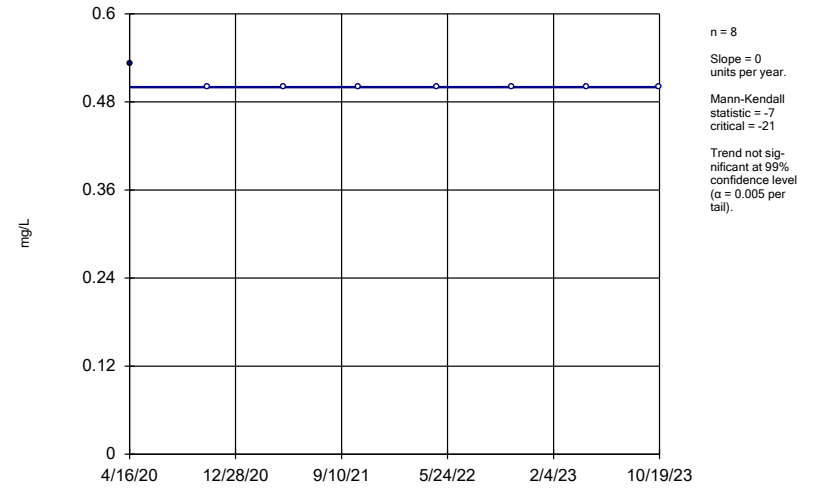
MW-201



Constituent: Total Kjeldahl Nitrogen Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

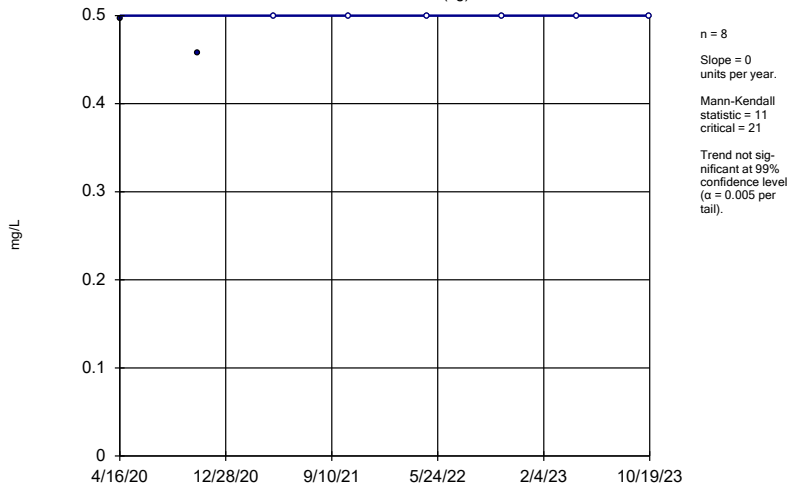
MW-202R



Constituent: Total Kjeldahl Nitrogen Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

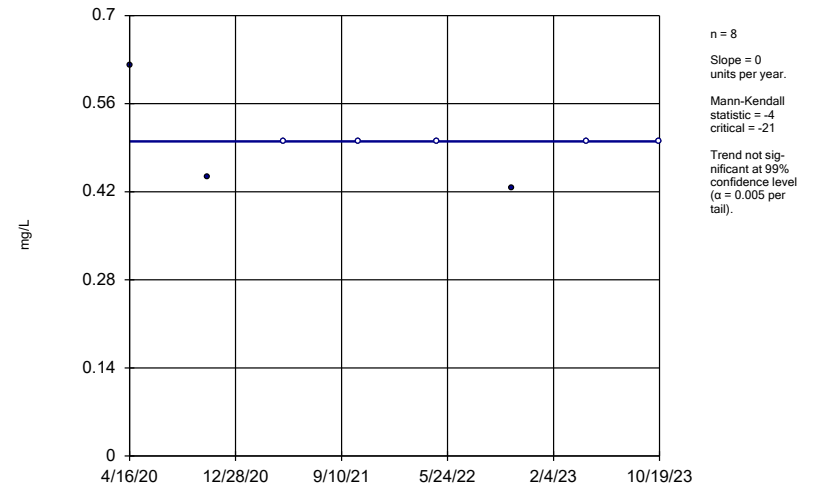
MW-203R (bg)



Constituent: Total Kjeldahl Nitrogen Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

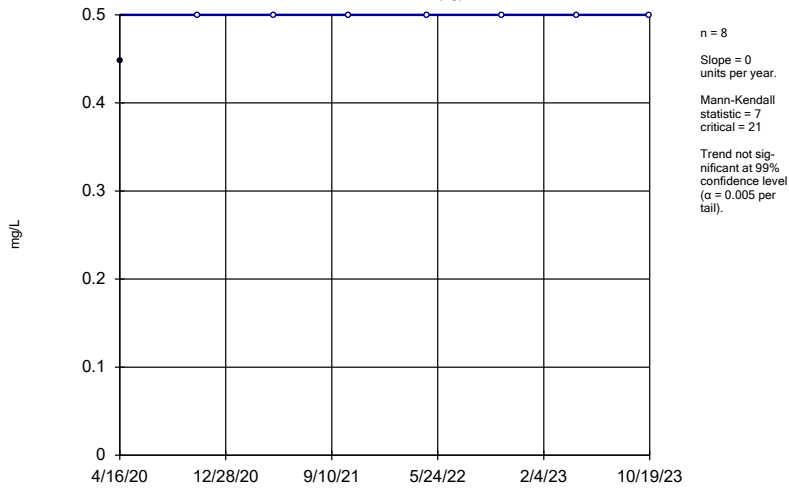
MW-204



Constituent: Total Kjeldahl Nitrogen Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

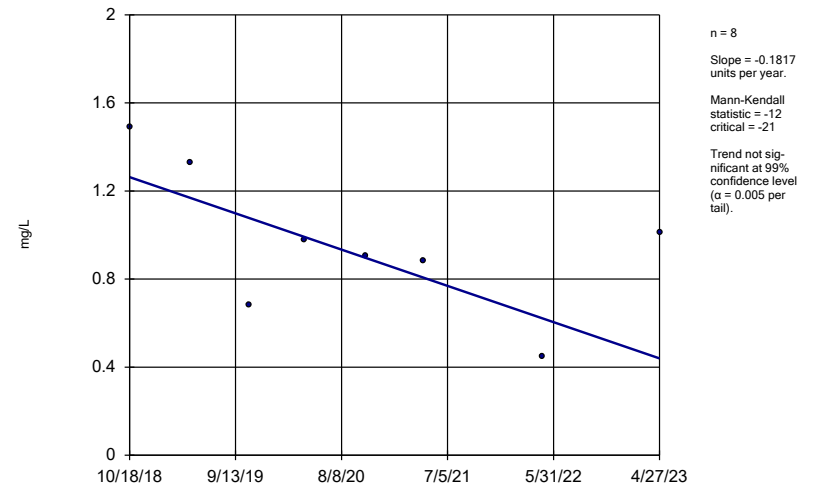
MW-205 (bg)



Constituent: Total Kjeldahl Nitrogen Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

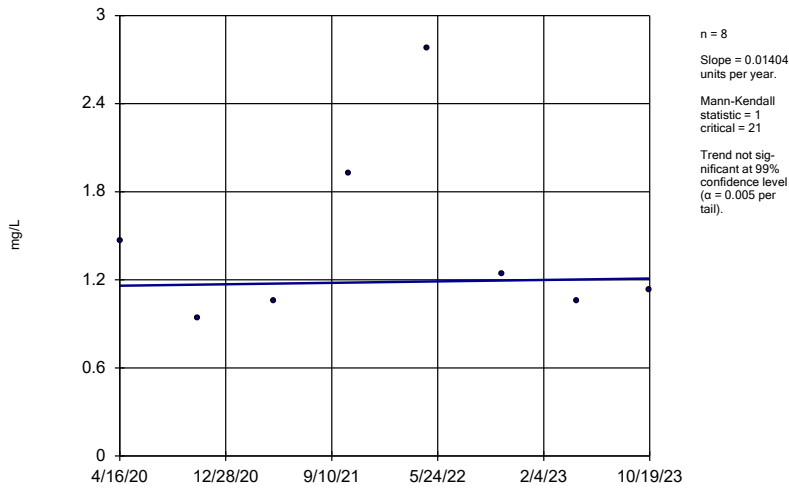
SW-1/OUTFALL4



Constituent: Total Kjeldahl Nitrogen Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

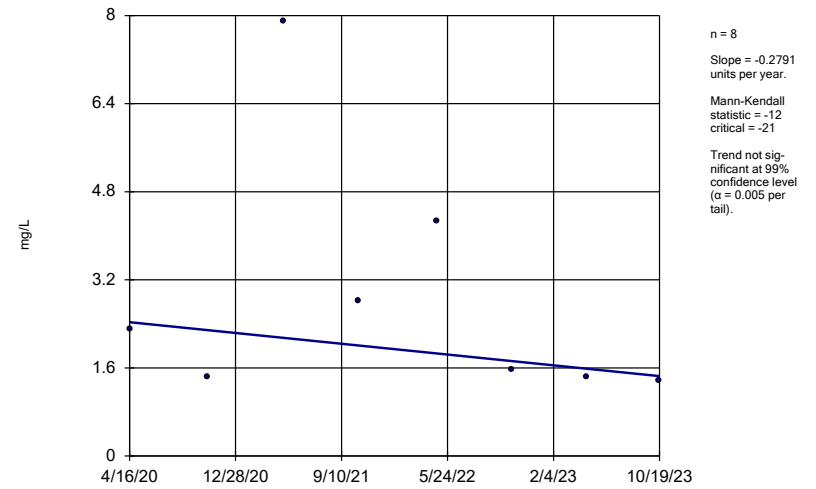
LDR-1



Constituent: Total Organic Carbon Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

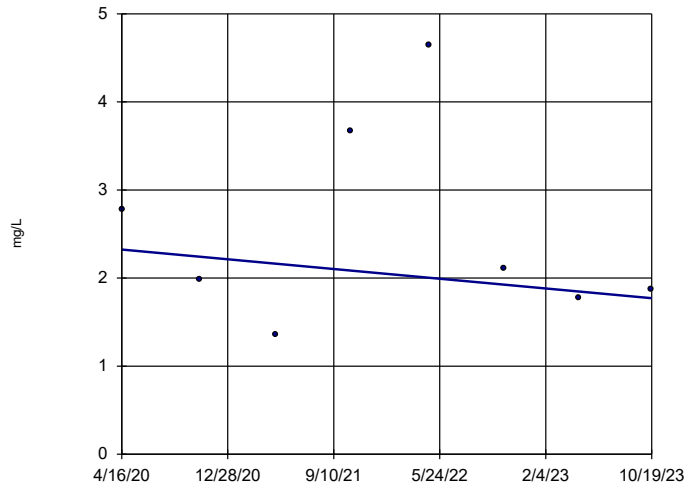
LDR-2



Constituent: Total Organic Carbon Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

LDR-3

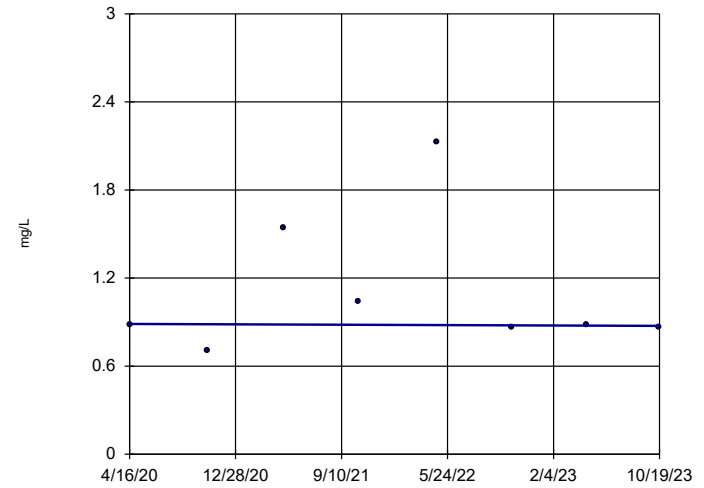


n = 8  
 Slope = -0.1574 units per year.  
 Mann-Kendall statistic = -4  
 critical = -21  
 Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Organic Carbon Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

MW-101R-NP (bg)

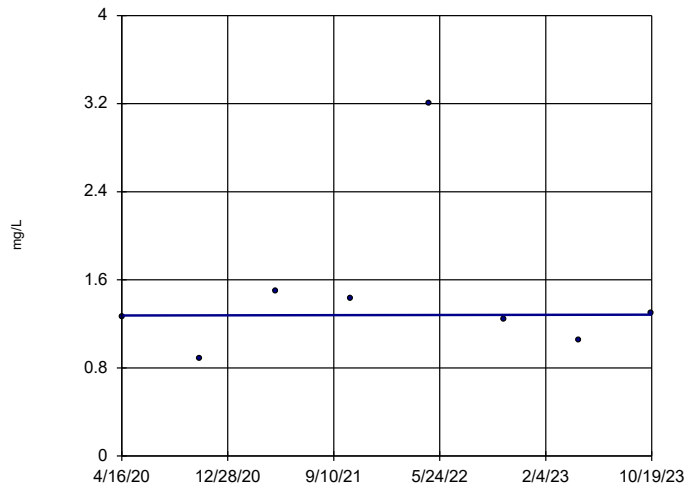


n = 8  
 Slope = -0.003554 units per year.  
 Mann-Kendall statistic = -3  
 critical = -21  
 Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Organic Carbon Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

MW-102R-NP

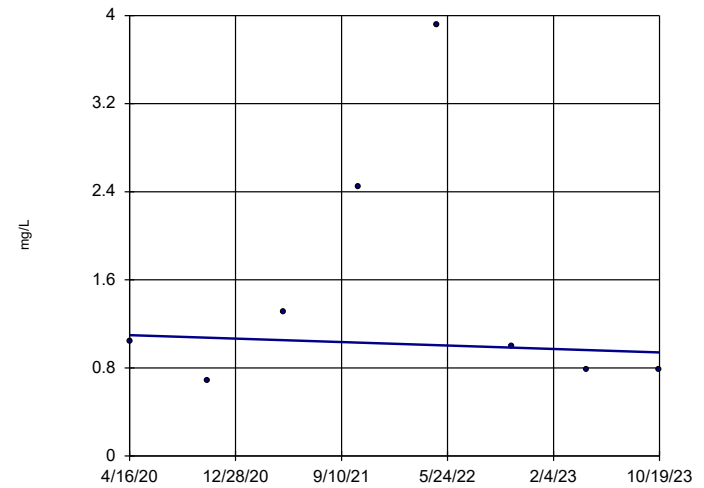


n = 8  
 Slope = 0.001748 units per year.  
 Mann-Kendall statistic = 0  
 critical = 21  
 Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Organic Carbon Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

MW-103R-NP



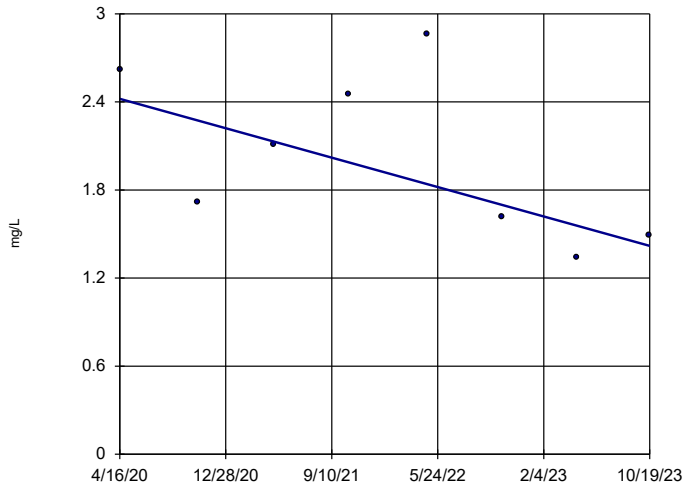
n = 8  
 Slope = -0.04473 units per year.  
 Mann-Kendall statistic = -2  
 critical = -21  
 Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Organic Carbon Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023



### Sen's Slope Estimator

MW-201

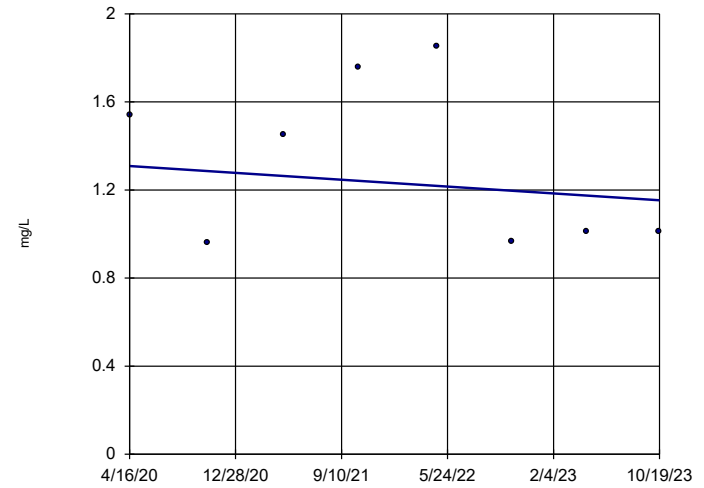


n = 8  
 Slope = -0.2853 units per year.  
 Mann-Kendall statistic = -12  
 critical = -21  
 Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Organic Carbon Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

MW-202R

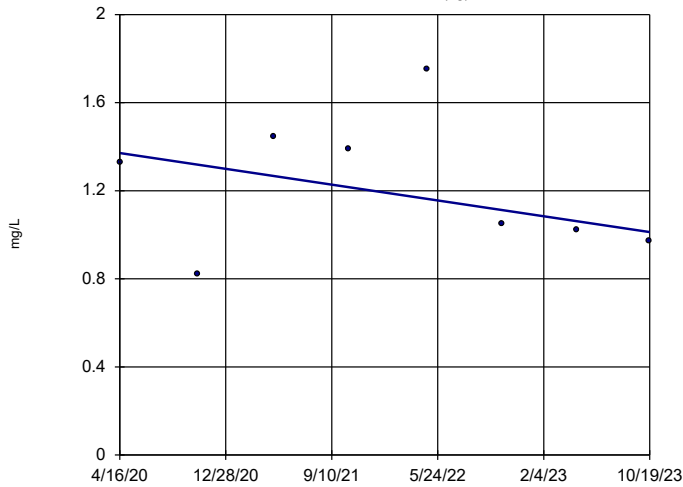


n = 8  
 Slope = -0.04427 units per year.  
 Mann-Kendall statistic = -1  
 critical = -21  
 Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Organic Carbon Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

MW-203R (bg)

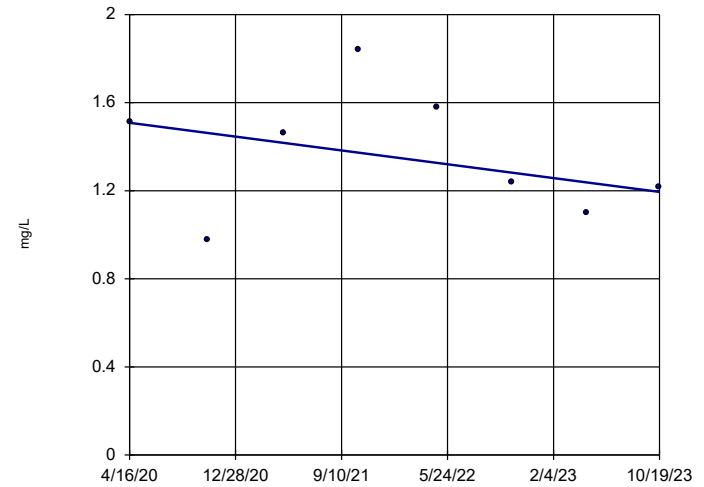


n = 8  
 Slope = -0.1022 units per year.  
 Mann-Kendall statistic = -6  
 critical = -21  
 Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Organic Carbon Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

MW-204

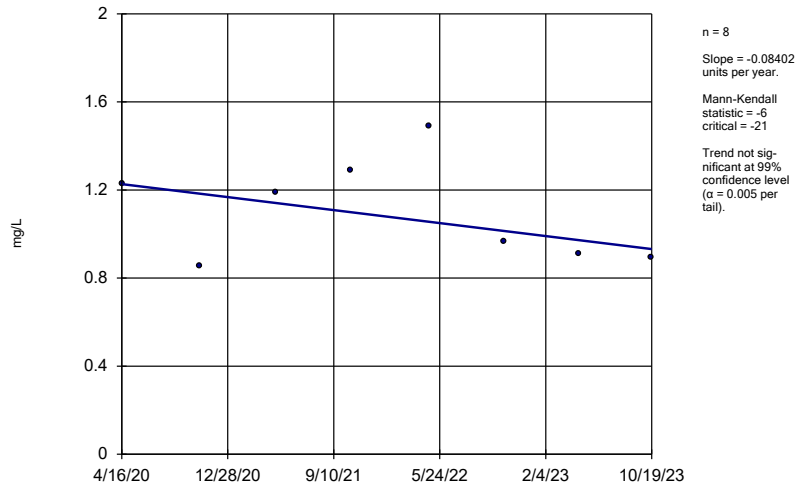


n = 8  
 Slope = -0.08945 units per year.  
 Mann-Kendall statistic = -6  
 critical = -21  
 Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Organic Carbon Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

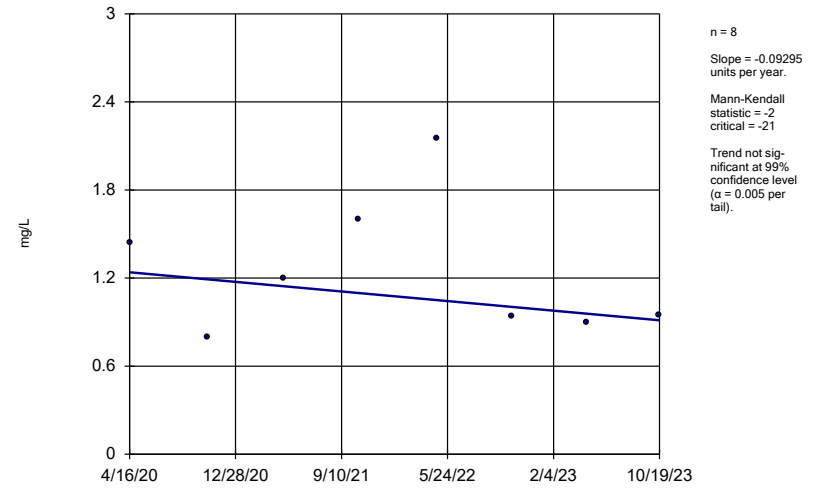
MW-205 (bg)



Constituent: Total Organic Carbon Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

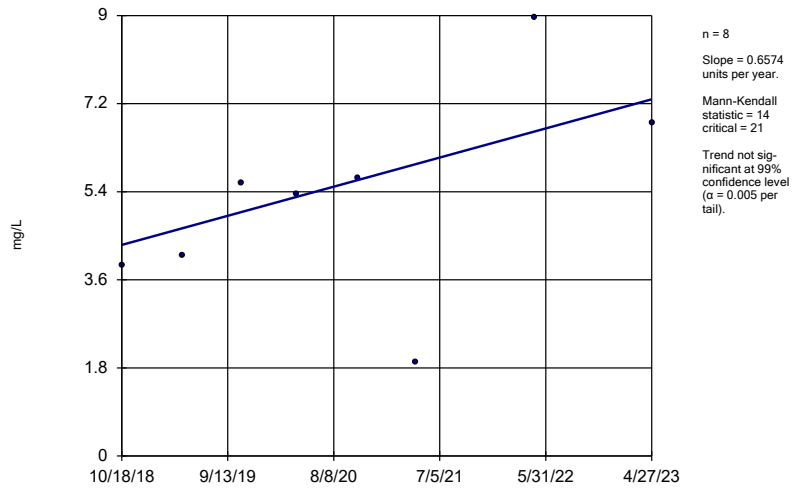
MW-206



Constituent: Total Organic Carbon Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

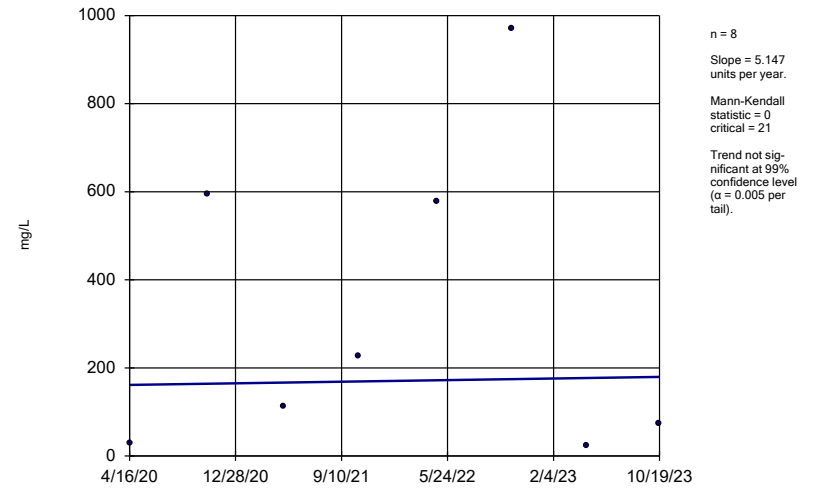
SW-1/OUTFALL4



Constituent: Total Organic Carbon Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

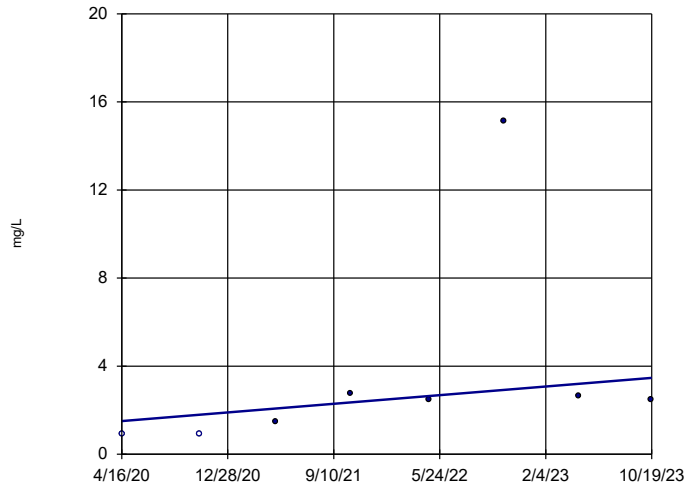
LDR-1



Constituent: Total Suspended Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

LDR-2

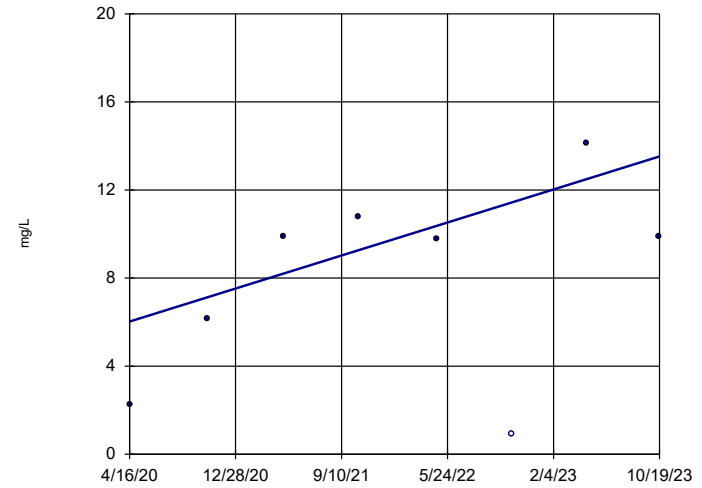


n = 8  
Slope = 0.5594 units per year.  
Mann-Kendall statistic = 14  
critical = 21  
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Suspended Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

LDR-3

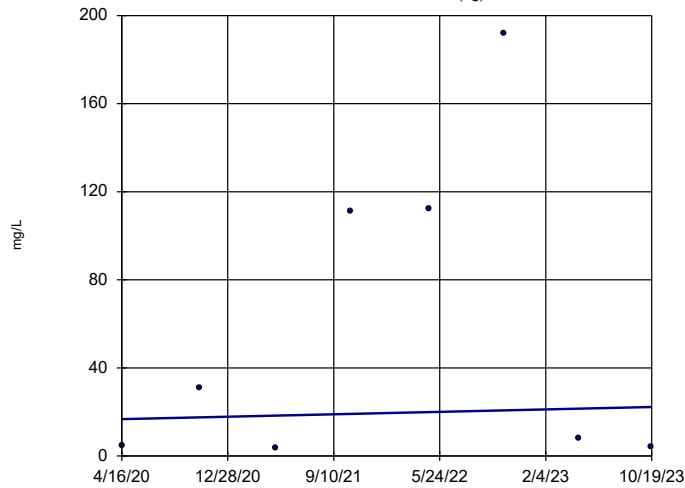


n = 8  
Slope = 2.136 units per year.  
Mann-Kendall statistic = 9  
critical = 21  
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Suspended Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

MW-101R-NP (bg)

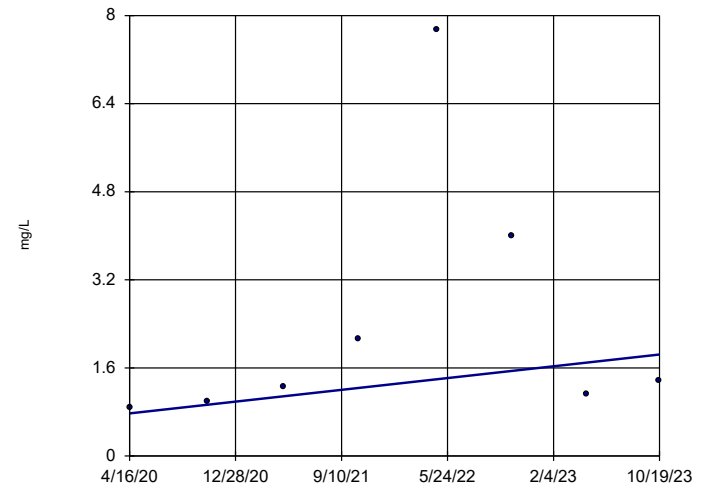


n = 8  
Slope = 1.565 units per year.  
Mann-Kendall statistic = 4  
critical = 21  
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Suspended Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

MW-102R-NP

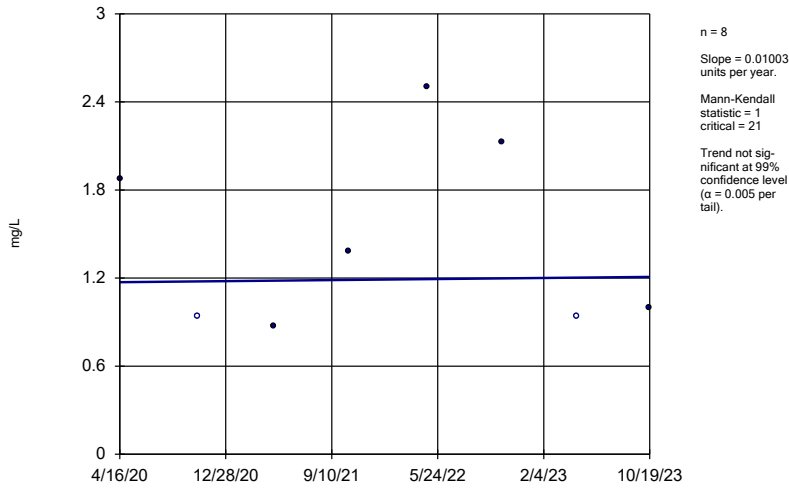


n = 8  
Slope = 0.3052 units per year.  
Mann-Kendall statistic = 12  
critical = 21  
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Suspended Solids Analysis Run 11/7/2023 3:15 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

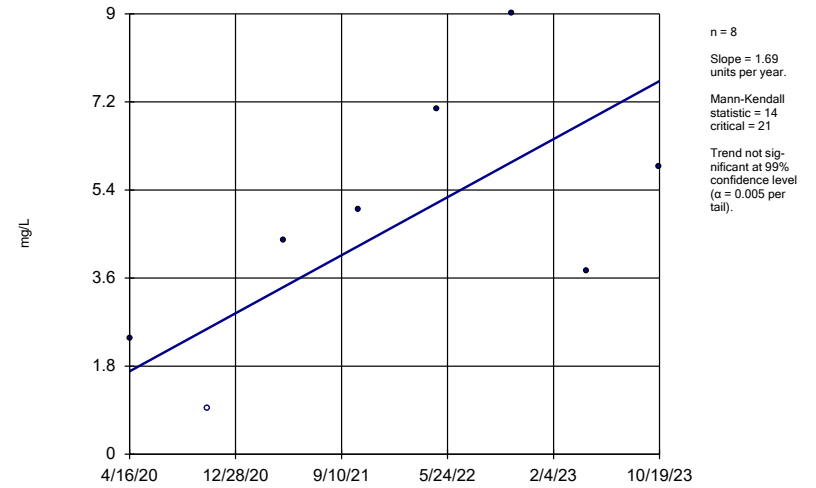
MW-103R-NP



Constituent: Total Suspended Solids Analysis Run 11/7/2023 3:16 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

