

January 31, 2025

Ms. Lori Babcock
Michigan Department of Environment, Great Lakes, and Energy
Materials Management Division
Bay City District Office
401 Ketchum St, Suite B
Bay City, Michigan 48708

SUBJECT: 2024 Annual Groundwater Monitoring and Corrective Action Report

DE Karn Lined Impoundment Coal Combustion Residuals (CCR) Unit

Dear Ms. Babcock:

On April 17, 2015, the United States Environmental Protection Agency (USEPA) published the final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA) (the CCR Rule) (USEPA, April 2015, as amended). Standards for groundwater monitoring and corrective action codified in the CCR Rule (40 CFR 257.90-98), apply to the Consumers Energy Company (Consumers Energy) Lined Impoundment at the DE Karn Power Plant Site. Pursuant to the CCR Rule, the owner or operator of a CCR unit must prepare an annual groundwater monitoring and corrective action report for the CCR unit documenting the status of groundwater monitoring and corrective action for the preceding year in accordance with §257.90(e). On behalf of Consumers Energy, TRC has prepared this Annual Groundwater Monitoring Report for the Karn Lined Impoundment to cover the period of January 1, 2024 to December 31, 2024.

This 2024 Karn Lined Impoundment Annual Report was prepared in accordance with the requirements of §257.90(e) and presents the monitoring results and the statistical evaluation of the detection monitoring constituents (Appendix III to Part 257 of the CCR Rule) for the four quarterly groundwater monitoring events completed in 2024 for the lined impoundment. As part of the statistical evaluation, the data collected during detection monitoring events are evaluated to identify statistically significant increases (SSIs) in detection monitoring constituents to determine if concentrations in detection monitoring well samples exceed background levels. The KLI was in the detection monitoring program under §257.94 at the start and end of the 2024 reporting period.

After establishing the groundwater monitoring system and detection monitoring project pursuant to the requirements and schedule of §257.90 - §257.94, the State of Michigan enacted Public Act No. 640 of 2018 (PA 640) December 28, 2018 to amend the Natural Resources and Environmental Protection Act, also known as Part 115 of PA 451 of 1994, as amended (a.k.a., Michigan Part 115 Solid Waste Management). The December 2018 amendments to Part 115 were developed to provide the State of Michigan oversight of CCR impoundments and landfills and to better align existing state solid waste management rules and statutes with the CCR Rule. This alignment would ensure compliance with the CCR standards through a state-approved

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permitting program that would be deemed to be "equivalent to" or "as protective as" through an administrative application that would be reviewed and authorized by U.S. EPA.

On November 6, 2020 Consumers Energy submitted the Karn Lined Impoundment Hydrogeological Monitoring Plan (November 2020 HMP) to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) to comply with the requirements of Part 115, Rule 299.4905, and the CCR Rule. The HMP was approved by the EGLE on November 13, 2020 and the four quarterly events completed in 2024 were performed in accordance with the EGLE-approved HMP. This letter and four quarterly reports (Enclosures 2 through 5) collectively comprise the 2024 Annual Groundwater Monitoring and Corrective Action Report and meet the requirements of §257.90(e) as documented in the enclosed checklist (Enclosure 1).

In 2024, Consumers Energy asserted an Alternate Source Demonstration (ASD), for the following SSIs over background limits:

- Sulfate at DEK-MW-15003 (March 2024); and
- Total dissolved solids in monitoring well DEK-MW-18001 (July 2024).

As detailed in the ASD reports (Enclosures 6 and 7), a source other than the Karn Lined Impoundment CCR Unit caused the SSIs. As such, Consumers Energy will continue with the detection monitoring program at the Karn Lined Impoundment in conformance with §257.90 - §257.94.

Closure of the Karn Lined Impoundment was initiated in August 2024 and completed in September 2024 in accordance with the EGLE-approved D.E. Karn Generating Facility, Karn Lined Impoundment Closure Plan¹ (Closure Plan). The Karn Lined Impoundment was dewatered and hydraulic structures were removed. The remaining CCR, the geosynthetic liner systems, and all areas within the limits of the Karn Lined Impoundment that were in contact with CCR were removed, as documented in the D.E. Karn Generating Facility, Karn Lined Impoundment Decommissioning Report² (Enclosure 8). Since closure by removal activities were completed in September 2024, the fourth quarter sampling event (October 2024) is the first post-excavation groundwater monitoring sampling event. In accordance with the Closure Plan and § 257.102(c)3: Closure by removal of CCR, groundwater monitoring will be conducted post-CCR removal to document that constituent concentrations throughout the CCR unit do not exceed the groundwater protection standards established per 40 CFR 257.95(h) for two consecutive groundwater monitoring events. The second post-excavation monitoring event is scheduled to occur in the first quarter of 2025. No corrective actions were performed in 2024. The next annual monitoring report will cover monitoring conducted in the 2025 calendar year and will be submitted no later than January 31, 2026.

¹ Golder Associates Inc. 2018. D.E. Karn Generating Facility, Karn Lined Impoundment Closure Plan. June.

² WSP USA Inc. 2024. D.E. Karn Generating Facility, Karn Lined Impoundment Decommissioning Report. October 30.

³ The closure requirements of § 257.102(c) are equivalent to Section 11519(b)(9)(a) of Part 115.

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Sincerely,

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cc: Mr. Jim Ferritto, EGLE Bay City District Office

Mr. John Ozoga, EGLE Bay City District Office

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Mr. Jim Arduin, EGLE Lansing Office

Mr. Joe Firlit, Consumers Energy

Ms. Darby Litz, TRC

Ms. Kristin Lowery, TRC

Mr. Andrew Whaley, TRC

- Enclosures: 1) CCR Annual Groundwater Report Requirements: § 257.90(e). Checklist for the Karn Lined Impoundment CCR Unit.
 - 2) First Quarter 2024 Hydrogeological Monitoring Report, DE Karn Lined Impoundment CCR Unit, Essexville, Michigan. (TRC, April 30, 2024)
 - 3) Second Quarter 2024 Hydrogeological Monitoring Report, DE Karn Lined Impoundment CCR Unit, Essexville, Michigan. (TRC, July 30, 2024)
 - 4) Third Quarter 2024 Hydrogeological Monitoring Report, DE Karn Lined Impoundment CCR Unit, Essexville, Michigan. (TRC, October 30, 2024)
 - 5) Fourth Quarter 2024 Hydrogeological Monitoring Report, DE Karn Lined Impoundment CCR Unit, Essexville, Michigan. (TRC, January 30, 2025)
 - 6) Alternate Source Demonstration: March 2024 Detection Monitoring Sampling Event, Karn Lined Impoundment Coal Combustion Residuals (CCR) Unit, Essexville, Michigan. (TRC, July 30, 2024)
 - 7) Alternate Source Demonstration: July 2024 Detection Monitoring Sampling Event, Karn Lined Impoundment Coal Combustion Residuals (CCR) Unit, Essexville, Michigan. (TRC; January 28, 2025)
 - 8) D.E. Karn Generating Facility, Karn Lined Impoundment Decommissioning Report, (WSP USA, Inc., October 30, 2024)



Enclosure 1

CCR Annual Groundwater Report Requirements: § 257.90(e). Checklist for the Karn Lined Impoundment CCR Unit.

CCR Annual Groundwater Report Requirements: § 257.90(e) Checklist for the Karn Lined Impoundment CCR Unit 2024 Annual Report

Requirement	Reference
At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:	
(1) A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;	Figure 2 (2),(3),(4),(5)
(2) Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;	Section 3.1 ⁽⁵⁾
(3) In addition to all the monitoring data obtained under §§ 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;	Section 3.2 (2),(3),(4),(5)
(4) A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and	Annual Report Cover Letter ⁽¹⁾ ; Section 1.2 Program Summary ^{(2),(3),(4),(5)}
(5) Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.	Certified ASD ^{(6),(7)}
(6) A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following: (i) At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program	
in § 257.94 or the assessment monitoring program in § 257.95;	Section 1.2 Program Summary (2),(3),(4),(5)
(ii) At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95;	Section 1.2 Program Summary (2),(3),(4),(5)
(iii) If it was determined that there was a statistically significant increase over background for one or more constituents listed in appendix III to this part pursuant to § 257.94(e):	Section 4.1 Statistical Evaluation of Trends ^{(2),(3),(4),(5)} ; Certified ASD ^{(6),(7)}
(A) Identify those constituents listed in appendix III to this part and the names of the monitoring wells associated with such an increase; and	Certified ASD ^{(6),(7)} ; remaining in Detection Monitoring
(B) Provide the date when the assessment monitoring program was initiated for the CCR unit.	Not Applicable; Detection Monitoring
(iv) If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in appendix IV to this part pursuant to § 257.95(g) include all of the following:	Not Applicable; Detection Monitoring
(A) Identify those constituents listed in appendix IV to this part and the names of the monitoring wells associated with such an increase:	Not Applicable; Detection Monitoring
(B) Provide the date when the assessment of corrective measures was initiated for the CCR unit;	Not Applicable; Detection Monitoring Not Applicable; Detection Monitoring
(C) Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and	Not Applicable; Detection Monitoring Not Applicable; Detection Monitoring
(D) Provide the date when the assessment of corrective measures was completed for the CCR unit.	Not Applicable; Detection Monitoring
(v) Whether a remedy was selected pursuant to § 257.97 during the current annual reporting period, and if so, the date of remedy selection; and	Not Applicable; Detection Monitoring
(vi) Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.	Not Applicable; Detection Monitoring

Notes:

- (1) 2024 Annual Groundwater Monitoring and Corrective Action Report Karn Lined Impoundment Coal Combustion Residuals CCR Unit. Consumers Energy. January 30, 2025.
- (2) First Quarter 2024 Hydrogeological Monitoring Report, DE Karn Lined Impoundment CCR Unit, Essexville, Michigan. TRC. April 30, 2024.
- (3) Second Quarter 2024 Hydrogeological Monitoring Report, DE Karn Lined Impoundment CCR Unit, Essexville, Michigan. TRC. July 30, 2024.
- (4) Third Quarter 2024 Hydrogeological Monitoring Report, DE Karn Lined Impoundment CCR Unit, Essexville, Michigan. TRC. October 30, 2024.
- (5) Fourth Quarter 2024 Hydrogeological Monitoring Report, DE Karn Lined Impoundment CCR Unit, Essexville, Michigan.TRC. January 30, 2025.
- (6) Alternate Source Demonstration: March 2024 Detection Monitoring Sampling Event, Karn Lined Impoundment Coal Combustion Residuals (CCR) Unit, Essexville, Michigan.TRC. July 30, 2024.
- (7) Alternate Source Demonstration: July 2024 Detection Monitoring Sampling Event, Karn Lined Impoundment Coal Combustion Residuals (CCR) Unit, Essexville, Michigan.TRC. January 28, 2025.



Enclosure 2

First Quarter 2024 Hydrogeological Monitoring Report, DE Karn Lined Impoundment CCR Unit, Essexville, Michigan. (TRC; April 30, 2024)



First Quarter 2024 Hydrogeological **Monitoring Report**

DE Karn Lined Impoundment CCR Unit

Essexville, Michigan

April 2024

Project Manager/Hydrogeologist

Prepared For:

Consumers Energy 1945 W. Parnall Road Jackson, MI 49201

Prepared By:

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1.0 Introduction

Pursuant to the Federal CCR Rule¹, Consumers Energy initiated a detection monitoring program for the Karn Lined Impoundment that went into service on June 7, 2018. After Consumers Energy established the groundwater monitoring system and detection monitoring program pursuant to the requirements and schedule of §257.90 - §257.94, the State of Michigan enacted Public Act No. 640 of 2018 (PA 640) on December 28, 2018, to amend the Natural Resources and Environmental Protection Act, also known as Part 115 of PA 451 of 1994, as amended (a.k.a., Michigan Part 115 Solid Waste Management). The amendments to the solid waste statute amended state groundwater monitoring requirements for coal ash impoundments; therefore, Consumers Energy submitted the *Karn Lined Impoundment Hydrogeological Monitoring Plan* (HMP) to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) to comply with the requirements of Part 115, Rule 299.4905, and the CCR Rule. The HMP was approved by the EGLE on November 13, 2020, and incorporated, by reference, in Solid Waste Disposal Area Operating License No. 9629 issued on December 10, 2020.

1.1 Statement of Adherence to Approved Hydrogeological Monitoring Plan

This First Quarter 2024 Karn Lined Impoundment Hydrogeological Monitoring Report (Report) has been prepared by TRC on behalf of Consumers Energy to satisfy quarterly groundwater monitoring requirements during the active life of the coal ash impoundment. This Report was prepared in accordance with the items listed in Appendix A (Solid Waste Monitoring Submittal Components) of the May 15, 2015 Michigan Department of Environmental Quality (MDEQ) — Office of Waste Management and Radiological Protection, now the EGLE Materials Management Division (MMD), communication prescribing the format for solid waste disposal facility monitoring submittals as published in OWMRP-115-29, Format for Solid Waste Disposal Facility Monitoring Submittals, dated July 5, 2013. All references herein to the EGLE are inclusive of the MDEQ. Information contained in this report was prepared in adherence to the facility's approved HMP that was approved by the EGLE on November 13, 2020. This HMP is compliant with the requirements set forth in Public Act No. 640 of 2018 (PA 640) to amend the Natural Resources and Environmental Protection Act (NREPA), also known as Part 115 of PA 451 of 1994, as amended (Part 115) (a.k.a., Michigan Part 115 Solid Waste Management).

1.2 **Program Summary**

This Report provides results and summarizes the monitoring activities completed in the first quarter 2024 at the Karn Lined Impoundment located at 2742 Weadock Highway in Essexville, Michigan (Figure 1). Groundwater in the vicinity of the Karn Lined Impoundment has been documented to be affected by the management of CCR prior to the construction of the unit (January 2019, TRC). Given that the constituents associated with CCR currently managed at the Karn Lined Impoundment are indistinguishable from the constituents already present in groundwater from past operation of the former Karn Bottom Ash Pond, the compliance monitoring program for the Karn Lined Impoundment consists of two parts to evaluate if there are new releases from the unit:

¹ USEPA final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA) published April 17, 2015, as amended.



- 1. Monitoring of secondary collection system flow rates and water quality to detect leaks in the liner; and
- 2. Groundwater monitoring to determine if there are potential new releases from the Karn Lined Impoundment.

Based on sampling results for the first quarter 2024, the Karn Lined Impoundment remains in detection monitoring in accordance with the HMP.

1.3 Site Overview

The Karn Lined Impoundment is located within the DE Karn Power Plant site (Site) located north of the former JC Weadock Power Plant, east of the Saginaw River, south and west of Saginaw Bay (Figure 1). Two coal-fired power generating units (Karn Units 1 & 2) began generating electricity in 1958 and 1959, respectively. Consumers Energy permanently ceased the operation of the coal-fired boilers (DE Karn Units 1&2) at the Site in May 2023 and has commenced decommissioning activities for those electrical generating units. Karn Units 3 & 4, co-located with the coal-fired generating units, are oil- and natural gas-fueled. Two other areas of coal ash management within the Site are the former Karn Bottom Ash Pond that was closed by removal and the Karn Landfill that was certified closed and now in post-closure care.

The Karn Lined Impoundment was put into service in June 2018 to replace the former Karn Bottom Ash Pond that directly supported Karn 1&2 power generation operations. The Karn Lined Impoundment serves a twofold purpose for treatment pursuant to National Pollutant Discharge Elimination System (NPDES) Permit N0. MI0001678 and as a temporary storage for bottom ash prior to removal and disposal in the JC Weadock Solid Waste Disposal Area (Weadock Landfill) governed by Solid Waste Disposal Area Operating License No. 9640 issued on March 11, 2021. On July 7, 2023, Consumers Energy submitted a Closure Work Plan for the Karn Lined Impoundment to the EGLE that details a closure by removal of CCR in accordance with 257.102(c) of the self-implementing requirements of the CCR Rule. By reference, performance of this work would also satisfy state requirements pursuant to Section 11519b(9) of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.11501 et seq. EGLE provided written concurrence with the Closure Work Plan on October 25, 2023.

1.4 Geology/Hydrogeology

The majority of the Karn Lined Impoundment area is comprised of surficial CCR and sand fill, as described in the HMP. USGS topographic maps and aerial photographs dating back to 1938, in addition to field descriptions of subsurface soil at the Site, indicate that the site was largely developed by reclaiming low-lands through construction of perimeter dikes and subsequent ash filling (AECOM, 2009).

The surficial fill consists of a mixture of varying percentages of ash, sand, and clay-rich fill ranging from 5 to 15 feet thick. Below the surficial fill, native alluvium and lacustrine soils are present at varying depths. Generally, there is a well graded sand unit present to depths of 10 to 30 feet below ground surface (ft bgs) overlying a clay till which is observed at depths ranging from 25 to 75 ft bgs. In general, the alluvium soils (sands) are deeper along the Saginaw River



and there are shallower lacustrine deposits (clays, silts and sands deposited in or on the shores of glacial lakes) at other areas. The clay till acts as a hydraulic barrier that separates the shallow groundwater from the underlying sandstone. A sandstone unit, which is part of the Saginaw formation, was generally encountered at 80 to 90 ft bgs.

The Site is bound by several surface water features (Figures 1 and 2): the Saginaw River to the west, Saginaw Bay (Lake Huron) to the north and east, and a discharge channel to the south. In general, shallow groundwater is encountered at a similar or slightly higher elevation relative to the surrounding surface water features. Groundwater flow in the upper aquifer is largely controlled by the surface water elevations of Saginaw River and Saginaw Bay. In the vicinity of the Karn Lined Impoundment, the shallow groundwater flow is generally radial, with a potentiometric high point near OW-12, flowing outward toward the surrounding surface water bodies.



2.0 Second Collection System Monitoring

Consumers Energy initiated secondary collection system flow monitoring to comply with the EGLE-approved HMP in December 2020. The SCS serves as a leak detection system and the SCS flow rate data is used to demonstrate compliance with Part 115. Consumers Energy continues to comply with the requirements for unmonitorable units under Rule 437 of the Part 115 Rules.

Increased average daily flow rates noted for the period from December 10, 2020 – January 6, 2021 triggered investigations by Consumers Energy that quickly identified deficiencies in the liner system and prompted actions to address the damaged liner (Consumers Energy, 2021a and 2021b). Following repairs to the liner in 2021, the daily average flow rates were reduced, and the three-month average dropped below the response action flow of 25 gallons per acre per day (GPAD). The flow rate is calculated each time the secondary collection system is evacuated. During the previous quarter (January 2024 – March 2024), no single event exceeded the action flow rate of 5 GPAD, so additional temporal calculations or trends were not developed to demonstrate compliance with the action flow rate. Consumers continues to document this information in their operating record.

In response to the prior exceedance of the SCS response action flow rate, samples were collected from the surface water of the primary collection system (KLI-PCS) and from the secondary leachate collection system sump (KLI-SCS) to compare leachate chemistry to groundwater chemistry. The samples were analyzed for the following constituents:

- Primary Indicator Parameters: Section 11511a(3)(c) Detection Monitoring Constituents
- Alternative Indicator Parameters: Section 11519b(2) Assessment Monitoring Constituents
- Optional Analyses in support of Piper or Stiff diagrams

The KLI-PCS and KLI-SCS data were evaluated for comparison to groundwater quality and water chemistry and to also assess potential of hazard and mobility of constituents. A series of time-series plots are included in Appendix E to illustrate water quality data changes over time for the secondary collection system from the start of operation in June 2018 to present. This analysis demonstrates that each monitored constituent is generally present in the secondary collection system (KLI-SCS) at concentrations less than the Groundwater Protection Standard (GWPS) established under 40 CFR 257.95(h) for the Karn Bottom Ash Pond or generic groundwater surface water interface (GSI) criteria adopted by the Department pursuant to Section 20120a, with the exception of total dissolved solids, sulfate, and chloride. Consumers notes that as decommissioning of the Karn Units 1&2 proceeds, temporary changes to the mix of the miscellaneous low-volume waste may occur, causing changes in the concentrations of detected constituents in the primary collection system (KLI-PCS) as compared to historical. A few notable observations include:

■ Arsenic concentrations are higher in groundwater than the primary and secondary collection system: Arsenic was detected in the primary collection system at a concentration of 1 ug/L and in the secondary collection system at a concentration of 2 ug/L in March 2024. As shown in Appendix E, the arsenic concentrations observed in the primary and secondary collections system have been consistently low. In contrast, the



arsenic concentration observed in OW-12, the monitoring well located closest to the repaired liner areas, is 58 ug/L, which is consistent with concentrations observed in August 2020, before the liner damage occurred. Arsenic present in groundwater does not appear to be a result of a release from the unit.

■ Secondary Collection System chemistry has not appreciably changed: The time series plots in Appendix E show relatively stable trends in chemistry for samples collected from the secondary collection system, except for total dissolved solids (TDS), and sulfate in the secondary collection system. TDS concentrations in KLI-SCS increased between 2018 and 2021 and have since began to stabilize. Sulfate concentrations are slightly increasing over time. The TDS and sulfate concentrations in the secondary collection system are more closely linked to water coming through the system from the intake water than as a byproduct of the commingled ash and other waste products.

Water quality data collected for this event are included in the attached laboratory reports (Appendix A). Groundwater chemistry is discussed in Section 4.1. Groundwater conditions will continue to be monitored.



3.0 Groundwater Monitoring

3.1 Monitoring Well Network

In accordance with §257.91, Consumers Energy developed a groundwater monitoring system for the Karn Lined Impoundment prior to the initial receipt of waste in the CCR unit (TRC, 2018c). Given the radial groundwater flow direction and that constituents associated with CCR currently managed at the Karn Lined Impoundment are indistinguishable from the constituents already present in groundwater from past operation of the Karn Bottom Ash Pond, the groundwater monitoring system design incorporates an intrawell statistical approach for detection monitoring as described in the HMP and in accordance with the "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance" (USEPA, 2009). Five monitoring wells that are screened in the uppermost saturated unit were selected for the Karn Lined Impoundment HMP detection monitoring (DEK-MW-15003, DEK-MW-18001, OW-10, OW-11, and OW-12). Monitoring well locations are shown on Figure 2.

3.2 March 2024 Detection Monitoring Event

In accordance with the HMP, TRC conducted the first quarter 2024 monitoring event for the Karn Lined Impoundment between March 4 and 5, 2024. In addition to the routine groundwater samples collected from the monitoring well network, a water sample was collected from a sump in the secondary collection system (KLI-SCS) and a surface water sample was collected from the primary collection system (KLI-PCS), as discussed in Section 2 above, such that leachate chemistry could be compared to groundwater chemistry.

Groundwater samples collected during the first quarter 2024 event were submitted to Consumers Energy Laboratory Services in Jackson, Michigan, for analysis of the following metals and inorganic indicator constituents.

Section 11511a(3)(c) – Detection Monitoring Constituents	Section 11519b(2) – Assessment Monitoring Constituents					
Boron	Antimony	Fluoride	Thallium			
Calcium	Arsenic	Lead	Vanadium			
Chloride	Barium	Lithium	Zinc			
Fluoride	Beryllium	Mercury				
Iron	Cadmium	Molybdenum				
рН	Chromium, total	Nickel				
Sulfate	Cobalt	Selenium				
Total Dissolved Solids (TDS)	Copper	Silver				

Samples were also analyzed for additional constituents including magnesium, sodium, potassium, and bicarbonate, carbonate, and total alkalinity to provide further evaluation of groundwater



chemistry. Analytical results from this event monitoring event are included in the attached laboratory reports (Appendix A).

Static water level measurements were collected at all locations after equilibration to atmospheric pressure and immediately prior to purging. The depth to water was recorded to the nearest 0.01-ft in accordance with the procedures in the HMP. Groundwater purging and sampling were conducted in accordance with low-flow sampling protocol. Static water elevation data are included in the attached field records (Appendix B).

Monitoring wells were purged with peristaltic pumps utilizing low-flow sampling methodology. Field parameters were stabilized at each monitoring well prior to collecting groundwater samples. Stabilized field parameters for each monitoring well are summarized in Table 2. Field notes are included as Appendix B. The samples were collected in vendor-provided, nitric acid pre-preserved (metals only) and unpreserved sample containers and submitted to the laboratory for analysis. Porewater sample preparation and analyses were performed in accordance with SW-846 "Test Methods for Evaluation Solid Waste – Chemical / Physical Methods," USEPA (latest revision). TRC followed chain of custody procedures to document the sample handling sequence.

TRC also collected quality assurance/quality control (QA/QC) samples during the groundwater sampling event. The QA/QC samples consisted of one field blank, one equipment blank, one field duplicate (DEK-MW-15003), and field matrix spike/matrix spike duplicate samples collected at DEK-MW-18001.

3.2.1 Data Quality Review

Data were evaluated for completeness, overall quality and usability, method-specified sample holding times, precision and accuracy, and potential sample contamination. The data were found to be complete and usable for the purposes of the HMP program.

The data quality reviews for the Karn Lined Impoundment network wells are summarized in Appendix C.

3.2.2 Groundwater Flow Rate and Direction

Groundwater elevation data collected during this groundwater monitoring event are provided in Table 1. The data were used to construct the groundwater contour map (Figure 3).

Groundwater elevations measured at the site in March 2024 are generally within the range of 578 to 585 feet above mean sea level (ft NAVD88) and groundwater is typically encountered at equal elevation relative to the surrounding surface water features measured by the NOAA gauging station data or within approximately 6 feet higher, flowing toward the bounding surface water features.

Although the point source discharge of sluiced bottom ash into the former Karn Bottom Ash Pond historically created localized mounding of the potentiometric surface, the new Karn Lined Impoundment went into service on June 7, 2018, and has been continuously collecting the



process water and bottom ash that went into the former bottom ash pond. Since the former bottom ash pond is no longer being hydraulically loaded with sluiced ash and has been dewatered by gravity, the characteristic groundwater mound centered within the former surface pool area is no longer present. The groundwater elevation data collected in the vicinity of the former Karn Bottom Ash Pond in March 2024 demonstrate a reduction in groundwater elevation measurements by several feet when compared to the measurements collected prior to June 2018, when active loading was occurring to the bottom ash pond. Groundwater at the Site is locally influenced by incidental infiltration from precipitation over the uncovered acreage and the unlined low volume miscellaneous wastewater conveyance associated with the permitted NPDES discharge system, which is located just north of the Karn Lined Impoundment. The conveyance ditch was observed to be dry in March 2024 as wastewater is not being generated due to the cessation of operations of Karn Units 1 & 2. The groundwater elevation high point that was previously centered over the former Karn Bottom Ash Pond has shifted to the southeast and is currently centered near OW-12. Porewater flow is generally radial, flowing outward towards the adjacent surface water features from this newly established potentiometric "high", as illustrated in Figure 3.

The average hydraulic gradient observed on March 4, 2024, in the vicinity of the former Karn Bottom Ash Pond and Karn Lined Impoundment is estimated at 0.0043 ft/ft. The gradients were calculated using the monitoring well pairs DEK-MW-15004/DEK-MW-15005, DEK-MW-15003/DEK-MW-15006, and OW-11/MW-08, as well as the monitoring well water elevation difference and distance between DEK-MW-18001 and the discharge channel. The discharge channel surface water elevation was taken from the NOAA gauging station data on the same date as the water level measurements. Using the mean hydraulic conductivity of 15 ft/day (ARCADIS, 2016) and an assumed effective porosity of 0.3, the estimated average seepage velocity was calculated to be 0.21 ft/day or 77 ft/year in March 2024 which is reduced relative to previous estimated seepage velocities (e.g., 0.33 ft/day or 120 ft/year August 2018).

Due to the operational changes of the former bottom ash pond and the completion of the landfill capping activities in 2020, the gradient between the area of the Karn Bottom Ash Pond and Karn Lined Impoundment and the surrounding surface water bodies is flattening out as compared to previous quarters and is also attempting to reach a new equilibrium, as expected. The general flow direction relative to the Karn Lined Impoundment is similar to that identified in previous monitoring rounds and continues to demonstrate that the downgradient wells are appropriately positioned to detect the presence of Appendix III/IV parameters that could potentially migrate from the Karn Lined Impoundment.



4.0 Data Evaluation

Based on sampling results for this event the Karn Lined Impoundment remains in detection monitoring in accordance with the HMP. The following section summarizes the statistical approach applied to assess the first quarter 2024 groundwater data in accordance with the detection monitoring program.

Water quality data are included in the attached laboratory reports (Appendix A). Groundwater analytical data for the most recent quarterly monitoring event is summarized in Table 3 along with the associated Part 201 generic drinking water criteria and the generic GSI criteria. GSI compliance is evaluated through monitoring performed at the Karn Landfill in accordance with the EGLE-approved Consumers Energy's revised Karn Landfill HMP (Hydrogeological Monitoring Plan, Rev. 3, DE Karn Solid Waste Disposal Area) dated December 19, 2017, and in accordance with the December 23, 2015, mixing zone determination.

4.1 Statistical Evaluation of Trends

Groundwater in the vicinity of the Karn Lined Impoundment has been affected by CCR management before commencement of operation (January 2019, TRC). Given that the constituents associated with CCR currently managed in the Karn Lined Impoundment are indistinguishable from the constituents already present in groundwater from past operation of the former Karn Bottom Ash Pond, intrawell trend tests, in conjunction with KLI-SCS flow rates, will be utilized to assess whether a release has occurred from operation of the unit. The detection monitoring constituent concentrations will be analyzed using Mann-Kendall and Sen's Slope trend tests to determine if there is an upward trend that may indicate a release from the Karn Lined Impoundment. The data will be analyzed in the context of the Site hydrogeologic characteristics, and an assessment made as to whether the source of an upward trend, if identified, is from a possible release from the Karn Lined Impoundment, another on-site release, or on-site migration of nearby impact (i.e., former Karn Bottom Ash Pond).

Time-series plots and statistical trend analyses are used to evaluate groundwater quality each quarter, which are included as Appendix D. Consumers Energy manages and evaluates its analytical data using Sanitas™ Statistical Software (Sanitas™). Consumers Energy conducts intra-well trend analyses to examine data for each monitoring well-constituent pair in the groundwater monitoring system over time to determine if changes in water quality are occurring that may be associated with the Karn Lined Impoundment. Data from May 2022 through March 2024 were analyzed using Mann-Kendall and Sen's Slope at a significance level (α) of 0.025 per tail for each constituent/sampling point dataset to assess trends. Sen's Slope estimator was used to assess the magnitude of the slope and the Mann-Kendall test was used to determine if the trend was statistically significant. The graphical output of the Sen's Slope/Mann-Kendall trend tests and time series are presented in Appendix D. Appendix D also includes a table summarizing these trends and the associated statistical trend charts.

Data trends for detection monitoring constituents are generally stable (i.e., no trend) or declining for the majority of the monitoring well/constituent pairs with the following exception:



■ The new, unconfirmed increasing trend for sulfate observed in DEK-MW-15003 in fourth quarter 2023 was confirmed in first quarter 2024. Although there is a statistically significant increasing trend observed using the eight most recent quarterly sampling events, current sulfate concentrations at DEK-MW-15003 are within the range of concentrations observed following the Karn Bottom Ash Pond closure activities and are lower than concentrations observed while the Karn Bottom Ash Pond was operating (Appendix D: Chart 1).

4.2 Detection Monitoring Data Discussion

Groundwater quality is generally consistent with previous monitoring events and the majority of the well/constituent pairs are exhibiting no trend or decreasing concentrations. Although an increasing trend of one detection monitoring (Appendix III) constituent exists at one well, the groundwater conditions do not conclusively indicate a release from the unit. Given that the constituents associated with CCR currently managed in the Karn Lined Impoundment are indistinguishable from the constituents already present in groundwater from past operation of the Karn Bottom Ash Pond, intrawell trend tests, in conjunction with SCS flow rates, will be utilized to assess whether a release has occurred from operation of the unit, per the HMP.

As presented in Section 2.1, the SCS flow rates are below the action flow rate threshold, which continues to demonstrate the liner system is working effectively following the documented liner repairs. The location of one of the identified liner damage locations was approximately 40-ft upgradient from monitoring well OW-12 and the second location was approximately 130-ft upgradient from monitoring well DEK-MW-18001. Detection monitoring constituent concentrations at OW-12 and DEK-MW-18001 exhibit no statistically significant increasing trends, indicating that if a release to groundwater occurred due to the apparent leak in the liner system, the effects on local groundwater quality at this point appear to be negligible. The increasing trends noted in Section 4.1 will continue to be evaluated within context of changes in the site operational status.

4.3 Alternate Source Demonstration

At this time, Consumers Energy is not asserting an Alternate Source Demonstration (ASD) for any Statistically Significant Increases (SSI) from this reporting period. The groundwater conditions do not conclusively indicate a release from the unit and the average daily KLI-SCS flow rates remain below the action flow rate thresholds.



5.0 Conclusions and Recommendations

Consumers Energy will continue the detection monitoring program for the Karn Lined Impoundment unit based on the data evaluations completed in Section 4.0 of this report in conformance with the Karn Lined Impoundment HMP. Although an increasing trend of a detection monitoring (Appendix III) constituent exists at one monitoring well, as noted in Section 4.1, the groundwater conditions do not conclusively indicate a release from the unit as the average daily SCS flow rates remain below the response action flow rate thresholds and continue to demonstrate the liner system is working effectively. The second quarter monitoring event is scheduled for May 2024.



6.0 References

- AECOM. 2009. Potential Failure Mode Analysis (PFMA) Report. DE Karn Electric Generation Facility Ash Dike Risk Assessment Essexville, Michigan. Prepared for Consumers Energy Company. October 30.
- Consumers Energy. 2017. Hydrogeological Monitoring Plan, Rev. 3. DE Karn Solid Waste Disposal Area. December 19.
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- Natural Resource Technology. 2005. Phase II Groundwater Discharge Evaluation at the Consumers Energy DE Kam and JC Weadock Solid Waste Disposal Areas. September.
- TRC. 2019. 2018 Annual Groundwater Report for the DE Karn Power Plant Bottom Ash Pond CCR Unit, Essexville, Michigan. Prepared for Consumers Energy Company. January.
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- USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA facilities, Unified Guidance. Office of Conservation and Recovery. EPA 530/R-09-007.
- USEPA. 2015. 40 CFR Parts 257 and 261. Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule. 80 Federal Register 74 (April 17, 2015), pp. 21301-21501 (80 FR 21301). April.
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Summary of Groundwater Elevation Data DE Karn Lined Impoundment – Hydrogeological Monitoring Program Essexville, Michigan

	тос		Screen Interval	March 4, 2024		
Well Location	Elevation (ft)	Geologic Unit of Screen Interval	Geologic Unit of Flevation		Groundwater Elevation (ft)	
DEK Bottom Ash Por	nd					
DEK-MW-15002	590.87	Sand	578.3 to 575.3	7.00	583.87	
DEK-MW-15005	589.72	Sand	572.3 to 567.3	10.80	578.92	
DEK-MW-15006	589.24	Sand	573.0 to 568.0	10.15	579.09	
DEK Bottom Ash Por	nd & Karn Lined Im	poundment				
DEK-MW-18001	593.47	Sand	579.2 to 574.2	9.51	583.96	
Karn Lined Impound						
DEK-MW-15003	602.74	Sand	578.8 to 574.8	18.78	583.96	
OW-10	591.58	Silty Sand and Silty Clay	576.0 to 571.0	7.85	583.73	
OW-11	607.90	Silt/Fly Ash	587.5 to 582.5	24.00	583.90	
OW-12	603.10	Silty Sand	584.2 to 579.2	18.11	584.99	
DEK Nature and Exte						
DEK-MW-15004	611.04	Sand	576.6 to 571.6	29.00	582.04	
MW-01	597.02	Sand	573.0 to 570.0	18.20	578.82	
MW-03	597.30	Sand	569.8 to 566.8	18.51	578.79	
MW-06	589.44	Sand and Silty Sand	578.5 to 563.5	10.25	579.19	
MW-08	598.78	Sand and Silty Clay	580.9 to 570.9	17.89	580.89	
MW-10	596.97	Sand	582.5 to 572.5	17.31	579.66	
MW-12	598.60	Sand	583.9 to 573.9	19.28	579.32	
MW-14	594.37	Sand and Silty Clay	584.7 to 574.7	15.05	579.32	
MW-16	595.80	Sand and Sand/Bottom Ash	584.1 to 574.1	16.90	578.90	
MW-22	598.99	Ash/Sand	571.4 to 568.4	17.21	581.78	
MW-23	595.57	Ash/Sand	576.9 to 571.9	14.78	580.79	
DEK Static Water Lev	vel .	•	•			
MW-02	597.34	Sand and Silty Clay	572.5 to 567.5	18.50	578.84	
MW-04	598.01	NR	569.5 to 564.5	19.28	578.73	
MW-17	597.91	Sand	577.0 to 574.0	14.20	583.71	
MW-18	609.22	Silty Sand and Silty Clay	575.8 to 573.8	26.73	582.49	
MW-19	597.28	NR	572.1 to 567.1	17.97	579.31	
MW-20	632.75	Sand	582.3 to 579.3	53.71	579.04	
MW-21	632.91	Sand	587.1 to 584.1	51.80	581.11	
OW-01	631.33	NR	572.5 to 567.5	52.23	579.10	
OW-02	598.01	Fly Ash	579.4 to 576.4	16.15	581.86	
OW-03	597.94	Fly Ash and Sand	573.6 to 568.6	17.75	580.19	
OW-04	590.21	Sand and Bottom/Fly Ash	579.1 to 574.1	10.88	579.33	
OW-05	593.53	Sand	576.9 to 571.9	14.10	579.43	
OW-06	603.95	NR	580.9 to 575.9	22.65	581.30	
OW-07	596.41	Ash	583.3 to 580.3	15.71	580.70	
OW-08	593.93	NR	581.0 to 576.0	11.14	582.79	
OW-09	593.45	NR	585.5 to 580.5	10.56	582.89	
OW-13	588.52	NR	579.5 to 574.5	4.21	584.31	
OW-15	587.75	NR	572.8 to 567.8	4.50	583.25	

Notes

Survey data from: Rowe Professional Services Company (Nov. 2015) and Consumers Energy Company drawings: SG-21733, Sheet 1, Rev. G (Karn, 11/27/18); and SG=21733, Sheet 2, Rev. C (Weadock, 11/27/18).

Elevation in feet relative to North American Vertical Datum 1988 (NAVD 88).

TOC: Top of well casing.

ft BTOC: Feet below top of well casing.

NR: Not Recorded

Summary of Field Parameters DE Karn Lined Impoundment – Hydrogeological Monitoring Program Essexville, Michigan

Sample Location	Sample Date	Dissolved Oxygen	Oxidation Reduction Potential	рН	Specific Conductivity	Temperature	Turbidity
		(mg/L)	(mV)	(SU)	(umhos/cm)	(°C)	(NTU)
DE Karn Lined Impou	ndment						
DEK-MW-15003	3/5/2024	0.36	-161.3	8.1	411	16.3	2.0
DEK-MW-18001	3/4/2024	1.59 ⁽¹⁾	-128.9	7.7	850	12.4	4.3
KLI-PCS	3/5/2024	10.79	19.7	8.3	511	10.2	32.6
KLI-SCS	3/5/2024	9.78	31.0	7.7	1,269	9.1	7.5
OW-10	3/5/2024	0.29	-124.4	7.2	718	10.5	20.8
OW-11	3/5/2024	2.38	-60.4	9.6	287	10.8	8.9
OW-12	3/5/2024	0.31	-99.3	7.2	863	10.7	7.8

Notes:

-- - Parameter was not analyzed

mg/L - milligram per Liter.

mV - Millivolts.

SU - Standard Units.

umhos/cm - Micromhos per centimeter.

°C - Degrees Celsius.

NTU - Nephelometric Turbidity Unit.

(1) The water quality meter used at this well location was determined to have a bias towards elevated dissolved oxygen readings.

Summary of Groundwater Sampling Results (Analytical) DE Karn Lined Impoundment – Hydrogeological Monitoring Program Essexville, Michigan

					Sample Location:	DEK-MW-15003	DEK-MW-18001	OW-10	OW-11	OW-12	KLI-PCS	KLI-SCS
					Sample Date:	3/5/2024	3/4/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024
Constituent	Unit	EPA MCL	MI Residential*	MI Non- Residential*	MI GSI^	Upgradient	Downgra	adient	Upgradient	Downgradient	Supple	mental
Appendix III ⁽¹⁾												
Boron	ug/L	NC	500	500	4,000	644	819	1,200	3,370	1,420	703	602
Calcium	mg/L	NC	NC	NC	500EE	41.6	54.1	128	10.7	165	77.7	107
Chloride	mg/L	250**	250 ^E	250 ^E	50	59.9	69	78.6	59.3	39.1	40.5	56.9
Fluoride	ug/L	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000	3,440	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	250**	250 ^E	250 ^E	500EE	51.1	201	< 1	20	234	277	595
Total Dissolved Solids	mg/L	500**	500 ^E	500 ^E	500	322	598	682	224	1,010	460	1,410
pH, Field	SU	6.5 - 8.5**	6.5 - 8.5 ^E	6.5 - 8.5 ^E	6.5 - 9.0	8.1	7.7	7.2	9.6	7.2	8.3	7.7
Appendix IV ⁽¹⁾	•											
Antimony	ug/L	6.0	6.0	6.0	2.0	< 1	< 1	< 1	4	< 1	< 1	< 1
Arsenic	ug/L	10	10	10	10	350	512	2	1,080	58	1	2
Barium	ug/L	2,000	2,000	2,000	1,200	56	153	164	31	212	101	49
Beryllium	ug/L	4.0	4.0	4.0	33	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	ug/L	5.0	5.0	5.0	2.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.3	< 0.2
Chromium	ug/L	100	100	100	11	1	< 1	2	1	1	1	< 1
Cobalt	ug/L	NC	40	100	100	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Fluoride	ug/L	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000	3,440	< 1,000	< 1,000	< 1,000
Lead	ug/L	NC	4.0	4.0	14	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Lithium	ug/L	NC	170	350	440	24	19	34	11	59	< 10	< 10
Mercury	ug/L	2.0	2.0	2.0	0.20#	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	NC	73	210	120	21	16	< 5	151	7	71	10
Radium-226	pCi/L	NC	NC	NC	NC				-	-		
Radium-228	pCi/L	NC	NC	NC	NC							
Radium-226/228	pCi/L	5.0	NC	NC	NC							
Selenium	ug/L	50	50	50	5.0	1	1	2	10	2	1	5
Thallium	ug/L	2.0	2.0	2.0	2.0	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Additional MI Part 11	5 ⁽²⁾											
Iron	ug/L	300**	300E	300E	500,000EE	194	688	3,130	140	6,250	134	111
Copper	ug/L	1,000**	1,000 ^E	1,000 ^E	20	< 1	< 1	3	< 1	< 1	2	2
Nickel	ug/L	NC	100	100	120	< 2	< 2	4	2	6	3	4
Silver	ug/L	100**	34	98	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Vanadium	ug/L	NC	4.5	62	27	< 2	2	3	358	2	5	5
Zinc	ug/L	5,000**	2,400	5,000E	260	< 10	< 10	< 10	< 10	< 10	< 10	< 10

Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.

NC - no criteria; -- - not analyzed.

- * Michigan Part 201 Generic Drinking Water Cleanup Criteria, December 30, 2013, updated October 12, 2023.
- ** Secondary Maximum Contaminant Level (SMCL), EPA Secondary Drinking Water Regulations (SDWR) April, 2012.
- ^ Michigan Part 201 Groundwater Surface Water Interface (GSI) Criteria. Hardness-dependent criteria calculated using hardness of 258 mg CaCO3/L (average of SW-01 [Lake Huron] and SW-02 [Saginaw River] collected in April 2018) per footnote {G} of Michigan Part 201 criteria tables. Chromium GSI criterion based on hexavalent chromium per footnote {H}. GSI criterion is protective for

surface water used as a drinking water source as described in footnote (X). GSI criterion for chloride is 50 mg/L when the discharge is to the Great Lakes or connecting waters per footnote {FF}

- # If detected above 0.20 ug/L, further evaluation of low-level mercury may be necessary to evaluate the GSI pathway per Michigan Part 201 and MDEQ policy and procedure 09-014 dated June 20, 2012.
- E Criterion is the aesthetic drinking water value per footnote {E}.
- EE Criterion is based on the total dissolved solids GSI value per footnote {EE}.
- (1) 40 CFR Part 257 Appendix III Detection Monitoring Constituents and Appendix IV Assessment Monitoring Constituents.
- (2) Per Michigan Part 115 Amendment Public Act No. 640 of 2018 Section 11511a(3)(c) and 11519b(2) additional detection
- monitoring constituent (iron) and assessment monitoring constituents (copper, nickel, silver, vanadium, and zinc) are reported.

BOLD value indicates an exceedance of one or more of the listed criteria.

RED value indicates an exceedance of the MCL.

All metals were analyzed as total unless otherwise specified.

Summary of Statistical Exceedances DE Karn Lined Impoundment – Hydrogeological Monitoring Program Essexville, Michigan

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY SUMMARY OF STATISTICAL EXCEEDANCES

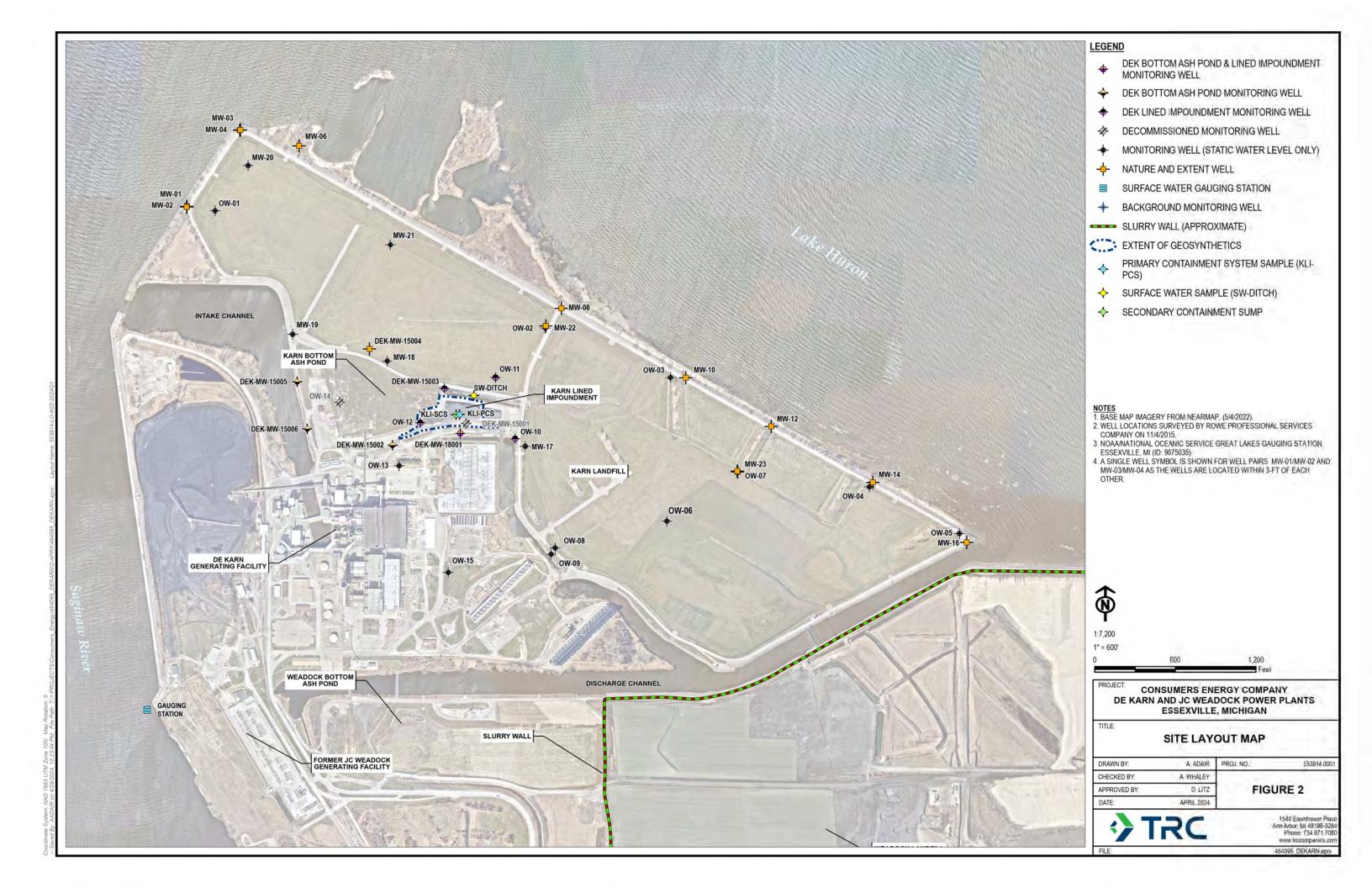
Data is in	(X) ug/L	or	
	() mg/L		
unle	ss otherwis	se stated	

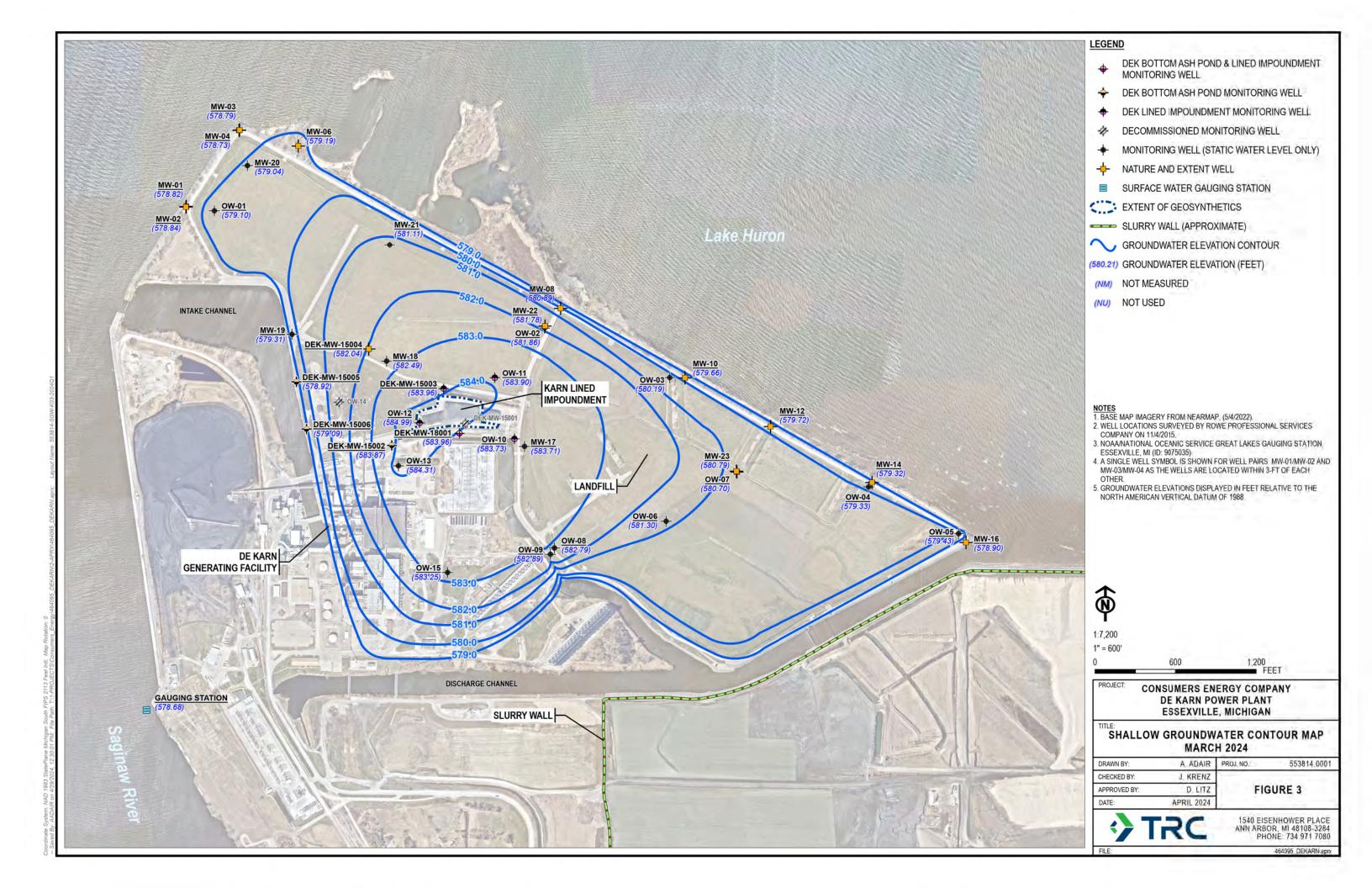
Facility: Karn Lined Impoundment – WDS# 392503

Well #	Location	Parameter	Part 201 GRCC	Statistical Limit (or 'CC' for Control Charts)	1 Qtr. 2024 (bold >201)	4 Qtr. 2023 (bold >201)	3 Qtr. 2023 (bold >201)	2 Qtr. 2023 (bold >201)
No Exceedances								



Figures







Appendix A Laboratory Analytical Reports



135 W. Trail St. Jackson, MI 49201 phone 517-788-1251 fax 517-788-2533

To: JJFirlit, Karn/Weadock

From: EBlaj, T-258

Date: March 20, 2024

Subject: RCRA GROUNDWATER MONITORING – KARN LINED IMPOUNDMENT – 2024 Q1

CC: HDRegister, P22-521 Darby Litz, Project Manager

TRC Companies, Inc. 1540 Eisenhower Place Ann Arbor, MI 48108

Chemistry Project: 24-0129

TRC Environmental, Inc. conducted groundwater monitoring at the DE Karn Lined Impoundment area during the week of 03/04/2024 for the 1st Quarter requirement, as specified in the Sampling and Analysis Plan for the site. The samples were received for analysis by the Chemistry department of Laboratory Services on 03/06/2024.

Samples for Total Sulfide have been subcontracted to Merit Laboratories, Inc. and the results are listed under the analyst initials "Merit"; the original report is attached. Samples for Methane and TOC have been subcontracted to Brighton Analytical LLC and the results are listed under the analyst initials "BAL"; the original report is attached. Please note that the subcontracted work is not reported under the CE laboratory scope of accreditation.

With the exception noted above, the report that follows presents the results of the requested analytical testing; the results apply only to the samples as received. All samples have been analyzed in accordance with the 2016 TNI Standard and the applicable A2LA accreditation scope for Laboratory Services. Any exceptions to applicable test method criteria and standard compliance are noted in the Case Narrative or flagged with applicable qualifiers in the analytical results section.

Reviewed and approved by:

Emil Blaj Sr. Technical Analyst Project Lead



Testing performed in accordance with the A2LA scope of accredidation specified in the listed certificate.

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CASE NARRATIVE

I. Sample Receipt

All samples were received within hold time and in good conditions; no anomalies were noted in the attached Sample Log-In Shipment Inspection Form during sample check-in. Identification of all samples included in the work order/project is provided in the sample summary section. All sample preservation and temperature upon receipt was verified by the sample custodian and confirmed to meet method requirements.

II. Methodology

Unless otherwise indicated, sample preparation and analysis was performed in accordance with the corresponding test methods from "Methods for the Determination of Inorganic Substances in Environmental Samples (EPA/600/R-93/100); SW-846, "Test Methods for Evaluating Solid Waste – Physical/Chemical Methods", USEPA (latest revisions), and Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WPCF, 22nd Edition, 2012.

III. Results/Quality Control

Analytical results for this report are presented by laboratory sample ID, container, & aliquot number. Results for the field blanks, field duplicates, and recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section; all other quality control data is listed in the Quality Control Summary associated with the particular test method, as appropriate. Unless specifically noted in the case narrative, all method quality control requirements have been met. If any results are qualified, the corresponding data flags/qualifiers are listed on the last page of the results section. Any additional information on method performance, when applicable, is presented in this section of the case narrative. When data flags are not needed, the qualifiers text box on the last page is left blank, and a statement confirms that no exceptions occurred.

DEFINITIONS / QUALIFIERS

The following qualifiers and/or acronyms are used in the report, where applicable:

<u>Acronym</u>	<u>Description</u>
RL	Reporting Limit
ND	Result not detected or below Reporting Limit
NT	Non TNI analyte
LCS	Laboratory Control Sample
LRB	Laboratory Reagent Blank (also referred to as Method Blank)
DUP	Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
TDL	Target Detection Limit
SM	Standard Methods Compendium

Qualifier	<u>Description</u>
*	Generic data flag, applicable description added in the corresponding notes section
В	The analyte was detected in the LRB at a level which is significant relative to sample result
D	Reporting limit elevated due to dilution
E	Estimated due to result exceeding the linear range of the analyzer
Н	The maximum recommended hold time was exceeded
I	Dilution required due to matrix interference; reporting limit elevated
J	Estimated due to result found above MDL but below PQL (or RL)
K	Reporting limit raised due to matrix interference
M	The precision for duplicate analysis was not met; RPD outside acceptance criteria
N	Non-homogeneous sample made analysis questionable
PI	Possible interference may have affected the accuracy of the laboratory result
Q	Matrix Spike or Matrix Spike Duplicate recovery outside acceptance criteria
R	Result confirmed by new sample preparation and reanalysis
X	Other notation required; comment listed in sample notes and/or case narrative



Work Order Sample Summary

Customer Name: Karn/Weadock Complex

Work Order ID: Q1-2024 DEK Lined Impoundment

Date Received: 3/6/2024 **Chemistry Project:** 24-0129

Sample #	Field Sample ID	<u>Matrix</u>	Sample Date	<u>Site</u>
24-0129-01	DEK-MW-15003	Groundwater	03/05/2024 10:31	DEK Lined Impoundment
24-0129-02	OW-10	Groundwater	03/05/2024 09:10	DEK Lined Impoundment
24-0129-03	OW-11	Groundwater	03/05/2024 12:00	DEK Lined Impoundment
24-0129-04	OW-12	Groundwater	03/05/2024 14:50	DEK Lined Impoundment
24-0129-05	SW-DITCH	Not Collected		DEK Lined Impoundment
24-0129-06	DUP-KLI	Groundwater	03/05/2024 00:00	DEK Lined Impoundment
24-0129-07	EB-KLI	Water	03/05/2024 15:00	DEK Lined Impoundment
24-0129-08	FB-KLI	Water	03/05/2024 14:50	DEK Lined Impoundment
24-0129-09	KLI-SCS	Groundwater	03/05/2024 13:20	DEK Lined Impoundment
24-0129-10	KLI-PCS	Groundwater	03/05/2024 13:30	DEK Lined Impoundment



Report Date:

03/20/24



A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

 Field Sample ID:
 DEK-MW-15003
 Collect Date:
 03/05/2024

 Lab Sample ID:
 24-0129-01
 Collect Time:
 10:31 AM

Matrix: Groundwater

Antimony ND ug/L 1.0 03/07/2024 Arsenic 350 ug/L 1.0 03/07/2024 Barium 56 ug/L 5.0 03/07/2024 Beryllium ND ug/L 1.0 03/07/2024 Beryllium ND ug/L 20.0 03/07/2024 Boron 644 ug/L 20.0 03/07/2024 Cadmium ND ug/L 0.2 03/07/2024 Calcium 41600 ug/L 1000.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Chopter ND ug/L 1.0 03/07/2024 Copper ND ug/L 1.0 03/07/2024 Lead ND ug/L 20.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lithium 24 ug/L 10.0 03/07/2024 Lithium 24 ug/L 10.0 03/07/2024 Manganese 108 ug/L 10.0 03/07/2024 Manganese 108 ug/L 5.0 03/07/2024 Molybdenum 21 ug/L 5.0 03/07/2024 Molybdenum 21 ug/L 5.0 03/07/2024 Potassium 3640 ug/L 10.0 03/07/2024 Selenium 1 ug/L 1.0 03/07/2024 Selenium 51300 ug/L 1000.0 03/07/2024 Selenium ND ug/L 2.0 03/07/2024 Selenium Se	pendix III-IV Total Metals Exp	IV Total Metals Exp Aliquot #: 24-0129-01-C01-A01	Analyst: EB
Arsenic 350 ug/L 1.0 03/07/2024 Barium 56 ug/L 5.0 03/07/2024 Beryllium ND ug/L 1.0 03/07/2024 Beryllium ND ug/L 2.0 03/07/2024 Beryllium ND ug/L 2.0 03/07/2024 Cadmium ND ug/L 0.2 03/07/2024 Cadmium ND ug/L 1000.0 03/07/2024 Calcium 41600 ug/L 1000.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Cobalt ND ug/L 6.0 03/07/2024 Copper ND ug/L 1.0 03/07/2024 Iron 194 ug/L 20.0 03/07/2024 Lead ND ug/L 10.0 03/07/2024 Lead ND ug/L 10.0 03/07/2024 Lithium 24 ug/L 10.0 03/07/2024 Magnesium 7200 ug/L 10.0 03/07/2024 Manganese 108 ug/L 5.0 03/07/2024 Manganese 108 ug/L 5.0 03/07/2024 Molybdenum 21 ug/L 5.0 03/07/2024 Nickel ND ug/L 10.0 03/07/2024 Selenium 1 ug/L 1.0 03/07/2024 Selenium 1 ug/L 1.0 03/07/2024 Selenium 1 ug/L 1.0 03/07/2024 Sodium 51300 ug/L 1000.0 03/07/2024 Sodium 51300 ug/L 1000.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-01-C01-At Parameter(s) Result Flag Units RL Analysis Dat Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-At Parameter(s) Result Flag Units RL Analysis Dat Nitrate ND ug/L 10.0 0 03/06/2024	Result Flag Units	t Flag Units RL Analysis Date	Tracking
Barium 56 ug/L 5.0 03/07/2024 Beryllium ND ug/L 1.0 03/07/2024 Boron 644 ug/L 20.0 03/07/2024 Cadmium ND ug/L 0.2 03/07/2024 Calcium 41600 ug/L 1000.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Cobalt ND ug/L 6.0 03/07/2024 Copper ND ug/L 1.0 03/07/2024 Iron 194 ug/L 1.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Magnesium 7200 ug/L 10.0 03/07/2024 Magnesium 7200 ug/L 1000.0 03/07/2024 Molybdenum 21 ug/L 5.0 03/07/2024 Nickel ND ug/L 100.0 03/07/2024 <	ND ug/L	ug/L 1.0 03/07/2024	AB24-0310-01
Beryllium	350 ug/L	ug/L 1.0 03/07/2024	AB24-0310-01
Boron	56 ug/L	ug/L 5.0 03/07/2024	AB24-0310-01
Cadmium ND ug/L 0.2 03/07/2024 Calcium 41600 ug/L 1000.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Cobalt ND ug/L 6.0 03/07/2024 Copper ND ug/L 1.0 03/07/2024 Iron 194 ug/L 20.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lead ND ug/L 10.0 03/07/2024 Lithium 24 ug/L 10.0 03/07/2024 Magnesium 7200 ug/L 10.0 03/07/2024 Manganese 108 ug/L 5.0 03/07/2024 Molybdenum 21 ug/L 5.0 03/07/2024 Nickel ND ug/L 10.0 03/07/2024 Potassium 3640 ug/L 10.0 03/07/2024 Selenium 1 ug/L 10.0 03/07/2024	ND ug/L	ug/L 1.0 03/07/2024	AB24-0310-01
Calcium 41600 ug/L 1000.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Cobalt ND ug/L 6.0 03/07/2024 Copper ND ug/L 1.0 03/07/2024 Iron 194 ug/L 20.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lithium 24 ug/L 10.0 03/07/2024 Magnesium 7200 ug/L 1000.0 03/07/2024 Molybdenum 21 ug/L 5.0 03/07/2024 Molybdenum 21 ug/L 5.0 03/07/2024 Nickel ND ug/L 10.0 03/07/2024 Potassium 3640 ug/L 10.0 03/07/2024 Selenium 1 ug/L 1.0 03/07/2024 Sodium 51300 ug/L 10.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 </td <td>644 ug/L</td> <td>ug/L 20.0 03/07/2024</td> <td>AB24-0310-01</td>	644 ug/L	ug/L 20.0 03/07/2024	AB24-0310-01
Chromium 1 ug/L 1.0 03/07/2024 Cobalt ND ug/L 6.0 03/07/2024 Copper ND ug/L 1.0 03/07/2024 Iron 194 ug/L 20.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lithium 24 ug/L 10.0 03/07/2024 Magnesium 7200 ug/L 1000.0 03/07/2024 Manganese 108 ug/L 5.0 03/07/2024 Molybdenum 21 ug/L 5.0 03/07/2024 Nickel ND ug/L 2.0 03/07/2024 Potassium 3640 ug/L 1.0 03/07/2024 Selenium 1 ug/L 1.0 03/07/2024 Silver ND ug/L 1.0 03/07/2024 Sodium 51300 ug/L 10.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 <	ND ug/L	ug/L 0.2 03/07/2024	AB24-0310-01
Cobalt ND ug/L 6.0 03/07/2024 Copper ND ug/L 1.0 03/07/2024 Iron 194 ug/L 20.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lithium 24 ug/L 10.0 03/07/2024 Magnesium 7200 ug/L 1000.0 03/07/2024 Manganese 108 ug/L 5.0 03/07/2024 Molybdenum 21 ug/L 5.0 03/07/2024 Nickel ND ug/L 2.0 03/07/2024 Potassium 3640 ug/L 10.0 03/07/2024 Selenium 1 ug/L 1.0 03/07/2024 Sodium 51300 ug/L 1.0 03/07/2024 Sodium 51300 ug/L 2.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 10.0 03/07/2024	41600 ug/L	ug/L 1000.0 03/07/2024	AB24-0310-01
Copper ND ug/L 1.0 03/07/2024 Iron 194 ug/L 20.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lithium 24 ug/L 10.0 03/07/2024 Magnesium 7200 ug/L 1000.0 03/07/2024 Manganese 108 ug/L 5.0 03/07/2024 Molybdenum 21 ug/L 5.0 03/07/2024 Nickel ND ug/L 2.0 03/07/2024 Potassium 3640 ug/L 100.0 03/07/2024 Selenium 1 ug/L 1.0 03/07/2024 Silver ND ug/L 0.2 03/07/2024 Sodium 51300 ug/L 1000.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-01-C01-At	1 ug/L	ug/L 1.0 03/07/2024	AB24-0310-01
Iron	ND ug/L	ug/L 6.0 03/07/2024	AB24-0310-01
Lead ND ug/L 1.0 03/07/2024 Lithium 24 ug/L 10.0 03/07/2024 Magnesium 7200 ug/L 1000.0 03/07/2024 Manganese 108 ug/L 5.0 03/07/2024 Molybdenum 21 ug/L 5.0 03/07/2024 Nickel ND ug/L 2.0 03/07/2024 Potassium 3640 ug/L 100.0 03/07/2024 Selenium 1 ug/L 1.0 03/07/2024 Sodium 51300 ug/L 1000.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-01-C01-AC Parameter(s) Result Flag Units RL Analysis Dat Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-	ND ug/L	ug/L 1.0 03/07/2024	AB24-0310-01
Lithium 24 ug/L 10.0 03/07/2024 Magnesium 7200 ug/L 1000.0 03/07/2024 Manganese 108 ug/L 5.0 03/07/2024 Molybdenum 21 ug/L 5.0 03/07/2024 Nickel ND ug/L 2.0 03/07/2024 Potassium 3640 ug/L 100.0 03/07/2024 Selenium 1 ug/L 1.0 03/07/2024 Silver ND ug/L 0.2 03/07/2024 Sodium 51300 ug/L 1000.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-01-C01-At Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-At Parameter(s) Result Flag Units RL Analysis Dat Nitrate ND ug/L	194 ug/L	ug/L 20.0 03/07/2024	AB24-0310-01
Magnesium 7200 ug/L 1000.0 03/07/2024 Manganese 108 ug/L 5.0 03/07/2024 Molybdenum 21 ug/L 5.0 03/07/2024 Nickel ND ug/L 2.0 03/07/2024 Potassium 3640 ug/L 100.0 03/07/2024 Selenium 1 ug/L 1.0 03/07/2024 Silver ND ug/L 0.2 03/07/2024 Sodium 51300 ug/L 1000.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-01-C01-At Parameter(s) Result Flag Units RL Analysis Dat Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-At Parameter(s) Result	ND ug/L	ug/L 1.0 03/07/2024	AB24-0310-01
Manganese 108 ug/L 5.0 03/07/2024 Molybdenum 21 ug/L 5.0 03/07/2024 Nickel ND ug/L 2.0 03/07/2024 Potassium 3640 ug/L 100.0 03/07/2024 Selenium 1 ug/L 1.0 03/07/2024 Silver ND ug/L 0.2 03/07/2024 Sodium 51300 ug/L 1000.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-01-C01-At Parameter(s) Result Flag Units RL Analysis Dat Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-At Aliquot #: 24-0129-01-C02-At ND	24 ug/L	ug/L 10.0 03/07/2024	AB24-0310-01
Molybdenum 21 ug/L 5.0 03/07/2024 Nickel ND ug/L 2.0 03/07/2024 Potassium 3640 ug/L 100.0 03/07/2024 Selenium 1 ug/L 1.0 03/07/2024 Silver ND ug/L 0.2 03/07/2024 Sodium 51300 ug/L 1000.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-01-C01-At Parameter(s) Result Flag Units RL Analysis Dat Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-At Parameter(s) Result Flag Units RL Analysis Dat Nitrate ND ug/L 100.0	7200 ug/L	ug/L 1000.0 03/07/2024	AB24-0310-01
Nickel ND ug/L 2.0 03/07/2024 Potassium 3640 ug/L 100.0 03/07/2024 Selenium 1 ug/L 1.0 03/07/2024 Silver ND ug/L 0.2 03/07/2024 Sodium 51300 ug/L 1000.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-01-C01-At Parameter(s) Result Flag Units RL Analysis Dat Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-At Parameter(s) Result Flag Units RL Analysis Dat Nitrate ND ug/L 100.0 03/06/2024	108 ug/L	ug/L 5.0 03/07/2024	AB24-0310-01
Potassium 3640 ug/L 100.0 03/07/2024 Selenium 1 ug/L 1.0 03/07/2024 Silver ND ug/L 0.2 03/07/2024 Sodium 51300 ug/L 1000.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 10.0 03/07/2024 Vanadium Vanadium ND ug/L Vanadium	21 ug/L	ug/L 5.0 03/07/2024	AB24-0310-01
Selenium 1 ug/L 1.0 03/07/2024 Silver ND ug/L 0.2 03/07/2024 Sodium 51300 ug/L 1000.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-01-C01-At Parameter(s) Result Flag Units RL Analysis Dat Mercury ND Aliquot #: 24-0129-01-C02-At Parameter(s) Result Flag Units RL Analysis Dat Nitrate ND ug/L 100.0 03/06/2024	ND ug/L	ug/L 2.0 03/07/2024	AB24-0310-01
Silver ND ug/L 0.2 03/07/2024 Sodium 51300 ug/L 1000.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-01-C01-AQ Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-AQ Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024	3640 ug/L	ug/L 100.0 03/07/2024	AB24-0310-01
Sodium 51300 ug/L 1000.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-01-C01-A(Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-A(Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024	1 ug/L	ug/L 1.0 03/07/2024	AB24-0310-01
Thallium ND ug/L 2.0 03/07/2024 Vanadium ND ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-01-C01-A0 Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-A0 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024	ND ug/L	ug/L 0.2 03/07/2024	AB24-0310-01
Vanadium ND ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-01-C01-A0 Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-A0 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024	51300 ug/L	ug/L 1000.0 03/07/2024	AB24-0310-01
Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-01-C01-At Parameter(s) Result Flag Units RL Analysis Dat Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-At Parameter(s) Result Flag Units RL Analysis Dat Nitrate ND ug/L 100.0 03/06/2024	ND ug/L	ug/L 2.0 03/07/2024	AB24-0310-01
Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-01-C01-A0 Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-A0 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024	ND ug/L	ug/L 2.0 03/07/2024	AB24-0310-01
Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-Add Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024	ND ug/L	ug/L 10.0 03/07/2024	AB24-0310-01
Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-A0 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024	ous	Aliquot #: 24-0129-01-C01-A02	Analyst: CLE
Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-01-C02-A0 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024	Result Flag Units	t Flag Units RL Analysis Date	Tracking
Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024	ND ug/L	ug/L 0.2 03/07/2024	AB24-0307-08
Nitrate ND ug/L 100.0 03/06/2024	2, NO3	Aliquot #: 24-0129-01-C02-A01	Analyst: KDR
3	Result Flag Units	t Flag Units RL Analysis Date	Tracking
Nitrite ND ug/L 100.0 03/06/2024	ND ug/L	ug/L 100.0 03/06/2024	AB24-0306-07
	ND ug/L	ug/L 100.0 03/06/2024	AB24-0306-07
Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous Aliquot #: 24-0129-01-C02-A0	lyte List, CI, F, SO4, Aqueous	CI, F, SO4, Aqueous Aliquot #: 24-0129-01-C02-A02	Analyst: KDR
Parameter(s) Result Flag Units RL Analysis Date	Result Flag Units	t Flag Units RL Analysis Date	Tracking
Chloride 59900 ug/L 1000.0 03/12/2024	59900 ug/L	ug/L 1000.0 03/12/2024	AB24-0307-02





Report Date: 03/20/24

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

 Field Sample ID:
 DEK-MW-15003
 Collect Date:
 03/05/2024

 Lab Sample ID:
 24-0129-01
 Collect Time:
 10:31 AM

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous			Aliquot #: 24-0129-01-C02-A02		Analyst: KDR	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	03/06/2024	AB24-0307-02
Sulfate	51100		ug/L	1000.0	03/12/2024	AB24-0307-02
Phosphate calculated from Total P by	SM4500-P B5-E			Aliquot #: 24-0	129-01-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Phosphate	4240		ug/L	10.0	03/06/2024	AB24-0306-08
Nitrogen-Ammonia by SM4500NH3(h),	Aliquot #: 24-0	129-01-C03-A02	Analyst: CLE			
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	2170		ug/L	25.0	03/06/2024	AB24-0306-09
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	129-01-C04-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	322		mg/L	10.0	03/07/2024	AB24-0307-10
Alkalinity by SM 2320B				Aliquot #: 24-0	129-01-C05-A01	Analyst: DLS
Alkalinity by SM 2320B Parameter(s)	Result	Flag	Units	Aliquot #: 24-0	129-01-C05-A01 Analysis Date	Analyst: DLS Tracking
	Result 137000	Flag	Units ug/L	•		-
Parameter(s)		Flag		RL	Analysis Date	Tracking
Parameter(s) Alkalinity Total	137000	Flag	ug/L	RL 10000.0	Analysis Date 03/07/2024	Tracking AB24-0308-12
Parameter(s) Alkalinity Total Alkalinity Bicarbonate	137000 137000	Flag	ug/L ug/L	RL 10000.0 10000.0 10000.0	Analysis Date 03/07/2024 03/07/2024	Tracking AB24-0308-12 AB24-0308-12
Parameter(s) Alkalinity Total Alkalinity Bicarbonate Alkalinity Carbonate	137000 137000	Flag	ug/L ug/L	RL 10000.0 10000.0 10000.0	Analysis Date 03/07/2024 03/07/2024 03/07/2024	Tracking AB24-0308-12 AB24-0308-12 AB24-0308-12
Parameter(s) Alkalinity Total Alkalinity Bicarbonate Alkalinity Carbonate Sulfide, Total by SM 4500 S2D	137000 137000 ND		ug/L ug/L ug/L	RL 10000.0 10000.0 10000.0 Aliquot #: 24-0	Analysis Date 03/07/2024 03/07/2024 03/07/2024 129-01-C07-A01	Tracking AB24-0308-12 AB24-0308-12 AB24-0308-12 Analyst: Merit
Parameter(s) Alkalinity Total Alkalinity Bicarbonate Alkalinity Carbonate Sulfide, Total by SM 4500 S2D Parameter(s)	137000 137000 ND Result 210		ug/L ug/L ug/L	RL 10000.0 10000.0 10000.0 Aliquot #: 24-0 RL 20.0	Analysis Date 03/07/2024 03/07/2024 03/07/2024 129-01-C07-A01 Analysis Date	Tracking AB24-0308-12 AB24-0308-12 AB24-0308-12 Analyst: Merit Tracking
Parameter(s) Alkalinity Total Alkalinity Bicarbonate Alkalinity Carbonate Sulfide, Total by SM 4500 S2D Parameter(s) Sulfide	137000 137000 ND Result 210		ug/L ug/L ug/L	RL 10000.0 10000.0 10000.0 Aliquot #: 24-0 RL 20.0	Analysis Date 03/07/2024 03/07/2024 03/07/2024 129-01-C07-A01 Analysis Date 03/07/2024	Tracking AB24-0308-12 AB24-0308-12 AB24-0308-12 Analyst: Merit Tracking AB24-0315-03
Parameter(s) Alkalinity Total Alkalinity Bicarbonate Alkalinity Carbonate Sulfide, Total by SM 4500 S2D Parameter(s) Sulfide Total Organic Carbon by SM 5310B, Ac	137000 137000 ND Result 210	Flag	ug/L ug/L ug/L Units ug/L	RL 10000.0 10000.0 10000.0 Aliquot #: 24-0 RL 20.0 Aliquot #: 24-0	Analysis Date 03/07/2024 03/07/2024 03/07/2024 129-01-C07-A01 Analysis Date 03/07/2024 129-01-C08-A01	Tracking AB24-0308-12 AB24-0308-12 AB24-0308-12 Analyst: Merit Tracking AB24-0315-03 Analyst: BAL
Parameter(s) Alkalinity Total Alkalinity Bicarbonate Alkalinity Carbonate Sulfide, Total by SM 4500 S2D Parameter(s) Sulfide Total Organic Carbon by SM 5310B, Acceptance of the companion of	137000 137000 ND Result 210 queous Result 3800	Flag	ug/L ug/L ug/L Units ug/L Units	RL 10000.0 10000.0 10000.0 Aliquot #: 24-0 RL 20.0 Aliquot #: 24-0 RL 1000.0	Analysis Date 03/07/2024 03/07/2024 03/07/2024 129-01-C07-A01 Analysis Date 03/07/2024 129-01-C08-A01 Analysis Date 03/07/2024	Tracking AB24-0308-12 AB24-0308-12 AB24-0308-12 Analyst: Merit Tracking AB24-0315-03 Analyst: BAL Tracking AB24-0315-12
Parameter(s) Alkalinity Total Alkalinity Bicarbonate Alkalinity Carbonate Sulfide, Total by SM 4500 S2D Parameter(s) Sulfide Total Organic Carbon by SM 5310B, Acceptable Ac	137000 137000 ND Result 210 queous Result 3800	Flag	ug/L ug/L ug/L Units ug/L Units	RL 10000.0 10000.0 10000.0 Aliquot #: 24-0 RL 20.0 Aliquot #: 24-0 RL 1000.0	Analysis Date 03/07/2024 03/07/2024 03/07/2024 129-01-C07-A01 Analysis Date 03/07/2024 129-01-C08-A01 Analysis Date	Tracking AB24-0308-12 AB24-0308-12 AB24-0308-12 Analyst: Merit Tracking AB24-0315-03 Analyst: BAL Tracking



03/20/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

 Field Sample ID:
 OW-10
 Collect Date:
 03/05/2024

 Lab Sample ID:
 24-0129-02
 Collect Time:
 09:10 AM

Metals by EPA 6020B: CCR	K Kule Appendix III-IV To	tai Metal	s Exp	Aliquot #: 24-0	129-02-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Arsenic	2		ug/L	1.0	03/07/2024	AB24-0310-01
Barium	164		ug/L	5.0	03/07/2024	AB24-0310-01
Beryllium	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Boron	1200		ug/L	20.0	03/07/2024	AB24-0310-01
Cadmium	ND		ug/L	0.2	03/07/2024	AB24-0310-01
Calcium	128000		ug/L	1000.0	03/07/2024	AB24-0310-01
Chromium	2		ug/L	1.0	03/07/2024	AB24-0310-01
Cobalt	ND		ug/L	6.0	03/07/2024	AB24-0310-01
Copper	3		ug/L	1.0	03/07/2024	AB24-0310-01
Iron	3130		ug/L	20.0	03/07/2024	AB24-0310-01
Lead	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Lithium	34		ug/L	10.0	03/07/2024	AB24-0310-01
Magnesium	23100		ug/L	1000.0	03/07/2024	AB24-0310-01
Manganese	571		ug/L	5.0	03/07/2024	AB24-0310-01
Molybdenum	ND		ug/L	5.0	03/07/2024	AB24-0310-01
Nickel	4		ug/L	2.0	03/07/2024	AB24-0310-01
Potassium	4910		ug/L	100.0	03/07/2024	AB24-0310-01
Selenium	2		ug/L	1.0	03/07/2024	AB24-0310-01
Silver	ND		ug/L	0.2	03/07/2024	AB24-0310-01
Sodium	71500		ug/L	1000.0	03/07/2024	AB24-0310-01
Thallium	ND		ug/L	2.0	03/07/2024	AB24-0310-01
Vanadium	3		ug/L	2.0	03/07/2024	AB24-0310-01
Zinc	ND		ug/L	10.0	03/07/2024	AB24-0310-01
Mercury by EPA 7470A, To	tal, Aqueous			Aliquot #: 24-0	129-02-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	03/07/2024	AB24-0307-08
Anions by EPA 300.0 Aque	ous, NO2, NO3			Aliquot #: 24-0	129-02-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	03/06/2024	AB24-0306-07
Nitrite	ND		ug/L	100.0	03/06/2024	AB24-0306-07
Anions by EPA 300.0 CCR	Rule Analyte List, Cl, F,	SO4, Aqı	ieous	Aliquot #: 24-0	129-02-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	78600		ug/L	1000.0	03/12/2024	AB24-0307-02



03/20/24



Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

 Field Sample ID:
 OW-10
 Collect Date:
 03/05/2024

 Lab Sample ID:
 24-0129-02
 Collect Time:
 09:10 AM

Anions by EPA 300.0 CCR Rule Analy	te List, CI, F, S	604, Aqι	ieous	Aliquot #: 24-0	129-02-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	03/06/2024	AB24-0307-02
Sulfate	ND		ug/L	1000.0	03/12/2024	AB24-0307-02
Phosphate calculated from Total P by	SM4500-P B5-	-E		Aliquot #: 24-0	129-02-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Phosphate	5460		ug/L	10.0	03/06/2024	AB24-0306-08
Nitrogen-Ammonia by SM4500NH3(h)	, Groundwater	HL		Aliquot #: 24-0	129-02-C03-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	5180		ug/L	25.0	03/06/2024	AB24-0306-09
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	129-02-C04-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	682		mg/L	10.0	03/07/2024	AB24-0307-10
Alkalinity by SM 2320B				Aliquot #: 24-0	129-02-C05-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	672000		ug/L	10000.0	03/07/2024	AB24-0308-12
Alkalinity Bicarbonate	672000		ug/L	10000.0	03/07/2024	AB24-0308-12
Alkalinity Carbonate	ND		ug/L	10000.0	03/07/2024	AB24-0308-12
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	129-02-C07-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	100		ug/L	20.0	03/07/2024	AB24-0315-03
Total Organic Carbon by SM 5310B, A	queous			Aliquot #: 24-0	Analyst: BAL	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Organic Carbon	8400		ug/L	1000.0	03/07/2024	AB24-0315-12
Methane by RSKSOP-175 Dissolved G	as			Aliquot #: 24-0	129-02-C09-A01	Analyst: BAL
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Methane	18000	K	ug/L	180.0	03/08/2024	AB24-0315-19
Mercury by EPA 7470A, Dissolved				Aliquot #: 24-0	129-02-C11-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	03/07/2024	AB24-0307-09
	<u>24-0</u>	129 Page	_			



03/20/24



Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

 Field Sample ID:
 OW-10
 Collect Date:
 03/05/2024

 Lab Sample ID:
 24-0129-02
 Collect Time:
 09:10 AM

Metals by EPA 6020B: CCR Rule Appendix III-IV Diss Metals Expa			Aliquot #: 24-0	Aliquot #: 24-0129-02-C11-A02		
Parameter(s)	Result	Flag Units	s RL	Analysis Date	Tracking	
Antimony	ND	ug/L	1.0	03/07/2024	AB24-0310-02	
Arsenic	2	ug/L	1.0	03/07/2024	AB24-0310-02	
Barium	146	ug/L	5.0	03/07/2024	AB24-0310-02	
Beryllium	ND	ug/L	1.0	03/07/2024	AB24-0310-02	
Boron	1200	ug/L	20.0	03/07/2024	AB24-0310-02	
Cadmium	ND	ug/L	0.2	03/07/2024	AB24-0310-02	
Calcium	128000	ug/L	1000.0	03/07/2024	AB24-0310-02	
Chromium	1	ug/L	1.0	03/07/2024	AB24-0310-02	
Cobalt	ND	ug/L	6.0	03/07/2024	AB24-0310-02	
Copper	ND	ug/L	1.0	03/07/2024	AB24-0310-02	
Iron	2950	ug/L	20.0	03/07/2024	AB24-0310-02	
Lead	ND	ug/L	1.0	03/07/2024	AB24-0310-02	
Lithium	35	ug/L	10.0	03/07/2024	AB24-0310-02	
Magnesium	22400	ug/L	1000.0	03/07/2024	AB24-0310-02	
Manganese	597	ug/L	5.0	03/07/2024	AB24-0310-02	
Molybdenum	ND	ug/L	5.0	03/07/2024	AB24-0310-02	
Nickel	4	ug/L	2.0	03/07/2024	AB24-0310-02	
Potassium	4990	ug/L	100.0	03/07/2024	AB24-0310-02	
Selenium	1	ug/L	1.0	03/07/2024	AB24-0310-02	
Silver	ND	ug/L	0.2	03/07/2024	AB24-0310-02	
Sodium	71400	ug/L	1000.0	03/07/2024	AB24-0310-02	
Thallium	ND	ug/L	2.0	03/07/2024	AB24-0310-02	
Vanadium	ND	ug/L	2.0	03/07/2024	AB24-0310-02	
Zinc	ND	ug/L	10.0	03/07/2024	AB24-0310-02	



03/20/24



A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

 Field Sample ID:
 OW-11
 Collect Date:
 03/05/2024

 Lab Sample ID:
 24-0129-03
 Collect Time:
 12:00 PM

Metals by EPA 6020B: CCR F	Tale Appendix III-IV To	tai wetai.		Aliquot #: 24-0	129-03-C01-A01	Analyst: EE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	4		ug/L	1.0	03/07/2024	AB24-0310-01
Arsenic	1080		ug/L	1.0	03/07/2024	AB24-0310-01
Barium	31		ug/L	5.0	03/07/2024	AB24-0310-01
Beryllium	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Boron	3370		ug/L	20.0	03/07/2024	AB24-0310-01
Cadmium	ND		ug/L	0.2	03/07/2024	AB24-0310-01
Calcium	10700		ug/L	1000.0	03/07/2024	AB24-0310-01
Chromium	1		ug/L	1.0	03/07/2024	AB24-0310-01
Cobalt	ND		ug/L	6.0	03/07/2024	AB24-0310-01
Copper	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Iron	140		ug/L	20.0	03/07/2024	AB24-0310-01
Lead	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Lithium	11		ug/L	10.0	03/07/2024	AB24-0310-01
Magnesium	1290		ug/L	1000.0	03/07/2024	AB24-0310-01
Manganese	ND		ug/L	5.0	03/07/2024	AB24-0310-01
Molybdenum	151		ug/L	5.0	03/07/2024	AB24-0310-01
Nickel	2		ug/L	2.0	03/07/2024	AB24-0310-01
Potassium	3090		ug/L	100.0	03/07/2024	AB24-0310-01
Selenium	10		ug/L	1.0	03/07/2024	AB24-0310-01
Silver	ND		ug/L	0.2	03/07/2024	AB24-0310-01
Sodium	59000		ug/L	1000.0	03/07/2024	AB24-0310-01
Thallium	ND		ug/L	2.0	03/07/2024	AB24-0310-01
Vanadium	358		ug/L	2.0	03/07/2024	AB24-0310-01
Zinc	ND		ug/L	10.0	03/07/2024	AB24-0310-01
Mercury by EPA 7470A, Tota	I, Aqueous			Aliquot #: 24-0	129-03-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	03/07/2024	AB24-0307-08
Anions by EPA 300.0 Aqueo	us, NO2, NO3			Aliquot #: 24-0	129-03-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	538		ug/L	100.0	03/06/2024	AB24-0306-07
Nitrite	127		ug/L	100.0	03/06/2024	AB24-0306-07
Anions by EPA 300.0 CCR R	ule Analyte List, Cl, F,	SO4, Aqı	ieous	Aliquot #: 24-0	129-03-C02-A02	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	59300		ug/L	1000.0	03/12/2024	AB24-0307-02





Report Date: 03/20/24

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

 Field Sample ID:
 OW-11
 Collect Date:
 03/05/2024

 Lab Sample ID:
 24-0129-03
 Collect Time:
 12:00 PM

Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous					Aliquot #: 24-0129-03-C02-A02	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	3440		ug/L	1000.0	03/06/2024	AB24-0307-02
Sulfate	20000		ug/L	1000.0	03/12/2024	AB24-0307-02
Phosphate calculated from Total P by	y SM4500-P B5	-E		Aliquot #: 24-0	129-03-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Phosphate	4110		ug/L	10.0	03/06/2024	AB24-0306-08
Nitrogen-Ammonia by SM4500NH3(h), Groundwater	·HL		Aliquot #: 24-0	129-03-C03-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	12500		ug/L	25.0	03/06/2024	AB24-0306-09
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	129-03-C04-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	224		mg/L	10.0	03/07/2024	AB24-0307-10
Alkalinity by SM 2320B				Aliquot #: 24-0	129-03-C05-A01	Analyst: DLS
Parameter(s)	D 11	Flag	Units	RL	Analysis Date	Trocking
raiailletei(5)	Result	i iay	Offics	• • •	Allalysis Date	Tracking
Alkalinity Total	92900	i iag	ug/L	10000.0	03/07/2024	AB24-0308-12
		i iag			•	_
Alkalinity Total	92900	i iag	ug/L	10000.0	03/07/2024	AB24-0308-12
Alkalinity Total Alkalinity Bicarbonate	92900 22800	i iag	ug/L ug/L	10000.0 10000.0 10000.0	03/07/2024 03/07/2024	AB24-0308-12 AB24-0308-12
Alkalinity Total Alkalinity Bicarbonate Alkalinity Carbonate	92900 22800	Flag	ug/L ug/L	10000.0 10000.0 10000.0	03/07/2024 03/07/2024 03/07/2024	AB24-0308-12 AB24-0308-12 AB24-0308-12
Alkalinity Total Alkalinity Bicarbonate Alkalinity Carbonate Sulfide, Total by SM 4500 S2D	92900 22800 70100		ug/L ug/L ug/L	10000.0 10000.0 10000.0 Aliquot #: 24-0	03/07/2024 03/07/2024 03/07/2024 129-03-C07-A01	AB24-0308-12 AB24-0308-12 AB24-0308-12 Analyst: Merit
Alkalinity Total Alkalinity Bicarbonate Alkalinity Carbonate Sulfide, Total by SM 4500 S2D Parameter(s)	92900 22800 70100 Result		ug/L ug/L ug/L	10000.0 10000.0 10000.0 Aliquot #: 24-0 RL 20.0	03/07/2024 03/07/2024 03/07/2024 129-03-C07-A01 Analysis Date	AB24-0308-12 AB24-0308-12 AB24-0308-12 Analyst: Merit Tracking
Alkalinity Total Alkalinity Bicarbonate Alkalinity Carbonate Sulfide, Total by SM 4500 S2D Parameter(s) Sulfide	92900 22800 70100 Result		ug/L ug/L ug/L	10000.0 10000.0 10000.0 Aliquot #: 24-0 RL 20.0	03/07/2024 03/07/2024 03/07/2024 129-03-C07-A01 Analysis Date 03/07/2024	AB24-0308-12 AB24-0308-12 AB24-0308-12 Analyst: Merit Tracking AB24-0315-03
Alkalinity Total Alkalinity Bicarbonate Alkalinity Carbonate Sulfide, Total by SM 4500 S2D Parameter(s) Sulfide Total Organic Carbon by SM 5310B, A	92900 22800 70100 Result ND	Flag	ug/L ug/L ug/L Units ug/L	10000.0 10000.0 10000.0 Aliquot #: 24-0 RL 20.0	03/07/2024 03/07/2024 03/07/2024 129-03-C07-A01 Analysis Date 03/07/2024	AB24-0308-12 AB24-0308-12 AB24-0308-12 Analyst: Merit Tracking AB24-0315-03 Analyst: BAL
Alkalinity Total Alkalinity Bicarbonate Alkalinity Carbonate Sulfide, Total by SM 4500 S2D Parameter(s) Sulfide Total Organic Carbon by SM 5310B, A	92900 22800 70100 Result ND Aqueous Result 7000	Flag	ug/L ug/L ug/L Units ug/L Units	10000.0 10000.0 10000.0 Aliquot #: 24-0 RL 20.0 Aliquot #: 24-0 RL 1000.0	03/07/2024 03/07/2024 03/07/2024 129-03-C07-A01 Analysis Date 03/07/2024 129-03-C08-A01 Analysis Date	AB24-0308-12 AB24-0308-12 AB24-0308-12 Analyst: Merit Tracking AB24-0315-03 Analyst: BAL Tracking
Alkalinity Total Alkalinity Bicarbonate Alkalinity Carbonate Sulfide, Total by SM 4500 S2D Parameter(s) Sulfide Total Organic Carbon by SM 5310B, A Parameter(s) Total Organic Carbon	92900 22800 70100 Result ND Aqueous Result 7000	Flag	ug/L ug/L ug/L Units ug/L Units	10000.0 10000.0 10000.0 Aliquot #: 24-0 RL 20.0 Aliquot #: 24-0 RL 1000.0	03/07/2024 03/07/2024 03/07/2024 129-03-C07-A01 Analysis Date 03/07/2024 129-03-C08-A01 Analysis Date 03/07/2024	AB24-0308-12 AB24-0308-12 AB24-0308-12 Analyst: Merit Tracking AB24-0315-03 Analyst: BAL Tracking AB24-0315-12



03/20/24



A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

 Field Sample ID:
 OW-12
 Collect Date:
 03/05/2024

 Lab Sample ID:
 24-0129-04
 Collect Time:
 02:50 PM

Parameter(s) Result Flag Units RL Analysis Date Antimony ND ug/L 1.0 03/07/2024 Arsenic 58 ug/L 1.0 03/07/2024 Barylium ND ug/L 5.0 03/07/2024 Beryllium ND ug/L 20.0 03/07/2024 Boron 1420 ug/L 20.0 03/07/2024 Cadmium ND ug/L 1.0 03/07/2024 Calcium 165000 ug/L 1.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Copper ND ug/L 1.0 03/07/2024 Iron 6250 ug/L 1.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lithium 59 ug/L 5.0 03/07	Analyst: EB	129-04-C01-A01	Aliquot #: 24-0129-04-C01-A01			Appendix III-IV To	Metals by EPA 6020B: CCR Rule App			
Arsenic 58 ug/L 1.0 03/07/2024 Barium 212 ug/L 5.0 03/07/2024 Beryllium ND ug/L 1.0 03/07/2024 Beryllium ND ug/L 2.0 03/07/2024 Boron 1420 ug/L 2.0 03/07/2024 Cadmium ND ug/L 0.2 03/07/2024 Cadmium 165000 ug/L 1000.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Cobalt ND ug/L 1.0 03/07/2024 Copper ND ug/L 1.0 03/07/2024 Linon 6250 ug/L 20.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lithium 59 ug/L 1.0 03/07/2024 Lithium 59 ug/L 1.0 03/07/2024 Magnesium 81200 ug/L 10.0 03/07/2024 Manganese 427 ug/L 5.0 03/07/2024 Molybdenum 7 ug/L 5.0 03/07/2024 Nickel 6 ug/L 2.0 03/07/2024 Nickel 6 ug/L 2.0 03/07/2024 Selenium 2 ug/L 1.0 03/07/2024 Selenium 2 ug/L 1.0 03/07/2024 Sodium 52200 ug/L 100.0 03/07/2024 Sodium 52200 ug/L 1.0 03/07/2024 Thallium ND ug/L 0.2 03/07/2024 Vanadium 2 ug/L 2.0 03/07/2024 Vanadium 3 ug	Tracking	Analysis Date	RL	Units	Flag	Result	Parameter(s)			
Barium 212 ug/L 5.0 03/07/2024 Beryllium ND ug/L 1.0 03/07/2024 Boron 1420 ug/L 20.0 03/07/2024 Cadmium ND ug/L 0.2 03/07/2024 Calcium 165000 ug/L 1.0 0.3/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Chromium 1 ug/L 6.0 03/07/2024 Cobalt ND ug/L 1.0 03/07/2024 Copper ND ug/L 1.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Magnesium 81200 ug/L 1.0 03/07/2024 Magnesium 81200 ug/L 5.0 03/07/2024 Mickel 6 ug/L 5.0 03/07/2024 Nickel 6 ug/L 1.0 03/07/2024	AB24-0310-01	03/07/2024	1.0	ug/L		ND	Antimony			
Beryllium	AB24-0310-01	03/07/2024	1.0	ug/L		58	Arsenic			
Boron 1420 ug/L 20.0 03/07/2024 Cadmium ND ug/L 0.2 03/07/2024 Calcium 165000 ug/L 1000.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Cobalt ND ug/L 6.0 03/07/2024 Copper ND ug/L 1.0 03/07/2024 Iron 6250 ug/L 20.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lead ND ug/L 10.0 03/07/2024 Magnesium 81200 ug/L 100.0 03/07/2024 Moly	AB24-0310-01	03/07/2024	5.0	ug/L		212	Barium			
Cadmium ND ug/L 0.2 03/07/2024 Calcium 165000 ug/L 1000.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Cobalt ND ug/L 6.0 03/07/2024 Copper ND ug/L 1.0 03/07/2024 Iron 6250 ug/L 20.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lithium 59 ug/L 10.0 03/07/2024 Magnesium 81200 ug/L 100.0 03/07/2024 Malganesie 427 ug/L 5.0 03/07/2024 Molybdenum 7 ug/L 5.0 03/07/2024 Molybdenum 7 ug/L 5.0 03/07/2024 Potassium 7850 ug/L 100.0 03/07/2024 Selenium 2 ug/L 10.0 03/07/2024 <td>AB24-0310-01</td> <td>03/07/2024</td> <td>1.0</td> <td>ug/L</td> <td></td> <td>ND</td> <td>Beryllium</td>	AB24-0310-01	03/07/2024	1.0	ug/L		ND	Beryllium			
Calcium 165000 ug/L 1000.0 03/07/2024 Chromium 1 ug/L 1.0 03/07/2024 Cobalt ND ug/L 6.0 03/07/2024 Copper ND ug/L 1.0 03/07/2024 Iron 6250 ug/L 20.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lead ND ug/L 10.0 03/07/2024 Lithium 59 ug/L 10.0 03/07/2024 Magnesium 81200 ug/L 1000.0 03/07/2024 Manganese 427 ug/L 5.0 03/07/2024 Molybdenum 7 ug/L 5.0 03/07/2024 Mickel 6 ug/L 2.0 03/07/2024 Potassium 7850 ug/L 10.0 03/07/2024 Selenium 2 ug/L 1.0 03/07/2024 Sodium 52200 ug/L 1000.0 03/07/2024 <td>AB24-0310-01</td> <td>03/07/2024</td> <td>20.0</td> <td>ug/L</td> <td></td> <td>1420</td> <td>Boron</td>	AB24-0310-01	03/07/2024	20.0	ug/L		1420	Boron			
Chromium 1 ug/L 1.0 03/07/2024 Cobalt ND ug/L 6.0 03/07/2024 Copper ND ug/L 1.0 03/07/2024 Iron 6250 ug/L 20.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lithium 59 ug/L 10.0 03/07/2024 Magnesium 81200 ug/L 100.0 03/07/2024 Manganese 427 ug/L 5.0 03/07/2024 Molybdenum 7 ug/L 5.0 03/07/2024 Nickel 6 ug/L 2.0 03/07/2024 Nickel 6 ug/L 2.0 03/07/2024 Potassium 7850 ug/L 100.0 03/07/2024 Selenium 2 ug/L 1.0 03/07/2024 Sodium 52200 ug/L 100.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024	AB24-0310-01	03/07/2024	0.2	ug/L		ND	Cadmium			
Cobalt ND ug/L 6.0 03/07/2024 Copper ND ug/L 1.0 03/07/2024 Iron 6250 ug/L 20.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lithium 59 ug/L 10.0 03/07/2024 Magnesium 81200 ug/L 1000.0 03/07/2024 Manganese 427 ug/L 5.0 03/07/2024 Molybdenum 7 ug/L 5.0 03/07/2024 Mickel 6 ug/L 2.0 03/07/2024 Potassium 7850 ug/L 100.0 03/07/2024 Selenium 2 ug/L 1.0 03/07/2024 Selenium 2 ug/L 1.0 03/07/2024 Sodium 52200 ug/L 100.0 03/07/2024 Vanadium 2 ug/L 2.0 03/07/2024 Vanadium 2 ug/L 10.0 03/07/2024	AB24-0310-01	03/07/2024	1000.0	ug/L		165000	Calcium			
Copper ND ug/L 1.0 03/07/2024 Iron 6250 ug/L 20.0 03/07/2024 Lead ND ug/L 1.0 03/07/2024 Lithium 59 ug/L 10.0 03/07/2024 Magnesium 81200 ug/L 1000.0 03/07/2024 Manganese 427 ug/L 5.0 03/07/2024 Molybdenum 7 ug/L 5.0 03/07/2024 Nickel 6 ug/L 2.0 03/07/2024 Potassium 7850 ug/L 10.0 03/07/2024 Selenium 2 ug/L 1.0 03/07/2024 Selorium 2 ug/L 1.0 03/07/2024 Sodium 52200 ug/L 100.0 03/07/2024 Vanadium 2 ug/L 2.0 03/07/2024 Vanadium 2 ug/L 10.0 03/07/2024 Varectry by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-04-C01-A02	AB24-0310-01	03/07/2024	1.0	ug/L		1	Chromium			
Iron	AB24-0310-01	03/07/2024	6.0	ug/L		ND	Cobalt			
Lead ND ug/L 1.0 03/07/2024 Lithium 59 ug/L 10.0 03/07/2024 Magnesium 81200 ug/L 1000.0 03/07/2024 Manganese 427 ug/L 5.0 03/07/2024 Molybdenum 7 ug/L 5.0 03/07/2024 Nickel 6 ug/L 2.0 03/07/2024 Potassium 7850 ug/L 100.0 03/07/2024 Selenium 2 ug/L 1.0 03/07/2024 Silver ND ug/L 0.2 03/07/2024 Sodium 52200 ug/L 1000.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024 Vanadium 2 ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-04-C01-A02 Parameter(s) Result Flag Units	AB24-0310-01	03/07/2024	1.0	ug/L		ND	Copper			
Lithium 59 ug/L 10.0 03/07/2024 Magnesium 81200 ug/L 1000.0 03/07/2024 Manganese 427 ug/L 5.0 03/07/2024 Molybdenum 7 ug/L 5.0 03/07/2024 Nickel 6 ug/L 2.0 03/07/2024 Potassium 7850 ug/L 100.0 03/07/2024 Selenium 2 ug/L 1.0 03/07/2024 Selenium 2 ug/L 1.0 03/07/2024 Sodium 52200 ug/L 1000.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024 Vanadium 2 ug/L 2.0 03/07/2024 Varnadium 2 ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-04-C01-A02 Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2	AB24-0310-01	03/07/2024	20.0	ug/L		6250	Iron			
Magnesium 81200 ug/L 1000.0 03/07/2024 Manganese 427 ug/L 5.0 03/07/2024 Molybdenum 7 ug/L 5.0 03/07/2024 Nickel 6 ug/L 2.0 03/07/2024 Potassium 7850 ug/L 100.0 03/07/2024 Selenium 2 ug/L 1.0 03/07/2024 Silver ND ug/L 0.2 03/07/2024 Sodium 52200 ug/L 1000.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024 Vanadium 2 ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-04-C01-A02 Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-04-C02-A01 Parameter(s) Result	AB24-0310-01	03/07/2024	1.0	ug/L		ND	Lead			
Manganese 427 ug/L 5.0 03/07/2024 Molybdenum 7 ug/L 5.0 03/07/2024 Nickel 6 ug/L 2.0 03/07/2024 Potassium 7850 ug/L 100.0 03/07/2024 Selenium 2 ug/L 1.0 03/07/2024 Silver ND ug/L 0.2 03/07/2024 Sodium 52200 ug/L 1000.0 03/07/2024 Sodium ND ug/L 2.0 03/07/2024 Vanadium 2 ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-04-C01-A02 Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-04-C02-A01 Parameter(s)	AB24-0310-01	03/07/2024	10.0	ug/L		59	Lithium			
Molybdenum 7 ug/L 5.0 03/07/2024 Nickel 6 ug/L 2.0 03/07/2024 Potassium 7850 ug/L 100.0 03/07/2024 Selenium 2 ug/L 1.0 03/07/2024 Silver ND ug/L 0.2 03/07/2024 Sodium 52200 ug/L 1000.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024 Vanadium 2 ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-04-C01-A02 Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-04-C02-A01 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0<	AB24-0310-01	03/07/2024	1000.0	ug/L		81200	Magnesium			
Nickel 6	AB24-0310-01	03/07/2024	5.0	ug/L		427	Manganese			
Potassium	AB24-0310-01	03/07/2024	5.0	ug/L		7	Molybdenum			
Selenium 2 ug/L 1.0 03/07/2024 Silver ND ug/L 0.2 03/07/2024 Sodium 52200 ug/L 1000.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024 Vanadium 2 ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-04-C01-A02 Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-04-C02-A01 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024 Nitrate ND ug/L 100.0 03/06/2024	AB24-0310-01	03/07/2024	2.0	ug/L		6	Nickel			
Silver ND ug/L 0.2 03/07/2024 Sodium 52200 ug/L 1000.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024 Vanadium 2 ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-04-C01-A02 Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 100.0 03/06/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-04-C02-A01 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024 Nitrite ND ug/L 100.0 03/06/2024	AB24-0310-01	03/07/2024	100.0	ug/L		7850	Potassium			
Sodium 52200 ug/L 1000.0 03/07/2024 Thallium ND ug/L 2.0 03/07/2024 Vanadium 2 ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-04-C01-A02 Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-04-C02-A01 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024 Nitrite ND ug/L 100.0 03/06/2024 Nitrate ND ug/L 100.0 03/06/2024 NITRATED ND ug/L ug/L ug/L ug/L ug/L NITRATED ND ug/L ug/L ug/L ug/L ug/L ug	AB24-0310-01	03/07/2024	1.0	ug/L		2	Selenium			
Thallium ND ug/L 2.0 03/07/2024 Vanadium 2 ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-04-C01-A02 Parameter(s) Result Flag Units RL Analysis Date Mercury NO Ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-04-C02-A01 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024 Nitrite ND ug/L 100.0 03/06/2024	AB24-0310-01	03/07/2024	0.2	ug/L		ND	Silver			
Vanadium 2 ug/L 2.0 03/07/2024 Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-04-C01-A02 Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-04-C02-A01 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024 Nitrite ND ug/L 100.0 03/06/2024	AB24-0310-01	03/07/2024	1000.0	ug/L		52200	Sodium			
Zinc ND ug/L 10.0 03/07/2024 Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-04-C01-A02 Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-04-C02-A01 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024 Nitrite ND ug/L 100.0 03/06/2024	AB24-0310-01	03/07/2024	2.0	ug/L		ND	Thallium			
Mercury by EPA 7470A, Total, Aqueous Aliquot #: 24-0129-04-C01-A02 Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-04-C02-A01 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024 Nitrite ND ug/L 100.0 03/06/2024	AB24-0310-01	03/07/2024	2.0	ug/L		2	Vanadium			
Parameter(s) Result Flag Units RL Analysis Date Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-04-C02-A01 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024 Nitrite ND ug/L 100.0 03/06/2024	AB24-0310-01	03/07/2024	10.0	ug/L		ND	Zinc			
Mercury ND ug/L 0.2 03/07/2024 Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-04-C02-A01 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024 Nitrite ND ug/L 100.0 03/06/2024	Analyst: CLE	129-04-C01-A02	Aliquot #: 24-0			ieous	Mercury by EPA 7470A, Total, Aq			
Anions by EPA 300.0 Aqueous, NO2, NO3 Aliquot #: 24-0129-04-C02-A01 Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024 Nitrite ND ug/L 100.0 03/06/2024	Tracking	Analysis Date	RL	Units	Flag	Result	Parameter(s)			
Parameter(s) Result Flag Units RL Analysis Date Nitrate ND ug/L 100.0 03/06/2024 Nitrite ND ug/L 100.0 03/06/2024	AB24-0307-08	03/07/2024	0.2	ug/L		ND	Mercury			
Nitrate ND ug/L 100.0 03/06/2024 Nitrite ND ug/L 100.0 03/06/2024	Analyst: KDR	129-04-C02-A01	Aliquot #: 24-01			D2, NO3	Anions by EPA 300.0 Aqueous, N			
Nitrite ND ug/L 100.0 03/06/2024	Tracking	Analysis Date	RL	Units	Flag	Result	Parameter(s)			
	AB24-0306-07	03/06/2024	100.0	ug/L		ND	Nitrate			
Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous Aliquot #: 24-0129-04-C02-A02	AB24-0306-07	03/06/2024	100.0	ug/L		ND	Nitrite			
	Analyst: KDR	129-04-C02-A02	Aliquot #: 24-0	ieous	SO4, Aqu	nalyte List, Cl, F,	Anions by EPA 300.0 CCR Rule A			
Parameter(s) Result Flag Units RL Analysis Date	Tracking	Analysis Date	RL	Units	Flag	Result	Parameter(s)			
Chloride 39100 ug/L 1000.0 03/12/2024	AB24-0307-02	03/12/2024	1000.0	ug/L		39100	Chloride			