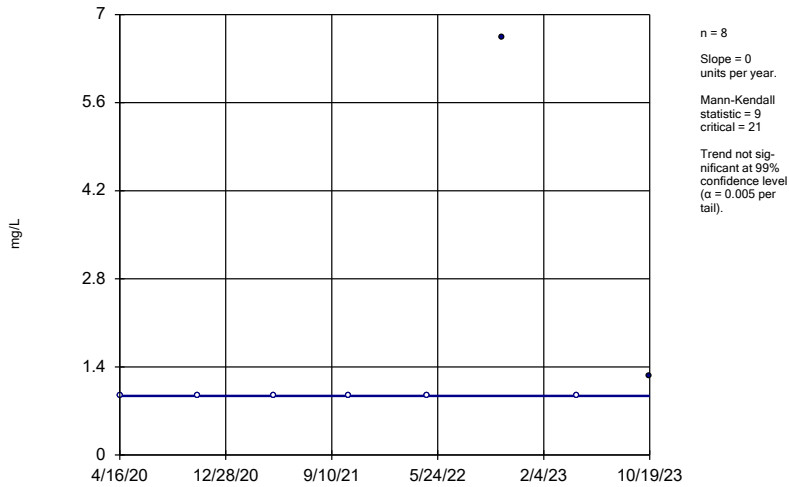
MW-201



Constituent: Total Suspended Solids Analysis Run 11/7/2023 3:16 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

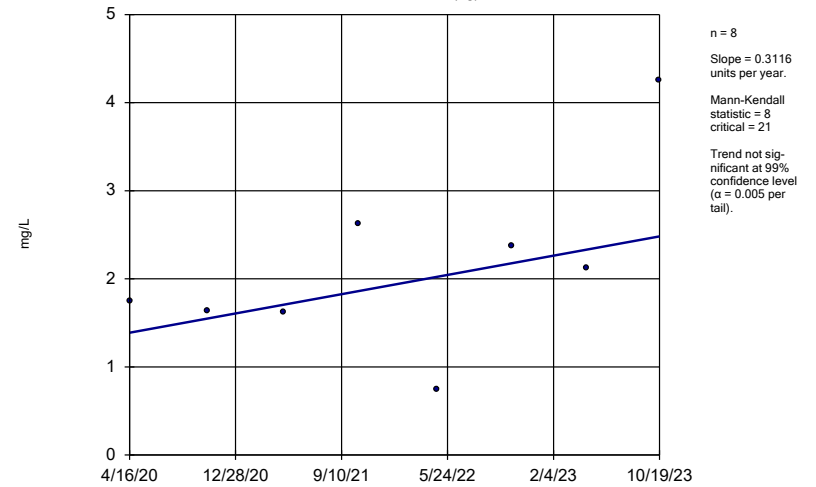
MW-202R



Constituent: Total Suspended Solids Analysis Run 11/7/2023 3:16 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

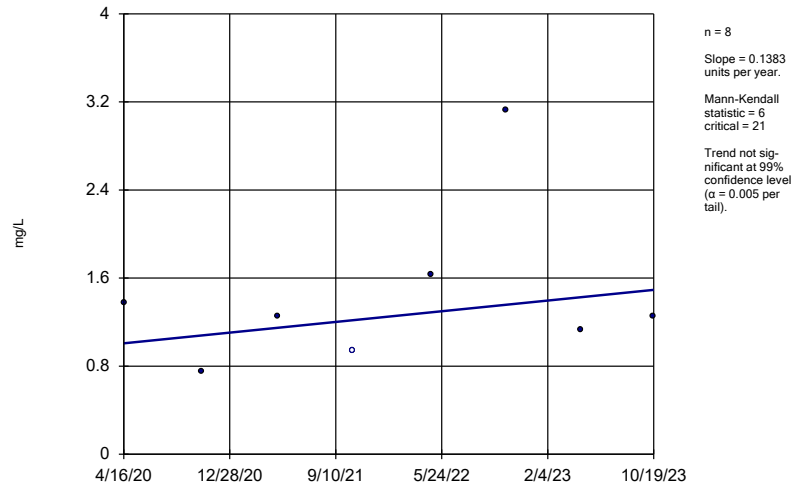
MW-203R (bg)



Constituent: Total Suspended Solids Analysis Run 11/7/2023 3:16 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

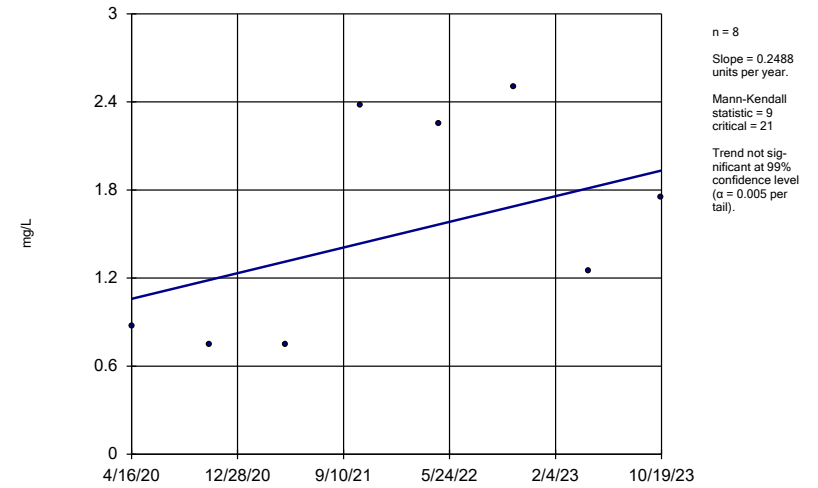
MW-204



Constituent: Total Suspended Solids Analysis Run 11/7/2023 3:16 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

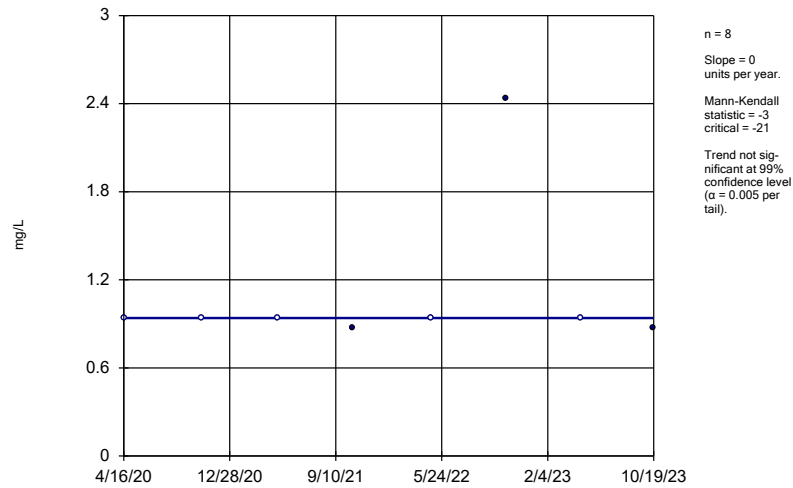
MW-205 (bg)



Constituent: Total Suspended Solids Analysis Run 11/7/2023 3:16 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

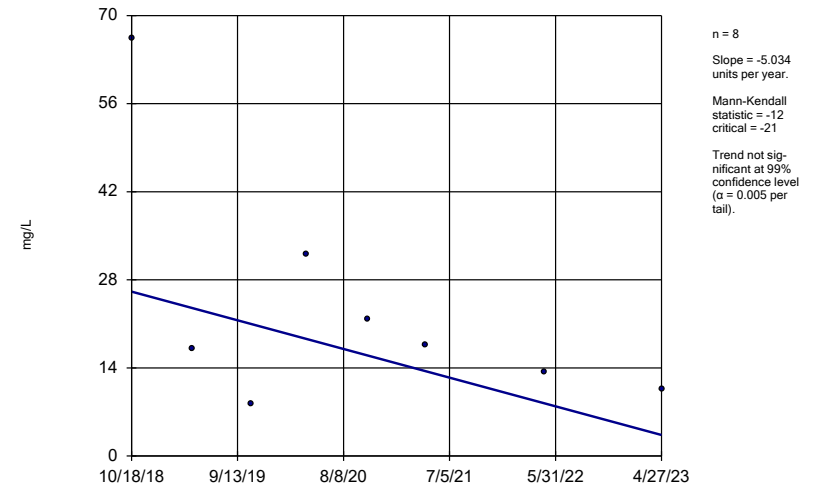
MW-206



Constituent: Total Suspended Solids Analysis Run 11/7/2023 3:16 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

### Sen's Slope Estimator

SW-1/OUTFALL4



Constituent: Total Suspended Solids Analysis Run 11/7/2023 3:16 PM View: 2023AWQR - Mann Kendall  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master flat-AM2023

Attachment B

Control Limits

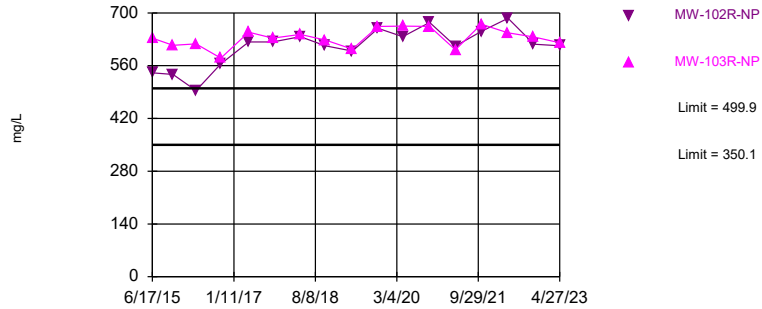
# Spring Clay Control Limit

CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master Printed 11/7/2023, 2:43 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Trans...</u>	<u>Alpha</u>
<b>Alkalinity, Total [CaCO3] (mg/L)</b>	<b>MW-102R-NP</b>	<b>499.9</b>	<b>350.1</b>	<b>4/27/2023</b>	<b>613</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.0001558</b>
<b>Alkalinity, Total [CaCO3] (mg/L)</b>	<b>MW-103R-NP</b>	<b>499.9</b>	<b>350.1</b>	<b>4/27/2023</b>	<b>621</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.0001558</b>
<b>Bicarbonate (mg/L)</b>	<b>MW-102R-NP</b>	<b>503.8</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>613</b>	<b>Yes</b>	<b>7</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Bicarbonate (mg/L)</b>	<b>MW-103R-NP</b>	<b>503.8</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>621</b>	<b>Yes</b>	<b>7</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Calcium (mg/L)</b>	<b>MW-102R-NP</b>	<b>235</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>386</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Calcium (mg/L)</b>	<b>MW-103R-NP</b>	<b>235</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>439</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Chloride (mg/L)	MW-102R-NP	15.11	n/a	4/27/2023	4.81J	No	31	19.35	No	0.0003117
<b>Chloride (mg/L)</b>	<b>MW-103R-NP</b>	<b>15.11</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>15.6</b>	<b>Yes</b>	<b>31</b>	<b>19.35</b>	<b>No</b>	<b>0.0003117</b>
<b>Magnesium (mg/L)</b>	<b>MW-102R-NP</b>	<b>132.6</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>212</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Magnesium (mg/L)</b>	<b>MW-103R-NP</b>	<b>132.6</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>250</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Nitrate/Nitrite as N (mg/L)</b>	<b>MW-103R-NP</b>	<b>0.1532</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>0.307</b>	<b>Yes</b>	<b>13</b>	<b>53.85</b>	<b>No</b>	<b>0.0003117</b>
pH (S.U.)	MW-102R-NP	8.587	6.298	4/27/2023	7.91	No	22	0	No	0.0001558
pH (S.U.)	MW-103R-NP	8.587	6.298	4/27/2023	7.9	No	22	0	No	0.0001558
Potassium (mg/L)	MW-102R-NP	11.22	n/a	4/27/2023	10.7	No	13	0	No	0.0003117
<b>Potassium (mg/L)</b>	<b>MW-103R-NP</b>	<b>11.22</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>19</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Sodium (mg/L)	MW-102R-NP	64.97	n/a	4/27/2023	44.8	No	13	0	No	0.0003117
Sodium (mg/L)	MW-103R-NP	64.97	n/a	4/27/2023	54.5	No	13	0	No	0.0003117
<b>Specific Conductance (umhos/cm)</b>	<b>MW-102R-NP</b>	<b>2826</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>2833</b>	<b>Yes</b>	<b>23</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Specific Conductance (umhos/cm)</b>	<b>MW-103R-NP</b>	<b>2826</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>3158</b>	<b>Yes</b>	<b>23</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Sulfate (mg/L)</b>	<b>MW-102R-NP</b>	<b>742.4</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>1560</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Sulfate (mg/L)</b>	<b>MW-103R-NP</b>	<b>742.4</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>1810</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Total Dissolved Solids (mg/L)</b>	<b>MW-102R-NP</b>	<b>2280</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>2720</b>	<b>Yes</b>	<b>29</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Total Dissolved Solids (mg/L)</b>	<b>MW-103R-NP</b>	<b>2280</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>2970</b>	<b>Yes</b>	<b>29</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Total Hardness (mg/L)</b>	<b>MW-102R-NP</b>	<b>1034</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>1840</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Total Hardness (mg/L)</b>	<b>MW-103R-NP</b>	<b>1034</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>2130</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Total Organic Carbon (mg/L)	MW-102R-NP	2.244	n/a	4/27/2023	1.05	No	12	8.333	No	0.0003117
Total Organic Carbon (mg/L)	MW-103R-NP	2.244	n/a	4/27/2023	0.782J	No	12	8.333	No	0.0003117

Exceeds Limits: MW-102R-NP, MW-103R-NP

Prediction Limit  
Interwell Parametric

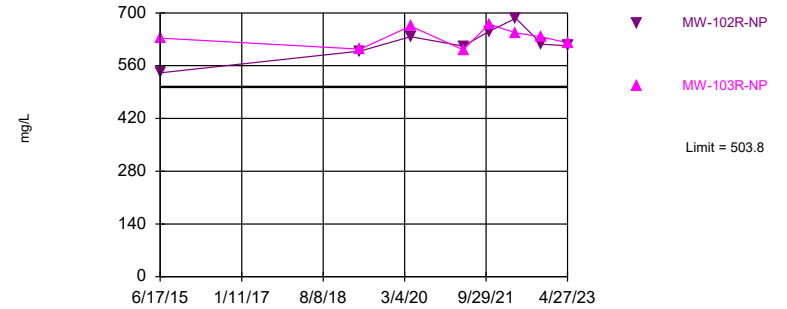


Background Data Summary: Mean=425, Std. Dev.=37.46, n=13. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 2:42 PM View: 2023AWQR - Spring Clay C  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-102R-NP, MW-103R-NP

Prediction Limit  
Interwell Parametric

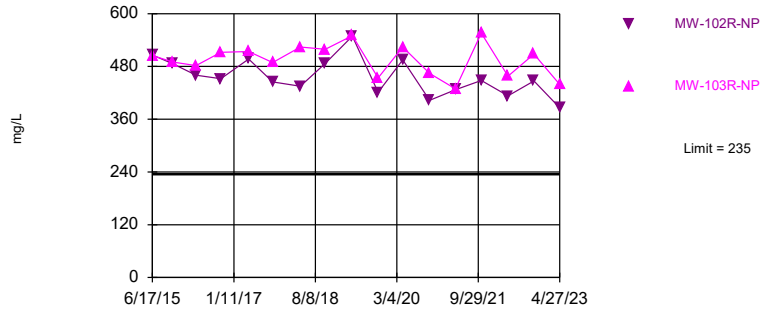


Background Data Summary: Mean=417.7, Std. Dev.=43.04, n=7. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Bicarbonate Analysis Run 11/7/2023 2:42 PM View: 2023AWQR - Spring Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-102R-NP, MW-103R-NP

Prediction Limit  
Interwell Parametric

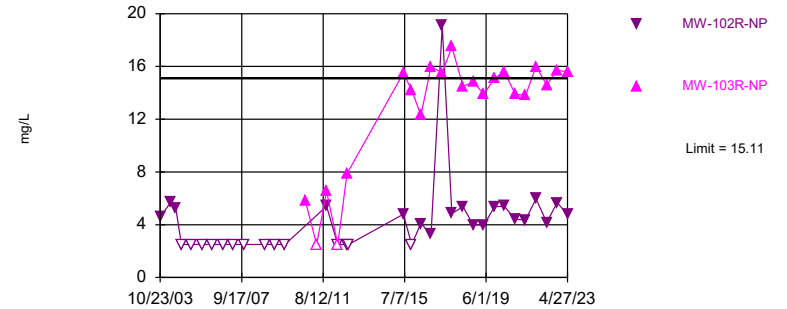


Background Data Summary: Mean=154.5, Std. Dev.=40.26, n=13. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Calcium Analysis Run 11/7/2023 2:42 PM View: 2023AWQR - Spring Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-103R-NP

Prediction Limit  
Interwell Parametric



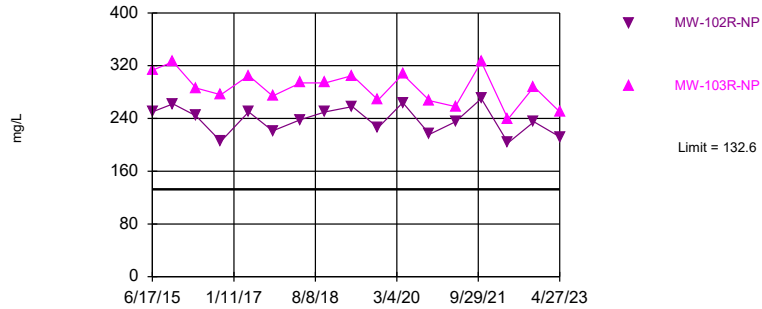
Background Data Summary: Mean=5.861, Std. Dev.=4.624, n=31, 19.35% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Chloride Analysis Run 11/7/2023 2:42 PM View: 2023AWQR - Spring Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master



Exceeds Limit: MW-102R-NP, MW-103R-NP

Prediction Limit  
Interwell Parametric

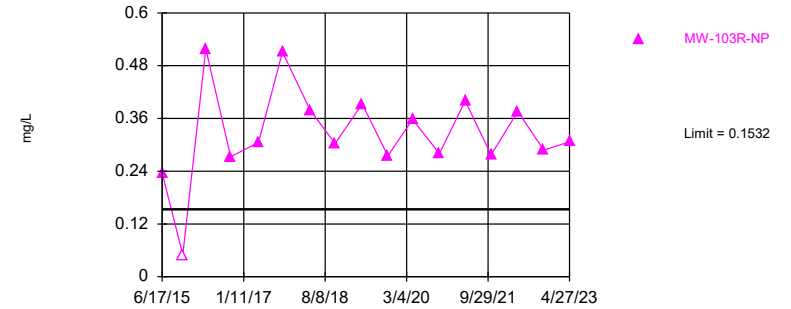


Background Data Summary: Mean=83.65, Std. Dev.=24.49, n=13. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Magnesium Analysis Run 11/7/2023 2:42 PM View: 2023AWQR - Spring Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-103R-NP

Prediction Limit  
Interwell Parametric

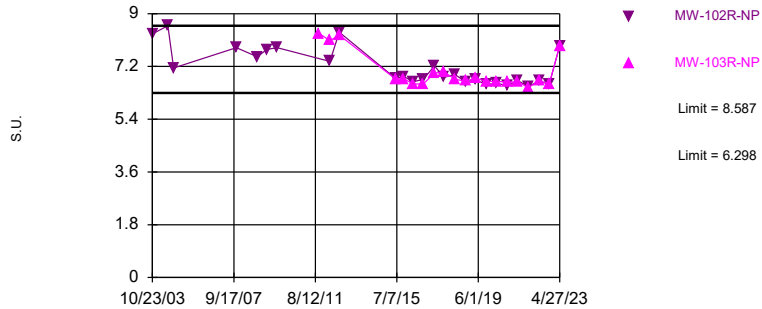


Background Data Summary: Mean=0.07365, Std. Dev.=0.03978, n=13, 53.85% NDs (user selected parametric test despite non-detects). Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Assumes 12 future values. Kappa overridden to 2.

Constituent: Nitrate/Nitrite as N Analysis Run 11/7/2023 2:42 PM View: 2023AWQR - Spring Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limits

Prediction Limit  
Interwell Parametric

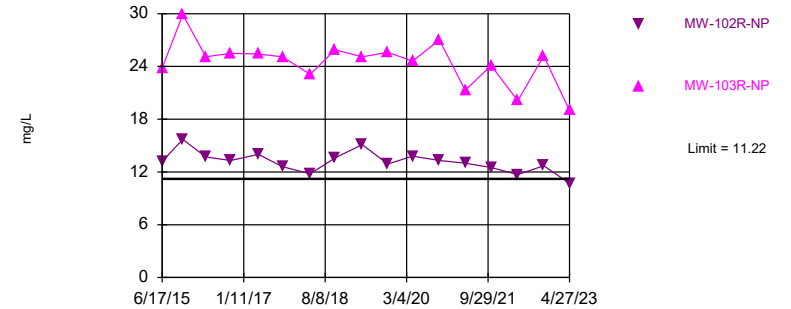


Background Data Summary: Mean=7.442, Std. Dev.=0.5721, n=22. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: pH Analysis Run 11/7/2023 2:42 PM View: 2023AWQR - Spring Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-103R-NP

Prediction Limit  
Interwell Parametric

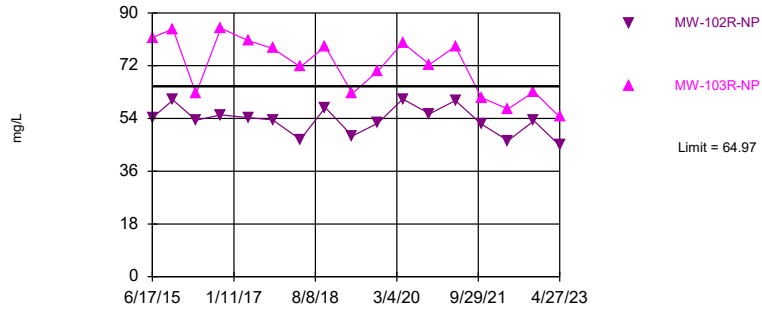


Background Data Summary: Mean=8.708, Std. Dev.=1.257, n=13. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Potassium Analysis Run 11/7/2023 2:42 PM View: 2023AWQR - Spring Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

Prediction Limit  
Interwell Parametric

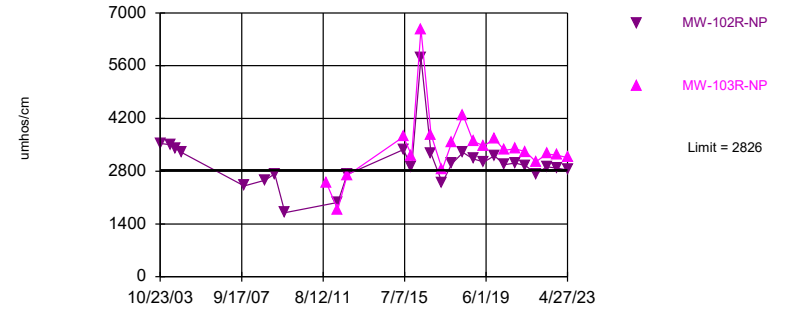


Background Data Summary: Mean=48.48, Std. Dev.=8.241, n=13. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Sodium Analysis Run 11/7/2023 2:42 PM View: 2023AWQR - Spring Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-102R-NP, MW-103R-NP

Prediction Limit  
Interwell Parametric

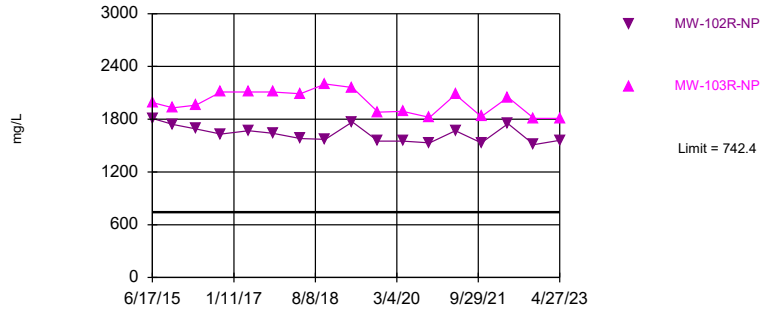


Background Data Summary: Mean=1517, Std. Dev.=654.4, n=23. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Specific Conductance Analysis Run 11/7/2023 2:42 PM View: 2023AWQR - Spring Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-102R-NP, MW-103R-NP

Prediction Limit  
Interwell Parametric

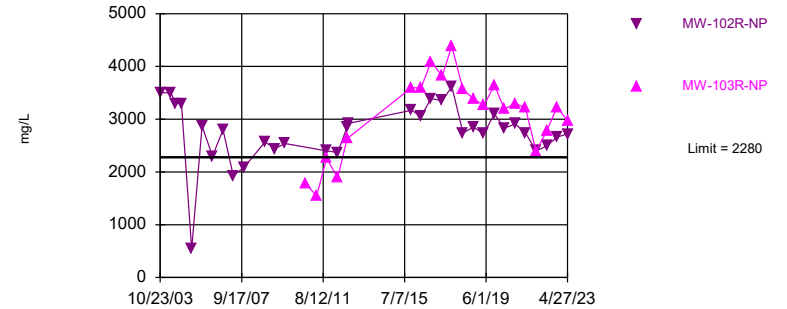


Background Data Summary: Mean=357.6, Std. Dev.=192.4, n=13. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Sulfate Analysis Run 11/7/2023 2:42 PM View: 2023AWQR - Spring Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-102R-NP, MW-103R-NP

Prediction Limit  
Interwell Parametric

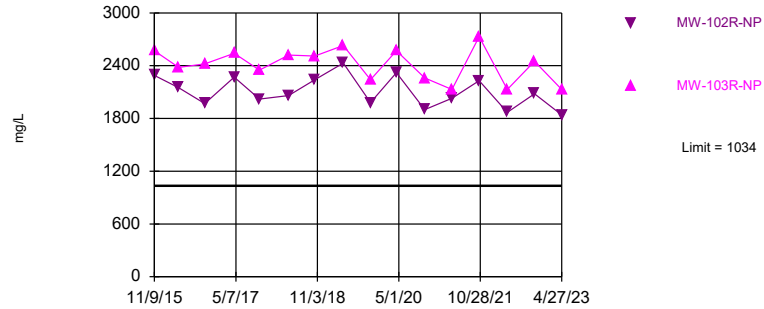


Background Data Summary: Mean=1268, Std. Dev.=505.8, n=29. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Total Dissolved Solids Analysis Run 11/7/2023 2:42 PM View: 2023AWQR - Spring Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-102R-NP, MW-103R-NP

Prediction Limit  
Interwell Parametric



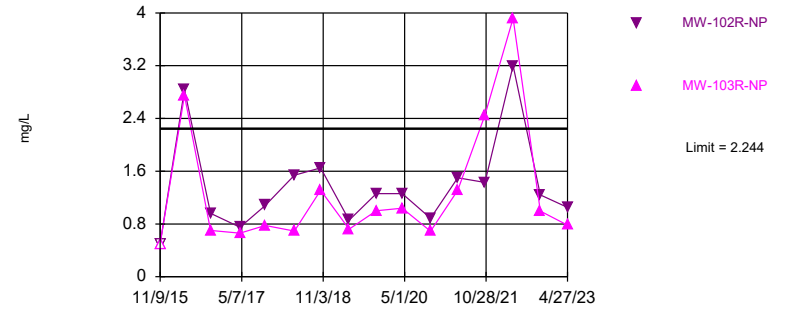
Background Data Summary: Mean=697.9, Std. Dev.=167.8, n=12. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Total Hardness    Analysis Run 11/7/2023 2:42 PM    View: 2023AWQR - Spring Clay CL  
CKD Monofill    Client: Lehigh Cement Company    Data: LCMNT Master

Hollow symbols indicate censored values.

Within Limit

Prediction Limit  
Interwell Parametric



Background Data Summary: Mean=1.146, Std. Dev.=0.5492, n=12, 8.333% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Total Organic Carbon    Analysis Run 11/7/2023 2:42 PM    View: 2023AWQR - Spring Clay CL  
CKD Monofill    Client: Lehigh Cement Company    Data: LCMNT Master

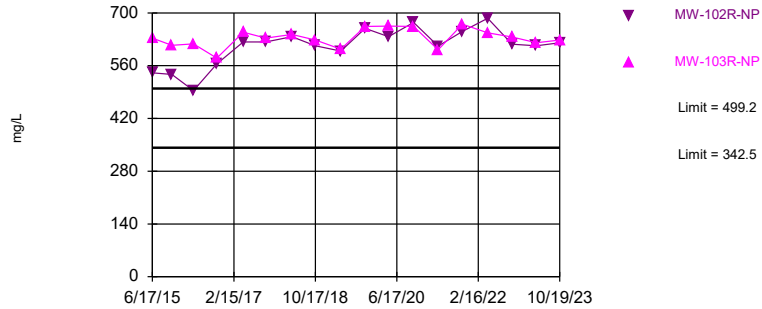
# Fall Clay Control Limit

CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master Printed 11/7/2023, 2:47 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bq N</u>	<u>%NDs</u>	<u>Trans...</u>	<u>Alpha</u>
<b>Alkalinity, Total [CaCO3] (mg/L)</b>	<b>MW-102R-NP</b>	<b>499.2</b>	<b>342.5</b>	<b>10/19/2023</b>	<b>621</b>	<b>Yes</b>	<b>14</b>	<b>0</b>	<b>No</b>	<b>0.0001558</b>
<b>Alkalinity, Total [CaCO3] (mg/L)</b>	<b>MW-103R-NP</b>	<b>499.2</b>	<b>342.5</b>	<b>10/19/2023</b>	<b>628</b>	<b>Yes</b>	<b>14</b>	<b>0</b>	<b>No</b>	<b>0.0001558</b>
<b>Calcium (mg/L)</b>	<b>MW-102R-NP</b>	<b>231.9</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>313</b>	<b>Yes</b>	<b>14</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Calcium (mg/L)</b>	<b>MW-103R-NP</b>	<b>231.9</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>520</b>	<b>Yes</b>	<b>14</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Chloride (mg/L)	MW-102R-NP	14.92	n/a	10/19/2023	4.31	No	32	18.75	No	0.0003117
<b>Chloride (mg/L)</b>	<b>MW-103R-NP</b>	<b>14.92</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>16.4</b>	<b>Yes</b>	<b>32</b>	<b>18.75</b>	<b>No</b>	<b>0.0003117</b>
<b>Magnesium (mg/L)</b>	<b>MW-102R-NP</b>	<b>130.6</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>248</b>	<b>Yes</b>	<b>14</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Magnesium (mg/L)</b>	<b>MW-103R-NP</b>	<b>130.6</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>295</b>	<b>Yes</b>	<b>14</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Nitrate/Nitrite as N (mg/L)</b>	<b>MW-103R-NP</b>	<b>0.1843</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>0.37</b>	<b>Yes</b>	<b>14</b>	<b>50</b>	<b>No</b>	<b>0.0003117</b>
pH (S.U.)	MW-102R-NP	8.557	6.285	10/19/2023	6.54	No	23	0	No	0.0001558
pH (S.U.)	MW-103R-NP	8.557	6.285	10/19/2023	6.6	No	23	0	No	0.0001558
Potassium (mg/L)	MW-102R-NP	11.12	n/a	10/19/2023	8.99	No	14	0	No	0.0003117
<b>Potassium (mg/L)</b>	<b>MW-103R-NP</b>	<b>11.12</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>25.4</b>	<b>Yes</b>	<b>14</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Sodium (mg/L)	MW-102R-NP	64.28	n/a	10/19/2023	39.2	No	14	0	No	0.0003117
Sodium (mg/L)	MW-103R-NP	64.28	n/a	10/19/2023	63.8	No	14	0	No	0.0003117
Specific Conductance (umhos/cm)	MW-102R-NP	2797	n/a	10/19/2023	2679	No	24	0	No	0.0003117
<b>Specific Conductance (umhos/cm)</b>	<b>MW-103R-NP</b>	<b>2797</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>2978</b>	<b>Yes</b>	<b>24</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Sulfate (mg/L)</b>	<b>MW-102R-NP</b>	<b>725.7</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>1480</b>	<b>Yes</b>	<b>14</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Sulfate (mg/L)</b>	<b>MW-103R-NP</b>	<b>725.7</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>1810</b>	<b>Yes</b>	<b>14</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Total Dissolved Solids (mg/L)</b>	<b>MW-102R-NP</b>	<b>2267</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>2800</b>	<b>Yes</b>	<b>30</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Total Dissolved Solids (mg/L)</b>	<b>MW-103R-NP</b>	<b>2267</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>3180</b>	<b>Yes</b>	<b>30</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Total Hardness (mg/L)</b>	<b>MW-102R-NP</b>	<b>1019</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>1800</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Total Hardness (mg/L)</b>	<b>MW-103R-NP</b>	<b>1019</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>2510</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Total Organic Carbon (mg/L)	MW-102R-NP	2.187	n/a	10/19/2023	1.3	No	13	7.692	No	0.0003117
Total Organic Carbon (mg/L)	MW-103R-NP	2.187	n/a	10/19/2023	0.787J	No	13	7.692	No	0.0003117