Report Date: 03/20/24

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

 Field Sample ID:
 OW-12
 Collect Date:
 03/05/2024

 Lab Sample ID:
 24-0129-04
 Collect Time:
 02:50 PM

Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous				Aliquot #: 24-0129-04-C02-A02		Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	03/06/2024	AB24-0307-02
Sulfate	234000		ug/L	1000.0	03/12/2024	AB24-0307-02
Phosphate calculated from Total P by	SM4500-P B5-E			Aliquot #: 24-0	129-04-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Phosphate	356		ug/L	10.0	03/06/2024	AB24-0306-08
Nitrogen-Ammonia by SM4500NH3(h),	Aliquot #: 24-0	129-04-C03-A02	Analyst: CLE			
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	1520		ug/L	25.0	03/06/2024	AB24-0306-09
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	129-04-C04-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	1010		mg/L	10.0	03/07/2024	AB24-0307-10
Alkalinity by SM 2320B				Aliquot #: 24-0	129-04-C05-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	617000		ua/l	40000 0	03/07/2024	AB24-0308-12
	017000		ug/L	10000.0	03/07/2024	AD24-0300-12
Alkalinity Bicarbonate	617000		ug/L ug/L	10000.0	03/07/2024	AB24-0308-12
Alkalinity Bicarbonate Alkalinity Carbonate			-			
•	617000		ug/L	10000.0 10000.0	03/07/2024	AB24-0308-12
Alkalinity Carbonate	617000	Flag	ug/L	10000.0 10000.0	03/07/2024 03/07/2024	AB24-0308-12 AB24-0308-12
Alkalinity Carbonate Sulfide, Total by SM 4500 S2D	617000 ND	Flag	ug/L ug/L	10000.0 10000.0 Aliquot #: 24-0	03/07/2024 03/07/2024 129-04-C07-A01	AB24-0308-12 AB24-0308-12 Analyst: Merit
Alkalinity Carbonate Sulfide, Total by SM 4500 S2D Parameter(s)	617000 ND Result	Flag	ug/L ug/L Units	10000.0 10000.0 Aliquot #: 24-0 RL 20.0	03/07/2024 03/07/2024 129-04-C07-A01 Analysis Date	AB24-0308-12 AB24-0308-12 Analyst: Merit Tracking
Alkalinity Carbonate Sulfide, Total by SM 4500 S2D Parameter(s) Sulfide	617000 ND Result	Flag	ug/L ug/L Units	10000.0 10000.0 Aliquot #: 24-0 RL 20.0	03/07/2024 03/07/2024 129-04-C07-A01 Analysis Date 03/07/2024	AB24-0308-12 AB24-0308-12 Analyst: Merit Tracking AB24-0315-03
Alkalinity Carbonate Sulfide, Total by SM 4500 S2D Parameter(s) Sulfide Total Organic Carbon by SM 5310B, Ac	617000 ND Result ND queous		ug/L ug/L Units ug/L	10000.0 10000.0 Aliquot #: 24-0 RL 20.0	03/07/2024 03/07/2024 129-04-C07-A01 Analysis Date 03/07/2024 129-04-C08-A01	AB24-0308-12 AB24-0308-12 Analyst: Merit Tracking AB24-0315-03 Analyst: BAL
Alkalinity Carbonate Sulfide, Total by SM 4500 S2D Parameter(s) Sulfide Total Organic Carbon by SM 5310B, Acceptance (s)	Result ND queous Result 3000		ug/L ug/L Units ug/L	10000.0 10000.0 Aliquot #: 24-0 RL 20.0 Aliquot #: 24-0 RL 1000.0	03/07/2024 03/07/2024 129-04-C07-A01 Analysis Date 03/07/2024 129-04-C08-A01 Analysis Date	AB24-0308-12 AB24-0308-12 Analyst: Merit Tracking AB24-0315-03 Analyst: BAL Tracking
Alkalinity Carbonate Sulfide, Total by SM 4500 S2D Parameter(s) Sulfide Total Organic Carbon by SM 5310B, Addressed Carbon Total Organic Carbon	Result ND queous Result 3000		ug/L ug/L Units ug/L	10000.0 10000.0 Aliquot #: 24-0 RL 20.0 Aliquot #: 24-0 RL 1000.0	03/07/2024 03/07/2024 129-04-C07-A01 Analysis Date 03/07/2024 129-04-C08-A01 Analysis Date 03/07/2024	AB24-0308-12 AB24-0308-12 Analyst: Merit Tracking AB24-0315-03 Analyst: BAL Tracking AB24-0315-12



03/20/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

Field Sample ID: DUP-KLI Collect Date: 03/05/2024 Lab Sample ID: 24-0129-06 Collect Time: 12:00 AM

Metals by EPA 6020B: CCR	Kule Appendix III-IV To	tai Metals	s Exp	Aliquot #: 24-0	129-06-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Arsenic	352		ug/L	1.0	03/07/2024	AB24-0310-01
Barium	59		ug/L	5.0	03/07/2024	AB24-0310-01
Beryllium	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Boron	663		ug/L	20.0	03/07/2024	AB24-0310-01
Cadmium	ND		ug/L	0.2	03/07/2024	AB24-0310-01
Calcium	43400		ug/L	1000.0	03/07/2024	AB24-0310-01
Chromium	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Cobalt	ND		ug/L	6.0	03/07/2024	AB24-0310-01
Copper	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Iron	202		ug/L	20.0	03/07/2024	AB24-0310-01
Lead	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Lithium	26		ug/L	10.0	03/07/2024	AB24-0310-01
Magnesium	7320		ug/L	1000.0	03/07/2024	AB24-0310-01
Manganese	109		ug/L	5.0	03/07/2024	AB24-0310-01
Molybdenum	21		ug/L	5.0	03/07/2024	AB24-0310-01
Nickel	ND		ug/L	2.0	03/07/2024	AB24-0310-01
Potassium	3360		ug/L	100.0	03/07/2024	AB24-0310-01
Selenium	1		ug/L	1.0	03/07/2024	AB24-0310-01
Silver	ND		ug/L	0.2	03/07/2024	AB24-0310-01
Sodium	53100		ug/L	1000.0	03/07/2024	AB24-0310-01
Thallium	ND		ug/L	2.0	03/07/2024	AB24-0310-01
Vanadium	2		ug/L	2.0	03/07/2024	AB24-0310-01
Zinc	ND		ug/L	10.0	03/07/2024	AB24-0310-01
Mercury by EPA 7470A, Tot	al, Aqueous			Aliquot #: 24-0	129-06-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	03/07/2024	AB24-0307-08
Anions by EPA 300.0 Aqueo	ous, NO2, NO3			Aliquot #: 24-0	129-06-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	03/06/2024	AB24-0306-07
Nitrite	ND		ug/L	100.0	03/06/2024	AB24-0306-07
Anions by EPA 300.0 CCR F	Rule Analyte List, Cl, F,	SO4, Aqı	ieous	Aliquot #: 24-0	129-06-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	60300		ug/L	1000.0	03/12/2024	AB24-0307-02





Report Date: 03/20/24

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

Field Sample ID: DUP-KLI
Lab Sample ID: 24-0129-06

Collect Date: 03/05/2024
Collect Time: 12:00 AM

Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous			Aliquot #: 24-0	Analyst: KDR		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	03/06/2024	AB24-0307-02
Sulfate	51300		ug/L	1000.0	03/12/2024	AB24-0307-02
Phosphate calculated from Total P	by SM4500-P B	5-E		Aliquot #: 24-0	129-06-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Phosphate	4260		ug/L	10.0	03/06/2024	AB24-0306-08
Nitrogen-Ammonia by SM4500NH3(h), Groundwate	r HL		Aliquot #: 24-0	129-06-C03-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	2200		ug/L	25.0	03/06/2024	AB24-0306-09
Total Dissolved Solids by SM 25400				Aliquot #: 24-0	129-06-C04-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	312		mg/L	10.0	03/07/2024	AB24-0307-10
Alkalinity by SM 2320B				Aliquot #: 24-0	129-06-C05-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	137000		ug/L	10000.0	03/07/2024	AB24-0308-12
Alkalinity Bicarbonate	137000		ug/L	10000.0	03/07/2024	AB24-0308-12
Alkalinity Carbonate	ND		ug/L	10000.0	03/07/2024	AB24-0308-12
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	129-06-C07-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	210		ug/L	20.0	03/07/2024	AB24-0315-03
Total Organic Carbon by SM 5310B	, Aqueous			Aliquot #: 24-0	129-06-C08-A01	Analyst: BAL
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Organic Carbon	3600		ug/L	1000.0	03/07/2024	AB24-0315-12
Methane by RSKSOP-175 Dissolved	d Gas			Aliquot #: 24-0	129-06-C09-A01	Analyst: BAL
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Methane	600	K	ug/L	180.0	03/08/2024	AB24-0315-19



03/20/24



Laboratory Services
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Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

Field Sample ID: EB-KLI Collect Date: 03/05/2024
Lab Sample ID: 24-0129-07 Collect Time: 03:00 PM

Matrix: Water

Parameter(s)	D 14					
	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Arsenic	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Barium	ND		ug/L	5.0	03/07/2024	AB24-0310-01
Beryllium	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Boron	ND		ug/L	20.0	03/07/2024	AB24-0310-01
Cadmium	ND		ug/L	0.2	03/07/2024	AB24-0310-01
Calcium	ND		ug/L	1000.0	03/07/2024	AB24-0310-01
Chromium	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Cobalt	ND		ug/L	6.0	03/07/2024	AB24-0310-01
Copper	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Iron	ND		ug/L	20.0	03/07/2024	AB24-0310-01
Lead	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Lithium	ND		ug/L	10.0	03/07/2024	AB24-0310-01
Magnesium	ND		ug/L	1000.0	03/07/2024	AB24-0310-01
Manganese	ND		ug/L	5.0	03/07/2024	AB24-0310-01
Molybdenum	ND		ug/L	5.0	03/07/2024	AB24-0310-01
Nickel	ND		ug/L	2.0	03/07/2024	AB24-0310-01
Potassium	ND		ug/L	100.0	03/07/2024	AB24-0310-01
Selenium	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Silver	ND		ug/L	0.2	03/07/2024	AB24-0310-01
Sodium	ND		ug/L	1000.0	03/07/2024	AB24-0310-01
Thallium	ND		ug/L	2.0	03/07/2024	AB24-0310-01
Vanadium	ND		ug/L	2.0	03/07/2024	AB24-0310-01
Zinc	ND		ug/L	10.0	03/07/2024	AB24-0310-01
Mercury by EPA 7470A, Total, Aqu	leous			Aliquot #: 24-0	129-07-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	03/07/2024	AB24-0307-08
Anions by EPA 300.0 Aqueous, No	O2, NO3			Aliquot #: 24-0	129-07-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	03/06/2024	AB24-0306-07
Nitrite	ND		ug/L	100.0	03/06/2024	AB24-0306-07
Anions by EPA 300.0 CCR Rule A	nalyte List, Cl, F,	SO4, Aqu	ieous	Aliquot #: 24-0	129-07-C02-A02	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking





A CENTURY OF EXCELLENCE

Report Date: 03/20/24

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

Field Sample ID: EB-KLI Collect Date: 03/05/2024
Lab Sample ID: 24-0129-07 Collect Time: 03:00 PM

Matrix: Water

Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous				Aliquot #: 24-0	Analyst: KDR	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	03/06/2024	AB24-0307-02
Sulfate	ND		ug/L	1000.0	03/12/2024	AB24-0307-02
Phosphate calculated from Total P by S	Aliquot #: 24-0	129-07-C03-A01	Analyst: CLE			
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Phosphate	ND		ug/L	10.0	03/06/2024	AB24-0306-08
Nitrogen-Ammonia by SM4500NH3(h), (Alignot #: 24-0	129-07-C03-A02	Analyst: CLE		
Parameter(s)	Result	= Flag	Units	RL	Analysis Date	Tracking
. ,		riay			•	•
Ammonia	ND		ug/L	25.0	03/06/2024	AB24-0306-09
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0129-07-C04-A01 Analyst: Mei		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	ND		ug/L	20.0	03/07/2024	AB24-0315-03
Total Organic Carbon by SM 5310B, Aq	ueous			Aliguot #: 24-0	129-07-C05-A01	Analyst: BAL
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Organic Carbon	1500	9	ug/L	1000.0	03/07/2024	AB24-0315-12
Total Organio Carbon	1000		ug/L	1000.0	00/01/2021	71821 0010 12
Methane by RSKSOP-175 Dissolved Ga	ıs			Aliquot #: 24-0	129-07-C06-A01	Analyst: BAL
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Methane	ND		ug/L	2.0	03/08/2024	AB24-0315-19



03/20/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

Field Sample ID: FB-KLI Collect Date: 03/05/2024 Lab Sample ID: 24-0129-08 Collect Time: 02:50 PM

Matrix: Water

Metals by EPA 6020B: CCR	Nuie Appendix III-IV 10	tai wetal	≥ Exh	Aliquot #: 24-0	129-08-C01-A01	Analyst: El
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	03/07/2024	AB24-0310-0
Arsenic	ND		ug/L	1.0	03/07/2024	AB24-0310-0
Barium	ND		ug/L	5.0	03/07/2024	AB24-0310-0
Beryllium	ND		ug/L	1.0	03/07/2024	AB24-0310-0
Boron	ND		ug/L	20.0	03/07/2024	AB24-0310-0
Cadmium	ND		ug/L	0.2	03/07/2024	AB24-0310-0
Calcium	ND		ug/L	1000.0	03/07/2024	AB24-0310-0
Chromium	1		ug/L	1.0	03/07/2024	AB24-0310-0
Cobalt	ND		ug/L	6.0	03/07/2024	AB24-0310-0
Copper	ND		ug/L	1.0	03/07/2024	AB24-0310-0
Iron	ND		ug/L	20.0	03/07/2024	AB24-0310-0
Lead	ND		ug/L	1.0	03/07/2024	AB24-0310-0
Lithium	ND		ug/L	10.0	03/07/2024	AB24-0310-0
Magnesium	ND		ug/L	1000.0	03/07/2024	AB24-0310-0
Manganese	ND		ug/L	5.0	03/07/2024	AB24-0310-0
Molybdenum	ND		ug/L	5.0	03/07/2024	AB24-0310-0
Nickel	ND		ug/L	2.0	03/07/2024	AB24-0310-0
Potassium	ND		ug/L	100.0	03/07/2024	AB24-0310-0
Selenium	ND		ug/L	1.0	03/07/2024	AB24-0310-0
Silver	ND		ug/L	0.2	03/07/2024	AB24-0310-0
Sodium	ND		ug/L	1000.0	03/07/2024	AB24-0310-0
Thallium	ND		ug/L	2.0	03/07/2024	AB24-0310-0
Vanadium	ND		ug/L	2.0	03/07/2024	AB24-0310-0
Zinc	ND		ug/L	10.0	03/07/2024	AB24-0310-0
Mercury by EPA 7470A, Tot	al, Aqueous			Aliquot #: 24-0	129-08-C01-A02	Analyst: CL
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Trackin
Mercury	ND		ug/L	0.2	03/07/2024	AB24-0307-0
Anions by EPA 300.0 Aque	ous, NO2, NO3			Aliquot #: 24-0	129-08-C02-A01	Analyst: KD
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Trackin
Nitrate	ND		ug/L	100.0	03/06/2024	AB24-0306-0
Nitrite	ND		ug/L	100.0	03/06/2024	AB24-0306-0
Anions by EPA 300.0 CCR i	Rule Analyte List, Cl, F,	SO4, Aqı	ieous	Aliquot #: 24-0	129-08-C02-A02	Analyst: KD
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Trackin
Chloride	ND		ug/L	1000.0	03/12/2024	AB24-0307-0
	24.4	1129 Page 1	O of EE			





Report Date: 03/20/24

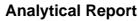
A CENTURY OF EXCELLENCE

Sample Site: Laboratory Project: **DEK Lined Impoundment** 24-0129

Collect Date: Field Sample ID: FB-KLI 03/05/2024 Lab Sample ID: 24-0129-08 Collect Time: 02:50 PM

Matrix: Water

Anions by EPA 300.0 CCR Rule Ana	Aliquot #: 24-0	Analyst: KDR				
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	03/06/2024	AB24-0307-02
Sulfate	ND		ug/L	1000.0	03/12/2024	AB24-0307-02
Phosphate calculated from Total P b	5-E		Aliquot #: 24-0	129-08-C03-A01	Analyst: CLE	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Phosphate	ND		ug/L	10.0	03/06/2024	AB24-0306-08
Nitrogen-Ammonia by SM4500NH3(h	n), Groundwate	r HL		Aliquot #: 24-0	129-08-C03-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	ND		ug/L	25.0	03/06/2024	AB24-0306-09
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	129-08-C04-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	ND		ug/L	20.0	03/07/2024	AB24-0315-03
Total Organic Carbon by SM 5310B,	Aqueous			Aliquot #: 24-0	129-08-C05-A01	Analyst: BAL
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Organic Carbon	ND		ug/L	1000.0	03/07/2024	AB24-0315-12
Methane by RSKSOP-175 Dissolved		Aliquot #: 24-0	129-08-C06-A01	Analyst: BAL		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking





A CENTURY OF EXCELLENCE

Report Date: 03/20/24

Sample Site: Laboratory Project: **DEK Lined Impoundment** 24-0129

Field Sample ID: KLI-SCS Collect Date: 03/05/2024 Lab Sample ID: 24-0129-09 Collect Time: 01:20 PM

Metals by EPA 6020B: CCR Rule Appe	TIGIX III IV 10			Aliquot #: 24-0	129-09-C01-A01	Analyst: EE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Arsenic	2		ug/L	1.0	03/07/2024	AB24-0310-01
Barium	49		ug/L	5.0	03/07/2024	AB24-0310-01
Beryllium	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Boron	602		ug/L	20.0	03/07/2024	AB24-0310-01
Cadmium	ND		ug/L	0.2	03/07/2024	AB24-0310-01
Calcium	107000		ug/L	1000.0	03/07/2024	AB24-0310-01
Chromium	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Cobalt	ND		ug/L	6.0	03/07/2024	AB24-0310-01
Copper	2		ug/L	1.0	03/07/2024	AB24-0310-01
Iron	111		ug/L	20.0	03/07/2024	AB24-0310-01
Lead	ND		ug/L	1.0	03/07/2024	AB24-0310-01
Lithium	ND		ug/L	10.0	03/07/2024	AB24-0310-01
Magnesium	36800		ug/L	1000.0	03/07/2024	AB24-0310-01
Molybdenum	10		ug/L	5.0	03/07/2024	AB24-0310-01
Nickel	4		ug/L	2.0	03/07/2024	AB24-0310-01
Potassium	2870		ug/L	100.0	03/07/2024	AB24-0310-01
Selenium	5		ug/L	1.0	03/07/2024	AB24-0310-01
Silver	ND		ug/L	0.2	03/07/2024	AB24-0310-01
Sodium	337000		ug/L	1000.0	03/07/2024	AB24-0310-01
Thallium	ND		ug/L	2.0	03/07/2024	AB24-0310-01
Vanadium	5		ug/L	2.0	03/07/2024	AB24-0310-01
Zinc	ND		ug/L	10.0	03/07/2024	AB24-0310-01
Mercury by EPA 7470A, Total, Aqueou	ıs			Aliquot #: 24-0	129-09-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	03/07/2024	AB24-0307-08
Anions by EPA 300.0 CCR Rule Analys	te List, CI, F,	SO4, Aqι	ieous	Aliquot #: 24-0	129-09-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	56900		ug/L	1000.0	03/12/2024	AB24-0307-02
Fluoride	ND		ug/L	1000.0	03/12/2024	AB24-0307-02
Sulfate	595000		ug/L	1000.0	03/12/2024	AB24-0307-02
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	129-09-C03-A01	Analyst: LMC
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking



Analytical Report

Report Date: 03/20/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

Field Sample ID: KLI-SCS Collect Date: 03/05/2024
Lab Sample ID: 24-0129-09 Collect Time: 01:20 PM

Alkalinity by SM 2320B	Aliquot #: 24-0	Analyst: DLS			
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	565000	ug/L	10000.0	03/07/2024	AB24-0308-12
Alkalinity Bicarbonate	565000	ug/L	10000.0	03/07/2024	AB24-0308-12
Alkalinity Carbonate	ND	ug/L	10000.0	03/07/2024	AB24-0308-12



03/20/24



A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

Field Sample ID: KLI-PCS Collect Date: 03/05/2024 Lab Sample ID: 24-0129-10 Collect Time: 01:30 PM

Metals by EPA 6020B: CCR Rule App	enaix III-IV 10	tai wetais	s ∈xp	Aliquot #: 24-0	129-10-C01-A01	1 Analyst: EB		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking		
Antimony	ND		ug/L	1.0	03/07/2024	AB24-0310-01		
Arsenic	1		ug/L	1.0	03/07/2024	AB24-0310-01		
Barium	101		ug/L	5.0	03/07/2024	AB24-0310-01		
Beryllium	ND		ug/L	1.0	03/07/2024	AB24-0310-01		
Boron	703		ug/L	20.0	03/07/2024	AB24-0310-01		
Cadmium	0.3		ug/L	0.2	03/07/2024	AB24-0310-01		
Calcium	77700		ug/L	1000.0	03/07/2024	AB24-0310-01		
Chromium	1		ug/L	1.0	03/07/2024	AB24-0310-01		
Cobalt	ND		ug/L	6.0	03/07/2024	AB24-0310-01		
Copper	2		ug/L	1.0	03/07/2024	AB24-0310-01		
Iron	134		ug/L	20.0	03/07/2024	AB24-0310-01		
Lead	ND		ug/L	1.0	03/07/2024	AB24-0310-01		
Lithium	ND		ug/L	10.0	03/07/2024	AB24-0310-01		
Magnesium	7510		ug/L	1000.0	03/07/2024	AB24-0310-01		
Molybdenum	71		ug/L	5.0	03/07/2024	AB24-0310-01		
Nickel	3		ug/L	2.0	03/07/2024	AB24-0310-01		
Potassium	6800		ug/L	100.0	03/07/2024	AB24-0310-01		
Selenium	1		ug/L	1.0	03/07/2024	AB24-0310-01		
Silver	ND		ug/L	0.2	03/07/2024	AB24-0310-01		
Sodium	58900		ug/L	1000.0	03/07/2024	AB24-0310-01		
Thallium	ND		ug/L	2.0	03/07/2024	AB24-0310-01		
Vanadium	5		ug/L	2.0	03/07/2024	AB24-0310-01		
Zinc	ND		ug/L	10.0	03/07/2024	AB24-0310-01		
Mercury by EPA 7470A, Total, Aqueo	us			Aliquot #: 24-0	129-10-C01-A02	Analyst: CLE		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking		
Mercury	ND		ug/L	0.2	03/07/2024	AB24-0307-08		
Anions by EPA 300.0 CCR Rule Analy	yte List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	129-10-C02-A01	Analyst: KDR		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking		
Chloride	40500		ug/L	1000.0	03/12/2024	AB24-0307-02		
Fluoride	ND		ug/L	1000.0	03/12/2024	AB24-0307-02		
Sulfate	277000		ug/L	1000.0	03/12/2024	AB24-0307-02		
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	129-10-C03-A01	Analyst: LMC		
						-		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking		



Analytical Report

Report Date: 03/20/24

A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0129**

Collect Date: 03/05/2024 Collect Time: 01:30 PM

Lab Sample ID: 24-0129-10 Matrix: Groundwater

Field Sample ID: KLI-PCS

Alkalinity by SM 2320B	Aliquot #: 24-0	Analyst: DLS			
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Alkalinity Total	60900	ug/L	10000.0	03/07/2024	AB24-0308-12
Alkalinity Bicarbonate	60900	ug/L	10000.0	03/07/2024	AB24-0308-12
Alkalinity Carbonate	ND	ug/L	10000.0	03/07/2024	AB24-0308-12



Analytical Report

Report Date: 03/20/24

Data Qualifiers	Exception Summary
K = RL increased due to sample matrix.	No other exceptions occurred.

General Standard Operating Procedure

PROC CHEM-1.2.01 PAGE 1 OF 2 REVISION 4 ATTACHMENT A

TITLE: SAMPLE LOG-IN -	SHIPMENT	INSPECTION	FORM	
Project Log-In Number: 24 - 6	129			
Inspection Date: 5.06.24		Inspection By:	uno	
Sample Origin/Project Name: 🔍				nent
Shipment Delivered By: Enter the typ	e of shipment car	rier.		
Pony FedEx Other/Hand Carry (whom)	✓ UP:		USPS	Airborne
Tracking Number: 27 17	8759 27	25 Shipping I	Form Attached: Y	esNo
Shipping Containers: Enter the type a	and number of shi	pping containers re	eceived.	
Cooler _ Cardboar Loose/Unpackaged Containers	rd Box	Custom Cas	e	Envelope/Mailer
Condition of Shipment: Enter the as-	eceived conditio	n of the shipment o	ontainer.	
Damaged Shipment Observed: Other				Leaking
Shipment Security: Enter if any of the	shipping contain	ners were opened b	efore receipt.	
Shipping Containers Received		The state of the same of		
Enclosed Documents: Enter the type of	of documents end	losed with the shin	ment.	
CoC Work Requ		COLUMN TO SERVE		ner
Temperature of Containers: Measure				
				1
As-Received Temperature Rar	ige <u>0 · @ - 2 · 0</u>	Samples Red	cerved on Ice: Yes	V No
M&TE # and Expiration 61:	5402 5.23	.29		
Number and Type of Containers: En	ter the total num	per of sample conta	iners received.	
TOTAL CHOINE OF COME	4	Other	Bro	oken Leakin
Quart/Liter (g/p)	dewc			
9-oz (amber glass jar)	_			
2-oz (amber glass)	_			
125 mL (plastic) 33		_		
24 mL vial (glass)		-		
500 mL (plastic)	_			
Other 250 mL 7				

plashe

CHAIN OF CUSTODY



CONSUMERS ENERGY COMPANY - LABORATORY SERVICES

Page 1 of 1

135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251 Count on Us

SAMI	LING SITE / CU	JSTOMER:			PROJECT NUMBER:	SAP CC or V	WO#:							,	NA	VSI	IS RI	FOIL	FSTI	ED.		Little Co.
		l Impoundment			24-0129	REQUESTER: Harold Register				ANALYSIS REQUESTED (Attach List if More Space is Needed)							QA REQUIREMENT:					
SAME	LING TEAM:	1. whaley			TURNAROUND TIME REQUIRED: □ 24 HR □ 48 HR □ 3 DAYS □ STA	ANDARD ⊠ O	THER_															□ NPDES ☑ TNI
SENI	REPORT TO:	Joseph Firlit			email:	phone:															213	☐ ISO 17025
- 0	COPY TO:	Harold Regis	ter		MATRIX CODES: GW = Groundwater OX = Other	CONTAINERS					phate						Mefal	☐ 10 CFR 50 APP. B				
TRC			WW = Wastewater SL = Sludge W = Water / Aqueous Liquid A = Air			I	PRE	SER	VA	TIVE	tals		Phos	Phos								
	LAB	SAMPLE COLI	LECTION	RIX	S = Soil / General Solid WP = Wipe O = Oil WT = Gener	ral Waste	TOTAL#	[AL#		Total Metals	ons	Ammonia, Phosphate	100	Alkalinity	ide		ane	Dissolved	□ OTHER			
SA	MPLE ID	DATE	TIME	MATRIX	FIELD SAMPLE ID / LOC	CATION	ATION 2:	None	HNO	H ₂ SO ₄	NaOH	МеОН	Tota	Anions	Amr	TDS	Alka	Sulfide	TOC	Methane	Dis	REMARKS
2	4-0129-01	15/24	1031	GW	DEK-MW-15003		10	4	1	1	1 3		x	x	x	x	x	x	x	x		
	-02	315/24	0910	GW	OW-10		10	4	1	1	1 3		x	x	x	x	x	x	x	x	X	Dissolved metals were field Filtere
	-03	315/24	1200	GW	OW-11		10	4	1	1 1	1 3		x	x	x	x	x	x	x	x		
	-04	3/5/24	1450	GW	OW-12		10	4	1	1 1	1 3		x	x	x	х	x	x	x	x		
	05	•		SW	SW-DITCH		10	4	1	1 1	1 3		×	ж	x	*	×	- x_	×	×		Do
	-06	315/24	-	GW	DUP-KLI		10	4	1	1 1	1 .3		x	x	x	x	x	x	x	x		15.7
	-07	3/5/24	1500	W	EB-KLI		7	1	1	1 1	3		x	x	x			x	x	x		
	-08	3/5/21	1450	w	FB-KLI		7	1	1	1 1	3		x	x	x			x	x	x	П	
	-09	315124	1320	w	KLI-SCS		5	4	1	Ť	T		x	x		x	x					9-
	-10	3/5/24	1330	SW	KLI-PCS		5	4	Ĭ				x	х		x	x					
RELIN	QUISHED BY:	1	E	DATE/	TIME: RE	CEIVED BY:	24						CC	MMI	ENTS							
CLE	QUISHED BY:	why		S/G DATE/I	5 24 1600 TIME: RE	CCEIVED BY:	ied E	*		_					l on I							015402
	Fed	EX		03	106/24 10:15	4-0129 Page 26	of 55						Te	npera	ture:	0,6-	2.0	• °C		Cal	. Due	Date: 05-23-24



2105 Pless Drive Brighton, Michigan 48114 Phone (810)229-7575 Fax (810)229-8650 E-mail bai-brighton@sbcglobal.net

March 13, 2024

Consumers Energy Company 135 W. Trail St. Jackson, MI 49201

Subject: Q1-2024 DEK Lined Impoundment

24-0129

Dear : Mr. Blaj

Thank you for making Brighton Analytical, L.L.C. your laboratory of choice. Attached are the results for the samples submitted on 03/06/2024 for the above mentioned project. NELAP/TNI Accredited Analysis and EGLE Drinking Water Certified Analysis will be identified in their respective reporting formats. Hard copies can be supplied at your request for a fee of \$20.00 per copy.

The invoice for this project will be emailed separately. If you have any questions concerning the data or invoice, please don't hesitate to contact our office. We welcome your comments and suggestions to improve our quality systems. Please reference Brighton Analytical, L.L.C. Project ID 95639 when calling or emailing. We thank you for this opportunity to partner with you on this project and hope to work with you again in the future.

Sincerely, Brighton Analytical, L.L.C.







2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net EGLE Certified #9404 NELAC Accredited #176507

Sample Date: 03/05/2024 Submit Date: 03/06/2024 Report Date: 03/13/2024

To:

Consumers Energy Company

135 W. Trail St. Jackson, MI 49201

BA Report Number:

95639

Project Name:

Q1-2024 DEK Lined Impoundment

BA Sample ID:

CV02514

Project Number: 24-0129

Sample ID: 24-0129-01 DEK-MW-15003 Analysis **Parameters** Result Units DL **Method Reference** Date Analyst **Methane Analysis** Methane 770 ug/L 180 RSKSOP-175 JT 03/08/2024 **Organic Analysis** Total Organic Carbon 3800 ug/L 1000 SM5310B RG 03/07/2024

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve EGLE designated target detection limits (TDL).

Elevated methane dl due to sample matrix.

Released by

Date



2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net EGLE Certified #9404 NELAC Accredited #176507

Sample Date: 03/05/2024 Submit Date: 03/06/2024 Report Date: 03/13/2024

To:

Consumers Energy Company

135 W. Trail St. Jackson, MI 49201

BA Report Number:

95639

Project Name:

Q1-2024 DEK Lined Impoundment

BA Sample ID:

CV02515

Project Number: 24-0129

Sample ID: 24-0129-02 OW-10 Analysis **Parameters** Result Units DL **Method Reference** Date Analyst **Methane Analysis** Methane 18000 ug/L 180 RSKSOP-175 JT 03/08/2024 **Organic Analysis** Total Organic Carbon 8400 ug/L 1000 SM5310B RG 03/07/2024

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve EGLE designated target detection limits (TDL).

Elevated methane dl due to sample matrix.

Released by

Date



2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net EGLE Certified #9404 NELAC Accredited #176507

Sample Date: 03/05/2024 Submit Date: 03/06/2024 Report Date: 03/13/2024

To:

Consumers Energy Company

135 W. Trail St. Jackson, MI 49201

BA Report Number:

95639

Project Name:

Q1-2024 DEK Lined Impoundment

BA Sample ID: CV02516

Project Number:

24-0129

	Sample ID:	24-0129-03 O	W-11			Analysis	
Parameters	Result	Units	DL	Method Reference	Analyst	Date	
Methane Analysis Methane	2700	ug/L	180	RSKSOP-175	JT	03/08/2024	
Organic Analysis	2700	ug/L	100	KOKSOT-175	31	03/00/2024	
Total Organic Carbon	7000	ug/L	1000	SM5310B	RG	03/07/2024	

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve EGLE designated target detection limits (TDL).

Elevated methane dl due to sample matrix.

Released by

Date



2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net EGLE Certified #9404 NELAC Accredited #176507

Sample Date: 03/05/2024 Submit Date: 03/06/2024 Report Date: 03/13/2024

To:

Consumers Energy Company

135 W. Trail St. Jackson, MI 49201

BA Report Number:

95639

Project Name:

Q1-2024 DEK Lined Impoundment

BA Sample ID:

CV02517

Project Number: 24-0129

Sample ID: 24-0129-04 OW-12 Analysis **Parameters** Result Units DL **Method Reference** Date Analyst **Methane Analysis** Methane 370 ug/L 180 RSKSOP-175 JT 03/08/2024 **Organic Analysis** Total Organic Carbon 3000 ug/L 1000 SM5310B RG 03/07/2024

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve EGLE designated target detection limits (TDL).

Elevated methane dl due to sample matrix.

Released by

Date



2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net EGLE Certified #9404 NELAC Accredited #176507

Sample Date: 03/05/2024 Submit Date: 03/06/2024 Report Date: 03/13/2024

To:

Consumers Energy Company

135 W. Trail St. Jackson, MI 49201

BA Report Number:

95639

Project Name:

Q1-2024 DEK Lined Impoundment

BA Sample ID: CV02518 Project Number:

24-0129

	Sample ID:	24-0129-06 DI	U P-KLI			Analysis	
Parameters	Result	Units	DL	Method Reference	Analyst	Date	
Methane Analysis Methane	600	/I	180	RSKSOP-175	JT	03/08/2024	
Organic Analysis	600	ug/L	160	RSKSOF-1/3	JI	03/08/2024	
Total Organic Carbon	3600	ug/L	1000	SM5310B	RG	03/07/2024	

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve EGLE designated target detection limits (TDL).

Elevated methane dl due to sample matrix.

Released by

Date



2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net EGLE Certified #9404 NELAC Accredited #176507

Sample Date: 03/05/2024 Submit Date: 03/06/2024

Report Date: 03/13/2024

To:

Consumers Energy Company

135 W. Trail St. Jackson, MI 49201

BA Report Number: 95639

Project Name:

Q1-2024 DEK Lined Impoundment

BA Sample ID: **CV02519**

Project Number: 24-0129

	Sample ID:	24-0129-07 E	B-KLI			Analysis	
Parameters	Result	Units	DL	Method Reference	Analyst	Date	
Methane Analysis Methane	Not detected	ug/L	2	RSKSOP-175	JT	03/08/2024	
Organic Analysis	1 tot detected	<i></i> 2	_	1,611,601 1,76		0070072021	
Total Organic Carbon	1500	ug/L	1000	SM5310B	RG	03/07/2024	

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve EGLE designated target detection limits (TDL).

Released by

Date



2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net EGLE Certified #9404 NELAC Accredited #176507

Sample Date: 03/05/2024 Submit Date: 03/06/2024 Report Date: 03/13/2024

To:

Consumers Energy Company

135 W. Trail St. Jackson, MI 49201

BA Report Number:

95639

Project Name:

Q1-2024 DEK Lined Impoundment

BA Sample ID:

CV02520

Project Number: 24-0129

Sample ID: 24-0129-08 FB-KLI Analysis **Parameters** Result Units DL **Method Reference** Date Analyst **Methane Analysis** Methane Not detected ug/L 2 RSKSOP-175 JT 03/08/2024 **Organic Analysis** Total Organic Carbon 980 ug/L 1000 SM5310B RG 03/07/2024

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve EGLE designated target detection limits (TDL).

Released by

Date

CHAIN OF CUSTODY

95039

CONSUMERS ENERGY COMPANY – LABORATORY SERVICES 135 WEST TRAIL ST., JACKSON, MI 49201 · (517) 788-1251

Consumers Energy

Page of [

SAMPLING SITE / CUSTOMER:	JSTOMER:			PROJECT NUMBER:	SAP CC or WO#.			-	ANA	ANALYSIS REOUESTED	With the way to have a
Q1-2024 DEK Lined Impoundment	Impoundment			24-0129	REQUESTER: Harold Register	[arold R	legister.		Attach Li	(Attach List if More Space is Needed)	QA KEQUIKEMENI:
SAMPLING TEAM:				TURNAROUND TIME REQUIRED:	□ STANDARD ⊠ OTHER						□ NPDES
SEND REPORT TO	Emil Blai			mil.Blai@cmsenergy.com				uo			□ ISO 17025
COPY TO:				MATRIX CODES: GW = Groundwater OX = Other		00	CONTAINERS	Carb			☐ 10 CFR 50 APP. B
				,			PRESERVATIVE				☐ INTERNAL INFO
LAB	SAMPLE COLLECTION	CECTION	XIS	S = Soil / General Solid WP = Wipe O = Oil WT = General Waste	ıl Waste		H *(r Al Org	рвис	NAM	□ОТНЕК
SAMPLE ID	DATE	TIME	ITAM	FIELD SAMPLE ID / LOCATION	ATION	ЭпоИ	M [©] O HCI M [©] OI H ⁷ ZC HMO	Othe	Met	3	REMARKS
24-0129-01	03/05/2024	1031	GW	DEK-MW-15003		3	3	×	×	751H	5.1 Jams
70- 1-0129	03/05/2024	0160	GW	OW-10		6	3	×	×	2515	
Page	03/05/2024	1200	GW	OW-11		m	ю	×	×	2516	
90- 935 of	03/05/2024	1450	GW	OW-12		60	3	×	×	2517	
90-	03/05/2024		₽	DUP-KLI		23	8	×	×	25.8	
-07	03/05/2024	1500	M	EB-KLI		3	3	×	×	2519	
80-	03/05/2024	1450	≽	FB-KLI		8	3	×	×	2920	
9	03/05/2024	956	*	KEI-SGS		4	6	*	ķ	2531 M	Strong 20
₽ T	03/05/2024	1330	MS S	KLLPCS		(5)	-m	×	×	1222	not read in
RELINQUISHED BY:	7		DATE/TIME:	TIME: REC	CEIVED BY:			CO	COMMENTS:		
Solowa	Ser.	X	3/1	Slubyl from	1			PR	PR #23101291	291	
RELINQUISHED BY			DATE/TIME:		RECEIVED BY:			Rec	ived on I	9	B#
								Ten	Temperature:	oc cal. Di	cal. Due Date:



BRIGHTON ANALYTICAL, LLC

QUALITY ASSURANCE/QUALITY CONTROL

REPRESENTATIVE BATCH QUALITY CONTROL Accuracy & Precision

Analyst:	<u>JT</u>	Parameter: _	Methane
Analysis Date:	3/8/2024	Method Reference:	RSKSOP-175
Matrix:	Water	Inst./Detector:_	HP-4/FID

Laboratory ID	Spike Conc. (µg/L)	Background (µg/L)	Percent Recoveries	Acceptable Range (%)	Method Blank Concentration
LCS's (Methane)	34.3	ND	114 / 110	85 - 115	< 2 μg/L
	S	PIKE - PREC	ISION		
Laboratory ID	Observed A (μg/L)	Observed B (μg/L)	RPD	Acceptable Range	
LCS's (Methane)	39.2	37.6	4.2	≤20%	
CV02514	772	795	3.0	≤ 20%	
		MISCELLAN	EOUS		

COMMENTS:

REPRESENTATIVE BATCH QUALITY CONTROL Accuracy & Precision

Analyst:	RG		Parameter:	тос	
Analysis Date:	3/7/2024	Met	hod Reference:	EPA 415.1/SM5310B/9060	
		SPIKE - ACC	URACY		
Laboratory ID	Spike level PPB	Background PPB	Recoveries (%)	Acceptable Range (%)	Method Blank Concentration
CV02511	TV=10000	4400	94/103	80 - 120	ND
				,	
Laboratory ID	Observed A PPB	Observed B PPB	RPD (%)	Acceptable Range(%)	
CV02511	13900	14700	5.60	<u><</u> 20	
		MISCELLA	NEOUS		
		Standard ID#	%Recoveries		
lependent Second	lary Reference Material:	#4621	105		
ethod Standard (L	ab. Control Spike):	#3046.9	99		
COMMENTS					4



Analytical Laboratory Report

Report ID: S59475.01(01) Generated on 03/12/2024

Report to

Attention: Emil Blaj

Consumers Energy Company

135 West Trail Street Jackson, MI 49201

Phone: D:517-788-5888 C:517-684-9467 FAX:

Email: emil.blaj@cmsenergy.com

Report produced by

Merit Laboratories, Inc. 2680 East Lansing Drive East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions: John Laverty (johnlaverty@meritlabs.com) Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S59475.01-S59475.09

Project: 24-0129 PR#24030331 Collected Date(s): 03/05/2024

Submitted Date/Time: 03/06/2024 16:35

Sampled by: Unknown P.O. #: 4400121437

Table of Contents

Cover Page (Page 1)

General Report Notes (Page 2)

Report Narrative (Page 2)

Laboratory Accreditations (Page 3)

Qualifier Descriptions (Page 3)

Glossary of Abbreviations (Page 3)

Method Summary (Page 4)

Sample Summary (Page 5)

Maya Murshak Technical Director

Naya Mushah



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples

for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Starred (*) analytes are not NY NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report



Analytical Laboratory Report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	7 #69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
В	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
Н	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
0	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
Χ	Elevated reporting limit due to matrix interference
Υ	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
е	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



Method Summary

Method Version

SM4500-S2 D

Standard Method 4450 S2 D 2011



Sample Summary (9 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S59475.01	DEK-MW-15003 (24-0129-01)	Groundwater	03/05/24 10:31
S59475.02	OW-10 (24-0129-02)	Groundwater	03/05/24 09:10
S59475.03	OW-11 (24-0129-03)	Groundwater	03/05/24 12:00
S59475.04	OW-12 (24-0129-04)	Groundwater	03/05/24 14:50
S59475.05	DUP-KLI (24-0129-05)	Groundwater	03/05/24 00:01
S59475.06	EB-KLI (24-0129-06)	Groundwater	03/05/24 15:00
S59475.07	FB-KLI (24-0129-07)	Groundwater	03/05/24 14:50
S59475.08	KLI-SCS (24-0129-08)	Groundwater	03/05/24 13:20
S59475.09	KLI-PCS (24-0129-09)	Groundwater	03/05/24 13:30



Lab Sample ID: S59475.01

Sample Tag: DEK-MW-15003 (24-0129-01) Collected Date/Time: 03/05/2024 10:31

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I hermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.3	IR

Inorganics

Method: SM4500-S2 D, Run Date: 03/07/24 10:21, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.21	0.02	0.005	ma/L	1	18496-25-8	



Lab Sample ID: S59475.02

Sample Tag: OW-10 (24-0129-02) Collected Date/Time: 03/05/2024 09:10

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I nermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.3	IR

Inorganics

Method: SM4500-S2 D, Run Date: 03/07/24 10:29, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.10	0.02	0.005	mg/L	1	18496-25-8	



Lab Sample ID: S59475.03

Sample Tag: OW-11 (24-0129-03) Collected Date/Time: 03/05/2024 12:00

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I hermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.3	IR

Inorganics

Method: SM4500-S2 D, Run Date: 03/07/24 10:31, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.02	0.005	mg/L	1	18496-25-8	



Lab Sample ID: S59475.04

Sample Tag: OW-12 (24-0129-04) Collected Date/Time: 03/05/2024 14:50

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I hermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.3	IR

Inorganics

Method: SM4500-S2 D, Run Date: 03/07/24 10:33, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.02	0.005	mg/L	1	18496-25-8	



Lab Sample ID: S59475.05

Sample Tag: DUP-KLI (24-0129-05)
Collected Date/Time: 03/05/2024 00:01

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I nermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.3	IR

Inorganics

Method: SM4500-S2 D, Run Date: 03/07/24 10:35, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.21	0.02	0.005	mg/L	1	18496-25-8	



Lab Sample ID: S59475.06

Sample Tag: EB-KLI (24-0129-06)
Collected Date/Time: 03/05/2024 15:00

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I hermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.3	IR

Inorganics

Method: SM4500-S2 D, Run Date: 03/07/24 10:37, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.02	0.005	mg/L	1	18496-25-8	



Lab Sample ID: S59475.07

Sample Tag: FB-KLI (24-0129-07)
Collected Date/Time: 03/05/2024 14:50

Matrix: Groundwater COC Reference:

Sample Containers

#	Гуре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I hermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.3	IR

Inorganics

Method: SM4500-S2 D, Run Date: 03/07/24 10:39, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.02	0.005	mg/L	1	18496-25-8	



Lab Sample ID: S59475.08

Sample Tag: KLI-SCS (24-0129-08) Collected Date/Time: 03/05/2024 13:20

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	n/a	n/a	Yes	n/a	n/a

Other / Misc.

Method:, Run Date: 03/12/24 17:30, Analyst: BJB

· ·	· •							
Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags	
No Analyses*	Completed				1			



Lab Sample ID: S59475.09

Sample Tag: KLI-PCS (24-0129-09) Collected Date/Time: 03/05/2024 13:30

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I hermometer #
1	n/a	n/a	Yes	n/a	n/a

Other / Misc.

Method: , Run Date: 03/12/24 17:30, Analyst: BJB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
No Analyses*	Completed				1		

Merit Laboratories Login Checklist

Lab Set ID:S59475

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0129 PR#24030331

Submitted: 03/06/2024 16:35 Login User: MMC

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street

Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

Selec	tion			Description	Note
Samı	ole Receiv	/ing			
01.	X Yes	☐ No	□ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.3
02.	X Yes	☐ No	□ N/A	Received on ice/ cooling process begun	
03.	Yes	X No	□ N/A	Samples shipped	
04.	Yes	X No	□ N/A	Samples left in 24 hr. drop box	
05.	Yes	No	X N/A	Are there custody seals/tape or is the drop box locked	
Chai	n of Custo	ody			
06.	X Yes	No	□ N/A	COC adequately filled out	_
07.	X Yes	No	N/A	COC signed and relinquished to the lab	
08.	X Yes	No	□ N/A	Sample tag on bottles match COC	
09.	Yes	X No	N/A	Subcontracting needed? Subcontacted to:	
Pres	ervation				
10.	X Yes	No	□ N/A	Do sample have correct chemical preservation	
11.	X Yes	□No	□ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	Yes	X No	N/A	Did any samples need to be preserved in the lab?	
Bottl	e Conditio	ons			
13.	X Yes	No	□ N/A	All bottles intact	
14.	X Yes	No	□ N/A	Appropriate analytical bottles are used	
15.	Yes	X No	□ N/A	Merit bottles used	
16.	X Yes	No	□ N/A	Sufficient sample volume received	
17.	Yes	X No	□ N/A	Samples require laboratory filtration	
18.	X Yes	No	□ N/A	Samples submitted within holding time	
19.	Yes	No	X N/A	Do water VOC or TOX bottles contain headspace	
Corre	ective action	on for all	exceptions	is to call the client and to notify the project manager.	
				Date:	

Merit Laboratories Bottle Preservation Check

Lab Set ID: S59475 Submitted: 03/06/2024 16:35

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0129 PR#24030331

Initial Preservation Check: 03/06/2024 16:51 MMC

Preservation Recheck (E200.8): N/A

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street

Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S59475.01	125mL Plastic NaOH/Zn Acetate	>12			
S59475.02	125mL Plastic NaOH/Zn Acetate	>12			
S59475.03	125mL Plastic NaOH/Zn Acetate	>12			
S59475.04	125mL Plastic NaOH/Zn Acetate	>12			
S59475.05	125mL Plastic NaOH/Zn Acetate	>12			
S59475.06	125mL Plastic NaOH/Zn Acetate	>12			
S59475.07	125mL Plastic NaOH/Zn Acetate	>12			



2680 East Lansing Dr., East Lansing, MI 48823 Phone (517) 332-0167 Fax (517) 332-4034 www.meritlabs.com

	- 1		1
C.O.C. PAGE	#	OF.	1

REPOR		,	Laboratories, Inc.	CHAIN	N OF	CL	JS	TOI	DY	RE	co	RD					1	NVOIC	ETO
CONTACT NAME	mil Blaj							CON	TACT	NAME							x SAME		
COMPANY Con	sumers E	energy						COM	PANY					-					
ADDRESS 135 V	W. Trail S	Street						ADDRESS											
Jackson				STATE MI ZIP	CODE 4	1920)1	СПУ	9								STATE	ZIP CODE	
PHONE NO. 517-	788-5888		FAX NO. 517-788-2533	P.O. NO. 440012	1437		7	PHONE NO. E-MAIL ADDRESS.											
E-MAIL ADDRESS	emil.blaj(a)cmsen		QUOTE NO.				ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)								1			
PROJECT NO./NAM				SAMPLER(S) - PLEASE	PRINT/SK	GN NA	ME				N/A				T		Certificat	-	
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER ☐													□ OHIO W	AP. Drink					
DELIVERABLE	S REQUIR	ED S	D X LEVEL II LEVEL III	LEVEL IV DEDE	0 0	THE	R_					U					□ DoD	□NPD	ES
MATRIX CODE:	IX GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID					ontai eserv		100	Sulfide					Project Lo	ocations New	York			
MERIT	YE	AR		SAMPLE TAG. IDENTIFICATION-DESCRIPTION			ō	0 0	NaOH	MeOH	=			1		Other _			
LAB NO. FOR LAB USE ONLY	DATE	TIME	IDENTIFICATION-DE	SCHIPTION	MA	# OF BOTTLE	S	오	H,SO,	ž	N P	F		\rightarrow	4		Special In	structions	
0 111001		-	DEK-MW-15003 (24-01)	29-01)	GW	1		Ц		1		1					I among the same	with NaOH/2	ZnAcetate
.02	03/05/24	0910	OW-10 (24-0129-02)		GW	1				1		1					H.		
.03	03/05/24	1200	OW-11 (24-0129-03)		GW	1				1		1					"		
	03/05/24		OW-12 (24-0129-04)		GW	1				1		1					"		
.05	03/05/24	-	DUP-KLI (24-0129-06)		GW	1				1		1							
.06	03/05/24	1500	EB-KLI (24-0129-07)		GW	1				1		1					"		
.87	03/05/24	1450	FB-KLI (24-0129-08)		GW	1				1		1					n -		
.08	03/05/24	1320	KLI-SCS (24-0129-09)		GW	1				1		1					"		
.89	03/05/24	1330	KLI-PCS (24-0129-10)		GW	1	L		1	1		1					ii .		
					+		H	H	+	H	+			-	+				
							+												
RELINQUISHED BY SIGNATURE/ORGA		Via	NEOMERS ENERGY	Sampler A3 O6 /2	4 (IME 635			NOUIS		BY: GANIZA	TION						DATE	TIME
RECEIVED BY: SIGNATURE/ORGA	ANIZATION	0	Manure Murs	DATE		IME 35	5		EIVED		GANIZA	TION						DATE	TIME
RELINQUISHED BY SIGNATURE/ORGA		1	7.4	DATE		TIME			L NO.			SEAL IN		INITIALS		NOTES:	TEMP. ON	ARRIVAL	
RECEIVED BY: SIGNATURE/ORGA	ANIZATION			DATE	1	TIME		SEAL	LNO.			SEAL IN	ACT	INITIALS			0.	5	



135 W. Trail St. Jackson, MI 49201 phone 517-788-1251 fax 517-788-2533

To: JJFirlit, Karn/Weadock

From: EBlaj, T-258

Date: March 20, 2024

Subject: RCRA GROUNDWATER MONITORING – KARN BAP & LINED IMP. WELLS – 2024 Q1

CC: HDRegister, P22-521 Darby Litz, Project Manager

TRC Companies, Inc. 1540 Eisenhower Place Ann Arbor, MI 48108

Chemistry Project: 24-0128

TRC Environmental, Inc. conducted groundwater monitoring at the DEKarn Bottom Ash Pond and Lined Impoundment Wells area during the week of 03/04/2024, for the 1st Quarter requirement, as specified in the Sampling and Analysis Plan for the site. The samples were received for analysis by the Chemistry department of Laboratory Services on 03/05/2024.

Samples for Total Sulfide have been subcontracted to Merit Laboratories, Inc. and the results are listed under the analyst initials "Merit"; the original report is attached. Samples for Methane and TOC have been subcontracted to Brighton Analytical LLC and the results are listed under the analyst initials "BAL"; the original report is attached. Please note that the subcontracted work is not reported under the CE laboratory scope of accreditation.

With the exception noted above, the report that follows presents the results of the requested analytical testing; the results apply only to the samples as received. All samples have been analyzed in accordance with the 2016 TNI Standard and the applicable A2LA accreditation scope for Laboratory Services. Any exceptions to applicable test method criteria and standard compliance are noted in the Case Narrative or flagged with applicable qualifiers in the analytical results section.

Reviewed and approved by:

Emil Blaj Sr. Technical Analyst Project Lead



Testing performed in accordance with the A2LA scope of accredidation specified in the listed certificate.

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CASE NARRATIVE

I. Sample Receipt

All samples were received within hold time and in good conditions, except as listed in the attached Sample Log-In Shipment Inspection Form and the note below; no other anomalies were noted during sample check-in. Identification of all samples included in the work order/project is provided in the sample summary section. All sample preservation and temperature upon receipt was verified by the sample custodian and confirmed to meet method requirements.

NOTE: The following container was received broken: 24-0128-02-C04. However, there was sufficient sample volume in the 2^{nd} back up container, and the analysis was not impacted.

II. Methodology

Unless otherwise indicated, sample preparation and analysis was performed in accordance with the corresponding test methods from "Methods for the Determination of Inorganic Substances in Environmental Samples (EPA/600/R-93/100); SW-846, "Test Methods for Evaluating Solid Waste – Physical/Chemical Methods", USEPA (latest revisions), and Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WPCF, 22nd Edition, 2012.

III. Results/Quality Control

Analytical results for this report are presented by laboratory sample ID, container, & aliquot number. Results for the field blanks, field duplicates, and recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section; all other quality control data is listed in the Quality Control Summary associated with the particular test method, as appropriate. Unless specifically noted in the case narrative, all method quality control requirements have been met. If any results are qualified, the corresponding data flags/qualifiers are listed on the last page of the results section. Any additional information on method performance, when applicable, is presented in this section of the case narrative. When data flags are not needed, the qualifiers text box on the last page is left blank, and a statement confirms that no exceptions occurred.

DEFINITIONS / QUALIFIERS

Description

Acronym

The following qualifiers and/or acronyms are used in the report, where applicable:

<u>Acronym</u>	<u>Description</u>
RL	Reporting Limit
ND	Result not detected or below Reporting Limit
NT	Non TNI analyte
LCS	Laboratory Control Sample
LRB	Laboratory Reagent Blank (also referred to as Method Blank)
DUP	Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
MDL	Method Detection Limit
PQL	Practical Quantitation Limit

TDL SM	Target Detection Limit Standard Methods Compendium
<u>Qualifier</u>	<u>Description</u>
*	Generic data flag, applicable description added in the corresponding notes section
В	The analyte was detected in the LRB at a level which is significant relative to sample result
D	Reporting limit elevated due to dilution
E	Estimated due to result exceeding the linear range of the analyzer
H	The maximum recommended hold time was exceeded
I	Dilution required due to matrix interference; reporting limit elevated
J	Estimated due to result found above MDL but below PQL (or RL)
K	Reporting limit raised due to matrix interference
M	The precision for duplicate analysis was not met; RPD outside acceptance criteria
N	Non-homogeneous sample made analysis questionable
PI	Possible interference may have affected the accuracy of the laboratory result
Q	Matrix Spike or Matrix Spike Duplicate recovery outside acceptance criteria
Ř	Result confirmed by new sample preparation and reanalysis
X	Other notation required; comment listed in sample notes and/or case narrative



Work Order Sample Summary

Customer Name: Karn/Weadock Complex

Work Order ID: Q1-2024 DEK Bottom Ash Pond & Lined Impoundment

Date Received: 3/5/2024 **Chemistry Project:** 24-0128

Sample #	Field Sample ID	<u>Matrix</u>	Sample Date	<u>Site</u>
24-0128-01	DEK-MW-18001	Groundwater	03/04/2024 15:05	DEK Bottom Ash Pond & Lined Impoundment
24-0128-02	DEK-MW-18001 MS	Groundwater	03/04/2024 15:05	DEK Bottom Ash Pond & Lined Impoundment
24-0128-03	DEK-MW-18001 MSD	Groundwater	03/04/2024 15:05	DEK Bottom Ash Pond & Lined Impoundment



Report Date:

03/20/24



Laboratory Services A CENTURY OF EXCELLENCE

DEK Bottom Ash Pond & Lined Impoundment Sample Site:

Laboratory Project: 24-0128 Collect Date: Field Sample ID: DEK-MW-18001 03/04/2024 Lab Sample ID: 24-0128-01 Collect Time: 03:05 PM

Matrix: Groundwater

Parameter(s)	Result					
	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	03/06/2024	AB24-0306-16
Arsenic	512		ug/L	1.0	03/06/2024	AB24-0306-16
Barium	153		ug/L	5.0	03/06/2024	AB24-0306-16
Beryllium	ND		ug/L	1.0	03/06/2024	AB24-0306-16
Boron	819		ug/L	20.0	03/06/2024	AB24-0306-16
Cadmium	ND		ug/L	0.2	03/06/2024	AB24-0306-16
Calcium	54100		ug/L	1000.0	03/07/2024	AB24-0306-16
Chromium	ND		ug/L	1.0	03/06/2024	AB24-0306-16
Cobalt	ND		ug/L	6.0	03/06/2024	AB24-0306-16
Copper	ND		ug/L	1.0	03/06/2024	AB24-0306-16
Iron	688		ug/L	20.0	03/18/2024	AB24-0306-16
Lead	ND		ug/L	1.0	03/06/2024	AB24-0306-16
Lithium	19		ug/L	10.0	03/06/2024	AB24-0306-16
Magnesium	9970		ug/L	1000.0	03/07/2024	AB24-0306-16
Manganese	122		ug/L	5.0	03/06/2024	AB24-0306-16
Molybdenum	16		ug/L	5.0	03/06/2024	AB24-0306-16
Nickel	ND		ug/L	2.0	03/06/2024	AB24-0306-16
Potassium	4400		ug/L	100.0	03/07/2024	AB24-0306-16
Selenium	1		ug/L	1.0	03/06/2024	AB24-0306-16
Silver	ND		ug/L	0.2	03/06/2024	AB24-0306-16
Sodium	113000		ug/L	1000.0	03/07/2024	AB24-0306-16
Thallium	ND		ug/L	2.0	03/06/2024	AB24-0306-16
Vanadium	2		ug/L	2.0	03/06/2024	AB24-0306-16
Zinc	ND		ug/L	10.0	03/18/2024	AB24-0306-16
Mercury by EPA 7470A, Total, Aqueou	ıs			Aliquot #: 24-0	128-01-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	03/07/2024	AB24-0306-12
Anions by EPA 300.0 Aqueous, NO2, N	NO3			Aliquot #: 24-0	128-01-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	03/05/2024	AB24-0305-08
Nitrite	ND		ug/L	100.0	03/05/2024	AB24-0305-08
Anions by EPA 300.0 CCR Rule Analyt	te List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	128-01-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	69000		ug/L	1000.0	03/12/2024	AB24-0306-10





A CENTURY OF EXCELLENCE

Count on Us®

Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** Laboratory Project: **24-0128**

 Field Sample ID:
 DEK-MW-18001
 Collect Date:
 03/04/2024

 Lab Sample ID:
 24-0128-01
 Collect Time:
 03:05 PM

Matrix: Groundwater

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous Aliquot			Aliquot #: 24-0	Aliquot #: 24-0128-01-C02-A02		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	03/05/2024	AB24-0306-10
Sulfate	201000		ug/L	1000.0	03/12/2024	AB24-0306-10
Nitrogen-Ammonia by SM4500NH3(h	n), Groundwate	r HL		Aliquot #: 24-0	128-01-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	1950		ug/L	25.0	03/06/2024	AB24-0305-15
Phosphate calculated from Total P b	y SM4500-P B	5-E		Aliquot #: 24-0	128-01-C03-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Phosphate	1180		ug/L	10.0	03/06/2024	AB24-0306-06
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	128-01-C04-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	598		mg/L	10.0	03/05/2024	AB24-0305-14
Alkalinity by SM 2320B				Aliquot #: 24-0	128-01-C05-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	158000		ug/L	10000.0	03/06/2024	AB24-0306-11
Alkalinity Bicarbonate	158000		ug/L	10000.0	03/06/2024	AB24-0306-11
Alkalinity Carbonate	ND		ug/L	10000.0	03/06/2024	AB24-0306-11
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0128-01-C07-A01		Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	110		ug/L	20.0	03/07/2024	AB24-0314-05
Total Organic Carbon by SM 5310B,	Aqueous			Aliquot #: 24-0	128-01-C08-A01	Analyst: BAL
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Organic Carbon	4400		ug/L	1000.0	03/07/2024	AB24-0315-11
Methane by RSKSOP-175 Dissolved	Gas			Aliquot #: 24-0	128-01-C09-A01	Analyst: BAL
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Methane	12		ug/L	2.0	03/07/2024	AB24-0315-18



Report Date:

03/20/24



Laboratory Services A CENTURY OF EXCELLENCE

Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** Laboratory Project: 24-0128

Collect Date: Field Sample ID: DEK-MW-18001 MS

03/04/2024 Lab Sample ID: 24-0128-02 Collect Time: 03:05 PM

Matrix: Groundwater

Metals by EPA 6020B: CCR R	ule Appendix III-IV To	ndix III-IV Total Metals Exp			Aliquot #: 24-0128-02-C01-A01		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Antimony	105		%	1.0	03/06/2024	AB24-0306-16	
Arsenic	104		%	1.0	03/06/2024	AB24-0306-16	
Barium	106		%	5.0	03/06/2024	AB24-0306-16	
Beryllium	100		%	1.0	03/06/2024	AB24-0306-16	
Boron	114		%	20.0	03/06/2024	AB24-0306-16	
Cadmium	106		%	0.2	03/06/2024	AB24-0306-16	
Calcium	110		%	1000.0	03/07/2024	AB24-0306-16	
Chromium	99		%	1.0	03/06/2024	AB24-0306-16	
Cobalt	97		%	6.0	03/06/2024	AB24-0306-16	
Copper	92		%	1.0	03/06/2024	AB24-0306-16	
Iron	90		%	20.0	03/18/2024	AB24-0306-16	
Lead	101		%	1.0	03/06/2024	AB24-0306-16	
Lithium	98		%	10.0	03/06/2024	AB24-0306-16	
Magnesium	108		%	1000.0	03/07/2024	AB24-0306-16	
Manganese	101		%	5.0	03/06/2024	AB24-0306-16	
Molybdenum	109		%	5.0	03/06/2024	AB24-0306-16	
Nickel	94		%	2.0	03/06/2024	AB24-0306-16	
Potassium	108		%	100.0	03/07/2024	AB24-0306-16	
Selenium	110		%	1.0	03/06/2024	AB24-0306-16	
Silver	99.4		%	0.2	03/06/2024	AB24-0306-16	
Sodium	111		%	1000.0	03/07/2024	AB24-0306-16	
Thallium	96		%	2.0	03/06/2024	AB24-0306-16	
Vanadium	101		%	2.0	03/06/2024	AB24-0306-16	
Zinc	101		%	10.0	03/18/2024	AB24-0306-16	
Mercury by EPA 7470A, Total	, Aqueous			Aliquot #: 24-0	128-02-C01-A02	Analyst: CLE	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Mercury	96.0		%	0.2	03/07/2024	AB24-0306-12	
Anions by EPA 300.0 Aqueou	s, NO2, NO3			Aliquot #: 24-0	128-02-C02-A01	Analyst: KDR	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Nitrate	93		%	100.0	03/05/2024	AB24-0305-08	
Nitrite	104		%	100.0	03/05/2024	AB24-0305-08	
Anions by EPA 300.0 CCR Ru	le Analyte List, Cl, F,	SO4, Aqu	eous	Aliquot #: 24-0	128-02-C02-A02	Analyst: KDR	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Chloride	105		%	1000.0	03/12/2024	AB24-0306-10	



Consumers Energy Count on Us®

Report Date: 03/20/24

DEK Bottom Ash Pond & Lined Impoundment Laboratory Project: Sample Site: 24-0128

Collect Date: Field Sample ID: DEK-MW-18001 MS 03/04/2024 Lab Sample ID: 24-0128-02 Collect Time: 03:05 PM

Matrix: Groundwater

Laboratory Services A CENTURY OF EXCELLENCE

Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous				Aliquot #: 24-0128-02-C02-A02		
Result	Flag	Units	RL	Analysis Date	Tracking	
97		%	1000.0	03/05/2024	AB24-0306-10	
104		%	1000.0	03/12/2024	AB24-0306-10	
Groundwate	r HL		Aliquot #: 24-0	128-02-C03-A01	Analyst: CLE	
Result	Flag	Units	RL	Analysis Date	Tracking	
92		%	25.0	03/06/2024	AB24-0305-15	
SM4500-P B	5-E		Aliquot #: 24-0	128-02-C03-A02	Analyst: CLE	
Result	Flag	Units	RL	Analysis Date	Tracking	
110		%	10.0	03/06/2024	AB24-0306-06	
			Aliquot #: 24-0	128-02-C04-A01	Analyst: DLS	
Result	Flag	Units	RL	Analysis Date	Tracking	
98.4		%	10000.0	03/06/2024	AB24-0306-11	
			Aliquot #: 24-0	128-02-C06-A01	Analyst: Merit	
Result	Flag	Units	RL	Analysis Date	Tracking	
86		%	20.0	03/07/2024	AB24-0314-05	
queous			Aliquot #: 24-0	128-02-C07-A01	Analyst: BAL	
Result	Flag	Units	RL	Analysis Date	Tracking	
	Result 97 104 Groundwate Result 92 SM4500-P Bs Result 110 Result 98.4 Result 98.4	Result Flag 97 104 Groundwater HL Result Flag 92 SM4500-P B5-E Result Flag 110 Result Flag 98.4 Result Flag 98.4	Result Flag Units 97 104 % Groundwater HL Result Flag Units 92 % SM4500-P B5-E Result Flag Units 110 % Result Flag Units 98.4 Flag Units % Result Flag Units % Result Flag Units 98.4 %	Result Flag Units RL 97 % 1000.0 104 % 1000.0 Groundwater HL Aliquot #: 24-0 Result Flag Units RL 92 % 25.0 SM4500-P B5-E Aliquot #: 24-0 Result Flag Units RL 110 % 10.0 Aliquot #: 24-0 Aliquot #: 24-0 Result Flag Units RL 98.4 % 10000.0 Aliquot #: 24-0 Aliquot #: 24-0 Result Flag Units RL 86 % 20.0 queous Aliquot #: 24-0	Result Flag Units RL Analysis Date 97 % 1000.0 03/05/2024 104 % 1000.0 03/12/2024 Groundwater HL Aliquot #: 24-0128-02-C03-A01 Result Flag Units RL Analysis Date 92 % 25.0 03/06/2024 SM4500-P B5-E Aliquot #: 24-0128-02-C03-A02 Result Flag Units RL Analysis Date 110 % 10.0 03/06/2024 Aliquot #: 24-0128-02-C04-A01 Result Flag Units RL Analysis Date 98.4 % 10000.0 03/06/2024 Aliquot #: 24-0128-02-C06-A01 Result Flag Units RL Analysis Date 86 % 20.0 03/07/2024 Queous Aliquot #: 24-0128-02-C07-A01	



Report Date:

Collect Date:

Collect Time:

03/20/24

03/04/2024

03:05 PM



A CENTURY OF EXCELLENCE

Sample Site: DEK Bottom Ash Pond & Lined Impoundment Laboratory Project: 24-0128

Field Sample ID: **DEK-MW-18001 MSD**

Lab Sample ID: 24-0128-03

Matrix: Groundwater

Metals by EPA 6020B: CCR R	ule Appendix III-IV 10	e Appendix III-IV Total Metals Exp			Aliquot #: 24-0128-03-C01-A01		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Antimony	103	9	6	1.0	03/06/2024	AB24-0306-16	
Arsenic	94	9	6	1.0	03/06/2024	AB24-0306-16	
Barium	104	9	6	5.0	03/06/2024	AB24-0306-16	
Beryllium	99	9	6	1.0	03/06/2024	AB24-0306-16	
Boron	103	9,	6	20.0	03/06/2024	AB24-0306-16	
Cadmium	106	9	6	0.2	03/06/2024	AB24-0306-16	
Calcium	113	9	6	1000.0	03/07/2024	AB24-0306-16	
Chromium	98	9,	6	1.0	03/06/2024	AB24-0306-16	
Cobalt	98	9	6	6.0	03/06/2024	AB24-0306-16	
Copper	93	9	6	1.0	03/06/2024	AB24-0306-16	
Iron	92	9,	6	20.0	03/18/2024	AB24-0306-16	
Lead	98	9	6	1.0	03/06/2024	AB24-0306-16	
Lithium	98	9,	6	10.0	03/06/2024	AB24-0306-16	
Magnesium	110	9	6	1000.0	03/07/2024	AB24-0306-16	
Manganese	100	9,	6	5.0	03/06/2024	AB24-0306-16	
Molybdenum	107	9,	6	5.0	03/06/2024	AB24-0306-16	
Nickel	96	9,	6	2.0	03/06/2024	AB24-0306-16	
Potassium	111	9,	6	100.0	03/07/2024	AB24-0306-16	
Selenium	105	9	6	1.0	03/06/2024	AB24-0306-16	
Silver	97.4	9	6	0.2	03/06/2024	AB24-0306-16	
Sodium	114	9	6	1000.0	03/07/2024	AB24-0306-16	
Thallium	95	9	6	2.0	03/06/2024	AB24-0306-16	
Vanadium	99	9	6	2.0	03/06/2024	AB24-0306-16	
Zinc	100	9	6	10.0	03/18/2024	AB24-0306-16	
Mercury by EPA 7470A, Total	, Aqueous			Aliquot #: 24-0	128-03-C01-A02	Analyst: CLE	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Mercury	98.0	9,	6	0.2	03/07/2024	AB24-0306-12	
Anions by EPA 300.0 Aqueou	ıs, NO2, NO3			Aliquot #: 24-0	128-03-C02-A01	Analyst: KDF	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Nitrate	94	9	6	100.0	03/05/2024	AB24-0305-08	
Nitrite	105	9,	6	100.0	03/05/2024	AB24-0305-08	
Anions by EPA 300.0 CCR Ru	ıle Analyte List, Cl, F,	SO4, Aque	ous	Aliquot #: 24-0	128-03-C02-A02	Analyst: KDF	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Chloride	108	9	6	1000.0	03/12/2024	AB24-0306-10	



Analytical Report

Report Date: 03/20/24

DEK Bottom Ash Pond & Lined Impoundment Sample Site:

Laboratory Project: 24-0128 Field Sample ID: DEK-MW-18001 MSD Collect Date: 03/04/2024

Lab Sample ID: 24-0128-03 Collect Time: 03:05 PM

Matrix: Groundwater

Laboratory Services A CENTURY OF EXCELLENCE

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous			Aliquot #: 24-0128-03-C02-A02		Analyst: KDR	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	97		%	1000.0	03/05/2024	AB24-0306-10
Sulfate	103		%	1000.0	03/12/2024	AB24-0306-10
Nitrogen-Ammonia by SM4500NH3(h)	, Groundwate	r HL		Aliquot #: 24-0	128-03-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	93		%	25.0	03/06/2024	AB24-0305-15
Phosphate calculated from Total P by	SM4500-P B5	i-E		Aliquot #: 24-0	128-03-C03-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Phosphate	110		%	10.0	03/06/2024	AB24-0306-06
Alkalinity by SM 2320B				Aliquot #: 24-0	128-03-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	96.4		%	10000.0	03/06/2024	AB24-0306-11
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	128-03-C06-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	90		%	20.0	03/07/2024	AB24-0314-05
Total Organic Carbon by SM 5310B, A	queous			Aliquot #: 24-0	128-03-C07-A01	Analyst: BAL
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking



A CENTURY OF EXCELLENCE

Analytical Report

Report Date: 03/20/24

Data Qualifiers	Exception Summary
	No exceptions occurred.

PROC CHEM-1.2.01 PAGE 1 OF 2 REVISION 4 ATTACHMENT A

General Standard Operating Procedure

TITLE: SAMPLE LOG-IN - SHIPMENT INSPECTION FORM

	711 01	20			
Project Log-In Number:				41.4	
Inspection Date: 03 05				7.10	
Sample Origin/Project Name:		1024 E	SAP + LI	·	
Shipment Delivered By: Enter	the type of s	hipment car	rier.		
Pony F Other/Hand Carry (who				PS /	Airborne
Tracking Number: 27	1734447	211	Shipping For	m Attached: Yes	No_
Shipping Containers: Enter th	ne type and nu	imber of ship	oping containers recei	ved.	
Cooler (1)	Cardboard Bo	x			lope/Mailer
Loose/Unpackaged Co	ntainers		Other		
Condition of Shipment: Enter	the as-receiv	red condition	of the shipment cont	ainer.	
Damaged Shipment Ol	oserved: Non	ie V	Dented	1	eaking
Other (1) byoken					
Shipment Security: Enter if a	ny of the ship	ping contain	ers were opened befo	re receipt.	
Shipping Containers R					
Enclosed Documents: Enter the					
CoC Wor	rk Request		Air Data Sheet_	Other_	
Temperature of Containers: N	Measure the te	emperature c	of several sample cont	ainers.	
As-Received Temperat	ture Range	2.49%	Samples Receiv	red on Ice: Yes	No
M&TE # and Expiration	-		er of sample containe	rs received	
Container Type			Other		Laabia
VOA (40mL or 60mL)	Water 40 ~ 5	Soil	Other	Broken 60: 1	Leaking
Quart/Liter (g/p)	40=5	_	-		
9-oz (amber glass jar)					
2-oz (amber glass)					
125 mL (plastic)	12				
24 mL vial (glass)					
250 -500 mL (plastic)	Mi ;	\equiv			
Other					
			_		

CONSUMERS ENERGY

Chemistry Department

General Standard Operating Procedure

PROC CHEM-1.2.01 PAGE 2 OF 2 REVISION 4 ATTACHMENT A

Container Damage List or Except	ion Report (required if leaking, d	amaged or exception containers are found)						
Project Log-In Number: 24	-0128							
Inspection Date: 03(05124 Inspection By: CLE LMO								
Sample Container Damage Listin	g: List all sample containers that sample labels or are not accou	were found to be broken, leaking, missing nted for on the CoC.						
Sample/Container ID	Damage/Ex	ception Report						
24-0129-02-04	Received F	Broken : Gome vial						
-								

CHAIN OF CUSTODY



CONSUMERS ENERGY COMPANY - LABORATORY SERVICES

Page | of |

135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251 SAMPLING SITE / CUSTOMER: PROJECT NUMBER: SAP CC or WO#: ANALYSIS REQUESTED QA REQUIREMENT: Q1-2024 DEK Bottom Ash Pond & Lined Impound 24-0128 (Attach List if More Space is Needed) REQUESTER: Harold Register SAMPLING TEAM: E. Rivebaft TURNAROUND TIME REQUIRED: ☐ NPDES □ 24 HR □ 48 HR □ 3 DAYS □ STANDARD ☒ OTHER **⊠** TNI SEND REPORT TO: Joseph Firlit email: phone: ☐ ISO 17025 Ammonia, Phosphate MATRIX CODES: Harold Register COPY TO: CONTAINERS ☐ 10 CFR 50 APP. B GW = Groundwater OX = OtherSL = Sludge WW = Wastewater TRC PRESERVATIVE Total Metals ☐ INTERNAL INFO W = Water / Aqueous Liquid A = AirS = Soil / General Solid WP = Wipe MATRIX SAMPLE COLLECTION Methane ☐ OTHER O = OilWT = General Waste LAB TDS TOC SAMPLE ID DATE TIME FIELD SAMPLE ID / LOCATION REMARKS GW 24-0128-01 DEK-MW-18001 4 1 1 1 3 X X X X X X X -02 GW DEK-MW-18001 MS 3 1 1 1 1 X X X X GW 7 3 1 1 1 1 -03 DEK-MW-18001 MSD X X X X x x

RELINQUISHED BY:

DATE/TIME:

RECEIVED BY:

COMMENTS:

RELINQUISHED BY:

RECEIVED BY:

Received on Ice? Yes No M&TE#: 015462

24-0128 Page 14 of 33

Temperature: 1.2 -4.9 °C

Cal. Due Date: 05-13-14



2105 Pless Drive Brighton, Michigan 48114 Phone (810)229-7575 Fax (810)229-8650 E-mail bai-brighton@sbcglobal.net

March 12, 2024

Consumers Energy Company 135 W. Trail St. Jackson, MI 49201

Subject: Q1-2024 DEK Bottom Ash Pond & Lined Impound

24-0128

Dear: Mr. Blaj

Thank you for making Brighton Analytical, L.L.C. your laboratory of choice. Attached are the results for the samples submitted on 03/06/2024 for the above mentioned project. NELAP/TNI Accredited Analysis and EGLE Drinking Water Certified Analysis will be identified in their respective reporting formats. Hard copies can be supplied at your request for a fee of \$20.00 per copy.

The invoice for this project will be emailed separately. If you have any questions concerning the data or invoice, please don't hesitate to contact our office. We welcome your comments and suggestions to improve our quality systems. Please reference Brighton Analytical, L.L.C. Project ID 95638 when calling or emailing. We thank you for this opportunity to partner with you on this project and hope to work with you again in the future.

Sincerely, Brighton Analytical, L.L.C.







Brighton Analytical LLC

2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net EGLE Certified #9404 NELAC Accredited #176507

Sample Date: 03/04/2024 Submit Date: 03/06/2024 Report Date: 03/12/2024

To:

Consumers Energy Company

135 W. Trail St. Jackson, MI 49201

BA Report Number:

BA Sample ID:

95638

CV02511

Project Name:

Q1-2024 DEK Bottom Ash Pond & Lined Impound

Project Number: 24-0128

	Sample ID: 24-0128-01 DEK-MW-18001					
Parameters	Result Units DL		Method Reference	Analyst	Analysis Date	
Methane Analysis						
Methane	12	ug/L	2	RSKSOP-175	JT	03/07/2024
Organic Analysis						
Total Organic Carbon	4400	ug/L	1000	SM5310B	RG	03/07/2024

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve EGLE designated target detection limits (TDL).

Released by

Date

3/12/2024



Brighton Analytical LLC

2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net EGLE Certified #9404 NELAC Accredited #176507

 Sample Date:
 03/04/2024

 Submit Date:
 03/06/2024

 Report Date:
 03/12/2024

To: Consumers Energy Company

135 W. Trail St. Jackson, MI 49201

BA Report Number: 95

95638

CV02512

Project Name:

Q1-2024 DEK Bottom Ash Pond & Lined Impound

Project Number: 24-0128

Sample ID:

24-0128-02 DEK-MW-18001 MS

Analysis

Parameters Result Units DL Method Reference Analyst Date

Organic Analysis

BA Sample ID:

Total Organic Carbon

94%

ug/L

1000

SM5310B

RG

03/07/2024

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve EGLE designated target detection limits (TDL).

Released by

_

Date

3/12/2024

Copchina Williams



Brighton Analytical LLC

2105 Pless Drive Brighton, Michigan 48114 Phone: (810)229-7575 (810)229-8650 e-mail:bai-brighton@sbcglobal.net EGLE Certified #9404 NELAC Accredited #176507

Sample Date: 03/04/2024 Submit Date: 03/06/2024 Report Date: 03/12/2024

To:

Consumers Energy Company

135 W. Trail St. Jackson, MI 49201

BA Report Number:

95638

Project Name:

Q1-2024 DEK Bottom Ash Pond & Lined Impound

BA Sample ID: CV02513 Project Number: 24-0128

Sample ID:

24-0128-03 DEK-MW-18001 MSD

Analysis

Parameters

Result

DL

Method Reference

Analyst

Date

Organic Analysis

Total Organic Carbon

103%

ug/L

Units

1000

SM5310B

RG

03/07/2024

DL=Reported detection limit for analytical method requested. Some compounds require special analytical methods to achieve EGLE designated target detection limits (TDL).

Released by

Date

3/12/2024

Copchina Williams

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CONSUMERS ENERGY COMPANY - LABORATORY SERVICES 135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251

Consumers Energy

SAMPLING SITE / CUSTOMER:	CUSTOMER:			PROJECT NUMBER:	SAP CC or WO#:				AN	ANAL YSIS REQUESTED	OA PEOITIBENTENT:
Q1-2024 DEK Bottom Ash Pond & Lined Impound	tom Ash Pond &	Lined Imp	punoc	24-0128	REQUESTER: Harold Register	rold Regi.	ster		(Attach	(Attach List if More Space is Needed)	VA NEVOINEMENT.
SAMPLING TEAM:				TURNAROUND TIME REQUIRED:							□ NPDES
				□ 24 HR □ 48 HR □ 3 DAYS □ STA	☐ STANDARD ☒ OTHER						INI 🛭
SEND REPORT TO:): Emil Blaj			email: Emil.Blaj@cmsenergy.com	phone:			uoc			□ ISO 17025
COPY TO:				MATRIX CODES: GW = Groundwater OX = Other		CONT	CONTAINERS	Carl			☐ 10 CFR 50 APP. B
				WW = Wastewater SL = Sludge W = Water / Aqueous Liquid A = Air			PRESERVATIVE				☐ INTERNAL INFO
LAB	SAMPLE COLLECTION	LECTION	RIX	S = Soil / General Solid WP = Wipe O = Oil WT = General Waste	ral Waste	E(H	al Org	рапе	25	□ OTHER
SAMPLE ID	DATE	TIME	TAM	FIELD SAMPLE ID / LOC	/ LOCATION	HAO None	M [©] O HCl M [©] O H ³ ZC	Othe			REMARKS
24-0128-01	03/04/2024	1505	GW	DEK-MW-18001	3		3	×	×	2511	5.1 Tamp
-0128	03/04/2024	1505	GW	DEK-MW-18001 MS	1		1	×		2517	
-03 Page 1	03/04/2024	1505	GW	DEK-MW-18001 MSD			1	×		8513	
9 of 3											
<u>3</u>											

DATE/TIME:
DATE/TIME:
DATE/TIME: RELINQUISHED BY: RELINQUISHED BY:

RECEIVED BY:

RECEIVED BY:

PR #23101291

COMMENTS:

Cal Due Date: M&TE#:

ွ

Temperature:



BRIGHTON ANALYTICAL, LLC

QUALITY ASSURANCE/QUALITY CONTROL

REPRESENTATIVE BATCH QUALITY CONTROL Accuracy & Precision

Analyst:	RG		Parameter: _	тос				
Analysis Date:	3/7/2024	Meth	nod Reference:	EPA 415.1/SM5310B/9060				
		SPIKE - ACC	URACY					
Laboratory ID	Spike level PPB	Observed B RPD Acceptable PPB (%) Range(%) 14700 5.60 <_20 MISCELLANEOUS Standard ID # %Recoveries						
CV02511	TV=10000	4400	94/103	80 - 120	ND			
Laboratory ID	Observed A PPB			A 4-790.0				
CV02511	13900	14700	5.60	<u><</u> 20				
MISCELLANEOUS								
		Standard ID #	%Recoveries					
lependent Second	lary Reference Material:	#4621	105					
ethod Standard (L	Lab. Control Spike):	#3046.9	99					

REPRESENTATIVE BATCH QUALITY CONTROL Accuracy & Precision

Analyst:	JT	Parameter: _	Methane	
nalysis Date:	3/7/2024	Method Reference:	RSKSOP-175	
Matrix:	Water	Inst./Detector:	HP-4/FID	

Laboratory ID	Spike Conc. (μg/L)	Background (μg/L)	Percent Recoveries	Acceptable Range (%)	Method Blank Concentration
LCS's (Methane)	34.3	ND	112 / 110	85 - 115	< 2 μg/L
		SPIKE - PREC	ISION		
Laboratory ID	Observed A (µg/L)	Observed B (µg/L)	RPD	Acceptable Range	
LCS's (Methane)	38.5	37.7	2.1	≤20%	
CV00290	20700	16900	19.9	≤20%	
	The second secon	MISCELLAN	EOUS		

COMMENTS:



Report ID: S59419.01(01) Generated on 03/07/2024

Report to

Attention: Emil Blaj

Consumers Energy Company

135 West Trail Street Jackson, MI 49201

Phone: D:517-788-5888 C:517-684-9467 FAX:

Email: emil.blaj@cmsenergy.com

Report produced by

Merit Laboratories, Inc. 2680 East Lansing Drive East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions: John Laverty (johnlaverty@meritlabs.com) Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S59419.01-S59419.03

Project: 24-0128 PR#24030331 Collected Date(s): 03/04/2024

Submitted Date/Time: 03/05/2024 16:50

Sampled by: Unknown P.O. #: 4400114090

Table of Contents

Cover Page (Page 1)

General Report Notes (Page 2)

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Laboratory Accreditations (Page 3)

Qualifier Descriptions (Page 3)

Glossary of Abbreviations (Page 3)

Method Summary (Page 4)

Sample Summary (Page 5)

Maya Murshak Technical Director

Naya Mushah



General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples

for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Starred (*) analytes are not NY NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report



Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	7 #69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
В	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
Н	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
0	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
Т	No correction for total solids
X	Elevated reporting limit due to matrix interference
Υ	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
е	Reported value estimated due to interference
j	Analyte also found in associated method blank
р	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



Method Summary

Method Version

SM4500-S2 D

Standard Method 4450 S2 D 2011

Report to Consumers Energy Company Project: 24-0128 PR#24030331 **24**-04 280 Page 26 of 33



Sample Summary (3 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S59419.01	DEK-MW-18001 (24-0128-01)	Groundwater	03/04/24 15:05
S59419.02	DEK-MW-18001 Field MS (24-0128-02)	Groundwater	03/04/24 15:05
S59419.03	DEK-MW-18001 Field MSD (24-0128-03)	Groundwater	03/04/24 15:05



Lab Sample ID: S59419.01

Sample Tag: DEK-MW-18001 (24-0128-01) Collected Date/Time: 03/04/2024 15:05

Matrix: Groundwater COC Reference:

Sample Containers

#	туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I nermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.4	IR

Inorganics

Method: SM4500-S2 D, Run Date: 03/07/24 09:06, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.11	0.02	0.005	mg/L	1	18496-25-8	



Lab Sample ID: S59419.02

Sample Tag: DEK-MW-18001 Field MS (24-0128-02)

Collected Date/Time: 03/04/2024 15:05

Matrix: Groundwater COC Reference:

Sample Containers

#	туре	Preservative(s)	Retrigerated?	Arrival Temp. (C)	i nermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.4	IR

Inorganics

Method: SM4500-S2 D, Run Date: 03/07/24 09:10, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.283	0.02	0.005	ma/L	1	18496-25-8	1

1-* Sample spike @ 0.200 mg/L level



Lab Sample ID: S59419.03

Sample Tag: DEK-MW-18001 Field MSD (24-0128-03)

Collected Date/Time: 03/04/2024 15:05

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.4	IR

Inorganics

Method: SM4500-S2 D, Run Date: 03/07/24 09:12, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.289	0.02	0.005	ma/L	1	18496-25-8	1

1-* Sample spike @ 0.200 mg/L level

Merit Laboratories Login Checklist

Lab Set ID:S59419

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0128 PR#24030331

Submitted: 03/05/2024 16:50 Login User: MMC

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street

Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

	poorintion	
Selection De	escription	Note
Sample Receiving		
01. 🕱 Yes 🗌 No 🗌 N/A Sa	amples are received at 4C +/- 2C Thermometer #	IR 5.4
02. 🗓 Yes 🗌 No 🗌 N/A Re	eceived on ice/ cooling process begun	
03. Yes X No N/A Sa	amples shipped	
04. Yes X No N/A Sa	amples left in 24 hr. drop box	
05. Yes No X N/A Are	e there custody seals/tape or is the drop box locked	
Chain of Custody		
06. X Yes No N/A CC	DC adequately filled out	
07. X Yes No No N/A CC	OC signed and relinquished to the lab	
08. 🗓 Yes 🗌 No 🗌 N/A Sa	ample tag on bottles match COC	
09. Yes X No N/A Su	bcontracting needed? Subcontacted to:	
Preservation		
10. X Yes No N/A Do	sample have correct chemical preservation	
11. X Yes No No N/A Co	ompleted pH checks on preserved samples? (no VOAs)	
12. Yes X No N/A Did	d any samples need to be preserved in the lab?	
Bottle Conditions		
13. X Yes No No All	bottles intact	
14. X Yes No No Ap	propriate analytical bottles are used	
15. Yes X No N/A Me	erit bottles used	
16. X Yes No NA Su	ifficient sample volume received	
17. ☐ Yes 🛣 No ☐ N/A Sa	amples require laboratory filtration	
18. 🗓 Yes 🗌 No 🗌 N/A Sa	amples submitted within holding time	
19. Yes No X N/A Do	water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and t	o notify the project manager.
Client Review By:	Date:

Merit Laboratories Bottle Preservation Check

Lab Set ID: S59419 Submitted: 03/05/2024 16:50

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0128 PR#24030331

Initial Preservation Check: 03/06/2024 10:03 MMC

Preservation Recheck (E200.8): N/A

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street

Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S59419.01	125mL Plastic NaOH/Zn Acetate	>12			
S59419.02	125mL Plastic NaOH/Zn Acetate	>12			
S59419.03	125mL Plastic NaOH/Zn Acetate	>12			



2680 East Lansing Dr., East Lansing, MI 48823 Phone (517) 332-0167 Fax (517) 332-4034 www.meritlabs.com

	1		4	
.O.C. PAGE #_	1	_OF_	1	

REPOR	T TO	,	Laboratories, Inc.	CHAIN	OF C	U	STO	OD	Y RI	ECC	RD							INVOI	CE TO
CONTACT NAME Emil Blaj					CONTACT NAME SAME														
COMPANY Cons							C	OMPA	NY										
ADDRESS 135 V	V. Trail S	Street					AI	DORES	SS										
Jackson				STATE MI ZIP (ODE 492	201	CI	TY									STATE	ZIP CODE	
PHONE NO. 517-	788-5888		FAX NO. 517-788-2533	P.O. NO. 4400114	090		P	HONE	NO.				E-MA	IL ADDRESS					
E-MAIL ADDRESS				QUOTE NO.			1				AN	ALYS	IS (ATT	ACH LIST	IF MOR	E SPAC	E IS REQUIF	RED)	
PROJECT NO./NAM				SAMPLER(S) - PLEASE P	RINT/SIGN	NAM	E			N/A	7 1	T	İ				Certifica	tions	
TURNAROUNE	TIME REC	QUIRED	□1 DAY □2 DAYS □3 D	AYS STANDARD	OTHE	R_												AP Drin	-
DELIVERABLE	S REQUIR	ED S	TD X LEVEL II LEVEL III	LEVEL IV DEDD	ОТН	HER										3	□D ₀ D	□NPD	ES
MATRIX (GW=GROUN SL=SLUDG	IDWATER	WW=WASTEWATER S=S0	DIL L=LIQUID SE	=SOLID W=WASTE	1	4		ntainei ervativ		Sulfide						Project L Detroit	ocations New	York
MERIT	YE	AR	SAMPLE		MATRIX	TLES	NON	ő	0 1	MeOH	Total					1115	Other .		
LAB NO.	DATE	TIME	IDENTIFICATION-DE	ESCHIPTION	MATR	BOT	2 3	E NO.	H,SO.	Me	F	+	\vdash	-	-		Special I	nstructions	
59419.01	03/04/24	1505	DEK-MW-18001 (24-012	28-01)	GW	1			1		1						1	with NaOH/	ZnAcetat
.02	03/04/24	1505	DEK-MW-18001 Field N	IS (24-0128-02)	GW	1			1		1						0		
.03	03/04/24	1505	DEK-MW-18001 Field N	4SD (24-0128-03)	GW	1			1		1						"		
																	Please spil	te MS/MSD	and report
																	spike conce	entration and/	or recover
					1	-		-		H			H	14	\perp	-			
					+	+	+	H	+	H	1	+	+	+	+	-			
					++	+	+	H	+	H		+	+	++	+				
					1	1	+	+	H			+	+	+	+				
					+	1	+	+		\forall			H	++					
						1	1		1			1		1					
RELINQUISHED BY		1	×2. 201 = 1200 ×	Sampler 93 los DATE	TIM				UISHE			-				-1-		DATE	TIME
SIGNATURE/ORGA RECEIVED BY:		1	Kanna Murra	25/05/24 25/2/2		E .	R	ECETV	URE/O									DATE	TIME
SIGNATURE/ORGA RELINQUISHED BY		101	anna / wire	DATE	4 165 TIM		-	EAL N	URE/O	HGANIZ		INTAC		INITIALS	- 1	NOTES:	TEMP. ON	ARRIVAL	
SIGNATURE/ORG/ RECEIVED BY: SIGNATURE/ORG/	,	/		DATE	TIM	E .	S	EAL N	0.		SEAL	SI INTAC	NOD	INITIALS		0'	ize .	5.4	



Appendix B Field Notes



PROJECT NAME:	CEC Karn BAP/LI: 2024 GW Compliance
PROJECT NUMBER:	553814.0001.0000
PROJECT MANAGER:	Darby Litz
SITE LOCATION: -	2742 Weadock Hwy Essexville, MI 48732
DATES OF FIELDWORK:	3/4/2024 TO 3/13/2024
PURPOSE OF FIELDWORK:	First Quarter 2024 Groundwater Sampling
· · · · · · · · · · · · · · · · · · ·	J. Jasso, J. Krenz, A. Whaley, E. Rinehart
WORK PERFORMED BY:	

SIGNED DATE

CHECKED BY SIZITY
CHECKED BY DATE



PROJECT NAME:	CEC Karn BAP/LI: 2024	GW Comp D	ATE: 3/5/20	24	TIME ARRIVED:
PROJECT NUMBER:			JTHOR: JJ JK		TIME LEFT: 1630
		\A/C	ATUED		
ELIPERATURE //p	111 05 14015		ATHER	LACIDA IT	
TEMPERATURE: 90	୬୫ WIND:	10-20	<u>MPH</u>	VISIBILITY	Y: Overcost, Rcin, fog
			LING PERFORME		
Chech in	at Good	Shock	, notify	Site con	1tact
Calibrate	water avality	_ mete	r '		
Sample K	arn Lined	Empa	ondment i	wells,	OW-10, OW-11,
OW -12,	DEK-MW-150	<u> کی کی کی </u>	.s, ses,		
5W-Ditch	is day	- no	Somple		0W-10, OW-11,
	•				
PROB	BLEMS ENCOUNTERED	<u> </u>		CORRECTIVE	E ACTION TAKEN
None					
					_/
·					
		COMM	UNICATION		
NAME	REPRESENTING		SUI	BJECT / COMME	ENTS
Darby Litz	TRC	PM - Upo	ates		
	Consumers	Site Conta	act		
		ļ			
	<u> </u>	L	·		
	INVESTIG	SATION DE	RIVED WASTE SU	JMMARY	
WASTE MATRIX	QUANTITY			COMMENTS	
Groundwater	NM	Purge to	Ground		
		ļ			
		 			

DATE

SIGNED



	/weodoc-	Lache	estound a	ell C		
PROJECT NAME:		Complian	DATE:	3/5/2	<i>\\</i>	TIME ARRIVED: ファ 6
PROJECT NUMBER:			AUTHOR	, ,	n €B	TIME LEFT: /6 00
			VEATHE	R		
TEMPERATURE:	O °F WIND:	12	MPH_		VISIBILITY:	Cloudy / Fry
	wo	RK/SAN	IPLING F	PERFORMED		
Samples	wells: My /4	W-15	008	MW-	15019	MW-15002
,		W-/51	<u>)</u> /6 ,	MW-11	<u> </u>	,
Calibrate In	-Situ					
						
		···				
PROE	BLEMS ENCOUNTERE	D		CC	RRECTIVE	ACTION TAKEN
	:					
NAME	REPRESENTING	CON	IMUNICA		CT / COMMEN	NTO
Darby Litz	TRC	DM/LIn	datas	20815	C17 COIVIIVIEI	113
Jon Gaeth	Consumers	PM/Up Site Co				
Jon Gaetti	Consumers	Site Co.				
	IN COTI	A TION F	EDIVED.	WASTE OUR	5ADV	
WASTE MATRIX	QUANTITY	JATION L	PERIVED	WASTE SUMI	OMMENTS	
Groundwater	NM	To Gro	und	·		
		<u> </u>				
111	1 P	, ,				
7////	0// 3/5	/21		alla	/ Why	> 3/21/24
SIGNED	// ()	DATE		CHECKED	BY O	DATE



PROJECT NAME:	CEC Karn BAP/LI: 2024	GW Comp DATE:	3/6/2024	TIME ARRIVED:
PROJECT NUMBER:	553814.0001.	0000 AUTH	OR: JJ JK AW	TIME LEFT: 162
<u> </u>		WEATH		
TEMPERATURE: 3/-	44°F WIND:			BILITY: Overcast - CI
	W	ORK / SAMPLING	PERFORMED	
A (1)	with secur	ity/Site	contact	
Ca librate			^	· · · · · · · · · · · · · · · · · · ·
Sample S	opplemental	karn BP	P wells DE	h-Mw-22002,
N(N - 27004)	DEK-MW-ZZ	ock, DER	-MW-52002	Dup-DEK-BAP-C
Sample ad	ditional Ge	ochem 1.10	115 TV-21-0	01, TW-21-003}
- Cath	zirio ace	- THE COE		
Ship San	mples via	Fed - EX		
	BLEMS ENCOUNTERE		CORREC	CTIVE ACTION TAKEN
DEK-MW-150	004 Water 16	evel too	Jacob Irrenz	to return w
deep for P	cristaltic cape	ebility		p to 1000 floor
=29.10' b	elow toc		Sample	
		COMMUNIC	CATION	
NAME	REPRESENTING		SUBJECT / C	OMMENTS
Darby Litz	TRC	PM - Updates		
	Consumers	Site Contact		
	100/5071	0.17(0)1 DED0/(,
WASTE MATRIX	QUANTITY	GATION DERIVE	D WASTE SUMMARY	
Groundwater	NM	Purge to Grou		

DATE

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	NAP//.I				
PROJECT NAME:	CEC Karn -LF: 2024 GW	Gomplian DATE:	3/6	124	TIME ARRIVED: 750
PROJECT NUMBER:	553814.0000.0	000 AUTHO	R: AW	•	TIME LEFT: /615
,					
		WEATH	ER		
TEMPERATURE:	7 °F WIND:	13-16 MPH		VISIBILI	TY: Closed of
	wo	RK / SAMPLING	PERFOR	RMED	
Caliban	2 Situ				•
Sitewide	In Situ Singley -	kam b	44	Supplemen	ta I
PROB	LEMS ENCOUNTERE)		CORRECTIV	/E ACTION TAKEN
				MANUAL	
		COMMUNIC	ATION		
NAME	REPRESENTING	COMMONIC		SUBJECT / COMM	MENTS
Darby Litz	TRC	PM/Updates			
Jon Gaeth	Consumers	Site Contact			
<u> </u>	100000				
WASTE MATRIX	QUANTITY	SATION DERIVE	WASIE	COMMENTS	3
Groundwater	NM	To Ground		COMMENT	<u> </u>
Oroundwater	INIVI	To Ground			
	1 1/1	//			
5/4/	11/3/	62.4	//	/1/11	1/2/2/24
SIGNED	1/ 1/	DATE	CHE	CKED BY	DATE



EQUIPMENT SUMMARY

PROJECT NAME:	CEC Karn I	BAP/LI: 2024 GW						
PROJECT NO.:	553814.000	01.0000	SAMPLER NAME:	J. Jasso, J. Krenz, A. Whaley, E. Rineha				
WATER LEVEL MEASU	JREMENTS COL	LECTED WITH:		Promotion of the second of the				
HEF	RON DIPPER-T			TRC A2				
NAME AND MODEL OF IN	ISTRUMENT		SERIAL NUMBER	R (IF APPLICABLE)				
PRODUCT LEVEL MEA	ASUREMENTS C	OLLECTED WITH	:					
	NA			NA				
NAME AND MODEL OF IN	ISTRUMENT		SERIAL NUMBER	R (IF APPLICABLE)				
DEPTH TO BOTTOM O	F WELL MEASU	REMENTS COLLI	ECTED WITH:					
HEI	RON DIPPER-T			TRC A2				
NAME AND MODEL OF IT	NSTRUMENT		SERIAL NUMBE	R (IF APPLICABLE)				
PURGING METHOD								
PER	ISTALTIC PUMP			TRC A2				
NAME AND MODEL OF PUMP OR TYPE OF BAILER			SERIAL NUMBER (IF APPLICABLE)					
SAMPLING METHOD								
PER	ISTALTIC PUMP			TRC A2				
NAME AND MODEL OF P	UMP OR TYPE OF	BAILER	SERIAL NUMBE	R (IF APPLICABLE)				
GEOTECH	DISPOSABLE FI	LTER		0.45 MICRON				
NAME AND MODEL OF F	ILTERATION DEVI	CE	FILTER TYPE A	ND SIZE				
DEDICA	TED POLY TUBI	NG	[√] LOV	V-FLOW SAMPLING EVENT				
TUBING TYPE		.,						
PURGE WATER DISPO	OSAL METHOD							
✓ GROUND	☐ DRUM	☐ POTW	POLYTANK	OTHER				
DECONTAMINATION	AND FIELD BLAN	IK WATER SOUR	CE					
ST	ORE BOUGHT			LABORATORY PROVIDED				
POTABLE WATER SOUR	len	\$\ z1\ 24\ DATE	DI WATER SOU WATER SOU CHECKED BY	Lludy 3/21/24 DATE				



PROJECT NAME:	CEC Karn/Weadock: 2024 GW Compliance	DATE: 2 CILY
PROJECT NUMBER:	553814.0001	AUTHOR: JJ

		• • • • • • • • • • • • • • • • • • • •				
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
MW -01	((3)	тос	143.20	24 DC	NA	NM
MW-02	1130	тос	18.00	30.38	NA	NM
MW-03	1145	TOC	1851	30.75	NA	NM
MVV-04	1147	TOC	19.28	33.67	NA	NM
MW-06	1224	TOC	ioar	2435	NA	NM
MVV-08	249	TOC	17.89		NA	NM
MW-10	1310	TOC	17.31		NA	NM
MW-12	1340	TOC	19.28		NA	NM
MW-14	1426	TOC	15.05	1923	NA	NM
MW-16	1449	TOC	1690		NA	NM
MW-17	1528	TOC	1420	2434	NA	NM
MW-18	1029	TOC	24.73	396:	NA	NM
MW-19	1045	тос	17.97	30.00	NA	NM
MW-20	(100	TOC	53.71	1200	NA	NM
MW-21	053	TOC	51.90	6050	NA	NM
MW-22	1243	TOC	17.21	29.59	NA	:NM
MW-23	1334	Tọc	14.78	15,10	NA	NM
OW-01	1105	тос	\$2.27	6400	NA	NM
OW-02	1244	TOC	16.15	2191	NA NA	NM
OW-03	13080	тос	1775	2870	NA	NM
OW-04	1423	тос	1086	(C.2C	NA	NM
OW-05	1444	тос	14.10	19.00	NA	NM
OW-06	1576	тос	37.65	2480	NA NA	NM
OW-07	1335	TOC	15.71	23,91	NA	NM
OW-08	ISB	TOC	11.14	17.90	NA	NM

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

SIGNED

CHECKED



PROJECT NAME:	CEC Karn/Weadock: 2024 GW Compliance	DATE: 31464
PROJECT NUMBER:	553814.0001	AUTHOR: Javier Jasso

PROJECT NUMBER.	553819	1.0001		AUTHO	R; Javier Jasso)
WELL LOCATION	TIME	REFERENÇE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
OW-09	1500	TOC	10.56	12:77	NA	NM
OW-10	1530	TOC	7.85	17.91	NA	NM
OW-11	IOIT	TOC	24.00	2447	NA	NM
OW-12	1500	TOC	18.11	23.41	NA	NM
OW-13	1507	тос	4.21	14.17	NA	NM
OW-15	icole	TOC	4.6.0	15.75	NA	NM
EW-01	1303	TOC	14.26	Dum	NA	NM
EW-02	1370	TOC	15.90	4	NA	NM
EW-03	1338	тос	15.45		NA	NM
EW-04	1354	TOC	15.40		NA	NM
EW-05	1414	TOC	14.75		NA	NM
EW-06	1433	TOC	10.91		NA	NM
PZ-01	12.54	тос	13,50	14.10	NA	NM
PZ-02	1258	TOC	15.48	23,10	NA	NM
PZ-03	1317	тос	15.68	1980	NA	NM
PZ-04	1325	TOC	1510	2095	NA	NM
PZ-05	140T	TOC	(53)	21.18	NA	NM
PZ-06	1348	TOC	15.94	20.35	NA	NM
PZ-07	1352	TOC	1540	21.00	NA	NM
PZ-08	1411	TOC	15.30	2054	NA	NM
PZ-09	luac	TOC	15.81	21.61	NA	NM
PZ-10	1436	TOC	1102	17,74	NA	NM
PZ-11	1439	тос	[4,24	1810	NA	NM

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

SIGNED 3/14/2

DATE

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121/24

DATE



PROJECT NAME:	CEC Karn/Weadock: 2024 GW Compliance	DATE: \$ 14124
PROJECT NUMBER:	5538 14.0001	AUTHOR: J. Jasso

TOOLOT NOWDER.	2220 17.00	<i></i>		AUTHO	N. J. Jasso	
WELL LOCATION	TIME F	REFERENCE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
DEK-MW-18001	10011	TOL	9.51	23.75	NP	NM
DEK-MW-15002	1501		700	15.71		
DEK-MW-15003	1010		1878	27.67		
DEK-MW-15004	iall		29.00	4178		
DEK-MW-15005	1034		(0.6)	25.73		
DEK-MW-15006	1511		10.15	21.50		
DEK-MW-22001	(03)		10.57	24.00		
DEK-MW-22002	(637		11.83	26.87		
DEK-MW-22003	wzu		11.65	24.40		
DEK-MW-22004	(63)		10.30	22.44		
DEK-MW-22005	1034		8.94	20.30		
DEK-MW-22006	1025	- 13 - 13 - 13 - 13 - 13 - 13 - 13 - 13	४.६५	21.53	<u></u>	A Company of the Comp
MW-15002						
MW-15008		and the party of the manufactures.	A CONTRACTOR OF THE STATE OF TH			
MW-15016						
MW-15019	500 900 18 3 4 5 5 5 5 5	Control of		and the state of t	pager was a training to a second	
TW-21-001	1120		13.65	17.59		
TW-21-002	1116		13.64	20.51	<u></u>	
TW-21-003	1114		1894	Slew		
TW-21-004	1507	ne <u>roden i en de Articologi</u>	13.60	1664	1 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	As J. William St. France (St.)
TW-21-005	1505		1095	1480		
TW-21-006	1500		1053	(3,0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
TW-21-007	1456		13.70	16.80		
TW-21-008	1453		14.60	1980		
TW-21-009	1233		20.63	27.91		

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

150

DATE

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121127

DATE

SIGNED



PROJECT NAME:	CEC Karn/Weadock: 2024 GW Compliance	DATE: 3 4 124
PROJECT NUMBER:	55] 14.0001	AUTHOR: J. Jasso

NOSEOT NOMBER.	2771 1	1.0001		AUTIK	JR. 0.00550	
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
TW-21-010	1229	TOC	21.26	2800	NA	NM
TW-21-011D	1214		22.50	5235		
TW-21-011I	1313		72.04	35.3		
TW-21-011S	1213		92.99	27.00		
TW-21-012D	1267		21.05	5478		
TW-21-012I	1205		21.10	36.60		
TW-21-012S	1204		20.62	2763		
Te 31013	1140		23.69	3650	3	
· · · · · · · · · · · · · · · · · · ·						
46 4 38 4 <u>34. 132 - 35 52 3 . 12 17 4</u> 36			<u>a uny⁶⁶15 (1,53,5,6,6,6,5).</u>		<u> </u>	<u> </u>
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ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

SIGNED

3/14/24

DATE

CHECKED WMW

121/24

DATE



WATER QUALITY METER CALIBRATION LOG

PH C.	553814.0001.0000										
pH 7				SERIAL#:	en·te	cd		DATE: 🔾	15	124	
pH 7	ALIBRATION CHECK						CONDU	CTIVITY (CALIBE	RATION C	HECK
14 DT 41/12 / 17 MY LAT 1	pH4 10					READ		TEMPERA	ATURE		
(LOT #): 3 CJO9 15 ((LOT#):3610691	CAL. RANGE	TIME		σ	, D.C	601			CAL. RANGE	TIME
(EXP. DATE): OC+25 (POST-CAL. READING / STANDARD	(EXP. DATE): SOFIZ 5 POST-CAL. READING / STANDARD	RANGE		(EXP. D		OL	STANDARD	(°CELS	ius)	RANGE	
	4.00 14.00	WITHIN RANGE	755	-13	^	/ 1	355	14.6		WITHIN	වැදින
1.04	1	☐ WITHIN	513	110	7	,	1167	(/ (6)		WITHIN	- (//,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
· · · · · · · · · · · · · · · · · · ·	<u>.</u>	RANGE			•	,				RANGE WITHIN	
 		RANGE WITHIN				',				RANGE	
/	OALIDDATION OUTOK	RANGE		<u> </u>			D 0 041	IDD ATION	LOUE	RANGE	
CAL. READING	CALIBRATION CHECK			1 [CAI	READ	D.O. CAL			J.K.	
(LOT #): 23J 102) 12	TEMPERATURE				CAL.	KEAL	JING	TEMPERA	ATURE	.	
(EXP. DATE): 4/ZF	(°CELSIUS)	CAL. RANGE	TIME	į				(°CELS	IIIS)	CAL. RANGE	TIME
POST-CAL. READING / STANDARD				POST-C	AL. REAL	DING /S.	ATURATED AIR		.00,		
245312453	الله ا	WITHIN RANGE	404	10	الخ	1	1601	10.6		WITHIN RANGE	CUB: 7
1		WITHIN				1				WITHIN	
1		WITHIN				1				WITHIN	
		WITHIN				1				WITHIN	
TURBIDI	TY CALIBRATION CHEC	RANGE		J. <u>L</u>				COMMEN	ITS	RANGE	
CALIBRATION R	READING (NTU)	<u> </u>	,] A	JTOCA	AL SO	LUTION	√ STA	NDARD	SOLUTION	(S)
(LOT#):	(LOT#): A \12.0	CAL.	715.45	(LOT #)	:			LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK			
(EXP. DATE):	(EXP. DATE) Jon 25	RANGE	TIME	(EXP. D	ATE):						
POST-CAL. READING / STANDARD	POST-CAL. READING / STANDARD			CAL	BRATE	D PAR	AMETERS	CALIBRATION RANGES (1)			1)
0.0100	124 1261	WITHIN RANGE	0140		pl	Н		рН: +	-/- 0.2 S.	U.	
	1	WITHIN RANGE			С	OND		COND: +	-/- 1% OF	CAL. STAN	IDARD
/	1	WITHIN RANGE			0	RP		ORP: +	-/- 25 m\	′	
1	1	WITHIN RANGE] 🗆	D	.O.		D.O.: \	/ARIES		
	NOTES			_ _	T	URB		TURB: 4	-/- 5% OI	CAL, STAN	IDARD
] _				(1) OAL IDDA	TION DAY	10E0 ABE 0E	FOIFIO TO
				1 🗀	_					IGES ARE SP WATER QUAL	
					=			<u> </u>			-
]				<u></u>			_
PR	ROBLEMS ENCOUNTERED			ļ			CORRECTI	VE ACTIONS			
	1.			L					1	-//	, /
adm 11	en ?	120/24	•		//		//	111		2/	1/24
SIGNED	-0	DATE	-		CHECK	(ED D			/		DATE

AW, JJ, JK, ER)

TIME

810

TIME

CAL.