Exceeds Limits: MW-102R-NP, MW-103R-NP

Prediction Limit  
Interwell Parametric

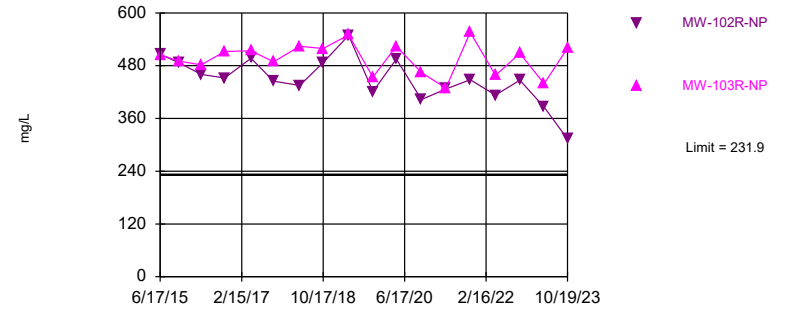


Background Data Summary: Mean=420.9, Std. Dev.=39.18, n=14. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 2:46 PM View: 2023AWQR - Fall Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-102R-NP, MW-103R-NP

Prediction Limit  
Interwell Parametric

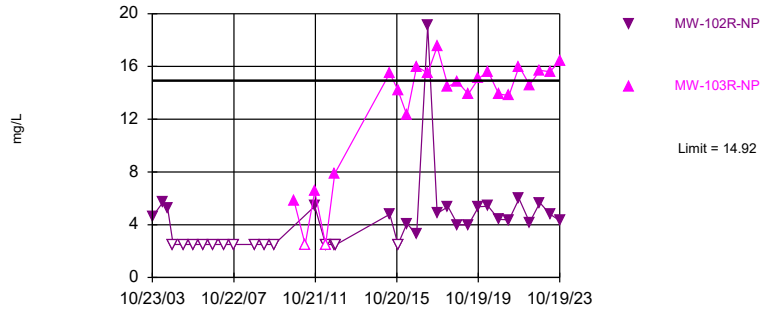


Background Data Summary: Mean=151.6, Std. Dev.=40.16, n=14. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Calcium Analysis Run 11/7/2023 2:46 PM View: 2023AWQR - Fall Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-103R-NP

Prediction Limit  
Interwell Parametric

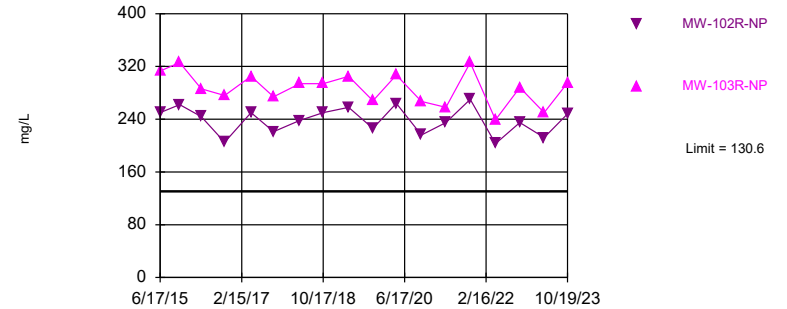


Background Data Summary: Mean=5.771, Std. Dev.=4.577, n=32, 18.75% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Chloride Analysis Run 11/7/2023 2:46 PM View: 2023AWQR - Fall Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-102R-NP, MW-103R-NP

Prediction Limit  
Interwell Parametric

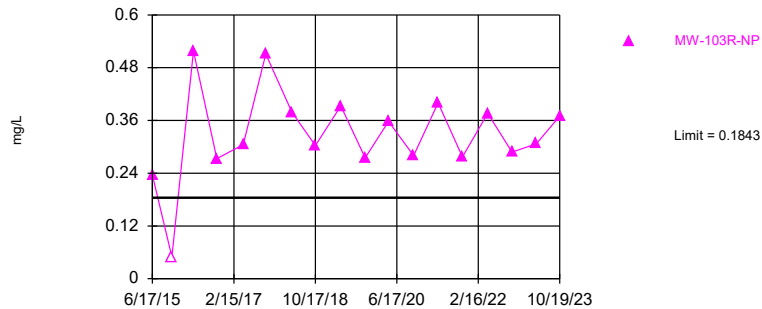


Background Data Summary: Mean=82.05, Std. Dev.=24.28, n=14. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Magnesium Analysis Run 11/7/2023 2:46 PM View: 2023AWQR - Fall Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-103R-NP

Prediction Limit  
Interwell Parametric

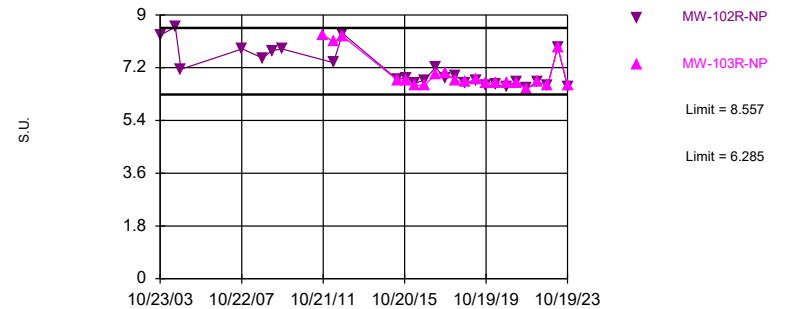


Background Data Summary: Mean=0.08261, Std. Dev.=0.05082, n=14, 50% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Assumes 12 future values. Kappa overridden to 2.

Constituent: Nitrate/Nitrite as N Analysis Run 11/7/2023 2:46 PM View: 2023AWQR - Fall Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limits

Prediction Limit  
Interwell Parametric

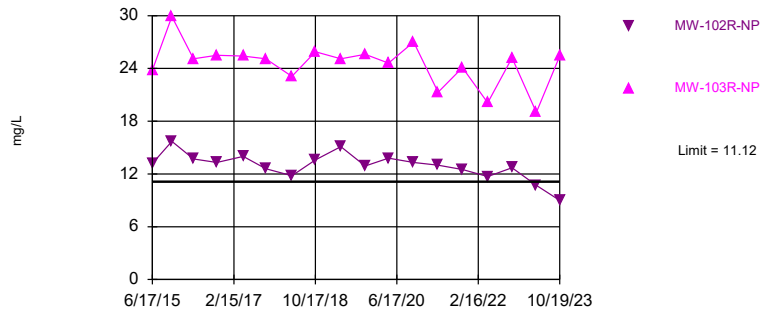


Background Data Summary: Mean=7.421, Std. Dev.=0.568, n=23. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: pH Analysis Run 11/7/2023 2:46 PM View: 2023AWQR - Fall Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-103R-NP

Prediction Limit  
Interwell Parametric

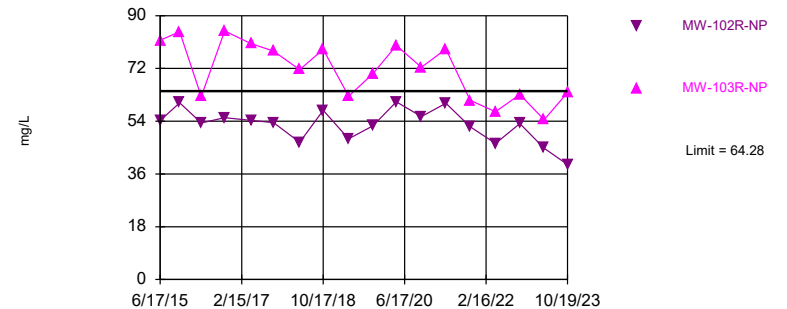


Background Data Summary: Mean=8.621, Std. Dev.=1.251, n=14. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Potassium Analysis Run 11/7/2023 2:46 PM View: 2023AWQR - Fall Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limits

Prediction Limit  
Interwell Parametric

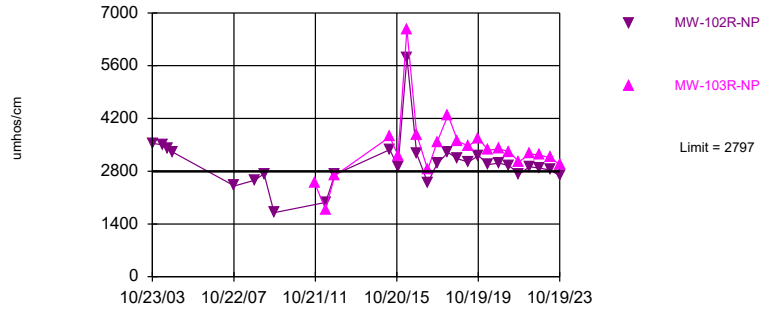


Background Data Summary: Mean=47.95, Std. Dev.=8.167, n=14. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Sodium Analysis Run 11/7/2023 2:46 PM View: 2023AWQR - Fall Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-103R-NP

### Prediction Limit Interwell Parametric

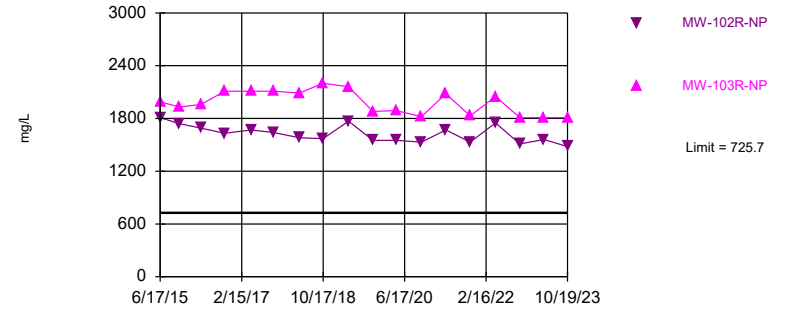


Background Data Summary: Mean=1491, Std. Dev.=653, n=24. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Specific Conductance Analysis Run 11/7/2023 2:46 PM View: 2023AWQR - Fall Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-102R-NP, MW-103R-NP

### Prediction Limit Interwell Parametric

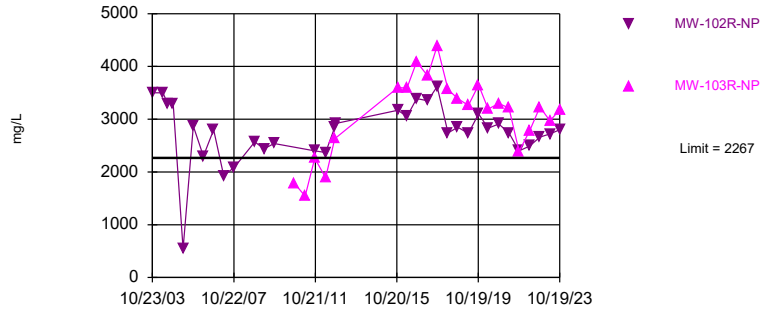


Background Data Summary: Mean=346.1, Std. Dev.=189.8, n=14. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Sulfate Analysis Run 11/7/2023 2:46 PM View: 2023AWQR - Fall Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-102R-NP, MW-103R-NP

### Prediction Limit Interwell Parametric

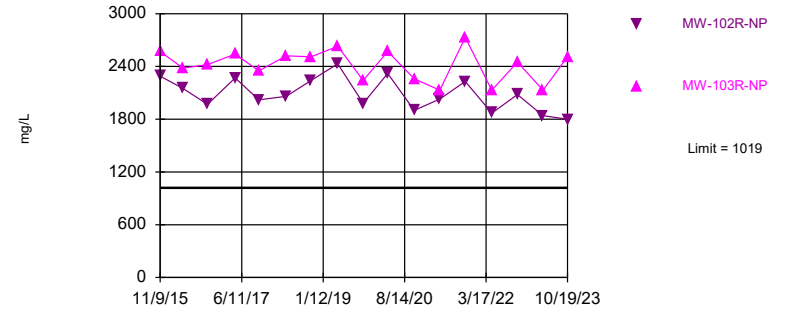


Background Data Summary: Mean=1247, Std. Dev.=509.6, n=30. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Total Dissolved Solids Analysis Run 11/7/2023 2:46 PM View: 2023AWQR - Fall Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-102R-NP, MW-103R-NP

### Prediction Limit Interwell Parametric



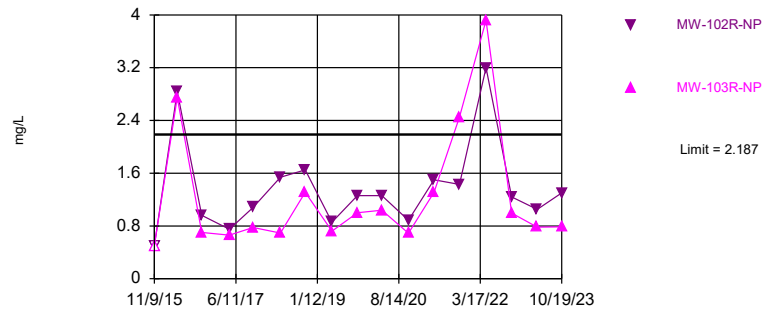
Background Data Summary: Mean=685.5, Std. Dev.=166.8, n=13. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Total Hardness Analysis Run 11/7/2023 2:46 PM View: 2023AWQR - Fall Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

### Prediction Limit

Interwell Parametric



Background Data Summary: Mean=1.124, Std. Dev.=0.5315, n=13, 7.692% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Total Organic Carbon Analysis Run 11/7/2023 2:46 PM View: 2023AWQR - Fall Clay CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master



# Control Limit

CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master Printed 11/7/2023, 2:30 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Trans...	Alpha
Alkalinity, Total [CaCO3] (mg/L)	MW-201	386	303.4	4/27/2023	325	No	41	0	No	0.0001558
Alkalinity, Total [CaCO3] (mg/L)	MW-202R	386	303.4	4/27/2023	324	No	41	0	No	0.0001558
Alkalinity, Total [CaCO3] (mg/L)	MW-204	386	303.4	4/27/2023	328	No	41	0	No	0.0001558
Alkalinity, Total [CaCO3] (mg/L)	MW-206	386	303.4	4/27/2023	352	No	41	0	No	0.0001558
Ammonia as N (mg/L)	MW-202R	0.6351	n/a	4/27/2023	0.181J	No	65	6.154	No	0.0003117
Ammonia as N (mg/L)	MW-204	0.6351	n/a	4/27/2023	0.305	No	65	6.154	No	0.0003117
Bicarbonate (mg/L)	MW-201	375.3	n/a	4/27/2023	325	No	14	0	No	0.0003117
Bicarbonate (mg/L)	MW-202R	375.3	n/a	4/27/2023	324	No	14	0	No	0.0003117
Bicarbonate (mg/L)	MW-204	375.3	n/a	4/27/2023	328	No	14	0	No	0.0003117
Bicarbonate (mg/L)	MW-206	375.3	n/a	4/27/2023	352	No	14	0	No	0.0003117
Calcium (mg/L)	MW-201	141.3	n/a	4/27/2023	68.2	No	34	0	No	0.0003117
Calcium (mg/L)	MW-202R	141.3	n/a	4/27/2023	71.4	No	34	0	No	0.0003117
Calcium (mg/L)	MW-204	141.3	n/a	4/27/2023	103	No	34	0	No	0.0003117
Calcium (mg/L)	MW-206	141.3	n/a	4/27/2023	79.2	No	34	0	No	0.0003117
Chloride (mg/L)	MW-201	31.19	n/a	4/27/2023	28.5	No	65	33.85	No	0.0003117
Chloride (mg/L)	MW-202R	31.19	n/a	4/27/2023	16.1	No	65	33.85	No	0.0003117
Chloride (mg/L)	MW-204	31.19	n/a	4/27/2023	22.35	No	65	33.85	No	0.0003117
Chloride (mg/L)	MW-206	31.19	n/a	4/27/2023	4.56J	No	65	33.85	No	0.0003117
<b>Magnesium (mg/L)</b>	<b>MW-201</b>	<b>44.46</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>51.2</b>	<b>Yes</b>	<b>34</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Magnesium (mg/L)</b>	<b>MW-202R</b>	<b>44.46</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>51.4</b>	<b>Yes</b>	<b>34</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Magnesium (mg/L)</b>	<b>MW-204</b>	<b>44.46</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>50.95</b>	<b>Yes</b>	<b>34</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Magnesium (mg/L)	MW-206	44.46	n/a	4/27/2023	37	No	34	0	No	0.0003117
<b>Nitrate/Nitrite as N (mg/L)</b>	<b>MW-201</b>	<b>0.05</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>0.478</b>	<b>Yes</b>	<b>41</b>	<b>100</b>	<b>No</b>	<b>0.0003117</b>
Nitrate/Nitrite as N (mg/L)	MW-206	0.05	n/a	4/27/2023	0.0877J	No	41	100	No	0.0003117
pH (S.U.)	MW-201	10.27	5.535	4/27/2023	8.54	No	55	0	No	0.0001558
pH (S.U.)	MW-202R	10.27	5.535	4/27/2023	8.46	No	55	0	No	0.0001558
pH (S.U.)	MW-204	10.27	5.535	4/27/2023	7.66	No	55	0	No	0.0001558
pH (S.U.)	MW-206	10.27	5.535	4/27/2023	8	No	55	0	No	0.0001558
<b>Potassium (mg/L)</b>	<b>MW-201</b>	<b>11.01</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>27.4</b>	<b>Yes</b>	<b>34</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Potassium (mg/L)	MW-202R	11.01	n/a	4/27/2023	6.73	No	34	0	No	0.0003117
Potassium (mg/L)	MW-204	11.01	n/a	4/27/2023	10.13	No	34	0	No	0.0003117
Potassium (mg/L)	MW-206	11.01	n/a	4/27/2023	6.35	No	34	0	No	0.0003117
<b>Sodium (mg/L)</b>	<b>MW-201</b>	<b>20.73</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>26.2</b>	<b>Yes</b>	<b>34</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Sodium (mg/L)</b>	<b>MW-202R</b>	<b>20.73</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>22.8</b>	<b>Yes</b>	<b>34</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Sodium (mg/L)	MW-204	20.73	n/a	4/27/2023	18.2	No	34	0	No	0.0003117
Sodium (mg/L)	MW-206	20.73	n/a	4/27/2023	16.9	No	34	0	No	0.0003117
Specific Conductance (umhos/cm)	MW-201	1809	n/a	4/27/2023	838.1	No	54	0	No	0.0003117
Specific Conductance (umhos/cm)	MW-202R	1809	n/a	4/27/2023	747.6	No	54	0	No	0.0003117
Specific Conductance (umhos/cm)	MW-204	1809	n/a	4/27/2023	899.1	No	54	0	No	0.0003117
Specific Conductance (umhos/cm)	MW-206	1809	n/a	4/27/2023	653	No	54	0	No	0.0003117
<b>Sulfate (mg/L)</b>	<b>MW-201</b>	<b>23.93</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>147</b>	<b>Yes</b>	<b>41</b>	<b>46.34</b>	<b>No</b>	<b>0.0003117</b>
<b>Sulfate (mg/L)</b>	<b>MW-202R</b>	<b>23.93</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>103</b>	<b>Yes</b>	<b>41</b>	<b>46.34</b>	<b>No</b>	<b>0.0003117</b>
<b>Sulfate (mg/L)</b>	<b>MW-204</b>	<b>23.93</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>163.5</b>	<b>Yes</b>	<b>41</b>	<b>46.34</b>	<b>No</b>	<b>0.0003117</b>
<b>Sulfate (mg/L)</b>	<b>MW-206</b>	<b>23.93</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>28.3</b>	<b>Yes</b>	<b>41</b>	<b>46.34</b>	<b>No</b>	<b>0.0003117</b>
<b>Total Dissolved Solids (mg/L)</b>	<b>MW-201</b>	<b>491.3</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>500</b>	<b>Yes</b>	<b>65</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Total Dissolved Solids (mg/L)	MW-202R	491.3	n/a	4/27/2023	398	No	65	0	No	0.0003117
<b>Total Dissolved Solids (mg/L)</b>	<b>MW-204</b>	<b>491.3</b>	<b>n/a</b>	<b>4/27/2023</b>	<b>539</b>	<b>Yes</b>	<b>65</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Total Dissolved Solids (mg/L)	MW-206	491.3	n/a	4/27/2023	322	No	65	0	No	0.0003117
Total Hardness (mg/L)	MW-201	522.8	n/a	4/27/2023	381	No	41	0	No	0.0003117
Total Hardness (mg/L)	MW-202R	522.8	n/a	4/27/2023	390	No	41	0	No	0.0003117

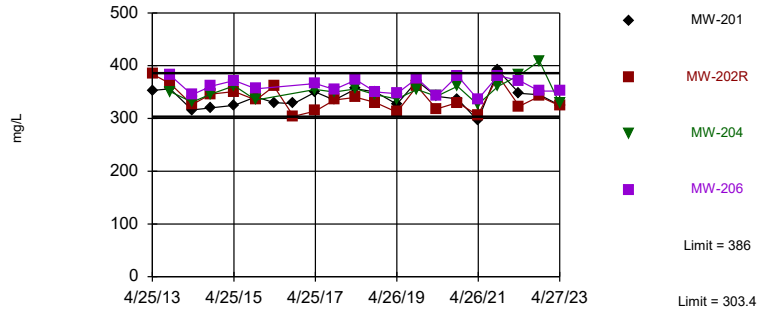
# Spring Bedrock Control Limit

CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master Printed 11/7/2023, 2:30 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Trans...</u>	<u>Alpha</u>
Total Hardness (mg/L)	MW-204	522.8	n/a	4/27/2023	467	No	41	0	No	0.0003117
Total Hardness (mg/L)	MW-206	522.8	n/a	4/27/2023	350	No	41	0	No	0.0003117
Total Organic Carbon (mg/L)	MW-201	2.948	n/a	4/27/2023	1.34	No	41	17.07	No	0.0003117
Total Organic Carbon (mg/L)	MW-202R	2.948	n/a	4/27/2023	1.01	No	41	17.07	No	0.0003117
Total Organic Carbon (mg/L)	MW-204	2.948	n/a	4/27/2023	1.1	No	41	17.07	No	0.0003117
Total Organic Carbon (mg/L)	MW-206	2.948	n/a	4/27/2023	0.897J	No	41	17.07	No	0.0003117

Within Limits

### Prediction Limit Interwell Parametric

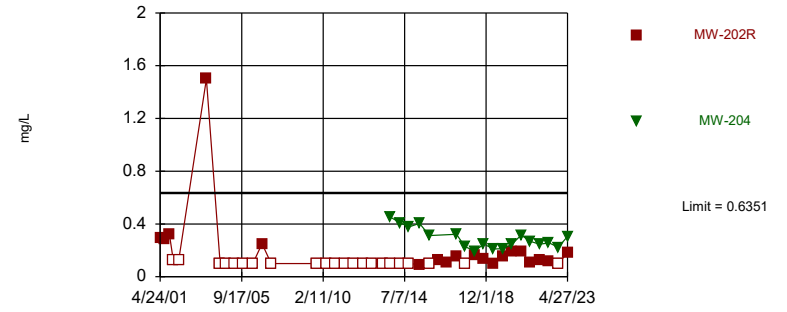


Background Data Summary: Mean=344.7, Std. Dev.=20.65, n=41. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 2:27 PM View: 2023AWQR - Spring Bedroc  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

### Prediction Limit Interwell Parametric

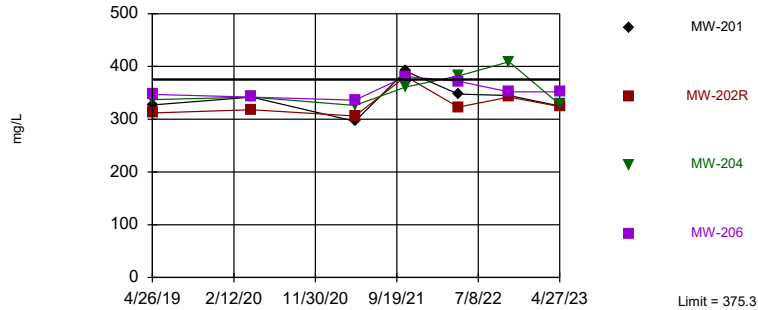


Background Data Summary: Mean=0.3239, Std. Dev.=0.1556, n=65, 6.154% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Ammonia as N Analysis Run 11/7/2023 2:27 PM View: 2023AWQR - Spring Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

### Prediction Limit Interwell Parametric

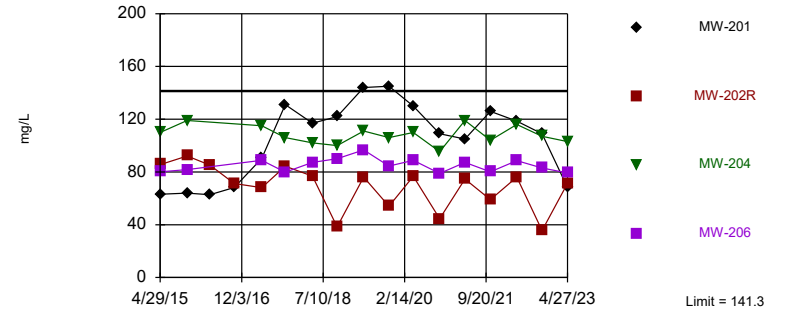


Background Data Summary: Mean=345.8, Std. Dev.=14.73, n=14. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Bicarbonate Analysis Run 11/7/2023 2:27 PM View: 2023AWQR - Spring Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

### Prediction Limit Interwell Parametric

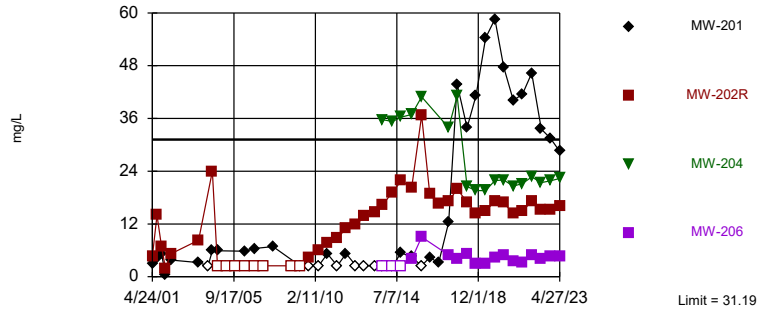


Background Data Summary: Mean=82.24, Std. Dev.=29.54, n=34. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Calcium Analysis Run 11/7/2023 2:27 PM View: 2023AWQR - Spring Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

Prediction Limit  
Interwell Parametric

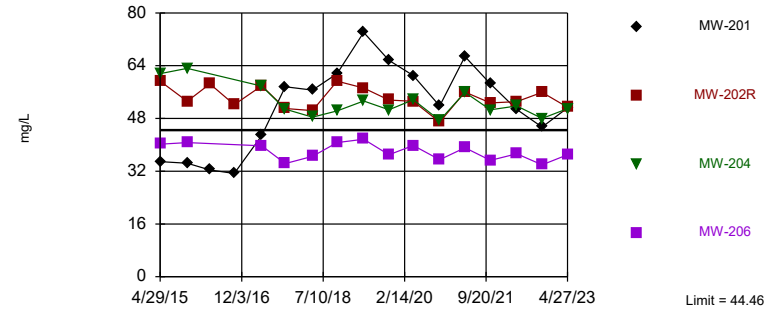


Background Data Summary: Mean=6.829, Std. Dev.=12.18, n=65, 33.85% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Chloride Analysis Run 11/7/2023 2:27 PM View: 2023AWQR - Spring Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-201, MW-202R, MW-204

Prediction Limit  
Interwell Parametric

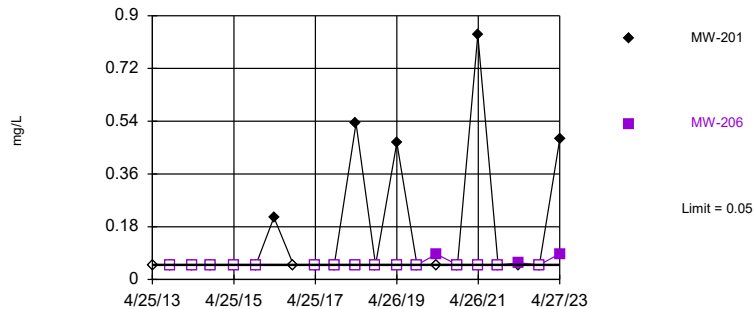


Background Data Summary: Mean=34.45, Std. Dev.=5.001, n=34. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Magnesium Analysis Run 11/7/2023 2:27 PM View: 2023AWQR - Spring Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-201

Prediction Limit  
Interwell Parametric

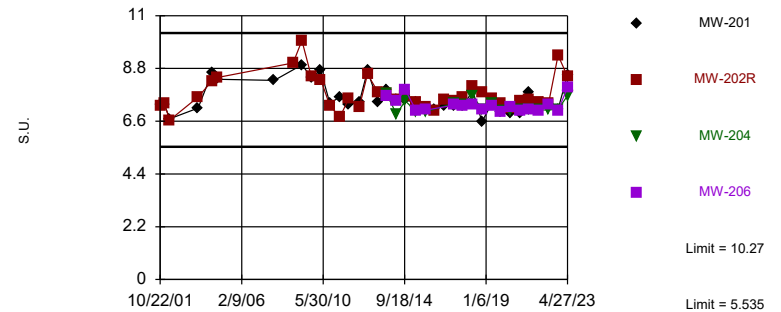


Background Data Summary: Mean=0.05, Std. Dev.=0, n=41, 100% NDs (user selected parametric test despite non-detects). Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Nitrate/Nitrite as N Analysis Run 11/7/2023 2:27 PM View: 2023AWQR - Spring Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limits

Prediction Limit  
Interwell Parametric

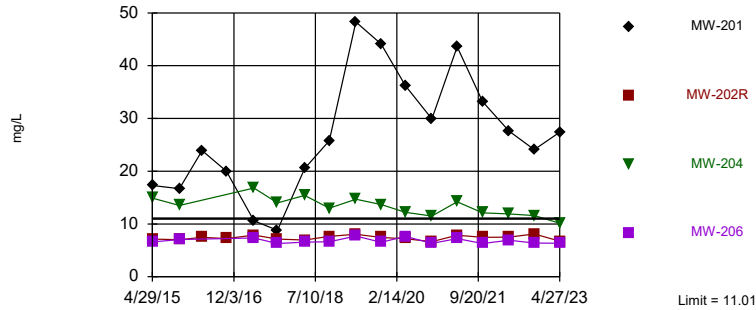


Background Data Summary: Mean=7.905, Std. Dev.=1.185, n=55. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: pH Analysis Run 11/7/2023 2:27 PM View: 2023AWQR - Spring Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-201

### Prediction Limit Interwell Parametric

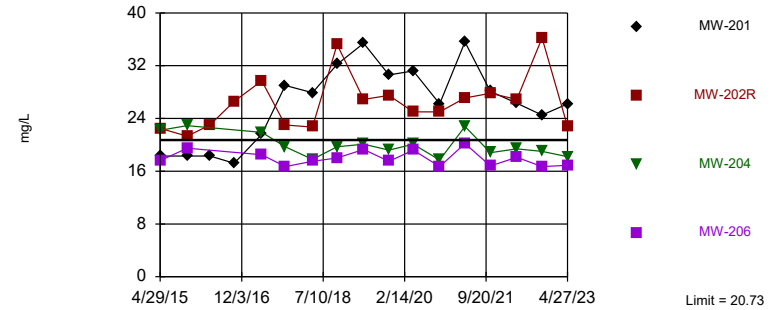


Background Data Summary: Mean=6.558, Std. Dev.=2.227, n=34. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Potassium Analysis Run 11/7/2023 2:28 PM View: 2023AWQR - Spring Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-201, MW-202R

### Prediction Limit Interwell Parametric

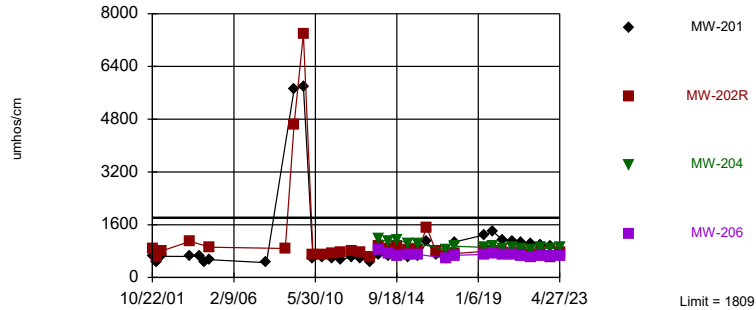


Background Data Summary: Mean=17.87, Std. Dev.=1.426, n=34. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Sodium Analysis Run 11/7/2023 2:28 PM View: 2023AWQR - Spring Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

### Prediction Limit Interwell Parametric

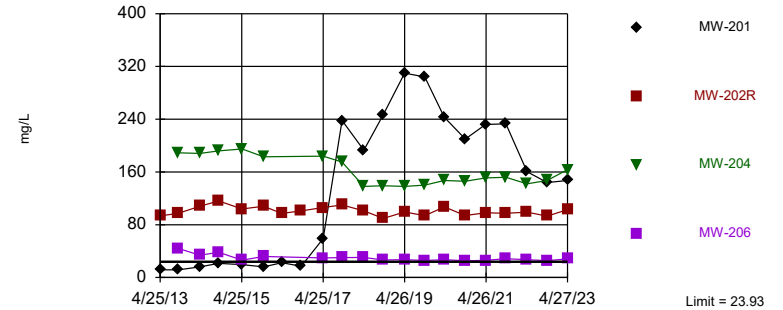


Background Data Summary: Mean=679.7, Std. Dev.=564.7, n=54. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Specific Conductance Analysis Run 11/7/2023 2:28 PM View: 2023AWQR - Spring Bedrock  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-201, MW-202R, MW-204, MW-206