RANGE

WITHIN

WITHIN

WITHIN

WITHIN

CAL.

RANGE

WITHIN

WITHIN RANGE

WITHIN

(1) CALIBRATION RANGES ARE SPECIFIC TO THE MODEL OF THE WATER QUALITY METER

CORRECTIVE ACTIONS

WITHIN STU

♦ TRC WATER QUALITY METER CALIBRATION LOG MODEL: 1/2 Situs Lava SAMPLER: PROJECT NAME: CEC Karn LF: 55387 0000.0000 SERIAL# PROJECT NO .: DATE: PH CALIBRATION CHECK SPECIFIC CONDUCTIVITY CALIBRATION CHECK CAL. READING TEMPERATURE pH 4 / 10 pH 7 (LOT#): 3(-16691 (EXP. DATE): Sep 25 POST-CAL. READING / STANDARD (LOT #):3GK0901 (LOT #): 3GJO918 CAL. TIME (EXP. DATE): Jou 74
POST-CAL. READING / STANDARD (EXP. DATE): 0.4/25 RANGE (°CELSIUS) POST-CAL. READING / STANDARD WITHIN 1114/2 4014.0 7.0417.04 800 1147 WITHIN 1 1 WITHIN 1 1 WITHIN D.O. CALIBRATION CHECK ORP CALIBRATION CHECK CAL. READING TEMPERATURE CAL. READING TEMPERATURE (LOT #): 27 H100 376 CAL. (°CELSIUS) TIME (EXP. DATE):27-08-23 **RANGE** (°CELSIUS) POST-CAL. READING / STANDARD POST-CAL READING /SATURATED AIR WITHIN 228 1228 14 10.6 110.6 805 WITHIN WITHIN WITHIN **TURBIDITY CALIBRATION CHECK** COMMENTS AUTOCAL SOLUTION CALIBRATION READING (NTU) STANDARD SOLUTION (S) V (LOT #): A3097 (LOT #): (LOT #): LIST LOT NUMBERS AND EXPIRATION DATES
UNDER CALIBRATION CHECK CAL. TIME (EXP. DATE): 25
POST-CAL READING / STANDARD RANGE (EXP. DATE): (EXP. DATE): POST-CAL, READING / STANDARD CALIBRATED PARAMETERS CALIBRATION RANGES (1) 100 WITHIN 1 100 815 +/- 0.2 S.U. рΗ pH: WITHIN RANGE COND +/- 1% OF CAL. STANDARD COND: WITHIN ORP +/- 25 mV 1 ORP: WITHIN 1 D.O. D.O.: VARIES TURB TURB: +/- 5% OF CAL. STANDARD **NOTES**

1/ 1/1	1./.		
MM/	7 3/5/24	Cellen Wh	3/2/12/
SIGNED	DATE	CHECKED BY	DATE
	/		

PROBLEMS ENCOUNTERED



WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	_	CEC Karn BAP/LI: 2024 GV	V Complian	ce	MODEL:	Y(1	22 G on 9	SAMPLEF	₹:	(W)JK,	JJ, ER
PROJECT NO.:		553814.0001.0000			SERIAL#	Rei	nta l	DATE:	3161	24	
	PH (CALIBRATION CHECK		-	<u> </u>	SF	ECIFIC CONDU	- ICTIVITY	CALIBR	ATION C	HECK
pH 7 (LOT #): 5504 (EXP. DATE): 04	L8 25	pHD 10 (LOT#): 36 LOBH (EXP. DATE): SCOL 5	CAL. RANGE	TIME		(LOT #): 3	READING 5008 504124	TEMPER		CAL. RANGE	TIME
POST-CAL. READING / S	TANDARD .	POST-CAL, READING / STANDARD				POST-CAL.	READING / STANDARD				
7.08 /7	<u>.0,12</u>	4.00 4.00	WITHIN RANGE	0745	-	1001	1001	6.5	7	WITHIN RANGE	ं७४८
		1	RANGE				1			RANGE	
. /		/	WITHIN				/			WITHIN	
/			WITHIN RANGE		<u> </u>					WITHIN RANGE	
		CALIBRATION CHECK	-		, ,		D.O. CAL			K	
CAL. READII	VG	TEMPERATURE				CAI	L. READING	TEMPER	ATURE		
(EXP. DATE): 7		(°CELSIUS)	CAL. RANGE	TIME				(°CELS	SIUS)	CAL. RANGE	TIME
POST-CAL. READING / S	TANDARD]			POST-CAL. RI	EADING /SATURATED AIR	1			
250,9 12	504	6.0	WITHIN RANGE	275		11.20	0/11.20	9.0	>	_	177 × 1
/			WITHIN RANGE				1			WITHIN RANGE	
/			WITHIN RANGE				1			WITHIN RANGE	
/	_		WITHIN RANGE]		1			WITHIN RANGE	
7	URBID	ITY CALIBRATION CHEC	CK	· · · · · · · · · · · · · · · · · · ·				COMME	NTS		·!···
CALIBI	RATION	READING (NTU)				AUTO	CAL SOLUTION	✓ ST.	ANDARD	SOLUTION	(S)
(LOT #): (EXP. DATE):		(LOT #): A 3120 (EXP. DATE): SCA 2.	CAL. RANGE	TIME		(LOT #): (EXP. DATE)) :			ND EXPIRAT	
POST-CAL. READING / S	TANDARD	POST-CAL. READING / STANDARD	1	ļ		CALIBRA	TED PARAMETERS	С	ALIBRATIO	N RANGES	(1)
0.010	00	124 / 124	WITHIN RANGE				pН	pH:	+/- 0.2 S.L	J.	
/		1	WITHIN RANGE				COND	COND:	+/- 1% OF	CAL. STAI	NDARD
1		1	WITHIN RANGE				ORP	ORP:	+/- 25 mV		
/		/	WITHIN				D.O.	D.O.:	VARIES		
	_	NOTES					TURB	TURB:	+/- 5% OF	CAL. STAI	NDARD
										GES ARE SF VATER QUAI	PECIFIC TO LITY METER
]						
	P	ROBLEMS ENCOUNTERED					CORRECT	IVE ACTIONS	3	····	
	-	, , , , , , , , , , , , , , , , , , , 		•							
	-										
SIGNED	wll	1/2	Olzy DATE	_		S/L CHE	CKENBY	1//	7	3/21/	Z Y DATE

PROJECT NAME:
PROJECT NO.:

WATER QUALITY METER CALIBRATION LOG

	BAPILI								
PROJECT NAME:	CEC Karn LF: 2 024 GW Co	mpliance		MODEL: Frs. tu	Aguatroil	SAMPLER:	AW, JJ, J	K, ER	
PROJECT NO.:	553814.000 .0000			SERIAL #: AA C	ffice	DATE: 3/	3/24		
PH (CALIBRATION CHECK				ECIFIC CONDU	ICTIVITY CALI	BRATION C	HECK	
pH 7	pH 4 / 10				. READING	TEMPERATUR			
(LOT #): 36-30914 (EXP. DATE): 66+/25	(LOT#): \$6K0961 (EXP. DATE): Sep 25	CAL. RANGE	TIME		=K0901 :Nov 24	(°CELSIUS)	CAL. RANGE	TIME	
POST-CAL. READING / STANDARD	POST-CAL. READING / STANDARD	1		I I	READING / STANDARD				
7.06 / 7.08	9.0 / 4.0	WITHIN RANGE	745	964	1 964	6	WITHIN RANGE	755	
1	1	WITHIN RANGE	-		1		WITHIN RANGE		
1	1	WITHIN RANGE			1		☐ WITHIN RANGE		
1	1	WITHIN RANGE		1	1		WITHIN		
ORP	CALIBRATION CHECK		l	J	D.O. CAL	IBRATION CH			
CAL. READING	TEMPERATURE			CAL	READING	TEMPERATUR	RE		
(LOT #):22 H 100 \$76	(°CELSIUS)	CAL.	TIME				CAL.	TIME	
(EXP. DATE): 27-08-23		RANGE				(°CELSIUS)	RANGE		
POST-CAL. READING / STANDARD		WITHIN		-	/ 12.06		WITHIN		
232 / 232	5.72	RANGE	750	12.00	1 16.00	5.7	RANGE	805	
		RANGE		_	/		☐ RANGE		
1		WITHIN RANGE]	1		WITHIN RANGE		
/		WITHIN RANGE					WITHIN RANGE		
TURBID	ITY CALIBRATION CHEC	K		-		COMMENTS			
	READING (NTU)	_		1 . -	CAL SOLUTION	STANDARD SOLUTION (S)			
(LOT #): A 3097	(LOT #): (EXP. DATE):	CAL. RANGE	TIME		(LOT#):		LIST LOT NUMBERS AND EXPIRATION DATE UNDER CALIBRATION CHECK		
POST-CAL. READING / STANDARD	POST-CAL. READING / STANDARD			<u> </u>	(EXP. DATE): CALIBRATED PARAMETERS		CALIBRATION RANGES (1)		
160 / 100	0 / 0	WITHIN			pН	ρH: +/- 0.2 S.U.			
/	1	WITHIN		1 -	COND	COND: +/- 1%	OF CAL. STAN	IDARD	
	1	WITHIN		1 1 -	ORP	ORP: +/- 25	mV		
· · · · · · · · · · · · · · · · · · ·	· ,	RANGE WITHIN		-	D.O.	D.O.: VARIE	·s		
,	L′	RANGE	l	J _	TURB	\	OF CAL. STAN	IDARD	
	NOTES			ı _		1010	, o. o		
						(1) CALIBRATION I			
F	PROBLEMS ENCOUNTERED			·	CORRECT	IVE ACTIONS			
			-						
***)							
	- //				,				
11/	INA	//	•					,	
Elen //	///////////////////////////////////////	16/2	4	L	My 1	Mus	\ \{\langle \langle \l	24	
SIGNED	V/ 1 1	DATE		CHEC	CKED BY	0	-	DATE	
	/								

PROJECT	NAME:	CEC K	NAP/// Carn -LF: 2024 (SW Comp		PRE	EPARED			CH	IECKE	ED	
PROJEC1	NUMBER	R: 553814	4.0000.0000	E	BY: AW	, JJ, JK,	EBOATE: 3/	1/24	BY: Au	7	D	ATE: SIZI	124
SAMPLE	ID: OF	K -M	W-18001	WELL D	IAMET	ER: 🗸	2"	<u>. </u>	OTHER		1	<u> </u>	•••
WELL MAT		✓ PVC	***************************************	IRON []	GALVA	NIZED S	TEEL		OTHER				
SAMPLE T	YPE:	 ✓ GW	□ww □	SW 🔲	OI		LEACHATE		OTHER		linda i di Ciarace		
PUR	GING	TIME: /4	150 DA	TE: 3/4/2	4	S	AMPLE	TIME:	1509		DATE	<u> </u>	
PURGE		•	PERISTALTIC F	711	-					ITY: <u>84</u>	19.5	Z umho	s/cm
METHO	` _	BAILER						nV DO:		59	mg/L		
DEPTH TO) WATER:		T/ PVC			TURBI							
DEPTH TO	BOTTOM:	19.7	T/ PVC			☑ NOI	NE SL	IGHT	□ мо	DERATE		☐ VER	Y
WELL VOL	UME:	NA NA	LITERS	GALLON	1S	TEMPE	RATURE: /2	2.43 .	C FEF	RROUS F	e <i>O</i>	. 5	mg/
VOLUME	REMOVED:	_3_,	LITERS	GALLON	1S	COLOF			OD	OR:	N	•	
COLOR:	Cle		OD	OR: //v		FILTRA	TE (0.45 um)	YES		No			
		TUR	BIDITY			FILTRA	E COLOR:		FIL	TRATE O	DOR:		
NONE	SLI	GHT 🔲	MODERATE	_ UER	Υ	QC SA	MPLE: 🆊 MS	S/MSD		DUP-			
DISPOSAL	_METHOD:	☑ GROUN	ND DRUM	OTHER		сомм	ENTS:		·				
TIME	PURGE RATE	PH	CONDUCTIVITY	ORP	- 1	D.O.	TURBIDITY		RATURE	WATE	EL 1	CUMULAT PURGE VO	LUME
udo	(ML/MIN)	(SU)	(umhos/cm)	(mV)		mg/L)	(NTU)		C)	(FEE		(GAL OF	
1450	200	7.82	847.55	-46.7		?.3	54.27	12.		9.40	5		L.
1453		7.18	854.86	-86.1		72	14.76	12.				0.6	
1456		7.74	852.51	-109.6		65	11.88	12.	***************************************	ļl		1.2	
1454		7.73	851,49	-121.1		61	5.97	12.4	8			1.8	
1502		7.72		-126.3	1.	59	3.61	12.5	,		,	2. 9	
1505	₩.	7,71	809.52	-128.9	1.	59	4.31	12.4	13	W		<u>3. ن</u>	
							THE ACT AND ADDRESS OF THE PARTY OF THE PART		***************************************				
	NOTE: STA	BILIZATION	N TEST IS COM	PLETE WHE	N 3 SL	JCCESSI	VE READING	S ARE WI	THIN TH	E FOLLO	WING	LIMITS:	
pH: +/-	0.1	COND.: +/-	3 % ORP:	+/- 10	D.O.:	+/- 0.3	TURB: +/-	- 10 %	or =</td <td>10</td> <td>TE</td> <td>EMP.: +/-</td> <td></td>	10	TE	EMP.: +/-	
BOTTLE	S FILLED	PRESERV	ATIVE CODES	A - NONE	R -	HNO3	C - H2SO	4 D. I	NaOH	F -	HCL	F -	
NUMBER	1	TYPE	PRESERVATI			NUMB		TYP		RESERV			BED
> NOWBER	250 mL	PLASTIC	A			3	125 mL	PLAS	-	D	, (11VL	 	
 	<u> </u>	PLASTIC			<u> </u>					E	~~~~~		/ N
7	125 mL		A		₹ N	9	40 mL	VOA		E		-121-12	# N
6	60 mL	VOA	A		/ N	ļ							_ N
3	125 mL	PLASTIC	В	L Y 	7 N	ļ							N
_ کے	125 mL	PLASTIC	С		<u> </u>	1	,					LJY L	ЦΝ
SHIPPING	METHOD:	Cosec	. / D/	ATE SHIPPE	D: 3	/4/	24	AIRI	BILL NUN	IBER:		, ,	
COC NUM	BER.			GNATURE:			0.11	DAT	E SIGNE	:D·	3/	1/24	

◆ TRC

PROJECT NUMBER: 553814.0001.0000 BY AW JK, JJ, ER DATE: \$\frac{1}{2} \frac{1}{2} \frac{1}						
WELL MATERIAL: PVC SS IRON GALVANIZED STEEL OTHER SAMPLE TYPE: GW WW SW DI LEACHATE OTHER PURGING TIME SS DATE: SSZY SAMPLE TIME: CHO DATE: SSZY PURGE PUMP PERISTALTIC PUMP PH: 7.19 SU CONDUCTIVITY: 718 umhos/cm METHOD: BAILER ORP: -124/4 mV DO: C.29 mg/L DEPTH TO WATER: 7.19 T/ PVC TURBIDITY: 20.84 NTU						
SAMPLE TYPE: GW WW SW DI LEACHATE OTHER PURGING TIME SS DATE: \$\frac{1}{2}\frac{1}\frac{1}{2}\frac{1}\frac{1}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}						
PURGING TIME PS DATE: \$\frac{15}{24}\$ SAMPLE TIME: CHO DATE: \$\frac{5}{24}\$ PURGE PUMP PERISTALTIC PUMP PH: \frac{7.19}{124.44} SU CONDUCTIVITY: \frac{71}{21.5} umhos/cm METHOD: BAILER ORP: \frac{-124.4}{124.44} mV DO: \frac{0.29}{0.29} mg/L DEPTH TO WATER: \frac{7.51}{1.51} T/ PVC TURBIDITY: \frac{20.54}{20.54} NTU						
PURGE PUMP PERISTALTIC PUMP PH: 7.19 SU CONDUCTIVITY: 718 umhos/cm METHOD: BAILER ORP: -124,4/ mv DO: 6.29 mg/L DEPTH TO WATER: 7.19 SU CONDUCTIVITY: 718 umhos/cm TURBIDITY: 20.84 NTU						
METHOD: BAILER ORP: -129,4/2 mV DO: -0.29/2 mg/L DEPTH TO WATER: 7,3/2 T/ PVC TURBIDITY: 20.84/2 NTU						
DEPTH TO WATER: 7.91 T/ PVC TURBIDITY: 20.84 NTU						
DEPTH TO BOTTOM: 17.90 T/ PVC NONE SLIGHT MODERATE VERY						
WELL VOLUME: NA LITERS GALLONS TEMPERATURE: C FERROUS Fe 2.25 mg/l						
VOLUME REMOVED: 4.0 DELITERS GALLONS COLOR: Lief ODOR: Slight						
COLOR: Shight Alloy ODOR: Slight FILTRATE (0.45 um) X YES NO						
TURBIDITY FILTRATE COLOR: LLCC FILTRATE ODOR: NOME						
NONE ☑ SLIGHT ☐ MODERATE ☐ VERY QC SAMPLE: ☐ MS/MSD ☐ DUP-						
DISPOSAL METHOD: GROUND DRUM OTHER COMMENTS: Sediment in bottom of well						
TIME PURGE PH CONDUCTIVITY ORP D.O. TURBIDITY TEMPERATURE WATER CUMULATIVE						
RATE RATE CONDUCTION ON CONTROL LEVEL PURGE VOLUME (ML/MIN) (SU) (umhos/cm) (mV) (mg/L) (NTU) (°C) (FEET) (GAL OR C)						
0835 200 7.12 772 40.9 244 20160 10.6 8.60 INITIAL						
0840200 7.23 766 -630 060 70.71 10.4 9.00 1.0						
0845 100 7.23 750 -100.0 0.51 89.62 10.1 8.80 12.01.5						
O850 100 7.22 737 -1126 0.48 41.20 10.1 P.68 1202.0						
085100 721 726 -124,7 0.89 28.60 10.2 8.68 2.5						
0900 100 7.17 720 -122.5 0.39 21.00 10.3 8.68 3.0						
CAOS 100 7,19 718 -1236 03 22,58 10.5 8.68 3.5						
0410 100 7.19 718 -124,4 0.29 20.84 10.5 8.68 4.0						
NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:						
pH: +/- 0.1 COND.: +/- 3 % ORP: +/- 10 D.O.: +/- 0.3 TURB: +/- 10 % or = 10 TEMP.: +</td						
BOTTLES FILLED PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F						
NUMBER SIZE TYPE PRESERVATIVE FILTERED NUMBER SIZE TYPE PRESERVATIVE FILTERED						
250 mL PLASTIC A Y N 1 125 mL PLASTIC D Y N						
1 125 mL PLASTIC A Y N 3 40 mL VOA E Y N						
Z 60 mL VOA A DY XN 1 125 Plastic R XYDN						
125 mL PLASTIC B Y V N						
1 125 mL PLASTIC C Y N DYN						
SHIPPING METHOD: Fed Ex DATE SHIPPED: 315/24 AIRBILL NUMBER:						
COC NUMBER: — SIGNATURE: A. Wha DATE SIGNED: \$\begin{array}{c} \lambda						

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							<u>1</u>			
PROJECT NAME:	CEC K	CEC Karn BAP/LI: 2024 GW C PREPARED CHECKED							KED	
PROJECT NUMBER: 553814.0001.0000 BY AW, JR, JJ, ER DATE: 3/5/21/84: ER DATE: 3/21/24										
SAMPLE ID: DE	r-MW-	15003	WELL DIAN	IETER:	✓ 2"	<u> </u>	6" OTH	IER		•
WELL MATERIAL:	☑ PVC	□ss □	IRON GAL	.VANIZE	D STEE	ΞL	□ отн	IER		
SAMPLE TYPE:	☑ GW	□ww □	SW 🗌 DI	_	LEA	CHATE	□ отн	IER_		
PURGING	TIME 09	51 DA	TE: 3 15/20	/	SAM	PLE	TIME: 10	31	DA	TE: 3/5/24
PURGE METHOD:	PUMP BAILER	PERISTALTIC I	PUMP	PH OR		<u>13</u> s /e/3 m		стіVII 5. 3 (TY: <u>4 (0. 9</u> mg	
DEPTH TO WATER:	18.77	T/ PVC	·····	TU	RBIDIT	1:1.96	NTU			ya, eguga adampakerinin sa kanarunin karaya esa ka alimata kalaya asa.
DEPTH TO BOTTOM: N'M T/ PVC Transducer NONE SLIGHT MODERATE VERY										
WELL VOLUME:	NA	LITERS	GALLONS	TE	MPERA	TURE: 17	°C 2.6	FERI	ROUS Fe Ć	D. O mg/L
VOLUME REMOVED	P.O	LITERS	GALLONS	CC	LOR:	Cleo	1	ODO	R:	None
COLOR: Le	76 C	OD	OR: NOME	FIL	TRATE	(0.45 um)	YES	<u>\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ </u>	NO	
	TUR	BIDITY		FIL	TRATE C	COLOR:		FILT	RATE ODOR	
💹 NONE 🗌 SI	.ight 🗌	MODERATE	☐ VERY	QC	SAMPI	LE: MS	/MSD	X	DUP- K	LI
DISPOSAL METHOD	CROUN	ND DRUM	OTHER	CC	MMEN	ΓS:				
TIME PURGE RATE	PH	CONDUCTIVITY		D.O		JRBIDITY	TEMPERATU	JRE	WATER LEVEL	CUMULATIVE PURGE VOLUME (GAL ORU)
G951 200	 ` ' ' ' 	(umhos/cm)	(mV)	(mg/		(NTU)	(°C)	-	19.10	INITIAL
0 = (8,52	747	-1950	0.7		.70	16.5		17,10	(,0
0956	8.48	344.9	-161,5	04		<u>ځا.</u>	16.4		# **** - *** ***** ****** *************	
(2) (X)	8.29	3/6.7	-142.2		_	<u>'11</u>	16.4			2.0
1006	5.22	552,4	-140,3	1.2		,0'7	16,4			5.0
1011	P. 27	359.7	-143.7	1.0	0/1,	93	16.0			4.0
1016	8,22	378,4	-147:7	0.8	<u>ت ا ت</u>	87	16.1			5.0
1021	8.18	4010	-156.82	045	7 1,	7	16.4			6.0
1026 V	8.15	4068	-1603	04	2 1.	66	164			7.0
1031	812	4105	-161.3	0.5	/ 1	96	1/ \		1	8.0
	<u> </u>	,		- L_V	e 11	<u></u>	1013			
NOTE: ST	ARII IZATION	TEST IS COM	PLETE WHEN 3	SUCCE	SSIVE	PEADINGS	ADE MITHIN	TUE	EOLL OWING	2 I IMITS:
pH: +/- 0.1	COND.: +/-			.O.: +/-		TURB: +/-		=</td <td></td> <td>TEMP.: +</td>		TEMP.: +
BOTTLES FILLED	PRESERV	ATIVE CODES	A - NONE	B - HN	03	C - H2SO4	D - NaO	Н	E- HO	CL F
NUMBER SIZE	TYPE	PRESERVAT	VE FILTERE	D N	JMBER	SIZE	TYPE	PF	RESERVATIV	/E FILTERED
7 250 mL	PLASTIC	А	→ × Z	N	2	125 mL	PLASTIC		D	□ Y Z N
Z 125 mL	PLASTIC	A		N	6	40 mL	VOA	<u> </u>	E	□ Y Ď N
₩ 60 mL										
2 125 mL	PLASTIC	В		N					THE STATE OF THE S	
Z 125 mL	PLASTIC	С		N		er foreste and the Address of Section Code (Section Code)				Y
SHIPPING METHOD	SHIPPING METHOD: Fed EV DATE SHIPPED: 35/24, AIRBILL NUMBER:									
COC NUMBER: — SIGNATURE: 1. 1/6/ DATE SIGNED: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\										

⋄	TF	C
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PROJECT NAME:	CEC Karn BAP/LI	2024 GW C	PREPARED		CHECKE	D
PROJECT NUMBER:	553814.0001.0000) BY: ()	DIK, JJ, ERDATE:3/5	1241 BY: E	TL DA	TE: 3/21/24
SAMPLE ID: Ou-	11	WELL DIAME	TER: 🗸 2" 🔲 4" 🔲	6" OTHER		
	PVC SS	☐ IRON ☐ GALV	ANIZED STEEL	OTHER		
SAMPLE TYPE:	GW □WW] SW □ DI	LEACHATE	OTHER	na almo rer assessitation reconstruition more assessitation and the control of th	
PURGING TI	ME: 1125	DATE: 3 (5 (24	SAMPLE	TIME: 12CX	DATE	315/24
PURGE PU METHOD: BA	IMP PERISTALT	IC PUMP	PH: 4.63 SU ORP: -604 m		/ITY: <u>287,</u> mg/L	umhos/cm
DEPTH TO WATER: 2	398 T/ PVC		TURBIDITY: 89	<u>∕</u> NTU		
DEPTH ТО ВОТТОМ:	NA T/ PVC T	ransluce 5	NONE SLIC	SHT MO	DERATE	☐ VERY
WELL VOLUME:	NA LITERS	GALLONS	TEMPERATURE: 10	°C FEI	RROUS Fe 🙆 .	mg/L
VOLUME REMOVED: 2		GALLONS	COLOR: Clear		OR: SI	ight
COLOR: Clear		ODOR: NONE	FILTRATE (0.45 um)		NO	
	TURBIDITY		FILTRATE COLOR:	a Arab	TRATE ODOR:	+1819 RAW
NONE X SLIGH		☐ VERY		MSD	DUP-	
DISPOSAL METHOD:			COMMENTS:			
PURGE			D.O. TUDDIDITI		WATER	CUMULATIVE
TIME RATE	PH CONDUCTIV	1	D.O. TURBIDITY	TEMPERATURE		URGE VOLUME
11 1	(SU) (umhos/cn	· · · · · · · · · · · · · · · · · · ·	(mg/L) (NTU)	(°C)	(FEET)	(GAL OR L)
1125 700 9	105 2549	> -41, Z	01.15 40.	11.2	25.10	INITIAL
	- DKY	- *Adju	st tubing a	ruses very	turdid	GW,
tests surge 1	for ~	3 min 1	efore com	ecting w	Her aust	ity werest
	12 352,		130 264.10	1171	25.45	1.0
1140	3-7	- 100 -	Walt for	rechara		and, The manufacture are properties and the state of the
	.60 287.6	: -40.1	5.28 105.40	10.6	4	1,5
1150	0	in	and the second s	ns of the real field death and an extension of the real field of t	A CONTROL OF TAXABLE PROPERTY OF THE PROPERTY	and the second s
1155 9.	64 252 0		2,40 14.65	10.3	24,60	7 C)
1777	() 247	1-6042	24 8.94	دل , ١٥	2 / L(C)	25
1202 - 8	65 20 11				25,70	2,3
1505 - Du	/	E4.7 XAI	uple ceste		doce in	
			UCCESSIVE READINGS 1: +/- 0.3 TURB: +/-			IMP.: +
BOTTLES FILLED PR	RESERVATIVE CODI	S A - NONE B	- HNO3 C - H2SO4	D - NaOH	E- HCL	F
NUMBER SIZE	TYPE PRESERV	ATIVE FILTERED	NUMBER SIZE	TYPE F	PRESERVATIVE	FILTERED
250 mL P	LASTIC A	MY MIN	125 mL	PLASTIC	D	□ Y Ø N
125 mL P	PLASTIC A	V XV V	1	VOA	E	□ Y ¥ N
2 60 mL	VOA A	□ Y 🔼	4	Plestic	R	A Y A
	PLASTIC B	□ Y □		V in the contract of the contr		□ Y □ N
125 mL P	PLASTIC C	U V D	I		ATTENDED TO THE PERSON OF THE	YUN
SHIPPING METHOD:	Fed EX	DATE SHIPPED:	15/24	AIRBILL NU	MBER:	
COC NUMBER:		SIGNATURE:	Ander	DATE SIGNE	-D· <u>{</u>	20124

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PROJECT NAME	: CEC	(arn BAP/LI: 20)24 GW C	PREP	ARED		CHEC	KED
PROJECT NUME	ER: 55381	4.0001.0000	BY:), JK, JJ, ER	DATE:3/5	124 BY:	ER	DATE: 3/21/24
SAMPLE ID:	(LI-S	<u> </u>	WELL DIAMET	ΓER: 🔽 2"	4"	6" OTHE	ΞR	
WELL MATERIAL:	₽VC ₽VC	ss 🗆	IRON GALVA	NIZED STE	EL	☐ OTHE	ER	
SAMPLE TYPE:	<u>⊿</u> GW	□ww 🔀	SW DI	LE/	ACHATE	□ отне	ER	
PURGING	TIME:	DA	TE:	<u> </u>		TIME: 132		ATE: 315/74
PURGE [METHOD:	PUMP BAILER	PERISTALTIC F	PUMP	PH:	s 10 m		TIVITY: <u>126</u>	umhos/cm g/L
DEPTH TO WATE	₹:	T/ PVC		TURBIDIT	Y: 7,53	NTU	The control of the co	Service of the Assessment of A
DEPTH TO BOTTO	DM:	T/ PVQ		NONE	SLI	GHT 🗌	MODERATE	□ VERY
WELL VOLUME:	NA	LITERS	GALLONS	TEMPERA	TURE: <u>(7</u>	<u> </u>	FERROUS Fe _	NH mg/L
VOLUME REMOVE	ED:	LITERS	GALLONS	COLOR:	Cless		ODOR:	None
COLOR:		OD	OR:	FILTRATE	(0.45 um)	YES	M NO	
	TUR	BIDITY	-	FILTRATE	COLOR:		FILTRATE ODOI	R:
DHONE	SLIGHT 🗌	MODERATE	☐ VERY	QC SAMP	LE: MS	/MSD	DUP-	
DISPOSAL METHO	DD: GROU	ND 🗌 DRUM	OTHER	COMMEN	TS:			
TIME PURG RATE (ML/MI)	· PH	CONDUCTIVITY (umhos/cm)	ORP (m)0	D.O. T	URBIDITY	TEMPERATUR	LEVEL	CUMULATIVE PURGE VOLUME (GAL OR L)
	1		(10)		(NTU)	9.4	(FEET)	INITIAL
	7.68			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2011	7.7		
1320 NA	7.68	1264	31.0 9	.78	7.53	7.1	NA_	NA
wateren. The server season and the server server and the first server server.	- 200-1-1-1 - 100-1-100-1		procession resources, and a description when the contract of t		ar real residence which special have remaining the service of the			roder en jegskapiskiskis och sidd die jakt a riskribiskis och over statistiskist

was na a san a madah amakan makan na bamahan bamanan na mada sa san da san an		and a second contract of a second			***************************************		er en magaire, ce en de centra laborates hast autorias est divino accidenta en la	
				***************************************				The second of the second secon
					orden der villen die demonster beschiebt demonstrakkensts seleck en felben.		and the second of the second o	and the second s
NOTE: S	TABILIZATION	N TEST IS COMF	PLETE WHEN 3 SU	JCCESSIVE	READINGS	ARE WITHIN	THE FOLLOWIN	IG LIMITS:
pH: +/- 0.1	COND.: +/-	3 % ORP:	+/- 10 D.O.	: +/- 0.3	TURB: +/-	10 % or	= 10</td <td>TEMP.: +</td>	TEMP.: +
BOTTLES FILLEI	PRESERV	ATIVE CODES	A - NONE B	- HNO3	C - H2SO4	D - NaOH	l E- H	CL F
NUMBER SIZE		PRESERVATI		NUMBER		TYPE	PRESERVATI	
1 250 m		А	ZY X N	+	125 mL	PLASTIC	D	□Y □ N
l 125 m	L PLASTIC	A	N KQ Y		40 mL	VOA	E	□ Y □ N
7 60 m	_ VOA	A	□ Y X N				descale and all describes make the code over a part of command, up to present operator,	DY DN
125 m			□ Y X N				an an indicate the second and a second and a second as a second as	YON
125 m	THE STATE OF THE PARTY AND ADDRESS OF THE PART			***				
12511						1		
SHIPPING METHO	D: Fed	EX DA	ATE SHIPPED: 🐧	15/24	0	AIRBILL N	-	
COC NUMBER		- 01	GNATURE:	4	her -	DATE SIC	SNED:	3/20/24

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PROJECT I	NAME:	CEC K	arn BAP/LI: 2	024 GW C	PR	EPARED		CHE	ECKED
PROJECT I			1.0001.0000	BY:(ÁŊ, JK, JJ	, ER DATE:	BY:	ER	DATE: 3/21/24
SAMPLE ID): KL"	I PC.	2	WELL DIAN	غراً. IETER:	2"	•	e-7 -0	
WELL MATE		PVC	□ss □	IRON 🗌 GAL	VANIZED :	STEEL	🗓 ОТІ	HER PLS	Pond
SAMPLE TY	PE: [ير/ GW	□ww 🗓	SW 🗌 DI		LEACHATE	□ отн	HER	
PURG	ING	TIME:	D	ATE:	5	SAMPLE		230	DATE: \$15 1241
PURGE METHOD:		PUMP BAILER	PERISTALTIC	PUMP	PH: ORP:		ONDU DO:	CTIVITY:	umhos/cm
DEPTH TO			T/ PVC				MTU	1036	mg/L
DEPTH TO			J/ PVC			_1.1		MODERATE	☐ VERY
WELL VOLU		NA	LITERS	GALLONS		ERATURE:		FERROUS Fe	. NA mg/L
VOLUME RE			LITERS	GALLONS	COLO	£ i		ODOR:	None_
COLOR:				 DOR:		ATE (0.45 um)		NO NO	
		TURI	BIDITY			TE COLOR:		FILTRATE OF	OOR:
☐ NØNE	SLIC		MODERATE	☐ VERY		AMPLE: MS	S/MSD	DUP-	7011.
DISPOSAL I	METHOD:	✓ GROUN	ID 🗌 DRUM	OTHER	COM	MENTS:			
TIME	PURGE	PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMPERAT	URE WATE	
1	RATE (ML/MIN)	(SU)	(umhos/cm)	(mV)	(mg/L)	(NTU)	(°C)	LEVEI (FEET	1
1330	411)	82.38	511	19.7	10.79	32.61	(O.Z		INITIAL
			•			"			
				***************************************					omercon, bear on the control c
						<u> </u>			
		**************************************	CONTRACTOR OF THE PROPERTY OF						***************************************
			ali francis ann air a deise à bh' fhan abhas dh'i sampain	and the extension and the account to the account to the same and the account to the same accomplished to the same accompl			- Principle Principle and Spirite Administration (APS), residentials and	er in mer sommer med is non-hand forestablished best	
			MANUAL I I WAS IT AN ARMADON TO SET IN METHOD AND A SECOND TO SECO						
A-4-1-4-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-			Annual and agree of the latest states and a second of the second states and the second states are second s	And other date of the control of the		V-000-700-0-100-0-100-0-100-0-100-0-100-0-100-0-100-0-100-0-100-0-100-0-100-0-100-0-100-0-100-0-100-0-100-0-10			
NC	TE: STAE	BILIZATION	TEST IS COM	PLETE WHEN 3	SUCCESS	IVE READINGS	ARE WITHIN	THE FOLLOV	VING LIMITS:
pH: +/- 0	.1 (COND.: +/-	3 % ORP	: +/- 10 D	.O.: +/- 0. 3	3 TURB: +/-	10 % or	= 10</td <td>TEMP.: +</td>	TEMP.: +
BOTTLES	FILLED	PRESERV	ATIVE CODES	A - NONE	B - HNO3	C - H2SO4	D - NaO	H E-	HCL F
NUMBER	SIZE	TYPE	PRESERVAT	IVE FILTERE	D NUME	BER SIZE	TYPE	PRESERVA	ATIVE FILTERED
1	250 mL	PLASTIC	А	- FT Y X	N	125 mL	PLASTIC	D	□ Y □ N
1	125 mL	PLASTIC	A		N	40 mL	VOA	E	□ Y □ N
Z	60 mL	VOA	А		N		<u> </u>	1	□ Y □ N
	125 mL	PLASTIC	В		N	name y la fanean eon de suo pensano, de pro and popula	to projection appearance you are or the first annual first a re-		□ Y □ N
	125 mL	PLASTIC	С		N				
SHIPPING M				ATE SHIPPED:	315	la U	AIRRILI	NUMBER:	
		Fed E	Α			.].	-		<u> </u>
COC NUMBI	ER:		S	IGNATURE:	_/+· L	May	DATE S	IGNED:	3/20/24

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PROJECT NAME												
SAMPLE ID:	PROJEC	CT NAME:	CEC K	arn BAP/LI: 2	024 GW C	PR	EPARED		СН	ECKED)	
SAMPLE ID:	PROJEC	CT NUMBER	R: 553814	4.0001.0000	BY	₹₩, IJ,	ERDATE 3 (5/2/ BY:	ER	DAT	E3/21/24	
SAMPLE TYPE	SAMPL	EID: 💪			WELL DIAM	ETER: 🗸	2" 4"	6" □ OTH	HER			
PURGING TIME:	WELL M	ATERIAL:	✓ PVC	ss [IRON GAL	VANIZED S	STEEL	□ отн	HER		ONE WAY THE PROPERTY OF THE PR	
PURGE PUMP PERISTALTIC PUMP PH 1.49 su CONDUCTIVITY 2.5 mg/L	SAMPLE	TYPE:	☑ GW	ww	SW 🗌 DI		LEACHATE	□ отн	HER			
METHOD: BAILER	PU	RGING	TIME: C	05 0	ATE: 3/5/21	/ S		TIME: 14	150	DATE:	315/24	
DEPTH TO WATER	I			PERISTALTIC	PUMP		- 1/2/			mg/L	umhos/cm	
DEPTH TO BOTTOM:	DEPTH	TO WATER:	18.14	T/ PVC		TURBI					COLUMN THE REPORT OF THE PARTY	
VOLUME REMOVED: 10 MILTERS GALLONS COLOR: LEGG ODOR: VIE			1 to A	T/ PVC		ОИ 🔯			MODERATE		☐ VERY	
COLOR: Very dark Organgeodor More _ FILTRATE (0.45 um)	WELL V	OLUME:	NA	LITERS	GALLONS	TEMPE	ERATURE: <u>K</u>	יר .ל_יכ	FERROUS F	e 5 .	mg/L	
NONE	VOLUM	E REMOVED	90	LITERS	GALLONS	COLO	R: <u>Leo</u>		ODOR:	-Ne	one	
NONE	COLOR	ver	y don h	C OrangeOI	DOR: <u>Non e</u>	_ FILTRA	ATE (0.45 um)	YES	[X NO			
DISPOSAL METHOD: ☑ GROUND ☐ DRUM ☐ OTHER COMMENTS [TUR	BIDITY		FILTRA	TE COLOR:		FILTRATE O	DOR:		
TIME PAGE RATE (SU) (SU) (SU) (SU) (SU) (SU) (SU) (SU)					VERY	QC SA	MPLE: MS	/MSD	DUP-			
TIME PORGE RATE (SU) (SU) (UNDOSCOM) (NY) (Mg/L) (NTU) (C) (C) (FEET) (C) (C) (C) (FEET) (FE	DISPOS	AL METHOD	: GROUN	ND DRUM	OTHER	COMM	MENTS (-KLI) Purge	d un	HI VISSU	lly co
MILMIN (SU) (umhos/cm) (mV) (mg/L) (NTU) (*C) (FEET) (GAL OF C) 14/5 200 7,33 36/4 -3.9 3.95 129/37 11.9 3.20 1NHINL 20 14/20 7,19 3.99 -34.1 0.51 52.0 11.5 3.0 1.0	TIME		PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMPERATE	URE I	ER C	CUMULATIVE	'
1415 206 7.33 \$67 -\$.9 3.45 129.37 11.9 18.20 1NHAL 20 1420 7.19 399 -34.1 0.51 52.0\$ 11.5 \$.6 \$.6 1425 7.19 891 -99.9 0.36 17.0\$ 11.1 5.0 1435 7.19 874 -98.1 0.32 13.97 11.0 6.0 1435 7.19 875 -99.0 0.33 9.12 10.8 7.0 1445 7.19 875 -99.0 0.33 9.12 10.8 7.0 1445 7.19 863 -99.2 0.32 8.56 10.9 \$.6 1450 7.19 863 -99.3 0.31 7.81 10.7 9.0 1445 7.19 863 -99.3 0.31 7.81 10.7 9.0 1445 7.19 863 -99.3 0.31 7.81 10.7 9.0 1445 7.19 863 -99.3 0.31 7.81 10.7 9.0 1445 7.19 863 -99.3 0.31 7.81 10.7 9.0 1445 7.19 863 -99.3 0.31 7.81 10.7 9.0 1445 1450			(SU)	(umhos/cm)	(mV)	(mg/L)	(NTU)	(°C)				
	1415	200	233	864	-3.9	345	129.37	11. 9			INITIAL Z	
1/25	1420		7.19			0.51	52.02	11.5				
1/35						/a 37						
1435	1000	3	1	i —	-9119	0.3 0 } /					•	
1445	1/125	-			-065	0.30 4.37					1	
1445					-y8.	2.32 2.32	0	1				
NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS: pH: +/- 0.1			_		002	~~~~ ~~~~~				*****		
NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS: PH: +/- 0.1					199-2	2.52						1
pH: +/- 0.1 COND.: +/- 3 % ORP: +/- 10 D.O.: +/- 0.3 TURB: +/- 10 % or or = 10 TEMP.: + BOTTLES FILLED PRESERVATIVE CODES A NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F NUMBER SIZE TYPE PRESERVATIVE FILTERED NUMBER SIZE TYPE PRESERVATIVE FILTERED L 250 mL PLASTIC A Y Y N Z 125 mL PLASTIC D Y N Z 125 mL PLASTIC A Y Y N Y N Y N Z 125 mL PLASTIC B Y Y N Y N Y N Z 125 mL PLASTIC C Y Y N Y N Y N Z 125 mL PLASTIC C Y Y N AIRBILL NUMBER: Y N	1450)	117	065	127%2	2.51	1.81	10.7			4.0	
pH: +/- 0.1 COND.: +/- 3% ORP: +/- 10 D.O.: +/- 0.3 TURB: +/- 10% or <= 10	nandra ar timeral Administra					come and recipion recognishment and					n, der Wales einterfalle Weldenbele zu geweister werde.	
pH: +/- 0.1 COND.: +/- 3 % ORP: +/- 10 D.O.: +/- 0.3 TURB: +/- 10 % or or = 10 TEMP.: + BOTTLES FILLED PRESERVATIVE CODES A NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F NUMBER SIZE TYPE PRESERVATIVE FILTERED NUMBER SIZE TYPE PRESERVATIVE FILTERED L 250 mL PLASTIC A Y Y N Z 125 mL PLASTIC D Y N Z 125 mL PLASTIC A Y Y N Y N Y N Z 125 mL PLASTIC B Y Y N Y N Y N Z 125 mL PLASTIC C Y Y N Y N Y N Z 125 mL PLASTIC C Y Y N AIRBILL NUMBER: Y N						7	<u> </u>	<u> </u>]
BOTTLES FILLED PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F NUMBER SIZE TYPE PRESERVATIVE FILTERED NUMBER SIZE TYPE PRESERVATIVE FILTERED 250 mL PLASTIC A	14.75	NOTE: STA	BILIZATION	TEST IS COM	IPLETE WHEN 3	SUCCESS	IVE READINGS	ARE WITHIN	THE FOLLO	WING LI	/IITS:	
NUMBER SIZE TYPE PRESERVATIVE FILTERED NUMBER SIZE TYPE PRESERVATIVE FILTERED 1 250 mL PLASTIC A	pH: +	-/- 0.1	COND.: +/-	3 % ORF): +/- 10 D.	O.: +/- 0.3	TURB: +/-	10 % or	= 10</td <td>TEM</td> <td>iP.: +</td> <td></td>	TEM	iP.: +	
250 mL PLASTIC A	BOTTI	ES FILLED	PRESERV	ATIVE CODES	A - NONE	B - HNO3	C - H2SO4	D - NaO	H E-	HCL	F	
Z 125 mL PLASTIC A Y X N 6 40 mL VOA E Y X N Z 60 mL VOA A Y X N	NUMBE	R SIZE	TYPE	PRESERVAT	IVE FILTEREI	D NUME	BER SIZE	TYPE	PRESERV	/ATIVE	FILTERED	
Z 125 mL PLASTIC A □ Y Y N 6 40 mL VOA E □ Y N Z 60 mL VOA A □ Y Y N □ Y N Z 125 mL PLASTIC B □ Y Y N □ Y N SHIPPING METHOD: FCA EX DATE SHIPPED: 315124 AIRBILL NUMBER: □	l	250 mL	PLASTIC	А	₩ X	N Z	125 mL	PLASTIC	D		□ Y 🔏 N	
2 60 mL VOA A	7	125 mL	PLASTIC	Α	□ Y X	N 6	3 40 mL	VOA	E		Carron Carron P. Carron P. Inc.	
Z 125 mL PLASTIC B L Y X N L Y L N L Y L N L Y L N L Y L N L Y N L Y N L Y N L Y N L Y N L Y N L Y N L Y N N L Y N N N N N N N N N	2	60 mL	VOA	Α	□ Y X	N	A Transit Million Spheric Corps STAR, No. 8, 1, 12 Monte of Co. Man accounts of Co.	***************************************	THE RESIDENCE OF STREET	THE ST. PROPERTY CO.	1 .)	
Z 125 mL PLASTIC C □ Y ☑ N □ Y □ N SHIPPING METHOD: FCL EX DATE SHIPPED: 3/5/24 AIRBILL NUMBER:	7	125 mL	PLASTIC	В		N	THE RESERVE THE PARTY OF THE PA			an meller smell å av delski mellen nom er	□ Y □ N	
SHIPPING METHOD: FCd EX DATE SHIPPED: 3/5/24 AIRBILL NUMBER:		125 mL	PLASTIC	С			AND THE RESERVE OF THE PARTY OF				□ Y □ N	
	SHIPPIN	IG METHOD:	ارمز ۲	EV [· 4	AIRBILL	NUMBER:			,]
	TO AN INC. OF THE PARTY OF A PARTY AND A P	and brings at many species or supplied to the same of the same	<u>' (2) </u>		h enember ama su applicate de la California	Δ	70				201-11	

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PROJECT NAME:	CEC K	arn BAP/LI: 2	024 GW C	PREPA	ARFD		CHEC	:KED
PROJECT NUMBER:						C L . RV		
						124 BY:		DATE: 3/21/29
SAMPLE ID:	<u>3 - k</u>	21	WELL DIAME	ren: ✓ 2"	<u> </u>	6"	ER	
WELL MATERIAL:	√ PVC	SS	IRON GALVA	ANIZED STE	EL	□ отн		
SAMPLE TYPE:	√ GW	□ ww □	SW DI	LEA	ACHATE	ОТН	ER	
PURGING '	TIME:	D	ATE:	SAM	IPLE	TIME: 150	30 0	DATE: 315/24
PURGE PUMP PERISTALTIC PUMP PH: SU CONDUCTIVITY:								umhós/cm
DEPTH TO WATER: T/ PVC TURBIDITY: NTU								
DEPTH TO BOTTOM:_		T/PVC		□ NONE	SLI	GHT 🗌	MODERATE	☐ VERY
WELL VOLUME:	NA	LITERS	GALLONS	TEMPERA	TURE:	°℃	FERROUS Fe_	mg/L
VOLUME REMOVED:		LITERS	GALLONS	COLOR:		_/	ODOR: _	
COLOR:			OOR:	FILTRATE	(0.45 um)	YES	□ NO	en e pagigan, ap y e gong partier de l'étre contra de la company de l'access de l'access de l'access de l'acces
		BIDITY		FILTRATE C			FILTRATE ODO	R:
		MODERATE	☐ VERY		MS.	/MSD	DUP-	
DISPOSAL METHOD:	✓ GROUN	ID DRUM	OTHER	COMMEN	TS:			
TIME PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)		D.O. TU	URBIDITY (NTU)	TEMPERATU	RE WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
(IVIL/IVIIIV)	(30)	(umnos/cm)	(1110)	(Hig/L)	-\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	(0)	(FEE1)	INITIAL
		F	QUIF	ME	ENT			
		<i>!</i>	T.	- 11	, /			
			121	1 N 1	_			
And a sere-transform hinds of the list of	A NEW ALBOY, AND A SECURITY ASSESSED.	AND APPEAR A PERSONNEL AND YOU ARE A CO. THE STATE OF THE	100		is kindly virgind that had the windows and or given the	AND THE RESIDENCE OF THE PROPERTY OF THE PROPE	THE RESERVE AND THE RESERVE AN	
- NAME OF THE PROPERTY OF T	***************************************	anning the state of the second state of the se		and the committee for the state of the liverity of the state of the st	ide antones hames a nonnes aray bhoagans fro	OFFICE BARNESS CONTRACTOR AND STOCK AND STOCK AND ADDRESS OF THE STOCK	ng ng garawana na Sindipanagaan mga nagang 19 Mariaja na halaunun 19	ang and papering age, age whose price price is a constraint of
				NORTH CONTROL OF COMMENT OF COMME	en i anter este este este este este este este e	anne, versen e sur a seus sons i re en seus hanne.	Marin Anno, ann ha dho ann an ha ann ann an ann ann ann ann an	and a second
	de a titologo a la come de la come		-				***************************************	
	a and a specimen of a contract of the specimen of the specime of the specimen of the specimen of the specimen of the specimen	an aga y pg 1, 1864). An hen an 1741 an 1841 transparer (an 1874)		The Control of the Co	rangs way appendion to paragraph of the second	TETTERONOMIA, PERMANANTE EN MANAGEMENTA		***************************************
	***************************************) \		trans for the first dependent of the second places and the first state of the first state	
			1					1
	ilization Ond.: +/-		PLETE WHEN 3 SU : +/- 10 D.O.	JCCESSIVE .: +/- 0.3	READINGS TURB: +/-		THE FOLLOWIN	NG LIMITS: TEMP.: +
BOTTLES FILLED	PRESERV	ATIVE CODES	A - NONE B	- HNO3	C - H2SO4	D - NaOl	1 E- H	ICL F
NUMBER SIZE	TYPE	PRESERVAT	IVE FILTERED	NUMBER	SIZE	TYPE	PRESERVAT	IVE FILTERED
250 mL	PLASTIC	А	N X N	1	125 mL	PLASTIC	D	□ Y X N
125 mL	PLASTIC	А	□ Y 🔯 N	3	40 mL	VOA	E	□ Y 🔀 N
60 mL	VOA	А	Y N		<u> </u>			□ Y □ N
125 mL	PLASTIC	В	N & V	and the property and the state of the state		The state of the s	A CONTRACTOR OF THE PROPERTY O	□ Y □ N
/ 125 mL	PLASTIC	С	□Y \\ \[\text{N} \]	r - a a garage de la companya de la				□ Y □ N
SHIPPING METHOD:	Fed	EX	ATE SHIPPED:	210/26	/,	AIRBILI	NUMBER:	
COC NUMBER:			IGNATURE:	ر <u>ن. د. د.</u> لما . 1	hel_	DATE SI	and it accepts to that I then so he is a second to the second to	Strotzy

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PROJECT NAME: CEC Karn BAP/LI: 2024 GW C PREPARED CHECKED									
PROJECT	NUMBER	R: 553814	4.0001.0000	BY: A	W, JK, JJ,	ER DATE:	724 BY:	AW	DATE: \$ 121/24
SAMPLE	ID: DEP	(MW	- 15002	WELL DIAME	ETER: 🔽	2" 4"	6" OTH	IER	
WELL MAT	ERIAL:	☑ PVC	ss 🗆	IRON GALV	ANIZED S	STEEL	□ от⊦	IER	
SAMPLE T	YPE:	☑ GW	□ww □	SW 🗌 DI		LEACHATE	□ отн	IER	
PUR	SING	TIME: /	357 DA	ATE: M	s	AMPLE	TIME: /4	34	DATE: 3/5/24
PURGE METHOE		PUMP BAILER	PERISTALTIC I	PUMP			U CONDU	CTIVITY: <u>900</u> _ 1.52 _ r	mg/L umhos/cm
DEPTH TO) WATER:		T/ PVC		TURBI				
	BOTTOM:				NO			MODERATE	☐ VERY
WELL VOL		NA	LITERS	GALLONS	TEMPE	RATURE: 9	.45_°c	FERROUS Fe	0.5 mg/L
VOLUME I	REMOVED:	8.4	LITERS	GALLONS	COLO	R: cle-		ODOR:	10°
COLOR:	cle	wrigh	OD	OR: Slight	FILTRA	TE (0.45 um)	YES	NO K	
		TUR	BIDITY		FILTRA	TE COLOR:		FILTRATE ODG	OR:
NONE			MODERATE	☐ VERY	QC SA	MPLE: MS	/MSD	DUP-	
DISPOSAL	METHOD:	☑ GROU	ND DRUM	OTHER	COMM	IENTS: A	1.t of	De in	the line
TIME	PURGE RATE	PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMPERATU	LEVEL	PURGE VOLUME
	(ML/MIN)	(SU)	(umhos/cm)	(mV)	(mg/L)	(NTU)	(°C)	(FEET)	(GAL OR L) INITIAL
1357	१००	7.62	827.60	7/27.7	4.46	13.46	10.33	6.93	
1400		7.56	925.51		1.82	3.49	9.23	7.14	0.6
1403		7.54	927.4	h	1.69	11.02	9.34		1.2
1406		7.53	919.8		1.65	12.88	9.13		1.8
1409		7.51	940.73		1.6(18.23	9.13		2.4
1412		7.44	745. 18	-150.0	1.6	70.8	9.43		3.0
1415	<u> </u>	7.48	940.98	-/52.9	1.59	31.53	9.46		3.6
1413		7.47	920.87	-155.4	1.59	44.05	9.47		4.2
1421		7.47	909.33	-156.9	1.59	53.15	9.47		4.8
1424	W	7.46	905.77	-157.4	1.69	116.87	9.44	\bigvee	5.4
		BILIZATION COND.: +/-		PLETE WHEN 3 S +/- 10 D.0	SUCCESSI D.: +/- 0.3			THE FOLLOWI	NG LIMITS: TEMP.: +
BOTTLE	S FILLED	PRESERV	ATIVE CODES	A - NONE	3 - HNO3	C - H2SO4	D - NaO	H E- I	HCL F
NUMBER	SIZE	TYPE	PRESERVATI	VE FILTERED	NUMB	ER SIZE	TYPE	PRESERVA	TIVE FILTERED
ı	250 mL	PLASTIC	Α	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	v 1	125 mL	PLASTIC	D	□ Y 💋 N
1	125 mL	PLASTIC	Α		v 3	40 mL	VOA	Е	□ Y Z N
2	60 mL	VOA	A		V				□ Y □ N
1	125 mL	PLASTIC	В		V	The second section of the second section of the second section second section		ng ang ang ang ang ang ang ang ang ang a	□ Y □ N
1	125 mL	PLASTIC	С		v	1884 148 148 188 1884 1884 1884 1884 18			□ Y □ N
SHIPPING	METHOD:	Costic	D/	ATE SHIPPED:	3/5	124	AIRBILL	NUMBER:	
COC NUM	*******************			GNATURE:	S/ /	1112-	DATE SI	GNED.	3/5/24



WATER SAMPLE LOG (CONTINUED FROM PREVIOUS PAGE)

PROJECT NAME:	CEC Karn BAP/LI: 2024 GW Co		PREPARED		CHECKED
PROJECT NUMBER:	553814.0001.0000	BY:	W, JK, JJ, EDATE: 3/5/24	BY: AW	DATE: SIZILZY

SAMPLE ID: DEK - MW - 15002

	PURGE				<u> </u>	,	F	WATER	CUMULATIVE
TIME	RATE	PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMPERATURE	LEVEL	PURGE VOLUME
	(ML/MIN)	(SU)	(umhos/cm)	(mV)	(mg/L)	(NTU)	(°C)	(FEET)	(GAL OR L)
1427	200	7.45	877.11	-159.9	1.58	70.61	1.44	7.14	6.0
1430	e their deby was proposed to consider a reduced to	7.45	897.05	-161.6	1.56	47.6	9.45		6.6
1433	***************************************	7.44	894.1	-162.5	1.57	42.94	9,49		7.2
1436	and the contract of the contra	7.43	901.99	-164.5	1.57	64.15	9.41		7.6
1439	W MATERIA AND AN AND AN AND AND AND AND AND AND	7.43	900.68	-165.2	1.57	79.98	9.45		8.4
and the same of the same species are same	Suppli	muska	y test	with Ca	Ash	1.57		Krene	
							and the former of the first own pages on a second of the first own on the first own own own of the first own		and the control of th
				Party of the second state of the second		arrange and the province of the control of the cont			
and the control of th	**************************************			francisco de como como como como de finita de como como como como como como como com		PPANAGONIO I EL MINOS PARA PROPERA	er ausstaland with the first over a securitated another to the first assessment	no pario ha a senso i i i i i i i i i i i i i i i i i i i	an' o anniaran' na inagain-arab ban kadapene manante berjana maka
yan alikaka sakit sakipik, _{alik} aya, _{alik} apatan san				Myangga an Amarika (Bahir 1971 1979), aya da bahir (1970)					W. I. in special of the Control of t
of the Section of State Section (Section Section Secti	and hill stranger when a transitive a UP \$400			a gagaga yi kaminda silada biradana a ayayyiili ingilan ad			and the second second particle and the second secon		of bulleting (part), had in a supplication of the trib of including part
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and the first of the same of t									
recovered and the contract of			a, los que aumantes en el el comite questa en escuela este bales inida el	and a supplied to the second s					The second secon
				Parguna addition of API at SERVICE parguna blank at Alifebra		**************************************			annen divisió de se sua consente de 1990 de 196 de
							AND AND AND THE STORY OF SHIPMEN SHIPMEN OF STREET, ST		and a factorist page page mathematical state of the Control mathematical s
	<u> </u>			nase on a surprisiant high the specimens when the		***************************************	The state of the s		
er en helm did dem somme de habet place place trapeler stande (A	ļ				<u> </u>				an and the first the company and a second of the second of
			And the second contract of the second contrac				-		
o to provide allow a particle was a provide where a to won-	The state of the s	The section of the section of the sec		Ages 1, the selection of all effections for the control control design			a year a marandan dayan yan yan yan han daradan daran ya ka ar		and great acts and activity (1938) by pay on much be interest the activity to chart page 1934, 410 figure
		disconnection and he had the thirt of difference	CONTRACTOR OF THE CONTRACTOR OF THE	***************************************	 	CONTROL MAKES BOOK NATION TO A PROPERTY OF STREET	and and a second of the second and a second of the second and a second of the second o		
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er de deser antique de la proposado en antique de de-	The state of the s					andre gregor, cooper since energy manuschin Princip personal en	and the second section of the second		an addition (1935) (Fig.), gay and surradial and the addition (1975) and at a first set of
									and the second of the second o
			and a region to the description of the same analysis of the same		The State of Artiflet Palmanana of Artiflet State State	and a second sec	ne error error to to to the purpose on the record filter of the Administration		a. Paramath 1994 and a single deficiency of the self-sea construction (Ada
	-					}		 	
		-	OF THE REST OF THE PERSON OF T	CONTRACTOR OF THE PROPERTY OF					
		1				<u> </u>			

DATE SIGNED:

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	. J	-

PROJECT	Γ NAME:	CEC K	arn BAP/LI: 20	24 GW C	PR	EPARED		CHEC	KED
PROJECT	Г NUMBEF	R: 553814	4.0001.0000	BY: A	AW, JK, JJ	ERDATE: 3/	5/29 BY: A	w_	DATE SULZY
SAMPLE WELL MAT	ID: DEK	- MW3 ·	- <i> 5006</i> □ss □	WELL DIAM	IETER: 🗸		6" OTHEF		
SAMPLE T	YPE:	☑ GW	□ ww □	SW 🗌 DI		LEACHATE	OTHEF	₹	
PUR	GING	TIME: /	506 DA	TE: V	S	AMPLE	TIME: 157	'/ D/	ATE: N
PURGE METHOI	· =	PUMP BAILER	PERISTALTIC F	PUMP	PH: ORP:		SU CONDUCT	IVITY: <u>1158</u>	
	O WATER:		T/ PVC		TURB	DITY: 0.0) _ NTU		
DEPTH TO	O BOTTOM:	<u> 4.5</u>	T/ PVC		NO			IODERATE	☐ VERY
WELL VOL		NA	LITERS	GALLONS				ERROUS Fe	1.5 mg/l
VOLUME	REMOVED:		LITERS	GALLONS	COLO	R: Cleuri		DOR:	Sty Vot
COLOR:		entsh	UOD	or <u>Sly</u> yd	FILTR/	TE (0.45 um)	YES S	Z NO	
			BIDITY			TE COLOR:		ILTRATE ODOF	R:
NONE			MODERATE	VERY			S/MSD L	_ DUP-	
DISPOSA	L METHOD:	☑ GROUN	ND DRUM	OTHER	COM	MENTS:			
TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. (mg/L)	TURBIDITY (NTU)	TEMPERATURE	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1506	200	7.65	1134.5	-110.9	2.43	6.1/	9.92	9,91	INITIAL
1509	1	7.61	1137.1	-109.8	1.77	3.34	10.35	1	0.6
1512		7.6	1/40.1	-/32.3	1.65	0.39	10.41		1.7
1515		7.61	1151.4	-142.1	1.6	1.06	10.57		1.8
1518		7.62	1155,0	-145.4	1.59	4.17	10.54		2.4
1521		7.65	1188,5	-151.2	1.58	0.0	10.61		3.0
7301							70.81		
				Amerika germagala bagan di danan sa dagan Amerika di Pelanggan di Yangan persebuahan di			and an approximate via the contract of the paper of the contract of the contra		Ty
pH: +/-		BILIZATION COND.: +/-			SUCCESS .O.: +/- 0.3		ARE WITHIN TI	HE FOLLOWIN	G LIMITS: TEMP.: +
BOTTLE	S FILLED	PRESERV	ATIVE CODES	A - NONE	B - HNO3	C - H2SO4	1 D - NaOH	E- H(CL F
NUMBER	SIZE	TYPE	PRESERVATI	VE FILTERE	D NUME		TYPE	PRESERVATI	VE FILTERED
1	250 mL	PLASTIC	А	A+ 1	N L	125 mL	PLASTIC	D	□Y IN
1	125 mL	PLASTIC	А		N S	40 mL	VOA	E	□ Y Z N
2	60 mL	VOA	A		N N		1	alatika la tiri del del 1997 lel 18 dipp agazene se pelantici aceledi in d	□ Y □ N
-	125 mL	PLASTIC	В		N			an ann an Aireann an Aireann ann an	□ Y □ N
(125 mL	PLASTIC	С		N			ernamente wed in leichte Fried zu erzenamente versandelichte	□ Y □ N
SHIPPING	METHOD:	Coscio	DA	ATE SHIPPED:	3/01	24	AIRBILL N	JMBER:	
COC NUM				GNATURE:	-1/2/	1112	DATE SIGN		1/20

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PROJECT	NAME:	CEC K	arn BAP/LI: 20	024 GW C	PR	EPARED		CHEC	
PROJECT	NUMBEF	R: 553814	4.0001.0000	BY: A	AW, JK, JJ	EPDATE:3/	1/24 BY: /	lw	DATE: 3 ZI LZH
SAMPLE	ID: DET	K ML) -15005	WELL DIAM	IETER: 🗸	2" 4"	6" OTHE	R	
WELL MAT	ERIAL:	✓ PVC	ss 🗆	IRON GAL	VANIZED S	STEEL	□ ОТНЕ	R	
SAMPLE T	YPE:	☑ GW	□ww □	SW 🗌 DI		LEACHATE	OTHE	R	
PUR	GING	TIME: 8	32 DA	TE: U	S	SAMPLE	TIME: 856	, D	ATE: 1
PURGE METHO	· _	PUMP BAILER	PERISTALTIC I	PUMP	PH: ORP:			TIVITY: 939 . 1.55 m	umhos/cm
DEPTH TO	WATER:	10.11	T/ PVC		TURB	IDITY: O.	7_ NTU		
DEPTH TO	BOTTOM:	23.3	T/ PVC		_ ∠ NO	NE SLI	GHT 🔲 N	MODERATE	☐ VERY
WELL VOL		NA	LITERS	GALLONS	TEMPE	ERATURE:	<i>D.17</i> °C F	ERROUS Fe	/. 0 mg/L
VOLUME I	REMOVED:		LITERS	GALLONS	COLO	R: Cleri	<u>, h</u>	DDOR:	Stryl
COLOR:	Cle	wish	OD	OR: Sight	FILTRA	ATE (0.45 um)	YES [NO	
/		TUR	BIDITY	•	FILTRA	TE COLOR:		FILTRATE ODO	
NONE	SLI	GHT 🗌	MODERATE	☐ VERY	QC SA	AMPLE: MS	/MSD	DUP-	EK-BAP-01
DISPOSAL	METHOD:	☑ GROUN	ND DRUM	OTHER	COM	MENTS:			
TIME	PURGE RATE	PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMPERATUR	I LEVEL	CUMULATIVE PURGE VOLUME
690	(ML/MIN)	(SU)	(umhos/cm)	(mV)	(mg/L)	(NTU)	(°C)	(FEET)	(GAL OR L) INITIAL
832	200	7. 5	861,44	-12.6	2.68	21.92	8.4	10.11	A /
835		7.46	910.81	-54.1	1, 74	0.55	9,68		0.6
8 38		7.44	945.77	-95.8	1.66	0.62	9.92		1.2
8 41	<u></u>	7.52	949.98	-114.2	1.62	0.47	10.07		1.8
8 44		7.54	936.37	-126.5	1.6	0.31	10.06	_	2.4
847	<u> </u>	7.55	933.25	-136.1	1.58	0.5	10.09		3.0
Y 50		7.55	940.29	-142.0	1.57	0.78	10.14	_	3.6
8 53		7.56	984.96	-146.1	1.56	0.31	10.18	_	4.7
8 56	V	7.57	9 39.5	-149,9	1.55	0.7	10.17	-	41.8
pH: +/-		BILIZATION COND.: +/-		PLETE WHEN 3 +/- 10 D	SUCCESS .O.: +/- 0.3			ΓHE FOLLOWIN = 10</td <td>NG LIMITS: TEMP.: +</td>	NG LIMITS: TEMP.: +
BOTTLE	S FILLED	PRESERV	ATIVE CODES	A - NONE	B - HNO3	C - H2SO4	4 D - NaOH	E- H	CL F
NUMBER	SIZE	TYPE	PRESERVATI	VE FILTERE	D NUME	BER SIZE	TYPE	PRESERVAT	IVE FILTERED
7	250 mL	PLASTIC	Α	PX (N S	125 mL	PLASTIC	D	□ Y 🛛 N
2	125 mL	PLASTIC	Α		N G	40 mL	VOA	Е	□ Y 🗾 N
y	60 mL	VOA	A	□	N	community with the state of the		n on headanning de Antonio (n. 1944). Anno 1960 in 1964	□ Y □ N
2	125 mL	PLASTIC	В	□ y Z	N				□ Y □ N
2_	125 mL	PLASTIC	С		N	yearan angan ngungayan ayan ayan na pangan na gan 18 ara 18 kg g		orași processoriale sucesta epices film valor de comprese film	□ Y □ N
SHIPPING	METHOD:	Costi	D.	ATE SHIPPED:	3/6/	24	AIRBILL N	IUMBER:	
COC NUM	BER:			GNATURE:		2111	DATE SIG	SNED:	3/6/24
					000		_ 1	_	

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PROJECT	NAME:	CEC K	arn BAP/LI: 20	024 GW C	PR	EPARED		CHEC	KED
			4.0001.0000		AW, JK, JJ	ERPATE: 3/6	/2 1 BY: A	W	DATE 3/21/24
SAMPLE ID: DEK - MW - 2700 (WELL DIAMETER: 2" 4" 6" OTHER WELL MATERIAL: 7 PVC SS TIRON GALVANIZED STEEL OTHER									
SAMPLE T		☑ PVC ☑ GW		IRON ☐ GAL	VANIZED	LEACHATE	OTHE		
SAIVIPLE I	TPE:		===					:R 	
PUR		TIME: (C		TE: /		SAMPLE	TIME: 1/7		ATE: H
PURGE METHOD	· —	PUMP BAILER	PERISTALTIC F		PH: ORP:		U CONDUC	TIVITY: <u>108</u> 1.59 mg	
DEPTH TO	WATER:	10.3	T/ PVC		TURB	IDITY: <u>56.</u> 3	S NTU	<u> </u>	and the second point and the second s
DEPTH TO	воттом:	hw	T/ PVC		□ NO	NE 🗌 SLI	GHT 📈	MODERATE	☐ VERY
WELL VOL	UME:	NA	LITERS	GALLONS	TEMPE	ERATURE: _/	.84 °C F	ERROUS Fe _	1.5 mg/L
VOLUME F	REMOVED:	11.4	X LITERS	GALLONS	COLO	R: Orangeld		DDOR:	replan
COLOR:	_0/	arye	OD	OR: Slight	FILTRA	ATE (0.45 um)	✓ YES	□ NO	
NONE	∏ SLI		BIDITY MODERATE	VERY		TE COLOR: C		FILTRATE ODOF	R: 100
DISPOSAL	METHOD:	✓ GROUN	ND DRUM	OTHER		MENTS:			
TIME	PURGE RATE	PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMPERATUR	RE WATER LEVEL	CUMULATIVE PURGE VOLUME
	(ML/MIN)	(SU)	(umhos/cm)	(mV)	(mg/L)	(NTU)	(°C)	(FEET)	(GAL OR L)
1027	200	7.35	1087.1	- 57.0	8.28	5394,9	8.29	10.3	INITIAL
10 30		7.2	1686.2	-81.1	1.74	1039,1	10.37		0.6
10 33		7.2	1087.9	-102.4	1.68	903.36	10.58	11	1.7
1036		7.22	1097.1	- 118.0	1,63	542.03	10.71		1,8
10 31	\\	7.24	1103.6	-126.4	1.60	436.52	10,69		2.4
10 42	 	7.25	1109,8	-130.3	1.57	292.59	10.76		3.0
10 45		7.76	1 (15.9	- 132.0	1. 56	196.67	10,73		3.6
1048		7.27	1 117.4	-133.7	1. 55	190,04	10 .71		4.2
1051	_V_	7. 28	1111.2	134.9	1 155	145.14	10.75		4.8
10 54	V	7.28	1 117.2	- 136.1	1.55	160.95	10.88	V	5.01
pH: +/-		BILIZATION COND.: +/-		+/- 10 D.	SUCCESS O.: +/- 0.3			THE FOLLOWIN = 10</td <td>G LIMITS: TEMP.: +</td>	G LIMITS: TEMP.: +
BOTTLES	S FILLED	PRESERV	ATIVE CODES		B - HNO3	C - H2SO4	D - NaOH	E- H(CL F
NUMBER	SIZE	TYPE	PRESERVATI				TYPE	PRESERVATI	
1	250 mL	PLASTIC	А	12 4	N /	125 mL	PLASTIC	D	□ Y [Z] N
	125 mL	PLASTIC	А		N S	40 mL	VOA	E	□ Y 📮 N
2	60 mL	VOA	А		N			e a participat de comit de la cara de la car	☐ Y ☐ N
1	125 mL	PLASTIC	В	□ Y 7	N				□ Y □ N
	125 mL	PLASTIC	С		N				□ Y □ N
SHIPPING	METHOD:	Coscie	DA	ATE SHIPPED:	3/6/	24	AIRBILL N	IUMBER:	
COC NUMI	BFR·			GNATURE:	1/	1-107	DATE SIG	NED: 7	16/24



WATER SAMPLE LOG

(CONTINUED FROM PREVIOUS PAGE)

PROJECT NAME:	CEC Karn BAP/LI: 2024 GW Co		PREPARED		CHECKED
PROJECT NUMBER:	553814.0001.0000	BY:	W, JK, JJ, EDATE: 3/6/29	BY: Acs	DATE } 121124
			- T /		

SAMPLE ID: DEK MW -2700 1 PURGE WATER CUMULATIVE CONDUCTIVITY ORP D.O. TURBIDITY TEMPERATURE TIME RATE LEVEL **PURGE VOLUME** (ML/MIN) (umhos/cm) (mV) (NTU) (GAL OR L) (SU) (mg/L) (°C) (FEET) 200 - 136. L 1.55 112.43 10.91 10.3 6.0 16 57 7.28 1116.1 6.6 1106 7.28 11 17.5 -138.0 1.56 105.6 10.9 7.33 1129.1 N 03 - 118.7 6.27 182.34 7,2 10.08 7.31 1116.1 1.6 7,8 1106 - 152.5 66.58 10.83 69.84 7.31 101.8 8.4 1109 - 131.5 1.57 10.83 1.56 58.55 10.86 9.0 - 138.0 1112 7.31 1107.3 10.86 49.31 1115 9.6 7.31 1096.5 1.54 - 139.1 1117 1.55 57.49 10.84 7.32 1086.7 140.3 10.2 1.54 54.52 7.32 /088.6 10.82 140.9 1120 10.8 11.4 56.55 1124 1.54 10.84 7.32 1084.5 - 141.6

SIGNATURE:

EL J 1/1

DATE SIGNED:

3/6/24

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PROJECT	ΓNAME:	CEC K	arn BAP/LI: 20	024 GW C		PREPARED			CHECKED				
PROJECT	Γ NUMBEF	R: 553814	1.0001.0000		BY: AW	, JK, JJ, (POATE: 3/6	1/24 BY	Au	7	DATE	Yzılz	24
SAMPLE	ID: DEK	μν-2	2005	WELL [DIAMET	ER: 🗸 :	2"	6" C	THER				
WELL MAT		✓ PVC		IRON 🗌	GALVA	NIZED ST	reel		THER				_
SAMPLE T	YPE:	☑ GW	□ww □	sw 🔲	DI	<u> </u>	EACHATE.		THER				
PUR	GING	TIME: 12	.49 DA	TE: 16	74	SA	MPLE	TIME: /	258		DATE: 3	16/2	1
PURGE		PUMP	PERISTALTIC I	PUMP		PH:	7.95 s	SU CON	DUCTIV	тү <u>6 үс</u>	.34	umhos	:/cm
METHO		BAILER					180.2 m		<u>/.</u>	62	mg/L		
		811	T/ PVC	·		1 /	ITY: <u>0.2</u>		_				
DEPTH TO	о воттом:	20.23	T/ PVC			NON		IGHT [MOI	DERATE	L	VERY	PL 2012 VINE - CANADA
WELL VOL		NA	LITERS	GALLO			RATURE: 9		FEF	RROUS Fe	0.5	r	mg/L
VOLUME	REMOVED:	1.0	LITERS	GALLO	NS	COLOR			ODO		$\mathcal{D}_{\mathfrak{p}}$		_
COLOR:	C/a		OD	OR: No		FILTRAT	E (0.45 um)	YES		NO	т	***************************************	
0/	₩		BIDITY				E COLOR:		_ FIL	TRATE OF	OR:		
NONE	$\overline{}$		MODERATE	VEF			MPLE: MS	MSD		DUP-		=	
DISPOSAL	L METHOD:	☑ GROUN	ND □ DRUM	OTHER		COMME	ENTS:						
TIME	PURGE RATE	PH	CONDUCTIVITY	ORP		D.O.	TURBIDITY	TEMPER.	ATURE	WATE! LEVEL		MULATIV GE VOLU	
	(ML/MIN)	(SU)	(umhos/cm)	(mV)	(mg/L)	(NTU)	(°C)	(FEET		AL OR L	
1249	200	7.85	672,3Y	-147.2	. 1.	89	0.47	15/2		8.11		INITIAL	
1252		7.97	662.42	-172.2	1.	. 72	0.98	9.87	7)	0.	6	
1255		7:94	673,59	-176.9	1	.65	0.44	9,77	?		/:	2	
1258	√	7.95	680.34	-180.Z	1.	62	0.74	9.7	7	V	1.	8	
								<u> </u>					
									egwaneskaneseggaan pika kelanna				
			Landalana sana nomina tomato somo somo sanona somo somo somo				anadankoja moran kokamanon a napomaka napomaka						
							***************************************		ayyanada madada kababa kab			Proceedings of the Control of the Co	
1	NOTE: STAI	BILIZATION	TEST IS COM	LETE WHE	N 3 SU	CCESSIV	'E READINGS	ARE WIT	HIN THE	FOLLOV	VING LIMI	 ГS:	
pH: +/-		COND.: +/-		+/- 10		+/- 0.3	TURB: +/-		or =</td <td></td> <td>TEMP</td> <td></td> <td></td>		TEMP		
BOTTLE	S FILLED	PRESERV	ATIVE CODES	A - NONE	В-	· HNO3	C - H2SO4	4 D-N	aOH	E -	HCL F	-	
NUMBER	SIZE	TYPE	PRESERVAT	IVE FILT	ERED	NUMBE		TYPE		RESERVA	₋	FILTER	ED
1	250 mL	PLASTIC	А	- L	[] N	1	125 mL	PLASTI	ic	D] Y []]	N
1	125 mL	PLASTIC	A	□ Y	√ V	3	40 mL	VOA		E) Y [
<u> </u>	60 mL	VOA	A	□Y	N	T							N
1	125 mL	PLASTIC	В	□ Y	ΔN	-		1				Y 🗆	N
	125 mL	PLASTIC	С		Σ N			and the second s		mer tide to paper against the engage per again) Y 🔲	N
SHIDDING								_					
101111111110	METHOD:	Course	D.	ATE SHIPPE	 ≣D:	3/1/	24	AIRB	LL NUN	/BER:			

TRC

_													
PROJECT	NAME:	CEC K	(arn BAP/LI: 2	024 GW C		PR	EPAF	RED			CHE	CKED	
PROJECT	NUMBEF	R: 553814	4.0001.0000		BY:AW	JIK, JJ,	ER DA	ATE 3/6	24	BY: E	EN.	DATE: 3/	21/24
SAMPLE	ID: MW	-DE	k-1500	WELL D	DIAMET	ER: 🗸	2"] 4" 🔲	6" [OTHER	₹		
WELL MAT		☑ PVC	ss [IRON 🗌						OTHER	₹		200.021600.00 ⁴ 0.000.000
SAMPLE T	YPE:	☑ GW	□ww □	sw 🗌	DI		LEACI	HATE		OTHER	۲	AND AND AND PARTY PROPERTY OF THE PARTY OF T	
PUR	SING	TIMEOS	10 0	ATE:	<u> </u>	S	AMP	LE	TIME:			DATE: 3/6/	1-8/
PURGE METHOI		PUMP BAILER	PERISTALTIC	PUMP		PH:		S m		ONDUCTI		ng/L	nhos/cm
DEPTH TO	WATER:		T/ PVC							****		ilg/L	errossonesen ar ar ar ar ar
	BOTTOM:		T/ PVC T	macl				SLI			ODERATE	VE	RY
WELL VOL			LITERS	GALLO				RE:	**********		ROUS Fe		THE COMPANIES OF STREET
	REMOVED:		LITERS	GALLO		COLO		KE			DOR:		mg/L
COLOR:		A	OI			 		45 um)			7 NO		
002011.			BIDITY	5614. <u>- [4]</u>	<u></u>	FILTRA					ILTRATE ODG)	
NONE	SLI		MODERATE	☐ VEF	RY	\vdash		: MS	/MSD		DUP-	JR.	
			ND DRUM			COMM	_				<u> </u>		
TIME	PURGE RATE	PH	CONDUCTIVITY			D.O.		BIDITY	TEMF	PERATURE	WATER	CUMUL PURGE V	
	(ML/MIN)	(SU)	(umhos/cm)	(mV)		mg/L)	1)	NTU)		(°C)	(FEET)	. (GAL	
												INIT	IAL
The special property was spekly property. I	Dog	Hh	+10 1	voter		eve	Lep,	10	11	or by	1 Liec	04	
	Decit	2147	to c	do a	.31	10.00	م ا	ري. دامات	ال صاگ	PEXIO	ملان	hlado	Lac
			POR	97	2111	YIE	Cal	742	NOT	DY II	-WIITKI	B tocae	le <u>r</u>
	pump								·	***************			
						~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~							************
*******************************	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	***************		***************************************		**********************				MPSHC STORE STORE CONTRACTOR STORES			
#19000000000000000000000000000000000000	anagoniyan baran kaniyanga mendadik reperturum	eër aangrommere woorder voor woods as											
											Name of a Child and Division Commission Commission Commission		
***************************************			***************************************								****		-
pH: +/-		BILIZATION COND.: +/-	TEST IS COM			CCESSI		EADINGS URB: +/-		VITHIN TH		NG LIMITS:	
· · · · · · · · · · · · · · · · · · ·	S FILLED	<u> </u>	ATIVE CODES			· HNO3		- H2SO4		- NaOH	E- 1	 ,	
NUMBER	SIZE	TYPE	PRESERVAT	· · · · · · · · · · · · · · · · · · ·	ERED	NUMB		SIZE	r		PRESERVAT		TE RED
	250 mL	PLASTIC	Α	Vγ	Пи			125 mL		STIC	D		□ln
	125 mL	PLASTIC	A					40 mL		OA	E		□ N
	60 mL	VOA	A			1			ļ				□ N
/// ********************	125 mL	PLASTIC	B			-							
	125 IIIL	PLASTIC	С					square - paratra concerverationing even			омунисти панамент и контрукция тупомуровующих укультовующих двуговующих двугов		
	John L.	FLASIIC			∐ N	1			<u> </u>			<u> Y</u>	
SHIPPING	METHOD:	<u>f</u>		ATE SHIPPE	ED:				AI	RBILL NU	JMBER:		
сос иим	BER:		- s	IGNATURE:		A. 64	$K_{L,\lambda}$	_	DA	ATE SIGN	JED:	11206	24

PROJECT NAME: CEC Karn 2.2024 GW Comp PREPARED CHECKED PROJECT NUMBER: 553814.0000.0000 BY AW JJ, JK, ER DATE 3 1/21/ BY: EN DATE: 3/21/21 SAMPLE ID: DEK-MU-22002 WELL DIAMETER: 2" 4" 6" OTHER WELL MATERIAL: PVC SS IRON GALVANIZED STEEL OTHER
SAMPLE ID: DEK-MW - Z2003Z WELL DIAMETER: 2" 4" 6" OTHER WELL MATERIAL: PVC SS IRON GALVANIZED STEEL OTHER
VELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER
WELL MATERIAL: PVC SS IRON GALVANIZED STEEL OTHER
AMPLETYPE: GOW DIMM DOW DDI GLEAGUATE COTTED
SAMPLE TYPE:
PURGING TIMECOSOUS DATE 1/12/ SAMPLE TIME: 0925 DATE: 3/2/24
PURGE PUMP PERISTALTIC PUMP PH: 79/3 SU CONDUCTIVITY: 1019 umhos/cm
METHOD: DO: CO. 25 mg/L
DEPTH TO WATER: 11.96 T/ PVC TURBIDITY: 19.69 NTU
DEPTH TO BOTTOM: NA T/ PVC TONSLOCE INONE IN SLIGHT IN MODERATE VERY
WELL VOLUME: NA LITERS GALLONS TEMPERATURE: 100 °C FERROUS Fe 3.71 mg
VOLUME REMOVED: \$00 ALITERS GALLONS COLOR: LICAT ODOR: 1000
COLOR: Orange ODOR: Nome FILTRATE (0.45 um) X YES NO
TURBIDITY FILTRATE COLOR: CLCC FILTRATE ODOR: ADM &
□ NONE □ SLIGHT □ MODERATE □ VERY QC SAMPLE: □ MS/MSD □ DUP-
DISPOSAL METHOD: GROUND DRUM OTHER COMMENTS: PORCED DATILY CLEAR -
TIME PURGE PH CONDUCTIVITY ORP D.O. TURBIDITY TEMPERATURE WATER CUMULATIVE LEVEL PURGE VOLUME
(ML/MIN) (SU) (umhos/cm) (mV) (mg/L) (NTU) (°C) (FEET) (GAL OR L)
0850 200 6.20 1015 141.1 4.99 396.74 9.5 12.30 INITIAL, .
\$55 \ 7.15 1064 -80.7 1.80 22306 10.3 12.40 2.0
900 7.30 1040 -109.7 0.50 87.50 10.1 3.0
905 734 1030 -120, 16, 32 40, 79 10.1 4,0
910 738 1010 -127, 35 3138 9.20 5.0
115 7.38 1014 -122,7 0381 20,57 9.80 (C.C)
920 741 1012 -1230 0.31 21.23 4.8 7.0
C425 V 7.43 1019 -125.7 024 19.69 100 V 80
3.0
NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS: pH: +/- 0.1 COND.: +/- 3 % ORP: +/- 10 D.O.: +/- 0.3 TURB: +/- 10 % or = 10 TEMP.: +/-</td
BOTTLES FILLED PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F
NUMBER SIZE TYPE PRESERVATIVE FILTERED NUMBER SIZE TYPE PRESERVATIVE FILTERED
250 mL PLASTIC A Y X N 1 125 mL PLASTIC D Y X N
1 125 mL PLASTIC A Y X N 7 40 mL VOA E Y X N
I 60 ml VOA A DY XIN 1 125mc HEXIL BY N
125 mL PLASTIC B Y N Y N
1 125 mL PLASTIC C Y N DY N
SHIPPING METHOD: Fed EX DATE SHIPPED: 316124 AIRBILL NUMBER:
COC NUMBER: - SIGNATURE: A. WILL DATE SIGNED: \$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\

	NAME:	CEC K	arn LF : 2024 (3W Comp		PRE	PARED			CHE	ECKED
PROJECT	NUMBER	: 553814	1.000∳.0000	В	Y:ÁŴ	JJ, JK,	ER DATES/	121/ B	Y: E)	r	DATE 3/21/29
SAMPLE I	ID: DE	K-N	1W-2200	WELL D	AMET	ER: 🗸	2"	6" [] (OTHER		<u> </u>
WELL MAT	ERIAL: [☑ PVC				NIZED S			OTHER		
SAMPLE T	YPE: [☑ GW	□ww □	SW 🔲 [)1		EACHATE		OTHER		
PURC	SING	TIME: (O	COCO DA	TE: 3///2	4	SA	AMPLE	TIME:	1030	3	DATE: 3/6/24
PURGE METHOD		PUMP BAILER	PERISTALTIC F	PUMP	,		7.79 s -120.2 m		DUCTIV	ITY: <u>55</u>	umhos/cm mg/L
DEPTH TO	WATER:	10.31	T/ PVC			TURBIC	OITY: 7.94	NTU 4			
DEPTH TO	BOTTOM:	MM	T/ PVC		(A,	NON K		GHT	мо	DERATE	☐ VERY
WELL VOL		NA	LITERS	GALLON	S	TEMPE	RATURE: q	<u>`</u> °(FEF	RROUS Fe	
VOLUME F	REMOVED:		LITERS	GALLON		COLOR	: Llea	<u>~</u>	OD		NON-
COLOR:	ligh	<u>+ 57a</u>	nge od	OR: <u>ルの</u>)1	<u>e</u> _	FILTRA	TE (0.45 um)	YES	<u>X</u>	NO	
			BIDITY				E COLOR:			TRATE OD	
NONE	SLIC		MODERATE	VER	Y			/MSD	X	DUP-	<u>)EK-BAP-02</u>
DISPOSAL	. METHOD:	✓ GROUN	ND DRUM	OTHER		COMMI	ENTS:				·
TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	1	D.O. mg/L)	TURBIDITY (NTU)	TEMPEF		WATER LEVEL (FEET)	. PURGE VOLUME
1000	200	7,76	108	-17.2	2	5%	5690	9.1	./	10.3	INITIAL
(005		7.74	(#) Z	-64.7	උ		17.95	4.3		104	2 L.O
1010		7.75	567	-441.7		95	36.40	4.0	·	(-)	2.0
1015		7.76	563	-987	0	.51	19.60	94			3.0
100		ר'די ר'	557	-111/0		24	9.43	93			4.6
1025		ייי ל	5/.3	-116.0	0	19	8.62	9.5			5.0
1030	W	7.79	553	-120,2	. 0	16	7.48	9.5			6.0
					_		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
					-						
								1			
pH: +/-		COND.: +/-	N TEST IS COM	+/- 10		+/- 0.3	TURB: +/-		or =</td <td></td> <td>TEMP.: +/-</td>		TEMP.: +/-
BOTTLES	S FILLED	PRESERV	ATIVE CODES	A - NONE	В-	· HNO3	C - H2SO4	D-N	laOH	E-	HCL F
NUMBER	SIZE	TYPE	PRESERVATI	VE FILTE	RED	NUMBI	ER SIZE	TYPE	F	RESERVA	ATIVE FILTERED
2	250 mL	PLASTIC	А	□ Y	N	2	125 mL	PLAST	IC	D	
2	125 mL	PLASTIC	А	□ Y §	И	6	40 mL	VOA		E	□ Y X N
4	60 mL	VOA	А		y N						□ Y □ N
2	125 mL	PLASTIC	В		N					***************************************	□ Y □ N
2_	125 mL	PLASTIC	С		ZИ						□У□и
SHIPPING	METHOD:	Fed	EX D/	ATE SHIPPE	D: _	2161	24.	AIRE	ILL NUN	MBER:	

⇔ -	IRC			WATE	R S	AMPL	E LO	G		Take signif
PROJECT	NAME:	CEC K	arn LF : 2024 (GW Comp		PREP	ARED		CHEC	KED
PROJECT	NUMBEF	R: 553814	1.000 ø .0000		BY.AW	JJ, JK, ER	DATE:	124/ BY:	EL	DATE: 3/21/24
SAMPLE	D: NF	K-ML	-22006	WELL C	IAMET	ER: 🗸 2"	4"	6" OTHI		
WELL MATI		✓ PVC		IRON [GALVA	NIZED STE	EL	□ отн	ER	
SAMPLE TY	PE:	☑ GW	ww	sw 🔲	DI	LE/	CHATE	ОТН	ER	***************************************
PURG	SING	TIME: / /	JZ DA	TE: \///	74	SAM	IPLE	TIME: 11 %	J DA	TE: \1.121
PURGE	V	PUMP	PERISTALTIC I		<u>~_</u>	PH: <u>7</u>	.4/ s	U CONDUC	1121	
METHOD		BAILER				ORP: <u></u> -	121.6 m		19.20 mg	/L
DEPTH TO	WATER:	8.97	T/ PVC			TURBIDIT	Y. 3ch.	7] NTU		
DEPTH TO	воттом:	NA	T/ PVC TSER	1 Staces		NONE	SLI	gнт <mark>∑</mark> Д	MODERATE	☐ VERY
WELL VOL	JME:	NA	LITERS	GALLO	NS .	TEMPERA	TURE: 💪	ን℃	FERROUS Fe 🥻	,
VOLUME F	REMOVED:	5.0	LITERS	GALLO	NS	COLOR:	(leas -c	range	ODOR:	WNE
COLOR:	Cle	4C-60	<u>v</u> od	OR: NON	<u>e_</u>			YES	□ NO	····
			BIDITY				COLOR: Λ	lone_	FILTRATE ODOR	None
NONE			MODERATE	VEF		QC SAMP	LE: MS	/MSD	DUP-	
DISPOSAL	METHOD:	✓ GROUN	ND DRUM	OTHER		COMMEN	TS:			
TIME	PURGE RATE	PH	CONDUCTIVITY		- 1	- 1	URBIDITY	TEMPERATU	LEVEL	CUMULATIVE PURGE VOLUME
115	(ML/MIN)	(SU)	(umhos/cm)	(mV)		mg/L)	(NTU)	(°C)	(FEET)	(GAL OR L)
1113	200	7,51	1247	-100.0		.90	<u> 52،20</u>	(1	8.97	
1118		7,44	1190	-1/1.7	2,	20 1	297	6.4	19.30	1.0
1123		7:45	1124	-117.5	0	.35 8	<u> とり11</u>	6.7	4.32	2-0
1158		7.46	1122	-115.0	<u>م ح</u>	35 6	0.45	6.6	9.32	3,0
1133	_1_	747	1122	-11873	0	306	2,29	6.6	9.32	4.0
11382	<u>~</u>	7.13	1126	-121.6	Ø	20 5	3771	4.7	9.32	5.0
	<u> </u>									
1	NOTE: STA	BILIZATION	TEST IS COM	PLETE WHE	N 3 SU	ICCESSIVE	READINGS	ARE WITHIN	THE FOLLOWIN	G LIMITS:
pH: +/-	0.1	COND.: +/-	3 % ORP:	+/- 10	D.O.:	+/- 0.3	TURB: +/-	10 % or	= 10</td <td>TEMP.: +/-</td>	TEMP.: +/-
BOTTLES	S FILLED	PRESERV	ATIVE CODES	A - NONE	В-	HNO3	C - H2SO4	D - NaOH	I E- HO	CL F
NUMBER	SIZE	TYPE	PRESERVAT	VE FILTE	RED	NUMBER	SIZE	TYPE	PRESERVATIV	
1	250 mL	PLASTIC	А	□ Y	N		125 mL	PLASTIC	D	□ Y M
1	125 mL	PLASTIC	Α		N X	\	40 mL	VOA	E	□ Y Z N
2	60 mL	VOA	А		N	1	125	Plastic	\mathcal{B}	Z Y DN
1	125 mL	PLASTIC	В	□ Y	N					□ Y □ N
	125 mL	PLASTIC	С	Y	N					Y N
SHIPPING	METHOD:	Fed	EX D	ATE SHIPPE	D:	3/6/2	4	AIRBILL I	NUMBER:	
COC NUMI	3ER:			GNATURE:		Auli	<u>u</u> _	DATE SIG	GNED:	120/24

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PROJECT NAME: CEC Karn BAP/LI: 2024 GW	C	PREPARED		CHECK	ŒD
PROJECT NUMBER: 553814.0001.0000	BY (AV), JI	K, JJ, ER DATE:	124 BY: E	n	DATE SZIZY
SAMPLE ID: DEK-MU-ZZOZ WEI	LL DIAMETER	R: 🗸 2" 🔲 4" 🔲	6" OTHER		
WELL MATERIAL: PVC SS IRON	GALVANIZ	ZED STEEL	OTHER	And and address of the second	
SAMPLE TYPE:	□ DI	LEACHATE	OTHER		
PURGING TIME: 1215 DATE:	10/21	SAMPLE	TIME: 1239	DA	TE: 3//174
PURGE ✓ PUMP PERISTALTIC PUMP METHOD: ☐ BAILER		PH: <u>7.41</u> SU DRP: -12,01 mN		/ITY: <u>1572</u> .33 mg/	
DEPTH TO WATER: 11.70 T/ PVC		URBIDITY: 8.5	Z NTU		
DEPTH TO BOTTOM: NA TI PVC Transda	رزور الآ	NONE SLIC	ент □ мо	DERATE	VERY
		emperature: 9	°C FE	RROUS Fe	<u></u> mg/L
VOLUME REMOVED: 4.0 X LITERS GAL	LONS C	COLOR: LIEUT		OOR:	10ne
COLOR: LIER ODOR: N	ONE FI	ILTRATE (0.45 um)]YES [∑	NO	r decenyada yang kida sa sama akusanka dependa upakan upakan san sansar kan kan kan kan kan kan kan kan kan ka
TURBIDITY		LTRATE COLOR:		LTRATE ODOR:	
		C SAMPLE: MS/	MSD _	DUP	
DISPOSAL METHOD: GROUND DRUM OTH	HER C	COMMENTS:			
RAIE	RP D.(TEMPERATURE	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL ORAL)
1215 200 7.30 132 -22		to 1600	124	11.75	INITIAL
1270 7.37 1542 - 113	- 4		9.5		1.0
	4.8 0.0	100 - 1	9.4		2.0
1230 7.40 1546 -12			9.50		30
17.35 7.41 1525 -123	**************************************	5 1 -	9.52		40
1235 1.71 123 123		870-25	7.0	<u> </u>	9,0
					THE BOOK AND THE BOOK AND THE ADMINISTRATION OF THE ADMINISTRATION OF
	Nacional la liver, was a Mandan Consumer constitute foreign in				appear and a transportation of the selection for the second section of the second section of the second section of the second section
			Bernad and market residence, and a lab, not with the defendence that a second		
			aur en managenr blan ender ende auge anne sends i 1819, ann ee		prompto alcaga, "error relativa estradores e revisiones e Latino symbol
NOTE: CTABILIZATION TEST IS COMPLETE IN		SECONCE DE ADINOS	A DE 1841 UNI TU	E FOLLOWING	LIBRITO.
pH: +/- 0.1 COND.: +/- 3% ORP: +/- 10					TEMP.: +
BOTTLES FILLED PRESERVATIVE CODES A - NO			D - NaOH		L F
		NUMBER SIZE		PRESERVATIV	
	YKN	[125 mL	PLASTIC	D	
125 mL PLASTIC A	Y X N	3 40 mL	VOA	E	□ Y 🔀 N
7 60 mL VOA A	Y 🔯 N		fa Amiliate in miliate in construint a construint or a construint of the construint	ranco and an other most successful about the pay an anatomic province to	
	Y X N				
125 mL PLASTIC C	YXN				NN
SHIPPING METHOD: Fed EX DATE SHI	PPED: 31	6/24	AIRBILL NUI	MBER:	
COC NUMBER: SIGNATUR	DE: N	1 1.1.1	DATE SIGNI	ED:)	120/24

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PROJECT	NAME:	CEC K	arn BAP/LI: 2	024 GW C		PRE	PARED			CHEC	KED
PROJECT	NUMBER	R: 553814	1.0001.0000	E	BY: AW	, JK, JJ, I	ER DATE: うい	1()Y	3Y: Ac	<u>۸</u>	DATE: SIZULES
SAMPLE I	D: 10/2	= K-n	nu iso	WELL D	IAMET	ER: 🗸	2"	6" 🗌	OTHER		
WELL MAT	ERIAL:	✓ PVC	□ss □	IRON 🔲 (SALVA	NIZED S	ΓΕΕL		OTHER		and the second s
SAMPLE T	YPE:	☑ GW	□ ww □	sw 🔲 [)I	L	EACHATE		OTHER		
PURC	SING	TIME: \	£30 D	ATE: 3 lul	24	SA	MPLE	TIME:	140	50 DA	ATE: 3/U/24
PURGE	7	PUMP	PERISTALTIC					U CON	NDUCTIV	ITY: 89	umhos/cm
METHOD		BAILER				ORP:		V DO:	<u>0</u>	99 mg	/L
DEPTH TO			T/ PVC			TURBIC		<u>)</u> ntu			
DEPTH TO	воттом!	<u>11,78</u>	T/ PVC			ANON	AND ADDRESS OF THE PARTY OF THE	GHT		DERATE	☐ VERY
WELL VOL	UME:	NĄ	LITERS	GALLON		TEMPE		3,1	C FEF	RROUS Fe _	
VOLUME F			LITERS	GALLON	,	COLOR	: <u>Cl@</u>	<u> </u>	ODO	OR:	1010
COLOR:	_Ble	eckisi		or <u>slign</u>	<u> </u>	FILTRAT	ΓΕ (0.45 um)	YES	₽	/NO	
			BIDITY	-			E COLOR:			TRATE ODOR	R:
NONE			MODERATE	VER	Y		MPLE: MS			DUP-	·
DISPOSAL	METHOD:	☑ GROUN	ID DRUM	OTHER		СОММЕ	ENTS: IR	CON	<u> 5.</u>	<u> </u>	
TIME	PURGE RATE	PH	CONDUCTIVITY	ORP		D.O.	TURBIDITY	TEMPE	RATURE	WATER LEVEL	CUMULATIVE PURGE VOLUME
	(ML/MIN)	(SU)	(umhos/cm)	(mV)		mg/L)	(NTU)	(°	'C)	(FEET)	(GAL OR L)
1476	294	800	918	-89.5	9	フィ	120	13	. 4	2900	INITIAL
143 5		7.65	901	-105.	. 1.	7	10.	17	3.4	2915	
1440		7.Cc	६५७	- 104		,0	9.1	13	,4	2915	2
1445	s, mant peri hiddoministici.	7,60	894	-100		.0	9.4	1.	3. 5	2915	.3
1450	war same cannot be an experience and an experience	7.60	894	-104.	*****	.99	9.7	· Paragraphic and the second	7. (2918	4
											m paramatananya 1955 filo 🛂 ("B1990 Peli-1990 Pilothinin "Afabasakana
			CONTRACTOR OF THE PROPERTY OF						roderskie Mariananary pyspanosy piet		
A THE CONTRACTOR OF THE CONTRA			ar dar 30. mil i der der gerende der der der der der der der der der d	m. menter i di sa succi di Primi i ni i ni ni ni di			orderlate, et oci desti deloca i subdicado i di deste succe, e un est. E		- NA CONTRACTOR OF STREET AND ADMINISTRAL CONTRACTOR TO		
The Course from Committee Committee on the Committee of t		No Andrews with the Will Labour to the Andrews	apanar menanchisak ankara mekapah teras pikacar sasa sahada				mannen i kontra etti i mis imo, imoni i rusumi, ana usi rish				The state of the s

L								<u> </u>			
			TEST IS COM								
pH: +/-	0.1	COND.: +/-	3 % ORP	: +/- 10	D.O.:	+/- 0.3	TURB: +/-	10 %	or =</td <td>10</td> <td>TEMP.: +</td>	10	TEMP.: +
BOTTLES	S FILLED	PRESERV	ATIVE CODES	A - NONE	В-	HNO3	C - H2SO4	D -	NaOH	E- HO	CL F
NUMBER	SIZE	TYPE	PRESERVAT	IVE FILTE	RED	NUMBE	R SIZE	TYP	E P	RESERVATI	VE FILTERED
	250 mL	PLASTIC	A		ZN		125 mL	PLAS	TIC	D	□ Y 🗷 N
(125 mL	PLASTIC	А	□ Y [7 N	3	40 mL	VO	4	E	□ Y 【 N
2	60 mL	VOA	А	□ Y	ZN					The state of the s	□ Y □ N
Tradition of the second	125 mL	PLASTIC	В	□ Y [7 N					na su e esta trade un el como por interior y esta el esta discolaria.	□ Y □ N
	125 mL	PLASTIC	С	□ Y	f N		NOTE OF THE PARTY OF THE A STREET OF THE PARTY OF THE PAR			ar Aussan (g. g. der der der der den den der	□ Y □ N
SHIPPING	METHOD:	Fel E	y D	ATE SHIPPE	D: ,	11/24	/	AIR	BILL NUM	MBER:	
COC NUMI	BER:			IGNATURE:				DAT	E SIGNE	D: 2/	111/11
						\angle		-		71+	4/1