### Prediction Limit Interwell Parametric

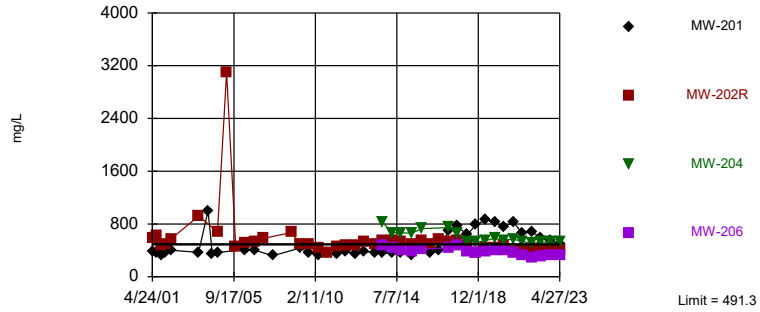


Background Data Summary: Mean=9.513, Std. Dev.=7.21, n=41, 46.34% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Sulfate Analysis Run 11/7/2023 2:28 PM View: 2023AWQR - Spring Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-201, MW-204

Prediction Limit  
Interwell Parametric

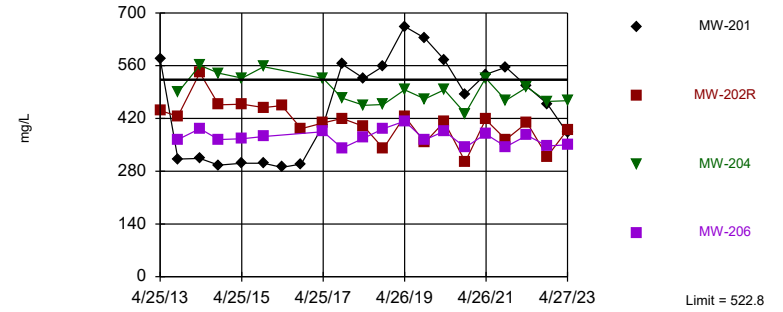


Background Data Summary: Mean=315.2, Std. Dev.=88.07, n=65. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Total Dissolved Solids Analysis Run 11/7/2023 2:28 PM View: 2023AWQR - Spring Bedrock  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

Prediction Limit  
Interwell Parametric

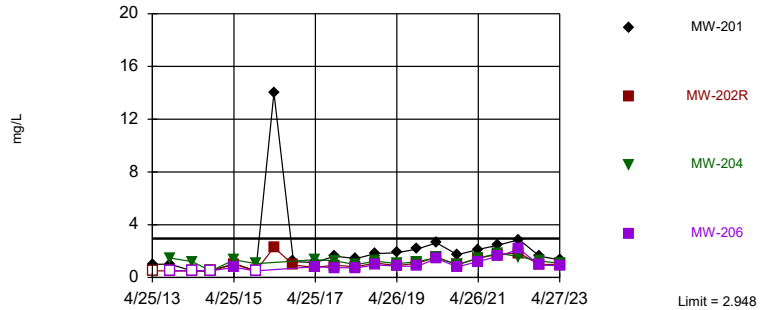


Background Data Summary: Mean=345.5, Std. Dev.=88.65, n=41. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Total Hardness Analysis Run 11/7/2023 2:28 PM View: 2023AWQR - Spring Bedrock CL  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

Prediction Limit  
Interwell Parametric



Background Data Summary: Mean=1.129, Std. Dev.=0.9095, n=41, 17.07% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Total Organic Carbon Analysis Run 11/7/2023 2:28 PM View: 2023AWQR - Spring Bedrock C  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

# Fall Bedrock Control Limit

CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master Printed 11/7/2023, 2:35 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Trans...	Alpha
Alkalinity, Total [CaCO3] (mg/L)	MW-201	385	302.9	10/19/2023	335	No	43	0	No	0.0001558
<b>Alkalinity, Total [CaCO3] (mg/L)</b>	<b>MW-202R</b>	<b>385</b>	<b>302.9</b>	<b>10/19/2023</b>	<b>259</b>	<b>Yes</b>	<b>43</b>	<b>0</b>	<b>No</b>	<b>0.0001558</b>
Alkalinity, Total [CaCO3] (mg/L)	MW-204	385	302.9	10/19/2023	329.5	No	43	0	No	0.0001558
Alkalinity, Total [CaCO3] (mg/L)	MW-206	385	302.9	10/19/2023	346	No	43	0	No	0.0001558
Aluminum (mg/L)	MW-201	0.1388	n/a	10/19/2023	0.0285J	No	36	88.89	No	0.0003117
Ammonia as N (mg/L)	MW-201	0.63	n/a	10/19/2023	0.625	No	67	5.97	No	0.0003117
Ammonia as N (mg/L)	MW-204	0.63	n/a	10/19/2023	0.27	No	67	5.97	No	0.0003117
Ammonia as N (mg/L)	MW-206	0.63	n/a	10/19/2023	0.132J	No	67	5.97	No	0.0003117
<b>Arsenic (mg/L)</b>	<b>MW-201</b>	<b>0.001203</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>0.00535</b>	<b>Yes</b>	<b>36</b>	<b>97.22</b>	<b>No</b>	<b>0.0003117</b>
Arsenic (mg/L)	MW-202R	0.001203	n/a	10/19/2023	0.000645J	No	36	97.22	No	0.0003117
Bicarbonate (mg/L)	MW-201	374	n/a	10/19/2023	335	No	16	0	No	0.0003117
Bicarbonate (mg/L)	MW-202R	374	n/a	10/19/2023	249	No	16	0	No	0.0003117
Bicarbonate (mg/L)	MW-204	374	n/a	10/19/2023	329.5	No	16	0	No	0.0003117
Bicarbonate (mg/L)	MW-206	374	n/a	10/19/2023	346	No	16	0	No	0.0003117
Calcium (mg/L)	MW-201	139.3	n/a	10/19/2023	96.4	No	36	0	No	0.0003117
Calcium (mg/L)	MW-202R	139.3	n/a	10/19/2023	22.6	No	36	0	No	0.0003117
Calcium (mg/L)	MW-204	139.3	n/a	10/19/2023	106.5	No	36	0	No	0.0003117
Calcium (mg/L)	MW-206	139.3	n/a	10/19/2023	80.6	No	36	0	No	0.0003117
<b>Carbonate (mg/L)</b>	<b>MW-202R</b>	<b>6.468</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>10.2</b>	<b>Yes</b>	<b>16</b>	<b>100</b>	<b>No</b>	<b>0.0003117</b>
Chloride (mg/L)	MW-201	30.73	n/a	10/19/2023	30	No	67	32.84	No	0.0003117
Chloride (mg/L)	MW-202R	30.73	n/a	10/19/2023	13.7	No	67	32.84	No	0.0003117
Chloride (mg/L)	MW-204	30.73	n/a	10/19/2023	24.65	No	67	32.84	No	0.0003117
Chloride (mg/L)	MW-206	30.73	n/a	10/19/2023	3.32	No	67	32.84	No	0.0003117
Chromium (mg/L)	MW-201	0.01953	n/a	10/19/2023	0.00245J	No	36	86.11	No	0.0003117
<b>Lead (mg/L)</b>	<b>MW-201</b>	<b>0.002251</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>0.00326</b>	<b>Yes</b>	<b>36</b>	<b>86.11</b>	<b>No</b>	<b>0.0003117</b>
Lead (mg/L)	MW-202R	0.002251	n/a	10/19/2023	0.000451J	No	36	86.11	No	0.0003117
Lead (mg/L)	MW-206	0.002251	n/a	10/19/2023	0.000437J	No	36	86.11	No	0.0003117
<b>Magnesium (mg/L)</b>	<b>MW-201</b>	<b>44.25</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>47.4</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Magnesium (mg/L)</b>	<b>MW-202R</b>	<b>44.25</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>62.6</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Magnesium (mg/L)</b>	<b>MW-204</b>	<b>44.25</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>54.3</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Magnesium (mg/L)	MW-206	44.25	n/a	10/19/2023	38.9	No	36	0	No	0.0003117
Nitrate/Nitrite as N (mg/L)	MW-201	0.05	n/a	10/19/2023	0.0573J	No	43	100	No	0.0003117
Nitrate/Nitrite as N (mg/L)	MW-202R	0.05	n/a	10/19/2023	0.0578J	No	43	100	No	0.0003117
pH (S.U.)	MW-201	10.22	5.523	10/19/2023	7.19	No	57	0	No	0.0001558
pH (S.U.)	MW-202R	10.22	5.523	10/19/2023	8.64	No	57	0	No	0.0001558
pH (S.U.)	MW-204	10.22	5.523	10/19/2023	6.93	No	57	0	No	0.0001558
pH (S.U.)	MW-206	10.22	5.523	10/19/2023	6.92	No	57	0	No	0.0001558
Phosphorus, Total [as P] (mg/L)	MW-201	0.1548	n/a	10/19/2023	0.079J	No	43	93.02	No	0.0003117
<b>Potassium (mg/L)</b>	<b>MW-201</b>	<b>10.87</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>22.4</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Potassium (mg/L)	MW-202R	10.87	n/a	10/19/2023	8.64	No	36	0	No	0.0003117
<b>Potassium (mg/L)</b>	<b>MW-204</b>	<b>10.87</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>11.3</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Potassium (mg/L)	MW-206	10.87	n/a	10/19/2023	6.77	No	36	0	No	0.0003117
<b>Selenium (mg/L)</b>	<b>MW-201</b>	<b>0.002967</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>0.00767</b>	<b>Yes</b>	<b>36</b>	<b>91.67</b>	<b>No</b>	<b>0.0003117</b>
Selenium (mg/L)	MW-202R	0.002967	n/a	10/19/2023	0.00196J	No	36	91.67	No	0.0003117
<b>Sodium (mg/L)</b>	<b>MW-201</b>	<b>20.72</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>24.7</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
<b>Sodium (mg/L)</b>	<b>MW-202R</b>	<b>20.72</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>41.8</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Sodium (mg/L)	MW-204	20.72	n/a	10/19/2023	20.6	No	36	0	No	0.0003117
Sodium (mg/L)	MW-206	20.72	n/a	10/19/2023	18.6	No	36	0	No	0.0003117
Specific Conductance (umhos/cm)	MW-201	1785	n/a	10/19/2023	838.8	No	56	0	No	0.0003117
Specific Conductance (umhos/cm)	MW-202R	1785	n/a	10/19/2023	596	No	56	0	No	0.0003117

# Fall Bedrock Control Limit

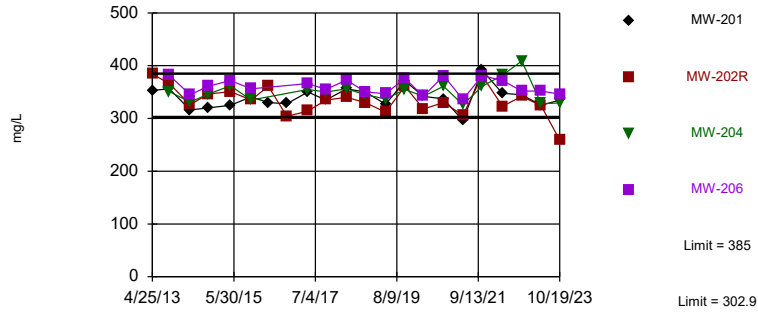
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master Printed 11/7/2023, 2:35 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Trans...</u>	<u>Alpha</u>
Specific Conductance (umhos/cm)	MW-204	1785	n/a	10/19/2023	824.1	No	56	0	No	0.0003117
Specific Conductance (umhos/cm)	MW-206	1785	n/a	10/19/2023	608.2	No	56	0	No	0.0003117
<b>Sulfate (mg/L)</b>	<b>MW-201</b>	<b>23.98</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>121</b>	<b>Yes</b>	<b>43</b>	<b>44.19</b>	<b>No</b>	<b>0.0003117</b>
<b>Sulfate (mg/L)</b>	<b>MW-202R</b>	<b>23.98</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>86.7</b>	<b>Yes</b>	<b>43</b>	<b>44.19</b>	<b>No</b>	<b>0.0003117</b>
<b>Sulfate (mg/L)</b>	<b>MW-204</b>	<b>23.98</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>148</b>	<b>Yes</b>	<b>43</b>	<b>44.19</b>	<b>No</b>	<b>0.0003117</b>
<b>Sulfate (mg/L)</b>	<b>MW-206</b>	<b>23.98</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>27</b>	<b>Yes</b>	<b>43</b>	<b>44.19</b>	<b>No</b>	<b>0.0003117</b>
<b>Total Dissolved Solids (mg/L)</b>	<b>MW-201</b>	<b>489.1</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>576</b>	<b>Yes</b>	<b>67</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Total Dissolved Solids (mg/L)	MW-202R	489.1	n/a	10/19/2023	356	No	67	0	No	0.0003117
<b>Total Dissolved Solids (mg/L)</b>	<b>MW-204</b>	<b>489.1</b>	<b>n/a</b>	<b>10/19/2023</b>	<b>590</b>	<b>Yes</b>	<b>67</b>	<b>0</b>	<b>No</b>	<b>0.0003117</b>
Total Dissolved Solids (mg/L)	MW-206	489.1	n/a	10/19/2023	370	No	67	0	No	0.0003117
Total Hardness (mg/L)	MW-201	518	n/a	10/19/2023	436	No	43	0	No	0.0003117
Total Hardness (mg/L)	MW-202R	518	n/a	10/19/2023	314	No	43	0	No	0.0003117
Total Hardness (mg/L)	MW-204	518	n/a	10/19/2023	489.5	No	43	0	No	0.0003117
Total Hardness (mg/L)	MW-206	518	n/a	10/19/2023	361	No	43	0	No	0.0003117
Total Kjeldahl Nitrogen (mg/L)	MW-201	0.6904	n/a	10/19/2023	0.646J	No	43	67.44	No	0.0003117
Total Organic Carbon (mg/L)	MW-201	2.897	n/a	10/19/2023	1.49	No	43	16.28	No	0.0003117
Total Organic Carbon (mg/L)	MW-202R	2.897	n/a	10/19/2023	1.01	No	43	16.28	No	0.0003117
Total Organic Carbon (mg/L)	MW-204	2.897	n/a	10/19/2023	1.22	No	43	16.28	No	0.0003117
Total Organic Carbon (mg/L)	MW-206	2.897	n/a	10/19/2023	0.949J	No	43	16.28	No	0.0003117



Exceeds Limits: MW-202R

Prediction Limit  
Interwell Parametric

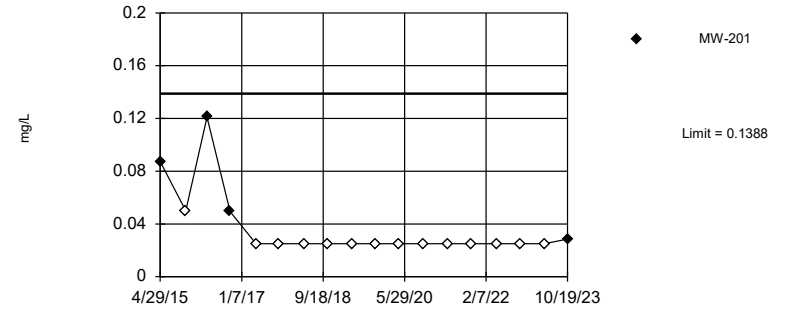


Background Data Summary: Mean=343.9, Std. Dev.=20.52, n=43. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

Prediction Limit  
Interwell Parametric

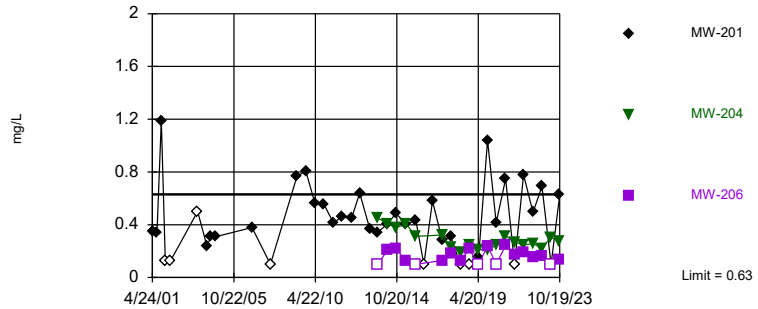


Background Data Summary: Mean=0.03609, Std. Dev.=0.05137, n=36, 88.89% NDs (user selected parametric test despite non-detects). Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Assumes 12 future values. Kappa overridden to 2.

Constituent: Aluminum Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

Prediction Limit  
Interwell Parametric

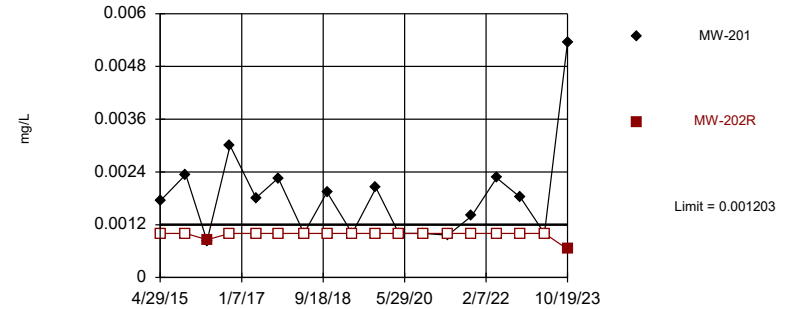


Background Data Summary: Mean=0.3198, Std. Dev.=0.1551, n=67, 5.97% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 3 points to limit. Assumes 10 future values. Kappa overridden to 2.

Constituent: Ammonia as N Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-201

Prediction Limit  
Interwell Parametric

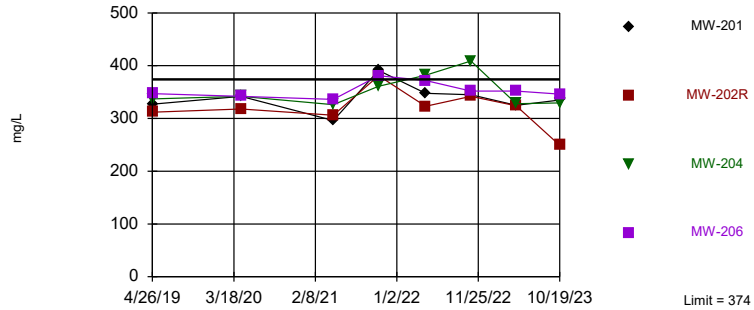


Background Data Summary: Mean=0.0009683, Std. Dev.=0.0001176, n=36, 97.22% NDs (user selected parametric test despite non-detects). Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Arsenic Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

### Prediction Limit Interwell Parametric

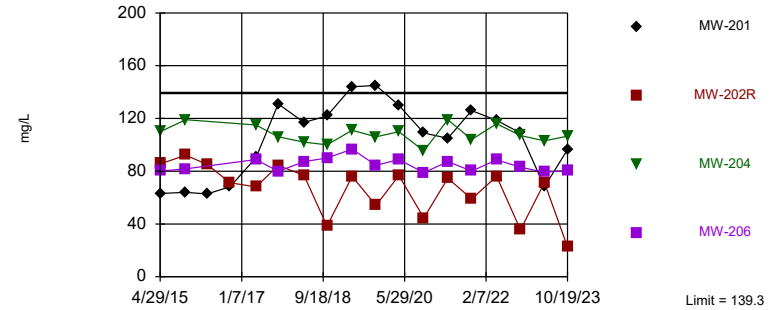


Background Data Summary: Mean=343.6, Std. Dev.=15.22, n=16. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Bicarbonate Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

### Prediction Limit Interwell Parametric

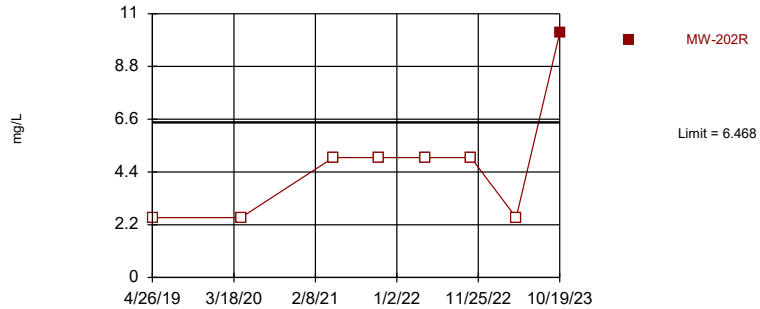


Background Data Summary: Mean=81.8, Std. Dev.=28.74, n=36. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Calcium Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-202R

### Prediction Limit Interwell Parametric

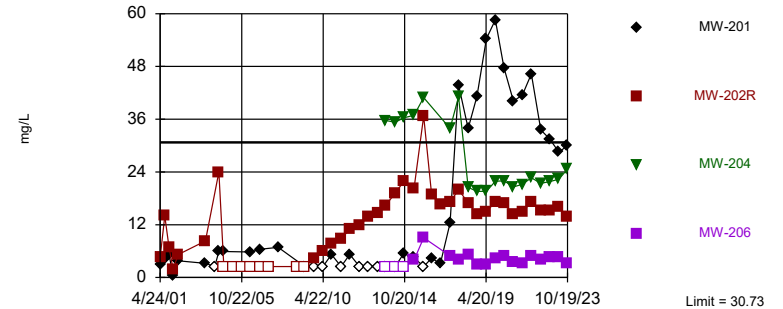


Background Data Summary: Mean=3.906, Std. Dev.=1.281, n=16, 100% NDs (user selected parametric test despite non-detects). Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Assumes 12 future values. Kappa overridden to 2.

Constituent: Carbonate Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

### Prediction Limit Interwell Parametric

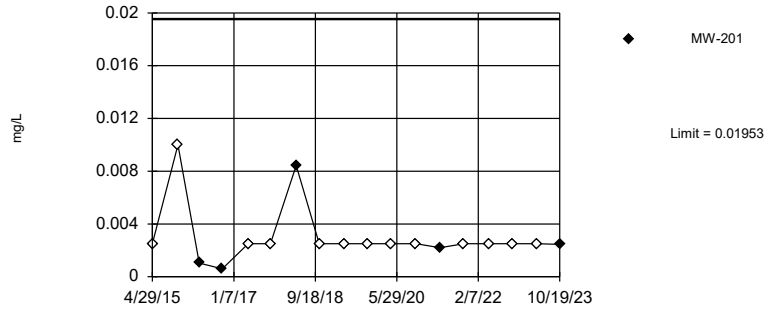


Background Data Summary: Mean=6.707, Std. Dev.=12.01, n=67, 32.84% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Chloride Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

Prediction Limit  
Interwell Parametric

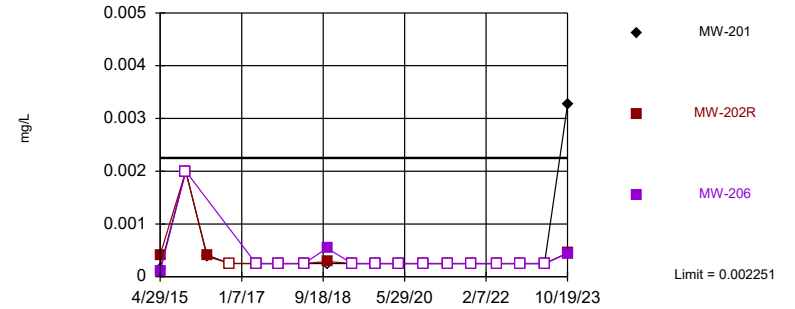


Background Data Summary: Mean=0.004166, Std. Dev.=0.007681, n=36, 86.11% NDs (user selected parametric test despite non-detects). Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Assumes 12 future values. Kappa overridden to 2.

Constituent: Chromium Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-201

Prediction Limit  
Interwell Parametric

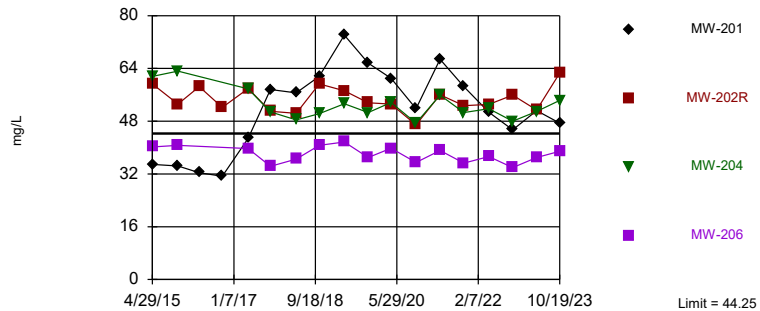


Background Data Summary: Mean=0.0005117, Std. Dev.=0.0008699, n=36, 86.11% NDs (user selected parametric test despite non-detects). Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 3 points to limit. Assumes 10 future values. Kappa overridden to 2.

Constituent: Lead Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-201, MW-202R, MW-204

Prediction Limit  
Interwell Parametric

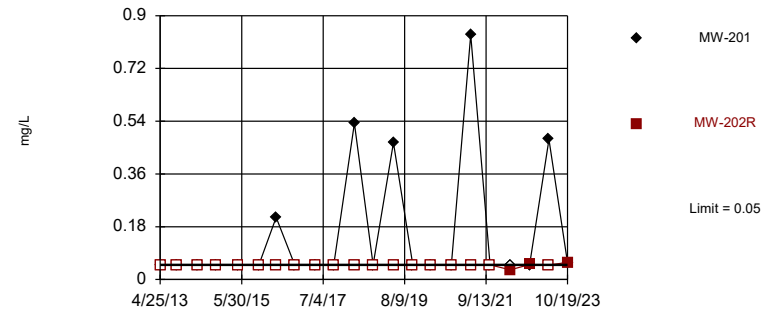


Background Data Summary: Mean=34.49, Std. Dev.=4.877, n=36. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Magnesium Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

Prediction Limit  
Interwell Parametric

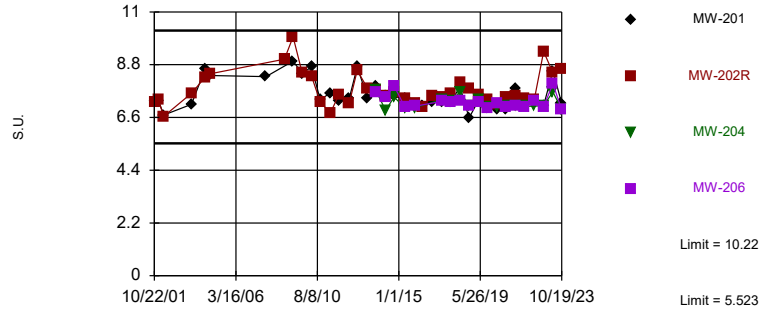


Background Data Summary: Mean=0.05, Std. Dev.=0, n=43, 100% NDs (user selected parametric test despite non-detects). Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Nitrate/Nitrite as N Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limits

Prediction Limit  
Interwell Parametric

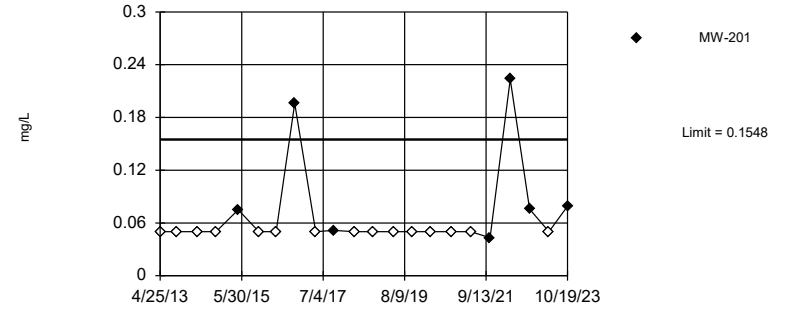


Background Data Summary: Mean=7.874, Std. Dev.=1.175, n=57. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: pH Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

Prediction Limit  
Interwell Parametric

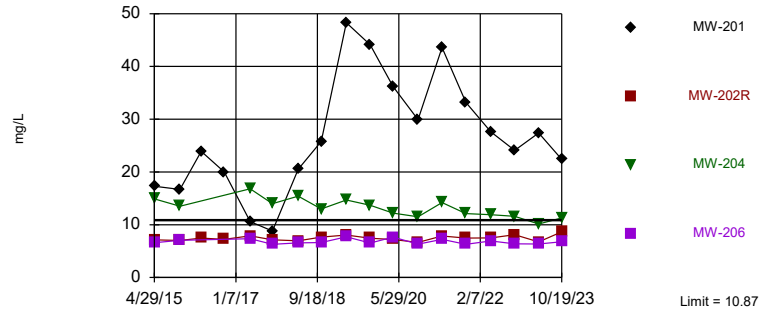


Background Data Summary: Mean=0.05878, Std. Dev.=0.04803, n=43, 93.02% NDs (user selected parametric test despite non-detects). Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Assumes 12 future values. Kappa overridden to 2.

Constituent: Phosphorus, Total [as P] Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-201, MW-204

Prediction Limit  
Interwell Parametric

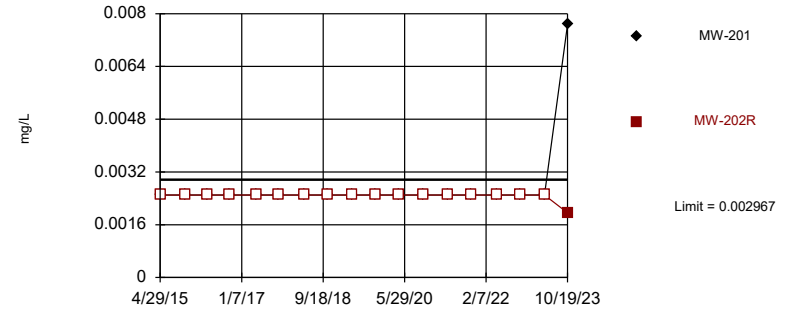


Background Data Summary: Mean=6.517, Std. Dev.=2.174, n=36. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Potassium Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-201

Prediction Limit  
Interwell Parametric

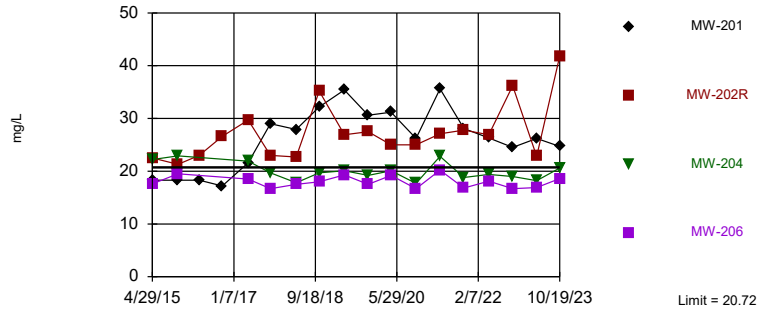


Background Data Summary: Mean=0.002422, Std. Dev.=0.0002724, n=36, 91.67% NDs (user selected parametric test despite non-detects). Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Selenium Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-201, MW-202R

### Prediction Limit Interwell Parametric

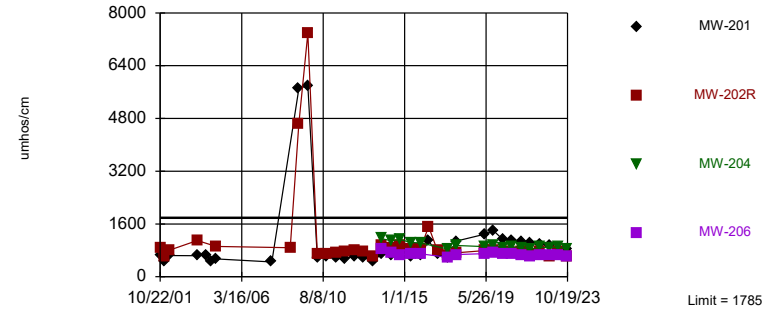


Background Data Summary: Mean=17.92, Std. Dev.=1.403, n=36. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Sodium Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

### Prediction Limit Interwell Parametric

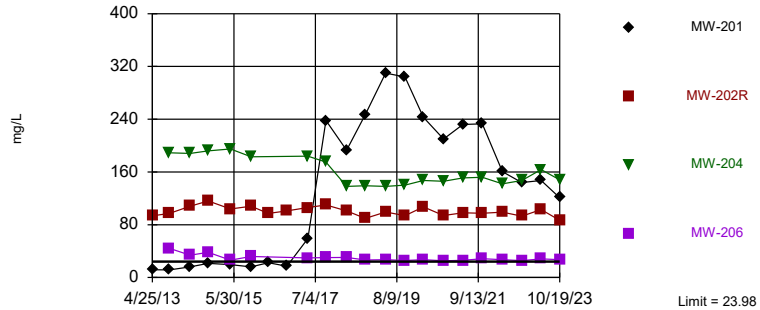


Background Data Summary: Mean=675.3, Std. Dev.=554.8, n=56. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Specific Conductance Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-201, MW-202R, MW-204, MW-206

### Prediction Limit Interwell Parametric

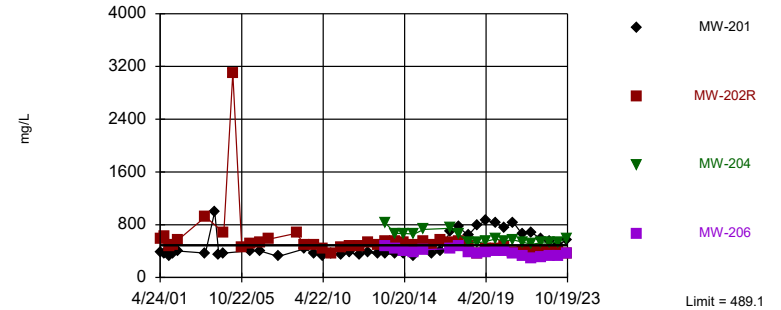


Background Data Summary: Mean=9.476, Std. Dev.=7.251, n=43, 44.19% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Sulfate Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Exceeds Limit: MW-201, MW-204

### Prediction Limit Interwell Parametric

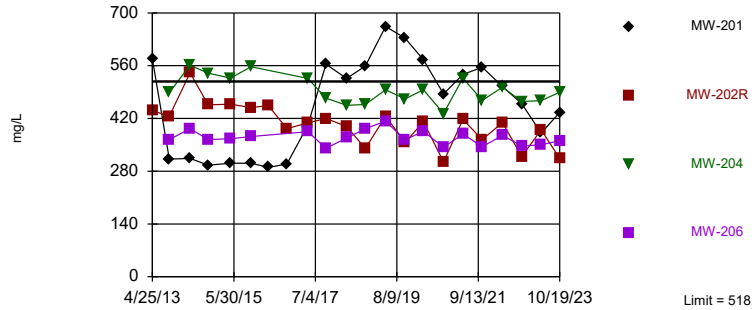


Background Data Summary: Mean=315.5, Std. Dev.=86.78, n=67. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Total Dissolved Solids Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Within Limit

Prediction Limit  
Interwell Parametric



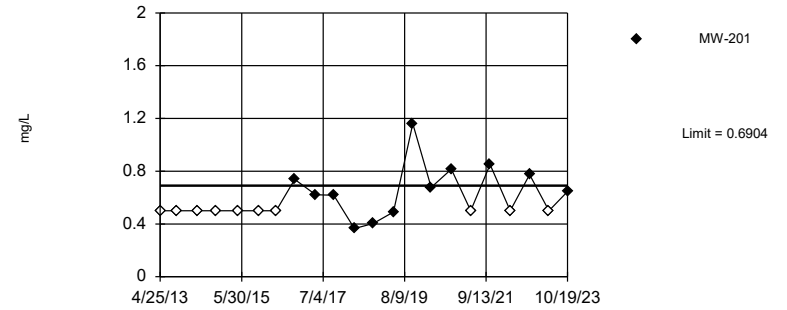
Background Data Summary: Mean=344.8, Std. Dev.=86.6, n=43. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Total Hardness Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Hollow symbols indicate censored values.

Within Limit

Prediction Limit  
Interwell Parametric



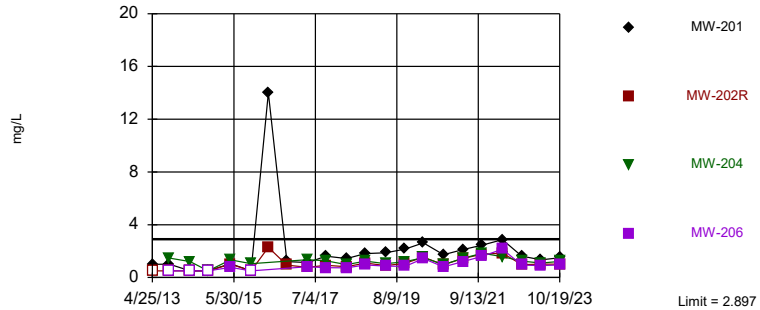
Background Data Summary: Mean=0.513, Std. Dev.=0.0887, n=43, 67.44% NDs (user selected parametric test despite non-detects). Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Assumes 12 future values. Kappa overridden to 2.

Constituent: Total Kjeldahl Nitrogen Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Hollow symbols indicate censored values.

Within Limit

Prediction Limit  
Interwell Parametric

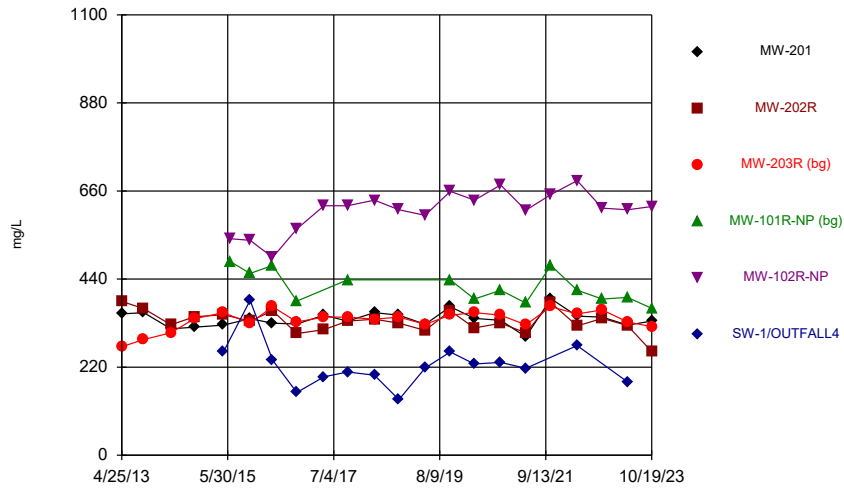


Background Data Summary: Mean=1.12, Std. Dev.=0.8886, n=43, 16.28% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 4 points to limit. Assumes 9 future values. Kappa overridden to 2.

Constituent: Total Organic Carbon Analysis Run 11/7/2023 2:33 PM View: 2023AWQR - Fall Bedrock CL  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

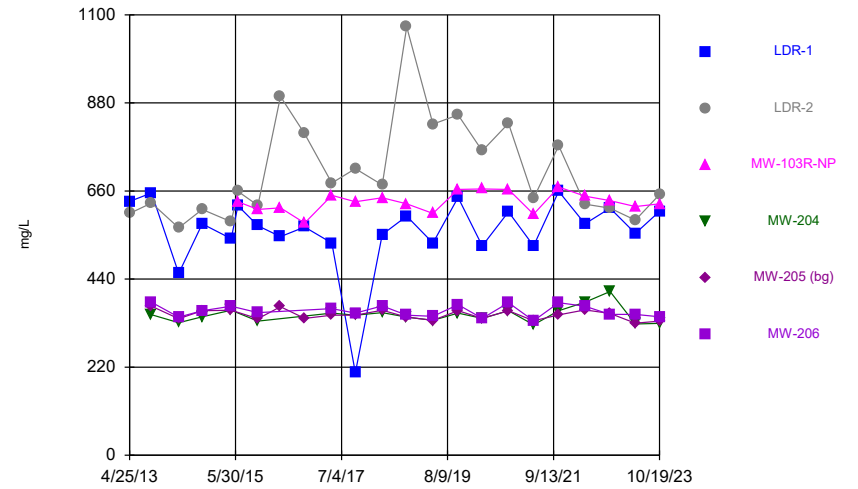
Attachment C  
Time Series Graphs

Time Series



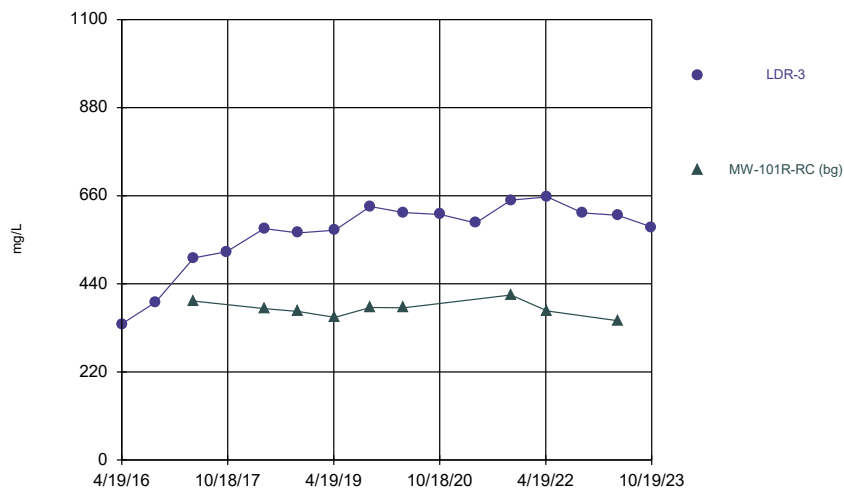
Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 12:57 PM View: 2023AWQR - Time Series  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



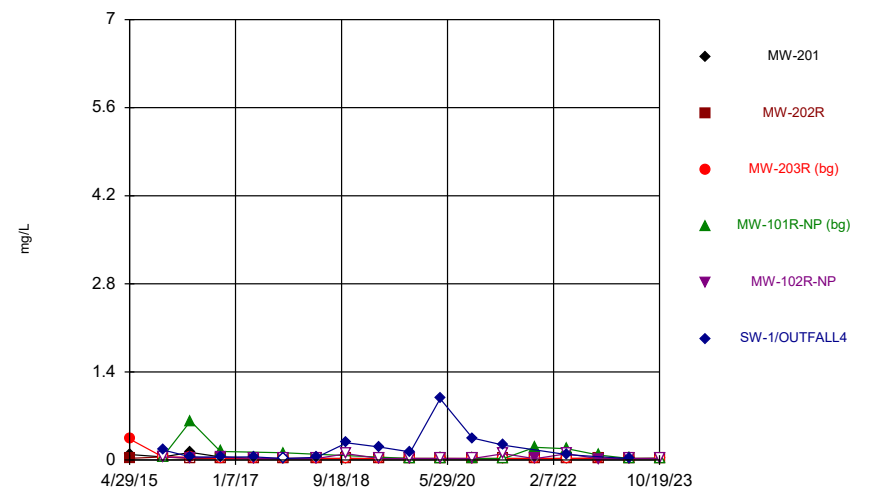
Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 12:57 PM View: 2023AWQR - Time Series  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/7/2023 12:57 PM View: 2023AWQR - Time Series  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

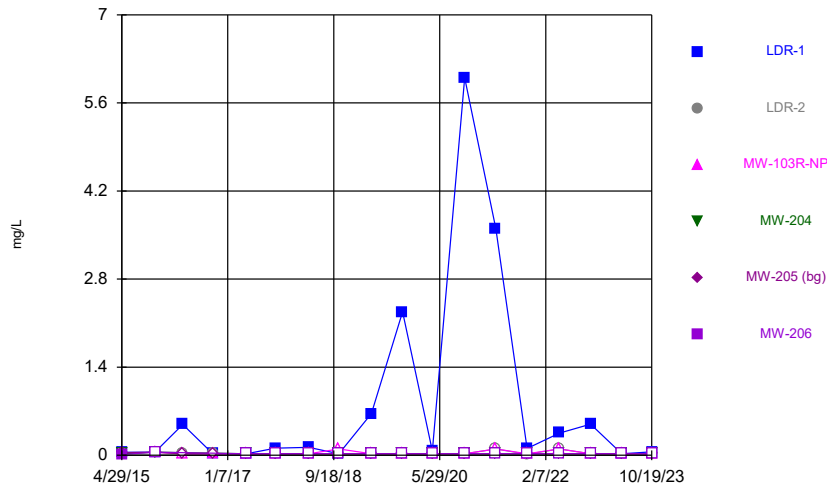
Time Series



Constituent: Aluminum Analysis Run 11/7/2023 12:57 PM View: 2023AWQR - Time Series  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

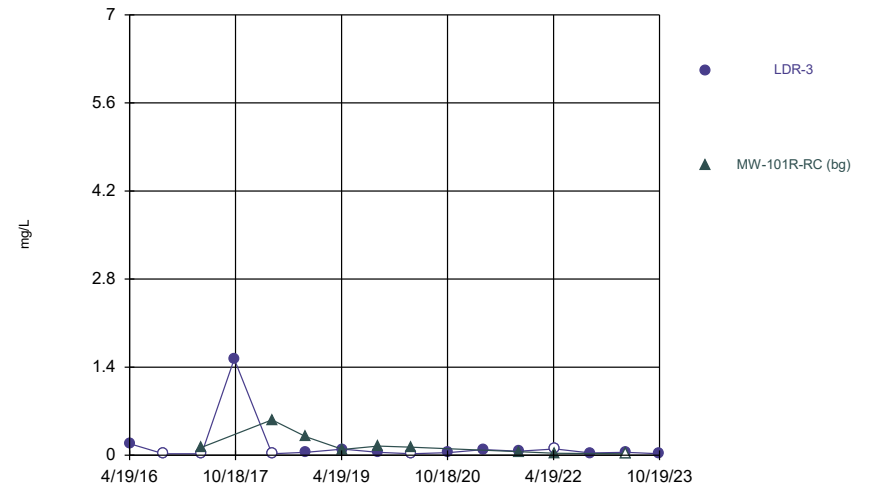


Time Series



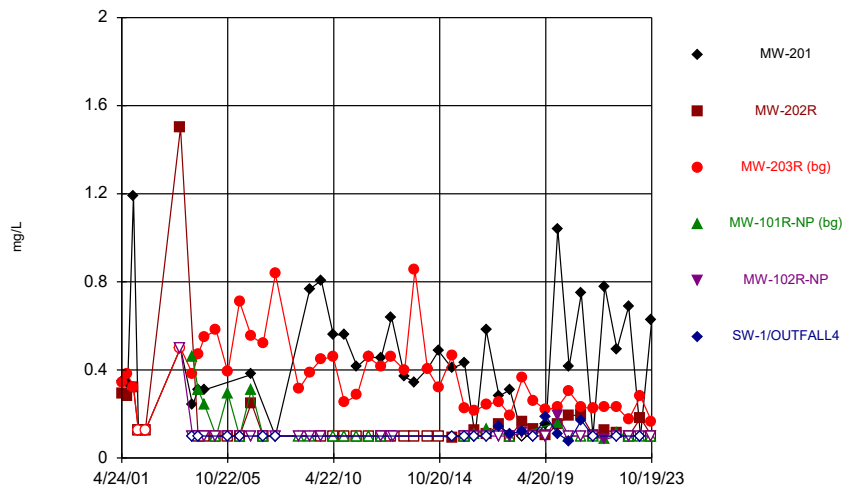
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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



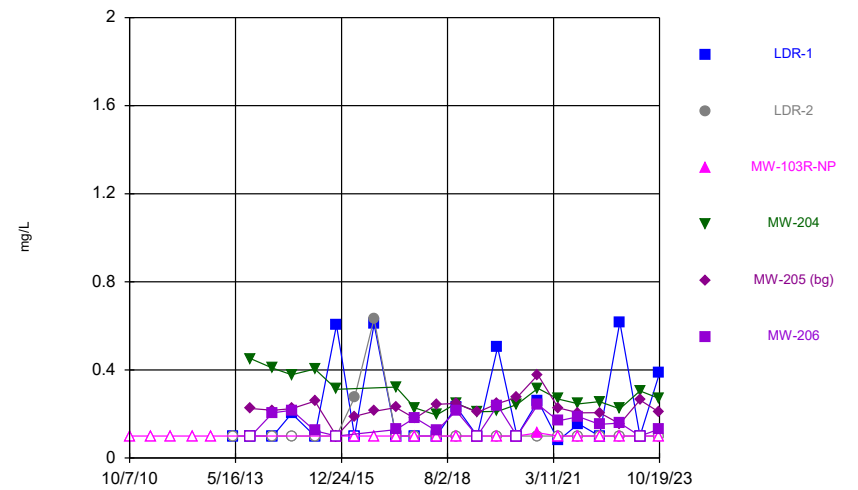
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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



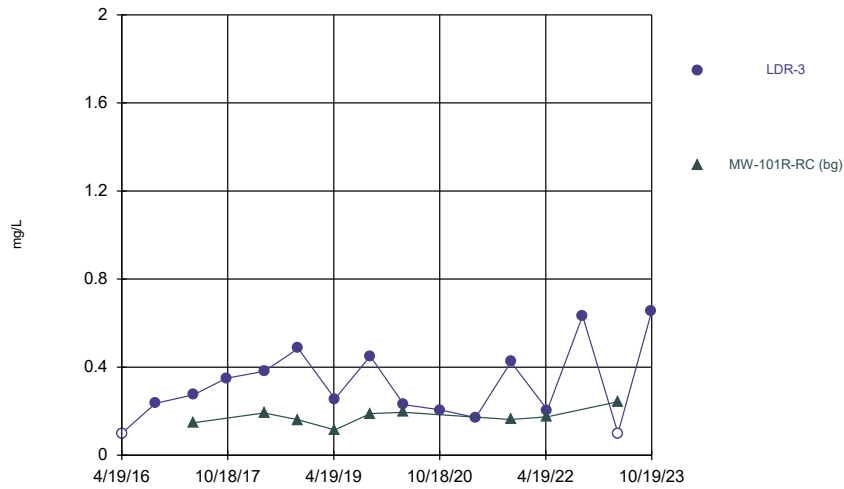
Constituent: Ammonia as N Analysis Run 11/7/2023 12:57 PM View: 2023AWQR - Time Series  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



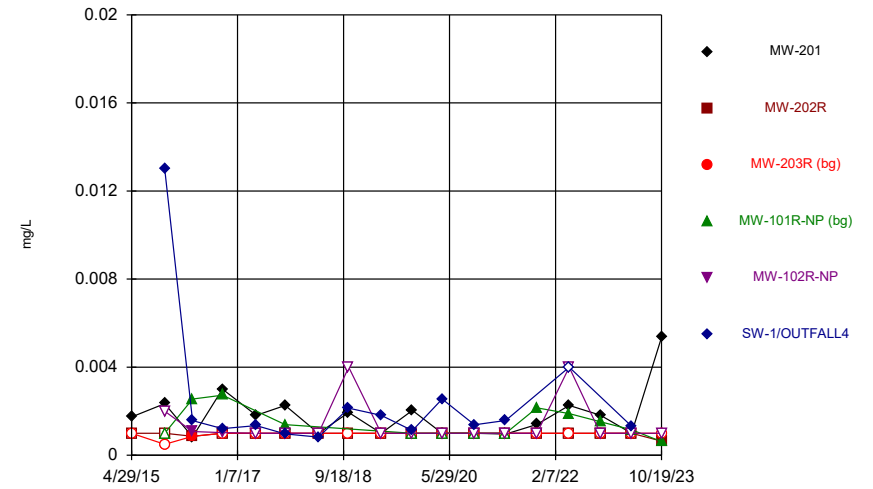
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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

### Time Series



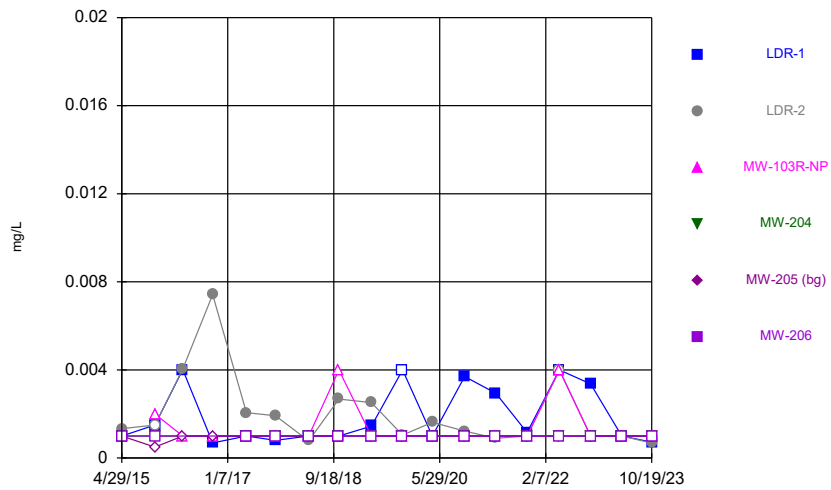
Constituent: Ammonia as N Analysis Run 11/7/2023 12:57 PM View: 2023AWQR - Time Series  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

### Time Series



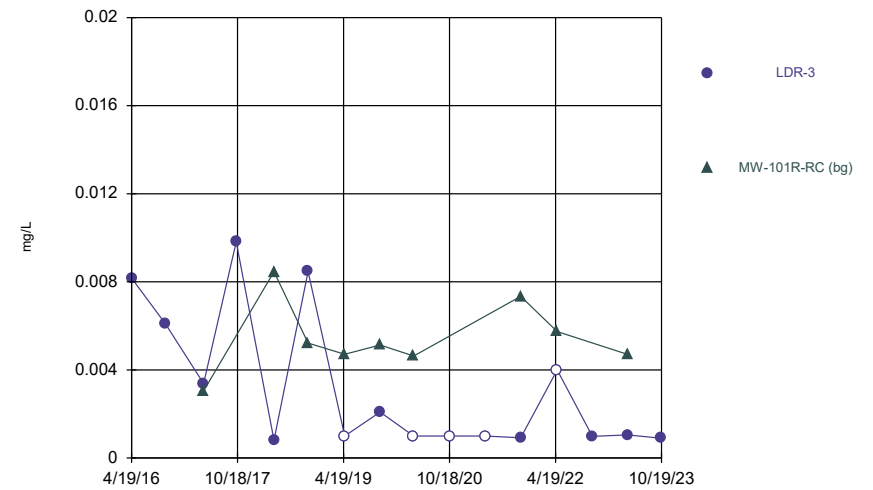
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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

### Time Series



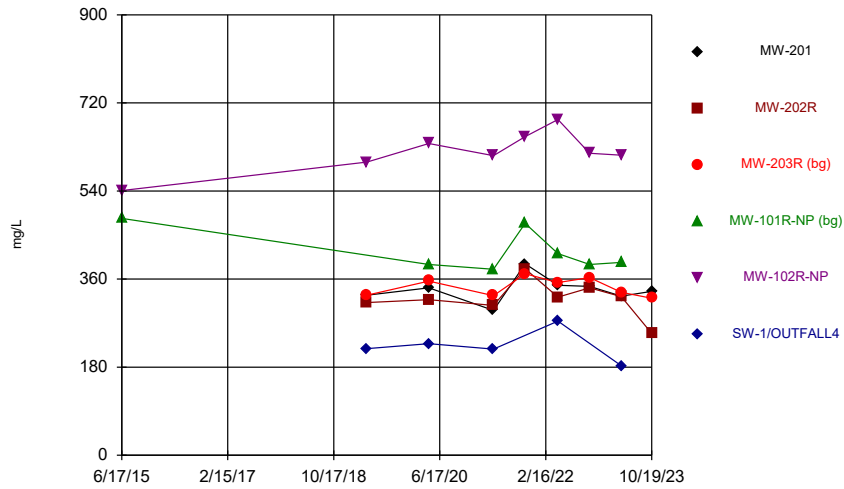
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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

### Time Series



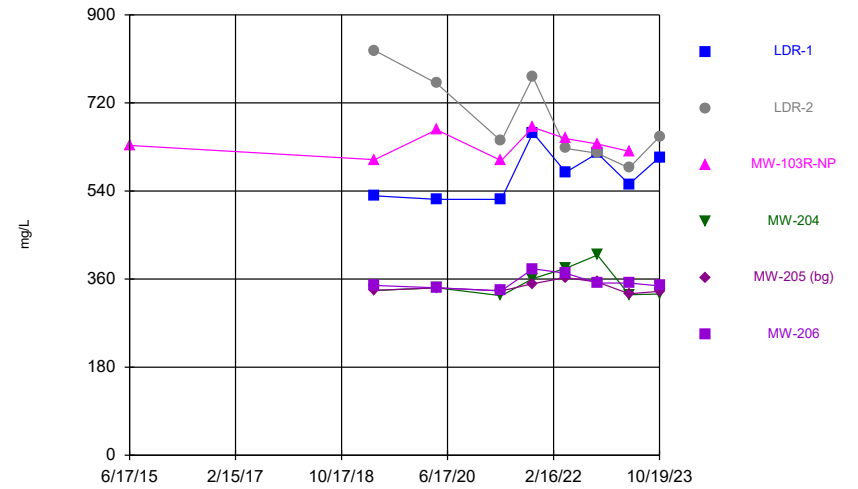
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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



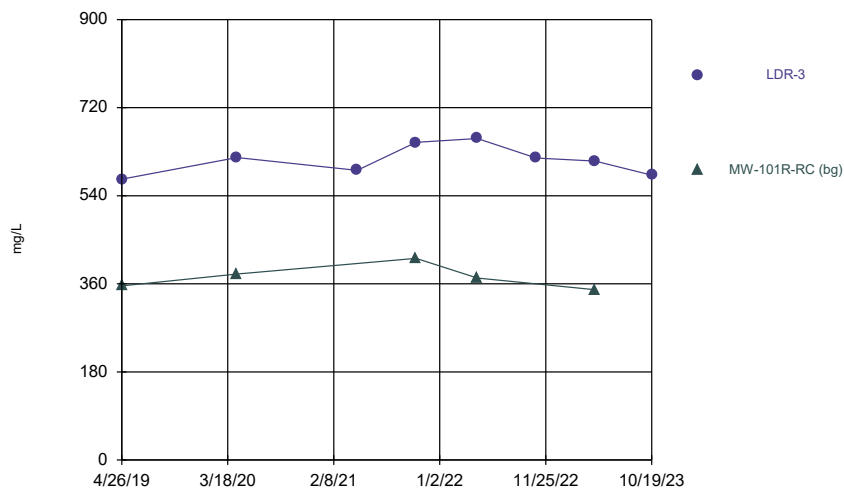
Constituent: Bicarbonate Analysis Run 11/7/2023 12:57 PM View: 2023AWQR - Time Series  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



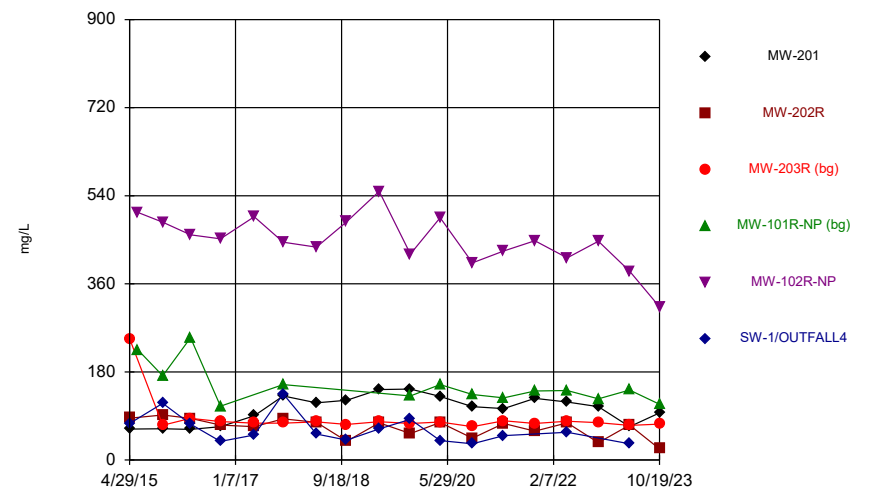
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 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



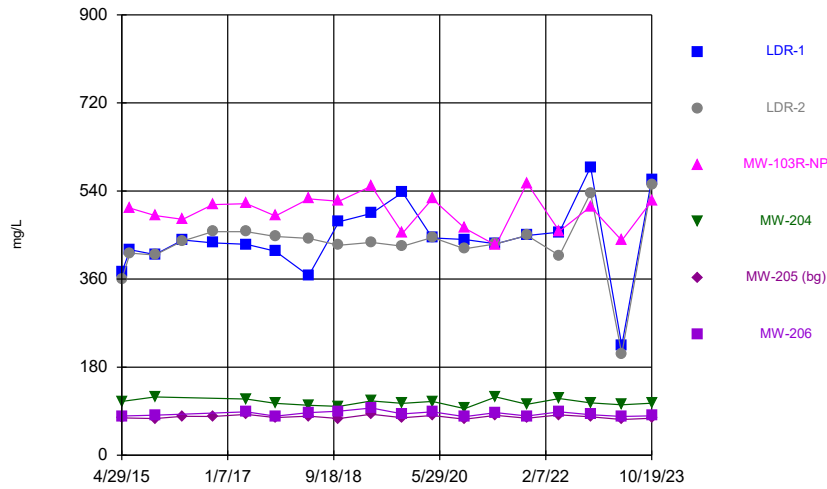
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 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



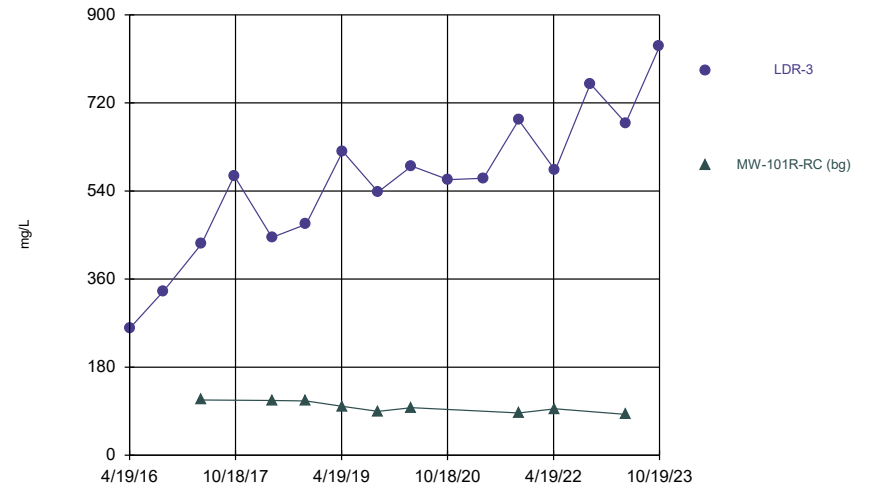
Constituent: Calcium Analysis Run 11/7/2023 12:57 PM View: 2023AWQR - Time Series  
 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



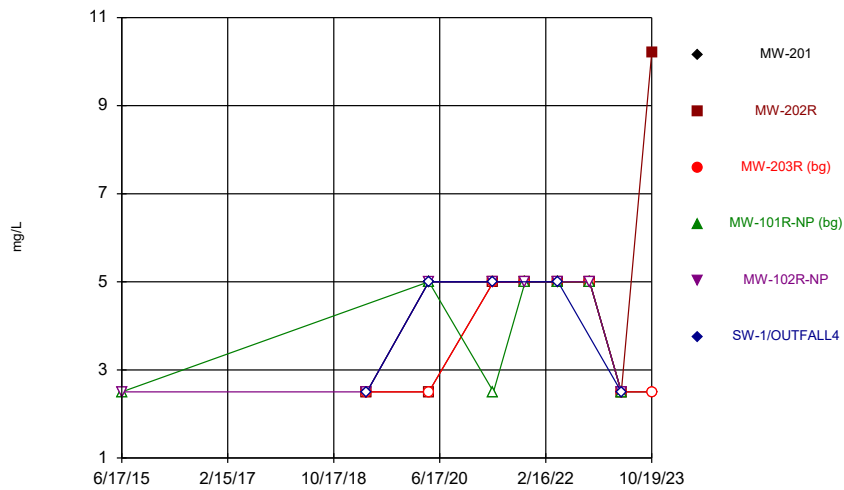
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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



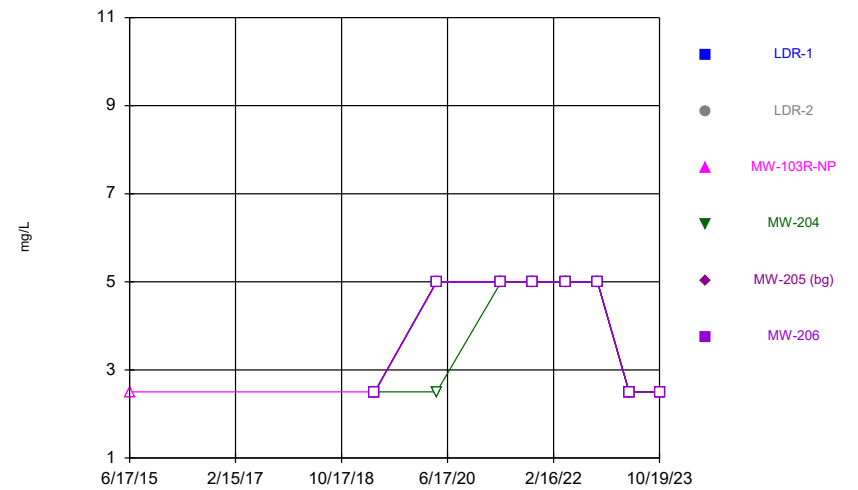
Constituent: Calcium Analysis Run 11/7/2023 12:57 PM View: 2023AWQR - Time Series  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



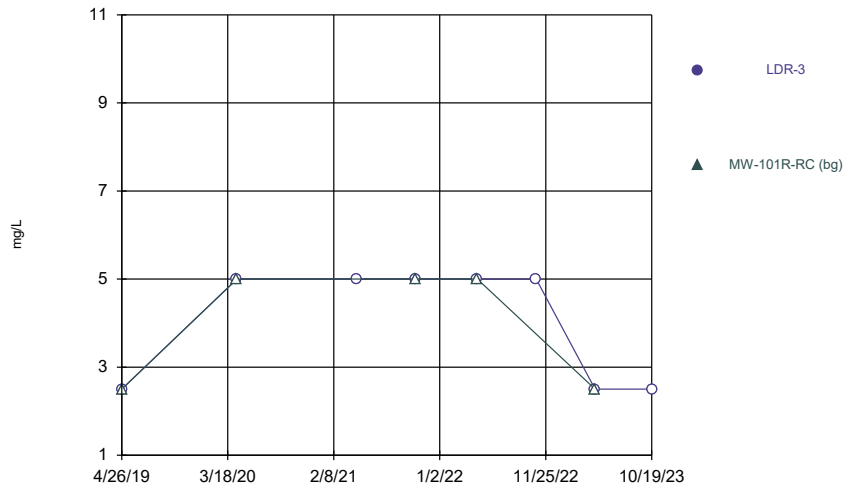
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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