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PROJECT	NAME:	CEC K	arn LF: 2024 (GW Comp		PREPA	RED			CHE	CKED)
PROJECT	NUMBER	: -553814	0000 0000 5	53725 BY:	AW, J	JJ, JK, ER I	DATE: 3/5	24 BY:	AW		DAT	E Yulzy
SAMPLEI	D: Mu	1-1500	08	WELL DIAM	1ETE	R: 🗸 2"	<u>4"</u>	6"	IER			
WELL MATI	***************************************	√ PVC		IRON GAL	VANI	ZED STEE	L	П ОТН	IER			
SAMPLE TY	'PE: [☑ GW	□ww □	SW 🔲 DI		LEA	CHATE	□ отн	IER			
PURG	SING	TIME: 8	43 DA	TE: N		SAMI	PLE	TIME:	1/9		DATE:	3/5/24
PURGE METHOD		PUMP BAILER	PERISTALTIC I	PUMP		PH: <u>6</u> DRP: <u>-11</u>	.7 St		CTIVIT)5. 1 mg/L	umhos/cm
DEPTH TO	WATER:	4.25	T/ PVC		7	TURBIDITY	0.0	NTU				MANY LINE DES STORES DATE SE VINCENTANTE (SE LE É DESTRUMENTANTE DE PROSENTANTE D
DEPTH TO	воттом:	17.42	T/ PVC			NONE	SLIC	ЭНТ 🗌	MOD	ERATE	l	VERY
WELL VOL	JME:	NA	LITERS	GALLONS	Т	EMPERAT	URE; 🥳	.48 °C	FERI	ROUS Fe	7.	O mg/L
VOLUME F	EMOVED:	7.2	Z LITERS	GALLONS	. (COLOR:	ydlast:	h	ODO	R:	د 🕖	
COLOR:	Yell	aoish	OD	OR: <u>U</u> 6	_ F	ILTRATE (0.45 um)	YES		NO		
		TURI	BIDITY		F	ILTRATE C	OLOR:		FILT	RATE OD	OR:	
NONE	SLIC	GHT 🗌	MODERATE	☐ VERY	(QC SAMPL	.E: MS/	MSD	Z	DUP-	Back	Karoond
DISPOSAL	METHOD:	☑ GROUN	ID 🗌 DRUM	OTHER	T	COMMENT	S:					
TIME	PURGE	PH	CONDUCTIVITY	ORP	D	.ο. τι	JRBIDITY	TEMPERAT	JRE	WATER	Carlotte and the second	CUMULATIVE
	RATE (ML/MIN)	(SU)	(umhos/cm)	(mV)	(m	ng/L)	(NTU)	(°C)		LEVEL (FEET)	化液体 美海洋	JRGE VOLUME (GAL OR L)
843	200	6.61	1931.1	-80.4	1.	1 ,	.15	8.84	1	4.2.		INITIAL
846	١	6.64	1791.0	- 97,9	1.	57 C	1.0	8.73			- (0.6
849		6.67	1670.6	-104.6	1.5	54 8	.92	8.67			-	1.2
852		6.7	1547.5	-110.4	1.	53 2	.18	8.56			1	1.8
855		6.71	1475.3	-112.9	1		8.41	8.43		\		2.4
858		6.71	1484.3	-113.4	T). <i>O</i>	8.48	•			3.0
901		6.71	1496.9	-112.7	1.6		2.44	8.49				3.6
904		6.71	1488.9	-113.4	1.5		· O	8.48				4.2
907	4	6.7	1415.7	-113.3	1.5		5.29	8.46		\ /		4.8
910		6.7	1492.3	-1/3.6	1. 6		6.23	8.52		$ \bigvee $	*****	5.4
	OTE: STA			IPLETE WHEN 3				ARF WITHI	N THE	FOLLOV		
pH: +/-		COND.: +/-					TURB: +/-		=</td <td></td> <td></td> <td>лР.: +/-</td>			лР.: +/-
BOTTLES	3 FILLED	PRESERV	ATIVE CODES	A - NONE	B - I	HNO3	C - H2SO4	D - NaC)H	E -	HCL	F
NUMBER	SIZE	TYPE	PRESERVAT	IVE FILTERE	D	NUMBER	SIZE	TYPE	PI	RESERVA	ATIVE	FILTERED
12	250 mL	PLASTIC	Α		N		125 mL	PLASTIC		D		□ Y □ N
42	125 mL	PLASTIC	A		N	hannester a general a research de referencies de l'art de per l'e	40 mL	VOA	-	E	ngiriya tigaga naganta sadan	□Y □N
450	60 mL	VOA	Α	OY O	N	er na sgigen værgde synderer de sid flede en de held ener i Ville				***************************************	negoverhand ethnologykomplekenn	□ Y □ N
42	125 mL	PLASTIC	В		N				+			□ Y □ N
39~	125 mL	PLASTIC	С		N	***************************************	halisteria ari est. Alexentella est interacione		1			□ Y □ N
SHIPPING	METHOD:	<u></u>	<u> </u>	ATE SHIPPED:		15/24	<u>'</u>	AIRBILL	NEINA	BER.		
		Costin		Calculate service over the analysis of a constraint section of the colores.	=}	19/29	na	<u></u>		*********	_/	
COC NOW	BEK:		s	IGNATURE:	2/	4/1	OVT	DATE S	iGNE	D:	3/9	129



WATER SAMPLE LOG (CONTINUED FROM PREVIOUS PAGE)

PROJECT NAME:	CEC Karn LF: 2024 0	GW Compli		PREP	ARED				CHE	CKED
PROJECT NUMBER:	553814.0000.0000	553628	BY:	W, JJ, JK, E	DATE: 3/	5/	24	BY:	Aw	DATE: PLIZY

TIME	PURGE	PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMPERATURE	WATER	CUMULATIVE
	RATE (ML/MIN)	(SU)	(umhos/cm)	(mV)	(mg/L)	(NTU)	(°C)	LEVEL (FEET)	PURGE VOLUMI (GAL OR L)
913	200	6.7	1463.2	-115.0	1.51	0.0	8.52	4.25	6.0
916	1	6.7	1494.9	-113.1	1.52	0.0	8.49	[6.6 7. c
919	4	6.7	1505.7	-115.1	1.51	0.0	8.48	V	7. 2
		9	1,500.7			<i>U</i>			
			N			***************************************		PLANTER SPECIAL SPECIAL SELECTION SPECIAL SPEC	
								Paratra nasarahakasar di Albama Basina	
<u> </u>	<u> </u>			Man-11-12-12-12-12-12-12-12-12-12-12-12-12-					
	<u></u>	ļ							
aranthi, ha a a dhabhanna a	 								
	 	<u> </u>		***************************************					
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				anni h Magaigy y kasa aga ka ya vy y hisilya nagay, vyeg pagaga					
	<u> </u>							- manusième me roue rouseeur	
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				***************************************					
Terroring with might of permitted to a			ragioni, gliji. Peron perior, sik referentationed that transports an replayareage and also companies		<u> </u>	and Annual Andrews of the Control of the part of Additional Loss			***
/		<b>-</b>					***************************************		
		<del> </del>					وويده ومستديد والمستحد والمستحدد والمستحدد والمستحد والمستحدد والمستحدد والمستحدد والمستحدد والمستحدد والمستحدد		and the state of t
	-	<b></b>							
	<u> </u>	<del> </del>			<b></b>				
		<del>                                     </del>						<del> </del>	
	***				<u> </u>			ļ	A the second
· · · · · · · · · · · · · · · · · · ·	<del> </del>	-		<u> </u>	-		A STREET OF THE STREET, STATE OF THE S		
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DATE SIGNED:

**REVISED 04/2019** 

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PROJECT NAME:	CEC K	arn LF: 2024 C	W Comp	PF	REPARED		CHECI	<b>KED</b>
PROJECT NUMB	ER: <del>- 55381</del> 4	<del>1.0000.0000 <b>≤</b></del>	SSY28 BY	: AW, JJ, Jk	ERDATE:3/50	24 BY: /	Aw	DATE: 2/21/24
SAMPLE ID: M	2 - 150	19	WELL DIA	METER: 🔽	] 2"	6" OTH	<del></del>	
WELL MATERIAL:	✓ PVC		IRON GA	LVANIZED	STEEL	□ отн	ER	
SAMPLE TYPE:	☑ GW	□ww □	SW 🗌 DI		LEACHATE	□ отн	ER	
PURGING	TIME: 9	51 DA	TE: µ		SAMPLE	TIME: 100	DA	TE: U
PURGE E	PUMP BAILER	PERISTALTIC F	PUMP	PH: ORP:	6.72 s	U CONDUC	TIVITY: <u>/763</u>	
DEPTH TO WATER	£ 5.33	T/ PVC		TURE	HDITY: O.C	NTU		
<b>DEPTH TO BOTTO</b>	M: 16.85	T/ PVC		N	ONE SLI	GНТ 🔲	MODERATE	☐ VERY
WELL VOLUME:	NA	LITERS	GALLONS	TEMP	ERATURE: 7	.27 ℃	FERROUS Fe	6.0 mg/L
VOLUME REMOVE	D: <u>/. 8</u>	LITERS	GALLONS	COLO	OR: Valonte	1	ODOR:	ryhol
COLOR:	Unish	OD	OR: Slight	FILTR	ATE (0.45 um)	YES	□ NO	
7		BIDITY			ATE COLOR:		FILTRATE ODOR	:
NONE S		MODERATE	☐ VERY	QC S	AMPLE: MS	/MSD	DUP-	
DISPOSAL METHO	D: GROUN	ND DRUM	OTHER	СОМ	MENTS:			
TIME PURGE	PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMPERATU	RE WATER	CUMULATIVE PURGE VOLUME
(ML/MIN	<u> </u>	(umhos/cm)	(mV)	(mg/L)	(NTU)	(°C)	(FEET)	(GAL OR L)
951 200	6.75	1763.1	-75.1	2.34	0.0	7.51	5.37	INITIAL
954	6.72	1765.3	- 12.2	1.76	3.65	7.46	5.43	0.6
957	6.72	1765.4	-86.5	1.65	0.0	7.35		1. 2
1000	6.72	1765.1	-87.9	1.63	0. O	7,27		1.8
								24
			***************************************		and the second section of the second second second second section second			3.0
				- <del> </del>				
				<del></del> -		<u> </u>		ļ
NOTE: S pH: +/- 0.1	TABILIZATION COND.: +/-			3 SUCCES D.O.: +/- 0.			THE FOLLOWIN	G LIMITS: TEMP.: +/-
BOTTLES FILLED	PRESERV	ATIVE CODES	A - NONE	B - HNO	C - H2SO4	4 D - NaOl	H E- HO	CL F
NUMBER SIZE	TYPÉ	PRESERVATI	VE FILTER	RED NUM	BER SIZE	TYPE	PRESERVATIV	/E FILTERED
250 m	L PLASTIC	A		Ŋ	125 mL	PLASTIC	D	□Y □N
<b>\</b> 125 m	L PLASTIC	А		] N	40 mL	VOA	E	☐ Y ☐ N
60 mL	. VOA	А	□ Y □	] N				□ Y □ N
125 m	L PLASTIC	В	□ Y 🗸	7 N	artinari artinari artinari angan artinari artinari artinari artinari artinari artinari artinari artinari artin	d a farmacan na canada da	an jaminus parine (" ) ( de rece r ) parine ( de parin arrent en parine ( de parine ( de parine) ( de parine ( de parine ( de parine) ( de parine ( de	□ Y □ N
125 m	L PLASTIC	С		] N				□ Y □ N
SHIPPING METHO	D: Cosri	'a / D	ATE SHIPPED	3/5	5/24	AIRBILL	NUMBER:	

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2007									
PROJECT				GW Comp				CHECK	(ED
PROJECT	NUMBER	: <del>5538</del> 14	.0000:0000	53728 BY: A	W, JJ, JK,	PATE: 3/5	724 BY: A	الللا	DATE 3/21/24
SAMPLE	D: MW	- 15	202	WELL DIAME	ETER: 🗸	2"	6" OTHE	R	
WELL MAT	ERIAL:	√ PVC	□ss □	IRON GAL	/ANIZED S	STEEL	OTHE	R	
SAMPLE TY	/PE:	√ GW	□ww □	SW 🗌 DI		LEACHATE	OTHE	R	
PURC	SING	TIME: 10	025 DA	TE: U	s	AMPLE	TIME: /O	DA'	TE: 🏕
PURGE METHOD		PUMP BAILER	PERISTALTIC F	PUMP	PH: ORP:	6.71 S		IVITY: <u>4727.</u>	**************************************
DEPTH TO	WATER:	161	T/ PVC			DITY: 0.0	NTU		ngang penteruntun d _{angga} pangka _{pangga} n kanapahanbahahan dan 18 sebengan menuntung
DEPTH TO			T/ PVC		NO	NE SLI	GHT 🗌 N	MODERATE	VERY
WELL VOL	JME:	NA	LITERS	GALLONS	TEMPE	RATURE: _8	.25 °C F	ERROUS Fe	6. 6mg/L
VOLUME R	REMOVED:	5.2	LITERS	GALLONS	COLO	R: Drange		DOR:	12927
COLOR:	_Or	ange	OD	OR: Stylet		ATE (0.45 um)	YES	Z NO	
		•	BIDITY		FILTRA	TE COLOR:		FILTRATE ODOR:	
NONE			MODERATE	☐ VERY	QC SA	AMPLE: 🗌 MS	/MSD [	DUP-	
DISPOSAL	METHOD:	☑ GROUN	ID 🗌 DRUM	OTHER	COMM	MENTS:			
TIME	PURGE RATE	PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMPERATUR	E WATER	CUMULATIVE
	(ML/MIN)	(SU)	(umhos/cm)	(mV)	( mg/L)	(NTU)	(°C)	LEVEL (FEET)	PURGE VOLUME (GAL OR L)
1025	201	7.46	576.4	. 85.9		7.64	8.18	6.61	INITIAL
1028		6.82	3062.1	-61.4	1.73	511.66	7.22	6.81	0.6
1031		6.76	3747.5	-63.2	1.65	273.06	8.14	6. 85	1.2
1034		6.74	4010.2	-64.5	1.61	177.1	8.07	6.86	1.8
1037		6.73	4231.1	-65.9	1.61	0.0	8.2		2.4
1040		6.72	4367.6	-67.6	1.6	6.0	8.22		3.0
1043	V	6.72	4461.0	-68.5	1.63	13.61	8.19		3.6
1046		6.71	4591.4		1.65	0.0	8.26		4.2
1049		6.71	4648.9	-69.3	1.72	0.23	8.2	6.86	4.8
	W		4727.6	-69.2		7	8.25	i	5.2
								THE FOLLOWING	
pH: +/-				+/- <b>10</b> D.					TEMP.: +/-
BOTTLES	S FILLED	PRESERV	ATIVE CODES	A - NONE	B - HNO3	C - H2SO4	D - NaOH	E- HC	L F
NUMBER	SIZE	TYPE	PRESERVATI	VE FILTERED	O NUME	BER SIZE	TYPE	PRESERVATIV	'E FILTERED
l	250 mL	PLASTIC	А		N	125 mL	PLASTIC	D	□ Y □ N
l	125 mL	PLASTIC	Α		N	40 mL	VOA	E	□ Y □ N
	60 mL	VOA	А		N			The second secon	□ У □ И
l	125 mL	PLASTIC	В		N	wallow op act and an tentent of the Printers.		TO STATE A STATE OF THE PARTY OF THE STATE O	□ Y □ N
	125 mL	PLASTIC	С	□ Y □	N	and the second s		r general en many mandre mandre partier de 1970 de 197	□Y □N
SHIPPING	METHOD:	Court	D/	ATE SHIPPED:	3/5	124	AIRBILL N	UMBER:	
COC NUMI	BER:	- بعیب		GNATURE:	1/	000	DATE SIG	arth a shadhan is ne dalan a franch to balladae na panta a bara da antipolatica	3/5/211
					m f	11 19-1	- 1 3,0		1-107

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PROJECT	NAME:	CEC K	(arn LF: 2024 G	∋W Comp	PR	REPARED		CHECK	ŒD
PROJECT	NUMBER	t: 553814	4.0000.0000	BY:	AW, JJ, JK	ERDATE: 3/9	5/24 BY: 1	tw 1	DATE: 3/21/24
SAMPLE II	D: /41	/ - ۵	5016	WELL DIAN	METER: 🔽	2"	6" OTHE	R	
WELL MATE		✓ PVC	Carl Print Street Street Street Street Street Street	IRON GAL	LVANIZED S	STEEL	OTHE	R	
SAMPLE TY	/PE:	☑ GW	□ww □	SW 🗌 DI		LEACHATE	OTHE	R	And the second s
PURG	SING	TIME: ///	16 DA	TE: 3/5/20	, s	SAMPLE	TIME: //	10 DA	TE: 4
PURGE METHOD	٠. ـــــــ	PUMP I BAILER	PERISTALTIC P		PH:	6.98 si		TIVITY: <u>/3/7.</u> 1.53 mg/	
DEPTH TO	WATER:	3.12	T/ PVC					The state of the s	
DEPTH TO	BOTTOM:	7.76	T/ PVC		NO	NE SLI	GHT [] N	MODERATE	☐ VERY
WELL VOLU	JME:	NA [	LITERS	GALLONS	TEMPI	ERATURE: <u>5</u>	.84 °C F	ERROUS Fe	<b>7.</b> 6 mg/L
VOLUME R	REMOVED:	4.8	LITERS	GALLONS	COLO	R: Cleri	<u>sh</u> (	ODOR:	N.
COLOR:		rish	OD(	OR: <b>//)</b>	FILTR/	ATE (0.45 um)	YES [	□ NO	
		TURE	BIDITY			ATE COLOR:		FILTRATE ODOR:	
NONE			MODERATE	VERY			/MSD [	DUP-	
DISPOSAL		GROUN	ND DRUM	OTHER	COMIN	MENTS:			
TIME	PURGE RATE		CONDUCTIVITY		D.O.	TURBIDITY	TEMPERATUR	LEVEL	CUMULATIVE PURGE VOLUME
	(ML/MIN)	(SU)	(umhos/cm)	(mV)	( mg/L)	(NTU)	(°C)	(FEET)	(GAL OR L)
1116	200	6.99	936.92	£70.3	2.99	215.9	7.12	3.12	INITIAL
11/9	11	7.03	1076.3	-86.2	1.75	98.16	6.07		D.6
1122		1 1	1209.0	-91.4	1.61	45.75	5.95		1.2
1125		6.99	1246.2	-94.5	1.58	21.35	5.91		1.8
1128		6.99	1264.8	-96.6	1.56	8.3	5.88		2.4
1131		6.99	1266.7	-98.3	1.59	5.35	5.83		3.0
1/34		6.98	1307.7	- 180.3	1.54	0,09	5.79		3.6
1137		1.98	1312.9	-101.3	1.53	0.0	5.84		4.2
1140	¥	6.98	1517.8	-102.4	1.53	0.6	5.84	1	4.8
pH: +/-	0.1	COND.: +/-	3 % ORP:	: +/- <b>10</b> E	D.O.: +/- <b>0.</b> 3	3 TURB: +/-	10 % or		TEMP.: +/-
BOTTLES	1	<del> </del>	ATIVE CODES	<u> </u>	B - HNO3		T		<del></del>
NUMBER	SIZE	TYPE	PRESERVATI		<del></del>		TYPE	PRESERVATIV	
1	250 mL	PLASTIC			] N	125 mL	PLASTIC	D	
1	125 mL	PLASTIC	A A			40 mL	VOA	E	
	60 mL	VOA	A		] N		<u> </u>		
	125 mL	PLASTIC			=+		-		
	125 mL	PLASTIC	1		] N	<u> </u>			
SHIPPING	METHOD:	Coscio	w DA	ATE SHIPPED:	3/5/	24	AIRBILL N	NUMBER:	
COC NUMI	BER:		SI	IGNATURE:	the	201	DATE SIG	SNED:	3/5/24

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### **WELL INSPECTION REPORT**

										_
PROJECT NAME: CEC Karn BAP/LI: 2024 GW Compliance							S	AMPLER NAME:	J. Jasso, J. Krenz, A. Whaley E. Rinehart	
PROJECT NO	O.: 553814	.0001.0000							ATE: 3/5/24	,316/24
WELL ID	PROTECTIVE CASING		DEGREE OF IMMOBILITY OF PROTECTIVE CASING	PERMANENT LEGIBLE	LOCK	WELL CAP	EASE OF REMOV	INSERTIN	- · • · - · · · · · · · · · · · · · · ·	COMMENT

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WELL ID	PROTECTIVE CASING	SURFACE SEAL	DEGREE OF IMMOBILITY OF PROTECTIVE CASING	PERMANENT LEGIBLE LABELS	LOCK	WELL CAP	EASE OF INSERTING / REMOVING BAILER + bing	/ SEDIMENT IN WELL	COMMENT
OW-10			Immobile		V	NO		med dask a	sax Sodiment, in well screen
DEK-MU-1500)	· /	$\sqrt{}$	11	$\checkmark$	V	NO	Good	NA	Transducer in well; no well cas
QU-11	<b>V</b>		11		$\sqrt{}$	NO	Good	med-dashas	a Transdolar in well, when still
OW-12			11				Good	NA	very torbid orange sing modes of in
DEKNUTSOOL	i V		11		<b>√</b>	NO	600d	NA	GW jower than peristallic lepobil
DEHMW-2002			11		NO	NO	Gooj		
DE 12-11W-2200	r V		11		NO	1 '		Low	Heavy Oxidized possewater at sta
DEK-MW-72024	. /		11		NO	NO	Good	LOW	, , , , , , , , , , , , , , , , , , , ,
DEK-MWAZOG	/		11		NO	NO		Low	
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SIGNED WHAT

3/20/24 DATE CHECKED BY

7/21/29 DATE

**REVISED 06/2011** 

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#### CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

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Counton Us^o 135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251

SAMPLING SITE / CUSTOMER: Q1-2024 DEK Bottom Ash Pond & Lined Impound				PROJECT NUMBER: SAP CC or WO#:										YSIS		QA REQUIREMENT:					
SAMPLING TEAM:		_		<b>24-0128</b> TURNAROUND TIME REQUIRED:  □ 24 HR □ 48 HR □ 3 DAYS □ ST.	REQUESTER:			egis	ter				Allac	n Lis	SE II IV.	iore s	pace	is Ne	eded)		□ NPDES ⊠ TNI
SEND REPORT TO:	Joseph Firlit			email:	phone:																□ ISO 17025
COPY TO:	Harold Regis			MATRIX CODES:			CO	NTA	LINE	ERS				hate							☐ 10 CFR 50 APP. B
	TRC			GW = Groundwater OX = Other WW = Wastewater SL = Sludge			P	RES	ERV	ATI	VE	ıls		Joost							☐ INTERNAL INFO
LAB	SAMPLE COL	LECTION	XIX	W = Water / Aqueous Liquid         A = Air           S = Soil / General Solid         WP = Wipe           O = Oil         WT = Gene	ral Waste	TOTAL#						Total Metals	Suc	Ammonia, Phosphate		Alkalinity	de		lane		□ OTHER
SAMPLE ID	DATE	TIME	MATRIX	FIELD SAMPLE ID / LO	CATION	TOT	None	SH	NaOi	HCI	MeOH	Tota	Anions	Amu	TDS	Alka	Sulfide	TOC	Methane		REMARKS
24-0128-01	3/4/24	1905	GW	DEK-MW-18001		10	4	1 1	1	3		х	x	х	х	x	x	x	x		
-02	Ì	1	GW	DEK-MW-18001 MS		7	3	1 1	. 1	1		х	x	х		x	x	х			
-03	V	4	GW	DEK-MW-18001 MSD		7	3	1 1	1	1		x	x	х		x	x	х			· · · · · · · · · · · · · · · · · · ·
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135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251

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SAMPLING SITE / CUSTOMER:				PROJECT NUMBER: SAP CC or WO#:																		
Q1-2024 DEK Lined				24-0129	REQUESTER			200	iatar				(			YSI st if N	)	QA REQUIREMENT:				
SAMPLING TEAM:				TURNAROUND TIME REQUIRED:				CCg.	ISICI			_		`								□ NPDES ⊠ TNI
SEND REPORT TO:	Joseph Firlit			email:	phone:																Mefals	□ ISO 17025
COPY TO:	Harold Regist	ter		MATRIX CODES:  GW = Groundwater OX = Other  WW = Wastewater SL = Sludge  W = Water / Aqueous Liquid A = Air			т.			NER VA	RS TIVI	Ξ.	als		Ammonia, Phosphate							
LAB	SAMPLE COLL	LECTION	X	S = Soil / General Solid   WP = Wipe   O = Oil   WT = Gene		TOTAL#			4		7		Total Metals	suc	onia, l		Alkalinity	de		ane	Dissolved	□ OTHER
SAMPLE ID	DATE	TIME	MATRIX	FIELD SAMPLE ID / LOC	CATION	TOT	None	ONH	H ₂ SO	NaOF	MeOH	Other	Tota	Anions	Amn	TDS	Alka	Sulfide	TOC	Methane	Dis	REMARKS
24-0129-01	15/24	ial	GW	DEK-MW-15003		10	4	1	1	1 3	3		x	x	x	х	x	x	x	х		
-02	315/24	0910	GW	OW-10		10	4	1	1	1 3	3		,x	x	х	x	x	x	x	x	X	Dissolved metals were field Filtere
-03	315/24	1200	GW	OW-11		10	4	1	1	1 3	,		х	х	х	х	x	x	х	x		,
-04	3/5/24	1450	GW	OW-12		10	4	1	1	1 3	3		x	x	х	х	x	x	х	х		
			-sw	SW-DITCH		10	4	1	1	1 3				ж-		-х-	<del>-%-</del>	e X_	*	X		DO
-06	315/24		GW	DUP-KLI	~···	10	4	1	1	1 3			x	x	х	x	x	x	x	х		12.1
-07	315/24	1500	W	EB-KLI		7	1	1	1	1 3			x	x	x			x	x	х		
-08	3/5/21	1450	w	FB-KLI		7	1	1	1	1 3			х	x	x			х	x	х		
-09	315124	1320	W	KLI-SCS		5	4	1					х	x		х	x					
-10	3/5/24	1330	sw	KLI-PCS		5	4	1					x	x		x	х					
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#### CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251

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SAMPLING SITE / CUSTOMER:					PROJECT NUMBER:	PROJECT NUMBER: SAP CC or WO#:										LYS:						
Q1-2024 JCW-DEK	Backgro	und W	ells		24-0131	REQUESTER	: Haro	ld I	Regi	ster				(Atta	ich L	ist if l	More	)	QA REQUIREMENT:			
SAMPLING TEAM:	TRC	•	·		TURNAROUND TIME REQUIRED:  24 HR    48 HR    3 DAYS    ST	ANDARD ⊠ OI	HER_															□ NPDES ⊠ TNI
SEND REPORT TO:	Joseph	Firlit			email:	phone:																☐ ISO 17025
COPY TO:	Harold TRC	Regist	ter		MATRIX CODES: GW = Groundwater WW = Wastewater OX = Other SL = Sludg				ONT.		ERS /ATI	VE	ls			1						☐ 10 CFR 50 APP. B☐ INTERNAL INFO
LAB	<u> </u>	E COLL	LECTION	X	W = Water / Aqueous Liquid		AL#		П	Ī	П		Total Metals	su								OTHER
SAMPLE ID	DAT	ſΈ	TIME	MATRIX	FIELD SAMPLE ID / LOG	CATION	TOTAL	None	ONH	NaOH	HCI	MeOH	Tota	Anions	TDS							REMARKS_
24-0131-01	3/5/	ry	1052	GW	MW-15002		3	2	1				x	x	х							
-02	3/5/	24	919	GW	MW-15008		3	2	1	1			х	х	x							
-03	3/5/	24	1140	GW	MW-15016		3	2	1				х	x	x							
-04	3/5/2	24	1000	GW	MW-15019		3	2	1				х	x	х	<u> </u>						
-05	3/5/2	4		GW	DUP-Background		3	2	1				х	х	x.	-		_	_			
-06	3/5/2	4		W	FB- Background		1						x					_				
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#### CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

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	!	Count on Us®			135 WEST TRAIL ST	., JACKSON, MI	4920	1 ,	, (:	01/)	/88-	-123	1										
AMP.	LING SITE / CU	JSTOMER:			PROJECT NUMBER:	SAP CC or W	O#:							Α	NAI	YSI							
21-20	24 DEK Botto	m Ash Pond	Wells		24-0127	REQUESTER	R: Haro	old R	legis	ter			•							eded)		QA REQUIREMENT:	
AMP	LING TEAM:				TURNAROUND TIME REQUIRED:	<del></del>		-														□ NPDES	
-				-	□ 24 HR □ 48 HR □ 3 DAYS □	STANDARD 🛮 OT	HER_					_										⊠ TNI	
SEND	REPORT TO:	Joseph Firl	it		email:	phone:				_			Ì		ate		}					□ ISO 17025	
C	COPY TO:	Harold Reg	ister		MATRIX CODES: GW = Groundwater OX = Ot	her	T	CO	NTA	AINE	ers				ydsc		,					☐ 10 CFR 50 APP. B	
	** .	TRC			WW = Wastewater SL = Slow W = Water / Aqueous Liquid A = Air	adge		1.	RES	ERV	ATIV	E	als		, Ph							☐ INTERNAL INFO	
	LAB	SAMPLE CO	LLECTION	X	S = Soil / General Solid WP = V		AL#						Metals	ns	nonia		liit	de		lane		☐ OTHER	
SA	MPLE ID	DATE	TIME	MATRIX	FIELD SAMPLE ID / L	OCATION	TOTAL#	None	HINO,	NaOH	HCI MeOH	Other	Total	Anions	Ammonia, Phosphate	TDS	Alkalinity	Sulfide	TOC	Methane		REMARKS	
2	4-0127-01	3/5/24	1439	GW	DEK-MW-15002		10	4	1 1	1	3		х	x	x	х	х	х	x	х			
	<del>- 02</del>	*		GW	DEK-MW-15005		10	4	1 1		3			<del></del>	X	х	х	х	X	х			
	-03	3/5/24	1521	GW	DEK-MW-15006	<u>-</u>	10	4	1 1	1	3		x	x	x	x	x	х	x	x			
	04			GW	DUP-DEK-BAP-01		10	4	1 1	1	3		X	x	x	x	X	Х	×	×			
	05			W	FB-DEK-BAP		7	1	1-1-1	1	3		Y	x	_x_			х	х	<u>x</u>			
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### CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

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nt on Us®	135 WEST TRAIL ST., JACKSON, MI 49201	• (517) 788-1251

SAMPLING SITE / CU	ISTOMER:			PROJECT NUMBER:	SAP CC or WO	)#:							ANALYSIS REQUESTED								
Q1-2024 DEK Botton	m Ash Pond We	:lls		24-0127	REQUESTER:	Harc	ld F	 legi	ster			(Attach List if More Space is Needed)									QA REQUIREMENT:
SAMPLING TEAM:			<u></u> ,	TURNAROUND TIME REQUIRED:																	☐ NPDES
				□ 24 HR □ 48 HR □ 3 DAYS □ STA	☐ 24 HR ☐ 48 HR ☐ 3 DAYS ☐ STANDARD ☒ OTHER									ļ						⊠ TNI	
SEND REPORT TO:	Joseph Firlit			email:	phone:									hate		į į					☐ ISO 17025
COPY TO:	Harold Regist	er		MATRIX CODES:  GW = Groundwater  OX = Other			_			ERS				Phosphate							□ 10 CFR 50 APP. B
	TRC			WW = Wastewater		PRESERVATIVE			etals	1	ia, P		2					☐ INTERNAL INFO			
LAB	SAMPLE COLL	ECTION	MATRIX	O = Oil WT = Gene	ral Waste	TOTAL#	9	ر	3 E		H.	Total Metals	Anions	Ammonia,	S	Alkalinity	Sulfide	ပ	Methane		□ OTHER
SAMPLE ID	DATE	TIME	MA7	FIELD SAMPLE ID / LOC	CATION	12	Non	Ĭ	Z Z	되	MeOH	Tol	An	Am	TDS	Alk	Sul	TOC	Me		REMARKS
24-0127-01			GW	DEK-MW-15002		10	4	1	1 1	3		x	x	x	x	х	х	х	x		
-02	3/6/24	856	GW	DEK-MW-15005		10	4	1	1 1	3		x	x	x	x	x	x	x	x		
-03	(		GW	DEK-MW-15006		10	4	1	1 1	3		x	х	x	х	x	х	x	x		
-04	3/6/24		GW	DUP-DEK-BAP-01		10	4	1	1 1	3		x	x	x	x	х	x	x	x		
-05	3/6/24		w	FB-DEK-BAP		7	1	1	1 1	3		х	х	x			x	х	x		
-06	3/6/24		w	EB-DEK-BAP		7	1	1	1 1	3		x	х	x			х	x	x		
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#### CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

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	Count on Us®			135 WEST TRAIL ST.,	JACKSON, MI 4	9201	•	(5	17)	788-	125	1								•	01
SAMPLING SITE / CU	STOMER:			PROJECT NUMBER:	SAP CC or WO	)#:						-	A	NAL	YSIS	S RE	QUE	STE	—— D		O A DECLIPE EN
Q1-2024 DEK Botto				24-0130	REQUESTER:	Haro	ld Re	egis	ter	-		(	Attac	h Lis	t if M	lore S	pace	is Ne	eded)	li li	QA REQUIREMENT:
SAMPLING TEAM: 🖊	. Whaley			TURNAROUND TIME REQUIRED:												*	☐ NPDES				
E	. Rineh	ast		□ 24 HR □ 48 HR □ 3 DAYS □ ST	TANDARD 🛭 OTH	IER _					-	İ								Metal	⊠ TNI
SEND REPORT TO:	Joseph Firlit			email:	phone:									ate						2	☐ ISO 17025
COPY TO:	Harold Regist	er		MATRIX CODES:  GW = Groundwater OX = Othe	GW = Groundwater $OX = Other$		CONTAINERS			_		Ì	Phosphate						- ਦ	☐ 10 CFR 50 APP. B	
	TRC			W = Water / Aqueous Liquid A = Air			Metals		a, Pi		>			i	3	☐ INTERNAL INFO					
LAB	SAMPLE COLL	ECTION	RÍX	S = Soil / General Solid WP = Wip O = Oil WT = Gen	oe neral Waste	TOTAL #		200				ıl Me	suc	Ammonia,		Alkalinity	ide	7)	Methane	Ssaived	□ OTHER
SAMPLE ID	DATE	TIME	MATRÍX	FIELD SAMPLE ID / LO	CATION	TO	None	HSC	NaO]	HC! MeOH	Other	Total	Anions	Ami	TDS	Alk	Sulfide	TOC	Met	Ä	REMARKS
24-0130-01	_		GW	DEK-MW-15004		10	4	1 1	1	3		x	x	x	x	x	x	x	x		*Dissolved Netals samples were fie filtered
-02	3/6/24	1124	GW	DEK-MW-22001		10	4	1 1	1	3		x	x	х	х	x	х	х	x		filtered
-03	3/6/24	0925	GW	DEK-MW-22002		14	4	1	1	3		х	x	x	x	x	x	x	x	X	
-04	3/6/24	1235	GW	DEK-MW-22003		10	4	1 1	1	3		x	x	x	х	x	x	x	х	-	
-05	3/6/24	0601	GW	DEK-MW-22004		10	4	1 1	1	3		х	x	х	х	х	х	х	х		
-06	3/6/24	1258	GW	DEK-MW-22005		10	4	1 1	1	3		x	x	x	х	x	x	х	x		
-07	3/6/24	1138	GW	DEK-MW-22006		10	4	<b>Q</b> 1	1	3		x	x	x	х	х	x	x	x	X	
-08	3/6/24		GW	DUP-DEK-BAP-02		10	4 ]	1	1	3		x	x	x	x	x	х	x	x		
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135 WEST TRAIL ST., JACKSON, MI 49201	•	(517) 788-1251

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SAMPLING					PROJECT NUMBER:		SAP CC or WO	D#:						ANALYSIS REQUESTED (Attach List if More Space is Needed)										QA REG	OTHER.	MENT.
Q1-2024 I	DEK Botton	m Ash Suppler	nental		24-0130		REQUESTER:	Haro	ld F	Regi	ster				(A	ttach	Lis	t if M	Iore S	Space	is Ne	eded)		QA KE	ZOIM	WILLINI.
SAMPLING	G TEAM:		-		TURNAROUND TIME REQUIRED:																			☐ NPDE	ΞS	
					□ 24 HR □ 48 HR □ 3 DAYS □	□ 24 HR □ 48 HR □ 3 DAYS □ STANDARD ☒ OTHER								İ								⊠ TNI				
SEND RE	PORT TO:	Joseph Firlit			email:		phone:										ate						.	□ ISO 1	7025	
COPY	Y TO:	Harold Regis	ster		MATRIX CODES: GW = Groundwater OX =	Other			CO	TNC	'AIN	ER	S				ydsc							□ 10 CF	'R 50 AI	PP. B
		TRC		-		Sludge			I	PRE	SER	VA)	TIVE	٦,	als		, Ph								RNAL I	NFO
LA	\ B	SAMPLE COL	LECTION	XI	S = Soil / General Solid WP =	= Wipe	al Waste	TOTAL#							Total Metals	Su	Ammonia, Phosphate		linity	de		lane			ER	
SAMP		DATE	TIME	MATRIX	FIELD SAMPLE ID /	LOC	ATION	TOT	None	HINO,	H ₂ SO ₄	HCI	MeOH	Other	Tota	Anions	Amn	TDS	Alkalinity	Sulfide	TOC	Methane		RF	EMARI	KS
24-01	130-01	3/11/27	1450	GW	DEK-MW-15004			10	4	1	1	l 3			x	x	x	х	х	х	х	x				
	-02		-	GW	DEK-MW-22001			10-	4	1	4-4-	<u> </u>		-	×	×	ж_	х.	_X_	-х-		<u> </u>				
	-03			GW	DEK-MW-22002			10	4	1	1	3		_	X-	×	X	X	-X-		×	X				
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# Appendix C Data Quality Reviews

# Laboratory Data Quality Review Groundwater/Surface Water Monitoring Event March 2024 DE Karn Lined Impoundment

Groundwater, water, and surface water samples were collected by TRC for the March 2024 sampling event. Samples were analyzed for total and/or dissolved metals, anions, total dissolved solids, ammonia, phosphate, and alkalinity by Consumers Energy (CE) Laboratory Services in Jackson, Michigan. The sulfide analyses were subcontracted to Merit Laboratories, Inc. (Merit) in East Lansing, Michigan. The total organic carbon and methane analyses were subcontracted to Brighton Analytical LLC (BAL) in Brighton, Michigan. The laboratory analytical results were reported in laboratory sample delivery groups (SDGs) 24-0129, S59475.01(01), and 95639.

During the March 2024 sampling event, a groundwater sample was collected from each of the following wells:

OW-10

OW-11

■ OW-12

DEK-MW-15003

During the March 2024 sampling event, the following water/surface water samples were collected:

KLI-PCS

KLI-SCS

Each sample was analyzed for one or more of the following constituents:

Analyte Group	Method
Anions (Fluoride, Chloride, Sulfate, Nitrate, Nitrite)	EPA 300.0
Total Dissolved Solids (TDS)	SM 2540C
Total and/or Dissolved Metals	SW-846 6020B
Total and/or Dissolved Mercury	SW-846 7470A
Alkalinity (Bicarbonate, Carbonate, and Total)	SM 2320B
Ammonia	SM 4500 NH3(h)
Sulfide	SM 4500 S2D
Phosphate	SM4500-P B5-E
Methane	RSK SOP-175
Total Organic Carbon (TOC)	SM 5310B

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

#### **Data Usability Review Procedure**

The analytical data were reviewed using the USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA, 2020). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

It should be noted that results for method blanks and LCSs were not provided for review by CE Laboratory Services and Merit. Therefore, potential contamination arising from laboratory sample preparation and/or analytical procedures and the accuracy of the analytical method using a clean matrix could not be evaluated for the total and dissolved metals, total and dissolved mercury, anions, alkalinity, TDS, ammonia, phosphate, and sulfide analyses.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

### **Review Summary**

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

The reviewed Appendix III, IV, optional Piper diagram analyses, additional Part 115 constituents, and additional geochemistry parameters will be utilized for the purposes of the detection monitoring program.

- Data are usable for the purposes of the detection monitoring program.
- When the data are evaluated through a detection or monitoring statistical program, findings below may be used to support the removal of outliers.

#### **QA/QC Sample Summary**

- Methane and TOC were not detected in the method blanks reported by BAL.
- One field blank (FB-KLI) and one equipment blank (EB-KLI) were collected with this data set. Target analytes were not detected above the RL in these blank samples with the following exceptions.
  - TOC was detected in EB-KLI at 1,500 μg/L and total chromium was detected in FB-KLI at 1 μg/L. Potential false positive exists for the positive results for total and/or dissolved chromium in select samples, as summarized in attachment A. There is no impact on data usability for TOC in the field samples due to the blank detection due to the nature of TOC.
- The LCS and/or LCSD recoveries and relative percent differences, as applicable, reported by BAL were within the laboratory's acceptance criteria for methane and TOC.
- Samples DUP-KLI and DEK-MW-15003 were submitted as the field duplicate pair with this data set; all criteria were met.
- Laboratory duplicate analysis was performed on sample DEK-MW-15003 for methane. All criteria were met.
- MS/MSD analyses were not performed on a sample from this data set.

#### Attachment A

Summary of Data Non-Conformances for Groundwater Analytical Data DE Karn Lined Impoundment Wells – CCR Monitoring Program Essexville, Michigan

Samples	Collection Date	Analyte	Non-Conformance/Issue
DEK-MW-15003	3/5/2024		
OW-10	3/5/2024		
OW-11	3/5/2024	Total Chromium	
OW-12	3/5/2024		Field blank contamination; potential false positive.
KLI-PCS	3/5/2024		
OW-10	3/5/2024	Dissolved	
OVV-10	3/3/2024	Chromium	

# Laboratory Data Quality Review Groundwater Monitoring Event March 2024 DE Karn Bottom Ash Pond and Lined Impoundment

A groundwater sample was collected by TRC for the March 2024 sampling event. The sample was analyzed for total metals, anions, total dissolved solids, ammonia, phosphate, and alkalinity by Consumers Energy (CE) Laboratory Services in Jackson, Michigan. The sulfide analysis was subcontracted to Merit Laboratories, Inc. (Merit) in East Lansing, Michigan. The total organic carbon and methane analyses were subcontracted to Brighton Analytical LLC (BAL) in Brighton, Michigan. The laboratory analytical results were reported in laboratory sample delivery groups (SDGs) 24-0128, S59419.01(01), and 95638.

During the March 2024 sampling event, a groundwater sample was collected from the following well:

#### DEK-MW-18001

The sample was analyzed for the following constituents:

Analyte Group	Method
Anions (Fluoride, Chloride, Sulfate, Nitrate, Nitrite)	EPA 300.0
Total Dissolved Solids (TDS)	SM 2540C
Total Metals	SW-846 6020B/7470A
Alkalinity (Bicarbonate, Carbonate, and Total)	SM 2320B
Ammonia	SM 4500 NH3(h)
Sulfide	SM 4500 S2D
Phosphate	SM4500-P B5-E
Methane	RSK SOP-175
Total Organic Carbon (TOC)	SM 5310B

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

### **Data Usability Review Procedure**

The analytical data were reviewed using the USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA, 2020). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;

- Data for method blanks, equipment blanks, and field blanks, where applicable. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates, when collected. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

It should be noted that results for method blanks and LCSs were not provided for review by CE Laboratory Services and Merit. Therefore, potential contamination arising from laboratory sample preparation and/or analytical procedures and the accuracy of the analytical method using a clean matrix could not be evaluated for the total metals, anions, ammonia, phosphate, TDS, alkalinity, and sulfide analyses.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

### **Review Summary**

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

- The reviewed Appendix III, IV, optional Piper Diagram analyses, additional Part 115 constituents, and additional geochemistry parameters will be utilized for the purposes of a detection or assessment monitoring program.
- Data are usable for the purposes of the detection or assessment monitoring program.
- When the data are evaluated through a detection or assessment monitoring statistical program, findings below may be used to support the removal of outliers.

### **QA/QC Sample Summary**

- Methane and TOC were not detected in the method blanks reported by BAL.
- A field blank was not collected with this data set.
- An equipment blank was not collected with this data set.

- MS and MSD analyses were performed on sample DEK-MW-18001 for total metals, anions, ammonia, total alkalinity, phosphate, sulfide, and TOC. The recoveries were within the acceptance limits. Relative percent differences (RPDs) were not provided by the laboratory for all parameters except TOC and therefore were not evaluated; further, with the exception of sulfide and TOC, MS/MSD concentrations were not provided by the laboratory. However, since all recoveries were within the acceptance limits, there is no impact on data usability due to this issue.
- The LCS and/or LCSD recoveries and RPDs, as applicable, reported by BAL were within the laboratory's acceptance criteria for methane and TOC.
- A field duplicate pair was not collected with this data set.
- Laboratory duplicate analyses were not performed on the sample from this data set.



# **Appendix D Statistical Analysis**

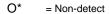
#### Appendix D

#### Statistical Summary for DE Karn Lined Impoundment First Quarter 2024

Data from May 2022 to March 2024

	Karn Lined Impoundment Wells												
PARAMETER	Range, Test, or Limit	DEK-MW-15003	DEK-MW-18001	OW-10	OW-11	OW-12							
Boron	Trend	0	0	0	0	0							
Calcium	Trend	0	$\downarrow$	0	0	0							
Chloride	Trend	0	0	0	0	↓*							
Fluoride	Trend	O*	O*	O*	0	O*							
Iron	Trend	0	$\downarrow$	0	0	0							
рН	Trend	0	0	0	0	0							
Sulfate	Trend	<u></u>	0	0	0	0							
Total Dissolved Solids	Trend	0	0	0	0	0							

#### Notes:



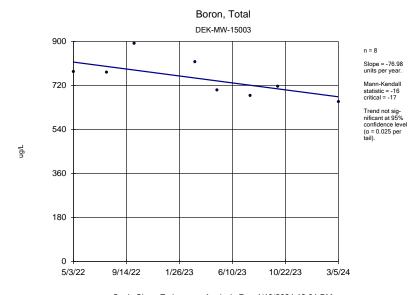
↑ = Upward trend, continuous

↑* = Upward trend, new

= Upward trend, confirmed

= Downward trend, continuous

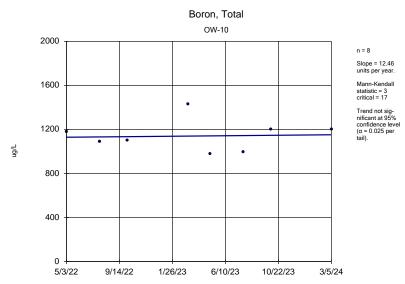
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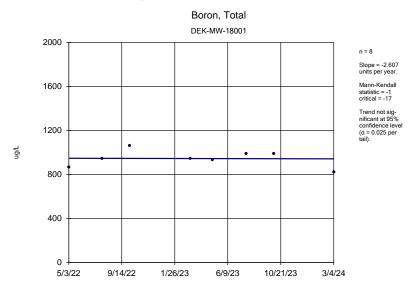
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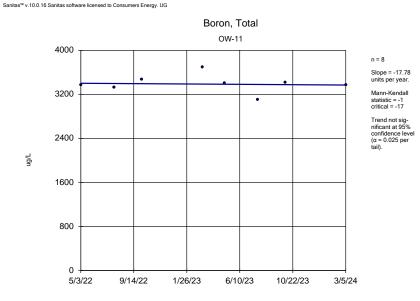
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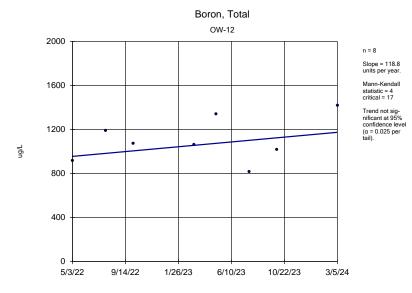
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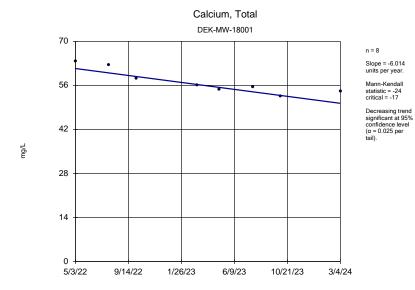
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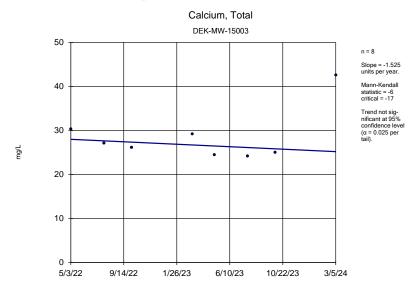
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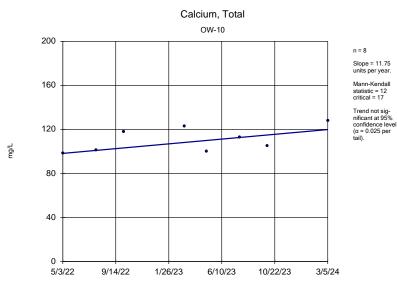


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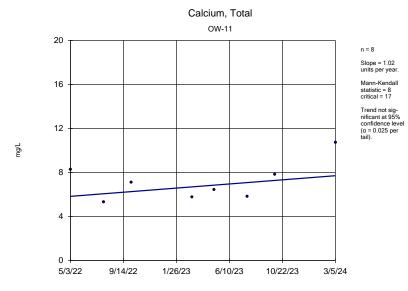
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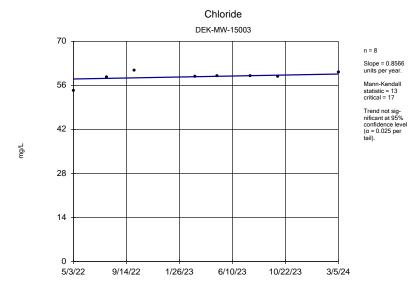
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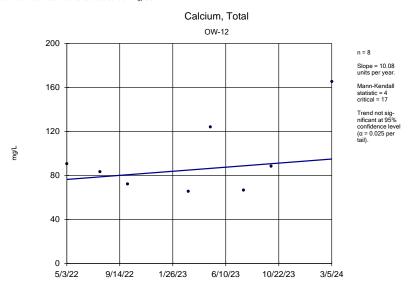


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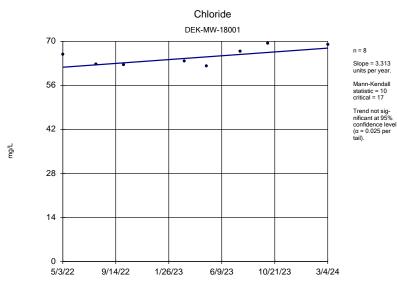
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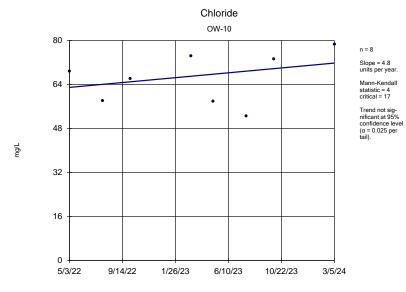
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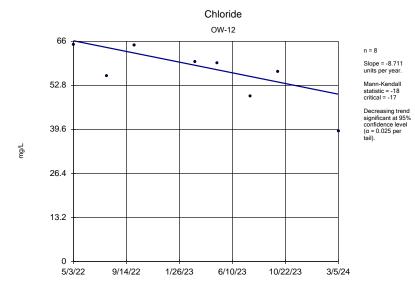
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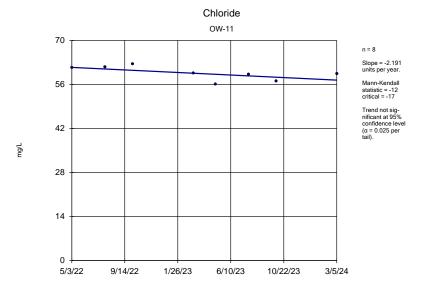


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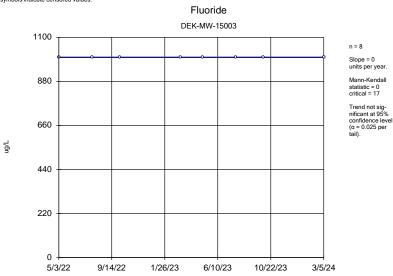


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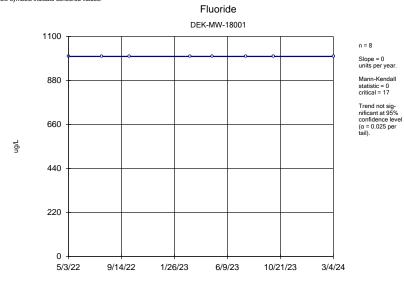
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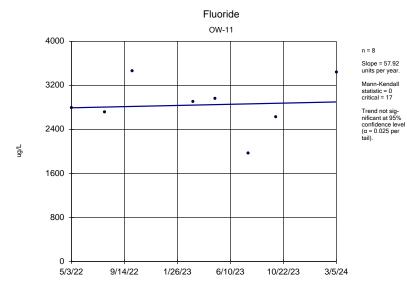
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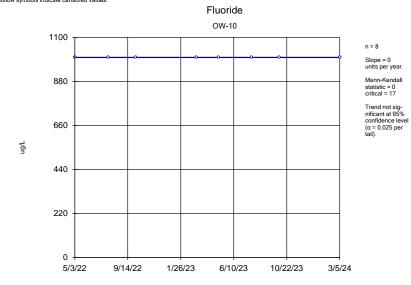
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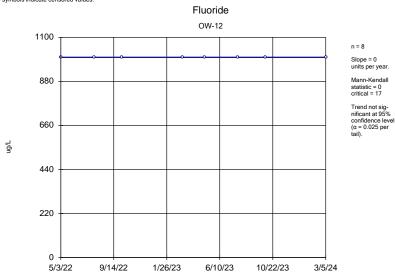
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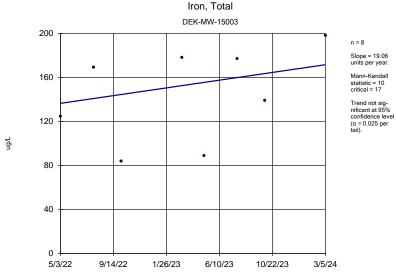
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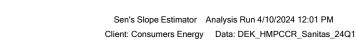
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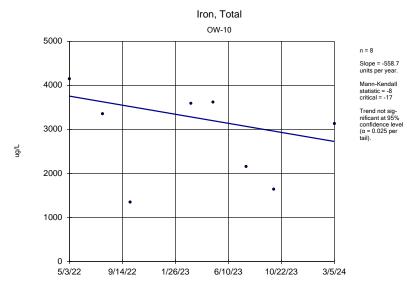


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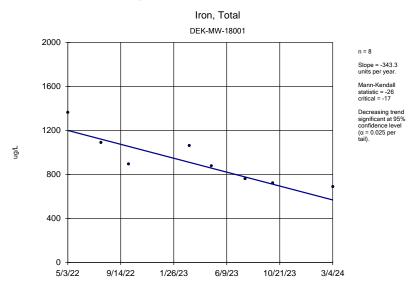
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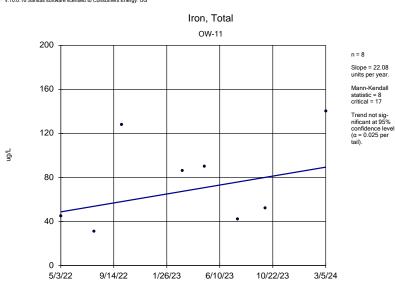
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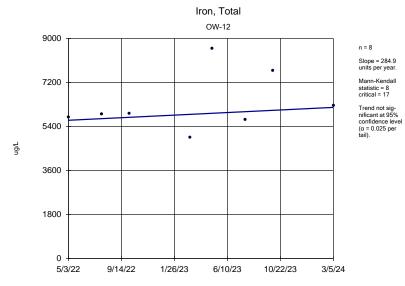
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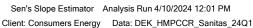
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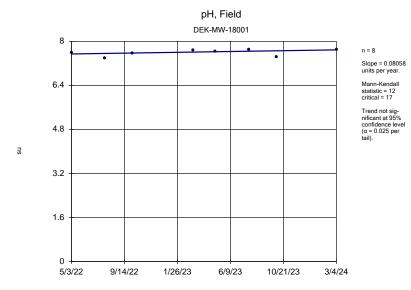


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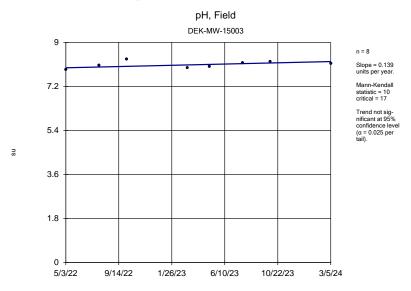
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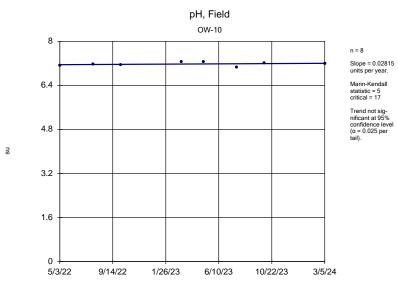


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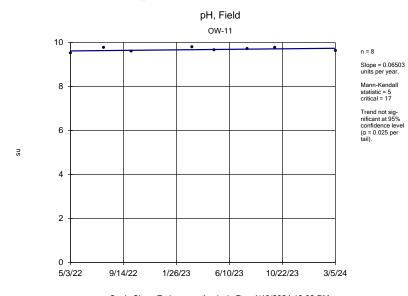


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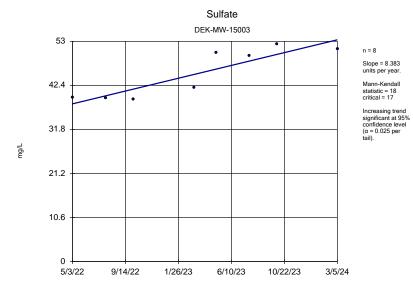


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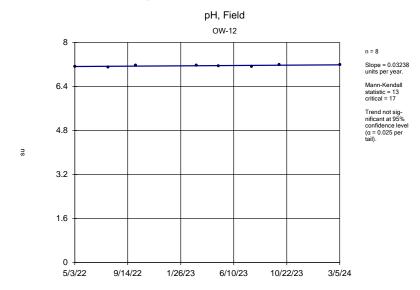


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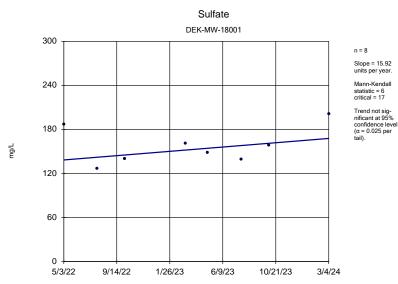
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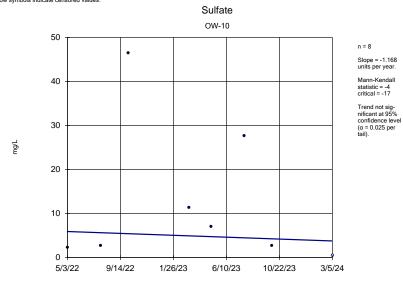
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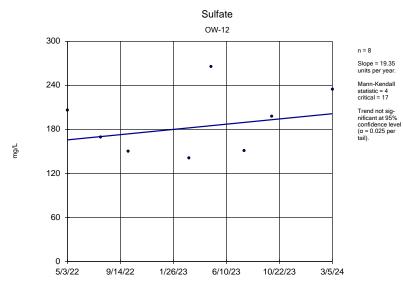


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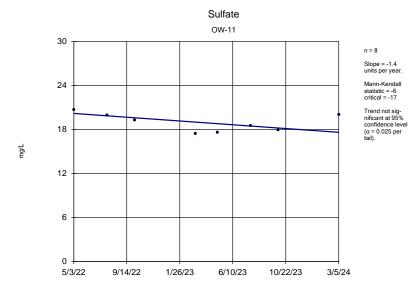


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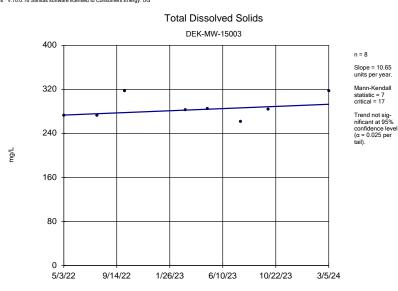
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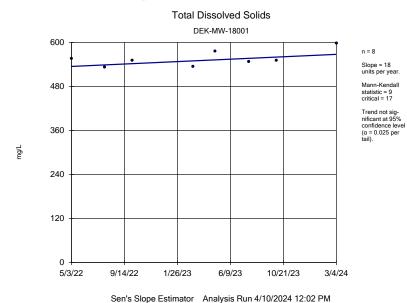
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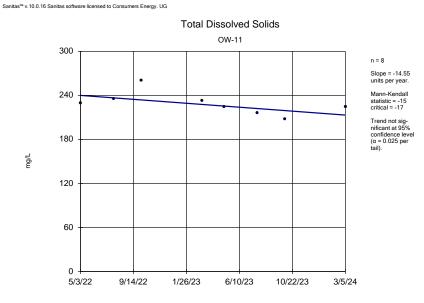


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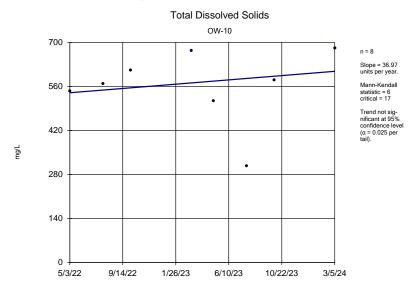
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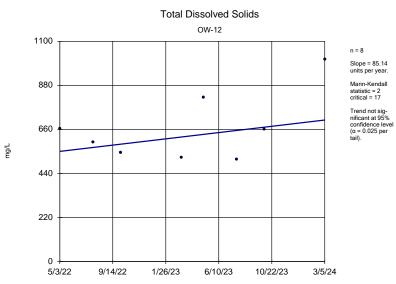
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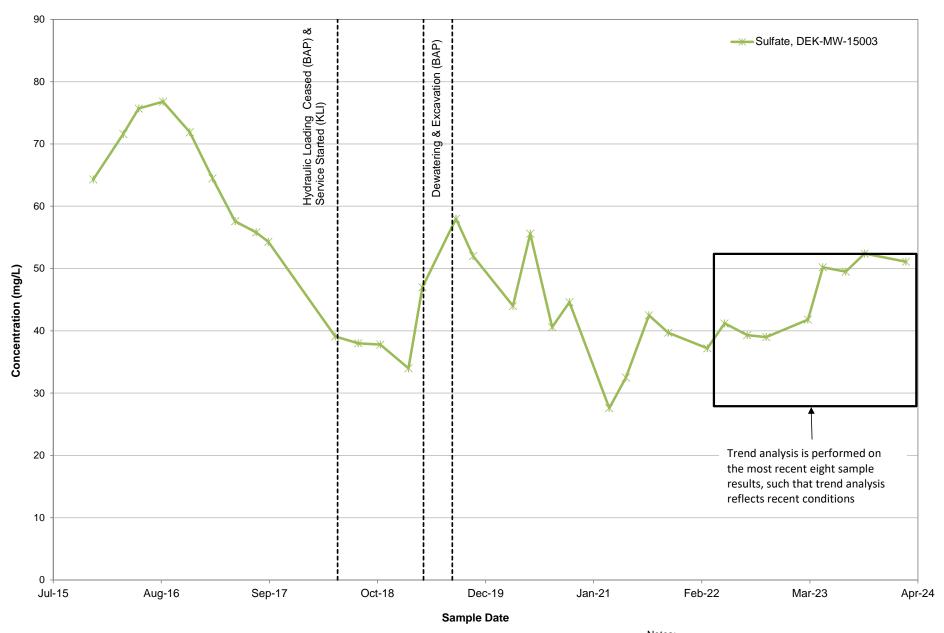
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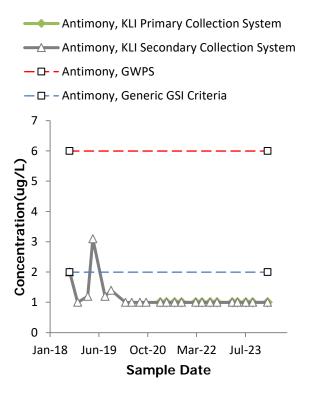
Chart 1: Sulfate at DEK-MW-15003

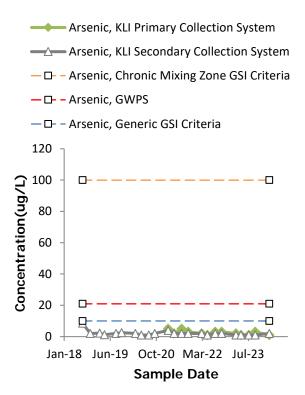


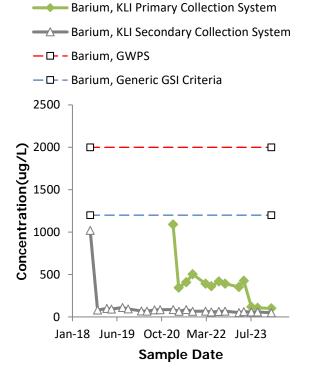
Notes:
BAP = Bottom Ash Pond; KLI = Karn Lined Impoundment

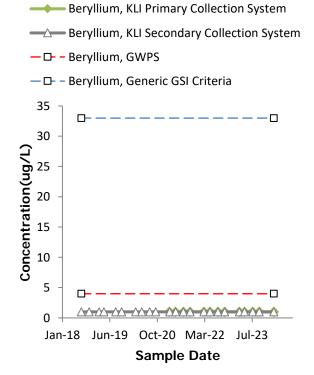


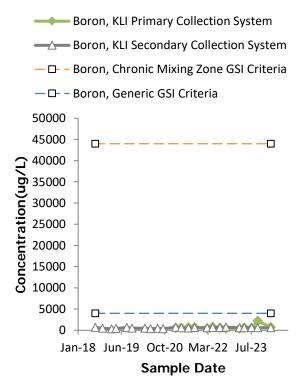
# Appendix E Secondary Leachate Collection System Monitoring

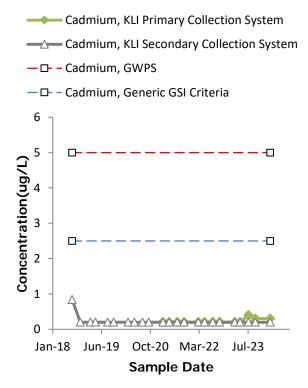


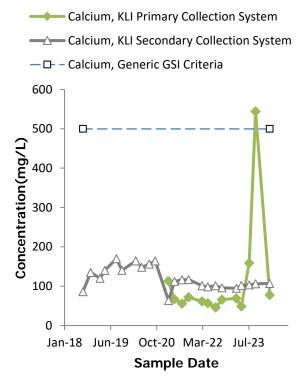


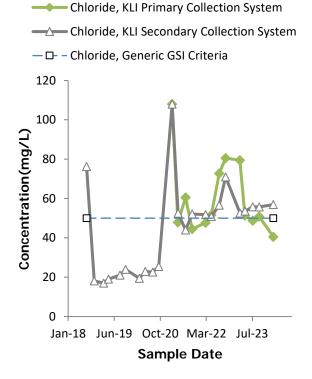


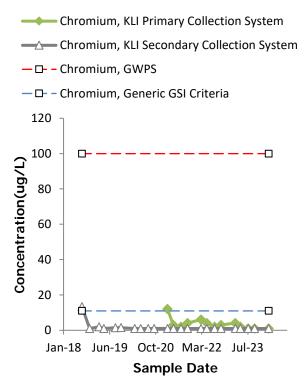


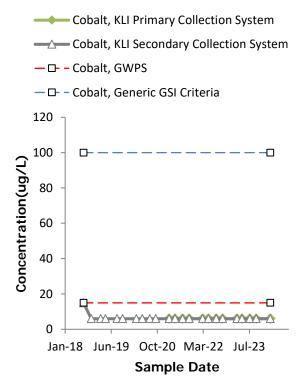


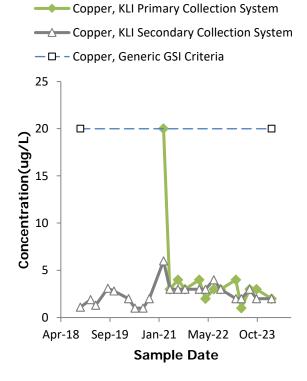


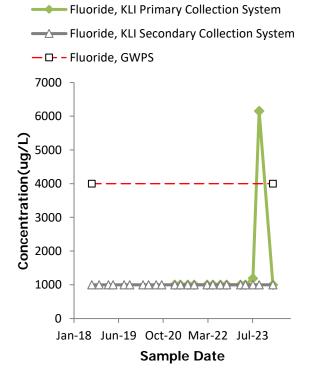


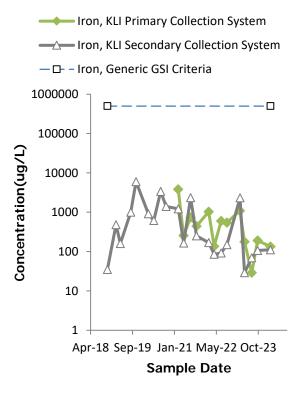


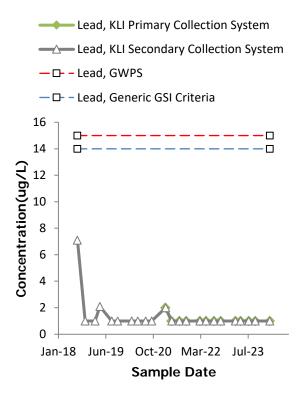


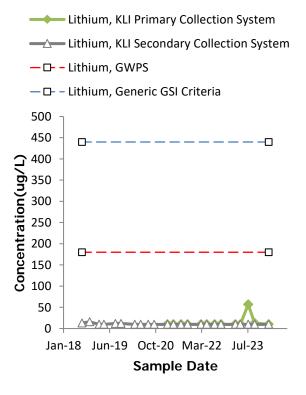


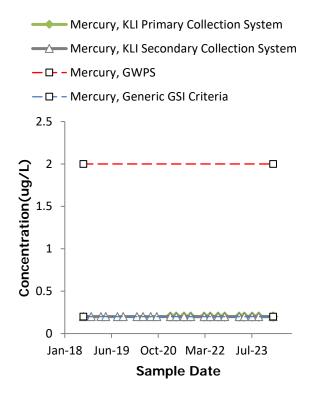






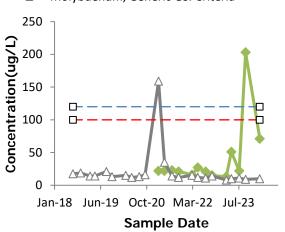


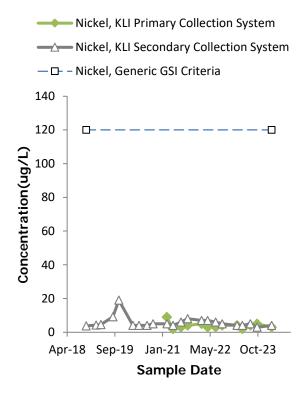


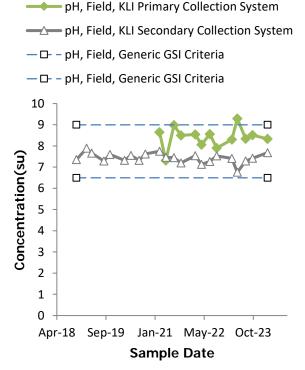


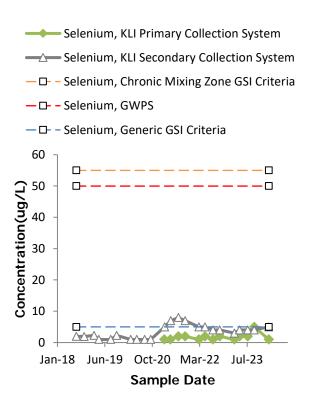


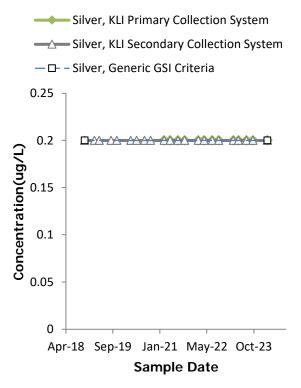
- □ Molybdenum, GWPS
- □- Molybdenum, Generic GSI Criteria

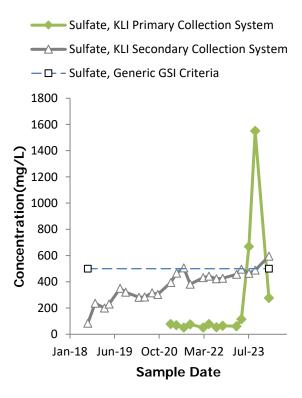


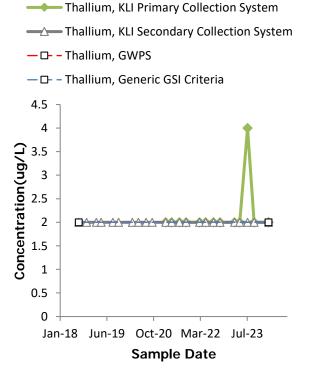


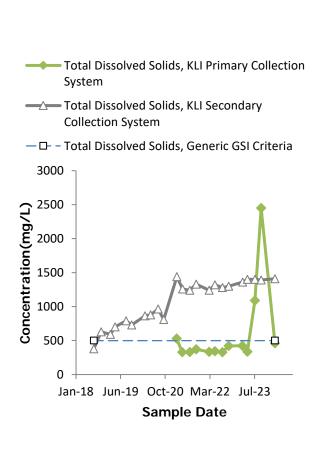


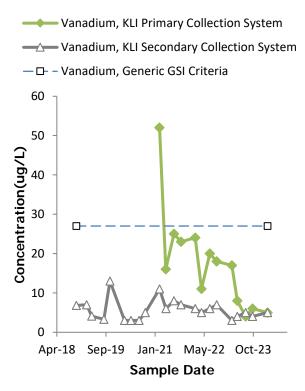


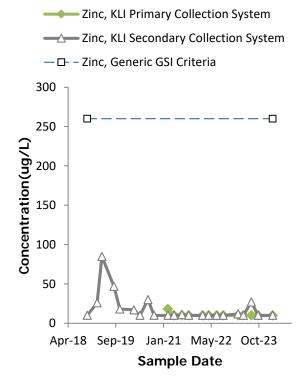














# **Enclosure 3**

Second Quarter 2024 Hydrogeological Monitoring Report, DE Karn Lined Impoundment CCR Unit, Essexville, Michigan. (TRC, July 30, 2024)



# Second Quarter 2024 Hydrogeological Monitoring Report

**DE Karn Lined Impoundment CCR Unit** 

**Essexville**, Michigan

July 2024

Darby Litz

Project Manager/Hydrogeologist

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Consumers Energy 1945 W. Parnall Road Jackson, MI 49201

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Andrew Whaley

Project Geologist



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#### **APPENDICES**

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Appendix C Data Quality Reviews
Appendix D Statistical Analysis

Appendix E Secondary Leachate Collection System Monitoring



### 1.0 Introduction

Pursuant to the Federal CCR Rule¹, Consumers Energy initiated a detection monitoring program for the Karn Lined Impoundment that went into service on June 7, 2018. After Consumers Energy established the groundwater monitoring system and detection monitoring program pursuant to the requirements and schedule of §257.90 - §257.94, the State of Michigan enacted Public Act No. 640 of 2018 (PA 640) on December 28, 2018, to amend the Natural Resources and Environmental Protection Act, also known as Part 115 of PA 451 of 1994, as amended (a.k.a., Michigan Part 115 Solid Waste Management). The amendments to the solid waste statute amended state groundwater monitoring requirements for coal ash impoundments; therefore, Consumers Energy submitted the *Karn Lined Impoundment Hydrogeological Monitoring Plan* (HMP) to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) to comply with the requirements of Part 115, Rule 299.4905, and the CCR Rule. The HMP was approved by the EGLE on November 13, 2020, and incorporated, by reference, in Solid Waste Disposal Area Operating License No. 9629 issued on December 10, 2020.

#### 1.1 Statement of Adherence to Approved Hydrogeological Monitoring Plan

This Second Quarter 2024 Karn Lined Impoundment Hydrogeological Monitoring Report (Report) has been prepared by TRC on behalf of Consumers Energy to satisfy quarterly groundwater monitoring requirements during the active life of the coal ash impoundment. This Report was prepared in accordance with the items listed in Appendix A (Solid Waste Monitoring Submittal Components) of the May 15, 2015 Michigan Department of Environmental Quality (MDEQ) – Office of Waste Management and Radiological Protection, now the EGLE Materials Management Division (MMD), communication prescribing the format for solid waste disposal facility monitoring submittals as published in OWMRP-115-29, Format for Solid Waste Disposal Facility Monitoring Submittals, dated July 5, 2013. All references herein to the EGLE are inclusive of the MDEQ. Information contained in this report was prepared in adherence to the facility's approved HMP that was approved by the EGLE on November 13, 2020. This HMP is compliant with the requirements set forth in Public Act No. 640 of 2018 (PA 640) to amend the Natural Resources and Environmental Protection Act (NREPA), also known as Part 115 of PA 451 of 1994, as amended (Part 115) (a.k.a., Michigan Part 115 Solid Waste Management).

# 1.2 Program Summary

This Report provides results and summarizes the monitoring activities completed in the second quarter 2024 at the Karn Lined Impoundment located at 2742 Weadock Highway in Essexville, Michigan (Figure 1). Groundwater in the vicinity of the Karn Lined Impoundment has been documented to be affected by the management of CCR prior to the construction of the unit (January 2019, TRC). Given that the constituents associated with CCR currently managed at the Karn Lined Impoundment are indistinguishable from the constituents already present in groundwater from past operation of the former Karn Bottom Ash Pond, the compliance monitoring program for the Karn Lined Impoundment consists of two parts to evaluate if there are new releases from the unit:

¹ USEPA final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA) published April 17, 2015, as amended.



- 1. Monitoring of secondary collection system flow rates and water quality to detect leaks in the liner; and
- 2. Groundwater monitoring to determine if there are potential new releases from the Karn Lined Impoundment.

Based on sampling results for the second quarter 2024, the Karn Lined Impoundment remains in detection monitoring in accordance with the HMP.

#### 1.3 Site Overview

The Karn Lined Impoundment is located within the DE Karn Power Plant site (Site) located north of the former JC Weadock Power Plant, east of the Saginaw River, south and west of Saginaw Bay (Figure 1). Two coal-fired power generating units (Karn Units 1 & 2) began generating electricity in 1958 and 1959, respectively. Consumers Energy permanently ceased the operation Karn Units 1 & 2 at the Site in May 2023 and has commenced decommissioning activities for both coal-fired generating units. Karn Units 3 & 4, co-located with the coal-fired generating units, are oil- and natural gas-fueled and will continue to operate. Two other areas of coal ash management within the Site are the former Karn Bottom Ash Pond that was closed by removal under the CCR Rule and the Karn Landfill that was certified closed by constructing a final cover system and is currently in post-closure care under P115..

The Karn Lined Impoundment was put into service in June 2018 to replace the former Karn Bottom Ash Pond that directly supported Karn 1&2 power generation operations. The Karn Lined Impoundment serves a twofold purpose for treatment pursuant to National Pollutant Discharge Elimination System (NPDES) Permit N0. MI0001678 and as a temporary storage for bottom ash prior to removal and disposal in the JC Weadock Solid Waste Disposal Area (Weadock Landfill) governed by Solid Waste Disposal Area Operating License No. 9640 issued on March 11, 2021. On July 7, 2023, Consumers Energy submitted a Closure Work Plan for the Karn Lined Impoundment to the EGLE that details a closure by removal of CCR in accordance with 257.102(c) of the self-implementing requirements of the CCR Rule. By reference, performance of this work would also satisfy state requirements pursuant to Section 11519b(9) of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.11501 et seq. EGLE provided written concurrence with the Closure Work Plan on October 25, 2023.

## 1.4 Geology/Hydrogeology

The majority of the Karn Lined Impoundment area is comprised of surficial CCR and sand fill, as described in the HMP. USGS topographic maps and aerial photographs dating back to 1938, in addition to field descriptions of subsurface soil at the Site, indicate that the site was largely developed by reclaiming low-lands through construction of perimeter dikes and subsequent ash filling (AECOM, 2009).

The surficial fill consists of a mixture of varying percentages of ash, sand, and clay-rich fill ranging from 5 to 15 feet thick. Below the surficial fill, native alluvium and lacustrine soils are present at varying depths. Generally, there is a well graded sand unit present to depths of 10 to 30 feet below ground surface (ft bgs) overlying a clay till which is observed at depths ranging



from 25 to 75 ft bgs. In general, the alluvium soils (sands) are deeper along the Saginaw River and there are shallower lacustrine deposits (clays, silts and sands deposited in or on the shores of glacial lakes) at other areas. The clay till acts as a hydraulic barrier that separates the shallow groundwater from the underlying sandstone. A sandstone unit, which is part of the Saginaw formation, is generally encountered at 80 to 90 ft bgs.

The Site is bound by several surface water features (Figures 1 and 2): the Saginaw River to the west, Saginaw Bay (Lake Huron) to the north and east, and a discharge channel to the south. In general, shallow groundwater is encountered at a similar or slightly higher elevation relative to the surrounding surface water features. Groundwater flow in the upper aquifer is largely controlled by the surface water elevations of Saginaw River and Saginaw Bay. In the vicinity of the Karn Lined Impoundment, the shallow groundwater flow is generally radial, with a potentiometric high point near OW-12, flowing outward toward the surrounding surface water bodies.



# 2.0 Second Collection System Monitoring

Consumers Energy initiated secondary collection system flow monitoring to comply with the EGLE-approved HMP in December 2020. The SCS serves as a leak detection system and the SCS flow rate data is used to demonstrate compliance with Part 115. Consumers Energy continues to comply with the requirements for unmonitorable units under Rule 437 of the Part 115 Rules.

Increased average daily flow rates noted for the period from December 10, 2020 – January 6, 2021 triggered investigations by Consumers Energy that quickly identified deficiencies in the liner system and prompted actions to address the damaged liner (Consumers Energy, 2021a and 2021b). Following repairs to the liner in 2021, the daily average flow rates were reduced, and the three-month average dropped below the response action flow of 25 gallons per acre per day (GPAD). The flow rate is calculated each time the secondary collection system is evacuated. During second quarter 2024 (April 2024 – June 2024), no single event exceeded the action flow rate of 5 GPAD, so additional temporal calculations or trends were not developed to demonstrate compliance with the action flow rate. Consumers continues to document this information in their operating record.

In response to the prior exceedance of the SCS response action flow rate, a sample was collected from the surface water of the primary collection system (KLI-PCS). The secondary leachate collection system sump (KLI-SCS) was dry during the second quarter 2024 sampling event; therefore, a sample was not collected. The leachate collection system data are used to compare leachate chemistry to groundwater chemistry. The sample was analyzed for the following constituents:

- Primary Indicator Parameters: Section 11511a(3)(c) Detection Monitoring Constituents
- Alternative Indicator Parameters: Section 11519b(2) Assessment Monitoring Constituents
- Optional Analyses in support of Piper or Stiff diagrams

The KLI-PCS and previously collected KLI-SCS data were evaluated for comparison to groundwater quality and water chemistry and to also assess potential of hazard and mobility of constituents. A series of time-series plots are included in Appendix E to illustrate water quality data changes over time for the secondary collection system from the start of operation in June 2018 to present. This analysis demonstrates that each monitored constituent is generally present in the secondary collection system (KLI-SCS) at concentrations less than the Groundwater Protection Standard (GWPS) established under 40 CFR 257.95(h) for the Karn Bottom Ash Pond or generic groundwater surface water interface (GSI) criteria adopted by the Department pursuant to Section 20120a, with the exception of total dissolved solids, sulfate, and chloride. Consumers notes that as decommissioning of the Karn Units 1&2 proceeds, temporary changes to the mix of the miscellaneous low-volume waste may occur, causing changes in the concentrations of detected constituents in the primary collection system (KLI-PCS) as compared to historical. A few notable observations include:

■ Arsenic concentrations are higher in groundwater than the primary and secondary collection system: As shown in Appendix E, the arsenic concentrations observed in the primary and secondary collections system have been consistently low. Arsenic was not



detected above the laboratory's reporting limit (1.0 ug/L) in the primary collection system in May 2024 and the secondary collection system has historically been detected at concentrations between 1 and 4 ug/L. In contrast, the arsenic concentration observed in OW-12, the monitoring well located closest to the repaired liner areas, is 33 ug/L, which is consistent with concentrations observed in August 2020, before the liner damage occurred. Arsenic present in groundwater does not appear to be a result of a release from the unit.

Secondary Collection System chemistry has not appreciably changed: The time series plots in Appendix E show relatively stable trends in chemistry for samples collected from the secondary collection system, except for chloride, total dissolved solids (TDS) and sulfate in the secondary collection system. Chloride concentrations increased in the first quarter of 2021 and have since stabilized near 60 mg/L. TDS concentrations in KLI-SCS increased between 2018 and 2021 and have since began to stabilize. Sulfate concentrations are slightly increasing over time. The chloride, TDS and sulfate concentrations in the secondary collection system are more closely linked to water coming through the system from the intake water than as a byproduct of the commingled ash and other waste products.

Water quality data collected for this event are included in the attached laboratory reports (Appendix A). Groundwater chemistry is discussed in Section 4.1. Groundwater conditions will continue to be monitored.



# 3.0 Groundwater Monitoring

#### 3.1 Monitoring Well Network

In accordance with §257.91, Consumers Energy developed a groundwater monitoring system for the Karn Lined Impoundment prior to the initial receipt of waste in the CCR unit (TRC, 2018c). Given the radial groundwater flow direction and that constituents associated with CCR currently managed at the Karn Lined Impoundment are indistinguishable from the constituents already present in groundwater from past operation of the Karn Bottom Ash Pond, the groundwater monitoring system design incorporates an intrawell statistical approach for detection monitoring as described in the HMP and in accordance with the "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance" (USEPA, 2009). Five monitoring wells that are screened in the uppermost saturated unit were selected for the Karn Lined Impoundment HMP detection monitoring (DEK-MW-15003, DEK-MW-18001, OW-10, OW-11, and OW-12). Monitoring well locations are shown on Figure 2.

#### 3.2 May 2024 Detection Monitoring Event

In accordance with the HMP, TRC conducted the second quarter 2024 monitoring event for the Karn Lined Impoundment between May 8 and 9, 2024. In addition to the routine groundwater samples collected from the monitoring well network, a surface water sample was collected from the primary collection system (KLI-PCS), as discussed in Section 2 above, such that leachate chemistry could be compared to groundwater chemistry. A water sample was not collected from the sump in the secondary collection system (KLI-SCS) during the second quarter 2024 monitoring event due to the system being dry.

Groundwater samples collected during the second quarter 2024 event were submitted to Consumers Energy Laboratory Services in Jackson, Michigan, for analysis of the following metals and inorganic indicator constituents.

Section 11511a(3)(c) – Detection Monitoring Constituents	Section 11519b(2) – Assessment Monitoring Constituents				
Boron	Antimony	Fluoride	Thallium		
Calcium	Arsenic	Lead	Vanadium		
Chloride	Barium	Lithium	Zinc		
Fluoride	Beryllium	Mercury	Radium 226/228		
Iron	Cadmium	Molybdenum			
pH	Chromium, total	Nickel			
Sulfate	Cobalt	Selenium			
Total Dissolved Solids (TDS)	Copper	Silver			



Samples were also analyzed for additional constituents including magnesium, sodium, potassium, bicarbonate, carbonate, and total alkalinity to provide further evaluation of groundwater chemistry. Analytical results from this event monitoring event are included in the attached laboratory reports (Appendix A).

Static water level measurements were collected at all locations after equilibration to atmospheric pressure and immediately prior to purging. The depth to water was recorded to the nearest 0.01-ft in accordance with the procedures in the HMP. Groundwater purging and sampling were conducted in accordance with low-flow sampling protocol. Static water elevation data are included in the attached field records (Appendix B).

Monitoring wells were purged with peristaltic pumps utilizing low-flow sampling methodology. Field parameters were stabilized at each monitoring well prior to collecting groundwater samples. Stabilized field parameters for each monitoring well are summarized in Table 2. Field notes are included as Appendix B. The samples were collected in vendor-provided, nitric acid pre-preserved (metals only) and unpreserved sample containers and submitted to the laboratory for analysis. Porewater sample preparation and analyses were performed in accordance with SW-846 "Test Methods for Evaluation Solid Waste – Chemical / Physical Methods," USEPA (latest revision). TRC followed chain of custody procedures to document the sample handling sequence.

TRC also collected quality assurance/quality control (QA/QC) samples during the groundwater sampling event. The QA/QC samples consisted of one field blank, one equipment blank, one field duplicate (DEK-MW-15003), and field matrix spike/matrix spike duplicate samples collected at DEK-MW-18001.

#### 3.2.1 Data Quality Review

Data were evaluated for completeness, overall quality and usability, method-specified sample holding times, precision and accuracy, and potential sample contamination. The data were found to be complete and usable for the purposes of the HMP program.

The data quality reviews for the Karn Lined Impoundment network wells are summarized in Appendix C.

#### 3.2.2 Groundwater Flow Rate and Direction

Groundwater elevation data collected during this groundwater monitoring event are provided in Table 1. The data were used to construct the groundwater contour map (Figure 3).

Groundwater elevations measured at the site in May 2024 are generally within the range of 579 to 585 feet above mean sea level (ft NAVD88) and groundwater is typically encountered at equal elevation relative to the surrounding surface water features measured by the NOAA gauging station data or within approximately 6 feet higher, flowing toward the bounding surface water features.



Although the point source discharge of sluiced bottom ash into the former Karn Bottom Ash Pond historically created localized mounding of the potentiometric surface, the new Karn Lined Impoundment went into service on June 7, 2018, and has been continuously collecting the process water and bottom ash that went into the former bottom ash pond. Since the former bottom ash pond is no longer being hydraulically loaded with sluiced ash and has been dewatered by gravity, the characteristic groundwater mound centered within the former surface pool area is no longer present. The groundwater elevation data collected in the vicinity of the former Karn Bottom Ash Pond in May 2024 demonstrate a reduction in groundwater elevation measurements by several feet when compared to the measurements collected prior to June 2018, when active loading was occurring to the bottom ash pond. Groundwater at the Site is locally influenced by incidental infiltration from precipitation over the uncovered acreage and the unlined low volume miscellaneous wastewater conveyance associated with the permitted NPDES discharge system, which is located just north of the Karn Lined Impoundment. The conveyance ditch was observed to be dry in May 2024 as wastewater is not being generated due to the cessation of operations of Karn Units 1 & 2. The groundwater elevation high point that was previously centered over the former Karn Bottom Ash Pond has shifted to the southeast and is currently centered near OW-12. Porewater flow is generally radial, flowing outward towards the adjacent surface water features from this potentiometric "high", as illustrated in Figure 3.

The average hydraulic gradient observed on May 6, 2024, in the vicinity of the former Karn Bottom Ash Pond and Karn Lined Impoundment is estimated at 0.0034 ft/ft. The gradients were calculated using the monitoring well pairs DEK-MW-15004/DEK-MW-15005, DEK-MW-15003/DEK-MW-15006, and OW-11/MW-08, as well as the monitoring well water elevation difference and distance between DEK-MW-18001 and the discharge channel. The discharge channel surface water elevation was taken from the NOAA gauging station data on the same date as the water level measurements. Using the mean hydraulic conductivity of 15 ft/day (ARCADIS, 2016) and an assumed effective porosity of 0.3, the estimated average seepage velocity was calculated to be 0.17 ft/day or 62 ft/year in May 2024 which is reduced relative to previous estimated seepage velocities (e.g., 0.33 ft/day or 120 ft/year August 2018).

Due to the operational changes of the former bottom ash pond and the completion of the landfill capping activities in 2020, the gradient between the area of the Karn Bottom Ash Pond and Karn Lined Impoundment and the surrounding surface water bodies is flattening out as compared to previous quarters and is also attempting to reach a new equilibrium, as expected. The general flow direction relative to the Karn Lined Impoundment is similar to that identified in previous monitoring rounds and continues to demonstrate that the downgradient wells are appropriately positioned to detect the presence of Appendix III/IV parameters that could potentially migrate from the Karn Lined Impoundment.



#### 4.0 Data Evaluation

Based on sampling results for this event the Karn Lined Impoundment remains in detection monitoring in accordance with the HMP. The following section summarizes the statistical approach applied to assess the second quarter 2024 groundwater data in accordance with the detection monitoring program.

Water quality data are included in the attached laboratory reports (Appendix A). Groundwater analytical data for the most recent quarterly monitoring event is summarized in Table 3 along with the associated Part 201 generic drinking water criteria and the generic GSI criteria. GSI compliance is evaluated through monitoring performed at the Karn Landfill in accordance with the EGLE-approved Consumers Energy's revised Karn Landfill HMP (Hydrogeological Monitoring Plan, Rev. 3, DE Karn Solid Waste Disposal Area) dated December 19, 2017, and in accordance with the December 23, 2015, mixing zone determination.

#### 4.1 Statistical Evaluation of Trends

Groundwater in the vicinity of the Karn Lined Impoundment has been affected by CCR management before commencement of operation (January 2019, TRC). Given that the constituents associated with CCR currently managed in the Karn Lined Impoundment are indistinguishable from the constituents already present in groundwater from past operation of the former Karn Bottom Ash Pond, intrawell trend tests, in conjunction with KLI-SCS flow rates, will be utilized to assess whether a release has occurred from operation of the unit. The detection monitoring constituent concentrations will be analyzed using Mann-Kendall and Sen's Slope trend tests to determine if there is an upward trend that may indicate a release from the Karn Lined Impoundment. The data will be analyzed in the context of the Site hydrogeologic characteristics, and an assessment made as to whether the source of an upward trend, if identified, is from a possible release from the Karn Lined Impoundment, another on-site release, or on-site migration of nearby impact (i.e., former Karn Bottom Ash Pond).

Time-series plots and statistical trend analyses are used to evaluate groundwater quality each quarter, which are included as Appendix D. Consumers Energy manages and evaluates its analytical data using Sanitas™ Statistical Software (Sanitas™). Consumers Energy conducts intra-well trend analyses to examine data for each monitoring well-constituent pair in the groundwater monitoring system over time to determine if changes in water quality are occurring that may be associated with the Karn Lined Impoundment. Data from July 2022 through May 2024 were analyzed using Mann-Kendall and Sen's Slope at a significance level (α) of 0.025 per tail for each constituent/sampling point dataset to assess trends. Sen's Slope estimator was used to assess the magnitude of the slope and the Mann-Kendall test was used to determine if the trend was statistically significant. The graphical output of the Sen's Slope/Mann-Kendall trend tests and time series are presented in Appendix D. Appendix D also includes a table summarizing these trends and the associated statistical trend charts.

Data trends for detection monitoring constituents are generally stable (i.e., no trend) or declining for the majority of the monitoring well/constituent pairs with the following exceptions:



- The increasing trend for sulfate observed in DEK-MW-15003 in fourth quarter 2023 and confirmed in first quarter 2024 did not continue in second quarter 2024.
- A new, unconfirmed increasing trend for calcium was observed in OW-11 in second quarter 2024.
- New, unconfirmed increasing trends for sulfate and total dissolved solids were observed in DEK-MW-18001 in second quarter 2024.

## 4.2 Detection Monitoring Data Discussion

Groundwater quality is generally consistent with previous monitoring events and the majority of the well/constituent pairs are exhibiting no trend or decreasing concentrations. Although increasing trends of detection monitoring (Appendix III) constituents exist, these trends have not been confirmed and the groundwater conditions do not conclusively indicate a release from the unit. Given that the constituents associated with CCR currently managed in the Karn Lined Impoundment are indistinguishable from the constituents already present in groundwater from past operation of the Karn Bottom Ash Pond, intrawell trend tests, in conjunction with SCS flow rates, will be utilized to assess whether a release has occurred from operation of the unit, per the HMP.

As presented in Section 2.0, the SCS flow rates are below the action flow rate threshold, which continues to demonstrate the liner system is working effectively following the documented liner repairs. The location of one of the identified liner damage locations was approximately 40-ft upgradient from monitoring well OW-12 and the second location was approximately 130-ft upgradient from monitoring well DEK-MW-18001. Detection monitoring constituent concentrations at OW-12 and DEK-MW-18001 exhibit no statistically significant increasing trends, indicating that if a release to groundwater occurred due to the apparent leak in the liner system, the effects on local groundwater quality at this point appear to be negligible. The increasing trends noted in Section 4.1 will continue to be evaluated within context of changes in the site operational status.

#### 4.3 Alternate Source Demonstration

At this time, Consumers Energy is not asserting an Alternate Source Demonstration (ASD) for any Statistically Significant Increases (SSI) from this reporting period. The groundwater conditions do not conclusively indicate a release from the unit and the average daily KLI-SCS flow rates remain below the action flow rate thresholds.



#### 5.0 Conclusions and Recommendations

Consumers Energy will continue the detection monitoring program for the Karn Lined Impoundment unit based on the data evaluations completed in Section 4.0 of this report in conformance with the Karn Lined Impoundment HMP. Although increasing trends of detection monitoring (Appendix III) constituents exist, as noted in Section 4.1, the groundwater conditions do not conclusively indicate a release from the unit as the average daily SCS flow rates remain below the response action flow rate thresholds and continue to demonstrate the liner system is working effectively. The third quarter monitoring event is scheduled for July 2024.



#### 6.0 References

- AECOM. 2009. Potential Failure Mode Analysis (PFMA) Report. DE Karn Electric Generation Facility Ash Dike Risk Assessment Essexville, Michigan. Prepared for Consumers Energy Company. October 30.
- Consumers Energy. 2017. Hydrogeological Monitoring Plan, Rev. 3. DE Karn Solid Waste Disposal Area. December 19.
- Consumers Energy. 2021a. Transmittal Documentation of Liner Damage Repair, Karn Ash Impoundment, Essexville, Michigan; Waste Data System Number 392503. May.
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- Natural Resource Technology. 2005. Phase II Groundwater Discharge Evaluation at the Consumers Energy DE Kam and JC Weadock Solid Waste Disposal Areas. September.
- TRC. 2019. 2018 Annual Groundwater Report for the DE Karn Power Plant Bottom Ash Pond CCR Unit, Essexville, Michigan. Prepared for Consumers Energy Company. January.
- TRC. 2020. Karn Lined Impoundment Hydrogeological Monitoring Plan for the DE Karn Power Plant Lined Impoundment, Essexville, Michigan. Prepared for Consumers Energy Company. November.
- TRC. 2023. Fourth Quarter 2022 Hydrogeological Monitoring Report for the DE Karn Lined Impoundment CCR Unit, Essexville, Michigan. Prepared for Consumers Energy Company. January.
- USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA facilities, Unified Guidance. Office of Conservation and Recovery. EPA 530/R-09-007.
- USEPA. 2015. 40 CFR Parts 257 and 261. Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule. 80 Federal Register 74 (April 17, 2015), pp. 21301-21501 (80 FR 21301). April.
- USEPA. 2018. 40 CFR Part 257. Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Amendments to the National Minimum Criteria (Phase One, Part One); Final Rule. 83 Federal Register 146 (July 30, 2018), pp. 36435-36456 (83 FR 36435). July.



# **Tables**

Table 1

# Summary of Groundwater Elevation Data DE Karn Lined Impoundment – Hydrogeological Monitoring Program Essexville, Michigan

	тос		Screen Interval	May 6, 2024		
Well Location	Elevation (ft)	Geologic Unit of Screen Interval	Elevation (ft)	Depth to Water	Groundwater Elevation	
				(ft BTOC)	(ft)	
DEK Bottom Ash Pon	d		<u> </u>		'	
DEK-MW-15002	590.87	Sand	578.3 to 575.3	7.00	583.87	
DEK-MW-15005	589.72	Sand	572.3 to 567.3	9.88	579.84	
DEK-MW-15006	589.24	Sand	573.0 to 568.0	9.30	579.94	
DEK Bottom Ash Pon	d & Karn Lined Im	poundment				
DEK-MW-18001	593.47	Sand	579.2 to 574.2	9.48	583.99	
Karn Lined Impoundr	nent					
DEK-MW-15003	602.74	Sand	578.8 to 574.8	18.95	583.79	
OW-10	591.58	Silty Sand and Silty Clay	576.0 to 571.0	7.80	583.78	
OW-11	607.90	Silt/Fly Ash	587.5 to 582.5	24.30	583.60	
OW-12	603.10	Silty Sand	584.2 to 579.2	18.25	584.85	
DEK Nature and Exte						
DEK-MW-15004	611.04	Sand	576.6 to 571.6	29.04	582.00	
MW-01	597.02	Sand	573.0 to 570.0	17.25	579.77	
MW-03	597.30	Sand	569.8 to 566.8	17.55	579.75	
MW-06	589.44	Sand and Silty Sand	578.5 to 563.5	9.54	579.90	
MW-08	598.78	Sand and Silty Clay	580.9 to 570.9	17.92	580.86	
MW-10	596.97	Sand	582.5 to 572.5	17.00	579.97	
MW-12	598.60	Sand	583.9 to 573.9	18.61	579.99	
MW-14	594.37	Sand and Silty Clay	584.7 to 574.7	14.40	579.97	
MW-16	595.80	Sand and Sand/Bottom Ash	584.1 to 574.1	16.05	579.75	
MW-22	598.99	Ash/Sand	571.4 to 568.4	17.35	581.64	
MW-23	595.57	Ash/Sand	576.9 to 571.9	14.78	580.79	
DEK Static Water Lev						
MW-02	597.34	Sand and Silty Clay	572.5 to 567.5	17.59	579.75	
MW-04	598.01	NR	569.5 to 564.5	18.28	579.73	
MW-17	597.91	Sand	577.0 to 574.0	14.22	583.69	
MW-18	609.22	Silty Sand and Silty Clay	575.8 to 573.8	26.84	582.38	
MW-19	597.28	NR	572.1 to 567.1	17.18	580.10	
MW-20	632.75	Sand	582.3 to 579.3	53.00	579.75	
MW-21	632.91	Sand	587.1 to 584.1	51.90	581.01	
OW-01	631.33	NR	572.5 to 567.5	51.58	579.75	
OW-02	598.01	Fly Ash	579.4 to 576.4	16.29	581.72	
OW-03	597.94	Fly Ash and Sand	573.6 to 568.6	17.48	580.46	
OW-04	590.21	Sand and Bottom/Fly Ash	579.1 to 574.1	10.30	579.91	
OW-05	593.53	Sand	576.9 to 571.9	13.50	580.03	
OW-06	603.95	NR	580.9 to 575.9	22.85	581.10	
OW-07	596.41	Ash	583.3 to 580.3	15.60	580.81	
OW-08	593.93	NR	581.0 to 576.0	11.10	582.83	
OW-09	593.45	NR	585.5 to 580.5	10.45	583.00	
OW-13	588.52	NR	579.5 to 574.5	3.91	584.61	
OW-15	587.75	NR	572.8 to 567.8	3.85	583.90	

#### Notes:

Survey data from: Rowe Professional Services Company (Nov. 2015) and Consumers Energy Company drawings: SG-21733, Sheet 1, Rev. G (Karn, 11/27/18); and SG=21733, Sheet 2, Rev. C (Weadock, 11/27/18).

Elevation in feet relative to North American Vertical Datum 1988 (NAVD 88).

TOC: Top of well casing.

ft BTOC: Feet below top of well casing.

NR: Not Recorded

#### Table 2

# Summary of Field Parameters DE Karn Lined Impoundment – Hydrogeological Monitoring Program Essexville, Michigan

Sample Location	Sample Date	Dissolved Oxygen	Oxidation Reduction Potential	рН	Specific Conductivity	Temperature	Turbidity	
		(mg/L)	(mV)	(SU)	(umhos/cm)	(°C)	(NTU)	
DE Karn Lined Impoundment								
DEK-MW-15003	5/9/2024	0.56	-48.0	8.1	393	18.9	3.0	
DEK-MW-18001	5/8/2024	0.12	-94.1	7.4	747	12.3	3.0	
KLI-PCS	5/8/2024	9.90	101.0	8.7	612	14.6	9.2	
OW-10	5/8/2024	0.33	-73.4	7.3	908	12.4	18.0	
OW-11	5/8/2024	2.10	64.1	9.5	354	15.8	6.1	
OW-12	5/9/2024	0.25	-80.9	7.1	1,199	12.5	5.3	

#### Notes:

-- - Parameter was not analyzed

mg/L - milligram per Liter.

mV - Millivolts.

SU - Standard Units.

umhos/cm - Micromhos per centimeter.

°C - Degrees Celsius.

NTU - Nephelometric Turbidity Unit.

#### Table 3

#### Summary of Groundwater Sampling Results (Analytical) DE Karn Lined Impoundment - Hydrogeological Monitoring Program Essexville, Michigan

					Sample Location:	DEK-MW-15003	DEK-MW-18001	OW-10	OW-11	OW-12	KLI-PCS
					Sample Date:	5/8/2024	5/8/2024	5/8/2024	5/8/2024	5/9/2024	5/8/2024
				MI Non-	·	Un one d'aut	Da		Lla sua d'a at	Danier and discret	0
Constituent	Unit	EPA MCL	MI Residential*	Residential*	MI GSI^	Upgradient	Downgr	adient	Upgradient	Downgradient	Supplemental
Appendix III ⁽¹⁾											
Boron	ug/L	NC	500	500	4,000	652	917	1,270	3,340	1,410	649
Calcium	mg/L	NC	NC	NC	500EE	34.6	52.5	141	10.3	179	72.5
Chloride	mg/L	250**	250 ^E	250 ^E	50	57.3	66.1	82.6	55.4	33.7	29.3
Fluoride	ug/L	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000	3,390	< 1,000	< 1,000
Sulfate	mg/L	250**	250 ^E	250 ^E	500 ^{EE}	34.1	226	< 1	19.4	308	247
Total Dissolved Solids	mg/L	500**	500 ^E	500 ^E	500	312	670	832	312	1,290	578
pH, Field	SU	6.5 - 8.5**	6.5 - 8.5 ^E	6.5 - 8.5 ^E	6.5 - 9.0	8.1	7.4	7.3	9.5	7.1	8.7
Appendix IV ⁽¹⁾											
Antimony	ug/L	6	6.0	6.0	2.0	< 1	< 1	< 1	3	< 1	< 1
Arsenic	ug/L	10	10	10	10	298	484	2	948	33	< 1
Barium	ug/L	2,000	2,000	2,000	1,200	47	147	160	27	216	81
Beryllium	ug/L	4	4.0	4.0	33	< 1	< 1	< 1	<1	< 1	< 1
Cadmium	ug/L	5	5.0	5.0	2.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.3
Chromium	ug/L	100	100	100	11	< 1	< 1	2	< 1	< 1	< 1
Cobalt	ug/L	NC	40	100	100	< 6	< 6	< 6	< 6	< 6	< 6
Fluoride	ug/L	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000	3,390	< 1,000	< 1,000
Lead	ug/L	NC	4.0	4.0	14	< 1	< 1	< 1	< 1	< 1	1
Lithium	ug/L	NC	170	350	440	21	19	37	12	63	11
Mercury	ug/L	2	2.0	2.0	0.20#	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	NC	73	210	120	23	17	< 5	146	7	53
Radium-226	pCi/L	NC	NC	NC	NC	< 0.0996	0.238	0.338	< 0.102	0.326	
Radium-228	pCi/L	NC	NC	NC	NC	< 0.619	< 0.623	1.16	< 0.521	0.836	
Radium-226/228	pCi/L	5	NC	NC	NC	< 0.619	< 0.623	1.5	< 0.521	1.16	
Selenium	ug/L	50	50	50	5.0	< 1	< 1	2	7	1	1
Thallium	ug/L	2	2.0	2.0	2.0	< 2	< 2	< 2	< 2	< 2	< 2
Additional MI Part 11	1 <b>5</b> ⁽²⁾										
Iron	ug/L	300**	300E	300 ^E	500,000EE	160	458	3,380	21	5,200	41
Copper	ug/L	1,000**	1,000€	1,000 ^E	20	< 1	< 1	2	<1	1	3
Nickel	ug/L	NC	100	100	120	< 2	2	4	< 2	3	< 2
Silver	ug/L	100**	34	98	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Vanadium	ug/L	NC	4.5	62	27	< 2	< 2	3	169	< 2	2
Zinc	ug/L	5,000**	2,400	5,000 ^E	260	< 10	19	< 10	< 10	< 10	< 10

#### Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.