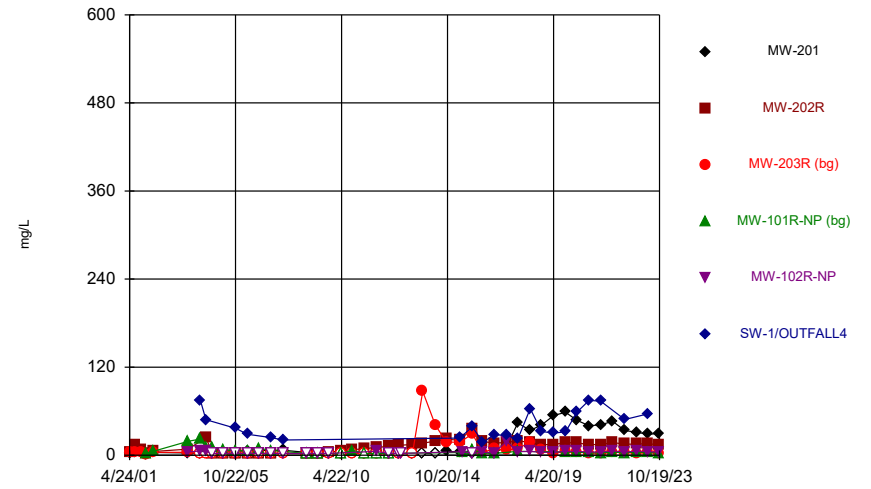
Constituent: Carbonate Analysis Run 11/7/2023 12:57 PM View: 2023AWQR - Time Series  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

### Time Series



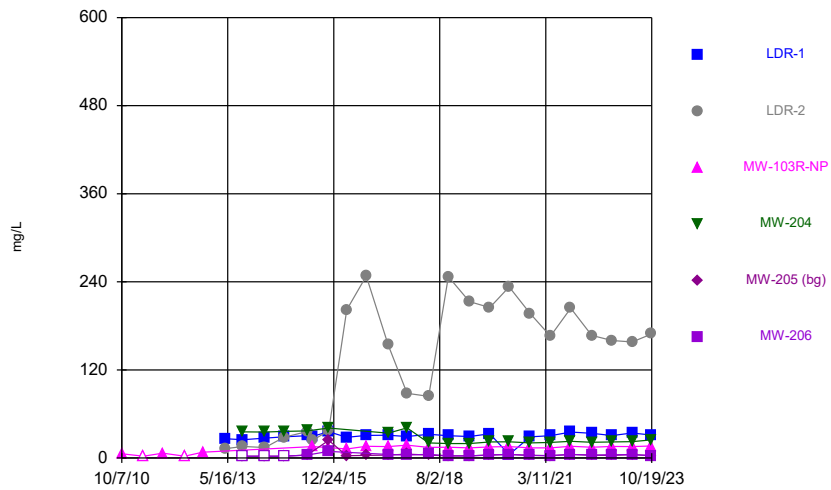
Constituent: Carbonate Analysis Run 11/7/2023 12:58 PM View: 2023AWQR - Time Series  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

### Time Series



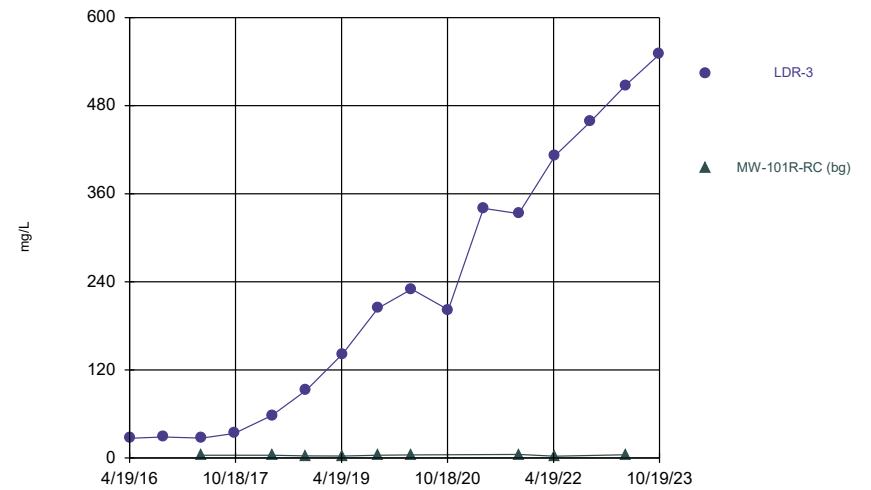
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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

### Time Series



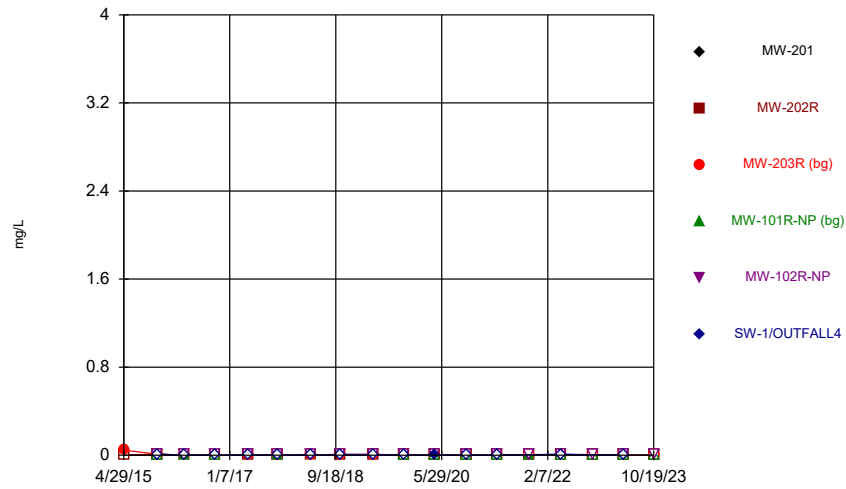
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### Time Series



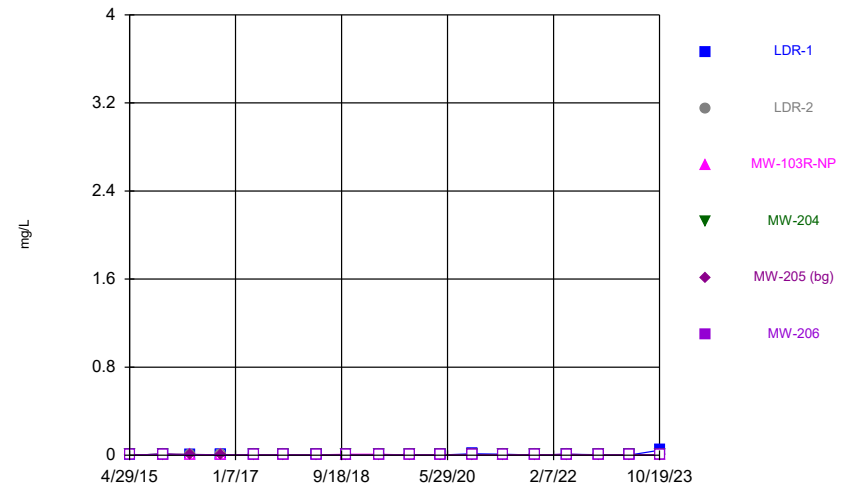
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Time Series



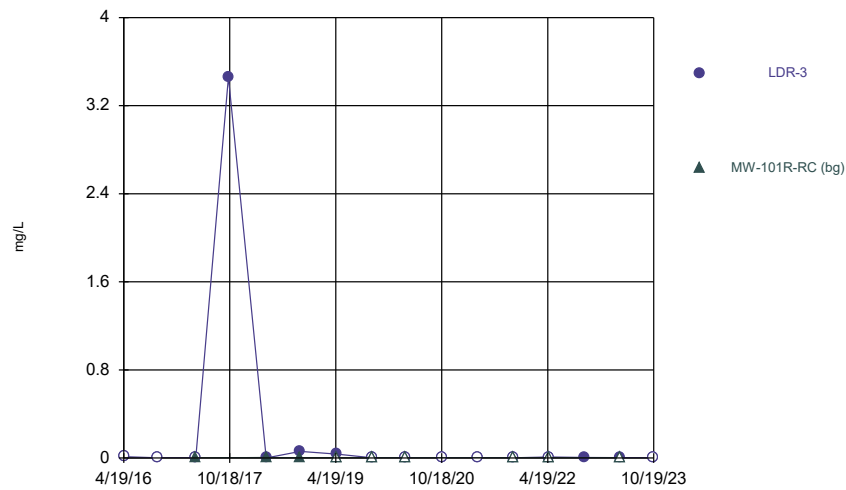
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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



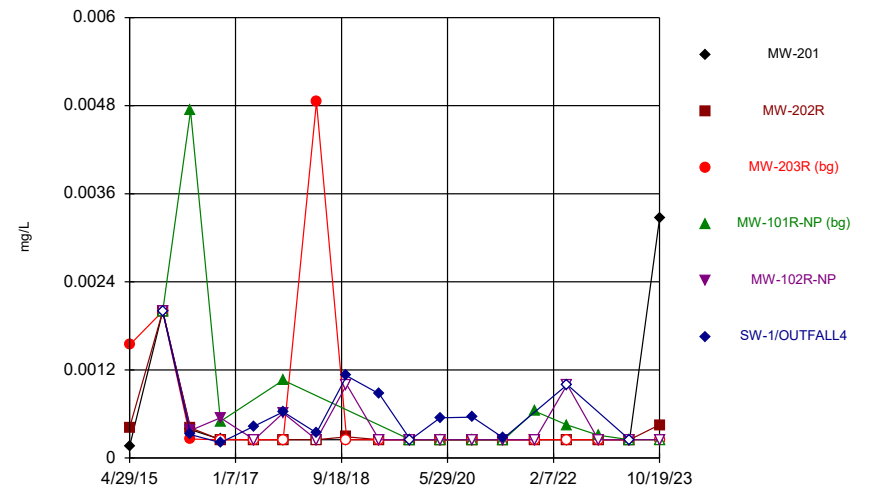
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Time Series



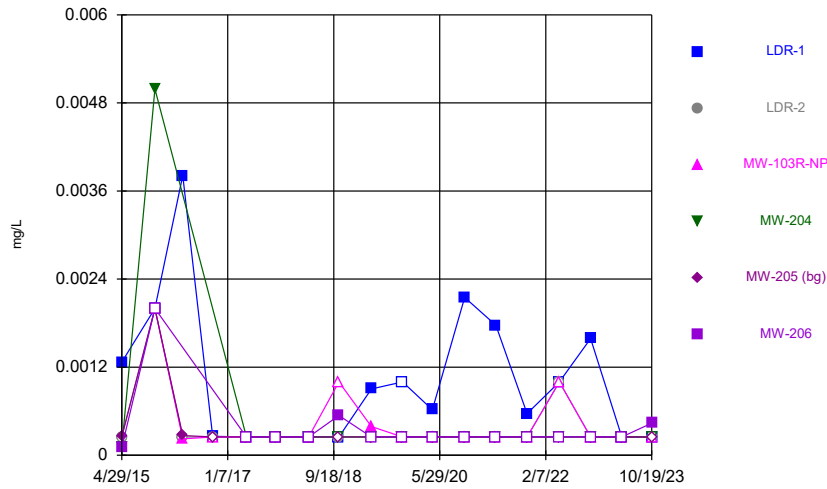
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Time Series



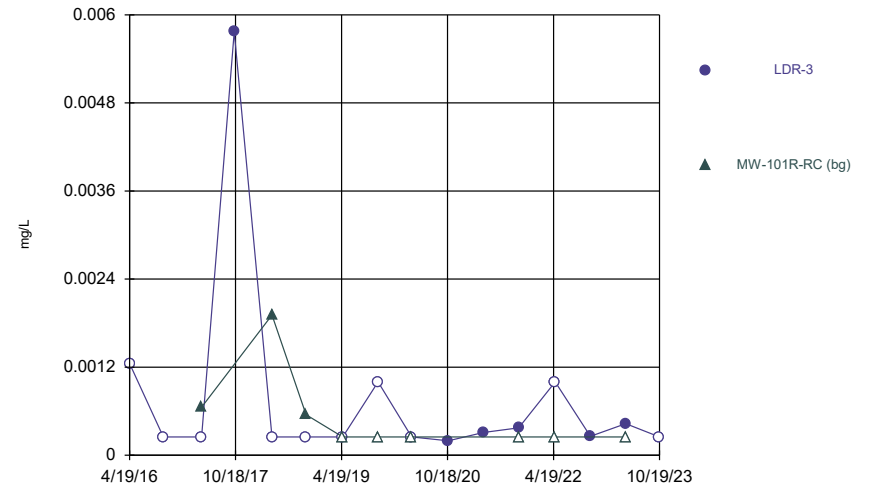
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Time Series



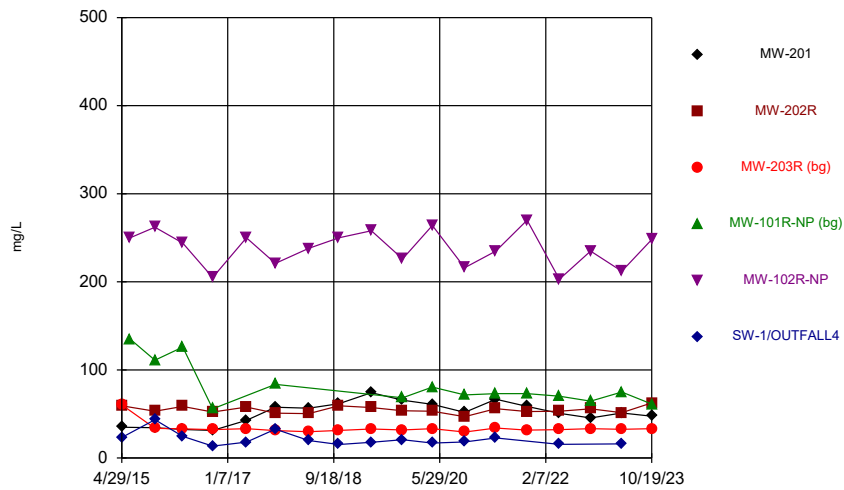
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Time Series



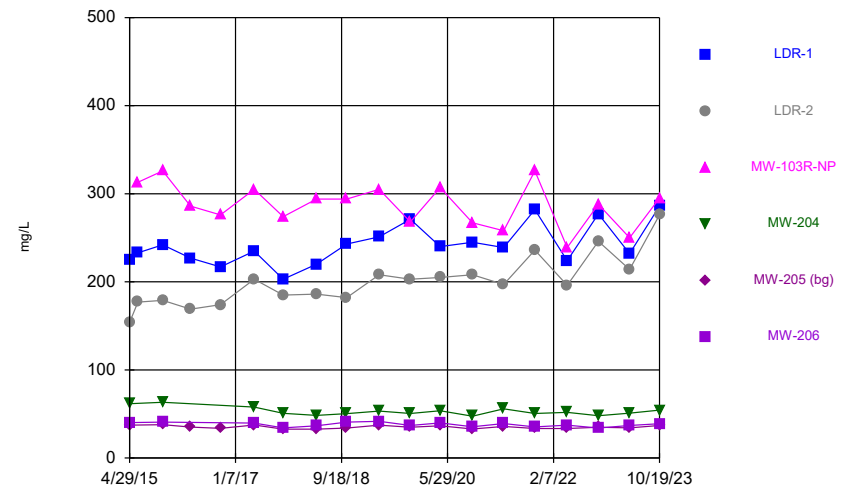
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Time Series



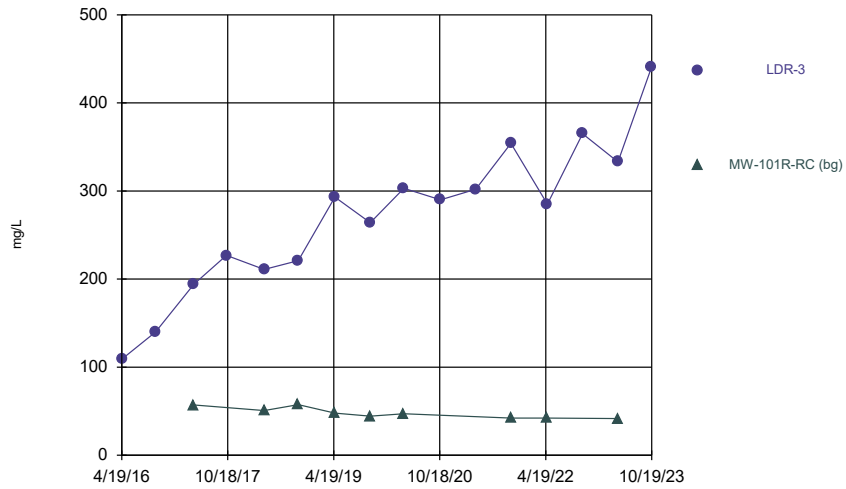
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Time Series



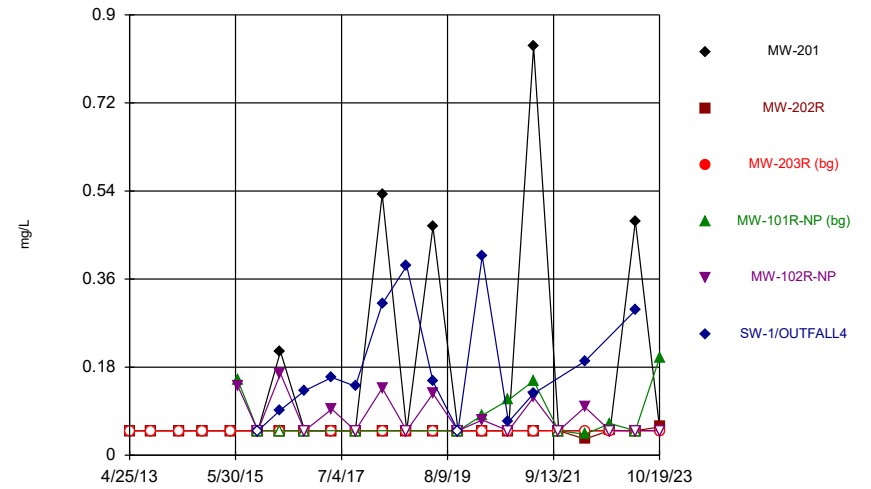
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Time Series



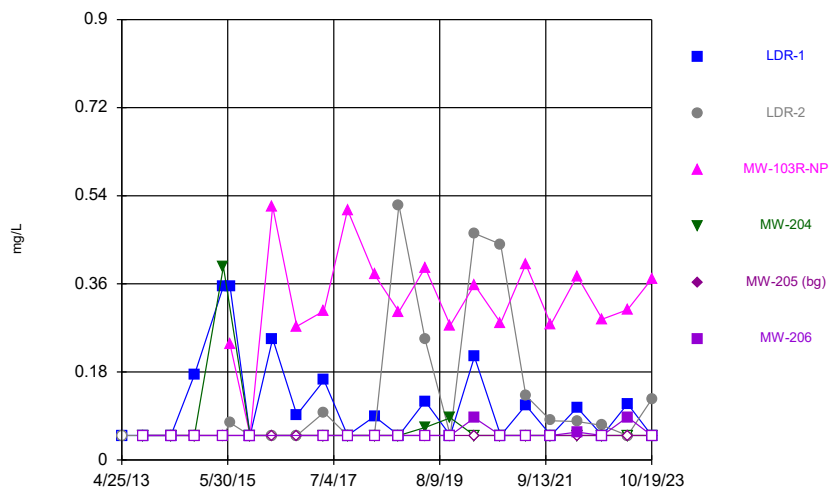
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Time Series



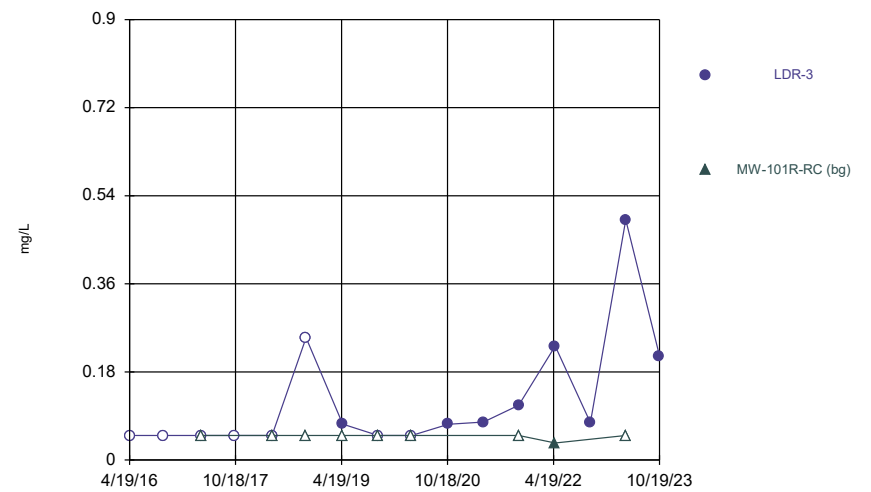
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 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



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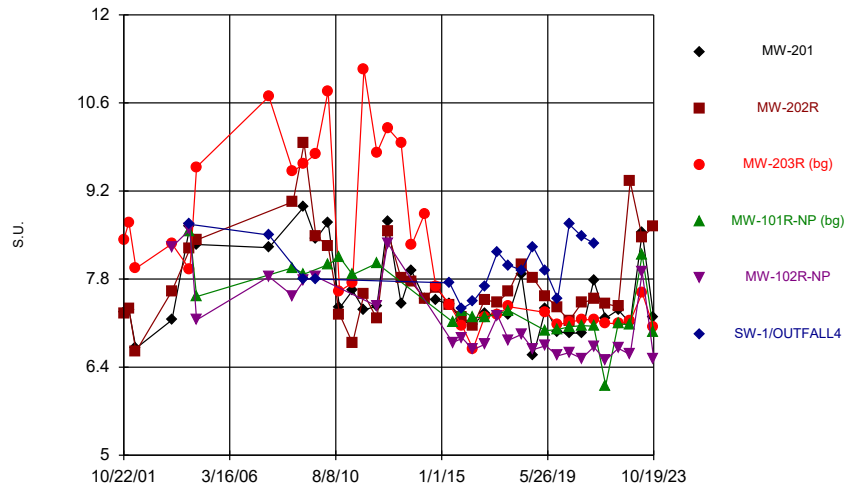
Time Series



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 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

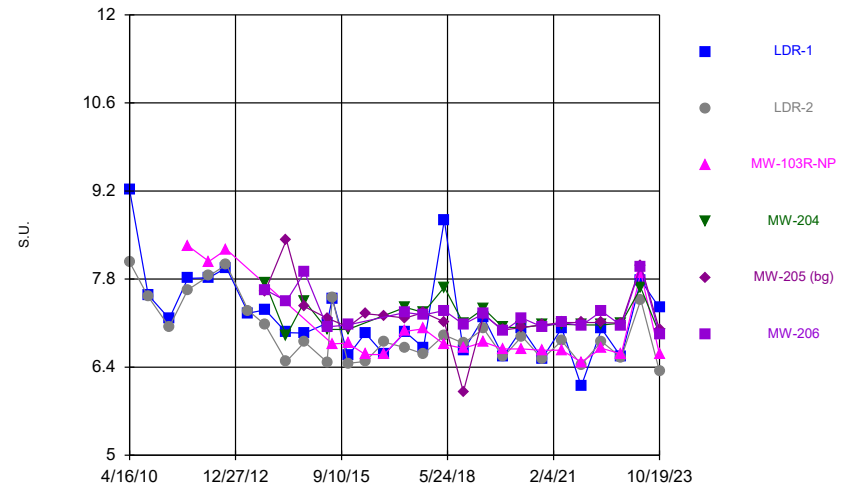


Time Series



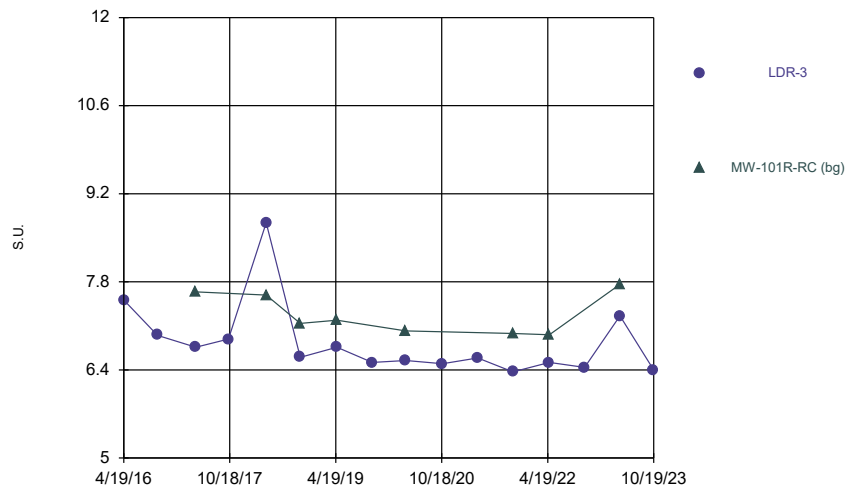
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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



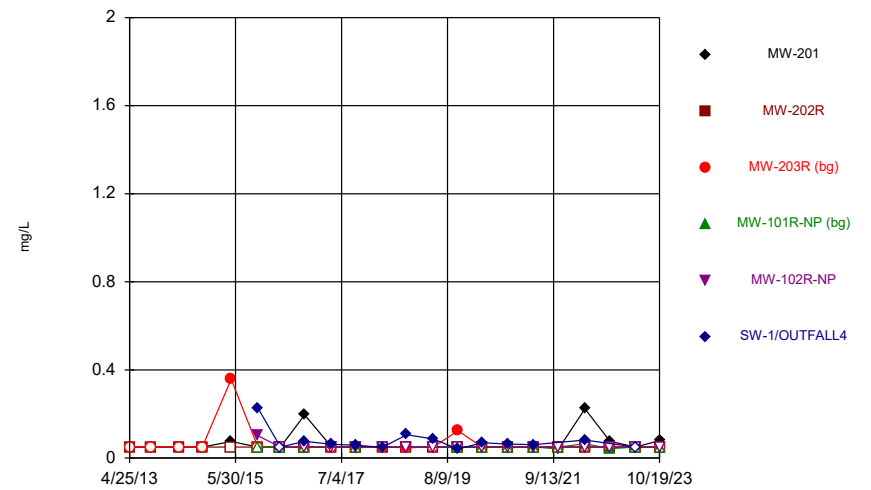
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Time Series



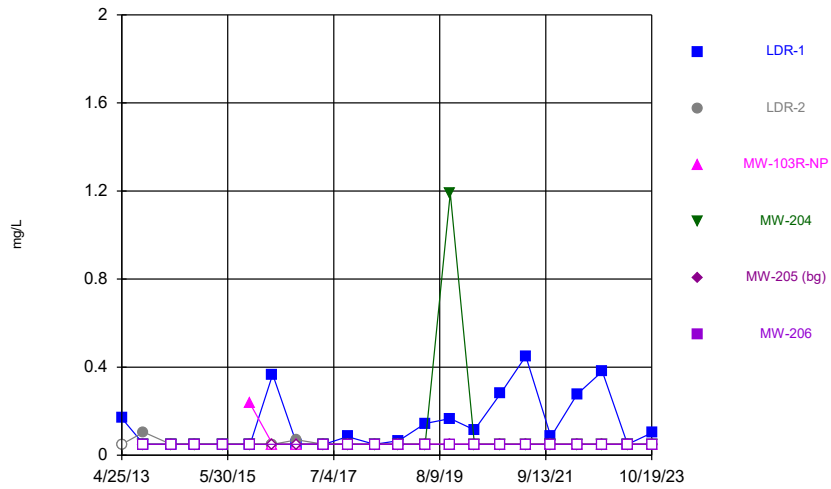
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Time Series



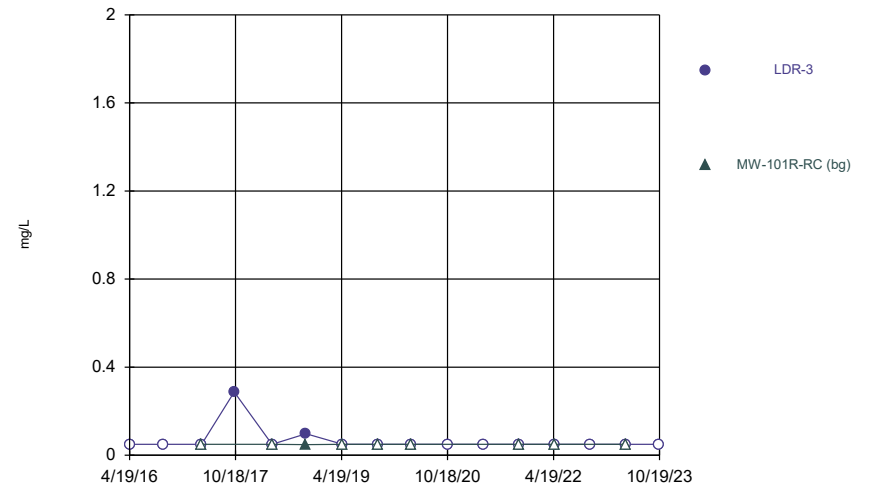
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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

### Time Series



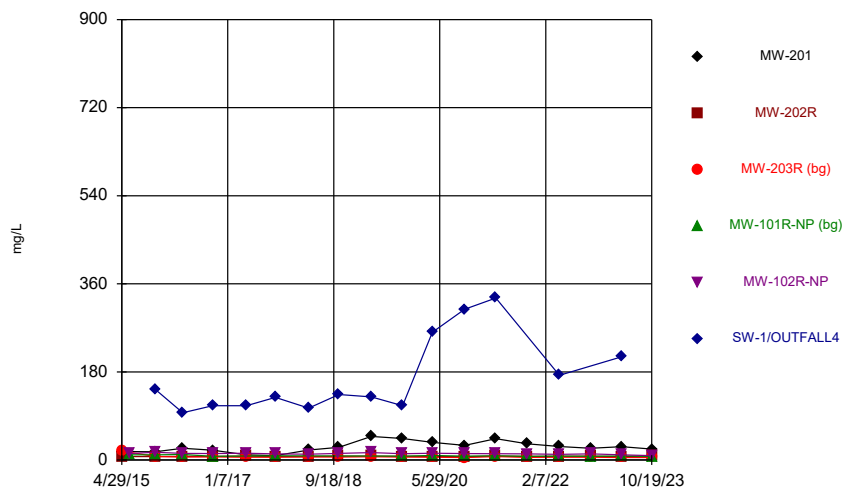
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### Time Series



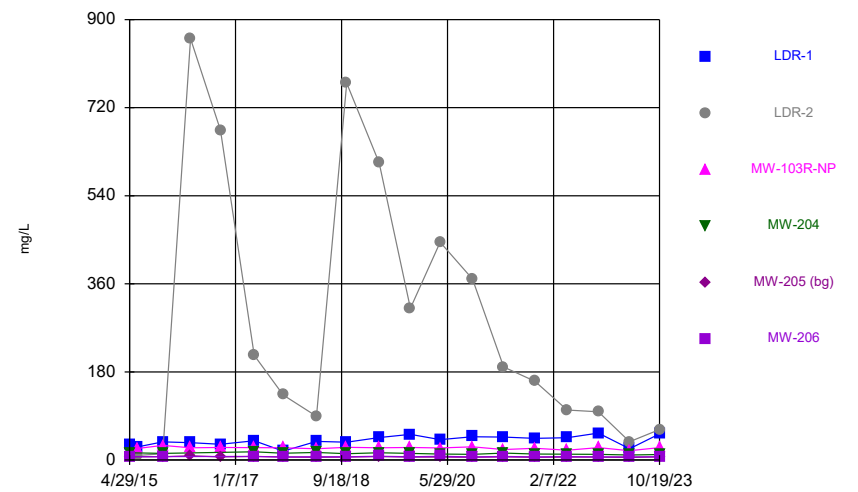
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### Time Series



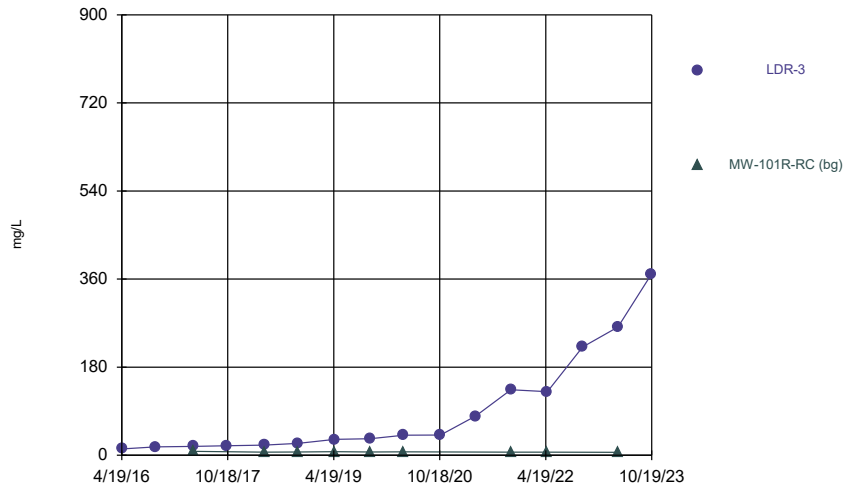
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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

### Time Series



Constituent: Potassium Analysis Run 11/7/2023 12:58 PM View: 2023AWQR - Time Series  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

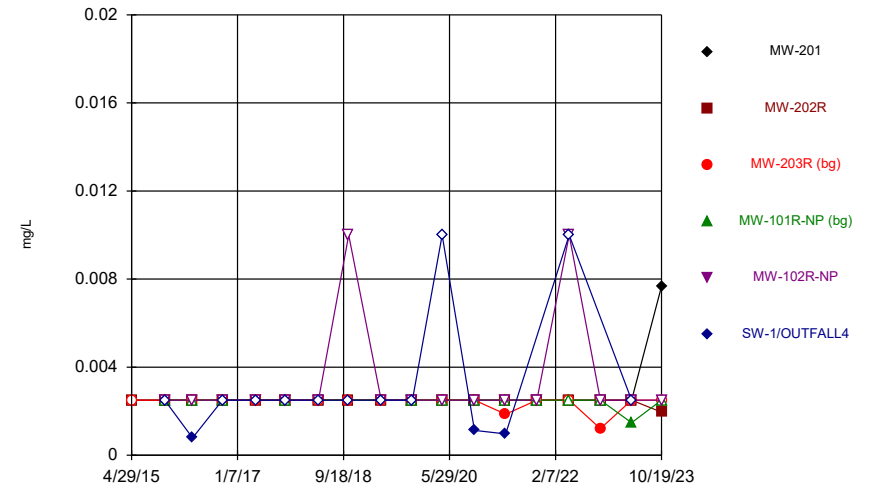
Time Series



Constituent: Potassium Analysis Run 11/7/2023 12:58 PM View: 2023AWQR - Time Series  
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Hollow symbols indicate censored values.