NC - no criteria; -- - not analyzed.

- * Michigan Part 201 Generic Drinking Water Cleanup Criteria, December 30, 2013, updated October 12, 2023.
- ** Secondary Maximum Contaminant Level (SMCL), EPA Secondary Drinking Water Regulations (SDWR) April, 2012.
- ^ Michigan Part 201 Groundwater Surface Water Interface (GSI) Criteria. Hardness-dependent criteria calculated using hardness of 258 mg CaCO3/L (average of SW-01 [Lake Huron] and SW-02 [Saginaw River] collected in April 2018) per footnote {G} of Michigan Part 201 criteria tables. Chromium GSI criterion based on hexavalent chromium per footnote {H}. GSI criterion is protective for surface water used as a drinking water source as described in footnote (X). GSI criterion for chloride is 50 mg/L when the discharge is to the Great Lakes or connecting waters per footnote {FF}
- # If detected above 0.20 ug/L, further evaluation of low-level mercury may be necessary to evaluate the GSI pathway per Michigan Part 201 and MDEQ policy and procedure 09-014 dated June 20, 2012.
- E Criterion is the aesthetic drinking water value per footnote {E}.
- EE Criterion is based on the total dissolved solids GSI value per footnote {EE}.
- (1) 40 CFR Part 257 Appendix III Detection Monitoring Constituents and Appendix IV Assessment Monitoring Constituents.
- (2) Per Michigan Part 115 Amendment Public Act No. 640 of 2018 Section 11511a(3)(c) and 11519b(2) additional detection monitoring constituent (iron) and assessment monitoring constituents (copper, nickel, silver, vanadium, and zinc) are reported.

BOLD value indicates an exceedance of one or more of the listed criteria.

RED value indicates an exceedance of the MCL.

All metals were analyzed as total unless otherwise specified.

Page 1 of 1 July 2024

#### Table 4

# Summary of Statistical Exceedances DE Karn Lined Impoundment – Hydrogeological Monitoring Program Essexville, Michigan

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY SUMMARY OF STATISTICAL EXCEEDANCES

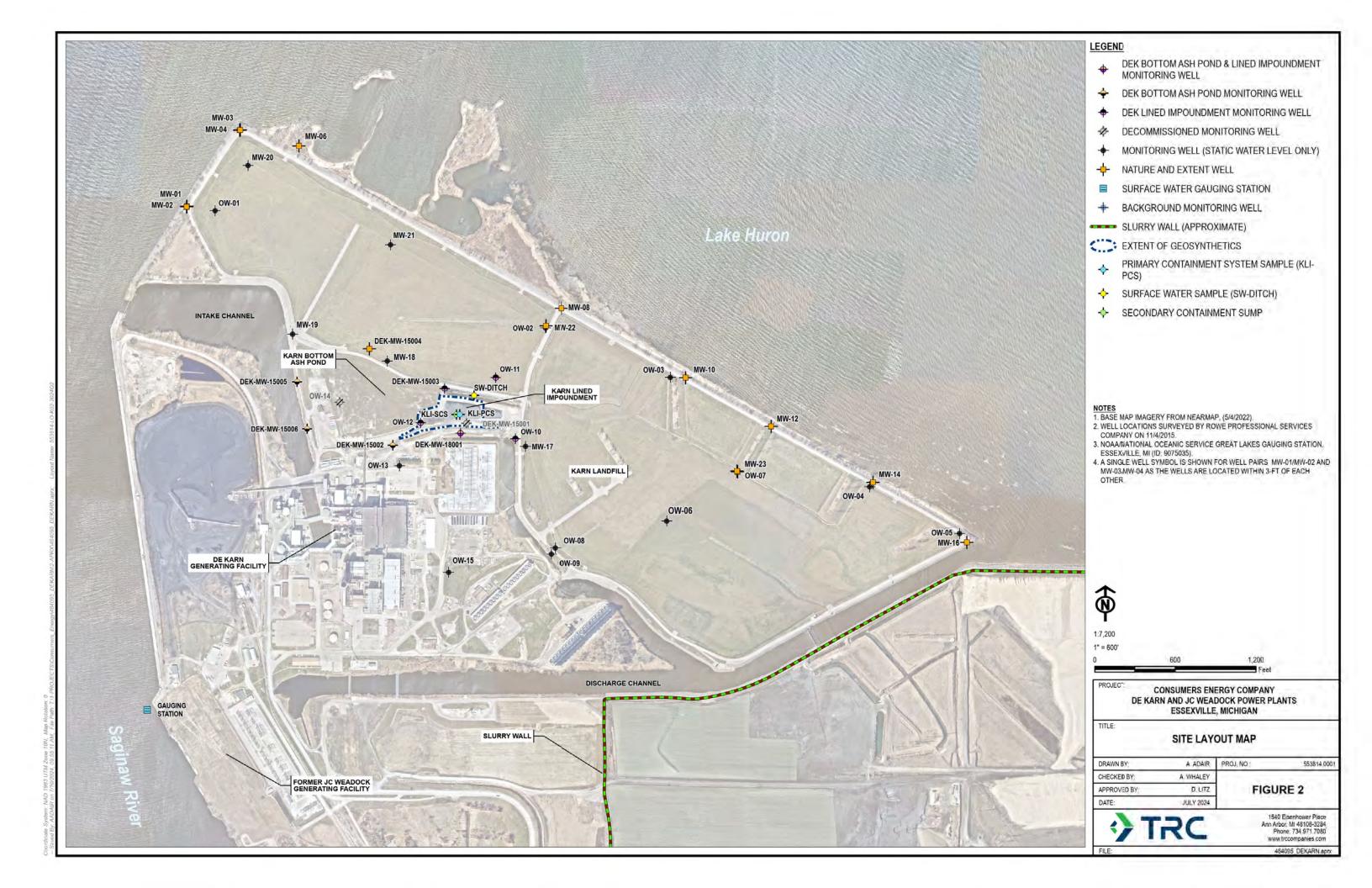
Data is in (X) ug/L or
( ) mg/L
unless otherwise stated

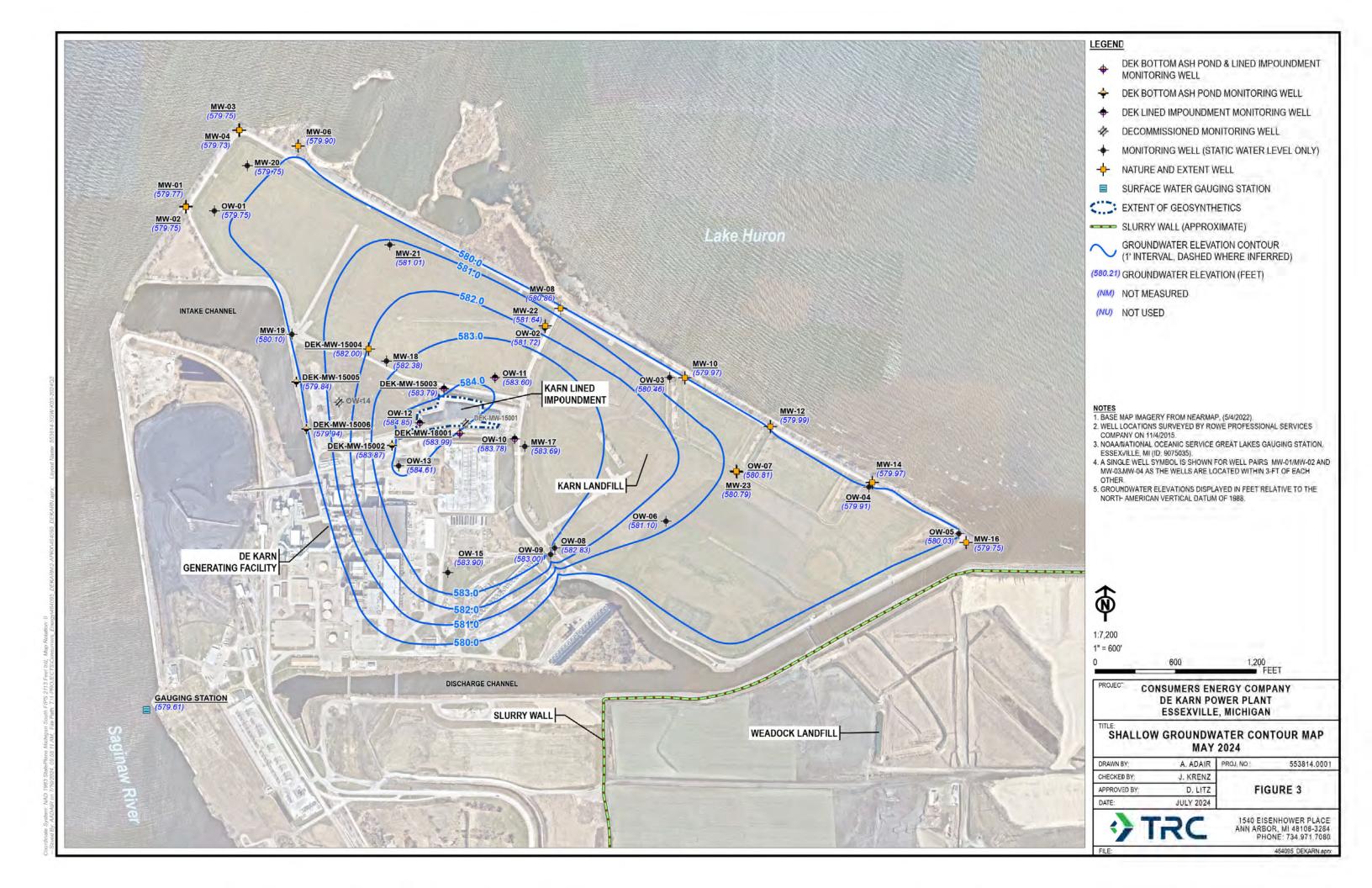
Facility: Karn Lined Impoundment – WDS# 392503

Well #	Location	Parameter	Part 201 GRCC	Statistical Limit (or 'CC' for Control Charts)	2 Qtr. 2024 ( <b>bold</b> >201)	1 Qtr. 2024 ( <b>bold</b> >201)	4 Qtr. 2023 ( <b>bold</b> >201)	3 Qtr. 2023 ( <b>bold</b> >201)
		No	Exce	edances				



# **Figures**







# **Appendix A Laboratory Analytical Reports**



135 W. Trail St. Jackson, MI 49201 phone 517-788-1251 fax 517-788-2533

To: JJFirlit, Karn/Weadock

From: EBlaj, T-258

Date: May 23, 2024

Subject: RCRA GROUNDWATER MONITORING – KARN LINED IMPOUNDMENT – 2024 Q2

CC: HDRegister, P22-521 Darby Litz, Project Manager

TRC Companies, Inc. 1540 Eisenhower Place Ann Arbor, MI 48108

Chemistry Project: 24-0341R

TRC Environmental, Inc. conducted groundwater monitoring at the DE Karn Lined Impoundment area during the week of 05/06/2024 for the 2nd Quarter requirement, as specified in the Sampling and Analysis Plan for the site. The samples were received for analysis by the Chemistry department of Laboratory Services on 05/09/2024 and 05/10/2024.

Samples for Total Sulfide have been subcontracted to Merit Laboratories, Inc. and the results are listed under the analyst initials "Merit". Please note that the subcontracted work is not reported under the CE laboratory scope of accreditation.

With the exception noted above, the report that follows presents the results of the requested analytical testing; the results apply only to the samples as received. All samples have been analyzed in accordance with the 2016 TNI Standard and the applicable A2LA accreditation scope for Laboratory Services. Any exceptions to applicable test method criteria and standard compliance are noted in the Case Narrative or flagged with applicable qualifiers in the analytical results section.

Reviewed and approved by:

Emil Blaj Sr. Technical Analyst Project Lead



Testing performed in accordance with the A2LA scope of accredidation specified in the listed certificate. The information contained in this report is the sole property of Consumers Energy. It cannot be reproduced except in full, and with consent from Consumers Energy, or the customer for which this report was issued.

#### **CASE NARRATIVE**

#### I. Sample Receipt

All samples were received within hold time and in good conditions; no anomalies were noted in the attached Sample Log-In Shipment Inspection Form during sample check-in. Identification of all samples included in the work order/project is provided in the sample summary section. All sample preservation and temperature upon receipt was verified by the sample custodian and confirmed to meet method requirements.

#### II. Methodology

Unless otherwise indicated, sample preparation and analysis was performed in accordance with the corresponding test methods from "Methods for the Determination of Inorganic Substances in Environmental Samples (EPA/600/R-93/100); SW-846, "Test Methods for Evaluating Solid Waste – Physical/Chemical Methods", USEPA (latest revisions), and Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WPCF, 22nd Edition, 2012.

#### III. Results/Quality Control

Analytical results for this report are presented by laboratory sample ID, container, & aliquot number. Results for the field blanks, field duplicates, and recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section; all other quality control data is listed in the Quality Control Summary associated with the particular test method, as appropriate. Unless specifically noted in the case narrative, all method quality control requirements have been met. If any results are qualified, the corresponding data flags/qualifiers are listed on the last page of the results section. Any additional information on method performance, when applicable, is presented in this section of the case narrative. When data flags are not needed, the qualifiers text box on the last page is left blank, and a statement confirms that no exceptions occurred.

#### **DEFINITIONS / QUALIFIERS**

The following qualifiers and/or acronyms are used in the report, where applicable:

<u>Acronym</u>	<u>Description</u>
RL	Reporting Limit
ND	Result not detected or below Reporting Limit
NT	Non TNI analyte
LCS	Laboratory Control Sample
LRB	Laboratory Reagent Blank (also referred to as Method Blank)
DUP	Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
TDL	Target Detection Limit
SM	Standard Methods Compendium

Qualifier	<u>Description</u>
*	Generic data flag, applicable description added in the corresponding notes section
В	The analyte was detected in the LRB at a level which is significant relative to sample result
D	Reporting limit elevated due to dilution
E	Estimated due to result exceeding the linear range of the analyzer
Н	The maximum recommended hold time was exceeded
I	Dilution required due to matrix interference; reporting limit elevated
J	Estimated due to result found above MDL but below PQL (or RL)
K	Reporting limit raised due to matrix interference
M	The precision for duplicate analysis was not met; RPD outside acceptance criteria
N	Non-homogeneous sample made analysis questionable
PI	Possible interference may have affected the accuracy of the laboratory result
Q	Matrix Spike or Matrix Spike Duplicate recovery outside acceptance criteria
R	Result confirmed by new sample preparation and reanalysis
X	Other notation required; comment listed in sample notes and/or case narrative



#### **Work Order Sample Summary**

Customer Name: Karn/Weadock Complex

Work Order ID: Q2-2024 DEK Lined Impoundment

**Date Received:** 5/9/2024 and 5/10/2024

Chemistry Project: 24-0341

Field Sample ID	<u>Matrix</u>	Sample Date	<u>Site</u>
DEK-MW-15003	Groundwater	05/08/2024 14:44	DEK Lined Impoundment
OW-10	Groundwater	05/08/2024 11:08	DEK Lined Impoundment
OW-11	Groundwater	05/08/2024 12:46	DEK Lined Impoundment
OW-12	Groundwater	05/09/2024 12:45	DEK Lined Impoundment
KLI-SCS	Not Collected		DEK Lined Impoundment
KLI-PCS	Groundwater	05/08/2024 15:50	DEK Lined Impoundment
SW-DITCH	Not Collected		DEK Lined Impoundment
DUP-KLI	Groundwater	05/08/2024 00:00	DEK Lined Impoundment
EB-KLI	Water	05/09/2024 13:00	DEK Lined Impoundment
FB-KLI	Water	05/08/2024 12:46	DEK Lined Impoundment
	DEK-MW-15003 OW-10 OW-11 OW-12 KLI-SCS KLI-PCS SW-DITCH DUP-KLI EB-KLI	DEK-MW-15003 Groundwater OW-10 Groundwater OW-11 Groundwater OW-12 Groundwater KLI-SCS Not Collected KLI-PCS Groundwater SW-DITCH Not Collected DUP-KLI Groundwater EB-KLI Water	DEK-MW-15003       Groundwater       05/08/2024 14:44         OW-10       Groundwater       05/08/2024 11:08         OW-11       Groundwater       05/08/2024 12:46         OW-12       Groundwater       05/09/2024 12:45         KLI-SCS       Not Collected         KLI-PCS       Groundwater       05/08/2024 15:50         SW-DITCH       Not Collected         DUP-KLI       Groundwater       05/08/2024 00:00         EB-KLI       Water       05/09/2024 13:00



05/23/24



A CENTURY OF EXCELLENCE

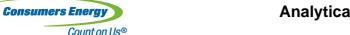
Count on US®

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0341** 

 Field Sample ID:
 DEK-MW-15003
 Collect Date:
 05/08/2024

 Lab Sample ID:
 24-0341-01
 Collect Time:
 02:44 PM

Metals by EPA 6020B: CCR	Kule Appendix III-IV 10	tai wetais	s ⊏xp	Aliquot #: 24-0	341-01-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Arsenic	298		ug/L	1.0	05/14/2024	AB24-0515-01
Barium	47		ug/L	5.0	05/14/2024	AB24-0515-01
Beryllium	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Boron	652		ug/L	20.0	05/14/2024	AB24-0515-01
Cadmium	ND		ug/L	0.2	05/14/2024	AB24-0515-01
Calcium	34600		ug/L	1000.0	05/14/2024	AB24-0515-01
Chromium	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Cobalt	ND		ug/L	6.0	05/14/2024	AB24-0515-01
Copper	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Iron	160		ug/L	20.0	05/14/2024	AB24-0515-01
Lead	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Lithium	21		ug/L	10.0	05/14/2024	AB24-0515-01
Magnesium	5530		ug/L	1000.0	05/14/2024	AB24-0515-01
Manganese	75		ug/L	5.0	05/14/2024	AB24-0515-01
Molybdenum	23		ug/L	5.0	05/14/2024	AB24-0515-01
Nickel	ND		ug/L	2.0	05/14/2024	AB24-0515-01
Potassium	4400		ug/L	100.0	05/14/2024	AB24-0515-01
Selenium	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Silver	ND		ug/L	0.2	05/14/2024	AB24-0515-01
Sodium	53000		ug/L	1000.0	05/14/2024	AB24-0515-01
Thallium	ND		ug/L	2.0	05/14/2024	AB24-0515-01
Vanadium	ND		ug/L	2.0	05/14/2024	AB24-0515-01
Zinc	ND		ug/L	10.0	05/14/2024	AB24-0515-01
Mercury by EPA 7470A, To	tal, Aqueous			Aliquot #: 24-0	341-01-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	05/20/2024	AB24-0515-03
Anions by EPA 300.0 Aque	ous, NO2, NO3			Aliquot #: 24-0	341-01-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	05/09/2024	AB24-0509-16
Nitrite	ND		ug/L	100.0	05/09/2024	AB24-0509-16
Anions by EPA 300.0 CCR	Rule Analyte List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	341-01-C02-A02	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	57300		ug/L	1000.0	05/14/2024	AB24-0513-11



**Analytical Report** 

Report Date: 05/23/24

Count on Us® **Laboratory Services** A CENTURY OF EXCELLENCE

Sample Site: Laboratory Project: **DEK Lined Impoundment** 24-0341

Field Sample ID: **DEK-MW-15003** Collect Date: 05/08/2024 Lab Sample ID: 24-0341-01 Collect Time: 02:44 PM

e List, Cl, F,	SO4, Aqι	ieous	Aliquot #: 24-0	341-01-C02-A02	Analyst: KDR
Result	Flag	Units	RL	Analysis Date	Tracking
ND		ug/L	1000.0	05/09/2024	AB24-0513-11
34100		ug/L	1000.0	05/14/2024	AB24-0513-11
Groundwate	r HL		Aliquot #: 24-0	341-01-C03-A01	Analyst: CLE
Result	Flag	Units	RL	Analysis Date	Tracking
1800		ug/L	25.0	05/14/2024	AB24-0514-02
			Aliquot #: 24-0	341-01-C04-A01	Analyst: CLE
Result	Flag	Units	RL	Analysis Date	Tracking
312		mg/L	10.0	05/09/2024	AB24-0509-17
			Aliquot #: 24-0	341-01-C05-A01	Analyst: DLS
Result	Flag	Units	RL	Analysis Date	Tracking
105000		ug/L	10000.0	05/15/2024	AB24-0515-04
105000		ug/L	10000.0	05/15/2024	AB24-0515-04
ND		ug/L	10000.0	05/15/2024	AB24-0515-04
			Aliquot #: 24-0	341-01-C07-A01	Analyst: Merit
Result	Flag	Units	RL	Analysis Date	Tracking
230		ug/L	20.0	05/10/2024	AB24-0510-05
	Result ND 34100  Groundwate Result 1800  Result 312  Result 105000 105000 ND  Result	Result Flag ND 34100  Groundwater HL  Result Flag 1800  Result Flag 312  Result Flag 105000 105000 ND  Result Flag	ND       ug/L         34100       ug/L         Groundwater HL         Result       Flag       Units         1800       ug/L         Result       Flag       Units         312       mg/L         Result       Flag       Units         105000       ug/L         ND       ug/L         Result       Flag       Units         Units       Units	Result         Flag         Units         RL           ND         ug/L         1000.0           34100         ug/L         1000.0           Groundwater HL         Aliquot #: 24-0           Result         Flag         Units         RL           1800         ug/L         25.0           Aliquot #: 24-0         Result         Flag         Units         RL           312         mg/L         10.0         Aliquot #: 24-0           Result         Flag         Units         RL           105000         ug/L         10000.0           ND         ug/L         10000.0           ND         ug/L         10000.0           Aliquot #: 24-0         Aliquot #: 24-0           Result         Flag         Units         RL	Result         Flag         Units         RL         Analysis Date           ND         ug/L         1000.0         05/09/2024           34100         ug/L         1000.0         05/14/2024           Groundwater HL         Aliquot #: 24-0341-01-C03-A01           Result         Flag         Units         RL         Analysis Date           1800         ug/L         25.0         05/14/2024           Aliquot #: 24-0341-01-C04-A01         Result         Flag         Units         RL         Analysis Date           312         mg/L         10.0         05/09/2024         4           Result         Flag         Units         RL         Analysis Date           105000         ug/L         10000.0         05/15/2024           ND         ug/L         10000.0         05/15/2024           Aliquot #: 24-0341-01-C07-A01         Aliquot #: 24-0341-01-C07-A01           Result         Flag         Units         RL         Analysis Date



05/23/24



A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0341** 

 Field Sample ID:
 OW-10
 Collect Date:
 05/08/2024

 Lab Sample ID:
 24-0341-02
 Collect Time:
 11:08 AM

Metals by EPA 6020B: CCR	Kule Appendix III-IV To	tai Metal	s Exp	Aliquot #: 24-0	341-02-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Arsenic	2		ug/L	1.0	05/14/2024	AB24-0515-01
Barium	160		ug/L	5.0	05/14/2024	AB24-0515-01
Beryllium	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Boron	1270		ug/L	20.0	05/14/2024	AB24-0515-01
Cadmium	ND		ug/L	0.2	05/14/2024	AB24-0515-01
Calcium	141000		ug/L	1000.0	05/14/2024	AB24-0515-01
Chromium	2		ug/L	1.0	05/14/2024	AB24-0515-01
Cobalt	ND		ug/L	6.0	05/14/2024	AB24-0515-01
Copper	2		ug/L	1.0	05/14/2024	AB24-0515-01
Iron	3380		ug/L	20.0	05/14/2024	AB24-0515-01
Lead	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Lithium	37		ug/L	10.0	05/14/2024	AB24-0515-01
Magnesium	29100		ug/L	1000.0	05/14/2024	AB24-0515-01
Manganese	774		ug/L	5.0	05/14/2024	AB24-0515-01
Molybdenum	ND		ug/L	5.0	05/14/2024	AB24-0515-01
Nickel	4		ug/L	2.0	05/14/2024	AB24-0515-01
Potassium	7420		ug/L	100.0	05/14/2024	AB24-0515-01
Selenium	2		ug/L	1.0	05/14/2024	AB24-0515-01
Silver	ND		ug/L	0.2	05/14/2024	AB24-0515-01
Sodium	76800		ug/L	1000.0	05/14/2024	AB24-0515-01
Thallium	ND		ug/L	2.0	05/14/2024	AB24-0515-01
Vanadium	3		ug/L	2.0	05/14/2024	AB24-0515-01
Zinc	ND		ug/L	10.0	05/14/2024	AB24-0515-01
Mercury by EPA 7470A, To	tal, Aqueous			Aliquot #: 24-0	341-02-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	<b>Analysis Date</b>	Tracking
Mercury	ND		ug/L	0.2	05/20/2024	AB24-0515-03
Anions by EPA 300.0 Aque	ous, NO2, NO3			Aliquot #: 24-0	341-02-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	05/09/2024	AB24-0509-16
Nitrite	ND		ug/L	100.0	05/09/2024	AB24-0509-16
Anions by EPA 300.0 CCR	Rule Analyte List, Cl, F,	SO4, Aqı	ieous	Aliquot #: 24-0	341-02-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	82600		ug/L	1000.0	05/14/2024	AB24-0513-11



05/23/24



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Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0341** 

 Field Sample ID:
 OW-10
 Collect Date:
 05/08/2024

 Lab Sample ID:
 24-0341-02
 Collect Time:
 11:08 AM

Anions by EPA 300.0 CCR Rule Analyt	e List, CI, F, S	SO4, Aqı	ieous	Aliquot #: 24-0	341-02-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	05/09/2024	AB24-0513-11
Sulfate	ND		ug/L	1000.0	05/14/2024	AB24-0513-11
Nitrogen-Ammonia by SM4500NH3(h),	Groundwater	r HL		Aliquot #: 24-0	341-02-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	4810	J	ug/L	25.0	05/14/2024	AB24-0514-02
			3			
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	341-02-C04-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	<b>Analysis Date</b>	Tracking
Total Dissolved Solids	832		mg/L	10.0	05/09/2024	AB24-0509-17
Alkalinity by SM 2220B				Alianot #1 24 0	244 02 COE A04	Analyst DI C
Alkalinity by SM 2320B	Decult	Floa	Unito	-	341-02-C05-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	558000		ug/L	10000.0	05/15/2024	AB24-0515-04
Alkalinity Bicarbonate	558000		ug/L	10000.0	05/15/2024	AB24-0515-04
Alkalinity Carbonate	ND		ug/L	10000.0	05/15/2024	AB24-0515-04
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	341-02-C07-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	90		ug/L	20.0	05/10/2024	AB24-0510-05
Metals by EPA 6020B: CCR Rule Appe	ndix III-IV Dis	s Metals	Expa			
			-	•	341-02-C08-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	05/20/2024	AB24-0520-08
Arsenic	1		ug/L	1.0	05/20/2024	AB24-0520-08
Barium	148		ug/L	5.0	05/20/2024	AB24-0520-08
Beryllium	ND		ug/L	1.0	05/20/2024	AB24-0520-08
Boron	1170		ug/L	20.0	05/20/2024	AB24-0520-08
Cadmium	ND		ug/L	0.2	05/20/2024	AB24-0520-08
Calcium	135000		ug/L	1000.0	05/20/2024	AB24-0520-08
Chromium	1		ug/L	1.0	05/20/2024	AB24-0520-08
Cobalt	ND		ug/L	6.0	05/20/2024	AB24-0520-08
Copper	1		ug/L	1.0	05/20/2024	AB24-0520-08
Iron	3420		ug/L	20.0	05/20/2024	AB24-0520-08
Lead	ND		ug/L	1.0	05/20/2024	AB24-0520-08
					05/00/0004	ADO4 0500 00
Lithium	35		ug/L	10.0	05/20/2024	AB24-0520-08
Lithium Magnesium	35 28900		ug/L ug/L	10.0 1000.0	05/20/2024 05/20/2024	AB24-0520-08 AB24-0520-08



05/23/24



Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0341** 

 Field Sample ID:
 OW-10
 Collect Date:
 05/08/2024

 Lab Sample ID:
 24-0341-02
 Collect Time:
 11:08 AM

Metals by EPA 6020B: CCR Rule Appendix III-IV Diss Metals Expa		Aliquot #: 24-0	Aliquot #: 24-0341-02-C08-A01		
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Manganese	802	ug/L	5.0	05/20/2024	AB24-0520-08
Molybdenum	ND	ug/L	5.0	05/20/2024	AB24-0520-08
Nickel	ND	ug/L	2.0	05/20/2024	AB24-0520-08
Potassium	5780	ug/L	100.0	05/20/2024	AB24-0520-08
Selenium	1	ug/L	1.0	05/20/2024	AB24-0520-08
Silver	ND	ug/L	0.2	05/20/2024	AB24-0520-08
Sodium	76600	ug/L	1000.0	05/20/2024	AB24-0520-08
Thallium	ND	ug/L	2.0	05/20/2024	AB24-0520-08
Vanadium	3	ug/L	2.0	05/20/2024	AB24-0520-08
Zinc	ND	ug/L	10.0	05/20/2024	AB24-0520-08



05/23/24



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Sample Site:DEK Lined ImpoundmentLaboratory Project:24-0341Field Sample ID:OW-11Collect Date:05/08/2024Lab Sample ID:24-0341-03Collect Time:12:46 PM

Metals by EPA 6020B: CCR	Rule Appendix III-IV To	tal Metal	s Ехр	Aliquot #: 24-0	341-03-C01-A01	Analyst: EB	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Antimony	3		ug/L	1.0	05/14/2024	AB24-0515-01	
Arsenic	948		ug/L	1.0	05/14/2024	AB24-0515-01	
Barium	27		ug/L	5.0	05/14/2024	AB24-0515-01	
Beryllium	ND		ug/L	1.0	05/14/2024	AB24-0515-01	
Boron	3340		ug/L	20.0	05/14/2024	AB24-0515-01	
Cadmium	ND		ug/L	0.2	05/14/2024	AB24-0515-01	
Calcium	10300		ug/L	1000.0	05/14/2024	AB24-0515-01	
Chromium	ND		ug/L	1.0	05/14/2024	AB24-0515-01	
Cobalt	ND		ug/L	6.0	05/14/2024	AB24-0515-01	
Copper	ND		ug/L	1.0	05/14/2024	AB24-0515-01	
Iron	21		ug/L	20.0	05/14/2024	AB24-0515-01	
Lead	ND		ug/L	1.0	05/14/2024	AB24-0515-01	
Lithium	12		ug/L	10.0	05/14/2024	AB24-0515-01	
Magnesium	1340		ug/L	1000.0	05/14/2024	AB24-0515-01	
Manganese	ND		ug/L	5.0	05/14/2024	AB24-0515-01	
Molybdenum	146		ug/L	5.0	05/14/2024	AB24-0515-01	
Nickel	ND		ug/L	2.0	05/14/2024	AB24-0515-01	
Potassium	4400		ug/L	100.0	05/14/2024	AB24-0515-01	
Selenium	7		ug/L	1.0	05/14/2024	AB24-0515-01	
Silver	ND		ug/L	0.2	05/14/2024	AB24-0515-01	
Sodium	60400		ug/L	1000.0	05/14/2024	AB24-0515-01	
Thallium	ND		ug/L	2.0	05/14/2024	AB24-0515-01	
Vanadium	169		ug/L	2.0	05/14/2024	AB24-0515-01	
Zinc	ND		ug/L	10.0	05/14/2024	AB24-0515-01	
Mercury by EPA 7470A, To	tal, Aqueous			Aliquot #: 24-0	341-03-C01-A02	Analyst: CLE	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Mercury	ND		ug/L	0.2	05/20/2024	AB24-0515-03	
Anions by EPA 300.0 Aque	ous, NO2, NO3			Aliquot #: 24-0	341-03-C02-A01	Analyst: KDR	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Nitrate	469		ug/L	100.0	05/09/2024	AB24-0509-16	
Nitrite	ND		ug/L	100.0	05/09/2024	AB24-0509-16	
Anions by EPA 300.0 CCR	Rule Analyte List, Cl, F,	SO4, Aqı	ieous	Aliquot #: 24-0	341-03-C02-A02	Analyst: KDR	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Chloride	55400		ug/L	1000.0	05/14/2024	AB24-0513-11	





**Report Date:** 05/23/24 06/07/24R

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0341** 

 Field Sample ID:
 OW-11
 Collect Date:
 05/08/2024

 Lab Sample ID:
 24-0341-03
 Collect Time:
 12:46 PM

Anions by EPA 300.0 CCR Rule Anal	yte List, CI, F,	, SO4, Aqι	ieous	Aliquot #: 24-0	341-03-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	3390		ug/L	1000.0	05/09/2024	AB24-0513-11
Sulfate	19400		ug/L	1000.0	05/14/2024	AB24-0513-11
Nitrogen-Ammonia by SM4500NH3(h	ı), Groundwat	er HL		Aliquot #: 24-0	341-03-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	12200		ug/L	25.0	05/14/2024	AB24-0514-02
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	341-03-C04-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	312		mg/L	10.0	05/09/2024	AB24-0509-17
Alkalinity by SM 2320B				Aliquot #: 24-0	341-03-C05-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	92500		ug/L	10000.0	05/15/2024	AB24-0515-04
Alkalinity Bicarbonate	25800		ug/L	10000.0	05/15/2024	AB24-0515-04
Alkalinity Carbonate	66700		ug/L	10000.0	05/15/2024	AB24-0515-04
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	341-03-C07-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	ND		ug/L	20.0	05/10/2024	AB24-0510-05R



05/23/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0341** 

 Field Sample ID:
 OW-12
 Collect Date:
 05/09/2024

 Lab Sample ID:
 24-0341-04
 Collect Time:
 12:45 PM

Parameter(s)	Result					
	Result	Flag	Units	RL	<b>Analysis Date</b>	Tracking
Antimony	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Arsenic	33		ug/L	1.0	05/14/2024	AB24-0515-01
Barium	216		ug/L	5.0	05/14/2024	AB24-0515-01
Beryllium	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Boron	1410		ug/L	20.0	05/14/2024	AB24-0515-01
Cadmium	ND		ug/L	0.2	05/14/2024	AB24-0515-01
Calcium	179000		ug/L	1000.0	05/14/2024	AB24-0515-01
Chromium	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Cobalt	ND		ug/L	6.0	05/14/2024	AB24-0515-01
Copper	1		ug/L	1.0	05/14/2024	AB24-0515-01
Iron	5200		ug/L	20.0	05/14/2024	AB24-0515-01
Lead	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Lithium	63		ug/L	10.0	05/14/2024	AB24-0515-01
Magnesium	101000		ug/L	1000.0	05/14/2024	AB24-0515-01
Manganese	609		ug/L	5.0	05/14/2024	AB24-0515-01
Molybdenum	7		ug/L	5.0	05/14/2024	AB24-0515-01
Nickel	3		ug/L	2.0	05/14/2024	AB24-0515-01
Potassium	8910		ug/L	100.0	05/14/2024	AB24-0515-01
Selenium	1		ug/L	1.0	05/14/2024	AB24-0515-01
Silver	ND		ug/L	0.2	05/14/2024	AB24-0515-01
Sodium	55200		ug/L	1000.0	05/14/2024	AB24-0515-01
Thallium	ND		ug/L	2.0	05/14/2024	AB24-0515-01
Vanadium	ND		ug/L	2.0	05/14/2024	AB24-0515-01
Zinc	ND		ug/L	10.0	05/14/2024	AB24-0515-01
Mercury by EPA 7470A, Total, Aqueou	ıs			Aliquot #: 24-0	341-04-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	05/20/2024	AB24-0515-03
Anions by EPA 300.0 Aqueous, NO2, N	NO3			Aliquot #: 24-0	341-04-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	05/10/2024	AB24-0510-06
Nitrite	ND		ug/L	100.0	05/10/2024	AB24-0510-06
Anions by EPA 300.0 CCR Rule Analy	te List, CI, F,	SO4, Aqı	ueous	Aliquot #: 24-0	341-04-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	33700		ug/L	1000.0	05/14/2024	AB24-0513-11





A CENTURY OF EXCELLENCE

05/23/24 Report Date:

Sample Site: **DEK Lined Impoundment** Laboratory Project: 24-0341

Collect Date: Field Sample ID: **OW-12** 05/09/2024 Lab Sample ID: 24-0341-04 Collect Time: 12:45 PM

Matrix: Groundwater

Anions by EPA 300.0 CCR Rule Ar	nalyte List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	Analyst: KDR	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	05/10/2024	AB24-0513-11
Sulfate	308000		ug/L	1000.0	05/14/2024	AB24-0513-11
Nitrogen-Ammonia by SM4500NH3	B(h), Groundwate	r HL		Aliquot #: 24-0	341-04-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	1660		ug/L	25.0	05/14/2024	AB24-0514-02
Total Dissolved Solids by SM 2540	С			Aliquot #: 24-0	341-04-C04-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	1290		mg/L	10.0	05/10/2024	AB24-0510-10
Alkalinity by SM 2320B				Aliquot #: 24-0	341-04-C05-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	662000		ug/L	10000.0	05/15/2024	AB24-0515-04
Alkalinity Bicarbonate	662000		ug/L	10000.0	05/15/2024	AB24-0515-04
Alkalinity Carbonate	ND		ug/L	10000.0	05/15/2024	AB24-0515-04
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	341-04-C07-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	ND		ug/L	20.0	05/13/2024	AB24-0513-15



05/23/24



A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0341** 

Field Sample ID: KLI-PCS Collect Date: 05/08/2024
Lab Sample ID: 24-0341-06 Collect Time: 03:50 PM

Arsenic ND ug/L 1.0 05/14/2024 AB: Barlum 81 ug/L 5.0 05/14/2024 AB: Beryllium ND ug/L 1.0 05/14/2024 AB: Boron 649 ug/L 20.0 05/14/2024 AB: Cadmium 0.3 ug/L 0.2 05/14/2024 AB: Cadmium 72500 ug/L 1000.0 05/14/2024 AB: Chromium ND ug/L 1.0 05/14/2024 AB: Chromium ND ug/L 1.0 05/14/2024 AB: Cobalt ND ug/L 6.0 05/14/2024 AB: Copper 3 ug/L 1.0 05/14/2024 AB: Copper 1 ug/L 1.0 05/14/2024 AB: Copper 1 ug/L 1.0 05/14/2024 AB: Lead 1 ug/L 1.0 05/14/2024 AB: Lead 1 ug/L 1.0 05/14/2024 AB: Lithium 11 ug/L 1.0 05/14/2024 AB: Magnesium 9220 ug/L 1000 05/14/2024 AB: Magnesium 9220 ug/L 1000 05/14/2024 AB: Molybdenum 53 ug/L 5.0 05/14/2024 AB: Molybdenum 53 ug/L 5.0 05/14/2024 AB: Potassium 7130 ug/L 5.0 05/14/2024 AB: Selenium 1 ug/L 1.0 05/14/2024 AB: Silver ND ug/L 2.0 05/14/2024 AB: Silver ND ug/L 2.0 05/14/2024 AB: Silver ND ug/L 1.0 05/14/2024 AB: Silver ND ug/L 1.0 05/14/2024 AB: Silver ND ug/L 2.0 05/14/2024 AB: Thallium ND ug/L 1.0 05/14/2024 AB: Sodium 51000 ug/L 1000 05/14/2024 AB: Thallium ND ug/L 2.0 05/14/2024 AB: Thallium ND ug/L 2.0 05/14/2024 AB: Thallium ND ug/L 1.0 05/14/2024 AB: Thallium ND ug/L 1.0 05/14/2024 AB: Thallium ND ug/L 2.0 05/14/2024 AB: Thallium ND ug/L 1.0 0	Metals by EPA 6020B: CCR Ru	ie Appendix III-IV To	tai Metal	s Exp	Aliquot #: 24-0	Aliquot #: 24-0341-06-C01-A01		
Arsenic ND ug/L 1.0 05/14/2024 AB: Barium 81 ug/L 5.0 05/14/2024 AB: Beryllium ND ug/L 1.0 05/14/2024 AB: Beryllium ND ug/L 2.0 05/14/2024 AB: Cadmium 0.3 ug/L 0.2 05/14/2024 AB: Cadmium 72500 ug/L 1000.0 05/14/2024 AB: Calcium 72500 ug/L 1.0 05/14/2024 AB: Chromium ND ug/L 1.0 05/14/2024 AB: Cobalt ND ug/L 6.0 05/14/2024 AB: Copper 3 ug/L 1.0 05/14/2024 AB: Lead 1 ug/L 20.0 05/14/2024 AB: Lead 1 ug/L 1.0 05/14/2024 AB: Lead 1 ug/L 1.0 05/14/2024 AB: Lead 1 ug/L 1.0 05/14/2024 AB: Magnesium 1 ug/L 1.0 05/14/2024 AB: Magnesium 9220 ug/L 1000.0 05/14/2024 AB: Magnesium 9220 ug/L 1000.0 05/14/2024 AB: Molybdenum 53 ug/L 5.0 05/14/2024 AB: Molybdenum 53 ug/L 5.0 05/14/2024 AB: Potassium 7130 ug/L 5.0 05/14/2024 AB: Selenium 1 ug/L 1.0 05/14/2024 AB: Selenium 1 ug/L 1.0 05/14/2024 AB: Selenium 1 ug/L 1.0 05/14/2024 AB: Silver ND ug/L 2.0 05/14/2024 AB: Silver ND ug/L 2.0 05/14/2024 AB: Silver ND ug/L 2.0 05/14/2024 AB: Silver ND ug/L 1.0 05/14/2024 AB: Silver ND ug/L 0.2 05/14/2024 AB: Thallium ND ug/L 0.2 05/14/2024 AB: Thallium ND ug/L 0.2 05/14/2024 AB: Thallium ND ug/L 0.2 05/14/2024 AB: Thallium ND ug/L 0.2 05/14/2024 AB: Thallium ND ug/L 0.2 05/14/2024 AB: Thallium ND ug/L 0.2 05/14/2024 AB: Thallium ND ug/L 0.2 05/14/2024 AB: Thallium ND ug/L 0.2 05/14/2024 AB: Thallium ND ug/L 0.2 05/14/2024 AB: Thallium ND ug/L 0.2 05/14/2024 AB: Thallium ND ug/L 0.2 05/14/2024 AB: Thallium ND ug/L 0.2 05/14/2024 AB: Thallium ND ug/L 0.2 05/14/2024 AB: Thallium ND ug/L 0.0 05/14/2024 AB: Thallium ND ug/L 0.0 05/14/2024 AB: Thallium ND ug/L 0.0 05/14/2024 AB: Thallium ND ug/L 0.0 05/14/2024 AB: Thallium ND ug/L 0.0 05/14/2024 AB: Thallium ND ug/L 0.0 05/14/2024 AB: Thallium ND ug/L 0.0 05/14/2024 AB: Thallium ND ug/L 0.0 05/14/2024 AB: Thallium ND ug/L 0.0 05/14/2024 AB: Thallium ND ug/L 0.0 05/14/2024 AB: Thallium ND ug/L 0.0 05/14/2024 AB: Thallium ND ug/L 0.0 05/14/2024 AB: Thallium ND ug/L 0.0 05/14/2024 AB: Thallium ND ug	Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Barium         81         ug/L         5.0         05/14/2024         ABS           Beryllium         ND         ug/L         1.0         05/14/2024         ABS           Boron         649         ug/L         20.0         05/14/2024         ABS           Cadmium         0.3         ug/L         100.0         05/14/2024         ABS           Calcium         72500         ug/L         1000.0         05/14/2024         ABS           Chromium         ND         ug/L         1.0         05/14/2024         ABS           Cobalt         ND         ug/L         1.0         05/14/2024         ABS           Copper         3         ug/L         1.0         05/14/2024         ABS           Iron         41         ug/L         20.0         05/14/2024         ABS           Lead         1         ug/L         10.0         05/14/2024         ABS           Lithium         11         ug/L         10.0         05/14/2024         ABS           Manganesium         9220         ug/L         100.0         05/14/2024         ABS           Molybdenum         53         ug/L         5.0         05/14/2024         ABS	Antimony	ND		ug/L	1.0	05/14/2024	AB24-0515-01	
Beryllium         ND         ug/L         1.0         05/14/2024         AB:           Boron         649         ug/L         20.0         05/14/2024         AB:           Cadmium         0.3         ug/L         0.2         05/14/2024         AB:           Calcium         72500         ug/L         1.00         0.0         05/14/2024         AB:           Chromium         ND         ug/L         1.0         05/14/2024         AB:           Cobalt         ND         ug/L         1.0         05/14/2024         AB:           Copper         3         ug/L         1.0         05/14/2024         AB:           Iron         41         ug/L         20.0         05/14/2024         AB:           Iron         41         ug/L         1.0         05/14/2024         AB:           Lead         1         ug/L         1.0         05/14/2024         AB:           Lead         1         ug/L         1.0         05/14/2024         AB:           Magnesium         9220         ug/L         10.0         05/14/2024         AB:           Magnesium         9220         ug/L         5.0         05/14/2024         AB:	Arsenic	ND		ug/L	1.0	05/14/2024	AB24-0515-01	
Boron   649   ug/L   20.0   05/14/2024   AB2   Cadmium   0.3   ug/L   0.2   05/14/2024   AB2   Calcium   72500   ug/L   1000.0   05/14/2024   AB2   Chromium   ND   ug/L   1.0   05/14/2024   AB2   Cobalt   ND   ug/L   6.0   05/14/2024   AB2   Copper   3   ug/L   1.0   05/14/2024   AB2   Copper   3   ug/L   1.0   05/14/2024   AB2   Copper   3   ug/L   1.0   05/14/2024   AB2   Iron   41   ug/L   1.0   05/14/2024   AB2   Iron   11   ug/L   1.0   05/14/2024   AB2   Iron   05/14/2024	Barium	81		ug/L	5.0	05/14/2024	AB24-0515-01	
Cadmium         0.3         ug/L         0.2         05/14/2024         AB3           Calcium         72500         ug/L         1000.0         05/14/2024         AB3           Chromium         ND         ug/L         1.0         05/14/2024         AB3           Cobalt         ND         ug/L         6.0         05/14/2024         AB3           Copper         3         ug/L         1.0         05/14/2024         AB3           Iron         41         ug/L         20.0         05/14/2024         AB3           Iron         41         ug/L         10.0         05/14/2024         AB3           Lead         1         ug/L         10.0         05/14/2024         AB3           Lithium         11         ug/L         10.0         05/14/2024         AB3           Manganesium         9220         ug/L         10.0         05/14/2024         AB3           Molybdenum         53         ug/L         5.0         05/14/2024         AB3           Mickel         ND         ug/L         2.0         05/14/2024         AB3           Nickel         ND         ug/L         10.0         05/14/2024         AB3 <tr< td=""><td>Beryllium</td><td>ND</td><td></td><td>ug/L</td><td>1.0</td><td>05/14/2024</td><td>AB24-0515-01</td></tr<>	Beryllium	ND		ug/L	1.0	05/14/2024	AB24-0515-01	
Calcium         72500         ug/L         1000.0         05/14/2024         AB3           Chromium         ND         ug/L         1.0         05/14/2024         AB3           Cobalt         ND         ug/L         6.0         05/14/2024         AB3           Copper         3         ug/L         1.0         05/14/2024         AB3           Iron         41         ug/L         1.0         05/14/2024         AB3           Lead         1         ug/L         10.0         05/14/2024         AB3           Lithium         11         ug/L         10.0         05/14/2024         AB3           Magnesium         9220         ug/L         1000.0         05/14/2024         AB3           Manganese         ND         ug/L         5.0         05/14/2024         AB3           Molybdenum         53         ug/L         5.0         05/14/2024         AB3           Nickel         ND         ug/L         2.0         05/14/2024         AB3           Nickel         ND         ug/L         100.0         05/14/2024         AB3           Selenium         1         ug/L         0.2         05/14/2024         AB3	Boron	649		ug/L	20.0	05/14/2024	AB24-0515-01	
Chromium         ND         ug/L         1.0         05/14/2024         ABS           Cobalt         ND         ug/L         6.0         05/14/2024         ABS           Copper         3         ug/L         1.0         05/14/2024         ABS           Iron         41         ug/L         20.0         05/14/2024         ABS           Lead         1         ug/L         10.0         05/14/2024         ABS           Lithium         11         ug/L         10.0         05/14/2024         ABS           Lithium         11         ug/L         10.0         05/14/2024         ABS           Magnesium         9220         ug/L         1000.0         05/14/2024         ABS           Manganese         ND         ug/L         5.0         05/14/2024         ABS           Molybdenum         53         ug/L         5.0         05/14/2024         ABS           Nickel         ND         ug/L         10.0         05/14/2024         ABS           Selenium         7130         ug/L         10.0         05/14/2024         ABS           Silver         ND         ug/L         10.0         05/14/2024         ABS	Cadmium	0.3		ug/L	0.2	05/14/2024	AB24-0515-01	
Cobalt         ND         ug/L         6.0         05/14/2024         AB2           Copper         3         ug/L         1.0         05/14/2024         AB2           Iron         41         ug/L         20.0         05/14/2024         AB2           Lead         1         ug/L         1.0         05/14/2024         AB2           Lithium         11         ug/L         10.0         05/14/2024         AB2           Magnesium         9220         ug/L         1000.0         05/14/2024         AB3           Manganese         ND         ug/L         5.0         05/14/2024         AB3           Molybdenum         53         ug/L         5.0         05/14/2024         AB3           Mickel         ND         ug/L         2.0         05/14/2024         AB3           Nickel         ND         ug/L         100.0         05/14/2024         AB3           Selenium         1         ug/L         1.0         05/14/2024         AB3           Silver         ND         ug/L         10.0         05/14/2024         AB3           Sodium         51000         ug/L         100.0         05/14/2024         AB3 <tr< td=""><td>Calcium</td><td>72500</td><td></td><td>ug/L</td><td>1000.0</td><td>05/14/2024</td><td>AB24-0515-01</td></tr<>	Calcium	72500		ug/L	1000.0	05/14/2024	AB24-0515-01	
Copper         3         ug/L         1.0         05/14/2024         AB3           Iron         41         ug/L         20.0         05/14/2024         AB3           Lead         1         ug/L         1.0         05/14/2024         AB3           Lithium         11         ug/L         10.0         05/14/2024         AB3           Magnesium         9220         ug/L         1000.0         05/14/2024         AB3           Manganese         ND         ug/L         5.0         05/14/2024         AB3           Molybdenum         53         ug/L         5.0         05/14/2024         AB3           Nickel         ND         ug/L         2.0         05/14/2024         AB3           Potassium         7130         ug/L         10.0         05/14/2024         AB3           Selenium         1         ug/L         1.0         05/14/2024         AB3           Silver         ND         ug/L         1.0         05/14/2024         AB3           Sodium         51000         ug/L         1.0         05/14/2024         AB3           Vanadium         2         ug/L         2.0         05/14/2024         AB3      <	Chromium	ND		ug/L	1.0	05/14/2024	AB24-0515-01	
Iron	Cobalt	ND		ug/L	6.0	05/14/2024	AB24-0515-01	
Lead	Copper	3		ug/L	1.0	05/14/2024	AB24-0515-01	
Lithium         11         ug/L         10.0         05/14/2024         AB3           Magnesium         9220         ug/L         1000.0         05/14/2024         AB3           Manganese         ND         ug/L         5.0         05/14/2024         AB3           Molybdenum         53         ug/L         5.0         05/14/2024         AB3           Nickel         ND         ug/L         100.0         05/14/2024         AB3           Potassium         7130         ug/L         100.0         05/14/2024         AB3           Selenium         1         ug/L         1.0         05/14/2024         AB3           Silver         ND         ug/L         0.2         05/14/2024         AB3           Sodium         51000         ug/L         1000.0         05/14/2024         AB3           Thallium         ND         ug/L         2.0         05/14/2024         AB3           Vanadium         2         ug/L         2.0         05/14/2024         AB3           Zinc         ND         ug/L         10.0         05/14/2024         AB3           Mercury by EPA 7470A, Total, Aqueous         Aliquot #: 24-0341-06-C01-A02         An4	Iron	41		ug/L	20.0	05/14/2024	AB24-0515-01	
Magnesium         9220         ug/L         1000.0         05/14/2024         ABS           Manganese         ND         ug/L         5.0         05/14/2024         ABS           Molybdenum         53         ug/L         5.0         05/14/2024         ABS           Nickel         ND         ug/L         2.0         05/14/2024         ABS           Potassium         7130         ug/L         100.0         05/14/2024         ABS           Selenium         1         ug/L         1.0         05/14/2024         ABS           Silver         ND         ug/L         0.2         05/14/2024         ABS           Sodium         51000         ug/L         0.2         05/14/2024         ABS           Thallium         ND         ug/L         2.0         05/14/2024         ABS           Vanadium         2         ug/L         2.0         05/14/2024         ABS           Mercury by EPA 7470A, Total, Aqueous         ND         ug/L         10.0         05/14/2024         ABS           Mercury by EPA 7470A, Total, Aqueous         Result         Flag         Units         RL         Analysis Date           Mercury         ND         ug/L <t< td=""><td>Lead</td><td>1</td><td></td><td>ug/L</td><td>1.0</td><td>05/14/2024</td><td>AB24-0515-01</td></t<>	Lead	1		ug/L	1.0	05/14/2024	AB24-0515-01	
Manganese         ND         ug/L         5.0         05/14/2024         ABS           Molybdenum         53         ug/L         5.0         05/14/2024         ABS           Nickel         ND         ug/L         2.0         05/14/2024         ABS           Potassium         7130         ug/L         100.0         05/14/2024         ABS           Selenium         1         ug/L         1.0         05/14/2024         ABS           Silver         ND         ug/L         0.2         05/14/2024         ABS           Sodium         51000         ug/L         1000.0         05/14/2024         ABS           Sodium         51000         ug/L         2.0         05/14/2024         ABS           Thallium         ND         ug/L         2.0         05/14/2024         ABS           Vanadium         2         ug/L         2.0         05/14/2024         ABS           Zinc         ND         ug/L         10.0         05/14/2024         ABS           Mercury by EPA 7470A, Total, Aqueous         Result         Flag         Units         RL         Analysis Date           Mercury         ND         ug/L         0.2         05/20/2024<	Lithium	11		ug/L	10.0	05/14/2024	AB24-0515-01	
Molybdenum         53         ug/L         5.0         05/14/2024         ABS           Nickel         ND         ug/L         2.0         05/14/2024         ABS           Potassium         7130         ug/L         100.0         05/14/2024         ABS           Selenium         1         ug/L         1.0         05/14/2024         ABS           Silver         ND         ug/L         0.2         05/14/2024         ABS           Sodium         51000         ug/L         1000.0         05/14/2024         ABS           Thallium         ND         ug/L         2.0         05/14/2024         ABS           Vanadium         2         ug/L         2.0         05/14/2024         ABS           Zinc         ND         ug/L         10.0         05/14/2024         ABS           Mercury by EPA 7470A, Total, Aqueous         Aliquot #: 24-0341-06-C01-A02         An           Parameter(s)         Result         Flag         Units         RL         Analysis Date           Mercury         ND         ug/L         0.2         05/20/2024         ABS           Anions by EPA 300.0 Aqueous, NO2, NO3         Aliquot #: 24-0341-06-C02-A01         An           Pa	Magnesium	9220		ug/L	1000.0	05/14/2024	AB24-0515-01	
Nickel         ND         ug/L         2.0         05/14/2024         AB3           Potassium         7130         ug/L         100.0         05/14/2024         AB3           Selenium         1         ug/L         1.0         05/14/2024         AB3           Silver         ND         ug/L         0.2         05/14/2024         AB3           Sodium         51000         ug/L         1000.0         05/14/2024         AB3           Thallium         ND         ug/L         2.0         05/14/2024         AB3           Vanadium         2         ug/L         2.0         05/14/2024         AB3           Zinc         ND         ug/L         10.0         05/14/2024         AB3           Mercury by EPA 7470A, Total, Aqueous         Aliquot #: 24-0341-06-C01-A02         An           Parameter(s)         Result         Flag         Units         RL         Analysis Date           Mercury         ND         ug/L         0.2         05/20/2024         AB3           Anions by EPA 300.0 Aqueous, NO2, NO3         Aliquot #: 24-0341-06-C02-A01         An           Parameter(s)         Result         Flag         Units         RL         Analysis Date	Manganese	ND		ug/L	5.0	05/14/2024	AB24-0515-01	
Potassium	Molybdenum	53		ug/L	5.0	05/14/2024	AB24-0515-01	
Selenium         1         ug/L         1.0         05/14/2024         AB3           Silver         ND         ug/L         0.2         05/14/2024         AB3           Sodium         51000         ug/L         1000.0         05/14/2024         AB3           Thallium         ND         ug/L         2.0         05/14/2024         AB3           Vanadium         2         ug/L         2.0         05/14/2024         AB3           Zinc         ND         ug/L         10.0         05/14/2024         AB3           Mercury by EPA 7470A, Total, Aqueous         Aliquot #: 24-0341-06-C01-A02         An           Parameter(s)         Result         Flag         Units         RL         Analysis Date           Mercury         ND         ug/L         0.2         05/20/2024         AB3           Anions by EPA 300.0 Aqueous, NO2, NO3         Aliquot #: 24-0341-06-C02-A01         An           Parameter(s)         Result         Flag         Units         RL         Analysis Date           Nitrate         ND         ug/L         100.0         05/09/2024         AB3           Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous         Aliquot #: 24-0341-06-C02-A02         An <t< td=""><td>Nickel</td><td>ND</td><td></td><td>ug/L</td><td>2.0</td><td>05/14/2024</td><td>AB24-0515-01</td></t<>	Nickel	ND		ug/L	2.0	05/14/2024	AB24-0515-01	
Silver         ND         ug/L         0.2         05/14/2024         ABS           Sodium         51000         ug/L         1000.0         05/14/2024         ABS           Thallium         ND         ug/L         2.0         05/14/2024         ABS           Vanadium         2         ug/L         2.0         05/14/2024         ABS           Zinc         ND         ug/L         10.0         05/14/2024         ABS           Mercury by EPA 7470A, Total, Aqueous         Aliquot #: 24-0341-06-C01-A02         An           Parameter(s)         Result         Flag         Units         RL         Analysis Date           Mercury         ND         ug/L         0.2         05/20/2024         ABS           Anions by EPA 300.0 Aqueous, NO2, NO3         Aliquot #: 24-0341-06-C02-A01         An           Parameter(s)         Result         Flag         Units         RL         Analysis Date           Nitrate         ND         ug/L         100.0         05/09/2024         ABS           Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous         Aliquot #: 24-0341-06-C02-A02         An           Parameter(s)         Result         Flag         Units         RL         Analysis Date	Potassium	7130		ug/L	100.0	05/14/2024	AB24-0515-01	
Sodium   51000   ug/L   1000.0   05/14/2024   AB2	Selenium	1		ug/L	1.0	05/14/2024	AB24-0515-01	
Thallium         ND         ug/L         2.0         05/14/2024         AB2           Vanadium         2         ug/L         2.0         05/14/2024         AB2           Zinc         ND         ug/L         10.0         05/14/2024         AB2           Mercury by EPA 7470A, Total, Aqueous         Aliquot #: 24-0341-06-C01-A02         Analysis Date           Parameter(s)         Result         Flag Units         RL Analysis Date           Mercury         ND         ug/L         0.2         05/20/2024         AB2           Anions by EPA 300.0 Aqueous, NO2, NO3         Aliquot #: 24-0341-06-C02-A01         Anions Date           Nitrate         ND         ug/L         100.0         05/09/2024         AB2           Nitrite         ND         ug/L         100.0         05/09/2024         AB2           Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous         Aliquot #: 24-0341-06-C02-A02         Anions           Parameter(s)         Result         Flag         Units         RL         Analysis Date	Silver	ND		ug/L	0.2	05/14/2024	AB24-0515-01	
Vanadium         2         ug/L         2.0         05/14/2024         AB2           Zinc         ND         ug/L         10.0         05/14/2024         AB2           Mercury by EPA 7470A, Total, Aqueous         Aliquot #: 24-0341-06-C01-A02         An           Parameter(s)         Result         Flag         Units         RL         Analysis Date           Mercury         ND         ug/L         0.2         05/20/2024         AB2           Anions by EPA 300.0 Aqueous, NO2, NO3         Aliquot #: 24-0341-06-C02-A01         An           Parameter(s)         Result         Flag         Units         RL         Analysis Date           Nitrate         ND         ug/L         100.0         05/09/2024         AB2           Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous         Aliquot #: 24-0341-06-C02-A02         An           Parameter(s)         Result         Flag         Units         RL         Analysis Date	Sodium	51000		ug/L	1000.0	05/14/2024	AB24-0515-01	
Zinc         ND         ug/L         10.0         05/14/2024         ABZ           Mercury by EPA 7470A, Total, Aqueous         Result         Flag         Units         RL         Analysis Date           Parameter(s)         Result         Flag         Units         RL         Analysis Date           Mercury         ND         ug/L         0.2         05/20/2024         ABZ           Anions by EPA 300.0 Aqueous, NO2, NO3         Aliquot #: 24-0341-06-C02-A01         Analysis Date           Parameter(s)         Result         Flag         Units         RL         Analysis Date           Nitrate         ND         ug/L         100.0         05/09/2024         ABZ           Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous         Aliquot #: 24-0341-06-C02-A02         Analysis Date           Parameter(s)         Result         Flag         Units         RL         Analysis Date	Thallium	ND		ug/L	2.0	05/14/2024	AB24-0515-01	
Mercury by EPA 7470A, Total, Aqueous         Aliquot #: 24-0341-06-C01-A02         An Analysis Date           Parameter(s)         Result         Flag         Units         RL         Analysis Date           Anions by EPA 300.0 Aqueous, NO2, NO3         Aliquot #: 24-0341-06-C02-A01         Analysis Date           Parameter(s)         Result         Flag         Units         RL         Analysis Date           Nitrate         ND         ug/L         100.0         05/09/2024         AB2           Nitrite         ND         ug/L         100.0         05/09/2024         AB2           Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous         Aliquot #: 24-0341-06-C02-A02         Analysis Date           Parameter(s)         Result         Flag         Units         RL         Analysis Date	Vanadium	2		ug/L	2.0	05/14/2024	AB24-0515-01	
Parameter(s)         Result         Flag         Units         RL         Analysis Date           Mercury         ND         ug/L         0.2         05/20/2024         AB2           Anions by EPA 300.0 Aqueous, NO2, NO3         Aliquot #: 24-0341-06-C02-A01         Analysis Date           Parameter(s)         Result         Flag         Units         RL         Analysis Date           Nitrate         ND         ug/L         100.0         05/09/2024         AB2           Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous         Aliquot #: 24-0341-06-C02-A02         Analysis Date           Parameter(s)         Result         Flag         Units         RL         Analysis Date	Zinc	ND		ug/L	10.0	05/14/2024	AB24-0515-01	
Mercury         ND         ug/L         0.2         05/20/2024         AB2           Anions by EPA 300.0 Aqueous, NO2, NO3         Aliquot #: 24-0341-06-C02-A01         Analysis Date           Parameter(s)         Result         Flag         Units         RL         Analysis Date           Nitrate         ND         ug/L         100.0         05/09/2024         AB2           Nitrite         ND         ug/L         100.0         05/09/2024         AB2           Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous         Aliquot #: 24-0341-06-C02-A02         Analysis Date           Parameter(s)         Result         Flag         Units         RL         Analysis Date	Mercury by EPA 7470A, Total,	Aqueous			Aliquot #: 24-0	341-06-C01-A02	Analyst: CLE	
Anions by EPA 300.0 Aqueous, NO2, NO3         Aliquot #: 24-0341-06-C02-A01         Anions by EPA 300.0 Aqueous, NO2, NO3         Aliquot #: 24-0341-06-C02-A01         Anions Date           Parameter(s)         Result         Flag         Units         RL         Analysis Date           Nitrate         ND         ug/L         100.0         05/09/2024         AB2           Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous         Aliquot #: 24-0341-06-C02-A02         Anions Date           Parameter(s)         Result         Flag         Units         RL         Analysis Date	Parameter(s)	Result	Flag	Units	RL	<b>Analysis Date</b>	Tracking	
Parameter(s)         Result         Flag         Units         RL         Analysis Date           Nitrate         ND         ug/L         100.0         05/09/2024         AB2           Nitrite         ND         ug/L         100.0         05/09/2024         AB2           Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous         Aliquot #: 24-0341-06-C02-A02         Analysis Date           Parameter(s)         Result         Flag         Units         RL         Analysis Date	Mercury	ND		ug/L	0.2	05/20/2024	AB24-0515-03	
Nitrate         ND         ug/L         100.0         05/09/2024         AB2           Nitrite         ND         ug/L         100.0         05/09/2024         AB2           Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous         Aliquot #: 24-0341-06-C02-A02         Analysis Date           Parameter(s)         Result         Flag Units         RL         Analysis Date	Anions by EPA 300.0 Aqueous	, NO2, NO3			Aliquot #: 24-0	341-06-C02-A01	Analyst: KDR	
Nitrite  ND  ug/L  100.0  05/09/2024  ABZ  Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous  Aliquot #: 24-0341-06-C02-A02  Parameter(s)  Result  Flag  Units  RL  Analysis Date	Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous Aliquot #: 24-0341-06-C02-A02 Ani Parameter(s) Result Flag Units RL Analysis Date	Nitrate	ND		ug/L	100.0	05/09/2024	AB24-0509-16	
Parameter(s) Result Flag Units RL Analysis Date	Nitrite	ND		ug/L	100.0	05/09/2024	AB24-0509-16	
•	Anions by EPA 300.0 CCR Rule	e Analyte List, Cl, F,	SO4, Aqı	ueous	Aliquot #: 24-0	341-06-C02-A02	Analyst: KDR	
	Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Chloride 29300 ug/L 1000.0 05/14/2024 AB2	Chloride	29300		ug/L	1000.0	05/14/2024	AB24-0513-11	





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05/23/24 Report Date:

05/10/2024

20.0

AB24-0510-05R

06/07/24R

Sample Site: Laboratory Project: **DEK Lined Impoundment** 24-0341

Collect Date: Field Sample ID: KLI-PCS 05/08/2024 Lab Sample ID: 24-0341-06 Collect Time: 03:50 PM

Matrix: Groundwater

Sulfide

Anions by EPA 300.0 CCR Rule An	Aliquot #: 24-0	341-06-C02-A02	Analyst: KDR			
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	05/09/2024	AB24-0513-11
Sulfate	247000		ug/L	1000.0	05/14/2024	AB24-0513-11
Nitrogen-Ammonia by SM4500NH3	(h), Groundwate	r HL		Aliquot #: 24-0	341-06-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	ND		ug/L	25.0	05/14/2024	AB24-0514-02
Total Dissolved Solids by SM 2540	С			Aliquot #: 24-0	341-06-C04-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	578		mg/L	10.0	05/09/2024	AB24-0509-17
Alkalinity by SM 2320B				Aliquot #: 24-0	341-06-C05-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	56100		ug/L	10000.0	05/15/2024	AB24-0515-04
Alkalinity Bicarbonate	56100		ug/L	10000.0	05/15/2024	AB24-0515-04
Alkalinity Carbonate	ND		ug/L	10000.0	05/15/2024	AB24-0515-04
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	341-06-C07-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking

ug/L

ND



05/23/24



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Count on Us®

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0341** 

Field Sample ID: DUP-KLI Collect Date: 05/08/2024
Lab Sample ID: 24-0341-08 Collect Time: 12:00 AM

Metals by EPA 6020B: CCR Rule Appe	HIGHT HILLS	iai wetai		Aliquot #: 24-0	341-08-C01-A01	Analyst: EE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Arsenic	297		ug/L	1.0	05/14/2024	AB24-0515-01
Barium	47		ug/L	5.0	05/14/2024	AB24-0515-01
Beryllium	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Boron	701		ug/L	20.0	05/14/2024	AB24-0515-01
Cadmium	ND		ug/L	0.2	05/14/2024	AB24-0515-01
Calcium	33800		ug/L	1000.0	05/14/2024	AB24-0515-01
Chromium	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Cobalt	ND		ug/L	6.0	05/14/2024	AB24-0515-01
Copper	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Iron	150		ug/L	20.0	05/14/2024	AB24-0515-01
Lead	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Lithium	24		ug/L	10.0	05/14/2024	AB24-0515-01
Magnesium	5520		ug/L	1000.0	05/14/2024	AB24-0515-01
Manganese	77		ug/L	5.0	05/14/2024	AB24-0515-01
Molybdenum	24		ug/L	5.0	05/14/2024	AB24-0515-01
Nickel	ND		ug/L	2.0	05/14/2024	AB24-0515-01
Potassium	4450		ug/L	100.0	05/14/2024	AB24-0515-01
Selenium	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Silver	ND		ug/L	0.2	05/14/2024	AB24-0515-01
Sodium	52900		ug/L	1000.0	05/14/2024	AB24-0515-01
Thallium	ND		ug/L	2.0	05/14/2024	AB24-0515-01
Vanadium	ND		ug/L	2.0	05/14/2024	AB24-0515-01
Zinc	ND		ug/L	10.0	05/14/2024	AB24-0515-01
Mercury by EPA 7470A, Total, Aqueou	ıs			Aliquot #: 24-0	341-08-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	05/20/2024	AB24-0515-03
Anions by EPA 300.0 Aqueous, NO2, N	NO3			Aliquot #: 24-0	341-08-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	05/09/2024	AB24-0509-16
N 12 c 2 c	ND		ug/L	100.0	05/09/2024	AB24-0509-16
Nitrite						
Anions by EPA 300.0 CCR Rule Analys	te List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	341-08-C02-A02	Analyst: KDR
	te List, CI, F,	SO4, Aqı Flag	ueous Units	Aliquot #: 24-0 RL	341-08-C02-A02 Analysis Date	Analyst: KDR Tracking





**Report Date:** 05/23/24

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0341** 

Field Sample ID: DUP-KLI Collect Date: 05/08/2024
Lab Sample ID: 24-0341-08 Collect Time: 12:00 AM

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous			Aliquot #: 24-0	Analyst: KDR		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	05/09/2024	AB24-0513-11
Sulfate	35100		ug/L	1000.0	05/14/2024	AB24-0513-11
Nitrogen-Ammonia by SM4500NH3(I	n), Groundwate	r HL		Aliquot #: 24-0	341-08-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	2200		ug/L	25.0	05/15/2024	AB24-0514-03
Total Dissolved Solids by SM 2540C	,			Aliquot #: 24-0	341-08-C04-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	293		mg/L	10.0	05/15/2024	AB24-0516-05
Alkalinity by SM 2320B				Aliquot #: 24-0	341-08-C05-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	106000		ug/L	10000.0	05/15/2024	AB24-0515-04
Alkalinity Bicarbonate	106000		ug/L	10000.0	05/15/2024	AB24-0515-04
Alkalinity Carbonate	ND		ug/L	10000.0	05/15/2024	AB24-0515-04
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	341-08-C07-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	210		ug/L	20.0	05/10/2024	AB24-0510-05



05/23/24



Laboratory Services
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Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0341** 

Field Sample ID: EB-KLI Collect Date: 05/09/2024 Lab Sample ID: 24-0341-09 Collect Time: 01:00 PM

Metals by EPA 6020B: CCR	Kule Appendix III-IV To	tai Metals	s ⊨xp	Aliquot #: 24-0	341-09-C01-A01	Analyst: EE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Arsenic	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Barium	ND		ug/L	5.0	05/14/2024	AB24-0515-01
Beryllium	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Boron	ND		ug/L	20.0	05/14/2024	AB24-0515-01
Cadmium	ND		ug/L	0.2	05/14/2024	AB24-0515-01
Calcium	ND		ug/L	1000.0	05/14/2024	AB24-0515-01
Chromium	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Cobalt	ND		ug/L	6.0	05/14/2024	AB24-0515-01
Copper	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Iron	ND		ug/L	20.0	05/14/2024	AB24-0515-01
Lead	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Lithium	ND		ug/L	10.0	05/14/2024	AB24-0515-01
Magnesium	ND		ug/L	1000.0	05/14/2024	AB24-0515-01
Manganese	ND		ug/L	5.0	05/14/2024	AB24-0515-01
Molybdenum	ND		ug/L	5.0	05/14/2024	AB24-0515-01
Nickel	ND		ug/L	2.0	05/14/2024	AB24-0515-01
Potassium	ND		ug/L	100.0	05/14/2024	AB24-0515-01
Selenium	ND		ug/L	1.0	05/14/2024	AB24-0515-01
Silver	ND		ug/L	0.2	05/14/2024	AB24-0515-01
Sodium	ND		ug/L	1000.0	05/14/2024	AB24-0515-01
Thallium	ND		ug/L	2.0	05/14/2024	AB24-0515-01
Vanadium	ND		ug/L	2.0	05/14/2024	AB24-0515-01
Zinc	ND		ug/L	10.0	05/14/2024	AB24-0515-01
Mercury by EPA 7470A, Tota	al, Aqueous			Aliquot #: 24-0	341-09-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	<b>Analysis Date</b>	Tracking
Mercury	ND		ug/L	0.2	05/20/2024	AB24-0515-03
Anions by EPA 300.0 Aqueo	us, NO2, NO3			Aliquot #: 24-0	341-09-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	05/10/2024	AB24-0510-06
Nitrite	ND		ug/L	100.0	05/10/2024	AB24-0510-06
Nitrogen-Ammonia by SM45	00NH3(h), Groundwate	er HL		Aliquot #: 24-0	341-09-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	ND		ug/L	25.0	05/14/2024	AB24-0514-02



#### **Analytical Report**

**Report Date:** 05/23/24

**Laboratory Services** 

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Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0341** 

Field Sample ID: EB-KLI Collect Date: 05/09/2024
Lab Sample ID: 24-0341-09 Collect Time: 01:00 PM

Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	Analyst: Merit	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	ND		ug/L	20.0	05/13/2024	AB24-0513-15



05/23/24



Laboratory Services
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Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0341** 

 Field Sample ID:
 FB-KLI
 Collect Date:
 05/08/2024

 Lab Sample ID:
 24-0341-10
 Collect Time:
 12:46 PM

				7quot	341-10-C01-A01	Analyst: El
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	05/14/2024	AB24-0515-0
Arsenic	ND		ug/L	1.0	05/14/2024	AB24-0515-0
Barium	ND		ug/L	5.0	05/14/2024	AB24-0515-0
Beryllium	ND		ug/L	1.0	05/14/2024	AB24-0515-0
Boron	ND		ug/L	20.0	05/14/2024	AB24-0515-0
Cadmium	ND		ug/L	0.2	05/14/2024	AB24-0515-0
Calcium	ND		ug/L	1000.0	05/14/2024	AB24-0515-0
Chromium	ND		ug/L	1.0	05/14/2024	AB24-0515-0
Cobalt	ND		ug/L	6.0	05/14/2024	AB24-0515-0
Copper	ND		ug/L	1.0	05/14/2024	AB24-0515-0
Iron	ND		ug/L	20.0	05/14/2024	AB24-0515-0
Lead	ND		ug/L	1.0	05/14/2024	AB24-0515-0
Lithium	ND		ug/L	10.0	05/14/2024	AB24-0515-0
Magnesium	ND		ug/L	1000.0	05/14/2024	AB24-0515-0
Manganese	ND		ug/L	5.0	05/14/2024	AB24-0515-0
Molybdenum	ND		ug/L	5.0	05/14/2024	AB24-0515-0
Nickel	ND		ug/L	2.0	05/14/2024	AB24-0515-0
Potassium	ND		ug/L	100.0	05/14/2024	AB24-0515-0
Selenium	ND		ug/L	1.0	05/14/2024	AB24-0515-0
Silver	ND		ug/L	0.2	05/14/2024	AB24-0515-0
Sodium	ND		ug/L	1000.0	05/14/2024	AB24-0515-0
Thallium	ND		ug/L	2.0	05/14/2024	AB24-0515-0
Vanadium	ND		ug/L	2.0	05/14/2024	AB24-0515-0
Zinc	ND		ug/L	10.0	05/14/2024	AB24-0515-0
Mercury by EPA 7470A, Total, Aque	eous			Aliquot #: 24-0	341-10-C01-A02	Analyst: CL
Parameter(s)	Result	Flag	Units	RL	<b>Analysis Date</b>	Trackin
Mercury	ND		ug/L	0.2	05/20/2024	AB24-0515-0
Anions by EPA 300.0 Aqueous, NO	2, NO3			Aliquot #: 24-0	341-10-C02-A01	Analyst: KD
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Trackin
Nitrate	ND		ug/L	100.0	05/09/2024	AB24-0509-1
Nitrite	ND		ug/L	100.0	05/09/2024	AB24-0509-1
Nitrogen-Ammonia by SM4500NH3(	(h), Groundwate	er HL		Aliquot #: 24-0	341-10-C03-A01	Analyst: CL
			11	RL	Analysia Data	Tunalda
Parameter(s)	Result	Flag	Units	KL	Analysis Date	Trackin



### **Analytical Report**

**Report Date:** 05/23/24

Laboratory Services
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Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0341** 

 Field Sample ID:
 FB-KLI
 Collect Date:
 05/08/2024

 Lab Sample ID:
 24-0341-10
 Collect Time:
 12:46 PM

Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	Analyst: Merit	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	ND		ug/L	20.0	05/10/2024	AB24-0510-05



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## **Analytical Report**

**Report Date:** 05/23/24

Data Qualifiers	Exception Summary
	No exceptions occurred.

CONSUMERS **ENERGY** 

#### Chemistry Department

General Standard Operating Procedure

PROC CHEM-1.2.01 PAGE 1 OF 2 **REVISION 4** ATTACHMENT A

#### TITLE: SAMPLE LOG-IN - SHIPMENT INSPECTION FORM

Inspection Date:	
Shipment Delivered By: Enter the type of shipment carrier.  Pony FedEx UPS USPS Other/Hand Carry (whom) Tracking Number: 27443174866 Shipping Form Attached: Yes  Shipping Containers: Enter the type and number of shipping containers received.  Cooler Cardboard Box Custom Case Enter the as-received condition of the shipment container.  Condition of Shipment: Enter the as-received condition of the shipment container.  Damaged Shipment Observed: None Dented Other Shipment Security: Enter if any of the shipping containers were opened before receipt.	
Shipment Delivered By: Enter the type of shipment carrier.  Pony FedEx UPS USPS Other/Hand Carry (whom) Shipping Form Attached: Yes Shipping Containers: Enter the type and number of shipping containers received.  Cooler Cardboard Box Custom Case Endose/Unpackaged Containers Other  Condition of Shipment: Enter the as-received condition of the shipment container.  Damaged Shipment Observed: None Dented Other  Shipment Security: Enter if any of the shipping containers were opened before receipt.	
Shipment Delivered By: Enter the type of shipment carrier.  Pony FedEx UPS USPS Other/Hand Carry (whom) Shipping Form Attached: Yes Shipping Containers: Enter the type and number of shipping containers received.  Cooler Cardboard Box Custom Case Enter the as-received condition of the shipment container.  Condition of Shipment: Enter the as-received condition of the shipment container.  Damaged Shipment Observed: None Dented Other Shipment Security: Enter if any of the shipping containers were opened before receipt.	
Pony FedEx UPS USPS Other/Hand Carry (whom) Tracking Number: 274431714866 Shipping Form Attached: Yes Shipping Containers: Enter the type and number of shipping containers received.  Cooler Cardboard Box Custom Case En	
Shipping Containers: Enter the type and number of shipping containers received.  Cooler Cardboard Box Custom Case Enter the assertion of Shipment: Enter the assertion of the shipment container.  Condition of Shipment: Enter the assertion of the shipment container.  Damaged Shipment Observed: None Dented Other Shipment Security: Enter if any of the shipping containers were opened before receipt.	Airborne
Cooler Cardboard Box Custom Case En  Loose/Unpackaged Containers Other  Condition of Shipment: Enter the as-received condition of the shipment container.  Damaged Shipment Observed: None Dented Other  Shipment Security: Enter if any of the shipping containers were opened before receipt.	No
Cooler Cardboard Box Custom Case En  Loose/Unpackaged Containers Other  Condition of Shipment: Enter the as-received condition of the shipment container.  Damaged Shipment Observed: None Dented Other  Shipment Security: Enter if any of the shipping containers were opened before receipt.	
Damaged Shipment Observed: None Dented Other  Shipment Security: Enter if any of the shipping containers were opened before receipt.	property of the second second
Damaged Shipment Observed: None Dented Other  Shipment Security: Enter if any of the shipping containers were opened before receipt.	
	Leaking
Enclosed Documents: Enter the type of documents enclosed with the shipment.	
CoC Work Request Air Data Sheet Other	ir
Temperature of Containers: Measure the temperature of several sample containers.	
As-Received Temperature Range 0.2-1.8 c Samples Received on Ice: Yes v	/ No
M&TE # and Expiration 015402  5.23.24  Number and Type of Containers: Enter the total number of sample containers received.	
Container Type Water Soil Other Brok	cen Leaking
VOA (40mL or comL) 14	
Quart/Liter (g/p)	
9-oz (amber glass jar)	
FSP 0-14 2-oz (amber glass)	_
13-640-508 125 mL (plastic) 25	
164: 20 55 22 24 mL vial (glass) 75	
exp: 2.15.25 Other	

CONSUMERS ENERGY

#### Chemistry Department

General Standard Operating Procedure

PROC CHEM-1.2.01 PAGE 1 OF 2 REVISION 4 ATTACHMENT A

#### TITLE: SAMPLE LOG-IN - SHIPMENT INSPECTION FORM

Pro	ject Log-In Number:	24.0341												
Insp	pection Date:05/10/2	4	Inspect	ion By: UE										
San	ple Origin/Project Name:	DEK	LI											
Shi	pment Delivered By: Enter	the type of shipn	ent carrier.											
	Pony F		UPS	USPS	Airborn	e								
	Tracking Number:		SI	nipping Form Attached	Yes	No								
Shi	Shipping Containers: Enter the type and number of shipping containers received.													
	Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler Cooler			om Case										
Cor	adition of Shipment: Enter	the as-received c	ondition of the shi	pment container.										
	Damaged Shipment Ol Other			Dented	Leaking	5								
	pment Security: Enter if an Shipping Containers R closed Documents: Enter th	eceived: Opened		Sealed										
	/	ya	Air D		Other_									
Ter	nperature of Containers: N	Aeasure the tempe	erature of several s	sample containers.										
	As-Received Tempera	ure Range 0.3	-2.9°L Sam		Yes No_									
Nu	M&TE # and Expiration  mber and Type of Contain	5.23.	24	ole containers received	l.									
	Container Type VOA (40mL or 60mL)	Water So	oil	Other	Broken	Leaking								
	Quart/Liter (g/p)		_											
FSPO-14pH	9-oz (amber glass jar)		_											
# 13-1240-500	2-oz (amber glass)													
LOT 20552Z	125 mL (plastic)	8												
exp: 2-15.25	24 mL vial (glass)													
1000	250 500 mL (plastic)	4 -												
	Other													

# **CHAIN OF CUSTODY**



#### CONSUMERS ENERGY COMPANY - LABORATORY SERVICES

135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251

E	
Page	of
50	UI .

SAMPLING SITE / CUSTOMER:				PROJECT NUMBER: SAP CC or WO#:							NAI		QA REQUIREMENT:							
Q2-2024 DEK Lined Impoundment				24-0341 REQUESTER: Harold Register				(Atta	ch Li	st if N										
A. Whaley				TURNAROUND TIME REQUIRED:  □ 24 HR □ 48 HR □ 3 DAYS □ STANDARD ☒ OTHER													☐ NPDES  ☑ TNI			
SEN	D REPORT TO:	Joseph Firlit			email: phone;										بد	☐ ISO 17025				
	COPY TO:	Harold Regis	ter		MATRIX CODES: GW = Groundwater OX = Other		CONTAINERS												hetal	☐ 10 CFR 50 APP. B
TRC		WW = Wastewater SL = Sludge W = Water / Aqueous Liquid A = Air			PRESERVATIVE			TIVE	als						Q Z	☐ INTERNAL INFO				
LAB SAN		SAMPLE COL	LECTION	MATRIX	S = Soil / General Solid   WP = Wipe   WT = General Waste		TOTAL#						Total Metals	suc	ionia		linity	de	Oira(Jeg)	□ OTHER
S	AMPLE ID	DATE	DATE TIME					None HNO ₃ H ₂ SO ₄ NaOH		NaOF	HCI MeOH Other	Anions		Ammonia	TDS	Alkalinity	Sulfide	Oira	REMARKS	
	24-0341-01	5 18/24	1444	GW	DEK-MW-15003		7	100	I	- 1			x	x	x	x	x	х		
	-02	518124	1108	GW	OW-10		8-	4	7	1	1		x	x	x	x	x	x	×	
	-03	518/24	1246	GW	OW-11		7	4	1	1	1		x	x	x	x	x	x		
	-04			GW	OW-12		7	4	1	1	1		x	х	x	x	x	х		
	-05			W	KLI-SCS		7	4	1	1	1		x	x	x	x	x	х		
	-06	5 18 124	1550	sw	KLI-PCS		7	4	1	1	I		x	x	x	x	x	x		
	-07			SW	SW-DITCH		7	4	1	1	I		X	x	X	X	X	X		- Dry
	-08	5/8/24	-	GW	DUP-KLI		7	4	ĺ	1	1		x	x	x	x	x	x		
	-09			W	EB-KLI		4	1	1	1	1		x	x	x		12	x		
	-10	518/24	1246	w	FB-KLI		4	1	1	1	1		x	x	x			x		
Can	NOUISHED BY:	drus	/	DATE/		RECEIVED BY:							Re		d on I	ce? [				E#:_0(540Z Due Date:_5-23-24
	Fed-	Ex		5.9	-24 1130	BALE Page 25	ساول	K					10	прега	uu o.			-	- Sul.	

# **CHAIN OF CUSTODY**



#### CONSUMERS ENERGY COMPANY - LABORATORY SERVICES

135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251

Page ____ of ____

SAMPLING SITE / CUSTOMER:				PROJECT NUMBER:	SAP CC or V	SAP CC or WO#:								NAI	YSI	C. Promer man				
Q2-2024 DEK Lined Impoundment					24-0341	REQUESTE	REQUESTER: Harold Register							(Atta			QA REQUIREMENT:			
SAMPLING TEAM:			TURNAROUND TIME REQUIRED:  □ 24 HR □ 48 HR □ 3 DAYS □ STANDARD ☒ OTHER												□ NPDES  ⊠ TNI					
SEND	REPORT TO:	Joseph Firlit			email: phone:												☐ ISO 17025			
COPY TO: Harold Register			MATRIX CODES: GW = Groundwater WW = Wastewater SL = Sl		CONTAINERS													☐ 10 CFR 50 APP. B		
+	TRC  LAB SAMPLE COLLECTION		W = Water / Aqueous Liquid A = Air S = Soil / General Solid WP = V	r	T#	#T		PRESERVA		Meta		1S	mia		inity	9		☐ INTERNAL INFO ☐ OTHER		
	MPLE ID	DATE	TIME	MATRIX	FIELD SAMPLE ID / L		TOTAL#	None HNO ₃	HNO3	H ₂ SO ₄	NaOH HCI MeOH	MeOH	Total	Anions	Ammonia	TDS	Alkalinity	Sulfide		REMARKS
-24	-0341-01			GW	DEK-MW-15003		7	4	1	1-1	+	-	×	X	×	×	X	X		
	-02			GW	OW-10		7	4-	1	1 1	-	1111	x	x	x	Y	x	×	_	
	03			GW	OW-11		7	4	1	1 1			x	x	X	_x_	×	_x_		
	-04	5-9-24	1245	GW	OW-12		7	4	1	1 1			x	x	x	x	x	x		
11	05			W	KL1-SCS		7	4	1	1-1	H		x		X	x	х	x		
	-0.6			SW	KLI-PCS		7	4	1	1 1	+	-	Х	X	X	N	X	-X		
-	-07			SW	SW-DITCH_		7	4	1	1 1			x	x	x_	_x_	×	×		
	<del></del>			GW	DUP-KLI		7	4	1	1 1	Į.		x	x	х	x	_x_	X		
	-09	5-9-24	1300	W	EB-KLI		4	1	1	1 1			x	x	x			x		
<b>+</b> ,,	-10			W	FB-KLI		4	1	1	1 1			x	x	x			x		
RELINO	DISHED BY:	Ky		DATE/	TIME: 5-10-24/0759	RECEIVED BY:	-						CC	MME	ENTS				<b>▶</b>	
RELINQ	UISHED BY:		1	DATE/7	TIME:	RECEIVED BY: 24-0341R Page 26	of 50						1	eived mpera						#: 015402- ue Date: 5-23-24



## **Analytical Laboratory Report**

Report ID: S61915.01(01) Generated on 05/10/2024

Report to

Attention: Emil Blaj

Consumers Energy Company

135 West Trail Street Jackson, MI 49201

Phone: D:517-788-5888 C:517-684-9467 FAX:

Email: emil.blaj@cmsenergy.com

Report produced by

Merit Laboratories, Inc. 2680 East Lansing Drive East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions: John Laverty (johnlaverty@meritlabs.com) Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S61915.01-S61915.06

Project: 24-0341 PR#24050623 Collected Date(s): 05/08/2024

Submitted Date/Time: 05/09/2024 15:57

Sampled by: Unknown P.O. #: 44001140900

**Table of Contents** 

Cover Page (Page 1)

General Report Notes (Page 2)

Report Narrative (Page 2)

Laboratory Accreditations (Page 3)

Qualifier Descriptions (Page 3)

Glossary of Abbreviations (Page 3)

Method Summary (Page 4)

Sample Summary (Page 5)

Maya Murshak Technical Director

Naya Mushah



### **Analytical Laboratory Report**

#### **General Report Notes**

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples

for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Starred (*) analytes are not NY NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

#### **Report Narrative**

There is no additional narrative for this analytical report



## **Analytical Laboratory Report**

#### **Laboratory Accreditations (For Reference Only)**

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:201	7 #69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

#### **Qualifier Descriptions**

Qualifier	Description
!	Result is outside of stated limit criteria
В	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
Н	Sample submitted and run outside of holding time
1	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
0	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Υ	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
е	Reported value estimated due to interference
j	Analyte also found in associated method blank
0	Associated EIS outside of control limits
р	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

#### **Glossary of Abbreviations**

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



**Method Summary** 

Method Version

SM4500-S2 D

Standard Method 4450 S2 D 2011

Report to Consumers Energy Company Project: 24-0341 PR#24050623 24a@644 RafPlage 30 of 50



#### Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S61915.01	DEK-MW-15003 (24-0341-01)	Groundwater	05/08/24 14:44
S61915.02	OW-10 (24-0341-02)	Groundwater	05/08/24 11:08
S61915.03	OW-11 (24-0341-03)	Groundwater	05/08/24 12:46
S61915.04	KLI-PCS (24-0341-06)	Groundwater	05/08/24 15:50
S61915.05	DUP-KLI (24-0341-08)	Groundwater	05/08/24 00:01
S61915.06	FB-KLI (24-0341-10)	Groundwater	05/08/24 12:46



Lab Sample ID: S61915.01

Sample Tag: DEK-MW-15003 (24-0341-01) Collected Date/Time: 05/08/2024 14:44

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	6.0	IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 05/10/24 06:59, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.23	0.02	0.005	mg/L	1	18496-25-8	



Lab Sample ID: S61915.02

Sample Tag: OW-10 (24-0341-02) Collected Date/Time: 05/08/2024 11:08

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	6.0	IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 05/10/24 07:01, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.09	0.02	0.005	mg/L	1	18496-25-8	



Lab Sample ID: S61915.03

Sample Tag: OW-11 (24-0341-03) Collected Date/Time: 05/08/2024 12:46

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	6.0	IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 05/10/24 07:03, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.02	0.005	ma/L	1	18496-25-8	



Lab Sample ID: S61915.04

Sample Tag: KLI-PCS (24-0341-06) Collected Date/Time: 05/08/2024 15:50

Matrix: Groundwater COC Reference:

Sample Containers

# Type Preservative(s) Refrigerated? Arrival Temp. (C) Thermometer # 1 125mL Plastic NaOH/Zn Acetate Yes 6.0 IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 05/10/24 07:05, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.02	0.005	ma/L	1	18496-25-8	



Lab Sample ID: S61915.05

Sample Tag: DUP-KLI (24-0341-08)
Collected Date/Time: 05/08/2024 00:01

Matrix: Groundwater COC Reference:

Sample Containers

#	туре	Preservative(s)	Retrigerated?	Arrival Temp. (C)	i nermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	6.0	IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 05/10/24 07:07, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.21	0.02	0.005	mg/L	1	18496-25-8	



Lab Sample ID: S61915.06

Sample Tag: FB-KLI (24-0341-10)
Collected Date/Time: 05/08/2024 12:46

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I hermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	6.0	IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 05/10/24 07:09, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.02	0.005	mg/L	1	18496-25-8	

### **Merit Laboratories Login Checklist**

Lab Set ID:S61915

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0341 PR#24050623

Submitted: 05/09/2024 15:57 Login User: MAM

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street

Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

Selec	tion			Description	Note
Samı	ole Receiv	/ing			
01.	X Yes	No	□ N/A	Samples are received at 4C +/- 2C Thermometer #	6.0 IR
02.	X Yes	No	□ N/A	Received on ice/ cooling process begun	
03.	Yes	X No	□ N/A	Samples shipped	
04.	Yes	X No	□ N/A	Samples left in 24 hr. drop box	
05.	Yes	No	X N/A	Are there custody seals/tape or is the drop box locked	
Chai	n of Custo	ody			
06.	X Yes	No	□ N/A	COC adequately filled out	
07.	X Yes	No	□ N/A	COC signed and relinquished to the lab	
08.	X Yes	No	□ N/A	Sample tag on bottles match COC	
09.	Yes	X No	□ N/A	Subcontracting needed? Subcontacted to:	
Pres	ervation				
10.	X Yes	No	N/A	Do sample have correct chemical preservation	
11.	X Yes	No	□ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	Yes	X No	□ N/A	Did any samples need to be preserved in the lab?	
Bottl	e Conditi	ons			
13.	X Yes	No	□ N/A	All bottles intact	
14.	X Yes	No	□ N/A	Appropriate analytical bottles are used	
15.	Yes	X No	□ N/A	Merit bottles used	
16.	X Yes	No	□ N/A	Sufficient sample volume received	
17.	Yes	X No	□ N/A	Samples require laboratory filtration	
18.	X Yes	No	□ N/A	Samples submitted within holding time	
19.	Yes	No	X N/A	Do water VOC or TOX bottles contain headspace	
_					
Corre	ective acti	on for all	exceptions	is to call the client and to notify the project manager.	
Clien	t Review	Зу:		Date:	

#### **Merit Laboratories Bottle Preservation Check**

Lab Set ID: S61915 Submitted: 05/09/2024 15:57

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0341 PR#24050623

Initial Preservation Check: 05/09/2024 16:33 MAM

Preservation Recheck (E200.8): N/A

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street

Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S61915.01	125mL Plastic NaOH/Zn Acetate	>12			
S61915.02	125mL Plastic NaOH/Zn Acetate	>12			
S61915.03	125mL Plastic NaOH/Zn Acetate	>12			
S61915.04	125mL Plastic NaOH/Zn Acetate	>12			
S61915.05	125mL Plastic NaOH/Zn Acetate	>12			
S61915.06	125mL Plastic NaOH/Zn Acetate	>12			



2680 East Lansing Dr., East Lansing, MI 48823 Phone (517) 332-0167 Fax (517) 332-4034 www.meritlabs.com

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C.O.C.	PAGE	#_	1	OF_	1	

REPOR		,	Laboratories, Inc.	CHAIN	OF	CL	JS	гог	DY	RE	СО	RD						1	NVOIC	CE TO
CONTACT NAME	mil Blaj							CON	TACT	MAME								<b>X</b> SAME	1	
COMPANY Con	sumers E	Energy						сом	PANY											
ADDRESS 135 V	W. Trail S	Street						ADDE	RESS											
спу Jackson				STATE MI ZIP	CODE	1920	)1	CITY										STATE	ZIP CODE	
PHONE NO. 517-	788-5888		FAX NO. 517-788-2533	P.O. NO. 4400114	10900	)		PHON	NE NO.					E-MAIL A	DDRESS				1	
E-MAIL ADDRESS	emil.blaj(	@cmsen	ergy.com	QUOTE NO.								ANA	LYSIS	(ATTAC	HLISTI	F MORE	SPAC	E IS REQUIR	ED)	
PROJECT NO./NAM				SAMPLER(S) - PLEASE F	PRINT/SI	GN NA	ME				N/A	1						Certificati		
TURNAROUNI	TIME RE	QUIRED	□1 DAY □2 DAYS □3 DA	YS XSTANDARD	ОТ	HER												OHIO VA	AP Drin	
DELIVERABLE	S REQUIR	ED S1	D X LEVEL II LEVEL III	LEVEL IV EDD		THE	R_					اد						□D ₀ D	NPD	DES
	GW=GROUN SL=SLUDG		WW=WASTEWATER S=SO DRINKING WATER O=OIL V	IL L=LIQUID SI	D=SOLI W=WAS				ontai			Sulfide						Project Lo	ocations  New	v York
MERIT	YE	YEAR SAMPLE		rag 🙀 🖁			m m					Total						Other _		
LAB NO.	DATE	TIME	IDENTIFICATION-DE	SCRIPTION	MATRIX	# OF BOTTLE	NONE	호	H,SO,	NaOH	MeOH	T						Special In	structions	14
e 11 1	05/08/24	1444	DEK-MW-15003 (24-034	41-01)	GW	1	L			1		1						preserved v	with NaOH/	ZnAcetate
	05/08/24	1108	OW-10 (24-0341-02)		GW	1	L			1		<b>V</b>						II.		
103	05/08/24	1246	OW-11 (24-0341-03)		GW	1			V.	1		1						11.		
	05/08/24	1550	KLI-PCS (24-0341-06)		GW	1				1		1						n		
108	05/08/24	-	DUP-KLI (24-0341-08)		GW	1				1		1						"		
106	05/08/24	1246	FB-KLI (24-0341-10)		GW	1				1		1						"		
					+		F		+		1									
RELINQUISHED BY SIGNATURE/ORGA RECEIVED BY:		Yie	NEW ENERGY	Sampler DATE	24 1	SST	-	SIGN	NOUIS NATURI	E/OR		ATION							DATE	TIME
SIGNATURE/ORGA	-	0	harm Me	5/9/2		35	2	SIGN	ATUR	200	GANIZ	ATION							DATE	TIME
RELINQUISHED BY SIGNATURE/ORGA		/		DATE		TIME		SEAL	L NO.			SEAL II		00	NITIALS	NO	OTES:	TEMP. ON		
RECEIVED BY: SIGNATURE/ORGA	ANIZATION			DATE		TIME		SEAL	NO.			SEAL II		00	VITIALS				6.0	



Report ID: S61971.01(01) Generated on 05/13/2024

Report to

Attention: Emil Blaj

Consumers Energy Company

135 West Trail Street Jackson, MI 49201

Phone: D:517-788-5888 C:517-684-9467 FAX:

Email: emil.blaj@cmsenergy.com

Report produced by

Merit Laboratories, Inc. 2680 East Lansing Drive East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions: John Laverty (johnlaverty@meritlabs.com) Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S61971.01-S61971.02

Project: 24-0341 PR#24050623 Collected Date(s): 05/09/2024

Submitted Date/Time: 05/10/2024 15:29

Sampled by: Unknown P.O. #: 4400114090

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Maya Murshak Technical Director

Naya Mushah



#### **General Report Notes**

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples

for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Starred (*) analytes are not NY NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

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Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

#### **Report Narrative**

There is no additional narrative for this analytical report



#### **Laboratory Accreditations (For Reference Only)**

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:201	17 #69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

#### **Qualifier Descriptions**

Qualifier	Description
!	Result is outside of stated limit criteria
В	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
Н	Sample submitted and run outside of holding time
1	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
0	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
Т	No correction for total solids
X	Elevated reporting limit due to matrix interference
Υ	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
е	Reported value estimated due to interference
j	Analyte also found in associated method blank
0	Associated EIS outside of control limits
р	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

#### **Glossary of Abbreviations**

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



**Method Summary** 

Method Version

SM4500-S2 D

Standard Method 4450 S2 D 2011

Report to Consumers Energy Company Project: 24-0341 PR#24050623 24a0644 RdfFage 44 of 50



Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S61971.01	OW-12 (24-0341-04)	Groundwater	05/09/24 12:45
S61971.02	EB-KLI (24-0341-09)	Groundwater	05/09/24 13:00



Lab Sample ID: S61971.01

Sample Tag: OW-12 (24-0341-04) Collected Date/Time: 05/09/2024 12:45

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.9	IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 05/13/24 08:09, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.02	0.005	mg/L	1	18496-25-8	



Lab Sample ID: S61971.02

Sample Tag: EB-KLI (24-0341-09)
Collected Date/Time: 05/09/2024 13:00

Matrix: Groundwater COC Reference:

Sample Containers

#	туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I nermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.9	IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 05/13/24 08:11, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.02	0.005	mg/L	1	18496-25-8	

### **Merit Laboratories Login Checklist**

Lab Set ID:S61971

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0341 PR#24050623

Submitted: 05/10/2024 15:29 Login User: MMC

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street

Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

Selecti	ion			Description	Note
Sampl	le Receiv	ring			
01.	X Yes	No	□ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.9
02.	X Yes	No	□ N/A	Received on ice/ cooling process begun	
03.	Yes	X No	□ N/A	Samples shipped	
04.	Yes	X No	N/A	Samples left in 24 hr. drop box	
05.	Yes	No	X N/A	Are there custody seals/tape or is the drop box locked	
Chain	of Custo	ody			
06.	X Yes	No	□ N/A	COC adequately filled out	
07.	X Yes	No	N/A	COC signed and relinquished to the lab	
08.	X Yes	No	N/A	Sample tag on bottles match COC	
09.	Yes	X No	□ N/A	Subcontracting needed? Subcontacted to:	
Prese	rvation				
10.	X Yes	No	N/A	Do sample have correct chemical preservation	
11.	X Yes	No	N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	Yes	X No	N/A	Did any samples need to be preserved in the lab?	
Bottle	Conditio	ons			
13.	X Yes	No	□ N/A	All bottles intact	
14.	X Yes	No	N/A	Appropriate analytical bottles are used	
15.	Yes	X No	N/A	Merit bottles used	
16.	X Yes	No	□ N/A	Sufficient sample volume received	
17.	Yes	X No	□ N/A	Samples require laboratory filtration	
18.	X Yes	No	□ N/A	Samples submitted within holding time	
19.	Yes	No	X N/A	Do water VOC or TOX bottles contain headspace	
Correc	ctive actio	on for all	exceptions	is to call the client and to notify the project manager.	
Client	Review B	Ву:		Date:	

#### **Merit Laboratories Bottle Preservation Check**

Lab Set ID: S61971 Submitted: 05/10/2024 15:29

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0341 PR#24050623

Initial Preservation Check: 05/10/2024 16:31 MMC

Preservation Recheck (E200.8): N/A

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street

Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S61971.01	125mL Plastic NaOH/Zn Acetate	>12			
S61971.02	125mL Plastic NaOH/Zn Acetate	>12			



2680 East Lansing Dr., East Lansing, MI 48823 Phone (517) 332-0167 Fax (517) 332-4034 www.meritlabs.com

	1		1	
C.O.C. PAGE #	1	OF	1	

REPOR				CHAI	N OF CUS	STO	DY	RE	CO	RD				INVOIC	ETC
CONTACT NAME E	mil Blaj					CON	ITAC	T NAM					X SA	ME	
COMPANY Con						CON	MPAN	IY							
ADDRESS 135 V	W. Trail S	Street				ADD	RES	S							
Jackson STATE MI ZIP CODE 49201				cm							STATE	ZIP CODE			
PHONE NO. 517-	788-5888		FAX NO. 517-788-2533	P.O. NO. 440011	40900	PHO	NE N	Ю.			E-MAIL ADDRE	SS			
E-MAIL ADDRESS	emil.blaj(	a)cmsen		QUOTE NO.						ANA	LYSIS (ATTACH LI	ST IF MORE SPA	CE IS REQUI	RED)	
PROJECT NO./NAM				SAMPLER(S) - PLEASE	PRINT/SIGN NAME		_	_	N/A	7			Certifica		
			□1 DAY □2 DAYS □3 D	AYS STANDARD	OTHER _									VAP Drink	-
DELIVERABLE	S REQUIR	ED   S	TD X LEVEL II LEVEL III	□LEVEL IV □ED	D OTHER								□ DoD	NPD	ES
MATRIX (	GW=GROUN SL=SLUDG	DWATER	WW=WASTEWATER S=S0		SD=SOLID			tainer rvativ		Sulfide			Project	_ocations	York
MERIT	YE	AR	SAMPLE		PIX LES	W 5	ő	o H	E	Total			Other		
LAB NO. FOR LAB USE DNLY	DATE	TIME	IDENTIFICATION-DE	SCRIPTION	MATRIX # OF BOTTLES	NONE	Ĭ.	H,SO,	MeOH	H			Special	Instructions	
61971.01	05/09/24	1245	OW-12 (24-0341-04)		GW 1			1		1			preserved	with NaOH/Z	ZnAcetate
	05/09/24	1300	EB-KLI (24-0341-09)		gw 1			1		1			"		
						Ш									
						11									
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						Ш									
						11									
10							1								
RELINQUISHED BY SIGNATURE/ORGA		4.0	NSU TENS ENERGY	Sampler DAT	E TIME			JISHED JRE/OF		ATION				DATE	TIME
RECEIVED BY: SIGNATURE/ORG/		/	hanner Mur	/DAT		REC	EIVE	D BY:						DATE	TIME
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RECEIVED BY: SIGNATURE/ORGA				DAT	E TIME	SEA	L NO	).		SEAL II		3	5	.9	



135 W. Trail St. Jackson, MI 49201 phone 517-788-1251 fax 517-788-2533

To: JJFirlit, Karn/Weadock

From: EBlaj, T-258

Date: May 23, 2024

Subject: RCRA GROUNDWATER MONITORING – KARN BAP & LINED IMP. WELLS – 2024 Q2

CC: HDRegister, P22-521 Darby Litz, Project Manager

TRC Companies, Inc. 1540 Eisenhower Place Ann Arbor, MI 48108

Chemistry Project: 24-0340

TRC Environmental, Inc. conducted groundwater monitoring at the DEKarn Bottom Ash Pond and Lined Impoundment Wells area during the week of 05/06/2024, for the 2nd Quarter requirement, as specified in the Sampling and Analysis Plan for the site. The samples were received for analysis by the Chemistry department of Laboratory Services on 05/09/2024.

Samples for Total Sulfide have been subcontracted to Merit Laboratories, Inc. and the results are listed under the analyst initials "Merit". Please note that the subcontracted work is not reported under the CE laboratory scope of accreditation.

With the exception noted above, the report that follows presents the results of the requested analytical testing; the results apply only to the samples, as received. All samples have been analyzed in accordance with the 2016 TNI Standard and the applicable A2LA accreditation scope for Laboratory Services. Any exceptions to applicable test method criteria and standard compliance are noted in the Case Narrative or flagged with applicable qualifiers in the analytical results section.

Reviewed and approved by:

Emil Blaj Sr. Technical Analyst Project Lead



Testing performed in accordance with the A2LA scope of accredidation specified in the listed certificate.

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#### **CASE NARRATIVE**

#### I. Sample Receipt

All samples were received within hold time and in good conditions; no anomalies were noted on the attached Sample Log-In Shipment Inspection Form during sample check-in. Identification of all samples included in the work order/project is provided in the sample summary section. All sample preservation and temperature upon receipt was verified by the sample custodian and confirmed to meet method requirements.

### II. Methodology

Unless otherwise indicated, sample preparation and analysis was performed in accordance with the corresponding test methods from "Methods for the Determination of Inorganic Substances in Environmental Samples (EPA/600/R-93/100); SW-846, "Test Methods for Evaluating Solid Waste – Physical/Chemical Methods", USEPA (latest revisions), and Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WPCF, 22nd Edition, 2012.

#### III. Results/Quality Control

Analytical results for this report are presented by laboratory sample ID, container, & aliquot number. Results for the field blanks, field duplicates, and recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section; all other quality control data is listed in the Quality Control Summary associated with the particular test method, as appropriate. Unless specifically noted in the case narrative, all method quality control requirements have been met. If any results are qualified, the corresponding data flags/qualifiers are listed on the last page of the results section. Any additional information on method performance, when applicable, is presented in this section of the case narrative. When data flags are not needed, the qualifiers text box on the last page is left blank, and a statement confirms that no exceptions occurred.

#### **DEFINITIONS / QUALIFIERS**

The following qualifiers and/or acronyms are used in the report, where applicable:

<u>Acronym</u>	<u>Description</u>
RL	Reporting Limit
ND	Result not detected or below Reporting Limit
NT	Non TNI analyte
LCS	Laboratory Control Sample
LRB	Laboratory Reagent Blank (also referred to as Method Blank)
DUP	Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
TDL	Target Detection Limit
SM	Standard Methods Compendium

<b>Qualifier</b>	<u>Description</u>
*	Generic data flag, applicable description added in the corresponding notes section
В	The analyte was detected in the LRB at a level which is significant relative to sample result
D	Reporting limit elevated due to dilution
E	Estimated due to result exceeding the linear range of the analyzer
Н	The maximum recommended hold time was exceeded
I	Dilution required due to matrix interference; reporting limit elevated
J	Estimated due to result found above MDL but below PQL (or RL)
K	Reporting limit raised due to matrix interference
M	The precision for duplicate analysis was not met; RPD outside acceptance criteria
N	Non-homogeneous sample made analysis questionable
PI	Possible interference may have affected the accuracy of the laboratory result
Q	Matrix Spike or Matrix Spike Duplicate recovery outside acceptance criteria
R	Result confirmed by new sample preparation and reanalysis
X	Other notation required; comment listed in sample notes and/or case narrative



### **Work Order Sample Summary**

Customer Name: Karn/Weadock Complex

Work Order ID: Q2-2024 DEK Bottom Ash Pond & Lined Impoundment

**Date Received:** 5/9/2024 **Chemistry Project:** 24-0340

Sample #	Field Sample ID	<u>Matrix</u>	Sample Date	<u>Site</u>
24-0340-01	DEK-MW-18001	Groundwater	05/08/2024 13:03	DEK Bottom Ash Pond & Lined Impoundment
24-0340-02	DEK-MW-18001 MS	Groundwater	05/08/2024 13:03	DEK Bottom Ash Pond & Lined Impoundment
24-0340-03	DEK-MW-18001 MSD	Groundwater	05/08/2024 13:03	DEK Bottom Ash Pond & Lined Impoundment



Report Date:

05/23/24



A CENTURY OF EXCELLENCE

Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** Laboratory Project: **24-0340** 

 Field Sample ID:
 DEK-MW-18001
 Collect Date:
 05/08/2024

 Lab Sample ID:
 24-0340-01
 Collect Time:
 01:03 PM

Matrix: Groundwater

Parameter(s)         Result         Flag         Units           Antimony         ND         ug/L           Arsenic         484         ug/L           Barium         147         ug/L           Beryllium         ND         ug/L           Boron         917         ug/L           Cadmium         ND         ug/L           Calcium         52500         ug/L           Chromium         ND         ug/L           Cobalt         ND         ug/L           Copper         ND         ug/L           Iron         458         ug/L           Lead         ND         ug/L           Lithium         19         ug/L           Magnesium         11200         ug/L           Manganese         133         ug/L           Molybdenum         17         ug/L           Nickel         2         ug/L           Potassium         5460         ug/L           Selenium         ND         ug/L           Silver         ND         ug/L	1.0 1.0 5.0	Analysis Date 05/13/2024 05/13/2024	Tracking
Arsenic       484       ug/L         Barium       147       ug/L         Beryllium       ND       ug/L         Boron       917       ug/L         Cadmium       ND       ug/L         Calcium       52500       ug/L         Chromium       ND       ug/L         Cobalt       ND       ug/L         Copper       ND       ug/L         Iron       458       ug/L         Lead       ND       ug/L         Lithium       19       ug/L         Magnesium       11200       ug/L         Manganese       133       ug/L         Molybdenum       17       ug/L         Nickel       2       ug/L         Potassium       5460       ug/L         Selenium       ND       ug/L	1.0 5.0		A D 24 A E 4 2 4 2
Barium       147       ug/L         Beryllium       ND       ug/L         Boron       917       ug/L         Cadmium       ND       ug/L         Calcium       52500       ug/L         Chromium       ND       ug/L         Cobalt       ND       ug/L         Copper       ND       ug/L         Iron       458       ug/L         Lead       ND       ug/L         Lithium       19       ug/L         Magnesium       11200       ug/L         Manganese       133       ug/L         Molybdenum       17       ug/L         Nickel       2       ug/L         Potassium       5460       ug/L         Selenium       ND       ug/L	5.0	05/13/2024	AB24-0513-12
Beryllium         ND         ug/L           Boron         917         ug/L           Cadmium         ND         ug/L           Calcium         52500         ug/L           Chromium         ND         ug/L           Cobalt         ND         ug/L           Copper         ND         ug/L           Iron         458         ug/L           Lead         ND         ug/L           Lithium         19         ug/L           Magnesium         11200         ug/L           Manganese         133         ug/L           Molybdenum         17         ug/L           Nickel         2         ug/L           Potassium         5460         ug/L           Selenium         ND         ug/L		03/13/2024	AB24-0513-12
Boron         917         ug/L           Cadmium         ND         ug/L           Calcium         52500         ug/L           Chromium         ND         ug/L           Cobalt         ND         ug/L           Copper         ND         ug/L           Iron         458         ug/L           Lead         ND         ug/L           Lithium         19         ug/L           Magnesium         11200         ug/L           Manganese         133         ug/L           Molybdenum         17         ug/L           Nickel         2         ug/L           Potassium         5460         ug/L           Selenium         ND         ug/L	4.0	05/13/2024	AB24-0513-12
Cadmium         ND         ug/L           Calcium         52500         ug/L           Chromium         ND         ug/L           Cobalt         ND         ug/L           Copper         ND         ug/L           Iron         458         ug/L           Lead         ND         ug/L           Lithium         19         ug/L           Magnesium         11200         ug/L           Manganese         133         ug/L           Molybdenum         17         ug/L           Nickel         2         ug/L           Potassium         5460         ug/L           Selenium         ND         ug/L	1.0	05/13/2024	AB24-0513-12
Calcium         52500         ug/L           Chromium         ND         ug/L           Cobalt         ND         ug/L           Copper         ND         ug/L           Iron         458         ug/L           Lead         ND         ug/L           Lithium         19         ug/L           Magnesium         11200         ug/L           Manganese         133         ug/L           Molybdenum         17         ug/L           Nickel         2         ug/L           Potassium         5460         ug/L           Selenium         ND         ug/L	20.0	05/13/2024	AB24-0513-12
Chromium         ND         ug/L           Cobalt         ND         ug/L           Copper         ND         ug/L           Iron         458         ug/L           Lead         ND         ug/L           Lithium         19         ug/L           Magnesium         11200         ug/L           Manganese         133         ug/L           Molybdenum         17         ug/L           Nickel         2         ug/L           Potassium         5460         ug/L           Selenium         ND         ug/L	0.2	05/13/2024	AB24-0513-12
Cobalt         ND         ug/L           Copper         ND         ug/L           Iron         458         ug/L           Lead         ND         ug/L           Lithium         19         ug/L           Magnesium         11200         ug/L           Manganese         133         ug/L           Molybdenum         17         ug/L           Nickel         2         ug/L           Potassium         5460         ug/L           Selenium         ND         ug/L	1000.0	05/13/2024	AB24-0513-12
Copper         ND         ug/L           Iron         458         ug/L           Lead         ND         ug/L           Lithium         19         ug/L           Magnesium         11200         ug/L           Manganese         133         ug/L           Molybdenum         17         ug/L           Nickel         2         ug/L           Potassium         5460         ug/L           Selenium         ND         ug/L	1.0	05/13/2024	AB24-0513-12
Iron       458       ug/L         Lead       ND       ug/L         Lithium       19       ug/L         Magnesium       11200       ug/L         Manganese       133       ug/L         Molybdenum       17       ug/L         Nickel       2       ug/L         Potassium       5460       ug/L         Selenium       ND       ug/L	6.0	05/13/2024	AB24-0513-12
Lead       ND       ug/L         Lithium       19       ug/L         Magnesium       11200       ug/L         Manganese       133       ug/L         Molybdenum       17       ug/L         Nickel       2       ug/L         Potassium       5460       ug/L         Selenium       ND       ug/L	1.0	05/13/2024	AB24-0513-12
Lithium       19       ug/L         Magnesium       11200       ug/L         Manganese       133       ug/L         Molybdenum       17       ug/L         Nickel       2       ug/L         Potassium       5460       ug/L         Selenium       ND       ug/L	20.0	05/13/2024	AB24-0513-12
Magnesium       11200       ug/L         Manganese       133       ug/L         Molybdenum       17       ug/L         Nickel       2       ug/L         Potassium       5460       ug/L         Selenium       ND       ug/L	1.0	05/13/2024	AB24-0513-12
Manganese       133       ug/L         Molybdenum       17       ug/L         Nickel       2       ug/L         Potassium       5460       ug/L         Selenium       ND       ug/L	10.0	05/13/2024	AB24-0513-12
Molybdenum         17         ug/L           Nickel         2         ug/L           Potassium         5460         ug/L           Selenium         ND         ug/L	1000.0	05/13/2024	AB24-0513-12
Nickel         2         ug/L           Potassium         5460         ug/L           Selenium         ND         ug/L	5.0	05/13/2024	AB24-0513-12
Potassium 5460 ug/L Selenium ND ug/L	5.0	05/13/2024	AB24-0513-12
Selenium ND ug/L	2.0	05/13/2024	AB24-0513-12
<u> </u>	100.0	05/13/2024	AB24-0513-12
Silver ND ug/l	1.0	05/13/2024	AB24-0513-12
Silver ND ug/L	0.2	05/13/2024	AB24-0513-12
Sodium 134000 ug/L	1000.0	05/13/2024	AB24-0513-12
Thallium ND ug/L	2.0	05/13/2024	AB24-0513-12
Vanadium ND ug/L	2.0	05/13/2024	AB24-0513-12
Zinc 19 ug/L	10.0	05/13/2024	AB24-0513-12
Mercury by EPA 7470A, Total, Aqueous	Aliquot #: 24-0	340-01-C01-A02	Analyst: CLE
Parameter(s) Result Flag Units	RL	Analysis Date	Tracking
Mercury ND ug/L	0.2	05/20/2024	AB24-0515-03
Anions by EPA 300.0 Aqueous, NO2, NO3	Aliquot #: 24-0	340-01-C02-A01	Analyst: KDR
Parameter(s) Result Flag Units	RL	Analysis Date	Tracking
Nitrate ND ug/L	100.0	05/09/2024	AB24-0509-16
Nitrite ND ug/L	100.0	05/09/2024	AB24-0509-16
Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous	Aliquot #: 24-0	340-01-C02-A02	Analyst: KDR
Parameter(s) Result Flag Units	RL	Analysis Date	Tracking
Chloride 66100 ug/L	1000.0	05/14/2024	AB24-0513-11



ytical Report

Report Date:

05/10/2024

20.0

AB24-0510-05

05/23/24

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Laboratory Services

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Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** Laboratory Project: **24-0340** 

 Field Sample ID:
 DEK-MW-18001
 Collect Date:
 05/08/2024

 Lab Sample ID:
 24-0340-01
 Collect Time:
 01:03 PM

Matrix: Groundwater

Sulfide

Anions by EPA 300.0 CCR Rule An	alyte List, Cl, F,	SO4, Aqւ	ieous	Aliquot #: 24-0	340-01-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	05/09/2024	AB24-0513-11
Sulfate	226000		ug/L	1000.0	05/14/2024	AB24-0513-11
Nitrogen-Ammonia by SM4500NH3	(h), Groundwate	r HL		Aliquot #: 24-0	340-01-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	1810		ug/L	25.0	05/14/2024	AB24-0514-02
Total Dissolved Solids by SM 2540	С			Aliquot #: 24-0	340-01-C04-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	670		mg/L	10.0	05/09/2024	AB24-0509-17
Alkalinity by SM 2320B				Aliquot #: 24-0	340-01-C05-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	154000		ug/L	10000.0	05/15/2024	AB24-0515-02
Alkalinity Bicarbonate	154000		ug/L	10000.0	05/15/2024	AB24-0515-02
Alkalinity Carbonate	ND		ug/L	10000.0	05/15/2024	AB24-0515-02
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	340-01-C07-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking

ug/L

78



Report Date:

05/23/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** Laboratory Project: **24-0340** 

 Field Sample ID:
 DEK-MW-18001 MS
 Collect Date:
 05/08/2024

 Lab Sample ID:
 24-0340-02
 Collect Time:
 01:03 PM

Matrix: Groundwater

Metals by EPA 6020B: CCR	Rule Appendix III-IV 10	nai Wetal		Aliquot #: 24-0	340-02-C01-A01	Analyst: EE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	106		%	1.0	05/13/2024	AB24-0513-12
Arsenic	104		%	1.0	05/13/2024	AB24-0513-12
Barium	103		%	5.0	05/13/2024	AB24-0513-12
Beryllium	98		%	1.0	05/13/2024	AB24-0513-12
Boron	110		%	20.0	05/13/2024	AB24-0513-12
Cadmium	105		%	0.2	05/13/2024	AB24-0513-12
Calcium	99.8		%	1000.0	05/13/2024	AB24-0513-12
Chromium	93		%	1.0	05/13/2024	AB24-0513-12
Cobalt	93		%	6.0	05/13/2024	AB24-0513-12
Copper	89		%	1.0	05/13/2024	AB24-0513-12
Iron	106		%	20.0	05/13/2024	AB24-0513-12
Lead	100		%	1.0	05/13/2024	AB24-0513-12
Lithium	99		%	10.0	05/13/2024	AB24-0513-12
Magnesium	106		%	1000.0	05/13/2024	AB24-0513-12
Manganese	103		%	5.0	05/13/2024	AB24-0513-12
Molybdenum	110		%	5.0	05/13/2024	AB24-0513-12
Nickel	91		%	2.0	05/13/2024	AB24-0513-12
Potassium	105		%	100.0	05/13/2024	AB24-0513-12
Selenium	106		%	1.0	05/13/2024	AB24-0513-12
Silver	97.5		%	0.2	05/13/2024	AB24-0513-12
Sodium	110		%	1000.0	05/13/2024	AB24-0513-12
Thallium	99		%	2.0	05/13/2024	AB24-0513-12
Vanadium	97		%	2.0	05/13/2024	AB24-0513-12
Zinc	88		%	10.0	05/13/2024	AB24-0513-12
Mercury by EPA 7470A, To	tal, Aqueous			Aliquot #: 24-0	340-02-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	98.0		%	0.2	05/20/2024	AB24-0515-03
Anions by EPA 300.0 Aque	ous, NO2, NO3			Aliquot #: 24-0	340-02-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	96		%	100.0	05/09/2024	AB24-0509-16
Nitrite	105		%	100.0	05/09/2024	AB24-0509-16
Anions by EPA 300.0 CCR	Rule Analyte List, Cl, F,	SO4, Aqı	ueous	Aliquot #: 24-0	340-02-C02-A02	Analyst: KDI
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	105		%	1000.0	05/14/2024	AB24-0513-11



### **Analytical Report**

Report Date: 05/23/24

**Laboratory Services** 

A CENTURY OF EXCELLENCE

**DEK Bottom Ash Pond & Lined Impoundment** Laboratory Project: Sample Site: 24-0340

Field Sample ID: DEK-MW-18001 MS

Collect Date: 05/08/2024 Lab Sample ID: 24-0340-02 Collect Time: 01:03 PM

Matrix: Groundwater

Anions by EPA 300.0 CCR Rule Anal	yte List, Cl, F,	SO4, Aqu	ieous	Aliquot #: 24-0	340-02-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	96		%	1000.0	05/09/2024	AB24-0513-11
Sulfate	102		%	1000.0	05/14/2024	AB24-0513-11
Nitrogen-Ammonia by SM4500NH3(h	), Groundwat	er HL		Aliquot #: 24-0	340-02-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	97		%	25.0	05/14/2024	AB24-0514-02
Alkalinity by SM 2320B				Aliquot #: 24-0	340-02-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	97.8		%	10000.0	05/15/2024	AB24-0515-02
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	340-02-C06-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	92		%	20.0	05/10/2024	AB24-0510-05



Report Date:

Laboratory Project:

Collect Date:

Collect Time:

05/23/24

24-0340

05/08/2024

01:03 PM



**Laboratory Services** A CENTURY OF EXCELLENCE

Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** 

Field Sample ID: DEK-MW-18001 MSD

Lab Sample ID: 24-0340-03

Matrix: Groundwater

Metals by EPA 6020B: CCR	Rule Appendix III-IV To	tal Metals	s Exp	Aliquot #: 24-0	340-03-C01-A01	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	107		%	1.0	05/13/2024	AB24-0513-12
Arsenic	106		%	1.0	05/13/2024	AB24-0513-12
Barium	106		%	5.0	05/13/2024	AB24-0513-12
Beryllium	99		%	1.0	05/13/2024	AB24-0513-12
Boron	105		%	20.0	05/13/2024	AB24-0513-12
Cadmium	105		%	0.2	05/13/2024	AB24-0513-12
Calcium	95.8		%	1000.0	05/13/2024	AB24-0513-12
Chromium	96		%	1.0	05/13/2024	AB24-0513-12
Cobalt	96		%	6.0	05/13/2024	AB24-0513-12
Copper	91		%	1.0	05/13/2024	AB24-0513-12
Iron	103		%	20.0	05/13/2024	AB24-0513-12
Lead	100		%	1.0	05/13/2024	AB24-0513-12
Lithium	101		%	10.0	05/13/2024	AB24-0513-12
Magnesium	104		%	1000.0	05/13/2024	AB24-0513-12
Manganese	101		%	5.0	05/13/2024	AB24-0513-12
Molybdenum	110		%	5.0	05/13/2024	AB24-0513-12
Nickel	94		%	2.0	05/13/2024	AB24-0513-12
Potassium	102		%	100.0	05/13/2024	AB24-0513-12
Selenium	108		%	1.0	05/13/2024	AB24-0513-12
Silver	98.0		%	0.2	05/13/2024	AB24-0513-12
Sodium	105		%	1000.0	05/13/2024	AB24-0513-12
Thallium	98		%	2.0	05/13/2024	AB24-0513-12
Vanadium	99		%	2.0	05/13/2024	AB24-0513-12
Zinc	91		%	10.0	05/13/2024	AB24-0513-12
Mercury by EPA 7470A, To	tal, Aqueous			Aliquot #: 24-0	340-03-C01-A02	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	<b>Analysis Date</b>	Tracking
Mercury	101		%	0.2	05/20/2024	AB24-0515-03
Anions by EPA 300.0 Aque	ous, NO2, NO3			Aliquot #: 24-0	340-03-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	94		%	100.0	05/09/2024	AB24-0509-16
Nitrite	105		%	100.0	05/09/2024	AB24-0509-16
Anions by EPA 300.0 CCR	Rule Analyte List, Cl, F,	SO4, Aqı	ieous	Aliquot #: 24-0	340-03-C02-A02	Analyst: KDI
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	103		%	1000.0	05/14/2024	AB24-0513-11
	24-	0340 Page	0 of 13			



### **Analytical Report**

Report Date: 05/23/24

24-0340

**Laboratory Services** A CENTURY OF EXCELLENCE

**DEK Bottom Ash Pond & Lined Impoundment** Sample Site:

Laboratory Project: Field Sample ID: DEK-MW-18001 MSD

Collect Date: 05/08/2024 Lab Sample ID: 24-0340-03 Collect Time: 01:03 PM

Matrix: Groundwater

Anions by EPA 300.0 CCR Rule Ar	nalyte List, Cl, F,	SO4, Aqւ	ieous	Aliquot #: 24-0	Analyst: KDR	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	95	95		1000.0	05/09/2024	AB24-0513-11
Sulfate	100		%	1000.0	05/14/2024	AB24-0513-11
Nitrogen-Ammonia by SM4500NH	B(h), Groundwate	r HL		Aliquot #: 24-0	340-03-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	100		%	25.0	05/14/2024	AB24-0514-02
Alkalinity by SM 2320B				Aliquot #: 24-0	340-03-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	98.3		%	10000.0	05/15/2024	AB24-0515-02
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	340-03-C06-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	92		%	20.0	05/10/2024	AB24-0510-05



**Report Date:** 05/23/24

Consumers Energy										
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<b>Laboratory Services</b>										
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Data Qualifiers	Exception Summary
	No exceptions occurred.

CONSUMERS ENERGY

### Chemistry Department

General Standard Operating Procedure

PROC CHEM-1.2.01 PAGE 1 OF 2 REVISION 4 ATTACHMENT A

TITLE: SAMPLE LOG-IN – SHIPMENT IN	SPECTION FORM
------------------------------------	---------------

Project Log-In Number:				6	
Sample Origin/Project Name:					
Shipment Delivered By: Ente					
Other/Hand Carry (wh	om)		USPS		
Tracking Number: 27	4431774	1855	Shipping Form A	ttached: Yes	_ No
Shipping Containers: Enter th	ne type and r	number of ship	ping containers received		
Cooler (1)	Cardboard B	ox	Custom Case	Envelope	e/Mailer
Loose/Unpackaged Co			Other		
Condition of Shipment: Enter	the as-recei	ived condition	of the shipment contained	r.	
2.4			Dented	Leal	king
Shipment Security: Enter if a	ny of the shi	pping contain	ers were opened before re	eceipt.	
Shipping Containers R	Leceived: O	pened	Sealed		
Enclosed Documents: Enter the					
			Air Data Sheet	Other	
Temperature of Containers:	Measure the	temperature o	f several sample containe	ers.	
As-Received Tempera	ture Range <u>C</u>	.2-2.0°c	Samples Received	on Ice: Yes / N	lo
M&TE # and Expirati		402 3.24			
Number and Type of Contain			er of sample containers re	eceived.	
Container Type VOA (40mL or (mL))	Water	Soil	Other	Broken	Leaking
Quart/Liter (g/p)					
9-oz (amber glass jar)		_			,
2-oz (amber glass)	-	_			
125 mL (plastic)	12	-			-
24 mL vial (glass)				_	-
250800 mL (plastic)	λ.				
Other					2

FSP 0-14 # 13-640-508 Lot: 265522 exp: 2-15-25

# **CHAIN OF CUSTODY**



### CONSUMERS ENERGY COMPANY - LABORATORY SERVICES

Page l of

Count on Us 135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251

SAMPLING SITE / CUSTOMER:  Q2-2024 DEK Bottom Ash Pond & Lined Impound.  SAMPLING TEAM:  J. KCZnZ  SEND REPORT TO: Joseph Firlit				PROJECT NUMBER: 24-0340	SAP CC or WO#:								A	NAI	YSI	OA PEOLUPEMENT.					
			ound.		REQUESTER	ANALYSIS REQUESTED (Attach List if More Space is Needed)								QA REQUIREMENT:							
				TURNAROUND TIME REQUIRED:  □ 24 HR □ 48 HR □ 3 DAYS □ STANDARD ☒ OTHER														☐ NPDES  ☑ TNI			
				email: phone:															□ ISO 17025		
COPY TO:		Harold Register			MATRIX CODES: GW = Groundwater OX = Other		CONTAINERS													☐ 10 CFR 50 APP, B	
-		TRC			WW = Wastewater SL = Sludge W = Water / Aqueous Liquid A = Air		PRESERVATIVE						tals		Ш						☐ INTERNAL INFO
LAB SAMPLE ID		SAMPLE COLLECTION		RIX	S = Soil / General Solid WP = Wip	e eral Waste	TOTAL#						Il Metals	suc	Ammonia		inity	e			□ OTHER
		DATE TIM		MATRIX	FIELD SAMPLE ID / LOCATION		DN E	None	None HNO ₃	H ₂ SO.	HCI MeOH	MeOl	Total	Anions	Amn	TDS	Alkalinity	Sulfide			REMARKS
24	-0340-01	5-8-24	1303	GW	DEK-MW-18001		7	4	1	1 1			x	x	x	x	x	x			
	-02			GW	DEK-MW-18001 MS		6	3	1	1 1			x	x	x		x	x			
	-03	J	J	GW	DEK-MW-18001 MSD		6	3	1	ı I			x	x	x		x	x			
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DEL BIO	HEIVEA DV.			ATE/I	SMC.	ECEUED DV								0.45	) mc						
111	UISHEO BY:	lust		181		ECEIVED BY:							CO	MME	N15:						
RELINQ	UISHED BY:	X	D.	ATE/T	TIME: R	Fed - EX ECCIVED BY:	(la à è											_°C			#: 015402 e Date: 5-23-24

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# **ANALYTICAL REPORT**

### PREPARED FOR

Attn: Darby Litz TRC Environmental Corporation. 1540 Eisenhower Place Ann Arbor, Michigan 48108-7080

Generated 6/13/2024 1:08:56 PM

### **JOB DESCRIPTION**

Karn/Weadock CCR Lined Impoundment

# **JOB NUMBER**

240-204355-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203



# **Eurofins Cleveland**

### **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 Kris Brooks, Project Manager II Kris.Brooks@et.eurofinsus.com (330)966-9790

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# **Definitions/Glossary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR Lined Impoundment

Job ID: 240-204355-1

### **Qualifiers**

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Qualifier Qualifier Description

U Result is less than the sample detection limit.

# **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
%P	Percent Recovery

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

**Eurofins Cleveland** 

# **Case Narrative**

Client: TRC Environmental Corporation.

Project: Karn/Weadock CCR Lined Impoundment

Job ID: 240-204355-1 Eurofins Cleveland

Job Narrative 240-204355-1

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 5/11/2024 8:00 AM. 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 1.9°C and 3.0°C.

### **Receipt Exceptions**

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. The COC did not indicate any tests for sample 6. Sample 6 was logged for the tests indicated on the bottles received.

### **Gas Flow Proportional Counter**

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

### Rad

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

**Eurofins Cleveland** 

Job ID: 240-204355-1

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# **Method Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR Lined Impoundment

Method **Method Description** Laboratory Protocol 903.0 Radium-226 (GFPC) EPA EET SL Radium-228 (GFPC) 904.0 EPA EET SL Ra226_Ra228 Combined Radium-226 and Radium-228 TAL-STL EET SL PrecSep STD Preparation, Precipitate Separation (Standard In-Growth) None EET SL PrecSep_0 Preparation, Precipitate Separation None EET SL

### Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

# Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Job ID: 240-204355-1

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# **Sample Summary**

Client: TRC Environmental Corporation.

EB-KLI

240-204355-6

Project/Site: Karn/Weadock CCR Lined Impoundment

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-204355-1	DEK-MW-15003	Water	05/08/24 14:44	05/11/24 08:00
240-204355-2	OW-10	Water	05/08/24 11:08	05/11/24 08:00
240-204355-3	OW-11	Water	05/08/24 12:46	05/11/24 08:00
240-204355-4	OW-12	Water	05/09/24 12:45	05/11/24 08:00
240-204355-5	DUP-KLI	Water	05/08/24 00:00	05/11/24 08:00

05/09/24 13:00

05/11/24 08:00

Water

Job ID: 240-204355-1

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Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR Lined Impoundment

Client Sample ID: DEK-MW-15003

Date Collected: 05/08/24 14:44 Date Received: 05/11/24 08:00 Lab Sample ID: 240-204355-1

Matrix: Water

Job ID: 240-204355-1

Method: EPA 903.0	) - Radium-226	(GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0384	U	0.0580	0.0581	1.00	0.0996	pCi/L	05/16/24 09:22	06/12/24 10:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.8		30 - 110					05/16/24 09:22	06/12/24 10:06	1

Method: EPA 904.	0 - Radium-228	(GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.289	U	0.372	0.373	1.00	0.619	pCi/L	05/16/24 09:27	05/22/24 16:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.8		30 - 110					05/16/24 09:27	05/22/24 16:39	1
Y Carrier	83.0		30 - 110					05/16/24 09:27	05/22/24 16:39	1

Method: TAL-STL Ra2	20_Ka220	· Combined			1-220					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226	0.327	U	0.376	0.377	5.00	0.619	pCi/L		06/13/24 11:27	1

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Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR Lined Impoundment

**Client Sample ID: OW-10** 

Date Received: 05/11/24 08:00

Lab Sample ID: 240-204355-2 Date Collected: 05/08/24 11:08

**Matrix: Water** 

			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.338		0.141	0.144	1.00	0.155	pCi/L	05/16/24 09:22	06/12/24 10:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	69.4		30 - 110					05/16/24 09:22	06/12/24 10:06	1

Method: EPA 904.0	) - Radium-228	(GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.16		0.655	0.664	1.00	0.932	pCi/L	05/16/24 09:27	05/22/24 16:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	69.4		30 - 110					05/16/24 09:27	05/22/24 16:39	1
Y Carrier	83.0		30 - 110					05/16/24 09:27	05/22/24 16:39	1

Method: TAL-STL Ra	a226_Ra228 -	- Combined	Radium-226	and Radiun	n-228					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.50		0.670	0.679	5.00	0.932	pCi/L		06/13/24 11:27	1

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR Lined Impoundment

**Client Sample ID: OW-11** 

Lab Sample ID: 240-204355-3 Date Collected: 05/08/24 12:46 **Matrix: Water** Date Received: 05/11/24 08:00

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0642	U	0.0647	0.0650	1.00	0.102	pCi/L	05/16/24 09:22	06/12/24 10:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.8		30 - 110					05/16/24 09:22	06/12/24 10:06	1

Method: EPA 904.	0 - Radium-228	(GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.120	U	0.296	0.296	1.00	0.521	pCi/L	05/16/24 09:27	05/22/24 16:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.8		30 - 110					05/16/24 09:27	05/22/24 16:39	1
Y Carrier	86.4		30 - 110					05/16/24 09:27	05/22/24 16:39	1

	Method: TAL-STL Ra2	26_Ra228 -	- Combine	d Radium-226	and Radiu	m-228					
				Count	Total						
				Uncert.	Uncert.						
	Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Combined Radium 226	0.184	U	0.303	0.303	5.00	0.521	pCi/L		06/13/24 11:27	1
ı	+ 228										

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR Lined Impoundment

Client Sample ID: OW-12 Lab Sample ID: 240-204355-4

Date Collected: 05/09/24 12:45 Matrix: Water

Date Received: 05/11/24 08:00

Method: EPA 903.0	0 - Radium-226	(GFPC)	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.326		0.0998	0.104	1.00	0.0914	pCi/L	05/16/24 09:22	06/12/24 10:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.8		30 - 110					05/16/24 09:22	06/12/24 10:06	1

	) - Radium-228		Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.836		0.355	0.363	1.00	0.463	pCi/L	05/16/24 09:27	05/22/24 16:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.8		30 - 110					05/16/24 09:27	05/22/24 16:39	1
Y Carrier	87.5		30 - 110					05/16/24 09:27	05/22/24 16:39	1

Method: TAL-STL Ra	226_Ra228	- Combined	Radium-226	and Radiun	n-228					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium	1.16		0.369	0.378	5.00	0.463	pCi/L		06/13/24 11:27	1

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR Lined Impoundment

Lab Sample ID: 240-204355-5 **Client Sample ID: DUP-KLI** 

Date Collected: 05/08/24 00:00 **Matrix: Water** Date Received: 05/11/24 08:00

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0216	U	0.0523	0.0524	1.00	0.0966	pCi/L	05/16/24 09:22	06/12/24 10:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.8		30 - 110					05/16/24 09:22	06/12/24 10:06	1

Method: EPA 904.0	0 - Radium-228	(GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.942		0.431	0.439	1.00	0.580	pCi/L	05/16/24 09:27	05/22/24 16:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.8		30 - 110					05/16/24 09:27	05/22/24 16:39	1
Y Carrier	83.7		30 - 110					05/16/24 09:27	05/22/24 16:39	1

Method: TAL-STL Ra	226_Ra228 -	Combined	d Radium-226	and Radiun	n-228					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium	0.964		0.434	0.442	5.00	0.580	pCi/L		06/13/24 11:50	1
226 + 228										

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR Lined Impoundment

Lab Sample ID: 240-204355-6 **Client Sample ID: EB-KLI** 

Date Collected: 05/09/24 13:00

**Matrix: Water** Date Received: 05/11/24 08:00

Method: EPA 903.0	0 - Radium-226	(GFPC)								
		,	Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0162	U	0.0495	0.0495	1.00	0.109	pCi/L	05/16/24 09:22	06/12/24 11:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.1		30 - 110					05/16/24 09:22	06/12/24 11:51	1

Method: EPA 904.	0 - Radium-228	(GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.427	U	0.373	0.375	1.00	0.587	pCi/L	05/16/24 09:27	05/22/24 16:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.1		30 - 110					05/16/24 09:27	05/22/24 16:39	1
Y Carrier	85.2		30 - 110					05/16/24 09:27	05/22/24 16:39	1

2 <mark>28</mark> -	- Combined	Radium-226	and Radiur	n-228					
		Count	Total						
		Uncert.	Uncert.						
sult	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
.410	U	0.376	0.378	5.00	0.587	pCi/L		06/13/24 11:50	1
е	esult	esult Qualifier U	Count Uncert. esult Qualifier (2σ+/-)	Count Total Uncert. Uncert. esult Qualifier (2σ+/-) (2σ+/-)	Uncert. Uncert. esult Qualifier (2σ+/-) (2σ+/-) RL	Count Total Uncert. Uncert. esult Qualifier (2σ+/-) (2σ+/-) RL MDC	Count Total Uncert. Uncert. esult Qualifier (2σ+/-) (2σ+/-) RL MDC Unit	Count Total Uncert. Uncert. esult Qualifier (2σ+/-) (2σ+/-) RL MDC Unit Prepared	Count Total Uncert. Uncert. esult Qualifier (2σ+/-) (2σ+/-) RL MDC Unit Prepared Analyzed

# **Tracer/Carrier Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR Lined Impoundment

Job ID: 240-204355-1

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water Prep Type: Total/NA

			Percent Yield (Acceptance Limits)
		Ва	
Lab Sample ID	Client Sample ID	(30-110)	
240-204355-1	DEK-MW-15003	86.8	
240-204355-2	OW-10	69.4	
240-204355-3	OW-11	94.8	
240-204355-4	OW-12	98.8	
240-204355-5	DUP-KLI	85.8	
240-204355-6	EB-KLI	82.1	
LCS 160-662015/2-A	Lab Control Sample	89.6	
MB 160-662015/1-A	Method Blank	94.3	
Tracer/Carrier Legend			

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water Prep Type: Total/NA

				Percent Yield (Acceptance Limits)
		Ва	Υ	
Lab Sample ID	Client Sample ID	(30-110)	(30-110)	
240-204355-1	DEK-MW-15003	86.8	83.0	
240-204355-2	OW-10	69.4	83.0	
240-204355-3	OW-11	94.8	86.4	
240-204355-4	OW-12	98.8	87.5	
240-204355-5	DUP-KLI	85.8	83.7	
240-204355-6	EB-KLI	82.1	85.2	
LCS 160-662016/2-A	Lab Control Sample	89.6	81.5	
MB 160-662016/1-A	Method Blank	94.3	81.9	

Tracer/Carrier Legend

Ba = Ba Carrier Y = Y Carrier

**Eurofins Cleveland** 

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR Lined Impoundment

# Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-662015/1-A

Count

Matrix: Water

Analysis Batch: 665824

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

**Prep Batch: 662015** 

MB MB Uncert. Uncert. Analyte Result Qualifier  $(2\sigma + / -)$ (2σ+/-) RL MDC Unit Prepared Analyzed Dil Fac Radium-226 0.03763 U 0.0464 0.0466 1.00 0.0761 pCi/L 05/16/24 09:22 06/12/24 09:56

Total

MB MB

 Carrier
 %Yield Description
 Qualifier Limits
 Prepared Dil Factor
 Analyzed Dil Factor

 Ba Carrier
 94.3
 30 - 110
 05/16/24 09:22 06/12/24 09:56
 1

Client Sample ID: Lab Control Sample

Prop Type: Total/NA

Prep Type: Total/NA

Prep Batch: 662015

Total

Uncert. %Rec
(2σ+/-) RL MDC Unit %Rec Limits

Added Analyte Result Qual  $(2\sigma + / -)$ RL MDC Unit %Rec Limits Radium-226 1.00 11.3 11 29 1.15 0.0974 pCi/L 100 75 - 125

LCS LCS

Spike

 LCS
 LCS

 Carrier
 %Yield
 Qualifier
 Limits

 Ba Carrier
 89.6
 30 - 110

# Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: LCS 160-662015/2-A

Lab Sample ID: MB 160-662016/1-A Client Sample ID: Method Blank

**Matrix: Water** 

**Matrix: Water** 

Analysis Batch: 665824

Analysis Batch: 662959

Prep Type: Total/NA Prep Batch: 662016

MB MB Uncert. Uncert. Analyte Result Qualifier  $(2\sigma + / -)$ (2σ+/-) RL MDC Unit Prepared Analyzed Dil Fac Radium-228 -0.02553 U 0.303 0.303 1.00 05/16/24 09:27 05/22/24 16:21 0.568 pCi/L

Total

 Carrier
 %Yield
 Qualifier
 Limits

 Ba Carrier
 94.3
 30 - 110

 Y Carrier
 81.9
 30 - 110

 Prepared
 Analyzed
 Dil Fac

 05/16/24 09:27
 05/22/24 16:21
 1

 05/16/24 09:27
 05/22/24 16:21
 1

%Rec

Lab Sample ID: LCS 160-662016/2-A Client Sample ID: Lab Control Sample

Matrix: Water Prep Type: Total/NA
Analysis Batch: 662959 Prep Batch: 662016

Total

Spike LCS LCS Uncert.

Count

Analyte Added Result Qual  $(2\sigma + / -)$ RL MDC Unit %Rec Limits Radium-228 1.00 8.92 10.45 1.39 0.473 pCi/L 117 75 - 125

 Carrier
 %Yield Plant
 Qualifier Plant
 Limits Plant

 Ba Carrier
 89.6
 30 - 110

 Y Carrier
 81.5
 30 - 110

**Eurofins Cleveland** 

# **QC Association Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR Lined Impoundment

Job ID: 240-204355-1

# Rad

# **Prep Batch: 662015**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-204355-1	DEK-MW-15003	Total/NA	Water	PrecSep STD	
240-204355-2	OW-10	Total/NA	Water	PrecSep STD	
240-204355-3	OW-11	Total/NA	Water	PrecSep STD	
240-204355-4	OW-12	Total/NA	Water	PrecSep STD	
240-204355-5	DUP-KLI	Total/NA	Water	PrecSep STD	
240-204355-6	EB-KLI	Total/NA	Water	PrecSep STD	
MB 160-662015/1-A	Method Blank	Total/NA	Water	PrecSep STD	
LCS 160-662015/2-A	Lab Control Sample	Total/NA	Water	PrecSep STD	

# **Prep Batch: 662016**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-204355-1	DEK-MW-15003	Total/NA	Water	PrecSep_0	
240-204355-2	OW-10	Total/NA	Water	PrecSep_0	
240-204355-3	OW-11	Total/NA	Water	PrecSep_0	
240-204355-4	OW-12	Total/NA	Water	PrecSep_0	
240-204355-5	DUP-KLI	Total/NA	Water	PrecSep_0	
240-204355-6	EB-KLI	Total/NA	Water	PrecSep_0	
MB 160-662016/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-662016/2-A	Lab Control Sample	Total/NA	Water	PrecSep 0	

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# **Lab Chronicle**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR Lined Impoundment

Client Sample ID: DEK-MW-15003

Date Collected: 05/08/24 14:44 Date Received: 05/11/24 08:00

Lab Sample ID: 240-204355-1

Matrix: Water

Job ID: 240-204355-1

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	PrecSep STD			662015	MLT	EET SL	05/16/24 09:22
Total/NA	Analysis	903.0		1	665832	SWS	EET SL	06/12/24 10:06
Total/NA	Prep	PrecSep_0			662016	MLT	EET SL	05/16/24 09:27
Total/NA	Analysis	904.0		1	662961	SCB	EET SL	05/22/24 16:39
Total/NA	Analysis	Ra226_Ra228		1	666196	FLC	EET SL	06/13/24 11:27

**Client Sample ID: OW-10** 

Date Collected: 05/08/24 11:08

Date Received: 05/11/24 08:00

b Sample ID: 240-204355	-2
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**Matrix: Water** 

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	PrecSep STD			662015	MLT	EET SL	05/16/24 09:22
Total/NA	Analysis	903.0		1	665832	SWS	EET SL	06/12/24 10:06
Total/NA	Prep	PrecSep_0			662016	MLT	EET SL	05/16/24 09:27
Total/NA	Analysis	904.0		1	662961	SCB	EET SL	05/22/24 16:39
Total/NA	Analysis	Ra226_Ra228		1	666196	FLC	EET SL	06/13/24 11:27

**Client Sample ID: OW-11** 

Date Collected: 05/08/24 12:46

Date Received: 05/11/24 08:00

Lab	Sam	ple	ID:	240-	-204	4355-3	3
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**Matrix: Water** 

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	PrecSep STD			662015	MLT	EET SL	05/16/24 09:22
Total/NA	Analysis	903.0		1	665832	SWS	EET SL	06/12/24 10:06
Total/NA	Prep	PrecSep_0			662016	MLT	EET SL	05/16/24 09:27
Total/NA	Analysis	904.0		1	662961	SCB	EET SL	05/22/24 16:39
Total/NA	Analysis	Ra226_Ra228		1	666196	FLC	EET SL	06/13/24 11:27

**Client Sample ID: OW-12** 

Date Collected: 05/09/24 12:45

Date Received: 05/11/24 08:00

Lab Sam _l	ple ID:	240-2	04	355-4	

**Matrix: Water** 

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	PrecSep STD			662015	MLT	EET SL	05/16/24 09:22
Total/NA	Analysis	903.0		1	665832	SWS	EET SL	06/12/24 10:06
Total/NA	Prep	PrecSep_0			662016	MLT	EET SL	05/16/24 09:27
Total/NA	Analysis	904.0		1	662961	SCB	EET SL	05/22/24 16:39
Total/NA	Analysis	Ra226_Ra228		1	666196	FLC	EET SL	06/13/24 11:27

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# **Lab Chronicle**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR Lined Impoundment

**Client Sample ID: DUP-KLI** 

Date Collected: 05/08/24 00:00 Date Received: 05/11/24 08:00 Lab Sample ID: 240-204355-5

Matrix: Water

Job ID: 240-204355-1

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	PrecSep STD			662015	MLT	EET SL	05/16/24 09:22
Total/NA	Analysis	903.0		1	665832	SWS	EET SL	06/12/24 10:06
Total/NA	Prep	PrecSep_0			662016	MLT	EET SL	05/16/24 09:27
Total/NA	Analysis	904.0		1	662961	SCB	EET SL	05/22/24 16:39
Total/NA	Analysis	Ra226_Ra228		1	666196	FLC	EET SL	06/13/24 11:50

**Client Sample ID: EB-KLI** 

Date Collected: 05/09/24 13:00

Date Received: 05/11/24 08:00

Lab	Sample	ID:	240-2	043	355-6

Matrix: Water

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	PrecSep STD			662015	MLT	EET SL	05/16/24 09:22
Total/NA	Analysis	903.0		1	665832	SWS	EET SL	06/12/24 11:51
Total/NA	Prep	PrecSep_0			662016	MLT	EET SL	05/16/24 09:27
Total/NA	Analysis	904.0		1	662961	SCB	EET SL	05/22/24 16:39
Total/NA	Analysis	Ra226_Ra228		1	666196	FLC	EET SL	06/13/24 11:50

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

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# **Accreditation/Certification Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR Lined Impoundment

Job ID: 240-204355-1

# **Laboratory: Eurofins St. Louis**

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-08-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-24
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-24
Connecticut	State	PH-0241	03-31-25
Florida	NELAP	E87689	06-30-24
HI - RadChem Recognition	State	n/a	06-30-24
Ilinois	NELAP	200023	11-30-24
owa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-24
Kentucky (DW)	State	KY90125	12-31-24
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-24
_ouisiana	NELAP	04080	06-30-22 *
_ouisiana (All)	NELAP	04080	06-30-24
_ouisiana (DW)	State	LA011	12-31-24
Maryland	State	310	09-30-24
Massachusetts	State	M-MO054	06-30-24
MI - RadChem Recognition	State	9005	06-30-24
Missouri	State	780	06-30-25
Nevada	State	MO00054	07-31-24
New Jersey	NELAP	MO002	06-30-24
New Mexico	State	MO00054	06-30-24
New York	NELAP	11616	03-31-25
North Carolina (DW)	State	29700	07-31-24
North Dakota	State	R-207	06-30-24
Oklahoma	NELAP	9997	08-31-24
Oregon	NELAP	4157	09-01-24
Pennsylvania	NELAP	68-00540	02-28-25
South Carolina	State	85002001	06-30-24
Texas	NELAP	T104704193	07-31-24
US Fish & Wildlife	US Federal Programs	058448	07-31-24
USDA	US Federal Programs	P330-17-00028	05-18-26
Utah	NELAP	MO00054	07-31-24
Virginia	NELAP	10310	06-15-25
Washington	State	C592	08-30-24
West Virginia DEP	State	381	10-31-24

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 $^{^{\}star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

# **Eurofins Cleveland**

180 S. Van Buren Avenue

**Chain of Custody Record** Barberton, OH 44203 Phone: 330-497-9396 Fax: 330-497-0772

# MICHIGAN 190

eurofins

**Environment Testing** 

,		

Client Information	Sampler:				PM:	l/aia					Carri	er Tracki	ing No(s	;):		COC No: 240-120144-290	54.1	
Client Information Client Contact:	Phone: Brooks  E-Mail: Kris.Bi				Kris	IVI				State of Origin:			-	Page:	J-4. I			
Jacob Krenz				is.Bro	oks@	ks@et.eurofinsus.com				MI				Page 1 of 1				
Company: TRC Environmental Corporation.			PWSID:						Analy	sis R	eques	sted				Job #:		
Address: 1540 Eisenhower Place	Due Date Requeste	ed:							TÍ							Preservation Cod D - HNO3	es:	
City:	TAT Requested (days):				П													
Ann Arbor State, Zip:	S	tandor	d			ш												
MI, 48108-7080	Compliance Project	t: A Yes	A No			н									11.3			
Phone: 734-971-7080(Tel) 734-971-9022(Fax)	PO#: TBD こ15	95 l			<b>-</b>	B									1,5			
Email: JKrenz@trccompanies.com	WO #: 553814.0001	•	·		o. N													
Project Name:	Project #:					or No)		<u> </u>					-		ners			
Karn/Weadock CCR DEK Lined Impoundment	24024154				9	les (	GFPC	let List							container			
Site:	SSOW#:				Samp			d Targ							of	Other:		
			Sample	Matrix	ered	MSIN	903.0, Ra226Ra228	Standar							Total Number			
			Туре	(W∽water, 3=solid,	Ē	m o	, Ra	, St.					ŀ		- N	ì		
Sample Identification	Sample Date	Sample Time	(C=comp, G=grab)	O=waste/oil,	기음	Perfor	80.0	904.0 -		i.					Tota	Special In:	structions/N	lote:
		><		tion Code:	_		$\overline{}$	D	1				à l		X			
DEK-MW-15003	518/24	1441	6	Water	W	N	K	X		$\neg$					Z			
OW-10	518-124	401	G	Water	V	Ŋ	X	X							2			
OW-11	518124	1246	G	Water	N	N	X	X							2			
OW-12	5-9-24	1245	G	Water	N	N	X	X							2			
DUP-KLI	518/24		G	Water	N	W	X	X							2			
EB-KLI	5-9-24	1300		Water											2			
				Water						_1.	١.,		_	Щ	2			
				Water				THÌ CHU H								MICH	IGA	N_
																1	90	
																-	70	
								240-20435										
Possible Hazard Identification	on B Unkno	Jun	Radiological			Sam	1	ן i <mark>spusai (</mark> eturn To Clie		iay De		ssea ir sal By i		es are r	Arch	ed longer than 1 ive For	month) Months	
Deliverable Requested: I, II, III, IV, Other (specify)			.aarorograar			Spec		nstructions/		quirem		ou. 2) .			7 01			
Empty Kit Relinquished by:		Date:			Tir	ne:						Method	of Ships	ment				
Relinquished by	Date/Time: -10	-24/	1010	Company		Ī	Recei	ved by:	1	15	1		Date	Time:	lau	10:10	Company	A.
Relinquished by:	Date/Firne:			Company	<u>-1</u>	-	Recei	TESS	I C A	DI	6 D O	A)		5-11			Company	JC.
Relinquished by:	Date/Time:	1011		Company	M			ved by:	I G A	N I I	1 H U	п		Time:	0.	1 0000	Company	
Custody Seals Intact: Custody Seal No.:							Coole	r Temperature	(s) °C an	d Other	Remark	s:						
Δ Yes Δ No						- 1												

	VOA Sample Preservation Date/Time VOAs Frozen
were further preserved in the laboratory	Sample(s) Preservative(s) added/Lot number(s) V
	20. SAMPLE PRESERVATION
ceived after the recommended holding time had expired were received in a broken container were received with bubble >6 mm in diameter (Notify PM)	19 SAMPLE CONDITION  were received after the recommended holding time had expired were received in a broken contains were received with bubble >6 mm in diameter (Notify I sample(s)
Jests Indiceted on	Sample EB-12LIE DISCREPANCIES L'additional next page  The COC. Logged per bothles received.
	ncerning
via Verbal Voice Mail Other	Contacted PM Date by via Vo
Yes No NA pH Strip Lot# HC439975 Yes No NA Yes No Yes No Yes No Yes No	13 Were all preserved sample(s) at the correct pH upon receipt?  14 Were VOAs on the COC?  15 Were air bubbles >6 mm in any VOA vials?  16 Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #  17 Was a LL Hg or Me Hg trip blank present?
Yes No  Yes No  Yes No  Yes No  Yes No  Yes No	8 Could all bottles arrive in good condition (Unbroken)?  8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?  9 For each sample, does the COC specify preservatives (YN), # of containers (YN), and sample type of grab/comp(YN)?  10 Were correct bottle(s) used for the test(s) indicated?  11 Sufficient quantity received to perform indicated analyses?  12 Are these work share samples and all listed on the COC?  13 These been checked at the commandiant laboratory.
2 2 2 E	Shi Dio We
Yes No NA Yes No NA Yes No NA Receiving:	<ol> <li>Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity</li></ol>
nerooler Form  C Corrected Cooler Temp°C	Packing material used Bubble Wrap Foam Plastic Bag None Other  COOLANT: Wet Ice Blue Ice Dry Ice Water None  Cooler temperature upon receipt  IR GUN # /8 (CF O. O °C) Observed Cooler Temp. °C Co
ation Cure:	urs Drop-off Date/Time  Store  Store  Company Clear Cooler Barrier  Store
}	5 11 24 Opened on 5-11
Login #:	fins — Cleveland Sample Receipt Form/Narrative erton Facility

Page 21 of 25

See Temperature Excursion Form	4	1		
Wet Ice Blue Ice Dry Ice		IR GUN #:	Box Ofher	EC Client
Uе		IR GUN #:	Box Other	EC Client
ľa		IR GUN #	Box Other	EC Client
Wet Ice Blue Ice Dry Ice Water None		IR GUN #:	Box Other	EC Client
ie Ice None		IR GUN #:	Box Other	EC Client
Wet Ice Blue Ice Dry Ice Water None		IR GUN #:	Box Other	EC Client
e Ice None		IR GUN #:	Box Olher	EC Client
Wet Ice Blue Ice Dry Ice Water None		IR GUN #:	Box Other	EC Client
e ice None		IR GUN #:	Box Other	EC Client
Wet Ice Blue Ice Dry Ice Water None		IR GUN #:	Box Other	EC Client
Wet Ice Blue Ice Dry Ice Water None		IR GUN #:	Box Ofher	EC Client
Wel ice Blue ice Dry ice Waler None		IR GUN #:	Box Other	EC Client
Wet Ice Stue Ice Dry Ice Water None		IR GUN #:	Box Ofher	EC Client
Wet Ice Blue Ice Dry Ice Water None		IR GUN #:	Box Olher	EC Client
Wet Ice Blue Ice Dry Ice Water Nane		IR GUN #:	Box Other	EC Client
Wet Ice Blue Ice Dry Ice Water Name		IR GUN #:	Box Olher	EC Client
Wet Ice Blue Ice Dry Ice Water None		IR GUN #:	Box Other	EC Cllent
TD.		IR GUN #:	Box Other	EC Client
Wettce Blue Ice Dry Ice Water None		IR GUN #:	Box Other	EC Client
O		IR GUN #:	Box Other	EC Client
Ö		IR GUN #:	Box Other	EC Client
ě		IR GUN #:	Box Other	EC Client
re łce None		IR GUN #:	Box Olher	EC Client
ie Ice None		IR GUN #:	Box Olher	EC Client
e ice None		IR GUN #:	Box Olher	EC Client
e Ice None		IR GUN #:	Box Other	EC Client
Wellice Blue Ice Dry Ice Waler None		IR GUN #:	Box Olher	EC Client
Wet Ice Blue Ice Dry Ice Water None		IR GUN #:	Box Other	EC Client
Wet Ice Blue Ice Dry Ice Water None		IR GUN #:	Box Other	EC Client
		IR GUN #:	Box Other	EC Client
		IR GUN #:	Box Other	EC Client
e Ice None		IR GUN #:	Box Other	EC Client
30 Wellce Blue Ice Dry Ice	30'	IR GUN #:	Box Olher	(Eg/ Client
Q Wellca	19	IR GUN #:	Box Ofher	Ck Client
Corrected Coolant Temp °C (Circle)	Observed Temp °Ç	IR Gun # (Circle)	Cooler Description ᄉ (Circle)	Cooler D
	Eurofins - Cleveland Sample Receipt Multiple Cooler Form	Eurofins - Clevelan		

WI-NC-099 Cooler Receipt Form Page 2 Multiple Coolers

# 5/11/2024

Temperature readings

# **Login Container Summary Report**

240-204355

~	t tastic i litei - Iviti ic Acid	240-204333-0-0	
S	Plactic   liter . Nitric Acid	240-2043\$\$_B_6	FR_KII
2	Plastic 1 liter - Nitric Acid	240-204355-A-6	EB-KLI
\$2	Plastic 1 liter - Nitric Acid	240-204355 B-5	DUP-KLI
\$	Plastic 1 liter - Nitric Acid	240-204355-A-5	DUP-KLI
\$2	Plastic 1 ltter - Nitric Acıd	240-204355 B-4	OW-12
\$	Plastic 1 liter - Nitric Acid	240-204355-A-4	OW-12
\$	Plastic 1 liter - Nitric Acıd	240-204355-B-3	OW-11
<2	Plastic 1 liter - Nitric Acid	240-204355-A-3	OW-11
\$2	Plastic 1 liter Nitric Acıd	240-204355-B-2	OW-10
<2	Plastic 1 liter - Nitric Acid	240-204355-A-2	OW-10
<2	Plastic 1 liter - Nıtric Acıd	240-204355-B-1	DEK-MW-15003
\$2	Plastic 1 liter - Nitric Acid	240-204355-A-1	DEK-MW-15003
Container Preservation Preservation  pH Temp Added Lot Number	Container Type	<u>Lab ID</u>	Chent Sample ID

Page 1 of 1

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# **Login Sample Receipt Checklist**

Client: TRC Environmental Corporation.

Job Number: 240-204355-1

List Source: Eurofins St. Louis
List Number: 2
List Creation: 05/14/24 05:18 PM

Creator: Thornley, Richard W

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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.	N/A	
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	
s the Field Sampler's name present on COC?	N/A	
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 <a href="feature">&lt;6mm (1/4").</a>	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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# **Login Sample Receipt Checklist**

Client: TRC Environmental Corporation.

Job Number: 240-204355-1

List Source: Eurofins St. Louis
List Number: 3
List Creation: 05/15/24 01:28 PM

Creator: Pinette, Meadow L

Cleator. Fillette, Meadow L		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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.	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

N/A

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Residual Chlorine Checked.

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Darby Litz TRC Environmental Corporation. 1540 Eisenhower Place Ann Arbor, Michigan 48108-7080

Generated 6/13/2024 8:16:54 PM

# **JOB DESCRIPTION**

Karn/Weadock CCR DEK Bottom Ash Pond

# **JOB NUMBER**

240-204354-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203



# **Eurofins Cleveland**

# **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 6/13/2024 8:16:54 PM

Authorized for release by Kris Brooks, Project Manager II Kris.Brooks@et.eurofinsus.com (330)966-9790 -

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# **Table of Contents**

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Case Narrative	5
Method Summary	6
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Client Sample Results	8
Tracer Carrier Summary	9
QC Sample Results	10
QC Association Summary	11
Lab Chronicle	12
Certification Summary	13
Chain of Custody	14
Racaint Chacklists	18

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# **Definitions/Glossary**

Client: TRC Environmental Corporation. Job ID: 240-204354-1

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

# Qualifiers

Rad

Qualifier **Qualifier Description** 

Result is less than the sample detection limit.

# **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

Duplicate Error Ratio (normalized absolute difference) **DER** 

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)

Estimated Detection Limit (Dioxin) **EDL** 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 Method Quantitation Limit MQL

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** 

Relative Error Ratio (Radiochemistry) **RER** 

Reporting Limit or Requested Limit (Radiochemistry) RL

**RPD** Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin) **TEQ** Toxicity Equivalent Quotient (Dioxin)

Too Numerous To Count **TNTC** 

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**Eurofins Cleveland** 

6/13/2024

# **Case Narrative**

Client: TRC Environmental Corporation.

Project: Karn/Weadock CCR DEK Bottom Ash Pond

Job ID: 240-204354-1 Eurofins Cleveland

# Job Narrative 240-204354-1

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 sample was received on 5/11/2024 8:00 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.9°C and 3.0°C.

### **Gas Flow Proportional Counter**

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

### Rad

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

# **Method Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep STD	Preparation, Precipitate Separation (Standard In-Growth)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL

### **Protocol References:**

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

# Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# **Sample Summary**

Client: TRC Environmental Corporation. Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-204354-1	DEK-MW-18001	Water	05/08/24 13:03	05/11/24 08:00

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

Client Sample ID: DEK-MW-18001

Date Collected: 05/08/24 13:03 Date Received: 05/11/24 08:00

Lab Sample ID: 240-204354-1

**Matrix: Water** 

Method: EPA 903.	.0 - Radium	-226 (GFP	C)							
		·	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.238		0.0933	0.0958	1.00	0.0935	pCi/L	05/16/24 09:22	06/12/24 09:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.1		30 - 110					05/16/24 09:22	06/12/24 09:58	1

			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.000	U	0.329	0.329	1.00	0.623	pCi/L	05/16/24 09:27	05/22/24 16:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.1		30 - 110					05/16/24 09:27	05/22/24 16:21	1
Y Carrier	75.5		30 - 110					05/16/24 09:27	05/22/24 16:21	1

Method: TAL-STL R	a226_Ra	228 - Com	bined Radi	um-226 an	d Radiur	n-228				
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.238	U	0.342	0.343	5.00	0.623	pCi/L		06/13/24 11:27	1

# **Tracer/Carrier Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water Prep Type: Total/NA

_			Percent Yield (Acceptance Limits)
		Ва	
Lab Sample ID	Client Sample ID	(30-110)	
240-204354-1	DEK-MW-18001	79.1	
LCS 160-662015/2-A	Lab Control Sample	89.6	
MB 160-662015/1-A	Method Blank	94.3	
Tracer/Carrier Legen	d		
Ba = Ba Carrier			

Method: 904.0 - Radium-228 (GFPC)

Y = Y Carrier

Matrix: Water Prep Type: Total/NA

				Percent Yield (Acceptance Limits)
		Ва	Y	
Lab Sample ID	Client Sample ID	(30-110)	(30-110)	
240-204354-1	DEK-MW-18001	79.1	75.5	
LCS 160-662016/2-A	Lab Control Sample	89.6	81.5	
MB 160-662016/1-A	Method Blank	94.3	81.9	
Tracer/Carrier Legen	d			
Ba = Ba Carrier				

**Eurofins Cleveland** 

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Job ID: 240-204354-1

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Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-662015/1-A

**Matrix: Water** 

**Matrix: Water** 

Analysis Batch: 665824

Analysis Batch: 665824

Client Sample ID: Method Blank

**Prep Type: Total/NA** 

Job ID: 240-204354-1

Prep Batch: 662015

MB MB Uncert. Uncert. Analyte Result Qualifier  $(2\sigma + / -)$  $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-226 0.03763 U 0.0464 0.0466 1.00 0.0761 pCi/L 05/16/24 09:22 06/12/24 09:56

Total

Count

MB

Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac Ba Carrier 94.3 30 - 110 05/16/24 09:22 06/12/24 09:56

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 662015

Total LCS LCS %Rec **Spike** Uncert. Analyte Added Result Qual  $(2\sigma + / -)$ RL %Rec Limits MDC Unit Radium-226 11.3 11.29 1.15 1.00 0.0974 pCi/L 100 75 - 125

LCS LCS Carrier %Yield Qualifier

Lab Sample ID: LCS 160-662015/2-A

Limits Ba Carrier 89.6 30 - 110

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-662016/1-A

**Matrix: Water** 

Analysis Batch: 662959

Client Sample ID: Method Blank

Prep Type: Total/NA Prep Batch: 662016

Total Count MB MB Uncert. Uncert. Analyte Result Qualifier **MDC** Unit  $(2\sigma + / -)$  $(2\sigma + / -)$ RL Prepared Analyzed Dil Fac Radium-228 -0.02553 Ū 0.303 0.303 1.00 0.568 pCi/L 05/16/24 09:27 05/22/24 16:21

MB MB Carrier %Yield Qualifier Limits Ba Carrier 94.3 30 - 110 30 - 110 Y Carrier 81.9

05/16/24 09:27 05/22/24 16:21 05/16/24 09:27 05/22/24 16:21

Prepared

Lab Sample ID: LCS 160-662016/2-A

**Matrix: Water** 

**Analysis Batch: 662959** 

**Client Sample ID: Lab Control Sample** 

Prep Batch: 662016

Analyzed

**Spike** LCS LCS Uncert. %Rec Analyte Added Result Qual  $(2\sigma + / -)$ RL MDC Unit %Rec Limits Radium-228 1.39 1.00 0.473 pCi/L 8.92 10.45 117

Total

LCS LCS Carrier %Yield Qualifier Limits 30 - 110 Ba Carrier 89.6 Y Carrier 81.5 30 - 110

**Eurofins Cleveland** 

Prep Type: Total/NA

Dil Fac

# **QC Association Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

Job ID: 240-204354-1

### Rad

# **Prep Batch: 662015**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-204354-1	DEK-MW-18001	Total/NA	Water	PrecSep STD	
MB 160-662015/1-A	Method Blank	Total/NA	Water	PrecSep STD	
LCS 160-662015/2-A	Lab Control Sample	Total/NA	Water	PrecSep STD	

# **Prep Batch: 662016**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-204354-1	DEK-MW-18001	Total/NA	Water	PrecSep_0	
MB 160-662016/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-662016/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

3

4

7

0

10

11

13

# **Lab Chronicle**

Client: TRC Environmental Corporation.

Job ID: 240-204354-1

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

Client Sample ID: DEK-MW-18001

Date Collected: 05/08/24 13:03 Matrix: Water

Date Received: 05/11/24 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	PrecSep STD			662015	MLT	EET SL	05/16/24 09:22
Total/NA	Analysis	903.0		1	665824	SWS	EET SL	06/12/24 09:58
Total/NA	Prep	PrecSep_0			662016	MLT	EET SL	05/16/24 09:27
Total/NA	Analysis	904.0		1	662959	SCB	EET SL	05/22/24 16:21
Total/NA	Analysis	Ra226_Ra228		1	666196	FLC	EET SL	06/13/24 11:27

# **Laboratory References:**

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Sample ID: 240-204354-1

# **Accreditation/Certification Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

# **Laboratory: Eurofins St. Louis**

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	<b>Expiration Date</b>	
Alaska (UST)	State	20-001	05-06-25	
ANAB	Dept. of Defense ELAP	L2305	04-06-25	
ANAB	Dept. of Energy	L2305.01	04-08-25	
ANAB	ISO/IEC 17025	L2305	04-06-25	
Arizona	State	AZ0813	12-08-24	
California	Los Angeles County Sanitation Districts	10259	06-30-22 *	
California	State	2886	06-30-24	
Connecticut	State	PH-0241	03-31-25	
Florida	NELAP	E87689	06-30-24	
HI - RadChem Recognition	State	n/a	06-30-24	
Illinois	NELAP	200023	11-30-24	
owa	State	373	12-01-24	
Kansas	NELAP	E-10236	10-31-24	
Kentucky (DW)	State	KY90125	12-31-24	
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-24	
_ouisiana	NELAP	04080	06-30-22 *	
Louisiana (All)	NELAP	04080	06-30-24	
Louisiana (DW)	State	LA011	12-31-24	
Maryland	State	310	09-30-24	
Massachusetts	State	M-MO054	06-30-24	
MI - RadChem Recognition	State	9005	06-30-24	
Missouri	State	780	06-30-25	
Nevada	State	MO00054	07-31-24	
New Jersey	NELAP	MO002	06-30-24	
New Mexico	State	MO00054	06-30-24	
New York	NELAP	11616	03-31-25	
North Carolina (DW)	State	29700	07-31-24	
North Dakota	State	R-207	06-30-24	
Oklahoma	NELAP	9997	08-31-24	
Oregon	NELAP	4157	09-01-24	
Pennsylvania	NELAP	68-00540	02-28-25	
South Carolina	State	85002001	06-30-24	
Texas	NELAP	T104704193	07-31-24	
US Fish & Wildlife	US Federal Programs	058448	07-31-24	
USDA	US Federal Programs	P330-17-00028	05-18-26	
Utah	NELAP	MO00054	07-31-24	
Virginia	NELAP	10310	06-15-25	
Washington	State	C592	08-30-24	
West Virginia DEP	State	381	10-31-24	

 $^{^{\}star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

#### **Eurofins Cleveland**

180 S. Van Buren Avenue Barberton, OH 44203 **Chain of Custody Record** 

MICHIGAN 190

eurofins

Environment Testing

Phone: 330-497-9396 Fax: 330-497-0772																				
Client Information	Sampler:			Lat Br	b PM: rooks,	, Kris	М.					Carr	Carrier Tracking No(s):			COC No: 240-120143-29	053.1			
Client Information Client Contact: Jacob Krenz Company:	Phone:			E-N	Mail:			.eurofi	insus.c	om		State	State of Origin:			Page: Page 1 of 1				
TRC Environmental Corporation.			PWSID:								/sis R	eques	sted				Job #:			
Address: 1540 Eisenhower Place	Due Date Requeste	ed:													Preservation Co D - HNO3	des:				
City: Ann Arbor State, Zip:	TAT Requested (da	iys):																		
State, Zip: MI, 48108-7080 Phone:	Compliance Projec	t: Δ Yes	Δ No		3															
734-971-7080(Tel) 734-971-9022(Fax) Email:	PO#: TBD				<u></u>															
JKrenz@trccompanies.com	WO#: 553814.0001				s or N	or No)				lers lers		9rs								
Project Name: Karn/Weadock CCR DEK Bottom Ash Pond & I Site:	Project #: 24024154 SSOW#:			024154			ple (Yes or GFPC GFPC get List				containers		ontaine	A-1						
Site:	SSOW#:				Sam	MSD (	8228 C	rd Targ								5	Other:			
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oll, BT=Tissue, A=A	eld Filte	Perform MS/MSD (Yes or No)	903.0, Ra226Ra228_GFPC	904.0 - Standard Target List								Total Number	Special li	nstructio	ns/Note	e:
		><		ation Code:		* *	_	D								X			=	
DEK-MW-18001	5-8-24	1303	6	Water	N	N	X	×								2				
				Water		$\sqcup$	$\perp$													
						$\sqcup$	$\dashv$	$\sqcup$												
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	-						, 	[ ][]]]]]	!!!!!!!!!!				+	+			MICT	TO	NT.	
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				<b>- III</b>									+	++				<del>V</del>		
				240	0-204	1354	Chai	in of	Custo	dy										
										1										
Possible Hazard Identification Non-Hazard Flammable Skin Irritant Pois	on B Unkno	own $\Box_I$	Radiological	1		Sam	ple I	Dispo eturn	<b>osal ( /</b> To Clie	A fee	may be	asses	<b>sed if s</b> sal Bv L	amples ab	s are ret	taine Archi	ed longer than t ive For	month) Mont	hs	
Deliverable Requested: I, II, III, IV, Other (specify)											equirem									
Empty Kit Relinquished by:		Date:	-		Tir	me:				_			Method o	f Shipme	ent:					
Relinguisted by	Date/Time:	24 /1.	010	Company	حز	Received by:   Date/Time/   ICompany					ý									
Relinguished by:	Date/Time:	10:11	5	Company	A	R	Recei	JE S	SSI	C A	RIGI	0 0 N		Date/fi	1me: 24 08	~	10:10	Compan	7=7	A .
Relinquished by:	Date/Time:			Company		R	Receiv	ived by:						Date/Ti	ime:			Compan		
Custody Seals Intact: Custody Seal No.:						С	Cooler	r Temp	erature(	(s) °C a	nd Other	Remarks	s:							

10. NAMI DE I NEGER PATION
20 SAMPLE PRESERVATION
Sample(s)were received with bubble >6 mm in diameter (Notify PM)
Sample(s)were received after the recommended holding time had expired
19 SAMPLE CONDITION
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES
Concerning
Contacted PM Date by via Verbal Voice Mail Other
Yes (No)
Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes
Were air bubbles >6 mm in any VOA vials?
13 Were all preserved sample(s) at the correct pH upon receipt?  14 Were VOAs on the COC?  Ves (%)
If yes, Questions 13-17 have been checked at the originating laboratory
Are these work share samples and all listed on the COC?
10 Were correct bottle(s) used for the test(s) indicated?
For each sample, does the COC specify preservatives (YN), # of containers (YN), as
7 Did all bottles arrive in good condition (Unbroken)? 8 Could all bottle labels (ID/Date/Time) be reconciled with the COC? (es) No
learly identified on the COC? (Yes)
Were the custody papers accompany the sample(s)?  Were the custody papers relinquished & signed in the appropriate place?  TOC
-Were tamper/custody seals intact and uncompromised?  -Were tamper/custody seals intact and uncompromised?  -Were tamper/custody seals intact and uncompromised?
A SON NA
IR GUN # /8 (CF_O. O °C) Observed Cooler
upon receipt
rial used Bubble Wrap Foam Plastic Bag
ox Chent Cooler Box
FedEx. 1st Grd Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other  Receipt After-hours Drop off Date Time  Storage Location
rved on 5 11 24 Opened on 5-11-24
Then TCC Site Name Cooler unpacked by
Eurofins – Cleveland Sample Receipt Form/Narrative Login# 2575
And the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of th

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Login#
204354

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		IR GUN #:	Box Other	EC Client
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		IR GUN #:		
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		IR GUN #:	Box Other	EC Client
Wet Ice Blu Water		IR GUN #:	Box Other	EC Client
Wet Ice		IR GUN #:	Box Other	EC Client
Wet Ice Blue Ice D Water None		IR GUN #:	Box Other	EC Client
Wet ice Blu Water		IR GUN #:	Box Other	EC Client
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Temp °Ç	Temp °Ç	(Circle)	cle) ·	A (Circle)

# **Login Container Summary Report**

240-204354

Temperature readings		MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MATERIAL MAT	
			Container Preservation Preservation
Client Sample ID	<u>Lab ID</u>	Container Type	pH Temp Added Lot Numbe
DEK-MW-18001	240-204354-A-1	Plastic 1 liter - Nitric Acid	\$
DEK-MW 18001	240-204354-B-1	Plastic 1 liter - Nıtrıc Acıd	

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Page 1 of 1

#### **Login Sample Receipt Checklist**

Client: TRC Environmental Corporation.

Job Number: 240-204354-1

Login Number: 204354
List Source: Eurofins St. Louis
List Number: 2
List Creation: 05/14/24 05:18 PM

Creator: Thornley, Richard W

Creator. Morniey, Richard W		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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.	N/A	
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?	N/A	
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	

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#### **Appendix B Field Notes**

### TRC

PROJECT NAME:	CEC Karn BAP/LI: 2024 GW Compliance
PROJECT NUMBER:	553814.0001.0000
PROJECT MANAGER:	Darby Litz
SITE LOCATION:	2742 Weadock Hwy Essexville, MI 48732
DATES OF FIELDWORK:	5/6/2024 TO 5/9/2024  Second Quarter 2024 Groundwater Sampling
PURPOSE OF FIELDWORK:	Gecond Quarter 2024 Groundwater Campling
WORK PERFORMED BY:	J. Jasso, J. Krenz, A. Whaley

SIGNED LAW 5/10/24

CHECKED BY DATE



PROJECT NAME:	CEC Karn BAP/LI: 2024	GW Comp DATE:	5 181	2024	TIME ARRIVED:			
PROJECT NUMBER:				JK (ÁŴ)	TIME LEFT: 1645			
		WEATH	ER					
TEMPERATURE: <u>55-</u>	70 °F WIND:	15-30 MPH		VISIBILITY	Llar			
	. WO	ORK / SAMPLING	PERFO	RMED				
Check in .	with site c	ontact		_				
Calibrate 1	(SI							
Somple Fran	1 Lined Impou	ndment ne	115.	DW-10. 00	u-11, DEFR-MU- PCS			
15003 (000)	-kul son	Cfale 100	toc	at K11-1	PCS			
15003 C1204	1631) 00	I ale De		<u> </u>				
				·				
PROBLEMS ENCOUNTERED				CORRECTIVE ACTION TAKEN				
No	ne							
					·			
		COMMUNIC	ATION					
NAME	REPRESENTING			SUBJECT / COMME	NTS			
Darby Litz	TRC	PM - Updates						
Jon Gaeth	Consumers	Site Contact						
NA OTE MATERIA	·····	GATION DERIVE	WAST					
WASTE MATRIX	QUANTITY			COMMENTS				
Groundwater	NM	Purge to Grou	nd					
		-						
		1	WE11					

5/10/24



PROJECT NAME:	CEC Karn BAP/Li: 2024	4 GW Comp DATE:	5-8-24	TIME ARRIVED: 0700
PROJECT NUMBER:			OR: JJ (JK) AW	TIME LEFT: 1600
		WEATH	IED	
remperature: 1	<b>1</b> °F WIND:			LITY: clear
0 10		ORK / SAMPLING	5 PERFORMED	
Sampled	DEK-MM- 180	ו טי		
PROE	BLEMS ENCOUNTER	ED	CORRECT	IVE ACTION TAKEN
		-		
		COMMUNIC	CATION	
NAME	REPRESENTING		SUBJECT/COM	MENTS
Darby Litz	TRC	PM - Updates		
Jon Gaeth	Consumers	Site Contact		
	INVEST	IGATION DERIVE	D WASTE SUMMARY	
WASTE MATRIX	QUANTITY		COMMEN	TS
Groundwater	NM	Purge to Grou	ınd	
<u></u>				
110-	11 0	-15-24	//	1 MA 11
SIGNED		DATE	CHECKED BY	-// 3/18/12   DA'



PROJECT NAME:	CEC Karn BAP/LI: 2024	GW Comp DATE:	5/8/20	TIME ARRIVED: (つろの
PROJECT NUMBER			OR: JJ JK AW	TIME LEFT: (Ce)C
				•
		WEATH		
TEMPERATURE: <u>Le</u>	<u>°F</u> WIND:	3C MPH	VISIBI	ILITY: 000 COUT
		ORK / SAMPLING		
MW-15	209, Dup #	ol mu	1-15014,	Mw-15002
VNCV-150	14 (4 B #01	(FB 401		
PPO	BLEMS ENCOUNTERE	<b>D</b>	CORRECT	FIVE ACTION TAKEN
PROI	SLEWS ENCOUNTERE	<u> </u>	CORRECT	TIVE ACTION TAKEN
		COMMUNIC	CATION	
NAME	REPRESENTING		SUBJECT / COI	MMENTS
Darby Litz	TRC	PM - Updates		
Jon Gaeth	Consumers	Site Contact		
	INVESTI	GATION DERIVE	D WASTE SUMMARY	
WASTE MATRIX	QUANTITY		COMMEN	ITS
Groundwater	NM	Purge to Grou	nd	
	5/13/20		(1 //	MAI Siday
SIGNED	manaras I 1 / 1	DATE	CHECKER BY	DATE

**REVISED 04/2019** 



PROJECT NAME:	CEC Karn BAP/LI: 202	4 GW Comp DATE:	5-9-2	24	TIME ARRIVED: 070		
PROJECT NUMBER	: 553814.0001	.0000 AUTH	OR: JJ Jk	( AW	TIME LEFT: 1600		
<del></del>		WEATH	IER				
TEMPERATURE: 7	O °F WIND:	-		VISIBILITY	: Clear		
	w	ORK / SAMPLING	PERFORM	ED			
Sampled	DEK BAP	wells/	OW-12				
unable as it	to collect was dr	Sample	From	KLÎ	-SCS		
PROI	BLEMS ENCOUNTERI	ED	CORRECTIVE ACTION TAKEN				
SCS u	ias Dry		no	Sample	collected		
NAME	REPRESENTING	COMMUNIC		IBJECT / COMME	INTO		
Darby Litz	TRC	PM - Updates		IBJECT / COMME	INIO		
Jon Gaeth	Consumers	Site Contact					
	INVEST	IGATION DERIVE	D WASTE S	UMMARY			
WASTE MATRIX	QUANTITY			COMMENTS			
Groundwater	NM	Purge to Grou	ınd		.,,		
Le	Mr.	5-15-24					
SIGNED		DATE	CHECK	ED BY	D		



#### **EQUIPMENT SUMMARY**

PROJECT NAME: CEC Karn BAP/LI: 2024 GW		BAP/LI: 2024 GW	SAMPLER NAME: J. Jasso, J. Krenz, A. Whaley					
PROJECT NO.:	553814.0001.0000		SAMPLER NAME: J. Jasso, J. Krenz, A. Whaley					
WATER LEVEL MEASU	JREMENTS COL	LECTED WITH:						
HEF	RON DIPPER-T	. ,,,	TRC A2					
NAME AND MODEL OF IN	ISTRUMENT		SERIAL NUMBER (IF APPLICABLE)					
PRODUCT LEVEL MEA	ASUREMENTS C	OLLECTED WITH						
	NA		NA					
NAME AND MODEL OF IN	ISTRUMENT		SERIAL NUMBER (IF APPLICABLE)					
DEPTH TO BOTTOM O	F WELL MEASU	REMENTS COLL	ECTED WITH:					
HEF	RON DIPPER-T		TRC A2					
NAME AND MODEL OF IN	ISTRUMENT	· · ·	SERIAL NUMBER (IF APPLICABLE)					
PURGING METHOD								
PERI	STALTIC PUMP		TRC A2					
NAME AND MODEL OF P	UMP OR TYPE OF	BAILER	SERIAL NUMBER (IF APPLICABLE)					
SAMPLING METHOD								
PERI	STALTIC PUMP		TRC A2					
NAME AND MODEL OF P	UMP OR TYPE OF	BAILER	SERIAL NUMBER (IF APPLICABLE)					
GEOTECH	DISPOSABLE FI	LTER	0.45 MICRON					
NAME AND MODEL OF FI	ILTERATION DEVI	DE .	FILTER TYPE AND SIZE					
DEDICA	TED POLY TUBIN	NG	✓ LOW-FLOW SAMPLING EVENT					
TUBING TYPE								
PURGE WATER DISPO	SAL METHOD							
☑ GROUND	DRUM	POTW	DOLYTANK OTHER					
DECONTAMINATION A	ND FIELD BLAN	K WATER SOUR	DE .					
ST	ORE BOUGHT		LABORATORY PROVIDED					
POTABLE WATER SOUR	CE		DI WATER SOURCE					
(	5/13/	4	Sh 2 WAT 5/15/24					
SIGNED		DATE	CHECKED BY DATE					

#### ◆ TRC

PROJECT NAME:	CEC Karn BAP/LI: 2024 GW	/ Compliand	ce	MODEL: YSI Pro DSS	SAMPLER: AW, JK, JJ		
PROJECT NO.:	553814.0001.0000			SERIAL #:	DATE: F3 (8)	124	
PH (	CALIBRATION CHECK			SPECIFIC CONDU	CTIVITY CALIBR	RATION CHECK	
(LOT #)3 (L)0 (1 (6) (L) (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1	pH 4 / 10 (LOT #): 7 (2) 0 (5) (EXP. DATE): 7 (7) 1  POST-CAL. READING / STANDARD	CAL. RANGE	TIME	CAL. READING (LOT #): 3 6 16 10 3 (EXP. DATE): // / ) Y POST-CAL. READING / STANDARD	TEMPERATURE	CAL. RANGE TIME	
700 Ma	400 / 400	WITHIN	1235	1760/1760	<b></b>	WITHIN (1)39	
1	/	WITHIN RANGE		/		WITHIN RANGE	
/	/	RANGE WITHIN				RANGE WITHIN	
ORP	CALIBRATION CHECK	RANGE		D.O. CAL	IBRATION CHEC	RANGE	
CAL BEADING	TEMPERATURE			CAL. READING	TEMPERATURE		
(LOT #): 23 6 100 GCC (EXP. DATE): 7 / 7 E POST-CAL. READING / STANDARD	(°CELSIUS)	CAL. RANGE	TIME	POST-CAL. READING /SATURATED AIR	(°CELSIUS)	CAL. RANGE TIME	
333/333	- 23	WITHIN	かろく	8-35 /835	23	WITHIN ANGE	
1		WITHIN RANGE		] /	-	WITHIN RANGE	
1		WITHIN RANGE		/		WITHIN RANGE	
/		WITHIN		/	001115150	WITHIN RANGE	
	ITY CALIBRATION CHEC	SK T			COMMENTS		
	READING (NTU)	1		AUTOCAL SOLUTION	✓ STANDARD	SOLUTION (S)	
(LOT #): 13097 (EXP. DATE): 4/11	(LOT #): (EXP. DATE):	CAL. RANGE	ТІМЕ	(LOT #): (EXP. DATE):		ND EXPIRATION DATES RATION CHECK	
POST-CAL. READING / STANDARD	POST-CAL, READING / STANDARD	1		CALIBRATED PARAMETERS	CALIBRATIO	ON RANGES (1)	
6 10	1	WITHIN	123	рН	pH: +/- 0.2 S.I	J.	
100 / 100	1	WITHIN RANGE	123	COND	COND: +/- 1% OF	CAL. STANDARD	
1	1	WITHIN RANGE		ORP	ORP: +/- 25 mV	,	
1	/	WITHIN RANGE		☐ D.O.	D.O.: VARIES		
	NOTES			TURB	TURB: +/- 5% OI	F CAL. STANDARD	
						IGES ARE SPECIFIC TO VATER QUALITY METER	
	PROBLEMS ENCOUNTERED			CORRECTI	VE ACTIONS		
					12		
SIGNED	51/3/24	DATE	-	CHECKED BY	WJ_	5/15/24	
		PUIL		S. ILONED BY		, / DAIL	



PROJECT NAME:	CEC Karn BAP/LI: 2024 GV	V Complian	се	MODEL: YSI Pro DSS	SAMPLER: AW, JK, JJ		
PROJECT NO.:	553814.0001.0000			SERIAL #: Lenter	DATE: §	-8-24	
PH	I CALIBRATION CHECK			SPECIFIC CONDU	CTIVITY CALIBI	RATION CHECK	
pH 7 (LOT #):4G AOG 29 (EXP. DATE): Jan /2G POST-CAL. READING/STANDARI	pH 4 / 10 (LOT #): 4 G A O 6 3   (EXP. DATE): Jan / 2 G	CAL. RANGE	TIME	CAL. READING (LOT #): 4GC 1196 (EXP. DATE): Mar/25 POST-CAL. READING/STANDARD	TEMPERATURE	CAL. RANGE TIME	
7.02 /7.02	4.00 / 4.00	WITHIN RANGE	1206	1213 / 1213	17.4	WITHIN 1201	
/	/	WITHIN				WITHIN	
1	1	WITHIN		-		WITHIN	
1	/	WITHIN				WITHIN	
OR	P CALIBRATION CHECK		L	D.O. CAL	IBRATION CHEC	<u> </u>	
CAL. READING (LOT #):23 L 100 15 6 (EXP. DATE): 11-7-202	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME	CAL. READING	TEMPERATURE (°CELSIUS)	CAL. RANGE TIME	
POST-CAL. READING / STANDARI		1		POST-CAL. READING /SATURATED AIR			
230.2 / 270.3	20.1		100100	8.91 / 8.91	19.3	WITHIN PANGE	
1		WITHIN RANGE		/		WITHIN RANGE	
1		WITHIN RANGE				WITHIN RANGE	
1		WITHIN RANGE				WITHIN RANGE	
TURBI	DITY CALIBRATION CHE	CK			COMMENTS		
CALIBRATIO	N READING (NTU)			AUTOCAL SOLUTION	✓ STANDARD	SOLUTION (S)	
(LOT#): DI water (EXP. DATE):	(LOT #): A 3097 (EXP. DATE): APR-25	CAL. RANGE	TIME	(LOT #): (EXP. DATE):	UNDER CALIE	AND EXPIRATION DATES	
POST-CAL, READING / STANDAR		Tall Marries		CALIBRATED PARAMETERS		ON RANGES (1)	
0.00 / 0.00	100.0 / 100.0	WITHIN	1231		pH: +/- 0.2 S.	•	
/	/	WITHIN		☐ ☐ COND	COND: +/- 1% O	F CAL. STANDARD	
/	/	WITHIN		☐ ORP	ORP: +/- 25 m\		
/	/	WITHIN RANGE		D.O.	D.O.: VARIES		
	NOTES			TURB	TURB: +/- 5% OI	F CAL. STANDARD	
						NGES ARE SPECIFIC TO WATER QUALITY METER	
	PROBLEMS ENCOUNTERED			CORRECTI	VE ACTIONS		
SIGNED	Jy 5-1	5-24 DATE	[	CHECKED BY	M	SISTE 4	

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PROJECT NAME:	CEC Karn BAP/LI: 2024 GW	/ Compliand	e	1	YSI Pro DSS		SAMPLER:	ÁW)JK,	JJ
PROJECT NO.:	553814.0001.0000			SERIAL #	* Renta	è(	DATE: 5 / F/2	24	
PH	CALIBRATION CHECK				SPE	<del>CIFIC</del> CONDU	ICTIVITY CALIBE	RATION C	HECK
pH 7 (LOT #):4G B 1040 (EXP. DATE): Fcb/z6 POST-CAL. READING / STANDARD	pH 4 / 10 (LOT #): 46 A O 6 3   (EXP. DATE): 5 CM 126 POST-CAL. READING / STANDARD	CAL. RANGE	TIME		(LOT#): <b>9</b> (	READING  2 (1196  Mas/25  EADING/STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
705 17.05	4.00 14.00	WITHIN RANGE	210		1100	/1100	12.2	WITHIN	0718
1	/	WITHIN				1		WITHIN	
1	1	WITHIN RANGE				1		WITHIN	
. 1	1	WITHIN RANGE				1		WITHIN RANGE	
ORP	CALIBRATION CHECK			J		D.O. CAL	IBRATION CHEC		l
CAL. READING (LOT #): 23 LICOS 6 (EXP. DATE): NOT/28 POST-CAL. READING / STANDARD	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME			READING  DING (SATURATED AIR	TEMPERATURE (°CELSIUS)	CAL. RANGE	TIME
246.5 /240.5	13.0	WITHIN	U72.1	-	10.33	/10, <u>33</u>	12.4	WITHIN RANGÉ	يح 70
1	-	WITHIN	ان) د		`	1		WITHIN	
1		WITHIN RANGE		_		1		WITHIN RANGE	
1		WITHIN RANGE				1		WITHIN	
TURBIC	ITY CALIBRATION CHEC	K		_			COMMENTS		
	READING (NTU)				AUTOCA	AL SOLUTION	✓ STANDARD	SOLUTION	(S)
(LOT #): (EXP. DATE):	(LOT#): ASCA7 (EXP. DATE): SePLEY	CAL. RANGE	TIME		(LOT #): (EXP. DATE):		LIST LOT NUMBERS A UNDER CALIE		
POST-CAL. READING / STANDARD	POST-CAL, READING / STANDARD				CALIBRATE	D PARAMETERS	CALIBRATI	ON RANGES (	1)
	100 / 100	WITHIN RANGE WITHIN RANGE	072			H OND RP	pH: +/- 0.2 S.  COND: +/- 1% OI  ORP: +/- 25 m\	F CAL. STAN	NDARD
· ,	<del>                                     </del>	RANGE		-		.O.	D.O.: VARIES		
,	NOTES	RANGE		J	_	URB		F CAL. STAN	NDARD
Meter rent		otech					⁽¹⁾ CALIBRATION RAP THE MODEL OF THE		
	PROBLEMS ENCOUNTERED			<u> </u>		CORRECT	IVE ACTIONS		<del></del>
None									
Colon Lolis SIGNED		5/10/7	24		CHECK		1 2 M	1	5/15



PROJECT NAME:	CEC Karn BAP/LI: 2024 GW	/ Compliand	ce	MODEL: Y	/SI Pro D	oss		SAMPLE	=R:	AW, (JK).	1.1
PROJECT NO.:	553814.0001.0000	· compilari		SERIAL#:				DATE:		F-5-9.	) (I
PROJECT NO.:	000014.0001.0000			SERIAL#.	ren	ita l		DATE.	9-0	テップ・ハ	<del>«</del> 7
	CALIBRATION CHECK		1				C CONDU			RATION C	HECK
pH 7 (LOT #):4640629	pH 4 / 10 (LOT #): <b>46 A O 63 \</b>				СА Lot#): <b>Ч</b>	L REAL	_	TEMPE	RATURE		
1		CAL. RANGE	TIME	1 1	LOT#): 17 EXP. DATE			1005	LSIUS)	CAL. RANGE	TIME
POST-CAL, READING / STANDARD	POST-CAL. READING / STANDARD			"			/ X STANDARD	(0=	LSiUS	10.1102	
7.00 / 7.00	4.00/4.00	WITHIN RANGE	0627	i	1413	1	1413	10	9.3	WITHIN RANGE	0625
/	1	WITHIN RANGE		1 1	•	1	•			WITHIN RANGE	
1	1	WITHIN		1		1			4 4	WITHIN	
<u> </u>	. 1	WITHIN				1				WITHIN RANGE	
ORP	CALIBRATION CHECK	IVAIVOE	1				D.O. CAL	IBRATIO	ON CHEC		
CAL. READING	TEMPERATURE			] Γ	CA	L. REA	DING	TEMPE	RATURE		
(LOT #): 23 L 100156	(°CELSIUS)	CAL.	TIME							CAL.	TIME
POST-CAL, READING / STANDARD		RANGE			POST-CAL F	READING /S	SATURATED AIR	(°CE	LSIUS)	RANGE	
230.7 / 230.7	20.1	WITHIN	0624	1			8.95	10	9, 6	WITHIN RANGE	(2633
230.7.20.7	20.7	☐ WITHIN	,	-	0.4	<b>s</b> ,	0,78	-	11 10	WITHIN	0037
· ',		RANGE WITHIN		-		,				RANGE WITHIN	
<del>'</del>		RANGE WITHIN	-	-		,				RANGE WITHIN	
<u>'</u>	ITY CALIBRATION CHEC	RANGE		J L		······		COMM	ENTS	RANGE	
	READING (NTU)		1	1 6	AUTO	OCAL SO	LUTION			SOLUTION	(S)
(LOT #): No wenter	(LOT #): A 709 7	CAL.			LOT#):					ND EXPIRATI	<del>``</del>
(EXP. DATE):	(EXP. DATE): APR-25	RANGE	TIME		EXP. DATE	E):				RATION CHE	
POST-CAL, READING / STANDARD	POST-CAL, READING / STANDARD			<b>↓</b>	CALIBR	ATED PAR	RAMETERS		CALIBRATIO	ON RANGES (	1)
0.0 10.0	100.0 / 100.0	WITHIN RANGE				pΗ		pH:	+/- 0.2 S.U	J.	
I	1	WITHIN RANGE				COND		COND:	+/- 1% OF	CAL. STAN	IDARD
1	1	WITHIN RANGE		]		ORP		ORP:	+/- 25 mV	•	
1	1	WITHIN RANGE		]		D.O.		D.O.:	VARIES		
	NOTES			_		TURB		TURB:	+/- 5% OF	CAL. STAN	IDARD
								(1) CALIBI	RATION RAN	IGES ARE SP	ECIFIC TO
				]				THE MOD	EL OF THE V	VATER QUAL	ITY METER
				<u></u>							
F	PROBLEMS ENCOUNTERED						CORRECT	VE ACTION	NS		
				]					·		
11	M	5-17	-24								
SIGNED	· /	DATE	- 1		CHE	ECKED B	Y				DATE

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#### WATER LEVEL DATA Karn

CEC Karn/Weadock: 2024 GW Compliance PROJECT NAME: PROJECT NUMBER: CCRIM OCOO /CCRIM, OCO / CCRIM, OCO / CCR

ROJECT NUMBER:	03 701 160	000/55301				
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
MW-01	1019	TOC	17.25	24.37	NA	NM
MW-02	1021	TOC	17.59	3034	NA	NM
MW-03	1024	TOC	17.55	30.70	NA	NM
MW-04	(027	TOC	(8.78)	3085	NA	NM
MW-06	1639	TOC	9.54	24.30	NA	NM
MW-08	1056	TOC	17.93	27.45	NA	NM
MW-10	1116	TOC	17.00	24.85	NA	NM
MW-12	1152	TOC	18.61		NA	NM
MW-14	12.17	TOC	1440	1920	NA	NM
<b>MW</b> -16	1230	TOC	14.05	21.28	NA	NM
MW-17	1310	тос	14127	24,36	NA	NM
MW-18	0914	TOC	26.84	39.64	NA	NM
MW-19	0970	TOC	17.18	2994	NA	NM
MW-20	0953	TOC	53,00	72.00	NA	NM
MW-21	0945	тос	51.90	60.51	NA	NM
MW-22	NOU	тос	173	29.53	NA	NM
MW-23	1140	тос	14.78	15.05	NA	NM
OW-01	0957	тос	541.50	04.40	NA	NM
OW-02	1101	TOC	(le.29	2197	NA	NM
OW-03	UU	тос	17.48	78.75	NA	NM
OW-04	1216	тос	10-30	16.27	NA .	NM
OW-05	1278	тос	13.50	18.00	NA	NM
OW-06	1254	тос	22.85	25.70	NA	NM
OW-07	1150	тос	15.60	23.97	NA	NM
OW-08	1257	TOC	160	17.90	NA	NM

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).