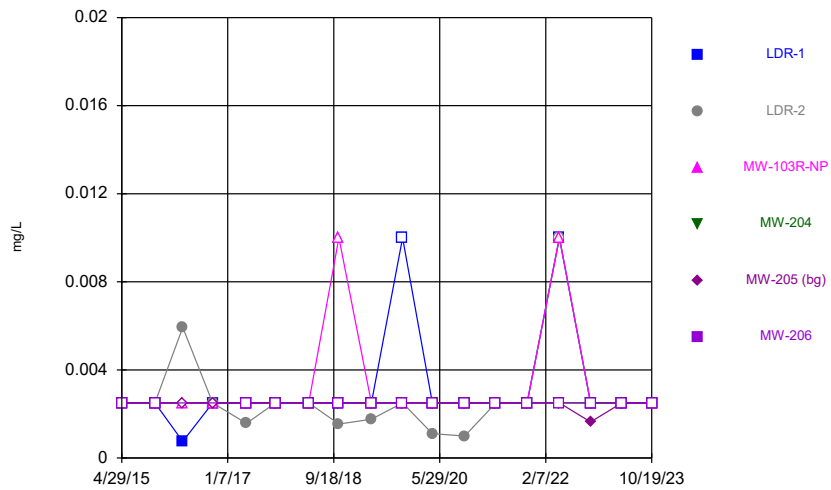
Time Series



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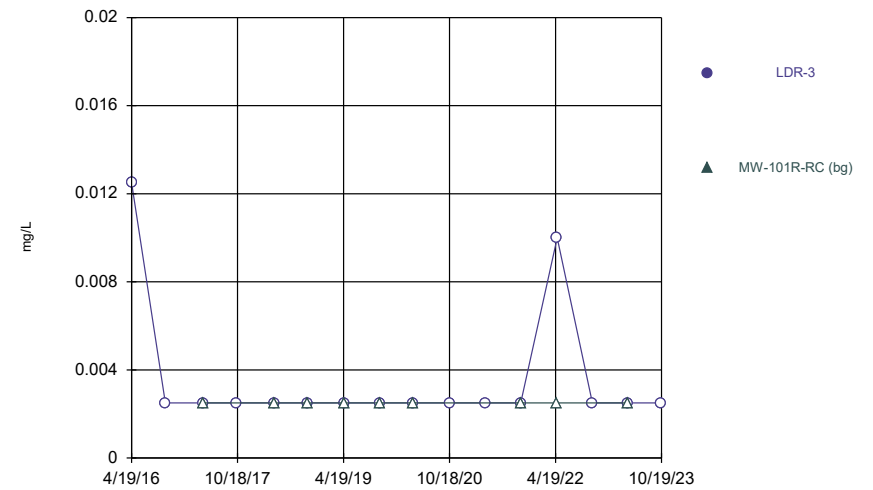
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 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

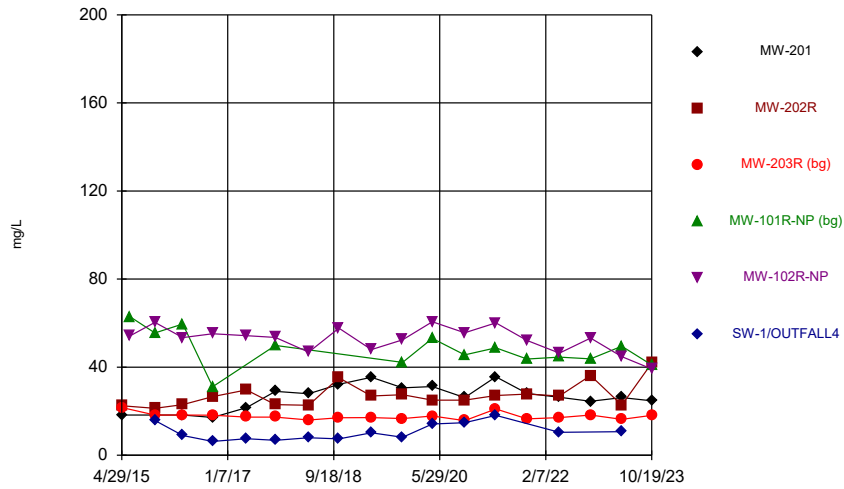
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Time Series



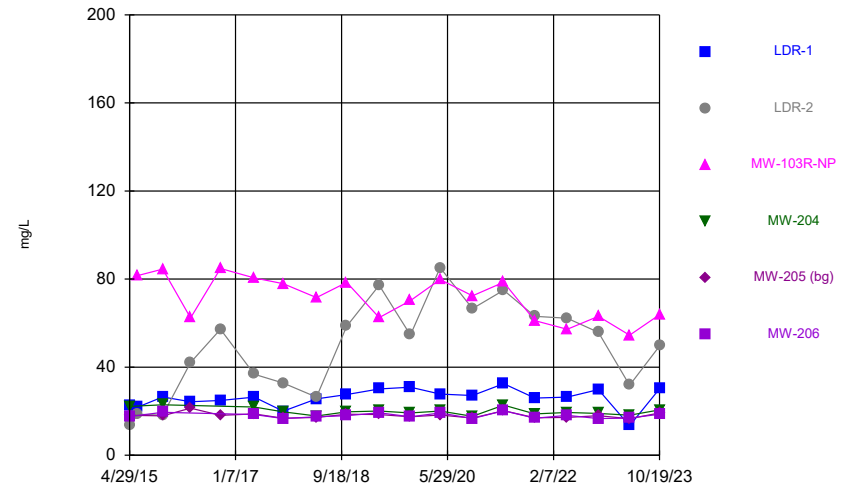
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Time Series



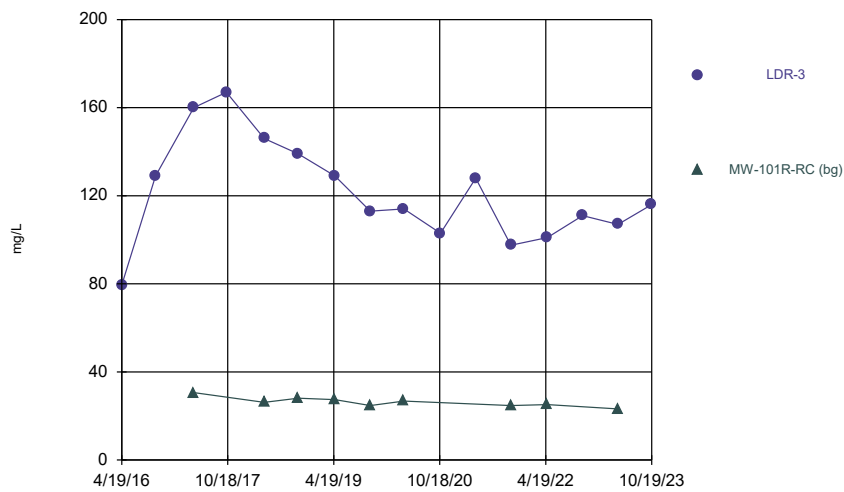
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 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Time Series



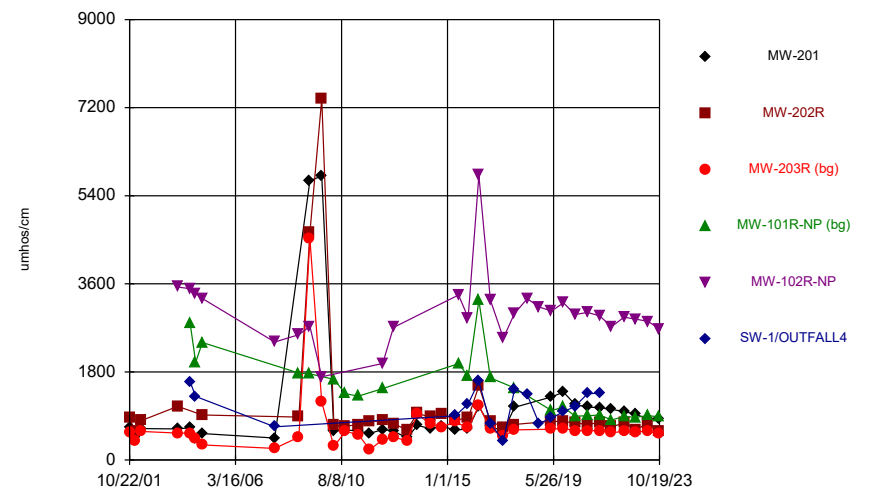
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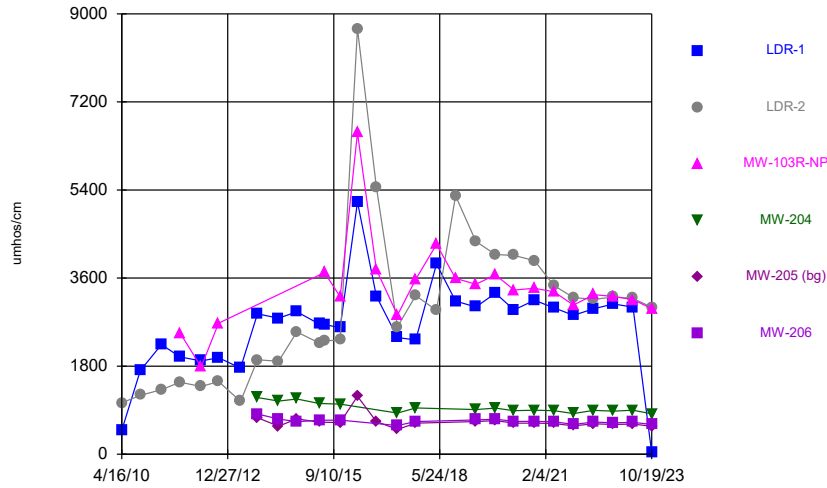
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Time Series



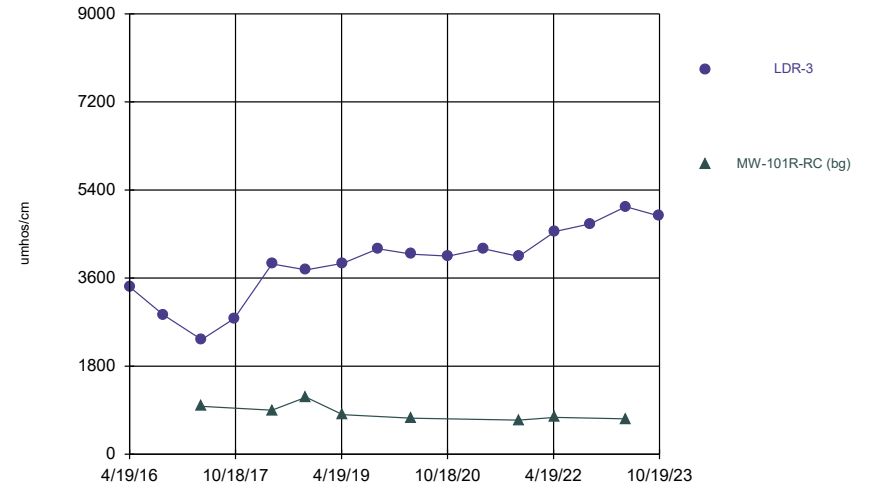
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Time Series



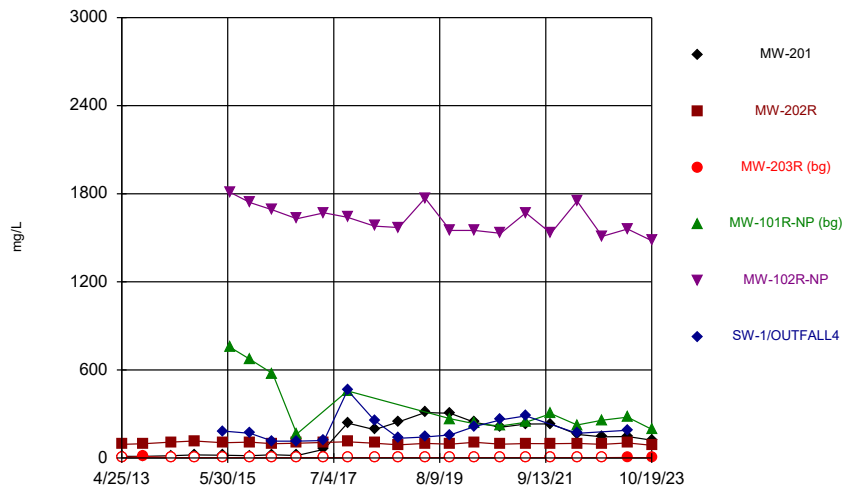
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Time Series



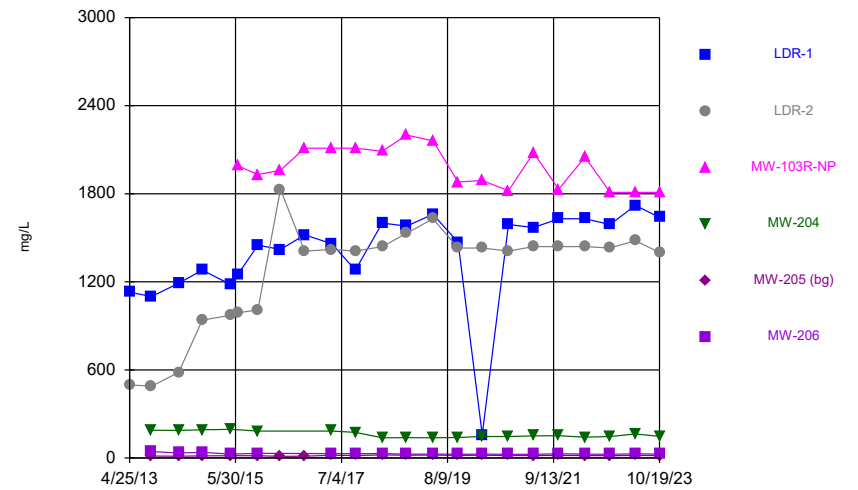
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Time Series



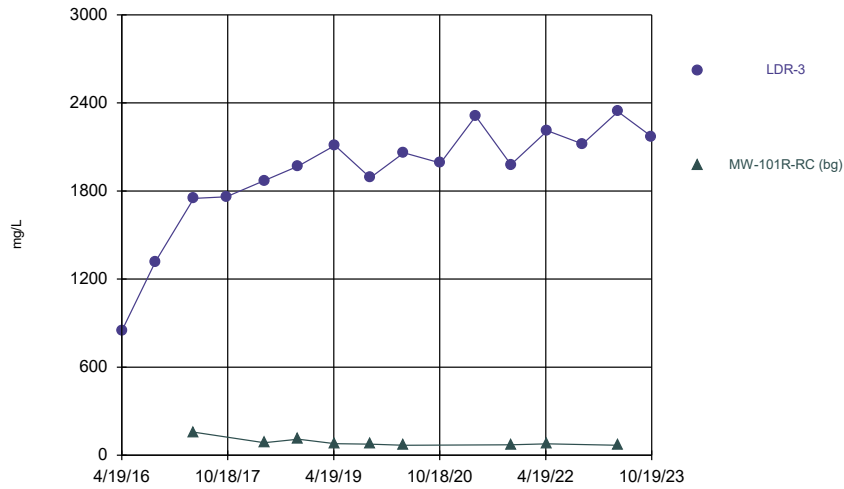
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Time Series



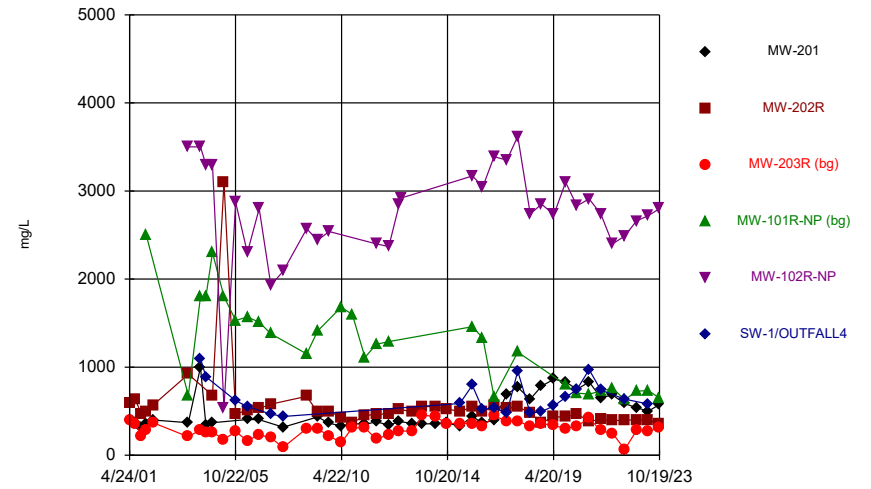
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### Time Series



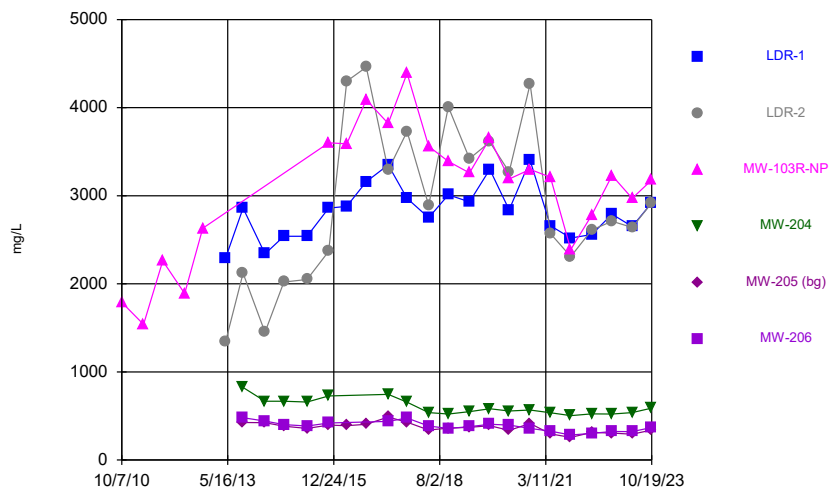
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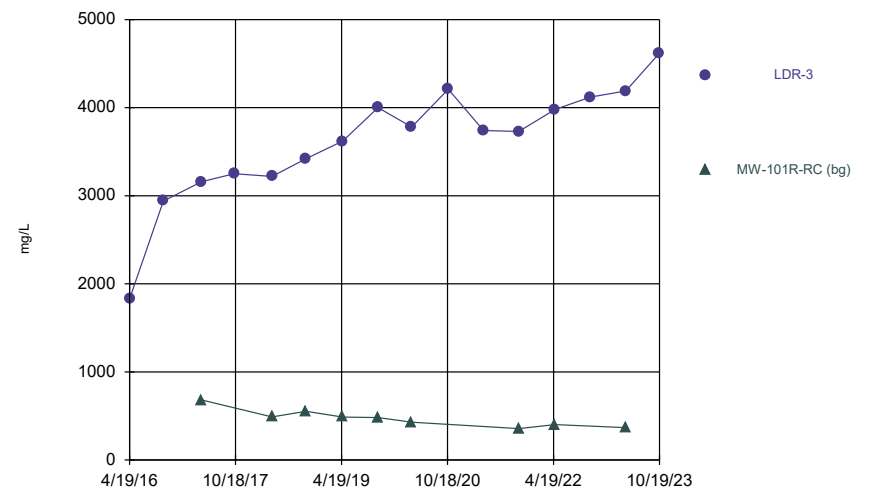
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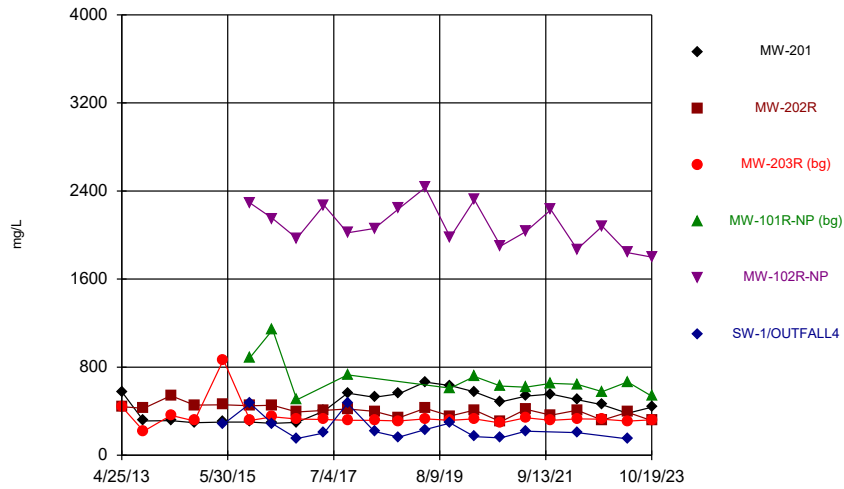
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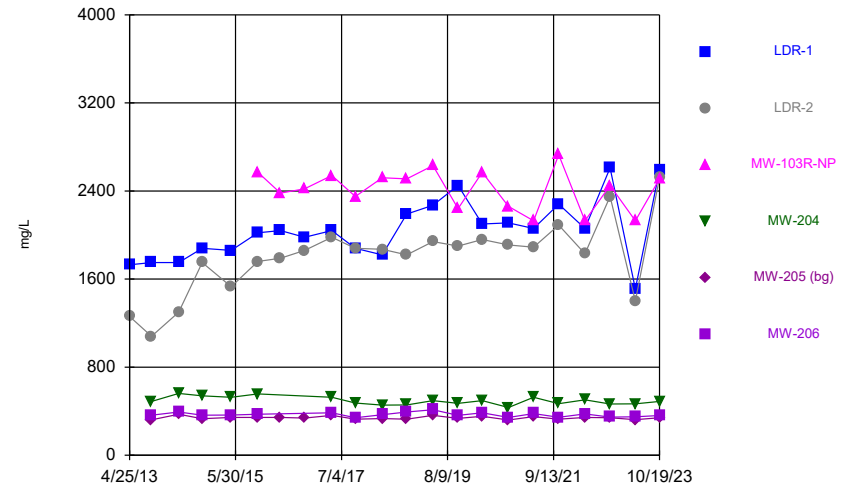
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Time Series



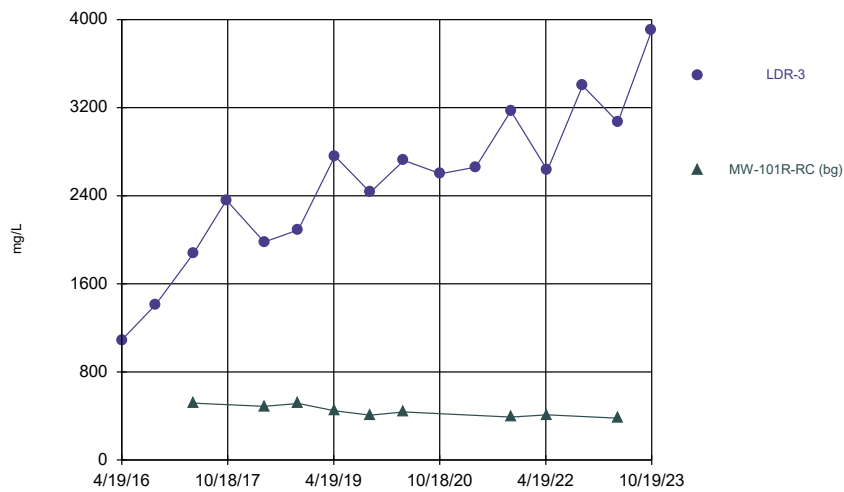
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Time Series



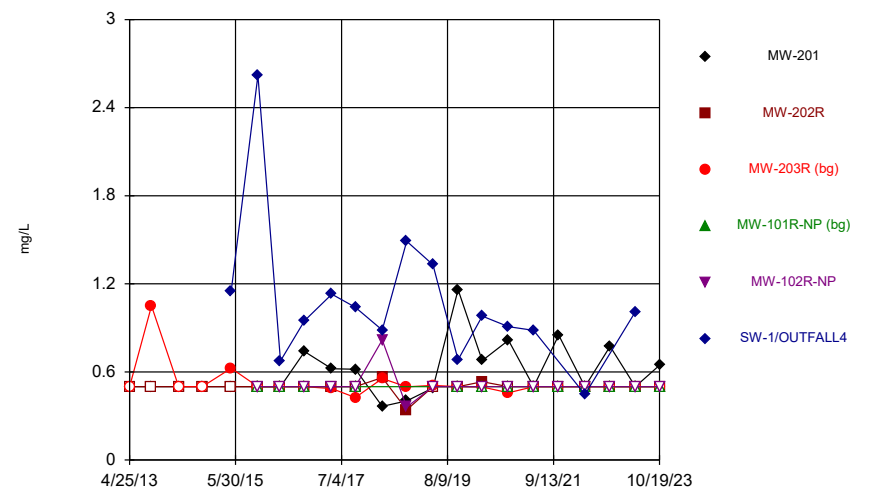
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Time Series



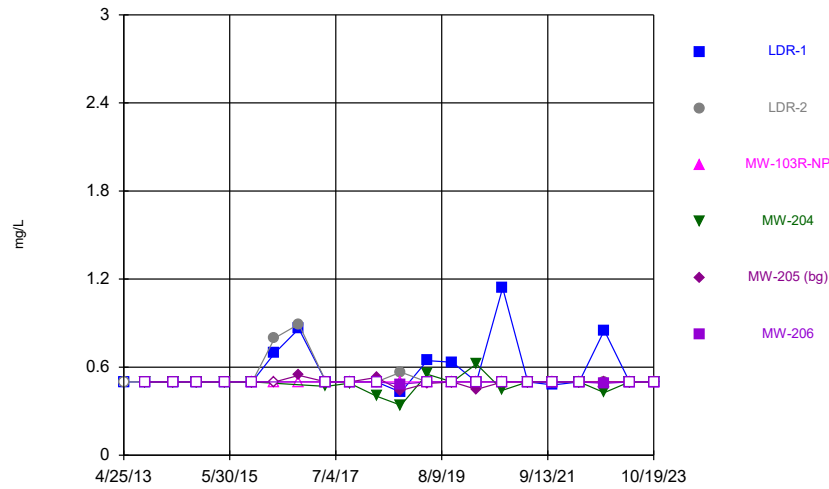
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Time Series



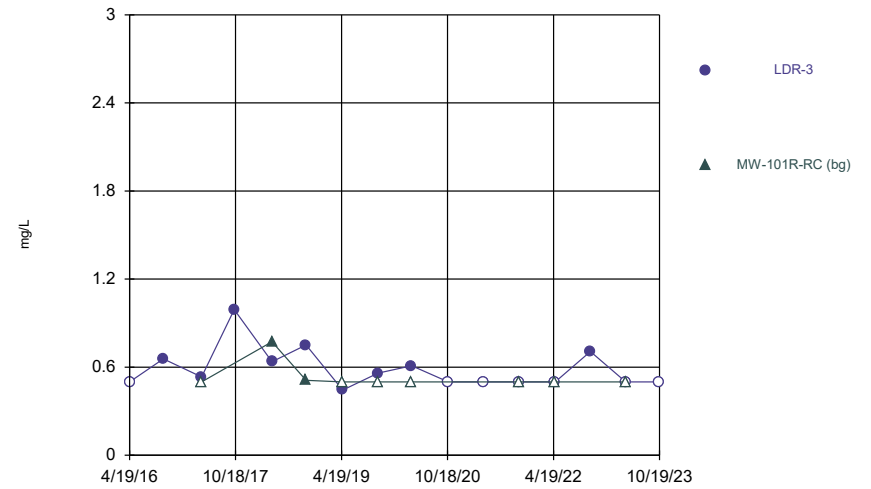
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 CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

### Time Series



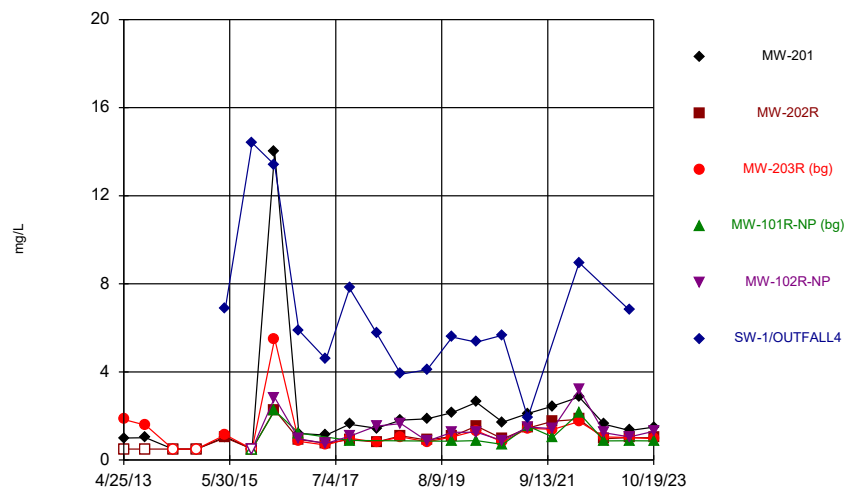
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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

### Time Series



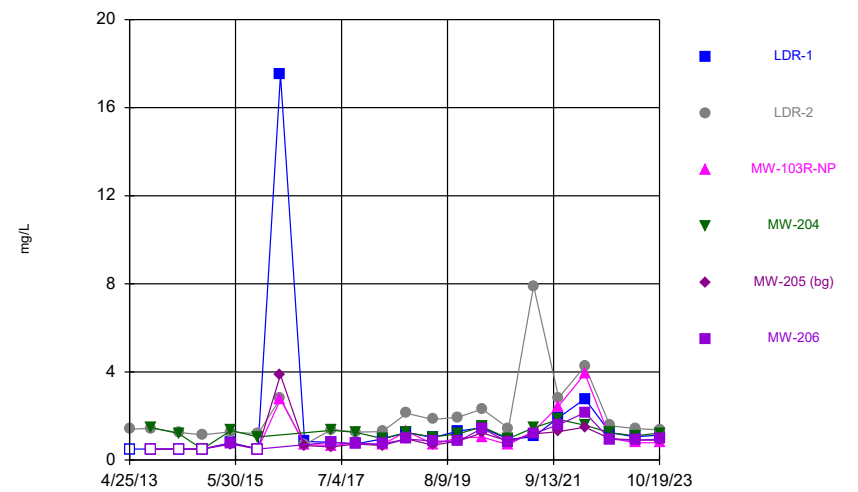
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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

### Time Series



Constituent: Total Organic Carbon Analysis Run 11/7/2023 12:58 PM View: 2023AWQR - Time Series  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