#### **WATER LEVEL DATA**

PROJECT NAME:	CEC Karn/	Weadock: 2024 C	GW Compliance		DATE:	5/12/24	
PROJECT NUMBER:5	53814.0009	1557814.0001	/5 <b>51</b> 828.00	<i>900</i>	AUTHO	R: Jake Krenz,	Javier Jasso, Ar
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPT BOT (FE	том	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
OW-09	1251	тос	1041	124	8	NA	NM
OW-10	1300	TOC	7.80	173	W	NA	NM
OW-11	0907	TOC	<b>3430</b>	25.6	t v	NA	NM
OW-12	1406	TOC	18.25	23.	41	NA	NM
OW-13	1400	TOC	3.91	14	175	NA	NM
√ OW-15	onco	TOC	3.85	19:	70	NA	NM
EW-01	1114	тос	1390	DN	8	NA	NM
EW-02	libre	тос	15.32			NA	NM
EW-03	1145	тос	14.65			NA	NM
EW-04	12002	TOC	1462		·	NA	NM
EW-05	1208	TOC	1400			NA	NM
EW-06	1330	тос	10.65	1	/	NA	NM
PZ-01	1105	тос	13.48	i Vel	14	NA	NM
PZ-02	1107	TOC	1550	23	00	NA	NM
PZ-03	1124	TOC	15.28	20.	54	NA	NM
PZ-04	1129	тос	15.00	- 0	91	NA	NM
PZ-05	1131	тос	14.72	24.	45	NA	NM
PZ-06	1157	TOC	1560	20	236	NA	NM
PZ-07	1208	тос	1490)	2 j.	$\alpha$	NA	NM
PZ-08	1206	TOC	14-66	20.	lec	NA	NM
PZ-09	1214	тос	1938	21-	5	NA	NM
PZ-10	1233	тос	1090	17.	か	NA	NM
PZ-11	1724	TOC	1390	18	W	NA	NM

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

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#### **WATER LEVEL DATA**

PROJECT NAME:	CEC Karn/	Weadock: 2024 (	GW Compliance		DATE:	5/6/24	
PROJECT NUMBER:	57814.0000	1557814.0001	/553808-00Ú	0	AUTHO	· · · · · · · · · · · · · · · · · · ·	
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPT BOT	TH TO TOM ET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
DEK-MW-18001	c403		9.48	19.0	080		
DEK-MW-15002						·	
DEK-MW-15003	200		1895	27	95		
DEK-MW-15004	0916		29.04	41.	80		
DEK-MW-15005	0973		9.88	22.	30		
DEK-MW-15006							
DEK-MW-22001	0926		1025	24-	20		
DEK-MW-22002	0937		11.81	26.	85		
DEK-MW-22003	0937		11.71	24.	40		
DEK-MW-22004	0930		1025	22.	40		
DEK-MW-22005	0120		8 lec	20	.25		
DEK-MW-22006	0435		8.89	170	7		
MVV-15002							
MVV-15008							
MW-15016							
MW-15019							
Tw-21-003	100		18-20	26.	1		
Tw-21-002	1013		12.87	20	54		
tw-21-001	1017		[2.80]	17.	58		
Tw. 21-017	עלטו		2281		90		
Te-21-0125	1034		30.30	27-	80		
Tw.21.012]	103		20 49	36.	U)		
Tu. 21 -0120	1030		2047	154	70		
Tu. 21-0121) Tu. 21-0415	1044		2171	27.	51		
Tu-11-011]	1046	7	21.57		130		

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

SIGNED DATE

CHECKED S/15/24

\$\frac{1}{5\pi_{10000}} \frac{5\pi_{1810}}{5\pi_{1810}} \fracolum_{1810}} \frac{5\pi_{1810}}{5\pi_{1810}} \frac{5\pi_{1810}}{5

PROJECT NAME:	CEC Karn	LF: 2023 GW Co	mpliance		DATE: #/6/21				
PROJECT NUMBER:	<del>-514404.00</del> (	00.0000			AUTHOR: Jake Krenz, Javier Jasso, And				
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	вот	TH TO TOM EET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION		
Tw-240117	1047		21.81	52	20				
TW-21-010	1050		20.97	28					
Tw-21-009	(05)		20.55	27.	86				
Tw.21-000	1735		1382	19	76				
Tw.21-007	(237		12.58	1 .	80				
Tw-21-006	1241		9.70		46				
Tu 21-00 5	2		1021		87				
Te-21-004	1347		13.05	16	. 60				
	:								
				ļ		<u> </u>			
					·				
				ļ					
				-					
				-					

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

SIGNED S-15-24

DATE

CHECKED

5/15/29 DATE

	TR	C
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PROJECT NAME: (	CEC Karn BAP/L	I: 2024 GW C	PREPA	ARED		CHEC	KED				
PROJECT NUMBER: 5	553814.0001.000	00 BY: /	AW, JK, JJ	DATE: 5 (13/24	BY:	7K	DATE: 5-13-24				
SAMPLE ID: M w.	SAMPLE ID: M W. 1500 > WELL DIAMETER: 2" 4" 6" OTHER										
WELL MATERIAL:											
SAMPLE TYPE:	GW □WW	SW DI	LEA	CHATE	OTHER						
PURGING TIM	1E:143(	DATE:5 & 24		and the second of	• • •	<u></u>	ATE J 8/211				
PURGE ☑ PUN METHOD: ☐ PAU		TIC PUMP	PH: '7.			VITY: <u> </u>					
L. BAIL			ORP: -!!			. 7 <u>C</u>	]/L				
DEPTH TO WATER: VEC TV PVC TURBIDITY: Local NTU  DEPTH TO BOTTOM: 16.89 TV PVC FUNDING SLIGHT MODERATE VERY											
WELL VOLUME: NA LITERS GALLONS TEMPERATURE: 13-7 °C FERROUS Femg/L											
VOLUME REMOVED:	LITER	GALLONS	COLOR:	Clear	_		1010				
color: /)(rc		ODOR:	FILTRATE (	(0.45 um)	res 🗓	l No					
	TURBIDITY	<del>-</del> <del>-</del>	FILTRATE C	COLOR:	FI	LTRATE ODOF	₹:				
☐ NONE ☐ SLIGHT	「	E VERY	QC SAMPL	LE: MS/MSE		DUP-					
DISPOSAL METHOD:	GROUND DE	RUM OTHER	COMMENT	rs:							
TIME PURGE RATE	PH CONDUCT	VITY ORP	D.O. TU	JRBIDITY TE	MPERATURE	WATER LEVEL	CUMULATIVE PURGE VOLUME				
	(SU) (umhos/d	m) (mV)	( mg/L)	(NTU)	(°C)	(FEET)	(GAL OR L)				
1431 20p 7	१.७० ७३	4 -103,5	8.3 U	3.0	15.7	(B. Col	INITIAL				
1436 7	.74 52	1 -111.0	• • • • • • • • • • • • • • • • • • • •	ا جا رج	12-6	18.0					
1441	.69 51	1 -1161	1.23	8.5	128	180	2				
1446 7	68 50	0 -111.3	1.25	<b>ઇ.</b> ૧	128	685	3				
1451 ) 7	160 49		1,25	8.5	12.7	685	4				
					neroameniberhil seni onaansta er seas						
NOTE: STABILI	ZATION TEST IS	COMPLETE WHEN 3 S	UCCESSIVE I	READINGS ARE	WITHIN TH	HE FOLLOWIN	IG LIMITS:				
pH: +/- <b>0.1</b> CON	ND.: +/- 3 %	ORP: +/- 10 D.C	).: +/- <b>0.3</b>	TURB: +/- 10 %	% or </td <td>/= <b>10</b></td> <td>TEMP.: +</td>	/= <b>10</b>	TEMP.: +				
BOTTLES FILLED PR	RESERVATIVE CO	DES A - NONE E	3 - HNO3	C - H2SO4	D - NaOH	E- H	CL F				
NUMBER SIZE	TYPE PRESER	VATIVE FILTERED	NUMBER	SIZE	TYPE	PRESERVATI	VE FILTERED				
1 250 mL PL	LASTIC A		J	125 mL P	LASTIC	D	□ Y □ N				
125 mL PL	LASTIC A	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	1	40 mL	VOA	E	☐ Y☐ N				
60 mL	VOA A	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	2	1L P	LASTIC	В	□ Y 🔀 N				
125 mL PL	LASTIC	3 Y Del 1	١			No. appen Printer on the second second second second second second second second second second second second se	□ Y □ N				
125 mL PI	LASTIC (		١				□ Y □ N				
SHIPPING METHOD: LA	p pur off	DATE SHIPPED:	5-10-2	14	AIRBILL NU	JMBER:					
COC NUMBER: SIGNATURE: DATE SIGNED: 1/3/1W											

<b>?</b>	T	7	C
ROJEC	T NA	ME:	
ROJEC	T NL	MBE	R:
AMPLE	ID: \	W,	J

PROJECT N	IAME:	CEC Ka	ırn BAP/LI: 2	2024 GW (	<u> </u>	PRI	EPARED		CHEC	KED
PROJECT N	IUMBER:	553814.	.0001.0000		BY:	AW, JK, J	J DATE: St	3/24 BY:	JK.	DATE: 5-13-24
SAMPLE ID: WELL MATER	RIAL:	PVC [	ss [	IRON [	] GALV	'ANIZED S			IER	
SAMPLE TYPE:										
PURGII	NG	тіме: (Э	47 I	ATE: 5 / G	3/24	/ s	AMPLE	TIME: (3	, ,	ATE: 5 18 AS
PURGE PUMP PERISTALTIC PUMP METHOD: BAILER PH: 69 SU CONDUCTIVITY: 10 Umhos/cm ORP: -125. mV DO: 576 mg/L										
DEPTH TO V	<del></del>					TURBI	*···	<u>)</u> NTU		
DEPTH TO B	BOTTOM:_	17.42	T/ PVC			<del> </del> NO	NE SLI	GHT 📗	MODERATE	☐ VERY
WELL VOLUM	ME:	NA [	LITERS	GALL	ONS	TEMPE	RATURE:	<u> -   °c                                 </u>	FERROUS Fe	mg/L
VOLUME REMOVED: LITERS GALLONS COLOR: COLOR: ODOR: 100 K										
COLOR:	B	n	ust c	DOR:	one	FILTRA	TE (0.45 um)	YES	NO	
TURBIDITY FILTRATE COLOR: FILTRATE ODOR:										
NONE	SLIC		MODERATE	<u></u> Z-v	ERY	QC SA	MPLE: MS	/MSD	DUP- B	rcks round
DISPOSAL N	METHOD:[	✓ GROUN	D 🗌 DRUI	и 🗌 отні	ER	COMM	ENTS.			
IIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVIT	Y ORI	- 1	D.O. ( mg/L)	TURBIDITY (NTU)	TEMPERAT	URE WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
	ನಿದ್ರ	ucu	Jui			837	215	(7.7	4,2 ~	INITIAL
(250)	<u> </u>	6.96	234	market and a second		1.2b	9.5	11.9	431	431
1251		6.90				094	10.8	115	455	2
1300		6.95	1855	ન(પ		681	10.0	ll. T	- 1.635	<b>₹</b>
							K	i i i	764	<del>- 6</del>
1305		697	(75"			01)	10.0	11.		+-6
(340		6.95			-	071	<del></del>			
13(5)		6.95	176	5 -13	5.5	670	9.95	11.	5 431	<u> </u>
			and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s							
NO	OTE: STAE	BILIZATION	TEST IS CO	MPLETE W	HEN 3	SUCCESS	IVE READINGS	ARE WITHII	N THE FOLLOWI	NG LIMITS:
pH: +/- <b>0</b>	). <b>1</b> (	COND.: +/-	3 % OF	P: +/- <b>10</b>	D.	O.: +/- <b>0.3</b>	TURB: +/-	<b>10</b> % or	= 10</td <td>TEMP.: +</td>	TEMP.: +
BOTTLES	FILLED	PRESERVA	ATIVE CODE	S A - NON	IE	B - HNO3	C - H2SO4	D - NaC	)H E- F	1CL F
NUMBER	SIZE	TYPE	PRESERVA	TIVE FI	LTERE	D NUME	BER SIZE	TYPE	PRESERVAT	IVE FILTERED
2	250 mL	PLASTIC	Α			N	125 mL	PLASTIC	D	□ Y □ N
\ \frac{\sigma}{\sigma}	125 mL	PLASTIC	A		/ [ <b>X</b>		40 mL	VOA	E	□ Y □ N
*	60 mL	VOA	А				1 L	PLASTIC	В	□ Y <b>Ø</b> N
2	125 mL	PLASTIC	В			N		<del> </del>		
	125 mL	PLASTIC	С			N		-		
SHIPPING N	SHIPPING METHOD: Lab box off DATE SHIPPED: 8-10-24 AIRBILL NUMBER:									
COC NUMB	BER:	-		SIGNATUR	Œ:	L.	//	DATES	SIGNED:	11B 154

#### ○ **STRC**

PROJECT	PROJECT NAME: CEC Karn BAP/LI: 2024 GW C PREPARED CHECKED										
PROJECT	NUMBER	: 553814	.0001.0000	В	/: A\	W, JK, J	J DATE SIN	124	BY: Ç	312	DATE:5~13-24
SAMPLE	SAMPLE ID: MU-15016 WELL DIAMETER: 2" 4" 6" OTHER										
WELL MATE	WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER										
SAMPLE TY	/PE: [	√ GW	□ ww □	SW 🗆 D	 		LEACHATE		OTHER		
PURG	SING	TIME: 15	12 DA	TES 18 1	۱٧,		AMPLE	TIME:	154	フ	DATE: 5/8/24
PURGE METHOD	. =		PERISTALTIC F	PUMP		PH:	<u>に()</u> s		NDUCTIV		<u>6</u> umhos/cm
	DEPTH TO WATER: 3.4C T/ PVC									<u>e                                      </u>	mg/L
DEPTH TO			T/ PVC			TURBI		<b>1</b> NTI GHT		DERATE	☐ VERY
WELL VOLU		NA [	LITERS	GALLONS	3			7.6		RROUS Fe	
VOLUME R			LITERS	GALLONS			· clea			OR:	noro
COLOR:	(	322		OR: nor			TE (0.45 um)	YE	<del></del>	] NO	
		<b>310</b>	BIDITY				TE COLOR:			LTRATE OF	OB:
NONE	SLIC	<u> </u>	MODERATE	D VERY				/MSD	L	DUP-	
DISPOSAL	METHOD:	☑ GROUN	ID 🗌 DRUM	OTHER		COMM	ENTS:				
TIME	PURGE RATE	PH	CONDUCTIVITY	ORP		D.O.	TURBIDITY	TEMP	ERATURE	WATE	The second of the second of the second
	(ML/MIN)	(SU)	(umhos/cm)	(mV)	1	mg/L)	(NTU)		(°C).//	(FEET	
1517	290	7001	56	-90.1	8		260	ίς	$\lambda = \lambda$	3,4	c INITIAL
1517		700	1814	_93.C	آ ر	.85	દુક	۱۵	رج.	3.70	C. I
1522		700	1733	-103.1	-   1	(0)	35	12.	9	3.7	c 2
1527		710	1715	-110.	$\int C$	S€ €	23	19.	つ	3.7	c 3
1537		7.10	1736	-114.8	, (	078	רו	12	6	3.7	?c 9
1537		7.10	1748	- 117.	(	373	(O	1	٠٤	37	1
1542		7.10	1757	-117.	10	70	w	( )	٠.٨	38	THE COLUMN TWO IS NOT THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER
1547	1	7.10	76)	-117.9	50	169	9-9		<u>)                                    </u>	38	5 >
			·····								
N	IOTE: STAF	BILIZATION	TEST IS COME	PLETE WHEN	3 SU	CCESSI	VE READINGS	ARE W	/ITHIN TH	E FOLLOV	VING LIMITS:
pH: +/-	0.1	COND.: +/-	3 % ORP:	+/- 10	D.O.:	+/- 0.3	TURB: +/-	10 %	or :</td <td>= 10</td> <td>TEMP.: +</td>	= 10	TEMP.: +
BOTTLES	S FILLED	PRESERV	ATIVE CODES	A - NONE	В-	HNO3	C - H2SO4	D-	· NaOH	E-	HCL F
NUMBER	SIZE	TYPE	PRESERVATI	VE FILTER	RED	NUMB	ER SIZE	TY	PE	PRESERV	ATIVE FILTERED
	250 mL	PLASTIC	Α	□ Y ©	<b>₫</b> N		125 mL	PLA	STIC	D	□Y□N
1	125 mL	PLASTIC	Α	☐ Y [3	Ŋ		40 mL	VC	DA	E	□ Y □ N
	60 mL	VOA	А		] N		<b>1</b> 1 L	PLA	STIC	В	□ Y <b>∑</b> N
(	125 mL	PLASTIC	. В	☐ Y ©	X N			ļ			□ Y □ N
	125 mL	PLASTIC	С	Y	] N						□ Y □ N
SHIPPING	SHIPPING METHOD: Lab Doo of DATE SHIPPED: 5-10-24 AIRBILL NUMBER:										
COC NUMI	BER:		sı	GNATURE:				DA	ATE SIGN	ED: 🤇	1,2/14

PROJECT NAME: CEC Karn BAP/LI: 2024 GW C PREPARED CHECKED											
PROJECT I	NUMBER:	553814		ВҮ	: A\	N, JK, JJ	DATE:5	BY:	JK_	DA	TE: 5-13-24
SAMPLE IC	): mu	<del>۱۲۲</del> - ر	2017	WELL DIA	METE	ER: ✓ 2"	<b>4</b> " <b></b>	6" □ OT⊦	IÉR		
WELL MATE	RIAL:	√ PVC [	□ss □	IRON GA	ALVAN	NIZED STEE	L	□ от⊦	IER		
SAMPLE TY	PE;	☑ GW [	_ww □	SW 🗌 DI		LEA	CHATE	□ от⊦	IER		
PURG	ING	TIME: \$3	46 0	ATE:5/8/	şΫ	SAM		TIME: 1 U	113		56/24
PURGE METHOD:		PUMP F BAILER	PERISTALTIC	PUMP		PH: (2)	<u>५२</u> हा		ב: מוֹעוֹד: <u>( ל 0</u>	mg/L	umhos/cm
DEPTH TO	WATER:	330	T/ PVC			TURBIDITY	1: <u>5</u> , 6	)_NTU			
DEPTH TO	воттом:	16.87	T/ PVC			NONE		GHT 🗌	MODERAT	E	VERY
WELL VOLU	ME:	NA [	LITERS	GALLONS	;	TEMPERAT	rure: 1	<u>2.C</u> .c	FERROUS	Fe	mg/L
VOLUME R	EMOVED: _	<u>Z</u> f	LITERS	GALLONS	}	COLOR:	<u> </u>	ru	ODOR:	JOY	<u>(                                    </u>
COLOR:	<u> Ch</u>	QCV	OI	00R: <b>NON</b>	0	FILTRATE (	(0.45 um)	YES	₩О		
		TURE	BIDITY			FILTRATE C	OLOR:		FILTRATE	ODOR:	
NONE	SLIC	SHT 🔲 1	MODERATE	☐ VERY		QC SAMPL	E: MS	/MSD	DUP-		
DISPOSAL	METHOD:[	✓ GROUN	ID 🗌 DRUM	OTHER		COMMENT	ΓS:				
TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY	ORP (mV)		D.O. TU	JRBIDITY (NTU)	TEMPERATU	JRE LEV		CUMULATIVE URGE VOLUME (GAL OR L)
1348	200	707	2037	_106:0			(0)	16-0		30	INITIAL
1353	1	1096	2039	.94.5	1	5-2 1 140	5,8	il. \		35	1
1358		698	2041	1-971	- 7	·	5.8	11.4		3 5	3
1463		1098	2046	-104.0		86	5, 6	10.6		3 ~	3
1400		6.95	2046			80	5.9	10.0	りら	3 5	9
1413	7	6.95	2644	_104.	-	77	ς &	(0)	6 9	ろい	7
		A 1									-6-
	, e ^e										
			**************************************								erante mandenormanismo estidabilis de more accumulado
N	OTE: STAE	BILIZATION	TEST IS COM	PLETE WHEN	3 SU	CCESSIVE I	READINGS	ARE WITHIN	THE FOLL	OWING L	IMITS:
pH: +/- (	0.1	COND.: +/-	3 % ORF	P: +/- 10	D.O.:	+/- 0.3	TURB: +/-	<b>10</b> % or	= 10</td <td>TE</td> <td>MP.: +</td>	TE	MP.: +
BOTTLES	FILLED	PRESERV	ATIVE CODES	A - NONE	В-	HNO3	C - H2SO4	D - NaO	H E	- HCL	F
NUMBER	SIZE	TYPE	PRESERVA ⁻	TIVE FILTER	RED	NUMBER	SIZE	TYPE	PRESE	RVATIVE	FILTERED
ı	250 mL	PLASTIC	A	□ Y <b>D</b>	() N		125 mL	PLASTIC		D	☐ Y ☐ N
\	125 mL	PLASTIC	A	□ Y D	N	<u></u>	40 mL	VOA		E	N D Y
	60 mL	VOA	А	□ Y	N	7	1 L	PLASTIC		В	□ Y <b>X</b> N
\	125 mL	PLASTIC	В	□ Y Q	N						□ Y □ N
	125 mL	PLASTIC	С	□ Y □	] N						□ Y □ N
SHIPPING	METHOD:	Lab An	op 0 ft 1	DATE SHIPPED	);	8-10-3	24	AIRBILL	. NUMBER:		
COC NUME	BER:			SIGNATURE:		7	<u> </u>	DATE S	IGNED:	V//2	124
L			<del></del> -!-					- (		<del>~4~</del>	

	<b>TR</b>	
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PROJECT NAME	: CEC K	arn BAP/LI: 2	024 GW C		PRI	EPAR	ED			СН	ECKE	D	
PROJECT NUME	ER: 553814	1.0001.0000	BY	: A	W, JK, J	J DA	TE:5/(3/	) ^y	BY:	3K	DA	TE:5-17	3-24
SAMPLE ID:	z B #w	4.4EB	# 9 WELL DIA	MET	ER: 🗸	2"	4" 🔲	6" 🗌	OTHE	₹			
WELL MATERIAL:	✓ PVC	ss 🗆			NIZED S				OTHE	₹		**************************************	
SAMPLE TYPE:	☑ GW	□ww □	SW 🗌 DI			LEACH	ATE		OTHE	₹			
PURGING	TIME:	D/	ATE:		S	AMPL	E	TIME: \	140	) (T	DATE	5/6	126
PURGE							SL	ı co	NDUCT	IVITY: 🖊	١N	umh	os/cm
METHOD:	BAILER	+-+	<b>\</b>		ORP:		1 m\			Nh	mg/L		
DEPTH TO WATE		T/ PVC /	1		TURBI			NTL		10DED 1 TE			.,
DEPTH TO BOTT		T/ PVC , /-	GALLONS		□ NO		∐ SLIG			IODERATE		☐ VER	
WELL VOLUME: VOLUME REMOV	=D: NA	LITERS	GALLONS		TEMPE		KE:			ERROUS F	е		_ mg/L
COLOR:		7	OOR:			FILTRATE (0.45 um) YES NO							
	TUR	BIDITY		=.	FILTRA		T		·	ILTRATE C	DOR:		
NONE	SLIGHT 🗌	MODERATE	☐ VERY		QC SA	MPLE:	☐ MS/	MSD	Ī	DUP-			
DISPOSAL METH	OD: GROU	ND 🗌 DRUM	OTHER		COMM	IENTS:	EQ-	Bac	kg,	round			
TIME PURG	. 1 PH :	CONDUCTIVITY	ORP	T	D.O.	TURI	BIDITY	TEMPE	RATUR	E WATI		CUMULA PURGE VO	4 4
(ML/M		(umhos/cm)	(mV)	1	mg/L)	(N	TU)	(	°C)	(FEE	2	(GAL O	4.1
												INITIA	\L
				_	and the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of th								,
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Mark Anna and Anna and Anna and Anna and Anna and Anna and Anna and Anna and Anna and Anna and Anna and Anna a													
									er remain de remaine au anni e l'anni e				
A								-					
								<u> </u>					
NOTE:	STABILIZATION	N TEST IS CON	IPLETE WHEN	3 SU	CCESS	IVE RE	ADINGS	ARE W	ITHIN T	HE FOLLO	WING L	IMITS:	
pH: +/- <b>0.1</b>	COŅD.: +/-	3 % ORF	P: +/- 10	D.O.	: +/~ 0.3	3 TU	JRB: +/-	10 %	or <	= 10</td <td>TE</td> <td>EMP.: +</td> <td></td>	TE	EMP.: +	
BOTTLES FILLE	D PRESERV	ATIVE CODES	A - NONE	В	- HNO3	С	- H2SO4	D-	NaOH	Ε-	HCL	F	
NUMBER SIZ	E TYPE	PRESERVA	TIVE FILTER	ED	NUME	BER	SIZE	TY	PE	PRESER'	VATIVE	FILTI	ERED
250	nL PLASTIC	A		] N	ļ		125 mL	PLAS	STIC	D	yanng Paramaa kan <b>a</b> gnas naw	□ Y [	] N
125	nL PLASTIC	Α		] N	-	,	40 mL	VC	)A	E		-=-	N
60 r		A		] N	0	<b>L</b>	1 L	PLA	STIC	В			N
125				] N	<del> </del>		The same to entire transport	ļ		n didwinald with the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the College of the	-		N
125	nL PLASTIC	С	L Y L	JN					į			<u> </u>   YL	□ N
SHIPPING METH	OD: Lab E	mp off 1	OATE SHIPPED	:	2	-10-	24	Alf	RBILL N	IUMBER:			
COC NUMBER:			SIGNATURE:				)	DA	TE SIG	NED:		13/2	4

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PROJECT	PROJECT NAME: CEC Karn BAP/LI: 2024 GW C PREPARED CHECKED										
PROJECT	NUMBER	R: 553814	1.0001.0000	BY:	AW, <b>(</b>	ik) ii	DATE:5-8	- <b>24</b> BY	E	R	DATE: 5/15/24
SAMPLE ID: DEK -MW - 1800   WELL DIAMETER: 2" 4" 6" OTHER											
WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER											
SAMPLE T	SAMPLE TYPE:										
PURGING TIME: 1226 DATE: 5-8-24 SAMPLE TIME: 1303 DATE: 5-8-24									ATE: 5-8-24		
PURGE	_	PUMP	PERISTALTIC	PUMP	PF		,36 SI	N COND			nmhos/cm
METHOD: ☐ BAILER ORP:94,1 mV DO:0,12 mg/L									g/L		
	WATER:		T/ PVC			IRBIDIT	Y: 3.03	NTU			
DEPTH TO	BOTTOM:	19.70	T/ PVC			NONE		энт [	MO	DERATE	☐ VERY
WELL VOL	UME:	NA	LITERS	GALLONS	TE	MPERA	TURE: 10	<u>l.3</u> ℃	FEF	ROUS Fe _	mg/L
VOLUME F	REMOVED:	<u></u>	LITERS	GALLONS	cc	DLOR:	<u>Clear</u>	<u> </u>	OD	OR: _	none
COLOR:		Clear	0	OOR: <u>1016</u>	_ FIL	TRATE	(0.45 um)	YES	X	NO	
		TURI	BIDITY				COLOR:		FIL	TRATE ODO	R:
NONE SLIGHT MODERATE VERY QC SAMPLE: MS/MSD DUP-											
DISPOSAL	METHOD:	✓ GROUN	ID 🗌 DRUM	OTHER	CC	OMMEN	TS:				
TIME	PURGE	PH	CONDUCTIVITY	ORP	D.O	. Т	URBIDITY	TEMPERA	TURE	WATER	CUMULATIVE
	RATE (ML/MIN)	(SU)	(umhos/cm)	(mV)	( mg/	L)	(NTU)	(°C)		LEVEL (FEET)	PURGE VOLUME (GAL OR L)
1228	200	7.19	783	16.8	1.74		18,16	13.		9.63	INITIAL
1233	200	7.28	759	-24,7	0.4	6 .	1.15	12.		9.63	l
1238	200	7.32	762	-59.6	0.2	1 5	5.11	12,		9.63	2
1238	200	7.34	760	-75.5	0.1	1 5	5,50	12.	7	9,63	3
1248	200	7,34	751	-80.3	0.00	L !	3,98	12.	4	9.63	4
1253	200	7.36	749	-90.6	0.1	2 /	2.94	12.	4	9.63	5
1258	300	7.37	747	-93,6	0.1		3,21	12.	2	9.63	6
1303	700	7.36	747	- 94.1	0.1	2 ?	3.03	12.	3	9.63	7
	IOTE: STAI	BILIZATION	TEST IS COM	PLETE WHEN 3	SUCCE	SSIVE	READINGS	ARE WITH	IN THE	FOLLOWIN	IG LIMITS:
pH: +/-		COND.: +/-		-	).O.: +/-		TURB: +/-		or =</td <td></td> <td>TEMP.: +</td>		TEMP.: +
BOTTI F	S FILLED	PRESERV	ATIVE CODES	A - NONE	B - HN	IO3	C - H2SO4	D - Na	OH	F - H	CL F-
NUMBER	1	TYPE	PRESERVAT			JMBER	1 1	TYPE		RESERVATI	
1	250 mL	PLASTIC	A			3	125 mL	PLASTIC		D	□ Y X N
3	125 mL	PLASTIC	А		+	<u> </u>	40 mL	VOA			
/	60 mL	VOA	A		<del></del>	2	1 L	PLASTIC		В	
3	125 mL	PLASTIC	В			~		***************************************			
3	125 mL	PLASTIC	С		N				-		
SHIPPING METHOD: Fedex DATE SHIPPED: 5-8-24 AIRBILL NUMBER:											

<b>?&gt;</b>	TRC
<b>*&gt;</b>	TRC

PROJECT	NAME:	CEC K	arn BAP/LI: 20	24 GW C	PR	EPARED		CHEC	KED
PROJECT	NUMBER	: 553814	.0001.0000	BY:	AW, (R)	JJ DATE: 5-0	1-24 BY: 1	北	DATE: SISTU
SAMPLE I	SAMPLE ID: DEK-MW-1500 2 WELL DIAMETER: 2" 4" 6" OTHER								
WELL MAT	WELL MATERIAL: ☑ PVC ☐ SS ☐ IRON ☐ GALVANIZED STEEL ☐ OTHER								
SAMPLE TY	/PE: [	☑ GW	□ ww □	SW 🗌 DI		LEACHATE	OTH	ER	
PURC	SING	TIME: 0	GSY DA	TE: 5-9-24	<u> </u>	SAMPLE	TIME: 10	31 D	ATE:5-9-24
PURGE METHOD		PUMP BAILER	PERISTALTIC F	PUMP				TIVITY: <u>)を</u> <u>のい</u> m	0 umhos/cm g/L
DEPTH TO	WATER:	7.00	T/ PVC		TURB	IDITY: 5.7	6 NTU		
DEPTH TO	воттом:		T/ PVC		<b>IX</b> NC	NE SLI	GHT	MODERATE	☐ VERY
WELL VOL	UME:	NA	LITERS	GALLONS	TEMP	ERATURE: <u>l</u>		FERROUS Fe	mg/L
VOLUME F	REMOVED:		LITERS	GALLONS	COLC	R: <u>Chenr</u>		ODOR: _	none
COLOR:	(	thear	OD	OR: <u>none</u>	FILTR	ATE (0.45 um)	YES	NO K	
MONE	[T] a		BIDITY	☐ VERY		ATE COLOR:	/MSD	FILTRATE ODO	EK-BAP
	SLIC		MODERATE  ID			MENTS:	/M2D	N DOP- U	EL DAL
DISPOSAL		U GROOM		OTHER	T COIVII	MENTO.			OURSULATIVE
TIME	PURGE RATE	PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMPERATU	RE WATER LEVEL	CUMULATIVE PURGE VOLUME
	(ML/MIN)	(SU)	(umhos/cm)	(mV)	( mg/L)	(NTU)	(°C)	(FEET)	(GAL OR L)
0956	200	7,47	क्षाह	~128.8	1.72	5.53	11.7	7.16	INITIAL
1001	200	7,44	812	-149, 6	0.69	5.19	11.1	7,16	<u> </u>
1006	200	7,43	810	-162.0	0.18	5.72	11.0	7.16	2
1011	200	7,41	801	-171.1	0.18	8.47	10.8	7.16	3
1016	200	7.40	799	- 177.9	0.18	6.02	11.0	7,16	4
1021	200	7.40	790	-185.1	0.18	6.39	11.1	7.16	5
1026	200	7,39	789	- 188.4	0.18	5.06	11.2	7.16	6
10 31	200	7.39	780	- 193,3	0,18	5.36	11,1	7.16	7
» _Д									
	l					DEADING.	ADE MUTUUM	TUE FOLLOWIN	IO I INNITO
<b>л</b> pH: +/-		COND.: +/-			).O.: +/- <b>0.</b>			THE FOLLOWIN	TEMP.: +
BOTTLE	S FILLED	PRESERV	ATIVE CODES	A - NONE	B - HNO3	C - H2SO4	D - NaOh	H E- H	CL F
NUMBER	SIZE	TYPE	PRESERVATI	VE FILTERE	ED NUM	BER SIZE	TYPE	PRESERVAT	IVE FILTERED
2	250 mL	PLASTIC	Α	<b>X</b>	N á	125 mL	PLASTIC	D	□ Y 🗷 N
2	125 mL	PLASTIC	А	□ Y <b>\</b>	N	40 mL		E	— □ <del>V</del> □ M
4	60 mL	VOA	Α	□ Y <b>X</b>	N 4	1 L	PLASTIC	В	□ Y <b> X</b> N
a	125 mL	PLASTIC	В	□ Y <b>X</b>	N				□ Y □ N
2	125 mL	PLASTIC	С	□ Y <b>X</b>	N				□ Y □ N
SHIPPING	METHOD:	Lub D	to off D	ATE SHIPPED:	5-	10-24	AIRBILL I	NUMBER:	
COC NUM	BER:			GNATURE:	10	M	DATE SIG	GNED:	5-15-24
1							F	_	

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PROJECT	NAME:	CEC K	arn BAP/LI: 20	24 GW C	PR	EPARED		CHECI	KED
		1: 553814	1.0001.0000	BY:		JJ DATE:	7-24 BY:	eh.	DATE: 5/15/24
SAMPLE I		- MW - 1		WELL DIAM		2" 4"		R	
SAMPLE T	YPE:	☑ GW	□ww □	SW 🗌 DI		LEACHATE	OTHE	R	
PURC	SING	TIME: 0	801 DA	TE: 5-9-2	<b>1</b> s	AMPLE	TIME: 08°	37 0/	TE:5-9-24
PURGE METHOD	. =	PUMP BAILER	PERISTALTIC P	UMP		<u>7,44</u> s <u>-37,4</u> m		IVITY: 116	
DEPTH TO	WATER:	9.80	T/ PVC		TURBI	DITY: 4.81	0 NTU		
DEPTH TO	воттом:		T/ PVC		Z√ NO			MODERATE	☐ VERY
WELL VOL	UME:	NA	LITERS	GALLONS	TEMPE	RATURE: 10	2.7 °C F	ERROUS Fe	mg/L
VOLUME F	REMOVED:	<u> </u>	X LITERS	GALLONS	COLO	R: <u>cleur</u>		DDOR:	une
COLOR:		cleur	OD0	DR: 102	FILTRA	TE (0.45 um)	YES	<b>∑</b> NO	
MONE	SLI	GHT 🗌	BIDITY MODERATE	☐ VERY		TE COLOR: MPLE: MS		DUP-	
DISPOSAL	METHOD:	☑ GROUN	ID DRUM	OTHER	COMM	IENTS:			
TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. ( mg/L)	TURBIDITY (NTU)	TEMPERATUR	E WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
0802	200	6.76	1014	74.1	3.02	4.51	10.5	10.02	INITIAL
0807	200	7,39	951	66.0	0.41	4.50	10.4	10,02	1
0812	200	7,38	1013	-14.4	0.40	5.33	10.5	10.02	2
0817	200	7.43	1060	-53.8	0.65	4.76	10.6	10.02	3
0877	300	7,43	1115	-74.7	0.68	4,27	10.7	10.02	4
0827	3000 3000	7.44	1139	- 79.8	0,65	1	10.9	10.02	\$
0832	200	7.44	1147	-85.7	0.60	4.68	10.6	10.02	6
0837		7.44	1166	- 87.4	0.58	4.80			7
0051	200		1100	~ D /\ 7	0,30	1.00	10.7	10.02	
week many almost and an arrange are made to									
	1075 074		TEOT 10 00145	LETE MUENO	01100500	VE DE ADINIO	ADE MUTUUM T		2.188770
pH: +/-		COND.: +/-	3 % ORP:		O.: +/- <b>0.3</b>			## FOLLOWING	TEMP.: +
BOTTLE	S FILLED	PRESERV	ATIVE CODES	A - NONE	B - HNO3	C - H2SO4	D - NaOH	E- HO	CL F
NUMBER	SIZE	TYPE	PRESERVATI			SER SIZE	TYPE	PRESERVATIV	/E FILTERED
1	250 mL	PLASTIC	Α	□ Y <b>[X</b> ]	N /	125 mL	PLASTIC	D	□ Y <b>&amp;</b> N
	125 mL	PLASTIC	A	□ Y <b>X</b>	N	40 mL	VOA	E	☐ Y ☐ N
2	60 mL	VOA	А	□ Y <b>(A</b> )	N	1 L	PLASTIC	В	☐ Y ☐ N
1	125 mL	PLASTIC	В	□ Y <b>∑</b>	N				□ Y □ N
1	125 mL	PLASTIC	С	□ Y <b>Y</b>	N				□ Y □ N
SHIPPING	METHOD;	has Dra	O OCC DA	TE SHIPPED:	5-11	2-24	AIRBILL N	UMBER:	
COC NUM				GNATURE:		1/2	DATE SIGI	 NED:	5-15-24

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PROJECT	NAME:	CEC K	arn BAP/LI: 2	2024 GW C	PR	EPARED		C	HECK	ED
		: 553814	.0001.0000	BY:	AW, (IK)	JJ DATE: \$ -	1-24 BY:	ER	C	DATE: 5/15/24
SAMPLE I WELL MAT	ERIAL:	MW ·  ☑ PVC ☑ GW	- <b> 5006</b>   ss	<u></u>	METER: 🗸	2"	ОТІ	HER		
PURC	SING	TIME: 11	) D	ATE: 5-9-2	4 8	SAMPLE	TIME:	138	DAT	E: 5-9-24
PURGE METHOD	. —	PUMP BAILER	PERISTALTIC	PUMP			<del></del>	CTIVITY:	109 9 mg/L	
DEPTH TO	WATER:	9,30	T/ PVC			IDITY: 3.15	NTU		<del></del>	
DEPTH TO	воттом:	_NM_	T/ PVC		☐ NC	NE SLI	GHT 🗌	MODERAT	E	VERY
WELL VOL	UME:	NA	LITERS	GALLONS	TEMP	ERATURE:	<u>11.8</u> °c	RERROUS	-Fe	mg/L
VOLUME F	REMOVED:		LITERS	GALLONS	COLO			ODOR:		none
COLOR:		Clear	0	DOR: none	_ FILTR	ATE (0.45 um)	YES	NO NO		
<b>X</b> NONE	SLI	GНТ 🗌	BIDITY MODERATE	☐ VERY		TE COLOR:	/MSD	FILTRATE DUP-	ODOR:	
DISPOSAL	METHOD:	✓ GROUN	ID DRUM	1 OTHER	COM	MENTS:				
TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVIT	Y ORP	D.O. ( mg/L.)	TURBIDITY (NTU)	TEMPERAT	LE/	TER /EL :ET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1113	200	7.65	1090	-71.5	3.77	14.25	12.5			INITIAL
1118	200	7.66	1079	-62.5	0.71	10.64	11.8			1
		7.67	1091	-93.5	0.13	4.68	11.8			2
1123	200	1,66	1092	-100.8		3.65	11.8			3
1128	200				0.14	<del></del>				4
1133	200	7.65	1092	-104.5	0.13	3.24	11.8			
1138	200	7.65	1095	-107.0	0,13	3.15	11.8	9,'	71	5
	OTE: STAE	BILIZATION	TEST IS CON	IPLETE WHEN 3	SUCCESS	IVE READINGS	ARE WITHIN	N THE FOLL	OWING	LIMITS:
pH: +/-		COND.: +/-	3 % ORF		D.O.: +/- <b>0.3</b> B - H <b>N</b> O3			= <b 10		EMP.: + 
NUMBER	1	TYPE	PRESERVA [*]	TIVE FILTERE		1	TYPE	PRESER	RVATIVE	FILTERED
1	250 mL	PLASTIC	A			125 mL	PLASTIC	-	)	□ Y A N
1	125 mL	PLASTIC	A			40 mL	VOA			
2	60 mL	VOA	A		<u> </u>		PLASTIC		3	□ Y (X) N
1	125 mL	PLASTIC	В		N A	-				□ Y □ N
	125 mL	PLASTIC	С		-		<u> </u>			□ Y □ N
SHIPPING	METHOD:	1	<u>'                                     </u>	DATE SHIPPED:			AIRBILL	. NUMBER:		
COC NUM	DED.			SIGNATURE:			DATES	IGNED:		

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PROJECT I	NAME:	CEC K	arn BAP/LI: 20	24 GW C	PR	EPARED		CHECK	(ED
PROJECT I	NUMBER	: 553814	1.0001.0000	BY:	ÁŴ,JK,	JJ DATE:5/8	BY: (	ER	DATE: 5/15/ey
SAMPLE ID	): OU	J-10	)	WELL DIAM	IETER: 🗸	2"	6" OTHE	ER	
WELL MATE	RIAL: [	✓ PVC	□ss □	IRON 🗌 GAL	VANIZED S	STEEL	□ отн	ER	
SAMPLE TY	PE: [	√ GW	□ww □	SW 🗌 DI		LEACHATE	ОТНЕ	ER	
PURG	ING	TIME: 10	DA حع <u>ح</u>	TE: 5/8/24	S	AMPLE	TIME: 10	DA DA	TE:5/8/74
PURGE METHOD:	_		PERISTALTIC F	PUMP	PH:	7.32 s		TIVITY: <u>968</u>	umhos/cm
DEPTH TO		BAILER	T/ D\/C		TURB		V DO:	<u> </u>	L
DEPTH TO								MODERATE	☐ VERY
WELL VOLU		17.73 NA	LITERS	GALLONS		ERATURE: 17		***************************************	
VOLUME RE			LITERS	GALLONS	COLO			FERROUS Fe	bne mg/L
COLOR:	Cla		<u> </u>	OR: None		ATE (0.45 um)		ODOR: <u>r</u> □ NO	W PUC
COLOR.	<u> </u>			OR. 100112	<del></del>				None
NONE	SLIC		BIDITY MODERATE	☐ VERY	-	TE COLOR: <u>L</u> AMPLE: MS		FILTRATE ODOR	- 100re
DISPOSAL I	METHOD:	☑ GROUN	ND 🗌 DRUM	OTHER	COM	MENTS: 1/55	wed me	tals coll	ected
TIME	PUR <b>G</b> E RATE	PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY		MATER	CUMULATIVE PURGE VOLUME
	(ML/MIN)	(SU)	(umhos/cm)	(mV)	( mg/L)	(NTU)	(°C)	(FEET)	(GAL OR
1028	200	7.51	1005	89.5	3.09	39.67	12.6	7.8-3	INITIAL
1033		7.46	1012	61.Z	1.16	52.11	12.7	8-30	1.0
1038		7.93	979	20.9	0.72	54.75	12.3	8.42	2.0
1043		7.38	950	-14.3	0.51	25.72	12,5	8.50	30
1048		7.36	937	_45.6	3.45	19.44	12.5	8.55	4.0
1053		7.35	928	-47.8	0.42	20.14	12.6	8.60	5.0
1058		7.34	916	-65.6	0-36	18.20	12.4	8.67	6.0
1103		7.33	910	-71.4	3.35	17.04	12.5	8.70	7.0
1108	4	7.32	908	-73.4	C: 33	17.98	12.4	8.70	4.0
NC	OTE: STAE	BILIZATION	TEST IS COMP	PLETE WHEN 3	SUCCESS	IVE READINGS	ARE WITHIN	THE FOLLOWING	LIMITS:
pH: +/- <b>0</b>	).1 (	COND.: +/-	3 % ORP:	+/- <b>10</b> D	.O.: +/- <b>0.3</b>	TURB: +/-	<b>10</b> % or	= 10</td <td>TEMP.: +</td>	TEMP.: +
BOTTLES	FILLED	PRESERV	ATIVE CODES	A - NONE	B - HNO3	C - H2SO4	D - NaOH	E- HC	L F
NUMBER	SIZE	TYPE	PRESERVATI	VE FILTERE	D NUME	BER SIZE	TYPE	PRESERVATIV	E FILTERED
	250 mL	PLASTIC	А	<b>               </b>	N \	125 mL	PLASTIC	D	□ Y <b>X</b> N
	125 mL	PLASTIC	А		N	40 mL	VOA	E	□ Y □ N
て	60 mL	VOA	А		N 2	1 L	PLASTIC	В	□ Y <b>X</b> N
1	125 mL	PLASTIC	В	<b>□</b> Y <b>X</b>	N )	125	Plastic	13	<b>⋈</b> Y □ N
	125 mL	PLASTIC	С		N				□ Y □ N
SHIPPING M	/IETHOD:	Fed-E	X D/	ATE SHIPPED:	5/8/2	24	AIRBILL N	IUMBER:	
COC NUMBI	ER:			GNATURE:	Awk	1 -	DATE SIG	SNED: 5	(10/24

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PROJECT	NAME:	CEC K	arn BAP/Li: 20	)24 GW C	PR	EPARED		CHEC	KED
PROJECT	NUMBER	: 553814	1.0001.0000	BY:	AV), JK,	JJ DATE: 5/6	Plzy BY: E	K	DATE 5/15/29
SAMPLE II	D:/2W	-1(		WELL DIAM	ETER: 🗸	] 2" 🔲 4" 🔲	6" OTHE	R	
WELL MATE	ERIAL: [	√ PVC	ss 🗌	IRON GAL	VANIZED	STEEL	OTHE	R	
SAMPLE TY	'PΕ: [	√ GW	□ ww □	SW 🗌 DI		LEACHATE	OTHE	R	
PURG	SING	TIME: 12	16	TE:5/8/24		SAMPLE	TIME: 124	'6 DA	ATE: 5/8/24
PURGE METHOD		PUMP BAILER	PERISTALTIC	PUMP	PH: ORP:	9.53 s		1VITY: 384 2,10 mg	
DEPTH TO			T/ PVC		TURB	IDITY: 6.10	NTU		
DEPTH TO		4 . 1	T/ PVC Tr	25,47	- DE NO	NE SLI	— GHT □ N	ODERATE	☐ VERY
WELL VOLU		NA NA	LITERS	GALLONS	TEMP	ERATURE: 15	`. <b>8</b> ' ℃ F	ERROUS Fe	mg/L
VOLUME R		2.0	LITERS	GALLONS	COLC	/.	-	DOR:	None
COLOR:	Gr		DUNE OF	OR: None	FILTR	ATE (0.45 um)	YES		
		7	BIDITY			ATE COLOR:	i li	ILTRATE ODOR	k:
NONE	SLIC	GНТ □	MODERATE	🔀 VERY			/MSD [	DUP-	
DISPOSAL	METHOD:	✓ GROUN	DRUM	OTHER	сом	MENTS: F3.	- hL1		
TIME	PURGE	PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMPERATUR	_E WATER	CUMULATIVE
I IIVIE	RATE (ML/MIN)	(SU)	(umhos/cm)	(mV)	( mg/L)	(NTU)	(°C)	LEVEL (FEET)	PURGE VOLUME (GAL OR 🙆
1216	1001	. )	448.2	69.4	2.827	240.22	15.1	74.25	INITIAL
1	<del>200</del>	048.48°			2.19				+
1221		9.18	399.9	66.4		658.20		25.30	1.00.5
1226	N	CY ,	adsost	tubing a		-	recharge	turbidit	7 7 - 0
1231		9.54	557.9	76.3	2.60	38.46	15.4		5.020
1236	- D	[W	ait f	06 650	horge				1.0
1241		19.53	554.0	64.1	2,10		15.8	24.70	1.5
1246	- 1.	N.	collect	Sample	af	ter r	echarge	25.30	20
		(							
	Sax	mple	collect	ion fir	rished	( @ 1	350 0	lue to	well
	90	ina	day						
N	0	: 3	7	PLETE WHEN 3	SUCCESS	IVE READINGS	ARE WITHIN T	HE FOLLOWING	G LIMITS:
pH: +/-	0.1	COND.: +/-	3 % ORP	: +/- <b>10</b> D	.O.: +/- <b>0.</b> :	3 TURB: +/-	<b>10</b> % or <	= 10</td <td>TEMP.: +</td>	TEMP.: +
BOTTLES	S FILLED	PRESERV	ATIVE CODES	A - NONE	B - HNO3	C - H2SO4	D - NaOH	E- HC	CL F
NUMBER	SIZE	TYPE	PRESERVAT	IVE FILTERE	D NUM	BER SIZE	TYPE	PRESERVATI	
1	250 mL	PLASTIC	A		N	125 mL	PLASTIC	D	□ Y 🖄 N
1	125 mL	PLASTIC	А	□ Y <b>□</b>	N	40 mL	VOA	E	□ Y □ N
2	60 mL	VOA	А	□ Y <b>\</b>	N S	2 1 L	PLASTIC	В	□ Y 🗷 N
1	125 mL	PLASTIC	В	□ Y 🔯	N				□ Y □ N
1	125 mL	PLASTIC	С	□ Y <b>⊠</b>	N				□ Y □ N
SHIPPING	METHOD:	Fed-	EX D	ATE SHIPPED:	5181		AIRBILL N	UMBER:	
COC NUMI	BER:			IGNATURE:	A. w	link -	DATE SIG	NED:	5/10/24
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PROJECT	NAME:	CEC K	arn BAP/LI: 20	)24 GW C	PR	EPARED		CHEC	KED
PROJECT	NUMBER	: 553814	1.0001.0000	BY:	AW (IK)	JJ DATE: 5-9	-24 BY:	EL	DATE: S/15/24
SAMPLE I	D: (	)W-12		WELL DIAM	ETER: 🗸	2"	6" OTHE	R	
WELL MAT	ERIAL:	√ PVC	ss	IRON GAL	VANIZED S	STEEL	OTHE	R	
SAMPLE T	YPE:	☑ GW	ww	SW DI		LEACHATE	ОТНЕ	R	
PURC	SING	TIME: 13	L08 DA	TE: 5-9-29	/ s	AMPLE	TIME: 12		ATE: 5-9-24
PURGE METHOD	· _		PERISTALTIC I	PUMP	PH:	7,14 s		. 15	umhos/cm
		BAILER			<del></del>	-80.9 m	v  do: _ <b>Y</b> ntu	0.23 mg	/L
DEPTH TO		18.25 NM			TURBI		<del></del>	MODERATE	☐ VERY
	BOTTOM:		T/ PVC	☐ GALLONS			<u> </u>		
WELL VOL	REMOVED:	NA. <b>7</b>	LITERS	GALLONS	COLO			ERROUS Fe	10~C
COLOR:		range		OR: <b>none</b>		TE (0.45 um)		<u></u> <b>X</b> NO	<del></del> .
GOLOIT.			BIDITY	OIX. 7001-C		TE COLOR:		FILTRATE ODOR	
NONE	SLI		MODERATE	🔀 VERY			/MSD [	DUP-	·· <u> </u>
DISPOSAL	METHOD:	✓ GROU	ND DRUM	OTHER	COMM	IENTS:			
TINAT	PURGE	PH	CONDUCTIVITY	ODD		TURBIDITY	TEMPEDATUS	_ WATER	CUMULATIVE
TIME	RATE			ORP (m)0	D.O.		TEMPERATUR	LEVEL	PURGE VOLUME
1210	(ML/MIN)	(SU) 7,29	(umhos/cm)	(mV) -23.6	(mg/L) 3.78	(NTU) 360.52	L3, 3	(FEET)	(GAL OR L) INITIAL
1215	200	7.28	977	- 38.4	0.75	110.70	12.9	18,32	)
1220		7.19	1069	-58.4	0,28	47.34	12.7	18.32	2
1225	200 200	7.16	1136	t	0.27	26.04	12.6	18.32	3
1230	200		1157	<u> </u>	0,27	16.65	12.6	18.32	4
		7.16	1180	l	<del>-</del>	10.93	12.6	18.32	S
1235	300	7.15			0.26	<del></del>	12.5		6
1240	200	7.14	1194		0,26	6.80		18.32	6
1245	200	7.14	1199	- 80,9	0,25	5.74	12.5	18.32	
~** ***********************************									
				PLETE WHEN 3					
pH: +/-	0.1	COND.: +/-	3 % ORP:	+/- <b>10</b> D.	O.: +/- <b>0.3</b>	TURB: +/-	10 % or <	=   10<br	TEMP.: +
BOTTLE	S FILLED	PRESERV	ATIVE CODES	A - NONE	B - HNO3	C - H2SO4	D - NaOH	E- HC	CL F
NUMBER	SIZE	TYPE	PRESERVATI		NUMB	ER SIZE	TYPE	PRESERVATIV	/E FILTERED
	250 mL	PLASTIC	Α		N /	125 mL	PLASTIC	D	□ Y 🔯 N
1	125 mL	PLASTIC	A		N	40 ml	¥0A	E	- DY DN
2	60 mL	VOA	А		N 2	1 L	PLASTIC	В	□ Y X N
1	125 mL	PLASTIC	В		N				□ Y □ N
	125 mL	PLASTIC	С		N				□ Y □ N
SHIPPING	METHOD:		D	ATE SHIPPED:			AIRBILL N	UMBER:	
COC NUM	DED:		91	GNATURE:			DATE SIG	NED:	

#### TRC

										14.10
PROJECT	NAME:	CEC K	arn BAP/LI: 2	2024 GW C		PRE	PARED		CHE	CKED
PROJECT	NUMBER	: 553814	1.0001.0000		BY: (Ā	yy jk, j	DATE:518	124 BY:	ER	DATE: 5/15/24
SAMPLE	D: DEh	-Mw-	15003	WELL C	DIAMET	ER: 🗸 :	2"	6" OTH	ER	
WELL MAT	ERIAL:	✓ PVC	ss [	] IRON 🗌	GALVA	NIZED S	ΓEEL	□ отн	ER	•
SAMPLE TY	/PE:	√ GW	□ww [	]sw 🗆	DI	L	EACHATE	□ отн	ER	
PURG	SING	TIME: 14	D/ [	PATE: 5/8	124	SA	MPLE	TIME: 144	4	DATE:5/8/24
PURGE	<u></u>	PUMP	PERISTALTIC	PUMP		PH:	<b>S.O</b> s	U CONDUC		umhos/cm
METHOD	):	BAILER				ORP:	<b>-486</b> m	V DO:	0.56 n	ng/L
DEPTH TO	WATER:	18.95	T/ PVC			TURBIC	)ITY: <b>3.</b> ∞	NTU		y programment groups (groups mangeres, g. r. a. p. de arrente mangeres militable). Edite de mente de correda plante e
DEPTH TO	воттом:	NA	T/ PVC TO	an Slucex	_	[X] NOV	IE 🗌 SLI	GHT	MODERATE	☐ VERY
WELL VOL	UME:	NA	LITERS	GALLO	NS	TEMPE	RATURE:	<u>8.9</u> °c	FERROUS Fe	mg/L
VOLUME F	REMOVED:	8.0	K LITERS	☐ GALLO	NS	COLOR	Clear	·	ODOR:	None
COLOR:	Cle	?ત <b>૧</b>		DOR: NOM	2	FILTRAT	ΓE (0.45 um)	YES	<b>I</b> NO	
		TURI	BIDITY			FILTRAT	E COLOR:		FILTRATE ODG	OR:
NONE	SLI	ЗНТ 🗌	MODERATE	☐ VEF	₹Y	QC SAN		/MSD	DUP-	<u>CLI</u>
DISPOSAL	METHOD:	✓ GROUN	ND DRUM	/ OTHER	₹	COMME	ENTS: Radio	m Dup	also co	llected
TIME	PURGE	PH	CONDUCTIVIT	Y ORP		D.O.	TURBIDITY	TEMPERATU	RE WATER	
	RATE (ML/MIN)	(SU)	(umhos/cm)	(mV)	-   (	mg/L)	(NTU)	(°C)	LEVEL (FEET)	PURGE VOLUME (GAL ORU)
1404	200	810	4 388 6	86.4	اح.	60	40.2	14.6	18.95	
1409	<b>^</b>	7.73	377.0		1	74	5.94	18.6	20.40	1.0
1414		7.72	380.5	71.1		41	4.97	19.Z	20.48	2.0
149	7.88	9.78	3812	4.45		02	4.54	18.3	20.5	1 3.0
1424		7.99	387.7	3.1	0	.76	3.64	18.9	20.70	4.0
1429		8.03	394.4	-10.7	C	.74	3.38	19.1	20.76	5.0
1434		8.05	397.6	-384	1	.67	341	19.4		6.0
1439		8.06	4	-42.	- 1	2.62	3.11	14.3		7.0
1444	<b>*</b>	8.09	393,0	-48.		.56	3.00	18.9	V	8.0
N	IOTE: STAE	BILIZATION	TEST IS CO	IPLETE WHE	N 3 SU	CCESSIV	/E READINGS	ARE WITHIN	THE FOLLOWI	NG LIMITS:
pH: +/-		COND.: +/-		P: +/- <b>10</b>		+/- 0.3	TURB: +/-		= 10</td <td>TEMP.: +</td>	TEMP.: +
BOTTLES	S FILLED	PRESERV.	ATIVE CODES	A - NONE	В-	HNO3	C - H2SO4	D - NaOl	- E- I	HCL F-
NUMBER	SIZE	TYPE	PRESERVA		ERED	NUMBE	· · · · · · · · · · · · · · · · · · ·	TYPE	PRESERVA	
2	250 mL	PLASTIC	A		N 🔀	Z	125 mL	PLASTIC	D	□ Y X N
7	125 mL	PLASTIC	A		X) N		40 mL	VOA	E	
4	60 mL	VOA	A		X N	4	1 L	PLASTIC	В	□ Y X N
2	125 mL	PLASTIC	В		<b>X</b> N	7			-	
2	125 mL	PLASTIC	С		<b>X</b> N					
		<u> </u>			<u> </u>	181		1		<u>                                     </u>
SHIPPING	METHOD:	Fed	EX	DATE SHIPPE	ED: <u>5</u>	18/29	/	AIRBILL I	NUMBER:	
COC NUM	DED.			SIGNATURE	1		ľ	DATE SI	NED.	Chal-11

<b>{}</b>	Ti	2	C
_			

PROJECT	NAME:	CEC K	arn BAP/LI: 20	24 GW C	PF	REPARED		CHEC	KED
			1.0001.0000			JJ DATE:57	N/ZA BY:		DATE: 5/15/24
		, N		1					118/24
SAMPLE I		1-PC	 □ss □	IRON GAL		] 2"	6" ОТН		
SAMPLE T		Ø PVC ØW			VANIZED	LEACHATE	Потн	30.70	e water
PURC					, , ,	SAMPLE			ATE:
		PUMP	PERISTALTIC F	TE:5/8/24	PH:	^-	U CONDUC	CTIVITY: (e/2	ATE: \$5/8/24 2 umhos/cm
PURGE METHOD	. =	BAILER	Sanfle				N DO:	9.90 mg	
DEPTH TO			T/ PVC				3 NTU		
DEPTH TO	BOTTOM:	NA	T/ PVC		IX NC	ONE SLI	GHT	MODERATE	☐ VERY
WELL VOL	UME:	NA	LITERS	GALLONS	TEMP	ERATURE:	<b>4.6</b> °c	FERROUS Fe	mg/L
VOLUME F	REMOVED:		LITERS	GALLONS	COLC		<u></u>	ODOR: _	None
COLOR:		leas		or: Whe		ATE (0.45 um)	YES	<b>☑</b> NO	
 	<b>∑</b> s⊔		BIDITY	☐ VERY		ATE COLOR: AMPLE: MS	/MSD	FILTRATE ODO	રઃ
DISPOSAL		GHI U	MODERATE  ND	OTHER		MENTS:	MAIOD		
	PURGE						<u> </u>	WATER	CUMULATIVE
TIME	RATE	PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMPERATU	LEVEL	PURGE VOLUME
1545	(ML/MIN)	(SU)	(umhos/cm)	(mV) <b>44-6</b>	(mg/L)	(NTU)	(°C)	(FEET)	(GAL OR L)
1550	NA NA	8.71	617		9.90	9.23	18:6	NA	
1 3 40	N.#	3.11	<u> </u>	104.0	7.70	1.23	(116	19 //	
				***************************************	······································				
					**************************************				
					*****				
	***************************************								
	vanamajara vent ventindet kuliki								
					<u> </u>				
N	NOTE: STAI	BILIZATION	TEST IS COMF	LETE WHEN 3	SUCCESS	SIVE READINGS	ARE WITHIN	THE FOLLOWIN	IG LIMITS:
pH: +/-	0.1	COND.: +/-	3 % ORP:	+/- <b>10</b> D	O.: +/- <b>0.</b>	3 TURB: +/-	<b>10</b> % or	= 10</td <td>TEMP.: +</td>	TEMP.: +
BOTTLE	S FILLED	PRESERV	ATIVE CODES	A - NONE	B - HNO3	C - H2SO4	D - NaOl	H E- H	CL F
NUMBER	SIZE	TYPE	PRESERVATI	VE FILTERE	D NUM	BER SIZE	TYPE	PRESERVATI	VE FILTERED
1	250 mL	PLASTIC	Α		N	125 mL	PLASTIC	D	□ Y 🔀 N
	125 mL	PLASTIC	А		N	40 mL	VOA	Е	□ Y ¥ N
2	60 mL	VOA	А		N	1 L	PLASTIC	В	☐ Y ☐ N
	125 mL	PLASTIC	В		N				□ Y □ N
	125 mL	PLASTIC	С		N				□ Y □ N
SHIPPING	METHOD:	Fed	-EX DA	ATE SHIPPED:	518	124	AIRBILL	NUMBER:	/
COC NUM	BFR:			GNATURE:	A ./	14	DATE SI	GNED:	5110/74

Consumers Energy Count on Us*  Count on Us*  Count on Us*  Count on Us*  Count on Us*  Count on Us*  Count on Us*  Count on Us*  Count on Us*  SAMPLING SITE / CUSTOMER:  COPY TO:  LAB SAMPLE COLLEC  LAB SAMPLE ID DATE  24-0343-01 -02 -03 5/8/34  -04 -05 5/8/34  -05 5/8/34  -06 5/8/34  COBSTRICT  COPY TO:  Harold Register  TRC  SAMPLE COLLEC  SAMPLE COLLEC  SAMPLE COLLEC  SAMPLE OLLEC  SAMPLE COLLEC  SAMPLE C	Count on Us®  JSTOMER: Background Wells  Background Register TIRC  SAMPLE COLLECTION DATE DATE TIME 5/6/34 (45) 5/6/34 (46) 5/6/34 (46)  5/6/34 (46)		$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	CONSUMERS ENERGY COMPANY — LABORONSUMERS ENERGY COMPANY — LABORONSUMERS ENERGY COMPANY — LABORONSUMERS ENERGY COMPANY — LABORONSUMERS — SAPCC or WO#:  24-0343	TOTAL  Waste  Waste  Waste  TION  TOTAL  3 2 1 H H2SO 4 H2SO 5 1 1 3 2 1 1 1 3 2 1 1 1 1 1 1 1 1 1 1 1	ABORATORY SERVICES    1	× × × × × Total Metals  Yellow	× × × × × Anions  × × × × × TDS  RVIC	ANALYSIS REQUESTED  ANALYSIS REQUESTED  X X X X X TDS  TDS  Anions  X X X X X X X X X X X X X X X X X X X		Page of Of OA REQUIREMENT:  QA REQUIREMENT:  NPDES  NINI  ISO 17025  INTERNAL INFO  OTHER  REMARKS
	18124		GW	MW-15016	w	2		-			
	le lay		GW	MW-15019	44	2	<b></b>	+			
	3/8/DL	1	GW	DUP-Background	(,)	2	-	+			
	! !	1091	W	FB- Background			×				
									`		
RELINQUISHED BY:		ַם	DATE/TIME:		RECEIVED BY:	-	COM	COMMENTS:		:	
	Si	101	124	(774)	4.						
RELINQUISHED BY:	)	ם	DATE/TIME:	, i	RECEIVED BY:		Temp	Received on Ice? Temperature:	°C	Cal. Due	Cal. Due Date:

## **Eurofins Cleveland**

180 S. Van Buren Avenue Barberton, OH 44203

## **Chain of Custody Record**

💸 eurofins | Environment Testing

l	Company	ā	raig:	"	neceived by.	Company	ς		Date/Time:		Reinquished by:
2	Company	1100		10/0/	Book and the	-	01	0	5/10/24		
	Company	me/. o/ - u	Date/Time	fills in	Received by:	Company	¹		Date/Time:		Relinquished by:
P°		Ħ	Method of Shipment:		ē:	Time:		Date:		,	Empty Kit Relinquished by:
			ıts:	Special Instructions/QC Requirements:	Special Instruct	(0)					32
01	Months	ient Disposal By Lab Archive For Mont	isposal By Lab	o Client ( )D	Return To Client		Radiological		on B Unknown	able Skin Irritant Poison B	☐ Non-Hazard ☐ Flammable
2	an 1 month)	are retained longer th	ssessed if samples	sal ( A fee may be a.	Sample Dispo	S			7	מכ	Possible Hazard Identification
#											
<del>'                                    </del>		Tall Car									
d		Santa Partiti Partiti				-					
<u> </u>		****									
<u> </u>		Lice				Water					
		Ø.			47.7	Water &	e	100g	sle 125		EQ-Backgroud
J		V			ナル	Water し	e	}	5/6/24		DUP-Background
1		(0)			ラグナ	Water 1	6	i Ling	5/15/24		MW-15019
<u> </u>					7 +	Water ル	6	1452	5/8/24		MW-15016
<u> </u>					シナナ	Water N i	6	1315	he1915		MW-15008
		<b>W</b>			シナナ	Water ►	6	1451	48/8/5		MW-15002
1998		×				onicode X	TEON.				
	Special Instructions/Note:				903.0, 904.0	Eleid)	<u> </u>		Sample Date		Sample Identification
		Numbe		-	Ra226R Ra226R	Matrix Filtered	Sample Type				
<del>!</del>		cof/co			228_G				SSOW#:		Site:
		ntain	-		FPC				Project #: 24024154	nd Well	Project Name: Karn/Weadock CCR Background Well
		ers.							WO #		Email: JKrenz@trccompanies.com
									PO#: TBD	022(Fax)	Phone: 734-971-7080(Tel) 734-971-9022(Fax)
							No	ect: A Yes A No	Compliance Project:		State, Zip: MI, 48108-7080
								days):	TAT Requested (days):		City: Ann Arbor
	cours.	D-HNO3						ted:	Due Date Requested:	7	Address: 1540 Eisenhower Place
_			uested	Analysis Requested			PWSID:			n.	Company: TRC Environmental Corporation.
		Page 1 of 1	state of Origin:		E-Mail: Kris.Brooks@et.eurofinsus.com		2716	207	アとら		Client Contact: Jacob Krenz
	-33282.1	240-120140-33282.1	Control Harming rector.		úis M	Brooks, Kris M	JASSC	5	Sampler STACK		Client Information
		COC No.	Carrier Tracking No(s):			25.004					Phone: 330-497-9396 Fax: 330-497-0772

				CHAIN (	CHAIN OF CUSTO	ODY							
Consumers Energy	<b>Energy</b> Count on Us®			CONSUMERS ENERGY COMPANY – LA  135 WEST TRAIL ST., JACKSON, MI 49201	- <b>LABO</b>	<b>RATORY</b> (517) 788-1251	SE	RV)		Š			Page of
AMPLING SITE / CUSTOMER:	TOMER:			PROJECT NUMBER:	SAP CC or WO#:		_	ANAI	YSIS	SRE	ANALYSIS REQUESTED	!	OA REOUTREMENT:
22-2024 DEK Lined Impoundment	[mpoundment			24-0341	REQUESTER: Harold Register	er	(Att	ach Li	st if M	fore S	(Attach List if More Space is Needed)	] B	
AMPLING TEAM:		!		TURNAROUND TIME REQUIRED:									☐ NPDES
<b>&gt;</b>	A STORY			□ 24 HR □ 48 HR □ 3 DAYS □ STANDARD	NDARD 🛭 OTHER								⊠ TNI
SEND REPORT TO:	Joseph Firlit			email:	phone:								□ ISO 17025
COPY TO:	Harold Register	H			CONTAINERS	INERS					<u></u>		☐ 10 CFR 50 APP. B
	TRC			WW = Wastewater SL = Sludge W = Water / Aqueous Liquid A = Air	ŧ	PRESERVATIVE	etals			,			☐ INTERNAL INFO
LAR	SAMPLE COLLECTION	CTION	RIX	S = Soil / General Solid $WP = Wipe$ $O = Oil$ $WT = General Waste$	<b>ΓΑL</b> #	)H )H et	al Mo	monia	S	alinity	fide		□ OTHER
SAMPLE ID	DATE	TIME	MAT	FIELD SAMPLE ID / LOCATION		NaC HCl MeC Oth	-	-	TD	Alk	Sui	-	REMARKS
24-0341-01	518124	HHH	GW	DEK-MW-15003	7 4 1 1	<b>-</b>	×	×	×	×	×		
-02	51847	108	GW	OW-10	7 4 1 1	1	×	×	×	×	×		
-03	818/24	1246	GW	OW-11	7 4 1 1	<u> </u>	×	×	×	×	×		
-04			GW	OW-12	7 4 1 1	<b>-</b>	×	×	×	×	×	-	
-05			₩	KLI-SCS	7 4 1 1	Н	×	×	×	×	*	-	
-06	518/24	1550	SW	KLI-PCS	7 4 1 1	<b>⊢</b>	×	×	×	×	×		7
.07			WS	SW-DI1CH	7 4 1 1	F-	×	×	×	7	*	+	Dry
-08	5/8/24	1	GW	DUP-KLI	7 4 1 1	<b>—</b>	×	×	×	×	×	-	
-09			₩	EB-KLI	4 1 1 1	<b>-</b>	×	×			×		
-10	518124	1296	*	FB-KLI	4 1 1 1	<u></u>	×	×			×	<u> </u>	
RELINQUISHEDBY:	*		DATE/TIME:		RECEIVED BY:		COMMENTS:	ENT	Ş.				
(and)	Mul	, ,	5/8/24	1700	red-EX							2	± 018402
VELINQUISHED BY:		н	DATE/TIME:		RECEIVED BY:		Receiv	ed on	Ice? [	· Ye	ő	\\\! \\\\!	M&IE#: COSTA
43-F2H	ል መ		14. 25.G	1120	CASRED SCHOLLY		l emperature:	rature				1 2	Cai. Due Daw.

	Cal. Due Date:		Temperature:									
	M&TE #:	Ice? □ Yes □ No	Received on Ice?			RECEIVED BY:	감	IME:	DATE/TIME:			RELIMQUISHED BY:
LE		Si	COMMENTS:			RECEIVED BY:	RE	S-10-24/0759	DATE/TIME:		N	RELINQUISHED BY:
7"												
ን												
Σ.		×	×	1	4 1 1 1			FB-KLI	¥			10
# 6		×	×	<u> </u>	4 1 1 1			EB-KLI	₩	30%)	J-9-24	-09
5		×	×		7 4 1 1			DUP KLI	GW.			88
		*	×		7 4 1 1			SW-DITCH	MAS			-07
		*	* *		7 4 1 1			KEFPCS	W.S.			-06
1		× × ×	× ×	1	1			KLI-SCS	W			
		× × ×	× × ×	-	7 4 1 I			OW-12	GW	1245	ht-6-5	-04
<u> </u>		X	*		7 4 1 1			OW-11	GW			03
		×	×		7 4 1 1			0W-10	G₩			-02
,		* *	***	-	7 4 1 1			DEK-MW-15003	C#F			24-0341-01
I	REMARKS	TDS	Ani	MaOI HCl MeO	None HNO H ₂ SC	,		FIELD SAMPLE	MATI	TIME	DATE	SAMPLE ID
	□ OTHER	alinity	al Me ons	Н	3 ) ₄			S = Soil / General Solid O = Oil	RIX	LECTION	SAMPLE COLLECTION	LAB
	☐ INTERNAL INFO			PRESERVATIVE	T			WW = Wastewater W = Water / Aqueous Liquid			TRC	
	□ 10 CFR 50 APP. B			NERS	CONTAINERS			MATRIX CODES:  GW = Groundwater		ter	Harold Register	COPY TO:
	☐ ISO 17025					phone:		email:			Joseph Firlit	SEND REPORT TO:
	⊠ TNI	-				STANDARD SOTHER		□ 24 HR □ 48 HR □ 3 DAYS				
	□NPDES						RED:	TURNAROUND TIME REQUIRED:				SAMPLING TEAM:
	ded)	(Attach List if More Space is Needed)	(Attach L	ī	arold Registe	REQUESTER: Harold Register		24-0341			l Impoundment	Q2-2024 DEK Lined Impoundment
-	=	ANALYSIS REQUESTED	ANA			SAP CC or WO#:		PROJECT NUMBER:			JSTOMER:	SAMPLING SITE / CUSTOMER:
L	Pageof	ICES	<b>ORATORY SERVICES</b> • (517) 788-1251	<b>PRATORY</b> (517) 788-1251	<b>ABOR</b> 901 • (51	RS ENERGY COMPANY – LA 135 WEST TRAIL ST., JACKSON, MI 49201	GY CO	CONSUMERS ENERGY COMPANY – LAB 135 WEST TRAIL ST., JACKSON, MI 49201	CON		Energy Count on Us*	Count on Us
_L				ODY		CHAIN OF CUST	Z	CHA				•

Eurofins Cleveland  180 S. Van Buren Avenue Barberton, OH 44203 Phone: 330-497-9396 Fax: 330-497-0772  Client Information Client Contact Jacob Krenz	Sampler A. whole	nain of C	Chain of Custody Record  Lab PM: Brooks, Kris M  E-Mail: Kris.Brooks@et	Record  Lab PM: Brooks, Kris M  E-Mail: Kris. Brooks@et.eurofinsus.com	MICHIGAN 150 Carrier Tracking No(s): State of Origin:		COC No. 240-120144-29054.1 Page: Page 1 of 1	Environment Testing
Company: TRC Environmental Corporation.		PWSID:		Ar	Analysis Requested		300 #.	
Address: 1540 Eisenhower Place	Due Date Requested:						Preservation Codes: D - HNO3	9:
City: Ann Arbor	TAT Requested (days):							
State, Zip: MI, 48108-7080	Compliance Project: A Yes A	A Yes A No						
Phone: 734-971-7080(Tel) 734-971-9022(Fax)	TBD 215951	15					<del></del>	
	1 2			-		8		
Project Name:	Project#:			07N 3		ilner		
Kam/Weadock CCR DEK Lined Impoundment	24024154			(03) FPC		onta		
Site:	SSOW#:			ISD ((Y 228_G		r of co	Other:	
			ple Matrix e (W-water,	i Filtered orm MS/N o, Re226Re o - Standar		al Numbe		
Sample Identification	Sample Date	Time G=grab)	ab)   87-7-8-80, A-Ar)	Per 903		То		Special Instructions/Note:
		Pres	Preservation Code:	XOO		7		
DEK-MW-15003	1 82833	944 6	Water	シュメメ		2		
OW-10		168 6	Water	Σ Σ Χ		2		
OW-11	_		Water	NXX		2		
OW-12	5-9-24 1	1345 G	Water	<u> </u>		72		
DUP-KLI	518124	- G	Water	2 W X X		2		
EB-KLI		1300	Water			2		
			Water			2	1	
			Water				MICH	HIGAN
							10	<b>あ</b>
				240-204355	Chain of Custody			رة وا
] [		]		Sample Lispusai ( A	nee may be assessed it samples are retained longer than 1 month)	r sampies are retain	ed longer than 1 m	
\ \ \	Poison B Unknown	1	gicai	Special Instructions/OC Requirements	Requirements:	V. Cab	illed LO	100,000
Technical Conference is in in its Carri (openit) 7 RC	603					a contract		
Empty NI Relinquished by:	lui	Date:	6	ime:	Menno	Method of Organica		
reinquisi do of	5-10-24	24/1010	i	l <b>`</b>	reto	Stroky	/o://D	THE IS
Relinguished by:	S/10/24	10.70		ISS	CARIGBON	11	24 080D	ででするつ
_	Cate) ime:		Company	Received by:		Cato inic.		
Custody Seals Intact Custody Seal No.:				Cooler Temperature(s)	°C and Other Remarks:			

Ver: 06/08/2021

		LS	す	• 7	λΣ -	# 6								· ·	8		√FO	P. B				TEN I:			
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Cal. Due Date:	M&TE#:									,									•			leeded)	ED		
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	ELINQUISHED BY:	ELINOURSHED BY:							-06	-05	-04	-03	-02	24-0339-01	SAMPLE ID	LAB		COPY TO:	SEND REPORT TO:		SAMPLING TEAM:	DEK Bo	G SITE	nsume	
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# **Eurofins Cleveland**

180 S. Van Buren Avenue

Barberton, OH 44203 Phone: 330-497-9396 Fax: 330-497-0772

**Chain of Custody Record** 

MICHIGAN 190

eurofins :

| Environment Testing

Ann Arbor State, Zip: MI, 48108-7080 Possible Hazard Identification
Non-Hazard Flammable EB-DEK-BAP DUP-DEK-BAP-01 DEK-MW-15006 DEK-MW-15005 DEK-MW-15002 Sample Identification 1540 Eisenhower Place Empty Kit Relinquished by Deliverable Requested: I, II, III, IV. Other (specify) JKrenz@trccompanies.com Company:
TRC Environmental Corporation. Client Information 734-971-7080(Tel) 734-971-9022(Fax) lacob Krenz arn/Weadock CCR DEK Bottom Ash Pond elinquished by: Custody Seal No.: Skin Irritant Poison B PO# TBD WO# 553814.0001 Project #: 24024154 10-01-5 Trues Date/Time: Compliance Project: A Yes A No Due Date Requested: アイ・テン TAT Requested (days): 5-4-24 ht-6-24 75-4-2 75-5-5 Unknown Date: 1230 1200 03 25.1 Radiological 1010 Preservation Code: (C=comp, G=grab) Type 6 9 6 C Company Company Water Matrix Water Water Water Water Water Lab PM: Brooks, Kris M E-Mail: Kris.Brooks@et.eurofinsus.com Time: <u>ح</u> Field Filtered Sample (Yes or No) 3 Z × Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Mont 2 Partorin MSIMSD(YCSOV(D)) Special Instructions/QC Requirements: ス × RECORDINATE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SE አ 903.0, Ra226Ra228_GFPC Received by: Cooler Temperature(s) °C and Other Remarks: 240-204357 Chain of Custody × >< 904.0 - Standard Target List Analysis Requested Carrier Tracking No(s): Method of Shipment カールシム DateTime: SIRO 2024
Date/Time: / ß Total Number of containers Preservation Codes: D-HNO3 Page 1 of 1 COC No: 240-120142-29052.1 0800 <u>/o:/to</u> Months ۶٤ 30

Ver: 06/08/2021

### 2-2024 DEK Bottom Ash Pond & Lined Impound. MPLING SITE / CUSTOMER: ELINQUISHED BY: END REPORT TO: | Joseph Firlit MPLING TEAM: LAB SAMPLE ID 24-0340-01 COPY TO: Consumers Energy Fed-Ex 63 -02 J. KRnz Count on Us® SAMPLE COLLECTION 5-8-24 5-8-24 Harold Register DATE 1303 TIME 5/8/24 5.9.24 DATE/TIME: CONSUMERS ENERGY COMPANY – LABORATORY SERVICES G₩ G₩ G₩ MATRIX PROJECT NUMBER: MATRIX CODES: □ 24 HR TURNAROUND TIME REQUIRED: WW = Wastewater W = Water / Aqueous Liquid S = Soil / General Solid O = Oil DEK-MW-18001 DEK-MW-18001 MSD DEK-MW-18001 MS GW = Groundwater FIELD SAMPLE ID / LOCATION 130 ☐ 48 HR ☐ 3 DAYS ☐ STANDARD ☒ OTHER 100 135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251 CHAIN OF CUSTODY 24-0340 OX = Other SL = Sludge A = Air WP = Wipe WT = General Waste RECEIVED BY: RECEIVED BY: otser & sheet REQUESTER: Harold Register SAP CC or WO#: phone: TOTAL# 6 7 4 None CONTAINERS **PRESERVATIVE** HNO₃ _ H₂\$O₄ ÷ **,_** NaOH HCl MeOH Other × Total Metals Received on Ice? ☐ Yes ☐ No × COMMENTS: Temperature: 0.2.2.0 °C ANALYSIS REQUESTED (Attach List if More Space is Needed) × × × Anions × × × Ammonia × TDS × × × Alkalinity × Sulfide M&TE#: 015402 Cal. Due Date: 5.13.24 ☐ 10 CFR 50 APP. B N.I.XI ☐ INTERNAL INFO ☐ ISO 17025 ☐ NPDES QA REQUIREMENT: □ OTHER REMARKS જિ Jo 9<u>S</u> # LE

Chain of Custody Record    Chain of Custody Record   Country   Country   Country	Custody Seals Intact: Custody Seal No.:	Relinquished by:	Reinquished by:	resimples to by	Empty Kjt Relinquished by:	cenverable requested: i, ii, iii, IV, Other (specify)	Non-Hazard	Possible Hazard Identification											DEK-MW-18001		Sample Identification		Site:	Project Name: Karn/Weadock CCR DEK Bottom Ash Pond & I	Lmai: JKrenz@trccompanies.com	Phone: 734-971-7080(Tel) 734-971-9022(Fax)	State, Zip: MI, 48108-7080	City: Ann Arbor	Address: 1540 Eisenhower Place	Company: TRC Environmental Corporation.	Client Contact Jacob Krenz	Client Information	Phone: 330-497-9396 Fax: 330-497-0772	180 S. Van Buren Avenue Barberton, OH 44203	Eurofins Cleveland
hain of Custody Record    Sample   Cotton   Custody Record   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotton   Cotto		Date/Time:	Deferiment Color	S ~ 10~ 4			1												5-8-24	$\bigvee$	Sample Date		:#WOSS	Project #: 24024154	wo#: 553814.0001	TBD#	Compliance Projec	TAT Requested (di	Due Date Request		Phone:	oampier.		•	
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### Appendix C Data Quality Reviews

### Laboratory Data Quality Review Groundwater/Surface Water Monitoring Event May 2024 DE Karn Lined Impoundment

Groundwater and surface water samples were collected by TRC for the May 2024 sampling event. Samples were analyzed for total and/or dissolved metals, anions, total dissolved solids, ammonia, and alkalinity by Consumers Energy (CE) Laboratory Services in Jackson, Michigan. The sulfide analyses were subcontracted to Merit Laboratories, Inc. (Merit) in East Lansing, Michigan. The laboratory analytical results were reported in laboratory sample delivery groups (SDGs) 24-0341R (revised 6/7/24), S61915.01(01), and S61971.01(01).

During the May 2024 sampling event, a groundwater sample was collected from each of the following wells:

OW-10

OW-11

OW-12

DEK-MW-15003

During the May 2024 sampling event, the following surface water sample was collected:

KLI-PCS

Each sample was analyzed for one or more of the following constituents:

Analyte Group	Method
Anions (Fluoride, Chloride, Sulfate, Nitrate, Nitrite)	EPA 300.0
Total Dissolved Solids (TDS)	SM 2540C
Total and/or Dissolved Metals	SW-846 6020B
Total and/or Dissolved Mercury	SW-846 7470A
Alkalinity (Bicarbonate, Carbonate, and Total)	SM 2320B
Ammonia	SM 4500 NH3(h)
Sulfide	SM 4500 S2D

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

### **Data Usability Review Procedure**

The analytical data were reviewed using the USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA, 2020). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;

- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

It should be noted that results for method blanks and LCSs were not provided for review by CE Laboratory Services and Merit. Therefore, potential contamination arising from laboratory sample preparation and/or analytical procedures and the accuracy of the analytical method using a clean matrix could not be evaluated for the total and dissolved metals, total and dissolved mercury, anions, alkalinity, TDS, ammonia, and sulfide analyses.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

### **Review Summary**

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

- The reviewed Appendix III, IV, optional Piper diagram analyses, additional Part 115 constituents, and additional geochemistry parameters will be utilized for the purposes of the detection monitoring program.
- Data are usable for the purposes of the detection monitoring program.
- When the data are evaluated through a detection or monitoring statistical program, findings below may be used to support the removal of outliers.

### **QA/QC Sample Summary**

- One field blank (FB-KLI) and one equipment blank (EB-KLI) were collected with this data set. Target analytes were not detected above the RL in these blank samples.
- Laboratory duplicate and MS/MSD analyses were not performed on a sample from this data set.

Samples DUP-KLI and DEK-MW-15003 were submitted as the field duplicate pair with this data set; all criteria were met.

### Laboratory Data Quality Review Groundwater and Surface water Monitoring Event May 2024 DE Karn Lined Impoundment

Groundwater samples were collected by TRC for the May 2024 sampling event. Samples were analyzed for radium by Eurofins in St. Louis, Missouri. The laboratory analytical results were reported in laboratory sample delivery group (SDG) 240-204355-1.

During the May 2024 sampling event, a groundwater sample was collected from each of the following wells:

■ OW-10

OW-11

■ OW-12

DEK-MW-15003

Each sample was analyzed for the following constituents:

Analyte Group	Method
Radium (Ra-226, Ra-228, Combined Ra-226 & Ra-228)	EPA 903.0, EPA 904.0

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

### **Data Usability Review Procedure**

The analytical data were reviewed using the Department of Energy Evaluation of Radiochemical Data Usability (USDOE, 1997). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for method blanks, equipment blanks, and field blanks, where applicable. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for carriers, where applicable, for radiochemistry only. Carriers are used to assess the chemical yield for the preparation and/or instrument efficiency;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;

- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

### **Review Summary**

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

- The reviewed constituents will be utilized for the purposes of an assessment monitoring program.
- Data are usable for the purposes of the assessment monitoring program.
- When the data are evaluated through an assessment monitoring statistical program, findings below may be used to support the removal of outliers.

### **QA/QC Sample Summary**

- Target analytes were not detected in the method blanks.
- One equipment blank (EB-KLI) was collected. Target analytes were not detected in the equipment blank sample.
- LCS recoveries for all target analytes were within laboratory control limits.
- MS/MSD and laboratory duplicate analyses were not performed on the samples from this data set.
- Samples DEK-MW-15003/DUP-KLI were submitted as the field duplicate pair with this data set; all criteria were met.
- Carrier recoveries were within 40-110%.

### Laboratory Data Quality Review Groundwater Monitoring Event May 2024 DE Karn Bottom Ash Pond and Lined Impoundment

A groundwater sample was collected by TRC for the May 2024 sampling event. The sample was analyzed for total metals, anions, total dissolved solids, ammonia, and alkalinity by Consumers Energy (CE) Laboratory Services in Jackson, Michigan. The sulfide analysis was subcontracted to Merit Laboratories, Inc. (Merit) in East Lansing, Michigan. The laboratory analytical results were reported in laboratory sample delivery groups (SDGs) 24-0340R and S61913.01(01).

During the May 2024 sampling event, a groundwater sample was collected from the following well:

### DEK-MW-18001

The sample was analyzed for the following constituents:

Analyte Group	Method
Anions (Fluoride, Chloride, Sulfate, Nitrate, Nitrite)	EPA 300.0
Total Dissolved Solids (TDS)	SM 2540C
Total Metals	SW-846 6020B/7470A
Alkalinity (Bicarbonate, Carbonate, and Total)	SM 2320B
Ammonia	SM 4500 NH3(h)
Sulfide	SM 4500 S2D

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

### **Data Usability Review Procedure**

The analytical data were reviewed using the USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA, 2020). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for method blanks, equipment blanks, and field blanks, where applicable. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy of the analytical method using a clean matrix;

- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates, when collected. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

It should be noted that results for method blanks and LCSs were not provided for review by CE Laboratory Services and Merit. Therefore, potential contamination arising from laboratory sample preparation and/or analytical procedures and the accuracy of the analytical method using a clean matrix could not be evaluated for the total metals, anions, ammonia, TDS, alkalinity, and sulfide analyses.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

### **Review Summary**

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

- The reviewed Appendix III, IV, optional Piper Diagram analyses, additional Part 115 constituents, and additional geochemistry parameters will be utilized for the purposes of a detection or assessment monitoring program.
- Data are usable for the purposes of the detection or assessment monitoring program.
- When the data are evaluated through a detection or assessment monitoring statistical program, findings below may be used to support the removal of outliers.

### **QA/QC Sample Summary**

- A field blank was not collected with this data set.
- An equipment blank was not collected with this data set.
- MS and MSD analyses were performed on sample DEK-MW-18001 for total metals, anions, ammonia, total alkalinity, and sulfide. The recoveries were within the acceptance limits. Relative percent differences (RPDs) were not provided by the laboratory for all parameters therefore were not evaluated; further, with the exception of sulfide, MS/MSD concentrations were not provided by the laboratory. However, since all recoveries were within the acceptance limits, there is no impact on data usability due to this issue.
- A field duplicate pair was not collected with this data set.
- Laboratory duplicate analyses were not performed on the sample from this data set.

### Laboratory Data Quality Review Groundwater Monitoring Event May 2024 DE Karn Bottom Ash Pond and Lined Impoundment

A groundwater sample was collected by TRC for the May 2024 sampling event. The sample was analyzed for radium by Eurofins in St. Louis, Missouri. The laboratory analytical results were reported in laboratory sample delivery group (SDG) 240-204354-1.

During the May 2024 sampling event, a groundwater sample was collected from the following well:

### DEK-MW-18001

The sample was analyzed for the following constituents:

Analyte Group	Method
Radium (Ra-226, Ra-228, Combined Ra-226 & Ra-228)	EPA 903.0, EPA 904.0

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

### **Data Usability Review Procedure**

The analytical data were reviewed using the Department of Energy Evaluation of Radiochemical Data Usability (USDOE, 1997). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for method blanks, equipment blanks, and field blanks, where applicable. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for carriers, where applicable, for radiochemistry only. Carriers are used to assess the chemical yield for the preparation and/or instrument efficiency;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;

- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data:
- Actions regarding specific QC criteria exceedances.

### **Review Summary**

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

- The reviewed constituents will be utilized for the purposes of an assessment monitoring program.
- Data are usable for the purposes of the assessment monitoring program.
- When the data are evaluated through an assessment monitoring statistical program, findings below may be used to support the removal of outliers.

### **QA/QC Sample Summary**

- Target analytes were not detected in the method blanks.
- No equipment or field blanks were collected.
- LCS recoveries for all target analytes were within laboratory control limits.
- MS/MSD and laboratory duplicate analyses were not performed on the sample from this data set.
- A field duplicate pair was not collected.
- Carrier recoveries were within 40-110%.



### **Appendix D Statistical Analysis**

### Appendix D

### Statistical Summary for DE Karn Lined Impoundment Second Quarter 2024 Data from July 2022 to May 2024

		Karn Li	ned Impoundment We	ells		
PARAMETER	Range, Test, or Limit	DEK-MW-15003	DEK-MW-18001	OW-10	OW-11	OW-12
Boron	Trend	↓*	0	0	0	0
Calcium	Trend	0	$\downarrow$	0	<b>^*</b>	0
Chloride	Trend	0	0	0	0	<b>↓</b>
Fluoride	Trend	0*	O*	O*	0	O*
Iron	Trend	0	<b>↓</b>	0	0	0
pН	Trend	0	0	0	0	0
Sulfate	Trend	0	<b>^</b> *	0	0	0
Total Dissolved Solids	Trend	0	<b>^*</b>	0	0	0

### Notes:

O* = Non-detect

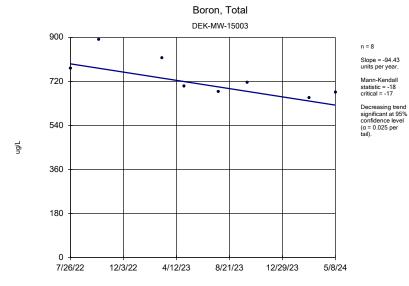
O = No trend

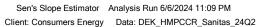
= Upward trend, continuous

↑* = Upward trend, new

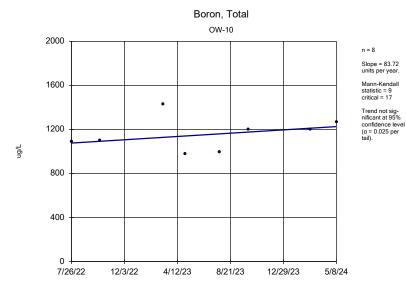
= Upward trend, confirmed

↓* = Downward trend, new



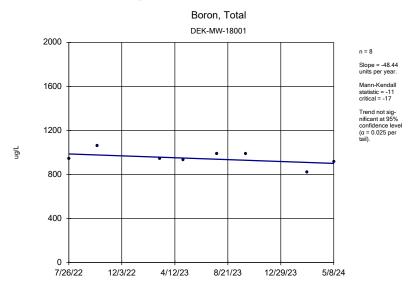




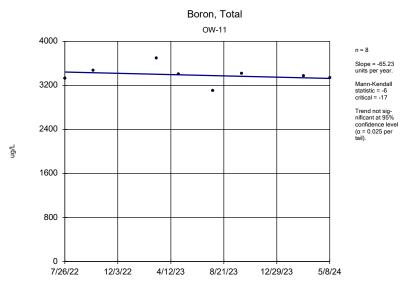


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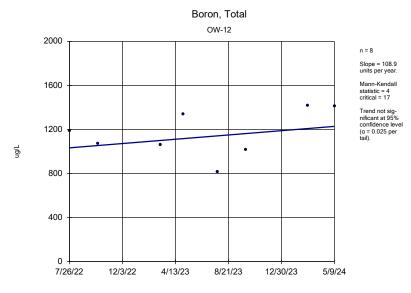
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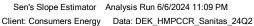


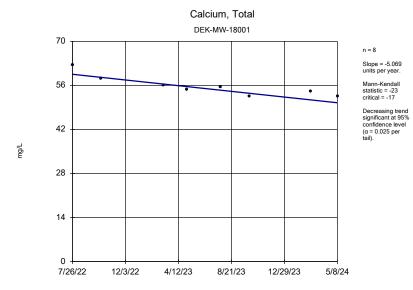
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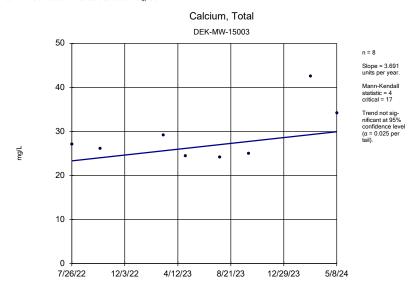




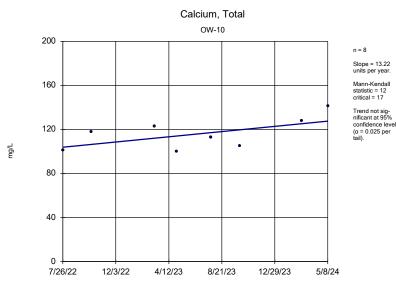


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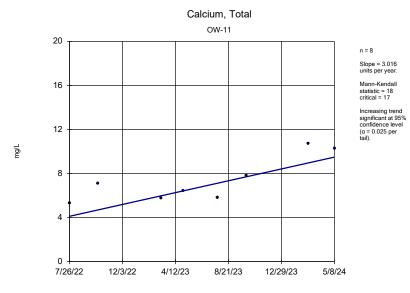


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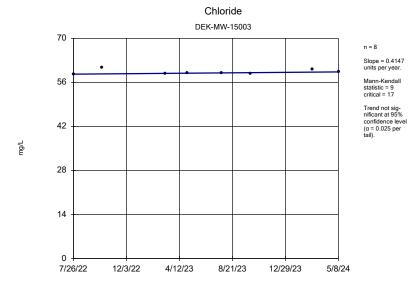


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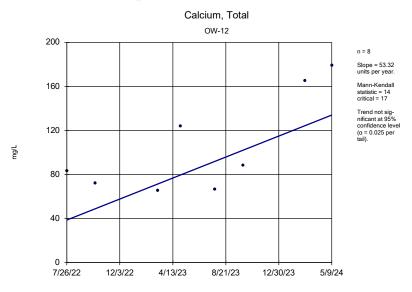


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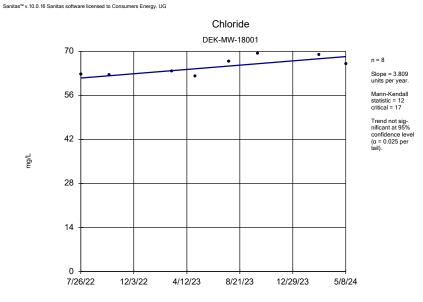


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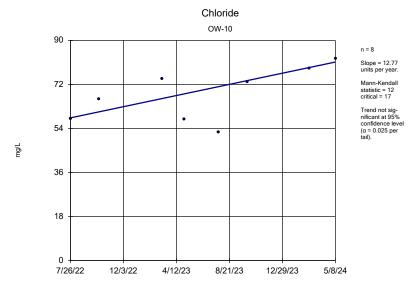


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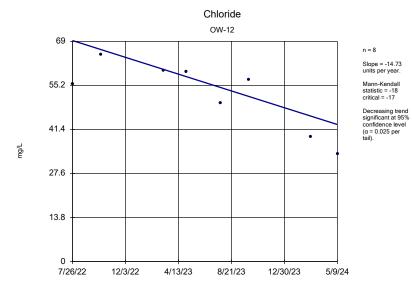


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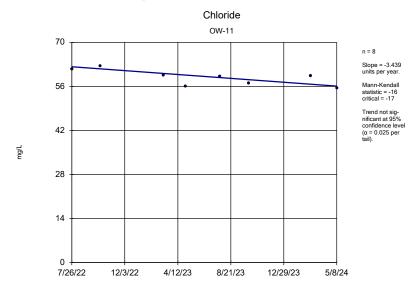


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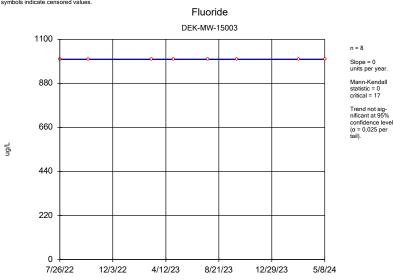
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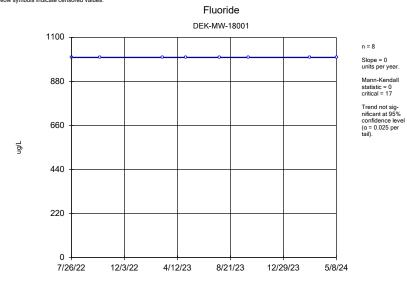
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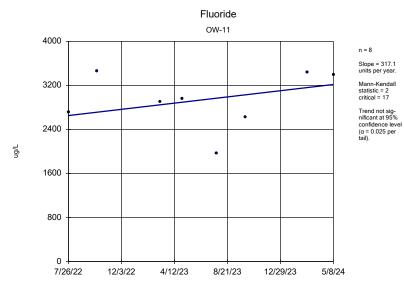
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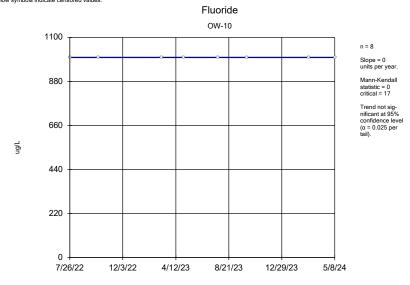
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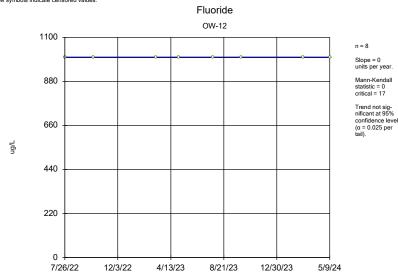
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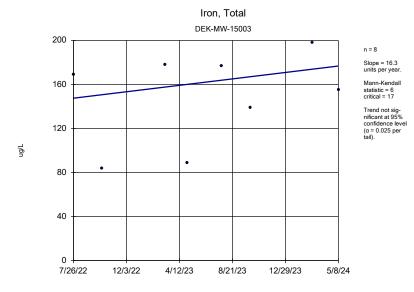
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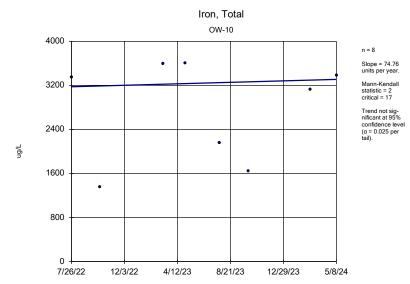


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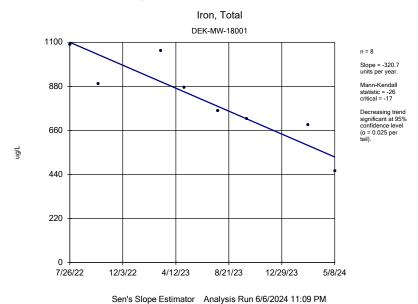


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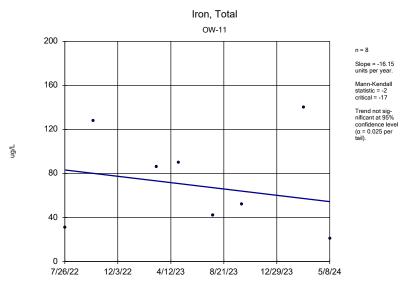


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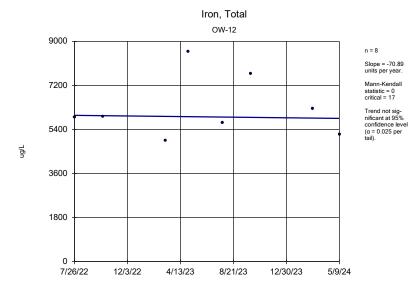
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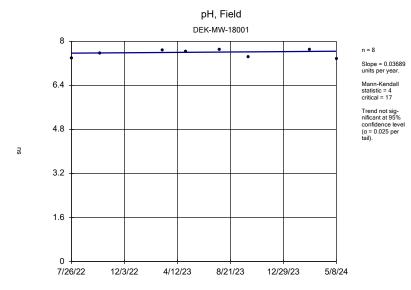
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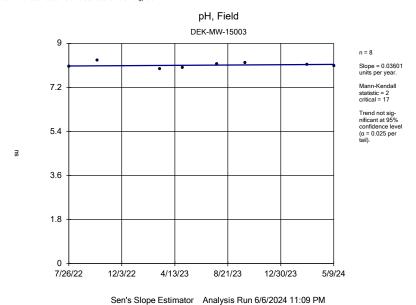


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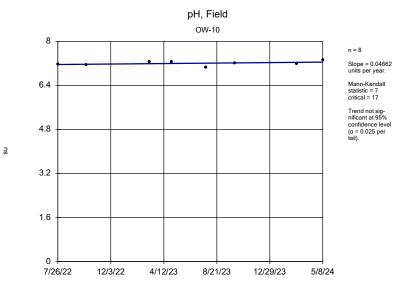


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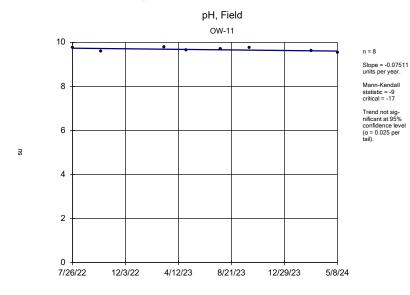


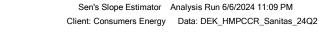
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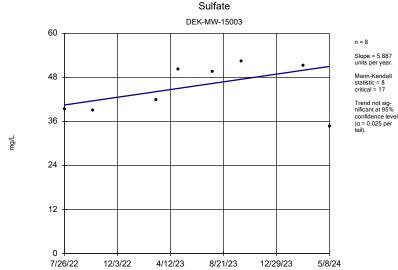
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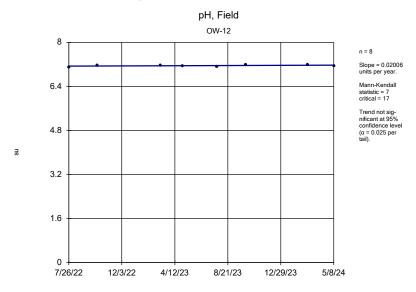


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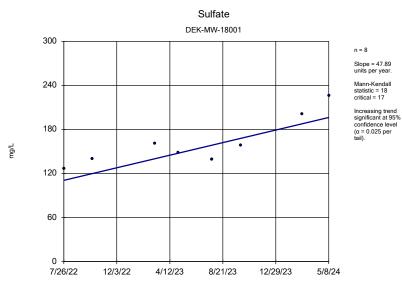


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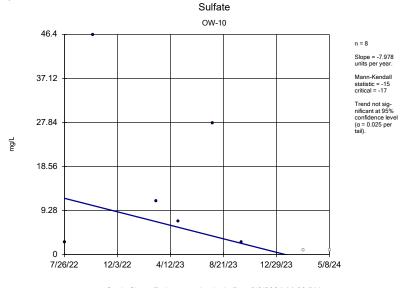


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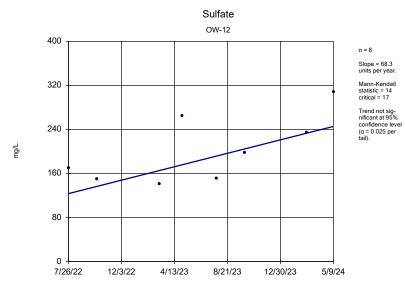


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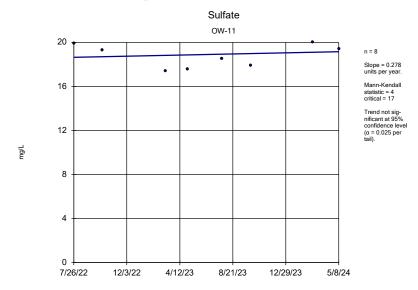


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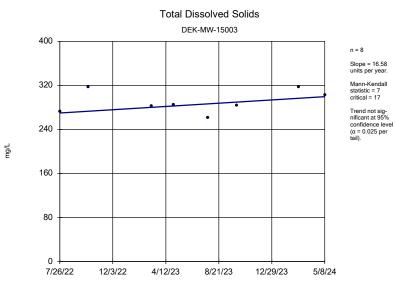
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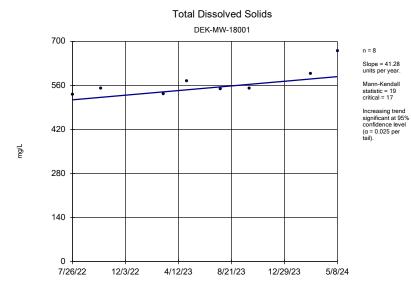
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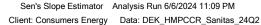
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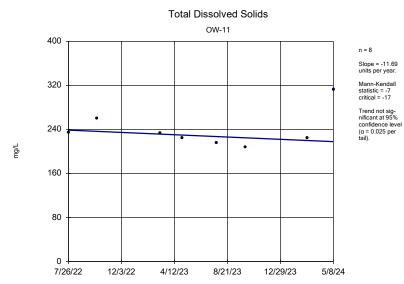


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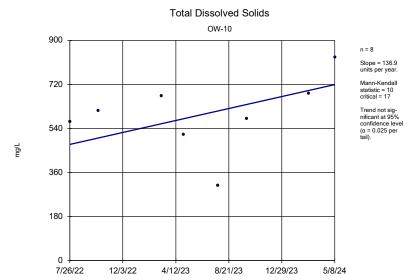






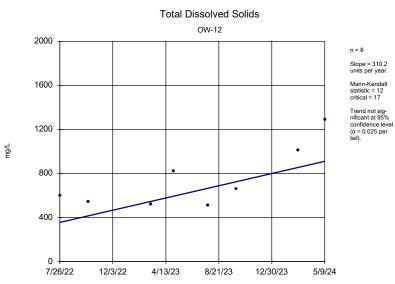
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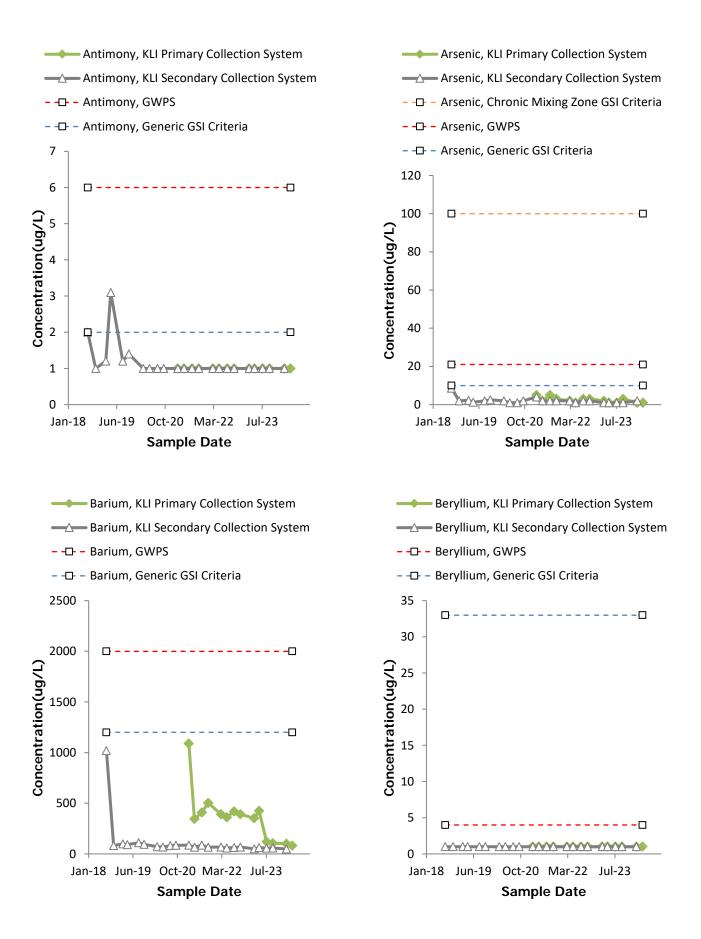
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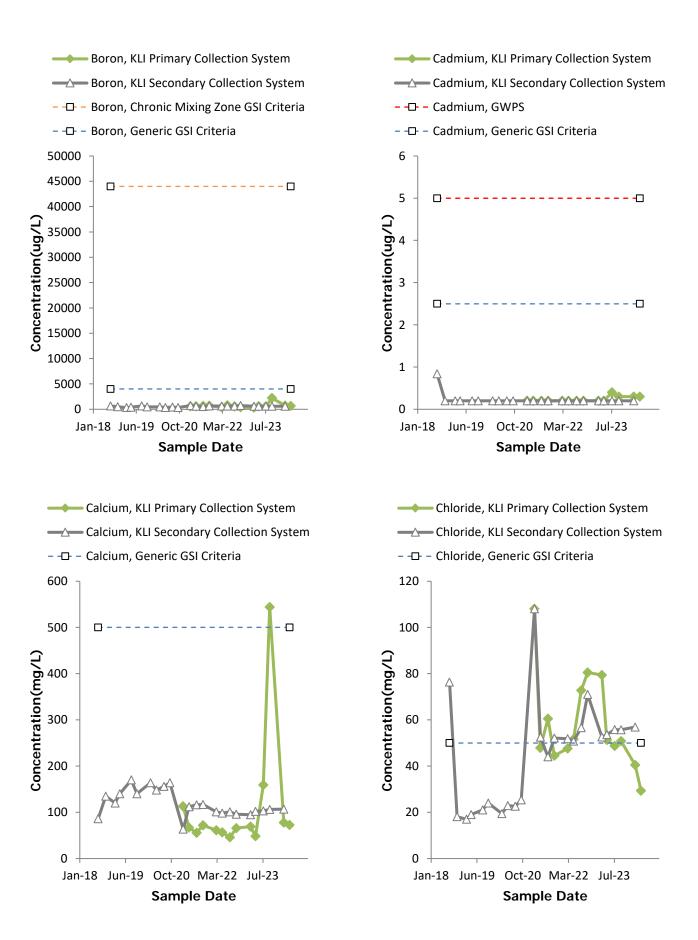


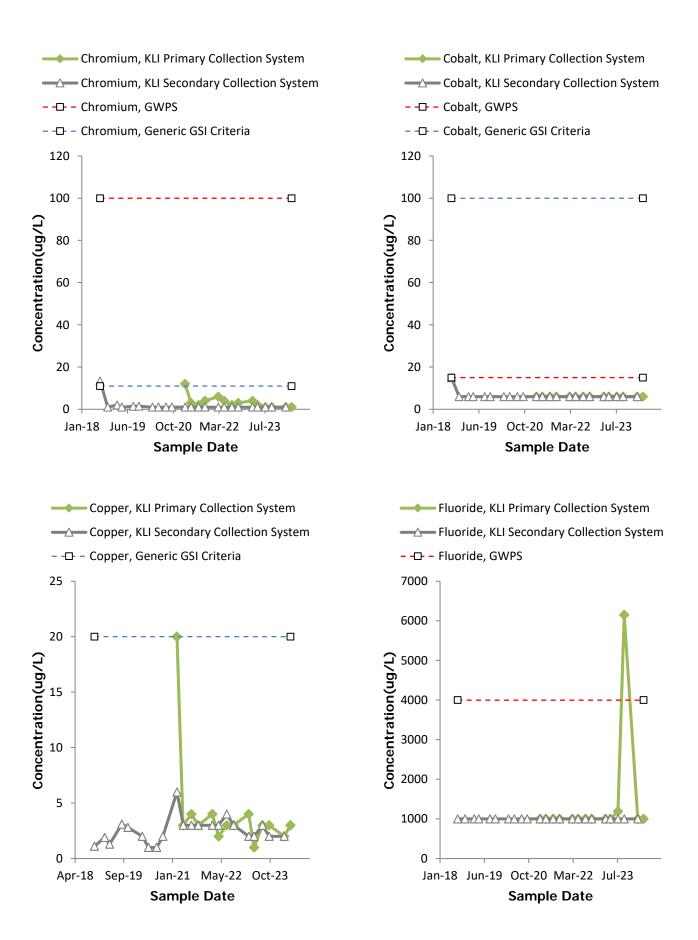
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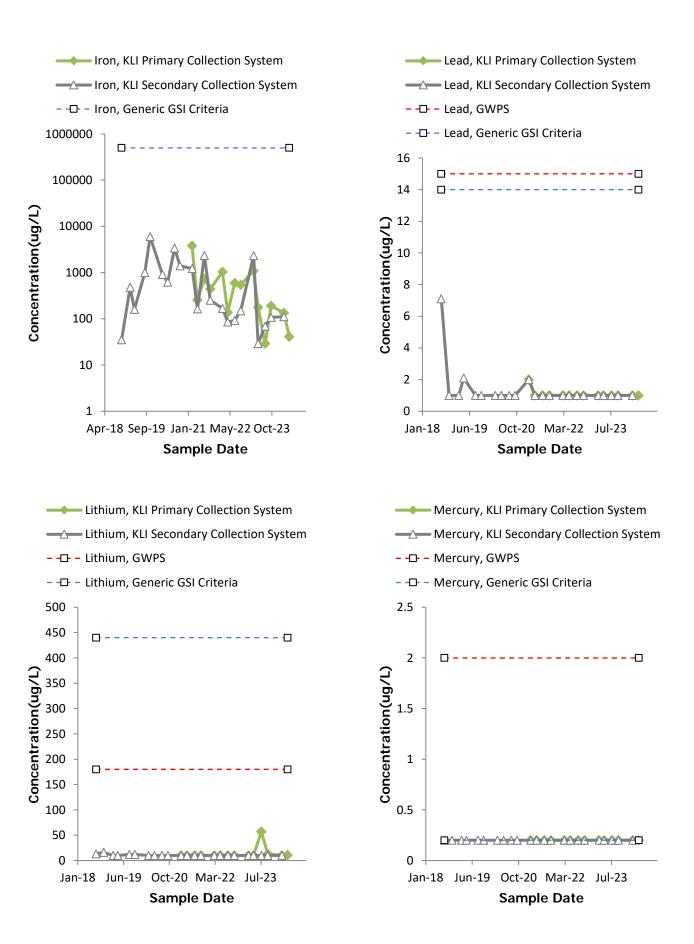


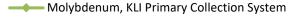
## Appendix E Secondary Leachate Collection System Monitoring



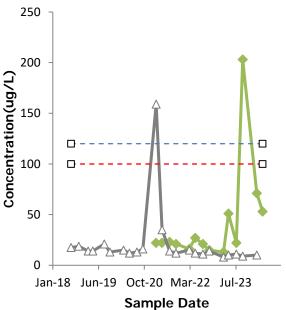




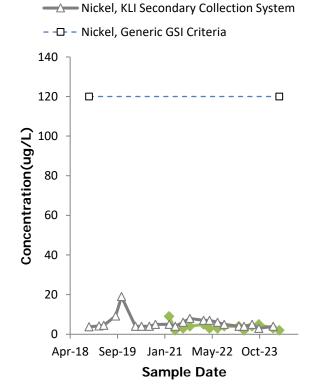




- Molybdenum, KLI Secondary Collection System
- - □ Molybdenum, GWPS
- -□ Molybdenum, Generic GSI Criteria

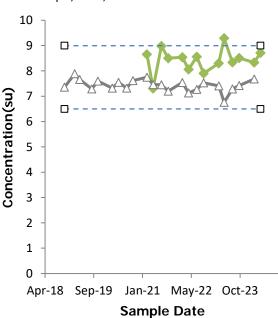


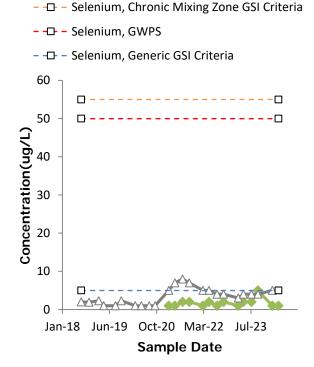




Nickel, KLI Primary Collection System

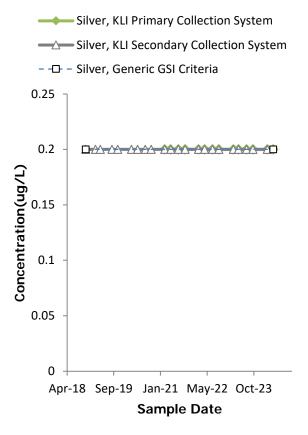


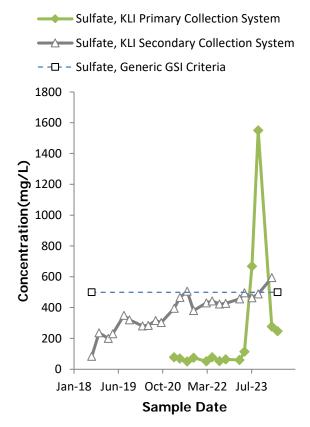


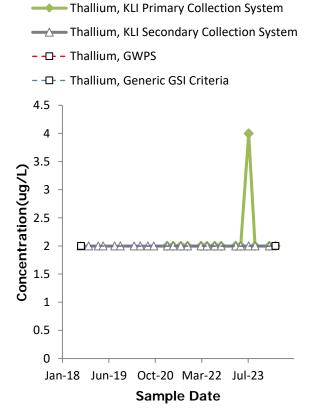


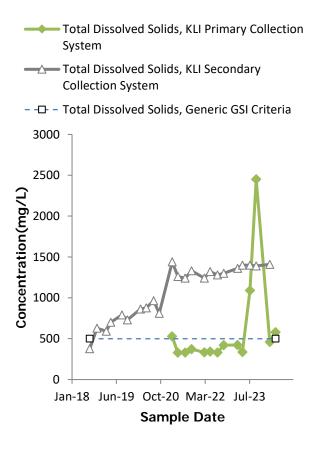
Selenium, KLI Primary Collection System

Selenium, KLI Secondary Collection System

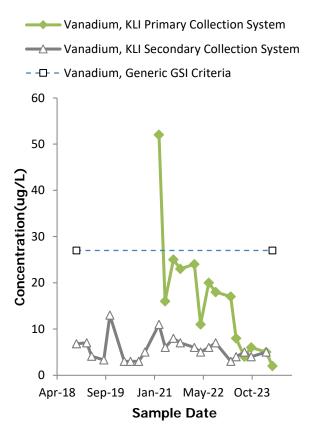


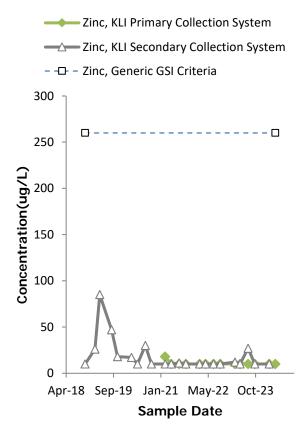






### **Water Quality Time Series**







# **Enclosure 4**

Third Quarter 2024 Hydrogeological Monitoring Report, DE Karn Lined Impoundment CCR Unit, Essexville, Michigan. (TRC, October 30, 2024)



# **Third Quarter 2024** Hydrogeological **Monitoring Report**

**DE Karn Lined Impoundment CCR Unit** 

**Essexville**, Michigan

October 2024

Project Manager/Hydrogeologist

# **Prepared For:**

Consumers Energy 1945 W. Parnall Road Jackson, MI 49201

### Prepared By:

**TRC** 1540 Eisenhower Place Ann Arbor, Michigan 48108

**Andrew Whaley** 

**Project Geologist** 



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#### **APPENDICES**

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Appendix B Field Notes

Appendix C Data Quality Reviews
Appendix D Statistical Analysis

Appendix E Secondary Leachate Collection System Monitoring



## 1.0 Introduction

Pursuant to the Federal CCR Rule¹, Consumers Energy initiated a detection monitoring program for the Karn Lined Impoundment that went into service on June 7, 2018. After Consumers Energy established the groundwater monitoring system and detection monitoring program pursuant to the requirements and schedule of §257.90 - §257.94, the State of Michigan enacted Public Act No. 640 of 2018 (PA 640) on December 28, 2018, to amend the Natural Resources and Environmental Protection Act, also known as Part 115 of PA 451 of 1994, as amended (a.k.a., Michigan Part 115 Solid Waste Management). The amendments to the solid waste statute amended state groundwater monitoring requirements for coal ash impoundments; therefore, Consumers Energy submitted the *Karn Lined Impoundment Hydrogeological Monitoring Plan* (HMP) to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) to comply with the requirements of Part 115, Rule 299.4905, and the CCR Rule. The HMP was approved by the EGLE on November 13, 2020, and incorporated, by reference, in Solid Waste Disposal Area Operating License No. 9629 issued on December 10, 2020.