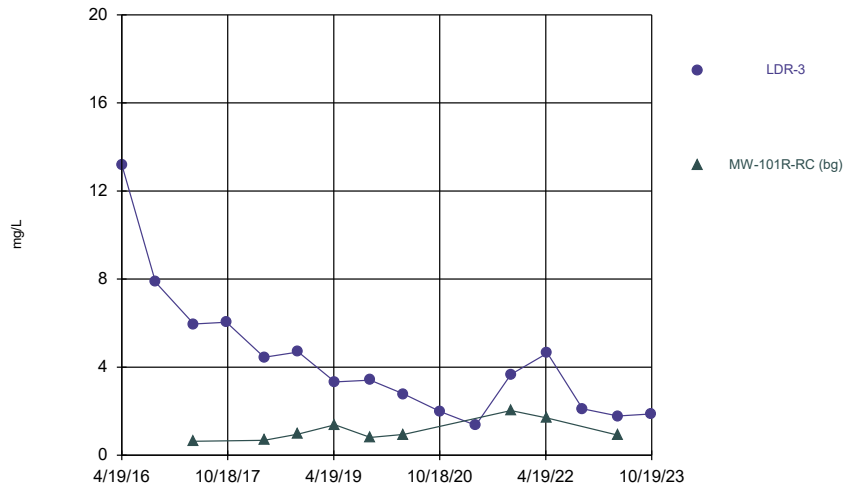
### Time Series



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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master



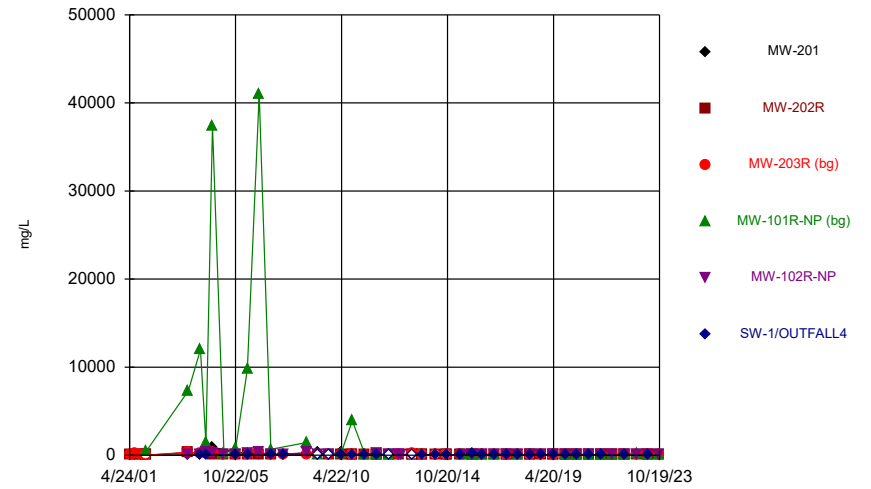
Time Series



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CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

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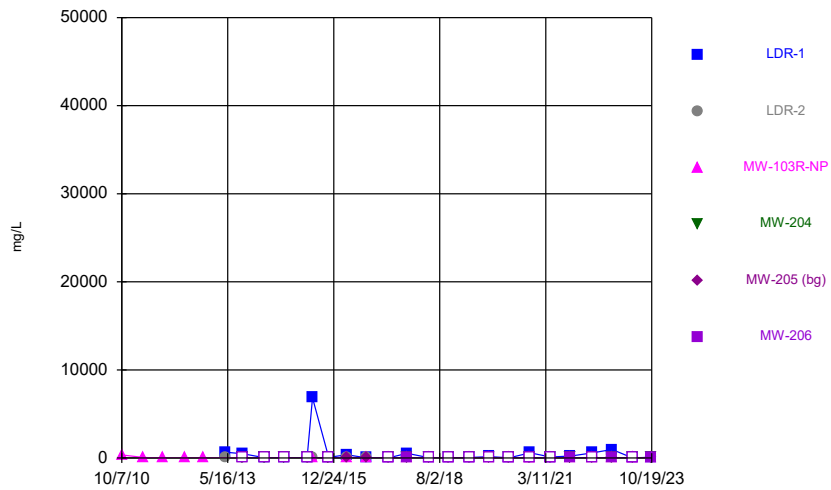
Time Series



Constituent: Total Suspended Solids Analysis Run 11/7/2023 12:58 PM View: 2023AWQR - Time Series  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

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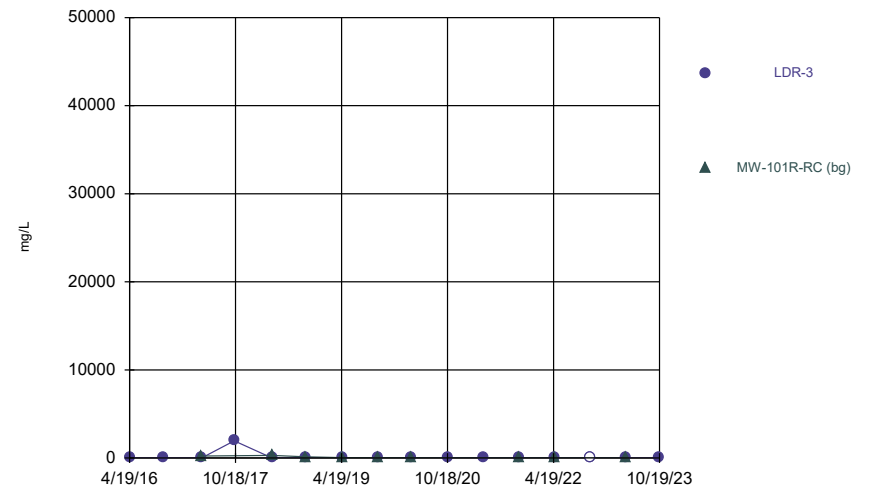
Time Series



Constituent: Total Suspended Solids Analysis Run 11/7/2023 12:58 PM View: 2023AWQR - Time Series  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Hollow symbols indicate censored values.

Time Series



Constituent: Total Suspended Solids Analysis Run 11/7/2023 12:58 PM View: 2023AWQR - Time Series  
CKD Monofill Client: Lehigh Cement Company Data: LCMNT Master

Appendix E  
Mann-Kendall Trend Table

Monitoring Well	Constituent Name	Calculated Statistic		
		Decreasing Trend	Stable Trend	Increasing Trend
LDR-1	Alkalinity, Total [CaCO3]		7	
	Aluminum		-10	
	Ammonia as N		7	
	Arsenic		-7	
	Bicarbonate		9	
	Calcium		8	
	Chloride			14
	Chromium		3	
	Lead	-13		
	Magnesium		4	
	Nitrate/Nitrite as N		-6	
	pH		9	
	Phosphorus, Total [as P]		-6	
	Potassium		4	
	Sodium		-2	
	Specific Conductance		-4	
	Sulfate			18
	Total Dissolved Solids		-2	
	Total Hardness		3	
	Total Kjeldahl Nitrogen		-2	
Total Organic Carbon		1		
Total Suspended Solids		0		
LDR-2	Alkalinity, Total [CaCO3]	-14		
	Arsenic		-11	
	Bicarbonate	-16		
	Calcium		4	
	Chloride	-14		
	Magnesium		12	
	Nitrate/Nitrite as N	-20		
	pH		-6	
	Potassium	-26		
	Selenium		10	
	Sodium	-24		
	Specific Conductance	-22		
	Sulfate		2	
	Total Dissolved Solids		0	
	Total Hardness		2	
Total Organic Carbon		-12		
Total Suspended Solids			14	
LDR-3	Alkalinity, Total [CaCO3]		-8	
	Aluminum		-2	
	Ammonia as N		5	
	Bicarbonate		0	
	Calcium			16
	Chloride			24
	Lead		7	
	Magnesium		12	
	Nitrate/Nitrite as N			18
	pH		-4	
	Potassium			26
	Sodium		2	
	Specific Conductance			18
	Sulfate		8	
	Total Dissolved Solids		12	
	Total Hardness			14
	Total Kjeldahl Nitrogen		-3	
Total Organic Carbon		-4		
Total Suspended Solids		9		

Monitoring Well	Constituent Name	Calculated Statistic		
		Decreasing Trend	Stable Trend	Increasing Trend
MW-101R-NP	Alkalinity, Total [CaCO3]		-6	
	Aluminum		2	
	Arsenic		-1	
	Bicarbonate		-4	
	Calcium		-8	
	Chloride		-4	
	Lead		0	
	Magnesium	-13		
	Nitrate/Nitrite as N		-1	
	pH		6	
	Potassium	-16		
	Sodium		-12	
	Specific Conductance		-4	
	Sulfate		2	
	Total Dissolved Solids		1	
	Total Hardness		-10	
	Total Organic Carbon		-3	
Total Suspended Solids		4		
MW-102R-NP	Alkalinity, Total [CaCO3]		-4	
	Bicarbonate		12	
	Calcium	-14		
	Chloride		-6	
	Magnesium		-3	
	Nitrate/Nitrite as N		-8	
	pH		1	
	Potassium	-20		
	Sodium	-22		
	Specific Conductance	-20		
	Sulfate		-7	
	Total Dissolved Solids		-4	
	Total Hardness	-16		
	Total Organic Carbon		0	
Total Suspended Solids		12		
MW-103R-NP	Alkalinity, Total [CaCO3]		-12	
	Ammonia as N		-5	
	Bicarbonate		0	
	Calcium		-2	
	Chloride		11	
	Magnesium		-4	
	Nitrate/Nitrite as N		2	
	pH		-3	
	Potassium		-2	
	Sodium	-14		
	Specific Conductance	-20		
	Sulfate	-13		
	Total Dissolved Solids		-4	
	Total Hardness		-3	
	Total Organic Carbon		-2	
Total Suspended Solids		1		

Monitoring Well	Constituent Name	Calculated Statistic		
		Decreasing Trend	Stable Trend	Increasing Trend
MW-201	Alkalinity, Total [CaCO3]		-4	
	Ammonia as N		-1	
	Arsenic			13
	Bicarbonate		0	
	Calcium	-15		
	Chloride	-20		
	Lead		7	
	Magnesium	-16		
	Nitrate/Nitrite as N		6	
	pH		11	
	Phosphorus, Total [as P]		8	
	Potassium	-20		
	Selenium		7	
	Sodium	-15		
	Specific Conductance	-26		
	Sulfate	-20		
	Total Dissolved Solids	-20		
	Total Hardness	-18		
	Total Kjeldahl Nitrogen		-5	
Total Organic Carbon		-12		
Total Suspended Solids			14	
MW-202R	Alkalinity, Total [CaCO3]		-2	
	Ammonia as N	-13		
	Bicarbonate		2	
	Calcium		-12	
	Carbonate		11	
	Chloride		-3	
	Magnesium		6	
	pH			14
	Potassium		12	
	Sodium		11	
	Specific Conductance	-14		
	Sulfate		-8	
	Total Dissolved Solids		-10	
	Total Hardness		-8	
	Total Kjeldahl Nitrogen		-7	
Total Organic Carbon		-1		
Total Suspended Solids		9		
MW-203R	Alkalinity, Total [CaCO3]		-8	
	Ammonia as N		-9	
	Bicarbonate		-4	
	Calcium		-6	
	Chloride		-8	
	Magnesium		7	
	pH		-4	
	Potassium		-2	
	Sodium		2	
	Specific Conductance	-16		
	Total Dissolved Solids		-6	
	Total Hardness		-5	
	Total Kjeldahl Nitrogen		11	
Total Organic Carbon		-6		
Total Suspended Solids		8		

Monitoring Well	Constituent Name	Calculated Statistic		
		Decreasing Trend	Stable Trend	Increasing Trend
MW-204	Alkalinity, Total [CaCO3]		3	
	Ammonia as N		2	
	Bicarbonate		4	
	Calcium		-4	
	Chloride			14
	Magnesium		2	
	pH		7	
	Potassium	-16		
	Sodium		0	
	Specific Conductance		-8	
	Sulfate		7	
	Total Dissolved Solids		0	
	Total Hardness		-2	
	Total Kjeldahl Nitrogen		-4	
	Total Organic Carbon		-6	
Total Suspended Solids		6		
MW-205	Alkalinity, Total [CaCO3]		-6	
	Ammonia as N		-10	
	Bicarbonate		-2	
	Calcium		-6	
	Chloride		-8	
	Magnesium		6	
	pH		5	
	Potassium		0	
	Sodium		0	
	Specific Conductance	-18		
	Sulfate		-9	
	Total Dissolved Solids		-4	
	Total Hardness		-8	
	Total Kjeldahl Nitrogen		7	
	Total Organic Carbon		-6	
Total Suspended Solids		9		
MW-206	Alkalinity, Total [CaCO3]		-4	
	Ammonia as N		-9	
	Bicarbonate		1	
	Calcium		-6	
	Chloride		-3	
	Magnesium		-6	
	Nitrate/Nitrite as N		0	
	pH		-1	
	Potassium		-6	
	Sodium		-1	
	Specific Conductance	-18		
	Sulfate		5	
	Total Dissolved Solids		-6	
	Total Hardness		-2	
	Total Organic Carbon		-2	
Total Suspended Solids		-3		

Monitoring Well	Constituent Name	Calculated Statistic		
		Decreasing Trend	Stable Trend	Increasing Trend
SW-1/OUTFALL4	Alkalinity, Total [CaCO3]		4	
	Aluminum		-12	
	Ammonia as N		-6	
	Arsenic		-2	
	Bicarbonate		-2	
	Calcium		-6	
	Chloride		10	
	Chromium		5	
	Lead		-9	
	Magnesium		2	
	Nitrate/Nitrite as N		2	
	Phosphorus, Total [as P]		-12	
	Potassium		10	
	Sodium			14
	Sulfate			16
	Total Dissolved Solids		6	
	Total Hardness		-8	
	Total Kjeldahl Nitrogen		-12	
Total Organic Carbon			14	
Total Suspended Solids		-12		

## Appendix F

# Leachate Control System Performance Evaluation Report



**Table F1  
Leachate Management Summary  
2023 Annual Water Quality Report  
Heidelberg Materials US Cement CKD Monofill  
Permit No. 17-SDP-08-99P**

Date of Measurement	Column in Piezometer (ft)			Volume Recirculated (gal)	Discharge to North Pond (gal)	Precipitation (in)
	LHP-1	LHP-2	LHP-3			
11/4/2022	0.02	dry	0.02	727,000	53,768,000	0.88
12/15/2021	NA	NA	NA			1.34
1/1/2023	NA	NA	NA			2.07
2/1/2023	NA	NA	NA			2.19
3/1/2023	NA	NA	NA			1.38
4/27/2023	dry	dry	dry			3.87
5/2/2023	dry	dry	dry			5.57
6/2/2023	dry	dry	dry			4.34
7/7/2023	dry	dry	dry			4.26
8/8/2023	dry	dry	dry			2.44
9/22/2023	dry	dry	dry			1.26
10/2/2023	dry	dry	dry			2.14
Reporting Period Total						

NA - Not Available

Notes:

- 1) Leachate column thicknesses for the reporting period generally remained consistent with historical measurements.
- 1) Leachate measurements collected by Monofill operator.
- 2) Historical leachate levels and graphs are provided in Attachment A.
- 3) Precipitation data for November 2022 - October 2023 obtained from [ncdc.noaa.gov](https://www.ncdc.noaa.gov).
- 4) NA - Not Available.
- 5) NM - Not Measured.

Comments:

**Reporting Period:** November 2022 - October 2023.  
**Approved Changes to Leachate Collection System:** None.  
**Proposed Changes to Leachate Collection System:** None.  
**Maintenance Performed on Leachate Collection System:** None.  
**Last Date of Cleaning and Inspection:** October 2021.  
**Date of Next Cleaning and Inspection:** Anticipated by October 2024.  
**Volume of Leachate Recirculated:** 727,000 gallons  
**Volume of Leachate Treated Off-Site:** Not Applicable - Discharge under NPDES permit # 1700100.  
**Leachate Quality Testing Results:** See SW-1 in Appendix C.  
**North Pond Levels:** 4/27/2023 = 1,112.84 feet amsl; 10/19/2023 = 1,110.13 feet amsl

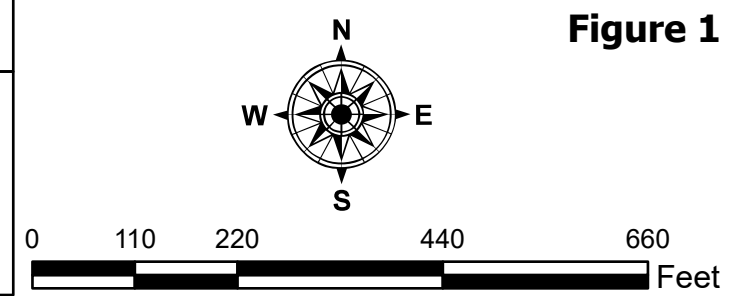
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## Leachate Control System

Legend		
Leachate Monitoring Point Leachate Piping - Perforated Leachate Piping - Solid Monitoring Well	Leachate Piezometer Leak Detection Lysimeter Waste Boundary Existing Cell Boundary	FML Liner Boundary Future Waste Boundary Property Boundary

Lehigh Cement Company  
 Mason City, Iowa  
 Project No: 27223180.00  
 Drawing Date: November 2023



**Figure 1**

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Attachment A  
Historical Leachate Level Graphs

**Historical Leachate Head Level Measurements  
Lehigh-Mason City Cement Manufacturing Waste Landfill**

Date	LHP-1		LHP-2		LHP-3	
	Head Level (ft)	Elevation (ft asl)	Head Level (ft)	Elevation (ft asl)	Head Level (ft)	Elevation (ft asl)
1/28/2004	dry	--	Not Installed			
2/27/2004	dry	--				
3/31/2004	dry	--				
4/27/2004	dry	--				
5/27/2004	0.39	1115.23				
6/30/2004	dry	--				
7/20/2004	0.38	1115.22				
8/31/2004	dry	--				
9/29/2004	0.42	1115.26				
10/29/2004	0.90	1115.74				
11/29/2004	dry	--				
12/28/2004	dry	--				
4/26/2005	0.37	1115.21				
10/24/2005	dry	--				
4/24/2006	dry	--				
10/25/2006	dry	--				
4/24/2007	1.45	1116.29				
12/6/2007	not measured	not measured	not measured	not measured	Not Installed	
4/30/2008	0.30	1115.14	not measured	not measured		
10/30/2008	not measured	not measured	1.48	1117.08		
4/16/2009	not measured	not measured	not measured	not measured		
10/12/2009	not measured	not measured	not measured	not measured		
4/16/2010	dry	--	0.27	1115.87		
10/7/2010	dry	--	1.18	1116.78		
4/21/2011	0.99	1115.83	0.44	1116.04		
10/11/2011	1.03	1115.87	0.85	1116.45		
4/24/2012	dry	--	dry	--		
10/4/2012	dry	--	0.31	1115.91		
4/25/2013	0.70	1115.54	4.56	1120.16		
10/1/2013	1.31	1116.15	2.21	1117.81		
4/15/2014	0.44	1115.28	3.71	1119.31		
10/2/2014	0.09	1114.93	1.81	1117.41		
4/27/2015	not measured	not measured	4.88	1120.48		
4/29/2015	dry	--	3.78	1119.38		
5/22/2015	dry	--	3.46	1119.06		
6/24/2015	dry	--	3.64	1119.24		
7/23/2015	dry	--	3.57	1119.17		
8/20/2015	dry	--	3.74	1119.34		
9/24/2015	dry	--	3.61	1119.21		
10/25/2015	dry	--	3.55	1119.15		
11/9/2015	dry	--	3.59	1119.19		
12/23/2015	dry	--	Piezometer Pulled	not measured	dry	--
1/27/2016	dry	--	Piezometer Pulled	not measured	dry	--
2/24/2016	dry	--	Piezometer Pulled	not measured	dry	--
3/22/2016	dry	--	dry	--	dry	--
4/21/2016	dry	--	dry	--	dry	--
5/27/2016	dry	--	dry	--	dry	--
6/24/2016	dry	--	dry	--	dry	--
7/22/2016	dry	--	dry	--	dry	--
8/23/2016	dry	--	dry	--	dry	--
9/22/2016	dry	--	dry	--	dry	--

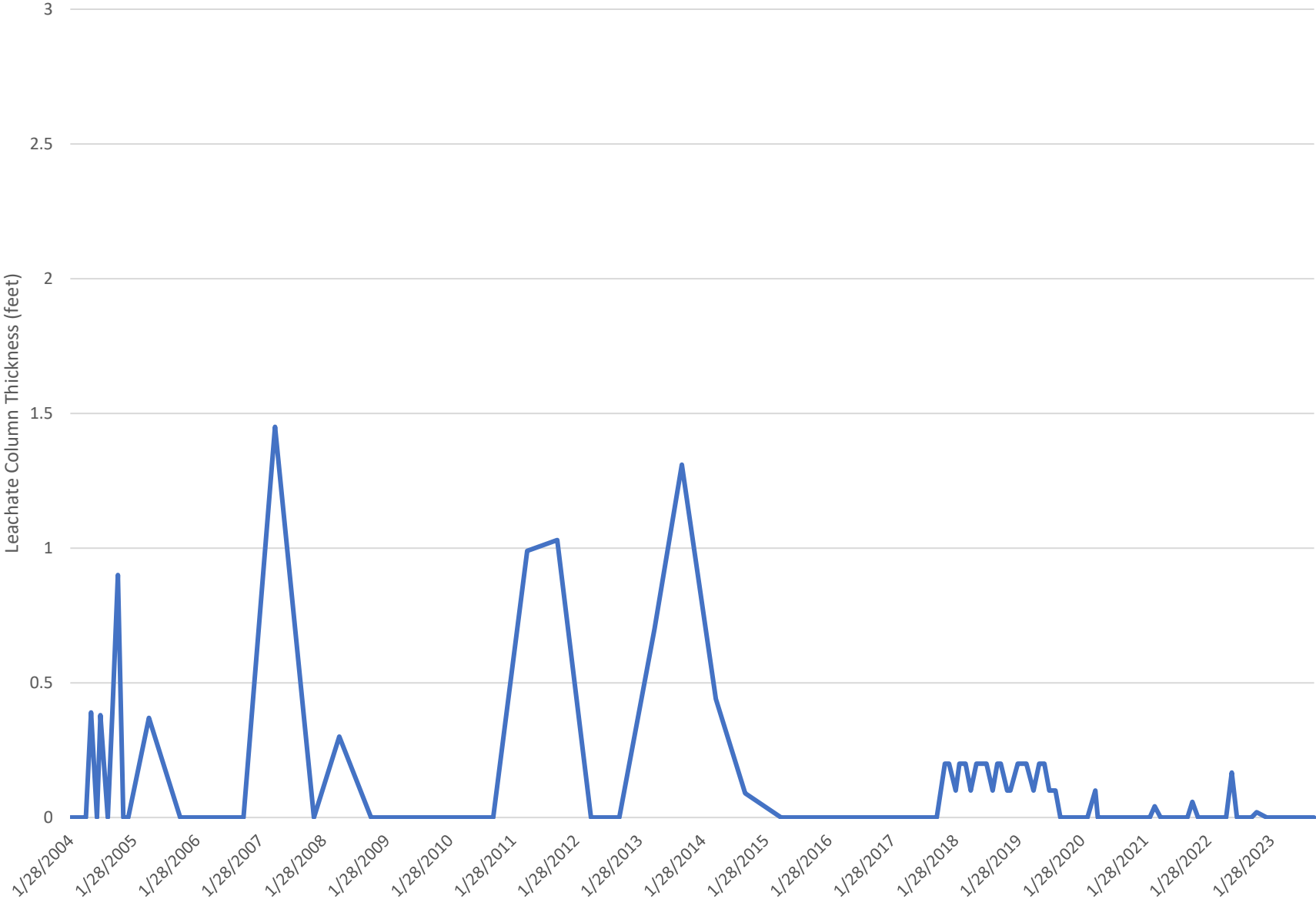
**Historical Leachate Head Level Measurements  
Lehigh-Mason City Cement Manufacturing Waste Landfill**

Date	LHP-1		LHP-2		LHP-3	
	Head Level (ft)	Elevation (ft asl)	Head Level (ft)	Elevation (ft asl)	Head Level (ft)	Elevation (ft asl)
10/26/2016	dry	--	dry	--	Sensor is bad	not measured
11/23/2016	dry	--	dry	--	Sensor is bad	not measured
12/2/2016	dry	--	dry	--	Sensor is bad	not measured
1/26/2017	dry	--	Sensor is bad	not measured	dry	--
2/22/2017	dry	--	Sensor is bad	not measured	dry	--
3/20/2017	dry	--	dry	--	dry	--
4/26/2017	dry	--	dry	--	dry	--
5/30/2017	dry	--	dry	--	dry	--
6/28/2017	dry	--	dry	--	dry	--
7/26/2017	dry	--	dry	--	dry	--
8/30/2017	dry	--	dry	--	dry	--
9/27/2017	dry	--	dry	--	dry	--
10/12/2017	dry	--	dry	--	dry	--
11/28/2017	0.2	1115.04	dry	--	dry	--
12/22/2017	0.2	1115.04	dry	--	dry	--
1/30/2018	0.1	1114.94	dry	--	dry	--
2/21/2018	0.2	1115.04	0.1	1115.70	dry	--
3/28/2018	0.2	1115.04	dry	--	dry	--
4/27/2018	0.1	1114.94	dry	--	dry	--
5/30/2018	0.2	1115.04	dry	--	dry	--
6/29/2018	0.2	1115.04	dry	--	dry	--
7/27/2018	0.2	1115.04	dry	--	dry	--
8/31/2018	0.1	1114.94	dry	--	dry	--
9/28/2018	0.2	1115.04	dry	--	dry	--
10/17/2018	0.2	--	dry	--	dry	--
11/23/2018	0.1	--	dry	--	dry	--
12/12/2018	0.1	--	dry	--	dry	--
1/24/2019	0.2	--	dry	--	dry	--
2/19/2019	0.2	--	dry	--	dry	--
3/14/2019	0.2	--	dry	--	dry	--
4/25/2019	0.1	--	dry	--	dry	--
5/28/2019	0.2	--	dry	--	dry	--
6/27/2019	0.2	--	dry	--	dry	--
7/25/2019	0.1	--	dry	--	dry	--
8/29/2019	0.1	--	dry	--	dry	--
9/27/2019	dry	--	dry	--	dry	--
10/24/2019	dry	--	dry	--	dry	--
11/1/2019	Data Not Found	--	Data Not Found	--	Data Not Found	--
12/1/2019	Data Not Found	--	Data Not Found	--	Data Not Found	--
1/1/2020	Data Not Found	--	Data Not Found	--	Data Not Found	--
2/1/2020	Data Not Found	--	Data Not Found	--	Data Not Found	--
3/1/2020	Data Not Found	--	Data Not Found	--	Data Not Found	--
4/16/2020	0.1	1114.94	dry	--	dry	--
5/1/2020	Data Not Found	--	Data Not Found	--	Data Not Found	--
6/1/2020	Data Not Found	--	Data Not Found	--	Data Not Found	--
7/1/2020	Data Not Found	--	Data Not Found	--	Data Not Found	--
8/1/2020	Data Not Found	--	Data Not Found	--	Data Not Found	--
9/1/2020	Data Not Found	--	Data Not Found	--	Data Not Found	--
10/13/2020	dry	--	dry	--	0.2	1115.04

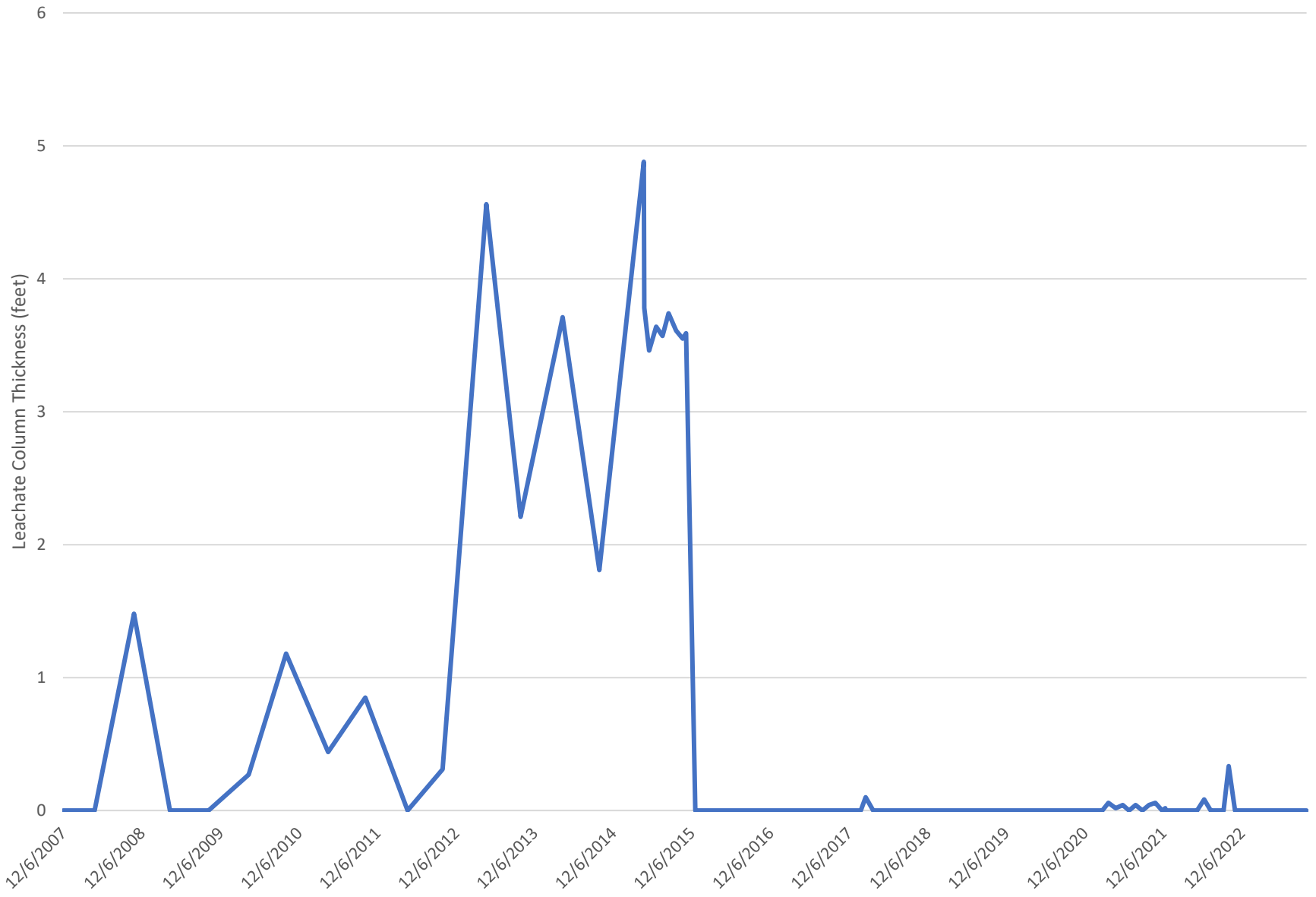
**Historical Leachate Head Level Measurements  
Lehigh-Mason City Cement Manufacturing Waste Landfill**

Date	LHP-1		LHP-2		LHP-3	
	Head Level (ft)	Elevation (ft asl)	Head Level (ft)	Elevation (ft asl)	Head Level (ft)	Elevation (ft asl)
11/24/2020	dry	--	dry	--	dry	--
12/31/2020	dry	--	dry	--	dry	--
1/27/2021	dry	--	dry	--	dry	--
2/25/2021	dry	--	dry	--	dry	--
3/25/2021	0.04	1114.88	0.06	1115.66	0.04	1114.88
4/28/2021	dry	--	0.02	1115.62	dry	--
5/31/2021	dry	--	0.04	1115.64	dry	--
6/30/2021	dry	--	dry	--	dry	--
7/30/2021	dry	--	0.04	1115.64	dry	--
8/31/2021	dry	--	dry	--	dry	--
9/30/2021	dry	--	0.04	1115.64	dry	--
10/29/2021	0.06	1114.90	0.06	1115.66	0.02	1114.86
11/30/2021	dry	--	dry	--	0.06	1114.90
12/15/2021	dry	--	0.02	1115.62	0.04	1114.88
1/18/2022	dry	--	dry	--	dry	--
2/15/2022	dry	--	dry	--	dry	--
3/10/2022	dry	--	dry	--	dry	--
4/12/2022	dry	--	dry	--	dry	--
5/12/2022	dry	--	dry	--	dry	--
6/13/2022	0.17	1115.01	0.08	1115.68	0.08	1114.92
7/14/2022	dry	--	dry	--	dry	--
8/16/2022	dry	--	dry	--	dry	--
9/12/2022	dry	--	dry	--	dry	--
10/5/2022	dry	--	0.33	1115.93	dry	--
11/4/2022	0.02	1114.86	dry	--	0.02	1114.86
12/15/2021	Data Not Found	--	Data Not Found	--	Data Not Found	--
1/1/2023	Data Not Found	--	Data Not Found	--	Data Not Found	--
2/1/2023	Data Not Found	--	Data Not Found	--	Data Not Found	--
3/1/2023	Data Not Found	--	Data Not Found	--	Data Not Found	--
4/27/2023	dry	--	dry	--	dry	--
5/2/2023	dry	--	dry	--	dry	--
6/2/2023	dry	--	dry	--	dry	--
7/7/2023	dry	--	dry	--	dry	--
8/8/2023	dry	--	dry	--	dry	--
9/22/2023	dry	--	dry	--	dry	--
10/2/2023	dry	--	dry	--	dry	--

LHP-1



# LHP-2





LHP-3