## 1.1 Statement of Adherence to Approved Hydrogeological Monitoring Plan

This Third Quarter 2024 Karn Lined Impoundment Hydrogeological Monitoring Report (Report) has been prepared by TRC on behalf of Consumers Energy to satisfy quarterly groundwater monitoring requirements during the active life of the coal ash impoundment. This Report was prepared in accordance with the items listed in Appendix A (Solid Waste Monitoring Submittal Components) of the May 15, 2015 Michigan Department of Environmental Quality (MDEQ) — Office of Waste Management and Radiological Protection, now the EGLE Materials Management Division (MMD), communication prescribing the format for solid waste disposal facility monitoring submittals as published in OWMRP-115-29, Format for Solid Waste Disposal Facility Monitoring Submittals, dated July 5, 2013. All references herein to the EGLE are inclusive of the MDEQ. Information contained in this report was prepared in adherence to the facility's approved HMP that was approved by the EGLE on November 13, 2020. This HMP is compliant with the requirements set forth in Public Act No. 640 of 2018 (PA 640) to amend the Natural Resources and Environmental Protection Act (NREPA), also known as Part 115 of PA 451 of 1994, as amended (Part 115) (a.k.a., Michigan Part 115 Solid Waste Management).

## 1.2 **Program Summary**

This Report provides results and summarizes the monitoring activities completed in the third quarter 2024 at the Karn Lined Impoundment located at 2742 Weadock Highway in Essexville, Michigan (Figure 1). Groundwater in the vicinity of the Karn Lined Impoundment has been documented to be affected by the management of CCR prior to the construction of the unit (January 2019, TRC). Given that the constituents associated with CCR currently managed at the Karn Lined Impoundment are indistinguishable from the constituents already present in groundwater from past operation of the former Karn Bottom Ash Pond, the compliance monitoring program for the Karn Lined Impoundment consists of two parts to evaluate if there are new releases from the unit:

¹ USEPA final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA) published April 17, 2015, as amended.



- 1. Monitoring of secondary collection system flow rates and water quality to detect leaks in the liner; and
- 2. Groundwater monitoring to determine if there are potential new releases from the Karn Lined Impoundment.

Based on sampling results for the third quarter 2024, the Karn Lined Impoundment remains in detection monitoring in accordance with the HMP. Closure of the Karn Lined Impoundment was initiated in August 2024 in accordance with the EGLE-approved *D.E. Karn Generating Facility, Karn Lined Impoundment Closure Plan* (Closure Plan) (Golder, June 2018); therefore, this third quarter sampling event (July 2024) was the final detection monitoring sampling event. In accordance with the Closure Plan and § 257.102(c): Closure by removal of CCR, groundwater monitoring will be conducted to document that constituent concentrations throughout the CCR unit do not exceed the groundwater protection standards per 40 CFR 257.95(h) for two consecutive quarterly groundwater monitoring events. Post-closure monitoring is scheduled to occur in the fourth quarter of 2024 and the first quarter of 2025.

#### 1.3 Site Overview

The Karn Lined Impoundment is located within the DE Karn Power Plant site (Site) located north of the former JC Weadock Power Plant, east of the Saginaw River, south and west of Saginaw Bay (Figure 1). Two coal-fired power generating units (Karn Units 1 & 2) began generating electricity in 1958 and 1959, respectively. Consumers Energy permanently ceased the operation Karn Units 1 & 2 at the Site in May 2023 and has commenced decommissioning activities for both coal-fired generating units. Karn Units 3 & 4, co-located with the coal-fired generating units, are oil- and natural gas-fueled and will continue to operate. Two other areas of coal ash management within the Site are the former Karn Bottom Ash Pond that was closed by removal under the CCR Rule and the Karn Landfill that was certified closed under Part 115 by constructing a final cover system and is currently in post-closure care.

The Karn Lined Impoundment was put into service in June 2018 to replace the former Karn Bottom Ash Pond that directly supported Karn 1&2 power generation operations. The Karn Lined Impoundment serves a twofold purpose for treatment pursuant to National Pollutant Discharge Elimination System (NPDES) Permit N0. MI0001678 and as a temporary storage for bottom ash prior to removal and disposal in the JC Weadock Solid Waste Disposal Area (Weadock Landfill) governed by Solid Waste Disposal Area Operating License No. 9640 issued on March 11, 2021. On July 7, 2023, Consumers Energy submitted a Closure Work Plan for the Karn Lined Impoundment to the EGLE that details a closure by removal of CCR in accordance with 257.102(c) of the self-implementing requirements of the CCR Rule. By reference, performance of this work would also satisfy state requirements pursuant to Section 11519b(9) of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.11501 et seq. EGLE provided written concurrence with the Closure Work Plan on October 25, 2023.

#### 1.4 Geology/Hydrogeology

The majority of the Karn Lined Impoundment area is comprised of surficial CCR and sand fill, as described in the HMP. USGS topographic maps and aerial photographs dating back to 1938, in



addition to field descriptions of subsurface soil at the Site, indicate that the site was largely developed by reclaiming low-lands through construction of perimeter dikes and subsequent ash filling (AECOM, 2009).

The surficial fill consists of a mixture of varying percentages of ash, sand, and clay-rich fill ranging from 5 to 15 feet thick. Below the surficial fill, native alluvium and lacustrine soils are present at varying depths. Generally, there is a well graded sand unit present to depths of 10 to 30 feet below ground surface (ft bgs) overlying a clay till which is observed at depths ranging from 25 to 75 ft bgs. In general, the alluvium soils (sands) are deeper along the Saginaw River and there are shallower lacustrine deposits (clays, silts and sands deposited in or on the shores of glacial lakes) at other areas. The clay till acts as a hydraulic barrier that separates the shallow groundwater from the underlying sandstone. A sandstone unit, which is part of the Saginaw formation, is generally encountered at 80 to 90 ft bgs.

The Site is bound by several surface water features (Figures 1 and 2): the Saginaw River to the west, Saginaw Bay (Lake Huron) to the north and east, and a discharge channel to the south. In general, shallow groundwater is encountered at a similar or slightly higher elevation relative to the surrounding surface water features. Groundwater flow in the upper aquifer is largely controlled by the surface water elevations of Saginaw River and Saginaw Bay. In the vicinity of the Karn Lined Impoundment, the shallow groundwater flow is generally radial, with a potentiometric high point near OW-12, flowing outward toward the surrounding surface water bodies.



# 2.0 Second Collection System Monitoring

Consumers Energy initiated secondary collection system flow monitoring to comply with the EGLE-approved HMP in December 2020. The SCS serves as a leak detection system and the SCS flow rate data is used to demonstrate compliance with Part 115. Consumers Energy continues to comply with the requirements for unmonitorable units under Rule 437 of the Part 115 Rules.

Increased average daily flow rates noted for the period from December 10, 2020 – January 6, 2021 triggered investigations by Consumers Energy that quickly identified deficiencies in the liner system and prompted actions to address the damaged liner (Consumers Energy, 2021a and 2021b). Following repairs to the liner in 2021, the daily average flow rates were reduced, and the three-month average dropped below the response action flow of 25 gallons per acre per day (GPAD). Consumers Energy maintains a record of the volume of leachate collected and the corresponding time-averaged flow each time the secondary collection system is evacuated. Consumers Energy provided notice to initiate closure of the KLI in July 2023 after DE Karn Electric Generating Units 1&2 (coal-fired generating units) ceased operating in May 2023. The KLI-SCS was monitored for the end-of-life CCRs and NPDES decant water that remained in the CCR unit the closure activities commenced in August 2024.

In response to the prior exceedance of the SCS response action flow rate, a sample was collected from the surface water of the primary collection system (KLI-PCS). The secondary leachate collection system sump (KLI-SCS) was dry during the third quarter 2024 sampling event; therefore, a sample was not collected. The leachate collection system data are used to compare leachate chemistry to groundwater chemistry. The sample was analyzed for the following constituents:

- Primary Indicator Parameters: Section 11511a(3)(c) Detection Monitoring Constituents
- Alternative Indicator Parameters: Section 11519b(2) Assessment Monitoring Constituents
- Optional Analyses in support of Piper or Stiff diagrams

The KLI-PCS and previously collected KLI-SCS data were evaluated for comparison to groundwater quality and water chemistry and to also assess potential of hazard and mobility of constituents. A series of time-series plots are included in Appendix E to illustrate water quality data changes over time for the secondary collection system from the start of operation in June 2018 through the July 2024 sampling event. This analysis demonstrates that each monitored constituent is generally present in the secondary collection system (KLI-SCS) at concentrations less than the Groundwater Protection Standard (GWPS) established under 40 CFR 257.95(h) for the Karn Bottom Ash Pond or generic groundwater surface water interface (GSI) criteria adopted by the Department pursuant to Section 20120a, with the exception of total dissolved solids, sulfate, and chloride. Consumers notes that as decommissioning of the Karn Units 1&2 proceeds, temporary changes to the mix of the miscellaneous low-volume waste may occur, causing changes in the concentrations of detected constituents in the primary collection system (KLI-PCS) as compared to historical. A few notable observations include:

Arsenic concentrations are higher in groundwater than the primary and secondary collection system: As shown in Appendix E, the arsenic concentrations observed in the



primary and secondary collections system have been consistently low. Arsenic was detected at 4.0 ug/L in the primary collection system in July 2024 and the secondary collection system has historically been detected at concentrations between 1 and 4 ug/L. In contrast, the arsenic concentration observed in OW-12, the monitoring well located closest to the repaired liner areas, is 45 ug/L, which is consistent with concentrations observed in August 2020, before the liner damage occurred. Arsenic present in groundwater does not appear to be a result of a release from the unit.

■ Secondary Collection System chemistry has not appreciably changed over the lifetime of the unit: The time series plots in Appendix E show relatively stable trends in chemistry for samples collected from the secondary collection system, except for chloride, total dissolved solids (TDS) and sulfate in the secondary collection system. Chloride concentrations increased in the first quarter of 2021 and have since stabilized near 60 mg/L. TDS concentrations in KLI-SCS increased between 2018 and 2021 and have since began to stabilize. Sulfate concentrations have increased slightly over time. The chloride, TDS and sulfate concentrations in the secondary collection system are more closely linked to water coming through the system from the intake water than as a byproduct of the commingled ash and other waste products. The secondary collection system sump has been dry during the second and third quarters of 2024; therefore no samples were collected.

Water quality data collected for this event are included in the attached laboratory reports (Appendix A). Groundwater chemistry is discussed in Section 4.1. Groundwater conditions will continue to be monitored for the purposes of confirming closure following removal of the CCR unit.



# 3.0 Groundwater Monitoring

#### 3.1 Monitoring Well Network

In accordance with §257.91, Consumers Energy developed a groundwater monitoring system for the Karn Lined Impoundment prior to the initial receipt of waste in the CCR unit (TRC, 2018c). Given the radial groundwater flow direction and that constituents associated with CCR currently managed at the Karn Lined Impoundment are indistinguishable from the constituents already present in groundwater from past operation of the Karn Bottom Ash Pond, the groundwater monitoring system design incorporates an intrawell statistical approach for detection monitoring as described in the HMP and in accordance with the "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance" (USEPA, 2009). Five monitoring wells that are screened in the uppermost saturated unit were selected for the Karn Lined Impoundment HMP detection monitoring (DEK-MW-15003, DEK-MW-18001, OW-10, OW-11, and OW-12). Monitoring well locations are shown on Figure 2.

## 3.2 July 2024 Detection Monitoring Event

In accordance with the HMP, TRC conducted the third quarter 2024 monitoring event for the Karn Lined Impoundment between July 22 and 24, 2024. In addition to the routine groundwater samples collected from the monitoring well network, a surface water sample was collected from the primary collection system (KLI-PCS), as discussed in Section 2 above, such that leachate chemistry could be compared to groundwater chemistry.

Groundwater samples collected during the third quarter 2024 event were submitted to Consumers Energy Laboratory Services in Jackson, Michigan, for analysis of the following metals and inorganic indicator constituents.

Section 11511a(3)(c) – Detection Monitoring Constituents	Section 11519b(2) – Assessment Monitoring Constituents					
Boron	Antimony	Fluoride	Thallium			
Calcium	Arsenic	Lead	Vanadium			
Chloride	Barium	Lithium	Zinc			
Fluoride	Beryllium	Mercury				
Iron	Cadmium	Molybdenum				
рН	Chromium, total	Nickel				
Sulfate	Cobalt	Selenium				
Total Dissolved Solids (TDS)	Copper	Silver				

Samples were also analyzed for additional constituents including magnesium, sodium, potassium, bicarbonate, carbonate, and total alkalinity to provide further evaluation of groundwater chemistry. Analytical results from this event monitoring event are included in the attached laboratory



reports (Appendix A).

Static water level measurements were collected at all locations after equilibration to atmospheric pressure and immediately prior to purging. The depth to water was recorded to the nearest 0.01-ft in accordance with the procedures in the HMP. Groundwater purging and sampling were conducted in accordance with low-flow sampling protocol. Static water elevation data are included in the attached field records (Appendix B).

Monitoring wells were purged with peristaltic pumps utilizing low-flow sampling methodology. Field parameters were stabilized at each monitoring well prior to collecting groundwater samples. Stabilized field parameters for each monitoring well are summarized in Table 2. Field notes are included as Appendix B. The samples were collected in vendor-provided, nitric acid pre-preserved (metals only) and unpreserved sample containers and submitted to the laboratory for analysis. Porewater sample preparation and analyses were performed in accordance with SW-846 "Test Methods for Evaluation Solid Waste – Chemical / Physical Methods," USEPA (latest revision). TRC followed chain of custody procedures to document the sample handling sequence.

TRC also collected quality assurance/quality control (QA/QC) samples during the groundwater sampling event. The QA/QC samples consisted of one field blank, one equipment blank, one field duplicate (DEK-MW-15003), and field matrix spike/matrix spike duplicate samples collected at DEK-MW-18001.

## 3.2.1 Data Quality Review

Data were evaluated for completeness, overall quality and usability, method-specified sample holding times, precision and accuracy, and potential sample contamination. The data were found to be complete and usable for the purposes of the HMP program.

The data quality reviews for the Karn Lined Impoundment network wells are summarized in Appendix C.

#### 3.2.2 Groundwater Flow Rate and Direction

Groundwater elevation data collected during this groundwater monitoring event are provided in Table 1. The data were used to construct the groundwater contour map (Figure 3).

Groundwater elevations measured at the site in July 2024 are generally within the range of 580 to 585 feet above mean sea level (ft NAVD88) and groundwater is typically encountered at equal elevation relative to the surrounding surface water features measured by the NOAA gauging station data or within approximately 6 feet higher, flowing toward the bounding surface water features.

Although the point source discharge of sluiced bottom ash into the former Karn Bottom Ash Pond historically created localized mounding of the potentiometric surface, the Karn Lined Impoundment went into service on June 7, 2018, and has been continuously collecting the process water and bottom ash that went into the former bottom ash pond. Since the former



bottom ash pond is no longer being hydraulically loaded with sluiced ash and has been dewatered by gravity, the characteristic groundwater mound centered within the former surface pool area is no longer present. The groundwater elevation data collected in the vicinity of the former Karn Bottom Ash Pond in July 2024 demonstrate a reduction in groundwater elevation measurements by several feet when compared to the measurements collected prior to June 2018, when active loading was occurring to the bottom ash pond. Groundwater at the Site is locally influenced by incidental infiltration from precipitation over the uncovered acreage and the unlined low volume miscellaneous wastewater conveyance associated with the permitted NPDES discharge system, which is located just north of the Karn Lined Impoundment. The conveyance ditch was observed to be dry in July 2024 as wastewater is not being generated due to the cessation of operations of Karn Units 1 & 2. The groundwater elevation high point that was previously centered over the former Karn Bottom Ash Pond has shifted to the southeast and is currently centered near OW-12. Porewater flow is generally radial, flowing outward towards the adjacent surface water features from this potentiometric "high", as illustrated in Figure 3.

The average hydraulic gradient observed on July 22, 2024, in the vicinity of the former Karn Bottom Ash Pond and Karn Lined Impoundment is estimated at 0.0026 ft/ft. The gradients were calculated using the monitoring well pairs DEK-MW-15004/DEK-MW-15005, DEK-MW-15003/DEK-MW-15006, and OW-11/MW-08, as well as the monitoring well water elevation difference and distance between DEK-MW-18001 and the discharge channel. The discharge channel surface water elevation was taken from the NOAA gauging station data on the same date as the water level measurements. Using the mean hydraulic conductivity of 15 ft/day (ARCADIS, 2016) and an assumed effective porosity of 0.3, the estimated average seepage velocity was calculated to be 0.13 ft/day or 47 ft/year in July 2024 which is reduced relative to previous estimated seepage velocities (e.g., 0.33 ft/day or 120 ft/year in August 2018).

Due to the operational changes of the former bottom ash pond and the completion of the landfill capping activities in 2020, the gradient between the area of the Karn Bottom Ash Pond and Karn Lined Impoundment and the surrounding surface water bodies is flattening out as compared to previous quarters and is also attempting to reach a new equilibrium, as expected. The general flow direction relative to the Karn Lined Impoundment is similar to that identified in previous monitoring rounds and continues to demonstrate that the downgradient wells are appropriately positioned to detect the presence of Appendix III/IV parameters that could potentially migrate from the Karn Lined Impoundment.



#### 4.0 Data Evaluation

Based on sampling results for this event the Karn Lined Impoundment remains in detection monitoring in accordance with the HMP. The following section summarizes the statistical approach applied to assess the third quarter 2024 groundwater data in accordance with the detection monitoring program.

Water quality data are included in the attached laboratory reports (Appendix A). Groundwater analytical data for the most recent quarterly monitoring event is summarized in Table 3 along with the associated Part 201 generic drinking water criteria and the generic GSI criteria. GSI compliance is evaluated through monitoring performed at the Karn Landfill in accordance with the EGLE-approved Consumers Energy's revised Karn Landfill HMP (Hydrogeological Monitoring Plan, Rev. 3, DE Karn Solid Waste Disposal Area) dated December 19, 2017, and in accordance with the December 23, 2015, mixing zone determination.

#### 4.1 Statistical Evaluation of Trends

Groundwater in the vicinity of the Karn Lined Impoundment has been affected by CCR management before commencement of operation (January 2019, TRC). Given that the constituents associated with CCR currently managed in the Karn Lined Impoundment are indistinguishable from the constituents already present in groundwater from past operation of the former Karn Bottom Ash Pond, intrawell trend tests, in conjunction with KLI-SCS flow rates, will be utilized to assess whether a release has occurred from operation of the unit. The detection monitoring constituent concentrations will be analyzed using Mann-Kendall and Sen's Slope trend tests to determine if there is an upward trend that may indicate a release from the Karn Lined Impoundment. The data will be analyzed in the context of the Site hydrogeologic characteristics, and an assessment made as to whether the source of an upward trend, if identified, is from a possible release from the Karn Lined Impoundment, another on-site release, or on-site migration of nearby impact (i.e., former Karn Bottom Ash Pond).

Time-series plots and statistical trend analyses are used to evaluate groundwater quality each quarter, which are included as Appendix D. Consumers Energy manages and evaluates its analytical data using SanitasTM Statistical Software (SanitasTM). Consumers Energy conducts intra-well trend analyses to examine data for each monitoring well-constituent pair in the groundwater monitoring system over time to determine if changes in water quality are occurring that may be associated with the Karn Lined Impoundment. Data from October 2022 through July 2024 were analyzed using Mann-Kendall and Sen's Slope at a significance level ( $\alpha$ ) of 0.025 per tail for each constituent/sampling point dataset to assess trends. Sen's Slope estimator was used to assess the magnitude of the slope and the Mann-Kendall test was used to determine if the trend was statistically significant. The graphical output of the Sen's Slope/Mann-Kendall trend tests and time series are presented in Appendix D. Appendix D also includes a table summarizing these trends and the associated statistical trend charts.

Data trends for detection monitoring constituents are generally stable (i.e., no trend) or declining for the majority of the monitoring well/constituent pairs with the following exceptions:



- New, unconfirmed increasing trends for calcium and sulfate were observed in OW-12 in third guarter 2024.
- The new, unconfirmed increasing trend for calcium observed in OW-11 during second quarter 2024 did not continue in third quarter 2024.
- The new, unconfirmed increasing trend for sulfate observed in DEK-MW-18001 during second quarter 2024 did not continue in third quarter 2024.
- The new, unconfirmed increasing trend for total dissolved solids observed in DEK-MW-18001 in second quarter 2024 was confirmed in third quarter 2024.

# 4.2 Detection Monitoring Data Discussion

Groundwater quality is generally consistent with previous monitoring events and the majority of the well/constituent pairs are exhibiting no trend or decreasing concentrations. Although increasing trends of detection monitoring (Appendix III) constituents exist, the majority of these trends have not been confirmed and the groundwater conditions do not conclusively indicate a release from the unit. Given that the constituents associated with CCR currently managed in the Karn Lined Impoundment are indistinguishable from the constituents already present in groundwater from past operation of the Karn Bottom Ash Pond, intrawell trend tests, in conjunction with SCS flow rates, will be utilized to assess whether a release has occurred from operation of the unit, per the HMP.

As presented in Section 2.0, the SCS flow rates are below the action flow rate threshold, which continues to demonstrate the liner system is working effectively following the documented liner repairs. The location of one of the identified liner damage locations was approximately 40-ft upgradient from monitoring well OW-12 and the second location was approximately 130-ft upgradient from monitoring well DEK-MW-18001. The majority of detection monitoring constituent concentrations at OW-12 and DEK-MW-18001 exhibit no statistically significant increasing trends, indicating that if a release to groundwater occurred due to the apparent leak in the liner system, the effects on local groundwater quality at this point appear to be negligible. Although an increasing trend in total dissolved solids is observed at DEK-MW-18001, the SCS flow rates remain within acceptable limits. Therefore, this change in groundwater concentrations is not considered to indicate a release to groundwater. The increasing trends noted in Section 4.1 will continue to be evaluated within context of changes in the site operational status.

#### 4.3 Alternate Source Demonstration

At this time, Consumers Energy is not asserting an Alternate Source Demonstration (ASD) for any Statistically Significant Increases (SSI) from this reporting period. The groundwater conditions do not conclusively indicate a release from the unit and the average daily KLI-SCS flow rates remain below the action flow rate thresholds.



## 5.0 Conclusions and Recommendations

Consumers Energy will continue the detection monitoring program for the Karn Lined Impoundment unit based on the data evaluations completed in Section 4.0 of this report in conformance with the Karn Lined Impoundment HMP. Although increasing trends of detection monitoring (Appendix III) constituents exist, as noted in Section 4.1, the groundwater conditions do not conclusively indicate a release from the unit as the average daily SCS flow rates remain below the response action flow rate thresholds and continue to demonstrate the liner system has worked effectively during operation of the CCR unit.

Closure of the Karn Lined Impoundment was initiated in August 2024 in accordance with the EGLE-approved *D.E. Karn Generating Facility, Karn Lined Impoundment Closure Plan* (Closure Plan) (Golder, June 2018); therefore, this third quarter sampling event (July 2024) was the final detection monitoring sampling event. In accordance with the Closure Plan and § 257.102(c): Closure by removal of CCR, groundwater monitoring will be conducted to document that constituent concentrations throughout the CCR unit do not exceed the groundwater protection standards per 40 CFR 257.95(h) for two consecutive quarterly groundwater monitoring events. Post-closure monitoring is scheduled to occur in the fourth quarter of 2024 and the first quarter of 2025. The fourth quarter monitoring event is scheduled for October 2024.



# 6.0 References

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- TRC. 2023. Fourth Quarter 2022 Hydrogeological Monitoring Report for the DE Karn Lined Impoundment CCR Unit, Essexville, Michigan. Prepared for Consumers Energy Company. January.
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- USEPA. 2018. 40 CFR Part 257. Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Amendments to the National Minimum Criteria (Phase One, Part One); Final Rule. 83 Federal Register 146 (July 30, 2018), pp. 36435-36456 (83 FR 36435). July.



# **Tables**

Table 1

# Summary of Groundwater Elevation Data DE Karn Lined Impoundment – Hydrogeological Monitoring Program Essexville, Michigan

	TOC	TOC Contacts Unit of		July 22, 2024		
Well Location	Elevation (ft)	Geologic Unit of Screen Interval	Elevation (ft)	Depth to Water	Groundwater Elevation	
DEV.D. (1. A. I. D.	<u> </u>			(ft BTOC)	(ft)	
DEK Bottom Ash Pon		T 0 1		7.55	500.00	
DEK-MW-15002	590.87	Sand	578.3 to 575.3	7.55 9.45	583.32 580.27	
DEK-MW-15005	589.72	Sand	572.3 to 567.3	9.45 7.96	580.27	
DEK-MW-15006 DEK Bottom Ash Pon	589.24	Sand	573.0 to 568.0	7.90	561.26	
DEK-MW-18001	593.47	Sand	579.2 to 574.2	9.78	583.69	
Karn Lined Impoundn		Sand	379.2 10 374.2	3.10	303.09	
DEK-MW-15003	602.74	Sand	578.8 to 574.8	19.45	583.29	
OW-10	591.58	Silty Sand and Silty Clay	576.0 to 571.0	8.31	583.27	
OW-11	607.90	Silt/Fly Ash	587.5 to 582.5	24.60	583.30	
OW-12	603.10	Silty Sand	584.2 to 579.2	19.00	584.10	
DEK Nature and Exter						
DEK-MW-15004	611.04	Sand	576.6 to 571.6	29.20	581.84	
MW-01	597.02	Sand	573.0 to 570.0	16.81	580.21	
MW-03	597.30	Sand	569.8 to 566.8	17.12	580.18	
MW-06	589.44	Sand and Silty Sand	578.5 to 563.5	9.39	580.05	
MW-08	598.78	Sand and Silty Clay	580.9 to 570.9	18.25	580.53	
MW-10	596.97	Sand	582.5 to 572.5	16.58	580.39	
MW-12	598.60	Sand	583.9 to 573.9	18.25	580.35	
MW-14	594.37	Sand and Silty Clay	584.7 to 574.7	14.05	580.32	
MW-16	595.80	Sand and Sand/Bottom Ash	584.1 to 574.1	15.41	580.39	
MW-22	598.99	Ash/Sand	571.4 to 568.4	17.51	581.48	
MW-23	595.57	Ash/Sand	576.9 to 571.9	14.55	581.02	
DEK Static Water Lev	el		•			
MW-02	597.34	Sand and Silty Clay	572.5 to 567.5	17.19	580.15	
MW-04	598.01	NR	569.5 to 564.5	17.85	580.16	
MW-17	597.91	Sand	577.0 to 574.0	14.49	583.42	
MW-18	609.22	Silty Sand and Silty Clay	575.8 to 573.8	26.94	582.28	
MW-19	597.28	NR	572.1 to 567.1	16.88	580.40	
MW-20	632.75	Sand	582.3 to 579.3	52.58	580.17	
MW-21	632.91	Sand	587.1 to 584.1	51.80	581.11	
OW-01	631.33	NR	572.5 to 567.5	51.28	580.05	
OW-02	598.01	Fly Ash	579.4 to 576.4	16.49	581.52	
OW-03	597.94	Fly Ash and Sand	573.6 to 568.6	17.24	580.70	
OW-04	590.21	Sand and Bottom/Fly Ash	579.1 to 574.1	9.89	580.32	
OW-05	593.53	Sand	576.9 to 571.9	12.89	580.64	
OW-06	603.95	NR	580.9 to 575.9	22.65	581.30	
OW-07	596.41	Ash	583.3 to 580.3	15.45	580.96	
OW-08	593.93	NR	581.0 to 576.0	11.30	582.63	
OW-09	593.45	NR	585.5 to 580.5	10.50	582.95	
OW-13	588.52	NR	579.5 to 574.5	3.47	585.05	
OW-15	587.75	NR	572.8 to 567.8	4.95	582.80	

#### Notes:

Survey data from: Rowe Professional Services Company (Nov. 2015) and Consumers Energy Company drawings: SG-21733, Sheet 1, Rev. G (Karn, 11/27/18); and SG=21733, Sheet 2, Rev. C (Weadock, 11/27/18).

Elevation in feet relative to North American Vertical Datum 1988 (NAVD 88).

TOC: Top of well casing.

ft BTOC: Feet below top of well casing.

NR: Not Recorded

#### Table 2

# Summary of Field Parameters DE Karn Lined Impoundment – Hydrogeological Monitoring Program Essexville, Michigan

Sample Location	Sample Date	Dissolved Oxygen	Oxidation Reduction Potential	рН	Specific Conductivity	Temperature	Turbidity				
		(mg/L)	(mV)	(SU)	(umhos/cm)	(°C)	(NTU)				
DE Karn Lined Impour	DE Karn Lined Impoundment										
DEK-MW-15003	7/24/2024	0.65	-127.1	7.9	384	17.7	1.0				
DEK-MW-18001	7/24/2024	1.10	-188.0	8.2	1,026	14.3	10.0				
KLI-PCS	7/24/2024	5.74	-9.0	8.3	711	26.2	5.2				
OW-10	7/24/2024	0.51	-122.9	7.1	863	14.3	19.2				
OW-11	7/24/2024	1.83	-30.1	9.3	406	18.6	9.7				
OW-12	7/24/2024	0.04	-103.5	7.1	1,349	15.1	5.2				

#### Notes:

-- - Parameter was not analyzed

mg/L - milligram per Liter.

mV - Millivolts.

SU - Standard Units.

umhos/cm - Micromhos per centimeter.

°C - Degrees Celsius.

NTU - Nephelometric Turbidity Unit.

#### Table 3

# Summary of Groundwater Sampling Results (Analytical) DE Karn Lined Impoundment - Hydrogeological Monitoring Program Essexville, Michigan

					Sample Location:	DEK-MW-15003	DEK-MW-18001	OW-10	OW-11	OW-12	KLI-PCS
					Sample Date:	7/24/2024	7/24/2024	7/24/2024	7/24/2024	7/24/2024	7/24/2024
Constituent	Unit	EPA MCL	MI Residential*	MI Non- Residential*	MI GSI^	Upgradient	Downgr	adient	Upgradient	Downgradient	Supplemental
Appendix III ⁽¹⁾											
Boron	ug/L	NC	500	500	4,000	649	842	1,120	3,250	1,390	1,010
Calcium	mg/L	NC	NC	NC	500EE	29.4	57.4	126	8.9	180	48.7
Chloride	mg/L	250**	250 ^E	250 ^E	50	60	69.3	79	57.7	41	38
Fluoride	ug/L	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000	3,080	< 1,000	< 1,000
Sulfate	mg/L	250**	250 ^E	250 ^E	500EE	36.9	213	< 1	23	386	116
Total Dissolved Solids	mg/L	500**	500 ^E	500 ^E	500	318	698	682	228	1,230	446
pH, Field	SÜ	6.5 - 8.5**	6.5 - 8.5 ^E	6.5 - 8.5 ^E	6.5 - 9.0	7.9	8.2	7.1	9.3	7.1	8.3
Appendix IV ⁽¹⁾											
Antimony	ug/L	6	6.0	6.0	2.0	< 1	< 1	< 1	3	< 1	< 1
Arsenic	ug/L	10	10	10	10	390	482	2	1,080	45	4
Barium	ug/L	2,000	2,000	2,000	1,200	37	152	174	25	245	506
Beryllium	ug/L	4	4.0	4.0	33	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	ug/L	5	5.0	5.0	2.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium	ug/L	100	100	100	11	< 1	< 1	2	1	< 1	1
Cobalt	ug/L	NC	40	100	100	< 6	< 6	< 6	< 6	< 6	< 6
Fluoride	ug/L	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000	3,080	< 1,000	< 1,000
Lead	ug/L	NC	4.0	4.0	14	< 1	< 1	< 1	< 1	< 1	< 1
Lithium	ug/L	NC	170	350	440	22	18	32	< 10	52	< 10
Mercury	ug/L	2	2.0	2.0	0.20#	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	NC	73	210	120	24	13	< 5	153	8	9
Selenium	ug/L	50	50	50	5.0	< 1	1	1	12	1	< 1
Thallium	ug/L	2	2.0	2.0	2.0	< 2	< 2	< 2	< 2	< 2	< 2
Additional MI Part 11	15 ⁽²⁾										
Iron	ug/L	300**	300 ^E	300 ^E	500,000EE	159	845	3,710	60	4,870	174
Copper	ug/L	1,000**	1,000 ^E	1,000€	20	< 1	1	2	2	2	1
Nickel	ug/L	NC	100	100	120	< 2	2	5	3	7	3
Silver	ug/L	100**	34	98	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Vanadium	ug/L	NC	4.5	62	27	2	2	5	178	< 2	4
Zinc	ug/L	5,000**	2,400	5,000E	260	< 10	< 10	< 10	< 10	< 10	< 10

#### Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.

NC - no criteria; -- - not analyzed.

- * Michigan Part 201 Generic Drinking Water Cleanup Criteria, December 30, 2013, updated October 12, 2023.
- $^{\star\star}\text{-Secondary Maximum Contaminant Level (SMCL), EPA Secondary Drinking Water Regulations (SDWR) April, 2012.$
- ^ Michigan Part 201 Groundwater Surface Water Interface (GSI) Criteria. Hardness-dependent criteria calculated using

hardness of 258 mg CaCO3/L (average of SW-01 [Lake Huron] and SW-02 [Saginaw River] collected in April 2018) per footnote {G} of Michigan

Part 201 criteria tables. Chromium GSI criterion based on hexavalent chromium per footnote {H}. GSI criterion is protective for surface water used as a drinking water source as described in footnote {X}. GSI criterion for chloride is 50 mg/L when the discharge is

to the Great Lakes or connecting waters per footnote {FF}

- # If detected above 0.20 ug/L, further evaluation of low-level mercury may be necessary to evaluate the GSI pathway per Michigan Part 201 and MDEQ policy and procedure 09-014 dated June 20, 2012.
- E Criterion is the aesthetic drinking water value per footnote {E}.
- $^{\mbox{\scriptsize EE}}$  Criterion is based on the total dissolved solids GSI value per footnote {EE}.
- (1) 40 CFR Part 257 Appendix III Detection Monitoring Constituents and Appendix IV Assessment Monitoring Constituents.
- (2) Per Michigan Part 115 Amendment Public Act No. 640 of 2018 Section 11511a(3)(c) and 11519b(2) additional detection

monitoring constituent (iron) and assessment monitoring constituents (copper, nickel, silver, vanadium, and zinc) are reported. **BOLD** value indicates an exceedance of one or more of the listed criteria.

RED value indicates an exceedance of the MCL.

All metals were analyzed as total unless otherwise specified.

#### Table 4

# Summary of Statistical Exceedances DE Karn Lined Impoundment – Hydrogeological Monitoring Program Essexville, Michigan

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY SUMMARY OF STATISTICAL EXCEEDANCES

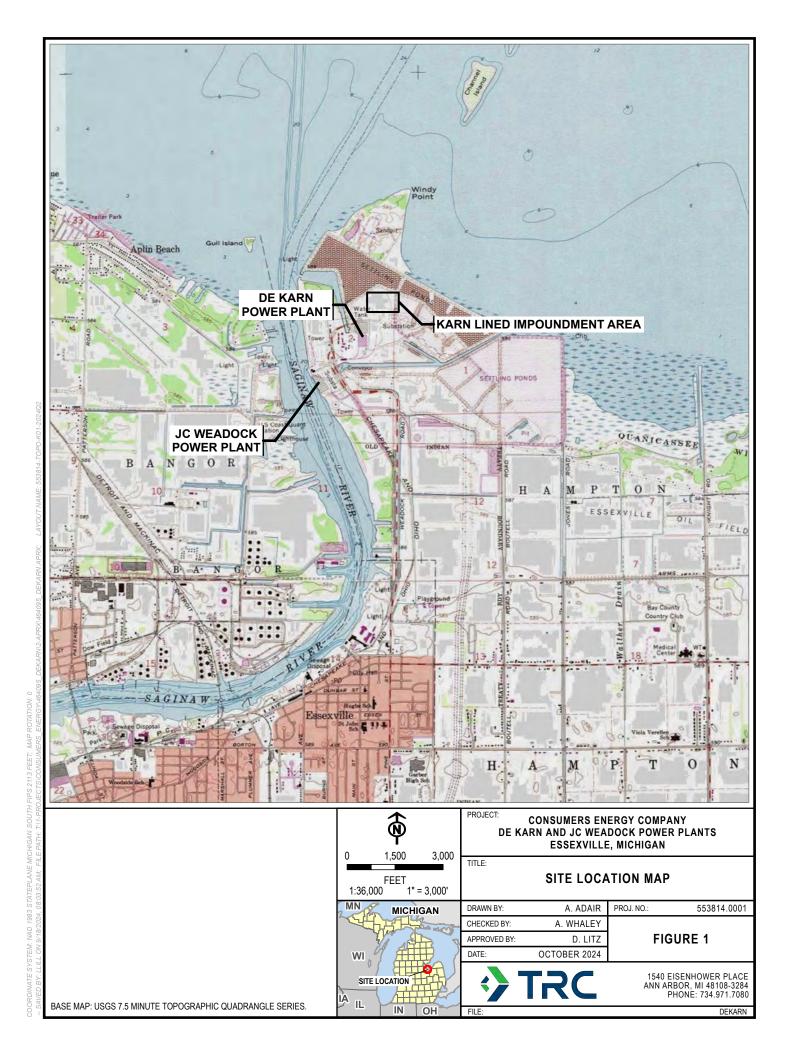
Data is in (X) ug/L or
( ) mg/L
unless otherwise stated

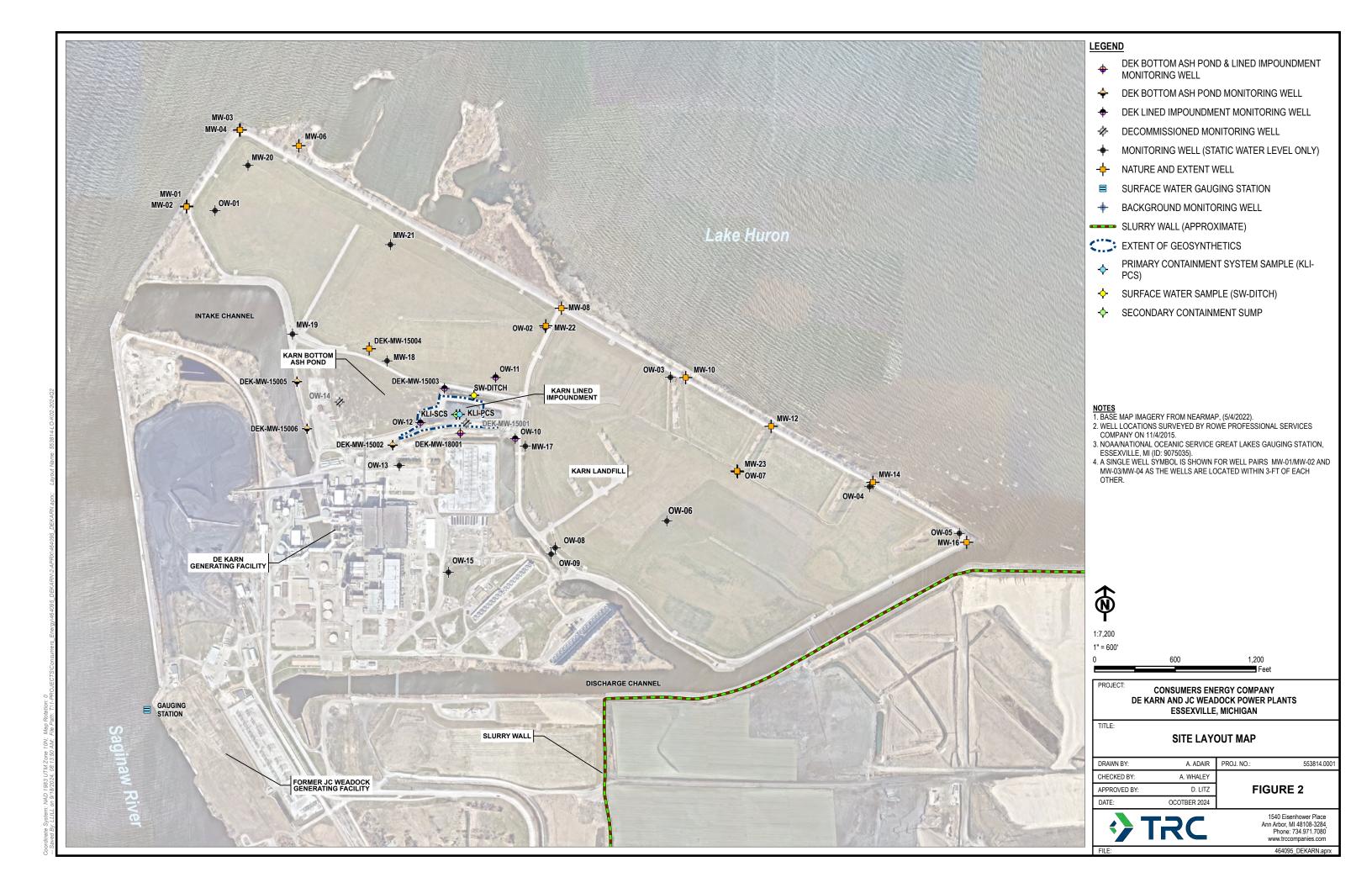
Facility: Karn Lined Impoundment – WDS# 392503

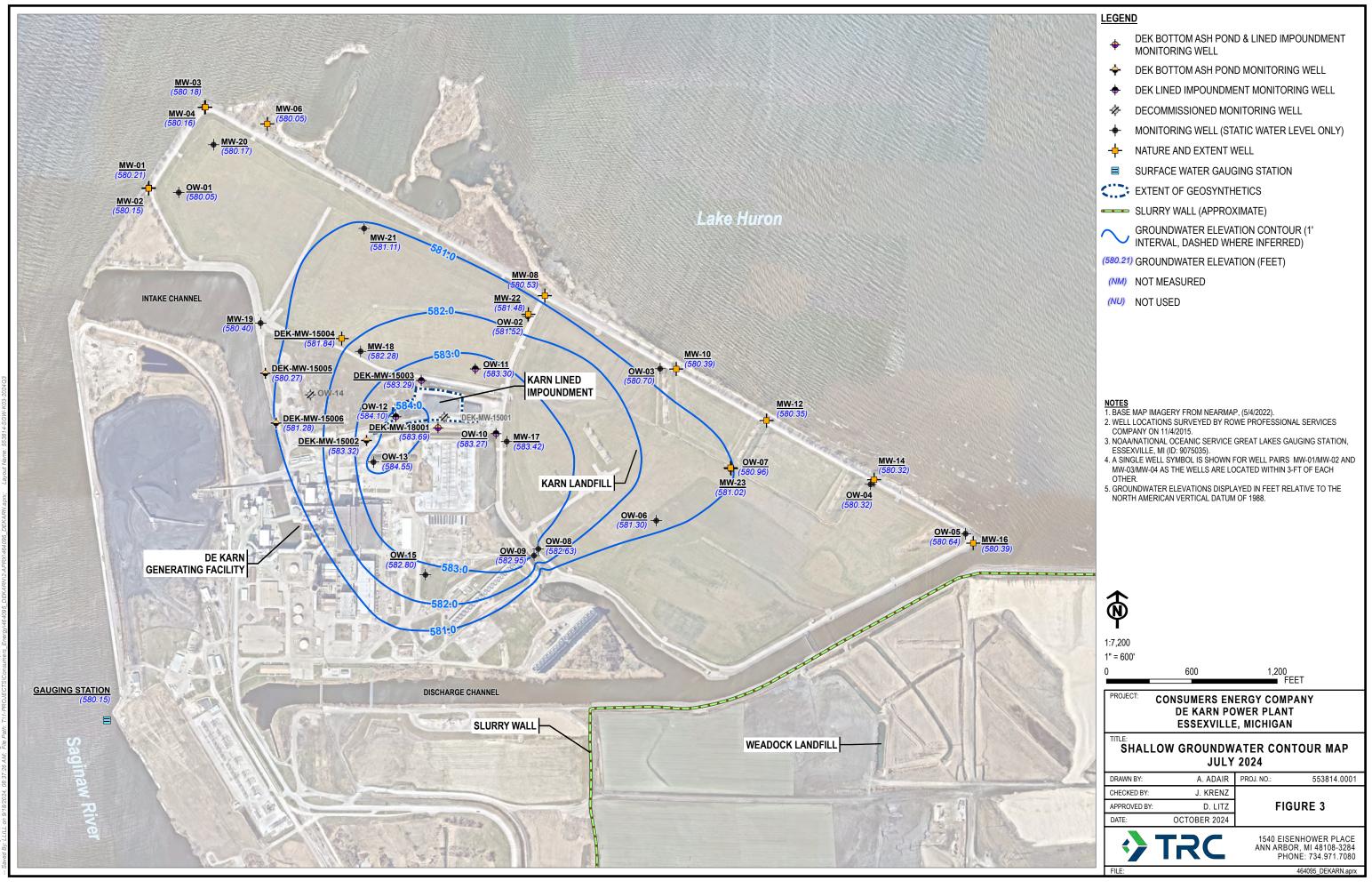
Well #	Location	Parameter	Part 201 GRCC	Statistical Limit (or 'CC' for Control Charts)	2 Qtr. 2024 ( <b>bold</b> >201)	1 Qtr. 2024 ( <b>bold</b> >201)	4 Qtr. 2023 ( <b>bold</b> >201)	3 Qtr. 2023 ( <b>bold</b> >201)			
	No Exceedances										



# **Figures**







Coordinate System: NAD 1983 StatePlane Michigan South



# **Appendix A Laboratory Analytical Reports**



135 W. Trail St. Jackson, MI 49201 phone 517-788-1251 fax 517-788-2533

To: JJFirlit, Karn/Weadock

From: EBlaj, T-258

Date: August 08, 2024

Subject: RCRA GROUNDWATER MONITORING – KARN LINED IMPOUNDMENT – 2024 Q3

CC: HDRegister, P22-521 Darby Litz, Project Manager

TRC Companies, Inc. 1540 Eisenhower Place Ann Arbor, MI 48108

Chemistry Project: 24-0582

TRC Environmental, Inc. conducted groundwater monitoring at the DE Karn Lined Impoundment area during the week of 07/22/2024 for the 3rd Quarter requirement, as specified in the Sampling and Analysis Plan for the site. The samples were received for analysis by the Chemistry department of Laboratory Services on 07/25/2024.

Samples for Total Sulfide have been subcontracted to Merit Laboratories, Inc. and the results are listed under the analyst initials "Merit". Please note that the subcontracted work is not reported under the CE laboratory scope of accreditation.

With the exception noted above, the report that follows presents the results of the requested analytical testing; the results apply only to the samples as received. All samples have been analyzed in accordance with the 2016 TNI Standard and the applicable A2LA accreditation scope for Laboratory Services. Any exceptions to applicable test method criteria and standard compliance are noted in the Case Narrative or flagged with applicable qualifiers in the analytical results section.

Reviewed and approved by:

Emil Blaj Sr. Technical Analyst Project Lead



Testing performed in accordance with the A2LA scope of accredidation specified in the listed certificate. The information contained in this report is the sole property of Consumers Energy. It cannot be reproduced except in full, and with consent from Consumers Energy, or the customer for which this report was issued.

#### **CASE NARRATIVE**

#### I. <u>Sample Receipt</u>

All samples were received within hold time and in good conditions; no anomalies were noted in the attached Sample Log-In Shipment Inspection Form during sample check-in. Identification of all samples included in the work order/project is provided in the sample summary section. All sample preservation and temperature upon receipt was verified by the sample custodian and confirmed to meet method requirements.

#### II. Methodology

Unless otherwise indicated, sample preparation and analysis was performed in accordance with the corresponding test methods from "Methods for the Determination of Inorganic Substances in Environmental Samples (EPA/600/R-93/100); SW-846, "Test Methods for Evaluating Solid Waste – Physical/Chemical Methods", USEPA (latest revisions), and Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WPCF, 22nd Edition, 2012.

#### III. Results/Quality Control

Analytical results for this report are presented by laboratory sample ID, container, & aliquot number. Results for the field blanks, field duplicates, and recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section; all other quality control data is listed in the Quality Control Summary associated with the particular test method, as appropriate. Unless specifically noted in the case narrative, all method quality control requirements have been met. If any results are qualified, the corresponding data flags/qualifiers are listed on the last page of the results section. Any additional information on method performance, when applicable, is presented in this section of the case narrative. When data flags are not needed, the qualifiers text box on the last page is left blank, and a statement confirms that no exceptions occurred.

#### **DEFINITIONS / QUALIFIERS**

The following qualifiers and/or acronyms are used in the report, where applicable:

<u>Acronym</u>	<u>Description</u>
RL	Reporting Limit
ND	Result not detected or below Reporting Limit
NT	Non TNI analyte
LCS	Laboratory Control Sample
LRB	Laboratory Reagent Blank (also referred to as Method Blank)
DUP	Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
TDL	Target Detection Limit
SM	Standard Methods Compendium

Qualifier	<u>Description</u>
*	Generic data flag, applicable description added in the corresponding notes section
В	The analyte was detected in the LRB at a level which is significant relative to sample result
D	Reporting limit elevated due to dilution
E	Estimated due to result exceeding the linear range of the analyzer
Н	The maximum recommended hold time was exceeded
I	Dilution required due to matrix interference; reporting limit elevated
J	Estimated due to result found above MDL but below PQL (or RL)
K	Reporting limit raised due to matrix interference
M	The precision for duplicate analysis was not met; RPD outside acceptance criteria
N	Non-homogeneous sample made analysis questionable
PI	Possible interference may have affected the accuracy of the laboratory result
Q	Matrix Spike or Matrix Spike Duplicate recovery outside acceptance criteria
R	Result confirmed by new sample preparation and reanalysis
X	Other notation required; comment listed in sample notes and/or case narrative



# **Work Order Sample Summary**

Customer Name: Karn/Weadock Complex

Work Order ID: Q3-2024 DEK Lined Impoundment

Date Received: 7/25/2024 Chemistry Project: 24-0582

Sample #	Field Sample ID	<u>Matrix</u>	Sample Date	<u>Site</u>
24-0582-01	DEK-MW-15003	Groundwater	07/24/2024 09:33	DEK Lined Impoundment
24-0582-02	OW-10	Groundwater	07/24/2024 08:28	DEK Lined Impoundment
24-0582-03	OW-11	Groundwater	07/24/2024 10:48	DEK Lined Impoundment
24-0582-04	OW-12	Groundwater	07/24/2024 10:18	DEK Lined Impoundment
24-0582-05	KLI-SCS	Not Collected		DEK Lined Impoundment
24-0582-06	KLI-PCS	Groundwater	07/24/2024 12:03	DEK Lined Impoundment
24-0582-07	SW-DITCH	Not Collected		DEK Lined Impoundment
24-0582-08	DUP-KLI	Groundwater	07/24/2024 00:00	DEK Lined Impoundment
24-0582-09	EB-KLI	Water	07/24/2024 11:30	DEK Lined Impoundment
24-0582-10	FB-KLI	Water	07/24/2024 10:48	DEK Lined Impoundment



Report Date:

08/08/24



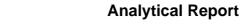
A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0582** 

 Field Sample ID:
 DEK-MW-15003
 Collect Date:
 07/24/2024

 Lab Sample ID:
 24-0582-01
 Collect Time:
 09:33 AM

Mercury by EPA 7470A, Total,	Aqueous			Allquot #. 24-0	582-01-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	07/29/2024	AB24-0727-06
Metals by EPA 6020B: CCR Ru	ıle Appendix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	582-01-C01-A02	Analyst: EE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Arsenic	390		ug/L	1.0	07/30/2024	AB24-0730-05
Barium	37		ug/L	5.0	07/30/2024	AB24-0730-05
Beryllium	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Boron	649		ug/L	20.0	07/30/2024	AB24-0730-05
Cadmium	ND		ug/L	0.2	07/30/2024	AB24-0730-05
Calcium	29400		ug/L	1000.0	07/30/2024	AB24-0730-05
Chromium	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Cobalt	ND		ug/L	6.0	07/30/2024	AB24-0730-05
Copper	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Iron	159		ug/L	20.0	07/30/2024	AB24-0730-05
Lead	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Lithium	22		ug/L	10.0	07/30/2024	AB24-0730-05
Magnesium	4520		ug/L	1000.0	07/30/2024	AB24-0730-05
Manganese	68		ug/L	5.0	07/30/2024	AB24-0730-05
Molybdenum	24		ug/L	5.0	07/30/2024	AB24-0730-05
Nickel	ND		ug/L	2.0	07/30/2024	AB24-0730-05
Potassium	4550		ug/L	100.0	07/30/2024	AB24-0730-05
Selenium	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Silver	ND		ug/L	0.2	07/30/2024	AB24-0730-05
Sodium	56200		ug/L	1000.0	07/30/2024	AB24-0730-05
Thallium	ND		ug/L	2.0	07/30/2024	AB24-0730-05
Vanadium	2		ug/L	2.0	07/30/2024	AB24-0730-05
Zinc	ND		ug/L	10.0	07/30/2024	AB24-0730-05
Anions by EPA 300.0 Aqueous	s, NO2, NO3			Aliquot #: 24-0	582-01-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	149		ug/L	100.0	07/25/2024	AB24-0725-06
Nitrite	ND		ug/L	100.0	07/25/2024	AB24-0725-06
Anions by EPA 300.0 CCR Rul	e Analyte List, Cl, F,	SO4, Aqu	ieous	Aliquot #: 24-0	582-01-C02-A02	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	60000		ug/L	1000.0	07/31/2024	AB24-0730-1





Report Date: 08/08/24

Sample Site: Laboratory Project: **DEK Lined Impoundment** 24-0582

Field Sample ID: DEK-MW-15003 Collect Date: 07/24/2024 Lab Sample ID: 24-0582-01 Collect Time: 09:33 AM

Matrix: Groundwater

Anions by EPA 300.0 CCR Rule A	Analyte List, CI, F, S	604, Aqu	ieous	Aliquot #: 24-0	582-01-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	07/25/2024	AB24-0730-11
Sulfate	36900		ug/L	1000.0	07/31/2024	AB24-0730-11
Nitrogen-Ammonia by SM4500Nh	13(h), Groundwater	HL		Aliquot #: 24-0	582-01-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	1560		ug/L	25.0	07/27/2024	AB24-0727-01
Total Dissolved Solids by SM 254	40C			Aliquot #: 24-0	582-01-C04-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	318		mg/L	10.0	07/25/2024	AB24-0725-10
Alkalinity by SM 2320B				Aliquot #: 24-0	582-01-C05-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	103000		ug/L	10000.0	08/01/2024	AB24-0801-03
Alkalinity Bicarbonate	103000		ug/L	10000.0	08/01/2024	AB24-0801-03
Alkalinity Carbonate	ND		ug/L	10000.0	08/01/2024	AB24-0801-03
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	582-01-C07-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	238		ug/L	20.0	07/31/2024	AB24-0729-14



Report Date:

08/08/24



A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0582** 

 Field Sample ID:
 OW-10
 Collect Date:
 07/24/2024

 Lab Sample ID:
 24-0582-02
 Collect Time:
 08:28 AM

Units ug/L s Exp Units ug/L ug/L ug/L ug/L	RL 1.0 1.0	Analysis Date 07/29/2024  0582-02-C01-A02  Analysis Date 07/30/2024	Tracking AB24-0727-06 Analyst: EB Tracking
Units ug/L ug/L ug/L	Aliquot #: 24-0 RL 1.0 1.0	0582-02-C01-A02 Analysis Date	Analyst: EB
Units ug/L ug/L ug/L	RL 1.0 1.0	Analysis Date	
ug/L ug/L ug/L	1.0 1.0	•	
ug/L ug/L	1.0	07/30/2024	
ug/L			AB24-0730-05
-		07/30/2024	AB24-0730-05
ua/L	5.0	07/30/2024	AB24-0730-05
~ <del></del> —	1.0	07/30/2024	AB24-0730-05
ug/L	20.0	07/30/2024	AB24-0730-05
ug/L	0.2	07/30/2024	AB24-0730-05
ug/L	1000.0	07/30/2024	AB24-0730-05
ug/L	1.0	07/30/2024	AB24-0730-05
ug/L	6.0	07/30/2024	AB24-0730-05
ug/L	1.0	07/30/2024	AB24-0730-05
ug/L	20.0	07/30/2024	AB24-0730-05
ug/L	1.0	07/30/2024	AB24-0730-05
ug/L	10.0	07/30/2024	AB24-0730-05
ug/L	1000.0	07/30/2024	AB24-0730-05
ug/L	5.0	07/30/2024	AB24-0730-05
ug/L	5.0	07/30/2024	AB24-0730-05
ug/L	2.0	07/30/2024	AB24-0730-05
ug/L	100.0	07/30/2024	AB24-0730-05
ug/L	1.0	07/30/2024	AB24-0730-05
ug/L	0.2	07/30/2024	AB24-0730-05
ug/L	1000.0	07/30/2024	AB24-0730-05
ug/L	2.0	07/30/2024	AB24-0730-05
ug/L	2.0	07/30/2024	AB24-0730-05
ug/L	10.0	07/30/2024	AB24-0730-05
	Aliquot #: 24-0	)582-02-C02-A01	Analyst: KDR
Units	RL	Analysis Date	Tracking
ug/L	100.0	07/25/2024	AB24-0725-06
ug/L	100.0	07/25/2024	AB24-0725-06
ueous	Aliquot #: 24-0	0582-02-C02-A02	Analyst: KDR
	RL	Analysis Date	Tracking
ug/L	1000.0	07/31/2024	AB24-0730-11
	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	ug/L       5.0         ug/L       1.0         ug/L       20.0         ug/L       0.2         ug/L       1000.0         ug/L       1.0         ug/L       1.0         ug/L       10.0         ug/L       10.0         ug/L       1000.0         ug/L       2.0         ug/L       100.0         ug/L       100.0         ug/L       1000.0         ug/L       2.0         ug/L       2.0         ug/L       10.0         Aliquot #: 24-0         ug/L       100.0         ug/L       100.0         ug/L       100.0         ug/L       100.0         ug/L       100.0         ug/L       100.0	ug/L         5.0         07/30/2024           ug/L         1.0         07/30/2024           ug/L         20.0         07/30/2024           ug/L         0.2         07/30/2024           ug/L         1000.0         07/30/2024           ug/L         1.0         07/30/2024           ug/L         10.0         07/30/2024           ug/L         10.0         07/30/2024           ug/L         5.0         07/30/2024           ug/L         5.0         07/30/2024           ug/L         100.0         07/30/2024           ug/L         1.0         07/30/2024           ug/L         1.0         07/30/2024           ug/L         1.0         07/30/2024           ug/L         1.0         07/30/2024           ug/L         2.0         07/30/2024           ug/L         2.0         07/30/2024           ug/L         10.0         07/30/2024           ug/L         10.0



Report Date:

08/08/24



Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0582** 

 Field Sample ID:
 OW-10
 Collect Date:
 07/24/2024

 Lab Sample ID:
 24-0582-02
 Collect Time:
 08:28 AM

Anions by EPA 300.0 CCR Rule Ana	Aliquot #: 24-0582-02-C02-A02		Analyst: KDR			
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	07/25/2024	AB24-0730-11
Sulfate	ND		ug/L	1000.0	07/31/2024	AB24-0730-11
Nitrogen-Ammonia by SM4500NH3(h), Groundwater HL				Aliquot #: 24-0	Analyst: CLE	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	6070		ug/L	25.0	07/27/2024	AB24-0727-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	Analyst: LMO	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	682		mg/L	10.0	07/25/2024	AB24-0725-10
Alkalinity by SM 2320B				Aliquot #: 24-0	Analyst: CLE	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	514000		ug/L	10000.0	08/01/2024	AB24-0801-03
Alkalinity Bicarbonate	514000		ug/L	10000.0	08/01/2024	AB24-0801-03
Alkalinity Carbonate	ND		ug/L	10000.0	08/01/2024	AB24-0801-03
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0582-02-C07-A01		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	170		ug/L	20.0	07/31/2024	AB24-0729-14
Metals by EPA 6020B: CCR Rule App	Ехра	Aliquot #: 24-0	Analyst: EB			
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	07/30/2024	AB24-0731-08
Arsenic	2		ug/L	1.0	07/30/2024	AB24-0731-08
Barium	155		ug/L	5.0	07/30/2024	AB24-0731-08
Beryllium	ND		ug/L	1.0	07/30/2024	AB24-0731-08
Boron	1140		ug/L	20.0	07/30/2024	AB24-0731-08
Cadmium	ND		ug/L	0.2	07/30/2024	AB24-0731-08
Calcium	127000		ug/L	1000.0	07/30/2024	AB24-0731-08
Chromium	1		ug/L	1.0	07/30/2024	AB24-0731-08
Cobalt	ND		ug/L	6.0	07/30/2024	AB24-0731-08
Copper	1		ug/L	1.0	07/30/2024	AB24-0731-08
Iron	3520		ug/L	20.0	07/30/2024	AB24-0731-08
Lead	ND		ug/L	1.0	07/30/2024	AB24-0731-08
Lithium	32		ug/L	10.0	07/30/2024	AB24-0731-08
Magnesium	26100		ug/L	1000.0	07/30/2024	AB24-0731-08
-	<u>24-</u>	0582 Page	-			





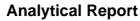
**Report Date:** 08/08/24

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0582** 

 Field Sample ID:
 OW-10
 Collect Date:
 07/24/2024

 Lab Sample ID:
 24-0582-02
 Collect Time:
 08:28 AM

Metals by EPA 6020B: CCR Rule Appendix III-IV Diss Metals Expa			Aliquot #: 24-0582-02-C08-A01		Analyst: EB
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Manganese	598	ug/L	5.0	07/30/2024	AB24-0731-08
Molybdenum	ND	ug/L	5.0	07/30/2024	AB24-0731-08
Nickel	5	ug/L	2.0	07/30/2024	AB24-0731-08
Potassium	5250	ug/L	100.0	07/30/2024	AB24-0731-08
Selenium	1	ug/L	1.0	07/30/2024	AB24-0731-08
Silver	ND	ug/L	0.2	07/30/2024	AB24-0731-08
Sodium	73000	ug/L	1000.0	07/30/2024	AB24-0731-08
Thallium	ND	ug/L	2.0	07/30/2024	AB24-0731-08
Vanadium	2	ug/L	2.0	07/30/2024	AB24-0731-08
Zinc	ND	ug/L	10.0	07/30/2024	AB24-0731-08
Mercury by EPA 7470A, Dissolved			Aliquot #: 24-0	)582-02-C08-A02	Analyst: CLE
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Mercury	ND	ug/L	0.2	08/06/2024	AB24-0806-03





A CENTURY OF EXCELLENCE

Report Date: 08/08/24

Sample Site: **DEK Lined Impoundment** 

Laboratory Project: 24-0582 Collect Date: 07/24/2024 Field Sample ID: OW-11 Lab Sample ID: 24-0582-03 Collect Time: 10:48 AM

Mercury by EPA 7470A, Total, Aqueou		Aliquot #: 24-0	Analyst: CLE			
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	07/29/2024	AB24-0727-06
Metals by EPA 6020B: CCR Rule Appe	ndix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	582-03-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	3		ug/L	1.0	07/30/2024	AB24-0730-05
Arsenic	1080		ug/L	1.0	07/30/2024	AB24-0730-05
Barium	25		ug/L	5.0	07/30/2024	AB24-0730-05
Beryllium	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Boron	3250		ug/L	20.0	07/30/2024	AB24-0730-05
Cadmium	ND		ug/L	0.2	07/30/2024	AB24-0730-05
Calcium	8900		ug/L	1000.0	07/30/2024	AB24-0730-05
Chromium	1		ug/L	1.0	07/30/2024	AB24-0730-05
Cobalt	ND		ug/L	6.0	07/30/2024	AB24-0730-05
Copper	2		ug/L	1.0	07/30/2024	AB24-0730-05
Iron	60		ug/L	20.0	07/30/2024	AB24-0730-05
Lead	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Lithium	ND		ug/L	10.0	07/30/2024	AB24-0730-05
Magnesium	1150		ug/L	1000.0	07/30/2024	AB24-0730-05
Manganese	ND		ug/L	5.0	07/30/2024	AB24-0730-05
Molybdenum	153		ug/L	5.0	07/30/2024	AB24-0730-05
Nickel	3		ug/L	2.0	07/30/2024	AB24-0730-05
Potassium	4430		ug/L	100.0	07/30/2024	AB24-0730-05
Selenium	12		ug/L	1.0	07/30/2024	AB24-0730-05
Silver	ND		ug/L	0.2	07/30/2024	AB24-0730-05
Sodium	61400		ug/L	1000.0	07/30/2024	AB24-0730-05
Thallium	ND		ug/L	2.0	07/30/2024	AB24-0730-05
Vanadium	178		ug/L	2.0	07/30/2024	AB24-0730-05
Zinc	ND		ug/L	10.0	07/30/2024	AB24-0730-05
Anions by EPA 300.0 Aqueous, NO2, N	103			Aliquot #: 24-0	582-03-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	363		ug/L	100.0	07/25/2024	AB24-0725-06
Nitrite	ND		ug/L	100.0	07/25/2024	AB24-0725-06
Anions by EPA 300.0 CCR Rule Analyt	e List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	582-03-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	57700		ug/L	1000.0	07/31/2024	AB24-0730-11





A CENTURY OF EXCELLENCE

Report Date: 08/08/24

Laboratory Project: Sample Site: **DEK Lined Impoundment** 24-0582

Collect Date: Field Sample ID: OW-11 07/24/2024 Lab Sample ID: 24-0582-03 Collect Time: 10:48 AM

Matrix: Groundwater

Sulfide

Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous A				Aliquot #: 24-0	582-03-C02-A02 Analyst: KDR		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Fluoride	3080		ug/L	1000.0	07/25/2024	AB24-0730-11	
Sulfate	23000		ug/L	1000.0	07/31/2024	AB24-0730-11	
Nitrogen-Ammonia by SM4500NH3	Aliquot #: 24-0	582-03-C03-A01	Analyst: CLE				
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Ammonia	13000		ug/L	25.0	07/27/2024	AB24-0727-01	
Total Dissolved Solids by SM 2540	С			Aliquot #: 24-0	582-03-C04-A01	Analyst: LMO	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Total Dissolved Solids	228		mg/L	10.0	07/25/2024	AB24-0725-10	
Alkalinity by SM 2320B				Aliquot #: 24-0	Analyst: CLE		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Alkalinity Total	91000		ug/L	10000.0	08/01/2024	AB24-0801-03	
Alkalinity Bicarbonate	32000		ug/L	10000.0	08/01/2024	AB24-0801-03	
Alkalinity Carbonate	58500		ug/L	10000.0	08/01/2024	AB24-0801-03	
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	582-03-C07-A01	Analyst: Merit	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	

ug/L

ND

07/31/2024

AB24-0729-14

20.0



Report Date:

08/08/24



A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0582** 

 Field Sample ID:
 OW-12
 Collect Date:
 07/24/2024

 Lab Sample ID:
 24-0582-04
 Collect Time:
 10:18 AM

Mercury by EPA 7470A, Total,			Aliquot #: 24-0	)582-04-C01-A01	Analyst: CLE	
Parameter(s)	Result	Flag	Units	RL	<b>Analysis Date</b>	Tracking
Mercury	ND		ug/L	0.2	07/29/2024	AB24-0727-06
Metals by EPA 6020B: CCR Ru	le Appendix III-IV To	tal Metals	з Ехр	Aliquot #: 24-0	)582-04-C01-A02	Analyst: EE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Arsenic	45		ug/L	1.0	07/30/2024	AB24-0730-05
Barium	245		ug/L	5.0	07/30/2024	AB24-0730-05
Beryllium	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Boron	1390		ug/L	20.0	07/30/2024	AB24-0730-05
Cadmium	ND		ug/L	0.2	07/30/2024	AB24-0730-05
Calcium	180000		ug/L	1000.0	07/30/2024	AB24-0730-05
Chromium	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Cobalt	ND		ug/L	6.0	07/30/2024	AB24-0730-05
Copper	2		ug/L	1.0	07/30/2024	AB24-0730-05
Iron	4870		ug/L	20.0	07/30/2024	AB24-0730-05
Lead	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Lithium	52		ug/L	10.0	07/30/2024	AB24-0730-05
Magnesium	101000		ug/L	1000.0	07/30/2024	AB24-0730-05
Manganese	624		ug/L	5.0	07/30/2024	AB24-0730-05
Molybdenum	8		ug/L	5.0	07/30/2024	AB24-0730-05
Nickel	7		ug/L	2.0	07/30/2024	AB24-0730-05
Potassium	8750		ug/L	100.0	07/30/2024	AB24-0730-05
Selenium	1		ug/L	1.0	07/30/2024	AB24-0730-05
Silver	ND		ug/L	0.2	07/30/2024	AB24-0730-05
Sodium	55500		ug/L	1000.0	07/30/2024	AB24-0730-05
Thallium	ND		ug/L	2.0	07/30/2024	AB24-0730-05
Vanadium	ND		ug/L	2.0	07/30/2024	AB24-0730-05
Zinc	ND		ug/L	10.0	07/30/2024	AB24-0730-05
Anions by EPA 300.0 Aqueous	, NO2, NO3			Aliquot #: 24-0	)582-04-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	07/26/2024	AB24-0725-06
Nitrite	ND		ug/L	100.0	07/26/2024	AB24-0725-06
Anions by EPA 300.0 CCR Rule	e Analyte List, Cl, F,	SO4, Aqu	ieous	Aliquot #: 24-0	)582-04-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	41000		ug/L	1000.0	07/31/2024	AB24-0730-11



**Analytical Report** 

**Report Date:** 08/08/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0582** 

 Field Sample ID:
 OW-12
 Collect Date:
 07/24/2024

 Lab Sample ID:
 24-0582-04
 Collect Time:
 10:18 AM

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous					582-04-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	07/26/2024	AB24-0730-11
Sulfate	386000		ug/L	1000.0	07/31/2024	AB24-0730-11
Nitrogen-Ammonia by SM4500NH3(h),	Groundwater	HL		Aliquot #: 24-0	582-04-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	1300		ug/L	25.0	07/27/2024	AB24-0727-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0582-04-C04-A01		Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	1230		mg/L	10.0	07/25/2024	AB24-0725-10
Alkalinity by SM 2320B				Aliquot #: 24-0	582-04-C05-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	602000		ug/L	10000.0	08/01/2024	AB24-0801-03
Alkalinity Bicarbonate	602000		ug/L	10000.0	08/01/2024	AB24-0801-03
Alkalinity Carbonate	ND		ug/L	10000.0	08/01/2024	AB24-0801-03
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	582-04-C07-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	ND		ug/L	20.0	07/31/2024	AB24-0729-14



Report Date:

08/08/24



A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0582** 

Field Sample ID: KLI-PCS Collect Date: 07/24/2024
Lab Sample ID: 24-0582-06 Collect Time: 12:03 PM

Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
• •		riay			-	
Mercury	ND		ug/L	0.2	07/29/2024	AB24-0727-06
Metals by EPA 6020B: CCR	Rule Appendix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	582-06-C01-A02	Analyst: El
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	07/30/2024	AB24-0730-0
Arsenic	4		ug/L	1.0	07/30/2024	AB24-0730-0
Barium	506		ug/L	5.0	07/30/2024	AB24-0730-0
Beryllium	ND		ug/L	1.0	07/30/2024	AB24-0730-0
Boron	1010		ug/L	20.0	07/30/2024	AB24-0730-0
Cadmium	ND		ug/L	0.2	07/30/2024	AB24-0730-0
Calcium	48700		ug/L	1000.0	07/30/2024	AB24-0730-0
Chromium	1		ug/L	1.0	07/30/2024	AB24-0730-0
Cobalt	ND		ug/L	6.0	07/30/2024	AB24-0730-0
Copper	1		ug/L	1.0	07/30/2024	AB24-0730-0
Iron	174		ug/L	20.0	07/30/2024	AB24-0730-0
Lead	ND		ug/L	1.0	07/30/2024	AB24-0730-0
Lithium	ND		ug/L	10.0	07/30/2024	AB24-0730-0
Magnesium	19400		ug/L	1000.0	07/30/2024	AB24-0730-0
Manganese	18		ug/L	5.0	07/30/2024	AB24-0730-0
Molybdenum	9		ug/L	5.0	07/30/2024	AB24-0730-0
Nickel	3		ug/L	2.0	07/30/2024	AB24-0730-0
Potassium	16400		ug/L	100.0	07/30/2024	AB24-0730-0
Selenium	ND		ug/L	1.0	07/30/2024	AB24-0730-0
Silver	ND		ug/L	0.2	07/30/2024	AB24-0730-0
Sodium	62800		ug/L	1000.0	07/30/2024	AB24-0730-0
Thallium	ND		ug/L	2.0	07/30/2024	AB24-0730-0
Vanadium	4		ug/L	2.0	07/30/2024	AB24-0730-0
Zinc	ND		ug/L	10.0	07/30/2024	AB24-0730-0
Anions by EPA 300.0 Aqueo	ous, NO2, NO3			Aliquot #: 24-0	582-06-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	07/26/2024	AB24-0725-0
Nitrite	ND		ug/L	100.0	07/26/2024	AB24-0725-0
Anions by EPA 300.0 CCR R	Rule Analyte List, CI, F,	SO4, Aqu	ieous	Aliquot #: 24-0	582-06-C02-A02	Analyst: KDI
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	38000		ug/L	1000.0	07/31/2024	AB24-0730-1



### **Analytical Report**

Report Date: 08/08/24

24-0582

Sample Site: Laboratory Project: **DEK Lined Impoundment** 

Collect Date: Field Sample ID: KLI-PCS 07/24/2024 Lab Sample ID: 24-0582-06 Collect Time: 12:03 PM

Matrix: Groundwater

**Laboratory Services** A CENTURY OF EXCELLENCE

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous A				Aliquot #: 24-0582-06-C02-A02		Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	07/26/2024	AB24-0730-11
Sulfate	116000		ug/L	1000.0	07/31/2024	AB24-0730-11
Nitrogen-Ammonia by SM4500NH3(h	), Groundwat	er HL		Aliquot #: 24-0	582-06-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	119		ug/L	25.0	07/27/2024	AB24-0727-01
Total Dissolved Solids by SM 2540C	Total Dissolved Solids by SM 2540C					Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	446		mg/L	10.0	07/25/2024	AB24-0725-10
Alkalinity by SM 2320B				Aliquot #: 24-0	Analyst: CLE	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	192000		ug/L	10000.0	08/01/2024	AB24-0801-03
Alkalinity Bicarbonate	192000		ug/L	10000.0	08/01/2024	AB24-0801-03
Alkalinity Carbonate	ND		ug/L	10000.0	08/01/2024	AB24-0801-03
Sulfide, Total by SM 4500 S2D	Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0582-06-C07-A01	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	ND		ug/L	20.0	07/31/2024	AB24-0729-14



Report Date:

08/08/24



A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0582** 

Field Sample ID: DUP-KLI Collect Date: 07/24/2024
Lab Sample ID: 24-0582-08 Collect Time: 12:00 AM

Mercury by EPA 7470A, Total, A		Aliquot #: 24-0582-08-C01-A01 Analys				
Parameter(s)	Result	Flag	Units	RL	<b>Analysis Date</b>	Tracking
Mercury	ND		ug/L	0.2	07/29/2024	AB24-0727-06
Metals by EPA 6020B: CCR Rul	le Appendix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	)582-08-C01-A02	Analyst: EE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Arsenic	394		ug/L	1.0	07/30/2024	AB24-0730-05
Barium	36		ug/L	5.0	07/30/2024	AB24-0730-05
Beryllium	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Boron	650		ug/L	20.0	07/30/2024	AB24-0730-05
Cadmium	ND		ug/L	0.2	07/30/2024	AB24-0730-05
Calcium	28800		ug/L	1000.0	07/30/2024	AB24-0730-05
Chromium	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Cobalt	ND		ug/L	6.0	07/30/2024	AB24-0730-05
Copper	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Iron	158		ug/L	20.0	07/30/2024	AB24-0730-05
Lead	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Lithium	21		ug/L	10.0	07/30/2024	AB24-0730-05
Magnesium	4480		ug/L	1000.0	07/30/2024	AB24-0730-05
Manganese	68		ug/L	5.0	07/30/2024	AB24-0730-05
Molybdenum	24		ug/L	5.0	07/30/2024	AB24-0730-05
Nickel	ND		ug/L	2.0	07/30/2024	AB24-0730-05
Potassium	4710		ug/L	100.0	07/30/2024	AB24-0730-05
Selenium	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Silver	ND		ug/L	0.2	07/30/2024	AB24-0730-05
Sodium	55200		ug/L	1000.0	07/30/2024	AB24-0730-05
Thallium	ND		ug/L	2.0	07/30/2024	AB24-0730-05
Vanadium	3		ug/L	2.0	07/30/2024	AB24-0730-05
Zinc	ND		ug/L	10.0	07/30/2024	AB24-0730-05
Anions by EPA 300.0 Aqueous	, NO2, NO3			Aliquot #: 24-0	)582-08-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	103		ug/L	100.0	07/26/2024	AB24-0725-06
Nitrite	ND		ug/L	100.0	07/26/2024	AB24-0725-06
Anions by EPA 300.0 CCR Rule	Analyte List, CI, F,	SO4, Aqu	ieous	Aliquot #: 24-0	)582-08-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	57600		ug/L	1000.0	07/31/2024	AB24-0730-11



**Analytical Report** 

**Report Date:** 08/08/24

A CENTURY OF EXCELLENCE

Sample Site: DEK Lined Impoundment Laboratory Project: 24-0582

Field Sample ID: DUP-KLI Collect Date: 07/24/2024
Lab Sample ID: 24-0582-08 Collect Time: 12:00 AM

Matrix: Groundwater

**Laboratory Services** 

Anions by EPA 300.0 CCR Rule Analyte List, Cl, F, SO4, Aqueous				Aliquot #: 24-0582-08-C02-A02		Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	07/26/2024	AB24-0730-11
Sulfate	37900		ug/L	1000.0	07/31/2024	AB24-0730-11
Nitrogen-Ammonia by SM4500NH3(h),	Groundwater H	łL		Aliquot #: 24-0	582-08-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	1370		ug/L	25.0	07/27/2024	AB24-0727-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0582-08-C04-A01		Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	308		mg/L	10.0	07/25/2024	AB24-0725-10
Alkalinity by SM 2320B				Aliquot #: 24-0	582-08-C05-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	102000		ug/L	10000.0	08/01/2024	AB24-0801-03
Alkalinity Bicarbonate	101000		ug/L	10000.0	08/01/2024	AB24-0801-03
Alkalinity Carbonate	ND		ug/L	10000.0	08/01/2024	AB24-0801-03
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	582-08-C07-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	238		ug/L	20.0	07/31/2024	AB24-0729-14



Report Date:

08/08/24



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0582** 

Field Sample ID: EB-KLI Collect Date: 07/24/2024 Lab Sample ID: 24-0582-09 Collect Time: 07/24/2024

Matrix: Water

Mercury by EPA 7470A, To	flercury by EPA 7470A, Total, Aqueous			Aliquot #: 24-0582-09-C01-A01		
Parameter(s)	Result	Flag Unit	s RL	Analysis Date	Tracking	
Mercury	ND	ug/L	0.2	07/29/2024	AB24-0727-06	
Metals by EPA 6020B: CCF	R Rule Appendix III-IV To	tal Metals Exp	Aliquot #: 24-0	Aliquot #: 24-0582-09-C01-A02		
Parameter(s)	Result	Flag Unit	-	Analysis Date	Analyst: EB Tracking	
Antimony	ND	ug/L	1.0	07/30/2024	AB24-0730-05	
Arsenic	ND	ug/L	1.0	07/30/2024	AB24-0730-05	
Barium	ND	ug/L	5.0	07/30/2024	AB24-0730-05	
Beryllium	ND	ug/L	1.0	07/30/2024	AB24-0730-05	
Boron	ND	ug/L	20.0	07/30/2024	AB24-0730-05	
Cadmium	ND	ug/L	0.2	07/30/2024	AB24-0730-05	
Calcium	ND	ug/L	1000.0	07/30/2024	AB24-0730-05	
Chromium	ND	ug/L	1.0	07/30/2024	AB24-0730-05	
Cobalt	ND	ug/L	6.0	07/30/2024	AB24-0730-05	
Copper	ND	ug/L	1.0	07/30/2024	AB24-0730-05	
Iron	ND	ug/L	20.0	07/30/2024	AB24-0730-05	
Lead	ND	ug/L	1.0	07/30/2024	AB24-0730-05	
Lithium	ND	ug/L	10.0	07/30/2024	AB24-0730-05	
Magnesium	ND	ug/L	1000.0	07/30/2024	AB24-0730-05	
Manganese	ND	ug/L	5.0	07/30/2024	AB24-0730-05	
Molybdenum	ND	ug/L	5.0	07/30/2024	AB24-0730-05	
Nickel	ND	ug/L	2.0	07/30/2024	AB24-0730-05	
Potassium	ND	ug/L	100.0	07/30/2024	AB24-0730-05	
Selenium	ND	ug/L	1.0	07/30/2024	AB24-0730-05	
Silver	ND	ug/L	0.2	07/30/2024	AB24-0730-05	
Sodium	ND	ug/L	1000.0	07/30/2024	AB24-0730-05	
Thallium	ND	ug/L	2.0	07/30/2024	AB24-0730-05	
Vanadium	ND	ug/L	2.0	07/30/2024	AB24-0730-05	
Zinc	ND	ug/L	10.0	07/30/2024	AB24-0730-05	
Anions by EPA 300.0 Aque	eous. NO2. NO3		Aliauot #: 24-0	)582-09-C02-A01	Analyst: KDR	
Parameter(s)	Result	Flag Unit	•	Analysis Date	Tracking	
Nitrate	ND	ug/L	100.0	07/26/2024	AB24-0725-06	
Nitrite	ND	ug/L	100.0	07/26/2024	AB24-0725-06	
Nitrogen-Ammonia by SM4	500NH3(h), Groundwate	er HL	Aliquot #: 24-0	0582-09-C03-A01	Analyst: CLE	
Parameter(s)	Result	Flag Unit	-	Analysis Date	Tracking	
Ammonia	ND	ug/L	25.0	07/27/2024	AB24-0727-01	
		0592 Daga 19 of 40				



### **Analytical Report**

Report Date: 08/08/24

**Laboratory Services** A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** 

Laboratory Project: 24-0582 Field Sample ID: EB-KLI Collect Date: 07/24/2024 Lab Sample ID: 24-0582-09 Collect Time: 11:30 AM

Matrix: Water

Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	Analyst: Merit	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	ND		ug/L	20.0	07/31/2024	AB24-0729-14



Report Date:

08/08/24



**Laboratory Services** A CENTURY OF EXCELLENCE

Sample Site: Laboratory Project: **DEK Lined Impoundment** 

24-0582 Field Sample ID: FB-KLI Collect Date: 07/24/2024 Lab Sample ID: 24-0582-10 Collect Time: 10:48 AM

Matrix: Water

Mercury by EPA 7470A, To	Mercury by EPA 7470A, Total, Aqueous			Aliquot #: 24-0	Analyst: CLE	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	07/29/2024	AB24-0727-06
Metals by EPA 6020B: CCF	R Rule Appendix III-IV To	tal Metals	Ехр	Aliquot #: 24-0	Analyst: EB	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Arsenic	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Barium	ND		ug/L	5.0	07/30/2024	AB24-0730-05
Beryllium	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Boron	ND		ug/L	20.0	07/30/2024	AB24-0730-05
Cadmium	ND		ug/L	0.2	07/30/2024	AB24-0730-05
Calcium	ND		ug/L	1000.0	07/30/2024	AB24-0730-05
Chromium	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Cobalt	ND		ug/L	6.0	07/30/2024	AB24-0730-05
Copper	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Iron	ND		ug/L	20.0	07/30/2024	AB24-0730-05
Lead	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Lithium	ND		ug/L	10.0	07/30/2024	AB24-0730-05
Magnesium	ND		ug/L	1000.0	07/30/2024	AB24-0730-05
Manganese	ND		ug/L	5.0	07/30/2024	AB24-0730-05
Molybdenum	ND		ug/L	5.0	07/30/2024	AB24-0730-05
Nickel	ND		ug/L	2.0	07/30/2024	AB24-0730-05
Potassium	ND		ug/L	100.0	07/30/2024	AB24-0730-05
Selenium	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Silver	ND		ug/L	0.2	07/30/2024	AB24-0730-05
Sodium	ND		ug/L	1000.0	07/30/2024	AB24-0730-05
Thallium	ND		ug/L	2.0	07/30/2024	AB24-0730-05
Vanadium	ND		ug/L	2.0	07/30/2024	AB24-0730-05
Zinc	ND		ug/L	10.0	07/30/2024	AB24-0730-05
Anions by EPA 300.0 Aque	ous, NO2, NO3			Aliquot #: 24-0	582-10-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	07/26/2024	AB24-0725-06
Nitrite	ND		ug/L	100.0	07/26/2024	AB24-0725-06
Nitrogen-Ammonia by SM4	500NH3(h), Groundwate	er HL		Aliquot #: 24-0	582-10-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	ND		ug/L	25.0	07/27/2024	AB24-0727-01
	24	0592 Dago 20	of 40			



### **Analytical Report**

Report Date: 08/08/24

**Laboratory Services** A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** 

Laboratory Project: 24-0582 Field Sample ID: FB-KLI Collect Date: 07/24/2024 Lab Sample ID: 24-0582-10 Collect Time: 10:48 AM

Matrix: Water

Sulfide, Total by SM 4500 S2D	Aliquot #: 24-	Analyst: Merit			
Parameter(s)	Result	Flag Units	RL	Analysis Date	Tracking
Sulfide	ND	ug/L	20.0	07/31/2024	AB24-0729-14



# **Analytical Report**

**Report Date:** 08/08/24

Data Qualifiers	Exception Summary
	No exceptions occurred.

CONSUMERS ENERGY

### Chemistry Department

General Standard Operating Procedure

PROC CHEM-1.2.01 PAGE 1 OF 2 REVISION 5 ATTACHMENT A

Project Number: 24-0	1502	Inspectio	on Date: 7/25/24	Inspection By:	CIE
Sample Origin/Project Name:	DEK).	1cw a	3-2024 L	I	
Shipment Delivered By: Enter	the type o	f shipment carr	ier.		
Inter-Company Mail		FedEx	UPS	USPS	
Tracking Number:			Other/Carry In Owho	m) TRC	
Shipping Containers: Enter th					
Cooler (1) C	ardboard E	30x	Custom Case	Envelope/N	Mailer
			Other		
Condition of Shipment: Enter	the as-rece	eived condition	of the shipment container		
Damaged Shipment Ob	served: N	one /	Dented	Leak	cing
Other			2.7	_	
Shipment Security: Enter if an	ny of the ch	inning contain	ers were onened hefore re	ceint	
			_ Sealed		
				N/A	-
Enclosed Documents: Enter th					
CoC Wor	k Request		Air Data Sheet	Other	
Temperature of Containers: N	Measure the	temperature o	f several sample containe	rs.	
As-Received Temperat	ture Range	03-1.3	°C Samples Rece	ived on Ice: Yes	No
M&TE # and Expiration					
			10. N. P. V. J. L. V.	v	
Number and Type of Contain	ers: Enter	the type and to	otal number of sample con	tainers received.	
Container Type	7000	Soil	Other	Broken	Leaking
VOA (40mL or 60mL)	12	_	-	-	_
Quart/Liter (g/p)	-	3-4	<del></del>		-
9-oz (amber glass jar)	_	-		-	-
2-oz (amber glass)	22			_	_
125 mL (plastic)	33			-	-
24 mL vial (glass)	_	_			_
250 mL (plastic)	6			_	
Other	$\leftarrow$				-
		/			
	/				

# **CHAIN OF CUSTODY**



### CONSUMERS ENERGY COMPANY - LABORATORY SERVICES

Page _ 1 _ of _ 1 _

135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251

SAM	PLING SITE / C	USTOMER:			PROJECT NUMBER:	SAP CC or	WO#:							A	NAI	YSI	S RE	OUE	ESTED	O L DEGLUDELLES
Q3-2	024 DEK Line	d Impoundment			24-0582	ADQUEDIEN EMPIRE RESIDEN				(Atta	ch Li	st if N	Aore S	Space	is Needed)	QA REQUIREMENT:				
SAMPLING TEAM:  A. Whaley, J. Krenz  SEND REPORT TO: Joseph Firlit				TURNAROUND TIME REQUIRED:  □ 24 HR □ 48 HR □ 3 DAYS □ STANDARD ☒ OTHER										a	☐ NPDES  ☑ TNI					
SEN	D REPORT TO:	Joseph Firlit	seph Firlit		email:	phone:													Mchels	☐ ISO 17025
COPY TO:			Harold Register		MATRIX CODES: GW = Groundwater WW = Wastewater OX = Oth		-	1		-	ERS	IVE	S							☐ 10 CFR 50 APP. B☐ INTERNAL INFO
	LAB	10.71			W = Water / Aqueous Liquid   A = Air   S = Soil / General Solid   WP = W   O = Oil   WT = Gi	ipe eneral Waste	TOTAL#						Total Metals	suc	Ammonia		Alkalinity	de	Dissowed	□ OTHER
S	AMPLE ID	DATE	TIME	MATRIX	FIELD SAMPLE ID / LO	OCATION	TOT	None	HNO	NaOl	HCI	MeOl	Tota	Anions	Am	TDS	Alka	Sulfide	D.s	REMARKS
3	24-0582-01	7/24/24	0933	GW	DEK-MW-15003		7	4	1	1 1			x	x	x	x	x	x		
	-02	7/24/24	14.77	GW	OW-10		7	4	1	1			х	x	x	x	x	x	X	Dissolved Metals, Some list as total
	-03	7/24/24	1048	GW	OW-11		7	4	t	1			x	x	x	x	x	x		100000000000000000000000000000000000000
	-04	7/24/24	1018	GW	OW-12		7	4	1	I			x	x	x	x	x	x		
	05			W	KLI-SCS		7	4	1	Ц	-		x	x	х	x	x	×		Dry
	-06	7124124	1203	sw	KLI-PCS		7	4	1	1			x	x	x	х	x	x		7
	-07			sw	SW-DITCH-		7	4	1	1			x	×	N-	Y	x	_×		Dry
	-08	7/24/24		GW	DUP-KLI		7	4	t	1			x	x	x	x	x	x		19
	-09	7/24/24	1130	W	EB-KLI		4	1	r	1			x	x	x			X		
	-10	7/24/24	1048	W	FB-KLI		4	1	1	i			х	х	X			x		
RELIN	QUISHED BY:			DATE/	TIME:	RECEIVED BY:							CC	MME	NTS					
	QUISHED BY:	Mah			12/14 07/25/24 7:5	- 0	4 of 40						Re		l on Io	ce?				#: <u>LSO 27723</u> ue Date: <u>6-27-25</u>



Report ID: S64475.01(01) Generated on 08/02/2024

Report to

Attention: Emil Blaj

Consumers Energy Company

135 West Trail Street Jackson, MI 49201

Phone: D:517-788-5888 C:517-684-9467 FAX:

Email: emil.blaj@cmsenergy.com

Report produced by

Merit Laboratories, Inc. 2680 East Lansing Drive East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions: John Laverty (johnlaverty@meritlabs.com) Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S64475.01-S64475.08

Project: 24-0582 PR#24070844 Collected Date(s): 07/24/2024

Submitted Date/Time: 07/25/2024 12:14

Sampled by: Unknown P.O. #: 4400114090

**Table of Contents** 

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Glossary of Abbreviations (Page 3)

Method Summary (Page 4)

Sample Summary (Page 5)

Maya Murshak Technical Director

Naya Mushah



#### **General Report Notes**

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples

for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Starred (*) analytes are not NY NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

#### **Report Narrative**

There is no additional narrative for this analytical report



### **Laboratory Accreditations (For Reference Only)**

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

#### **Qualifier Descriptions**

Qualifier	Description
!	Result is outside of stated limit criteria
В	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
Н	Sample submitted and run outside of holding time
1	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
0	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
Т	No correction for total solids
X	Elevated reporting limit due to matrix interference
Υ	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
е	Reported value estimated due to interference
j	Analyte also found in associated method blank
0	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

### **Glossary of Abbreviations**

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



**Method Summary** 

Method Version

SM4500-S2 D

Standard Method 4500 S2 D 2011

Report to Consumers Energy Company Project: 24-0582 PR#24070844 **24**05820P16e 28 of 40



### Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S64475.01	DEK-MW-15003 (24-0582-01)	Groundwater	07/24/24 09:33
S64475.02	OW-10 (24-0582-02)	Groundwater	07/24/24 08:28
S64475.03	OW-11 (24-0582-03)	Groundwater	07/24/24 10:48
S64475.04	OW-12 (24-0582-04)	Groundwater	07/24/24 10:18
S64475.05	KLI-PCS (24-0582-06)	Groundwater	07/24/24 12:03
S64475.06	DUP-KLI (24-0582-08)	Groundwater	07/24/24 00:01
S64475.07	EB-KLI (24-0582-09)	Groundwater	07/24/24 11:30
S64475.08	FB-KLI (24-0582-10)	Groundwater	07/24/24 10:48



Lab Sample ID: S64475.01

Sample Tag: DEK-MW-15003 (24-0582-01) Collected Date/Time: 07/24/2024 09:33

Matrix: Groundwater COC Reference:

Sample Containers

# Type Preservative(s) Refrigerated? Arrival Temp. (C) Thermometer # 125mL Plastic NaOH/Zn Acetate Yes 5.4 IR

### Inorganics

Method: SM4500-S2 D, Run Date: 07/31/24 21:07, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.238	0.02		mg/L	1	18496-25-8	



Lab Sample ID: S64475.02

Sample Tag: OW-10 (24-0582-02) Collected Date/Time: 07/24/2024 08:28

Matrix: Groundwater COC Reference:

Sample Containers

#	туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I nermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.4	IR

### Inorganics

Method: SM4500-S2 D, Run Date: 07/31/24 21:10, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.170	0.02		ma/L	1	18496-25-8	



Lab Sample ID: S64475.03

Sample Tag: OW-11 (24-0582-03) Collected Date/Time: 07/24/2024 10:48

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.4	IR

### Inorganics

Method: SM4500-S2 D, Run Date: 07/31/24 22:27, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.02		ma/L	1	18496-25-8	



Lab Sample ID: S64475.04

Sample Tag: OW-12 (24-0582-04) Collected Date/Time: 07/24/2024 10:18

Matrix: Groundwater COC Reference:

Sample Containers

# Type Preservative(s) Refrigerated? Arrival Temp. (C) Thermometer # 1 125mL Plastic NaOH/Zn Acetate Yes 5.4 IR

### Inorganics

Method: SM4500-S2 D, Run Date: 07/31/24 22:42, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.02		ma/L	1	18496-25-8	



Lab Sample ID: S64475.05

Sample Tag: KLI-PCS (24-0582-06)
Collected Date/Time: 07/24/2024 12:03

Matrix: Groundwater COC Reference:

Sample Containers

#	туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I nermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.4	IR

### Inorganics

Method: SM4500-S2 D, Run Date: 07/31/24 22:44, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.02		ma/L	1	18496-25-8	



Lab Sample ID: S64475.06

Sample Tag: DUP-KLI (24-0582-08)
Collected Date/Time: 07/24/2024 00:01

Matrix: Groundwater COC Reference:

Sample Containers

#	туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I nermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.4	IR

### Inorganics

Method: SM4500-S2 D, Run Date: 07/31/24 22:48, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.238	0.02		ma/L	1	18496-25-8	



Lab Sample ID: S64475.07

Sample Tag: EB-KLI (24-0582-09)
Collected Date/Time: 07/24/2024 11:30

Matrix: Groundwater COC Reference:

Sample Containers

#	туре	Preservative(s)	Retrigerated?	Arrival Temp. (C)	i nermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.4	IR

### Inorganics

Method: SM4500-S2 D, Run Date: 07/31/24 22:51, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.02		ma/L	1	18496-25-8	



Lab Sample ID: S64475.08

Sample Tag: FB-KLI (24-0582-10)
Collected Date/Time: 07/24/2024 10:48

Matrix: Groundwater COC Reference:

Sample Containers

#	туре	Preservative(s)	Retrigerated?	Arrival Temp. (C)	i nermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.4	IR

### Inorganics

Method: SM4500-S2 D, Run Date: 07/31/24 22:52, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	Not detected	0.02		ma/L	1	18496-25-8	

### **Merit Laboratories Login Checklist**

Lab Set ID:S64475

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0582 PR#24070844

Submitted: 07/25/2024 12:14 Login User: MMC

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street

Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

Selectio	n			Description	Note
Sample	Receiv	ing			
01.	Yes	☐ No	□ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.4
02.	Yes	No	□ N/A	Received on ice/ cooling process begun	
03.	Yes	<b>X</b> No	□ N/A	Samples shipped	
04.	Yes	X No	□ N/A	Samples left in 24 hr. drop box	
05.	Yes	No	X N/A	Are there custody seals/tape or is the drop box locked	
Chain o	of Custo	dy			
06.	Yes	No	□ N/A	COC adequately filled out	
07.	Yes	No	□ N/A	COC signed and relinquished to the lab	
08.	Yes	No	□ N/A	Sample tag on bottles match COC	
09.	Yes	X No	N/A	Subcontracting needed? Subcontacted to:	
Preserv	ation				
10.	<b>X</b> Yes	No	□ N/A	Do sample have correct chemical preservation	
11.	Yes	No	□ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	Yes	X No	N/A	Did any samples need to be preserved in the lab?	
Bottle C	Conditio	ns			
13.	<b>Y</b> es	No	□ N/A	All bottles intact	
14.	Yes	No	□ N/A	Appropriate analytical bottles are used	
15.	Yes	<b>X</b> No	□ N/A	Merit bottles used	
16. <b>2</b>	<b>X</b> Yes	No	□ N/A	Sufficient sample volume received	
17.	Yes	X No	□ N/A	Samples require laboratory filtration	
18.	Yes	No	□ N/A	Samples submitted within holding time	
19.	Yes	No	X N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	
Correcti	ive actic	n for all	exceptions	is to call the client and to notify the project manager.	
Client R	Review E	By:			

### **Merit Laboratories Bottle Preservation Check**

Lab Set ID: S64475 Submitted: 07/25/2024 12:14

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0582 PR#24070844

Initial Preservation Check: 07/25/2024 13:29 MMC

Preservation Recheck (E200.8): N/A

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street

Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S64475.01	125mL Plastic NaOH/Zn Acetate	>12			
S64475.02	125mL Plastic NaOH/Zn Acetate	>12			
S64475.03	125mL Plastic NaOH/Zn Acetate	>12			
S64475.04	125mL Plastic NaOH/Zn Acetate	>12			
S64475.05	125mL Plastic NaOH/Zn Acetate	>12			
S64475.06	125mL Plastic NaOH/Zn Acetate	>12			
S64475.07	125mL Plastic NaOH/Zn Acetate	>12			
S64475.08	125mL Plastic NaOH/Zn Acetate	>12			



2680 East Lansing Dr., East Lansing, MI 48823 Phone (517) 332-0167 Fax (517) 332-4034 www.meritlabs.com c.o.c. page # _ 1 _ of _ 1

REPOR			Lanoratorica, inc.	CHA	IN OF	CL	JS	TOD	Y RE	CO	RD					INVOI	CE TO
CONTACT NAME E				CONT	ACT NAM	E					×S/	ME					
Company Con	sumers E	energy					COMPANY										
ADDRESS 135 V	W. Trail S	Street						ADDR	SS								
Jackson Jackson				STATE MI			1	CITY STATE ZIP CODE									
PHONE NO. 517-	788-5888		FAX NO. 517-788-2533	P.O. NO. 44001	140900	)	PHONE NO. E-MAIL ADDRESS										
-MAIL ADDRESS	emil.blaj(	a)cmsen	ergy.com	QUOTE NO.			ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)										
PROJECT NO./NAM				SAMPLER(S) - PLEAS	SE PRINT/SI	GN NA	ME			N/A					Certific	ations	
	_		□1 DAY □2 DAYS □3 D	AYS STANDAR	р Поті	HER				19/24					Поню	VAP Drin	king Wate
			TD X LEVEL II LEVEL III				R _				0				□D ₀ D	□ NPC	DES
MATRIX (	GW=GROUN SL=SLUDG	DWATER	WW=WASTEWATER S=S		SD=SOLI	D			ntainer		Sulfide				Project  Detroi	Locations t  New	/ York
MERIT LAB NO. FOR LAB USE ONLY	YE. DATE	AR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION				NONE	를 를	H,SO,	МеОН	Total				Other	Instructions	
	07/24/24	0933	DEK-MW-15003 (24-05	82-01)	GW	1		Ħ	1		1					d with NaOH	
	07/24/24	0828	OW-10 (24-0582-02)		GW	1	T		1	П	1				"		
.03	07/24/24	1048	OW-11 (24-0582-03)		GW	1			1		1				n		
.он	07/24/24	1018	OW-12 (24-0582-04)		GW	1			1		1				n		
.05	07/24/24	1203	KLI-PCS (24-0582-06)		GW	1			1		1				"		
.06	07/24/24	-	DUP-KLI (24-0582-08)		GW	1			1		1				"		
	07/24/24	1130	EB-KLI (24-0582-09)		GW	1			1		1				"		
.08	07/24/24	1048	FB-KLI (24-0582-10)		GW	1	F		1		1				"		
RELINQUISHED BY	r:	٥.		☐ Sampler D	ATE T	IME		RELIN	QUISHED	BY:						DATE	TIME
SIGNATURE/ORGA RECEIVED BY: SIGNATURE/ORGA	ANIZATION	Jos	hanna Murran	1 7/25/2	ATE T	14 IME 14		RECEI	TURE/OF							DATE	TIME
RELINQUISHED BY SIGNATURE/ORGA RECEIVED BY:				D		IME IME	1	SEAL			SEAL IN YES I	I NO□	INITIALS	NOTES:	5.4	ON ARRIVAL	



135 W. Trail St. Jackson, MI 49201 phone 517-788-1251 fax 517-788-2533

To: JJFirlit, Karn/Weadock

From: EBlaj, T-258

Date: August 08, 2024

Subject: RCRA GROUNDWATER MONITORING – KARN BAP & LINED IMP. WELLS – 2024 Q3

CC: HDRegister, P22-521 Darby Litz, Project Manager

TRC Companies, Inc. 1540 Eisenhower Place Ann Arbor, MI 48108

Chemistry Project: 24-0581

TRC Environmental, Inc. conducted groundwater monitoring at the DEKarn Bottom Ash Pond and Lined Impoundment Wells area during the week of 07/22/2024, for the 3rd Quarter requirement, as specified in the Sampling and Analysis Plan for the site. The samples were received for analysis by the Chemistry department of Laboratory Services on 07/25/2024.

Samples for Total Sulfide have been subcontracted to Merit Laboratories, Inc. and the results are listed under the analyst initials "Merit". Please note that the subcontracted work is not reported under the CE laboratory scope of accreditation.

With the exception noted above, the report that follows presents the results of the requested analytical testing; the results apply only to the samples, as received. All samples have been analyzed in accordance with the 2016 TNI Standard and the applicable A2LA accreditation scope for Laboratory Services. Any exceptions to applicable test method criteria and standard compliance are noted in the Case Narrative or flagged with applicable qualifiers in the analytical results section.

Reviewed and approved by:

Emil Blaj Sr. Technical Analyst Project Lead



Testing performed in accordance with the A2LA scope of accredidation specified in the listed certificate. The information contained in this report is the sole property of Consumers Energy. It cannot be reproduced except in full, and with consent from Consumers Energy, or the customer for which this report was issued.

#### **CASE NARRATIVE**

#### I. Sample Receipt

All samples were received within hold time and in good conditions; no anomalies were noted on the attached Sample Log-In Shipment Inspection Form during sample check-in. Identification of all samples included in the work order/project is provided in the sample summary section. All sample preservation and temperature upon receipt was verified by the sample custodian and confirmed to meet method requirements.

### II. Methodology

Unless otherwise indicated, sample preparation and analysis was performed in accordance with the corresponding test methods from "Methods for the Determination of Inorganic Substances in Environmental Samples (EPA/600/R-93/100); SW-846, "Test Methods for Evaluating Solid Waste – Physical/Chemical Methods", USEPA (latest revisions), and Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WPCF, 22nd Edition, 2012.

### III. Results/Quality Control

Analytical results for this report are presented by laboratory sample ID, container, & aliquot number. Results for the field blanks, field duplicates, and recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section; all other quality control data is listed in the Quality Control Summary associated with the particular test method, as appropriate. Unless specifically noted in the case narrative, all method quality control requirements have been met. If any results are qualified, the corresponding data flags/qualifiers are listed on the last page of the results section. Any additional information on method performance, when applicable, is presented in this section of the case narrative. When data flags are not needed, the qualifiers text box on the last page is left blank, and a statement confirms that no exceptions occurred.

### **DEFINITIONS / QUALIFIERS**

The following qualifiers and/or acronyms are used in the report, where applicable:

<u>Acronym</u>	<u>Description</u>
RL	Reporting Limit
ND	Result not detected or below Reporting Limit
NT	Non TNI analyte
LCS	Laboratory Control Sample
LRB	Laboratory Reagent Blank (also referred to as Method Blank)
DUP	Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
TDL	Target Detection Limit
SM	Standard Methods Compendium

<b>Qualifier</b>	<u>Description</u>
*	Generic data flag, applicable description added in the corresponding notes section
В	The analyte was detected in the LRB at a level which is significant relative to sample result
D	Reporting limit elevated due to dilution
E	Estimated due to result exceeding the linear range of the analyzer
Н	The maximum recommended hold time was exceeded
I	Dilution required due to matrix interference; reporting limit elevated
J	Estimated due to result found above MDL but below PQL (or RL)
K	Reporting limit raised due to matrix interference
M	The precision for duplicate analysis was not met; RPD outside acceptance criteria
N	Non-homogeneous sample made analysis questionable
PI	Possible interference may have affected the accuracy of the laboratory result
Q	Matrix Spike or Matrix Spike Duplicate recovery outside acceptance criteria
R	Result confirmed by new sample preparation and reanalysis
X	Other notation required; comment listed in sample notes and/or case narrative



### **Work Order Sample Summary**

Customer Name: Karn/Weadock Complex

Work Order ID: Q3-2024 DEK Bottom Ash Pond & Lined Impoundment

**Date Received:** 7/25/2024 **Chemistry Project:** 24-0581

Sample #	Field Sample ID	<u>Matrix</u>	Sample Date	<u>Site</u>
24-0581-01	DEK-MW-18001	Groundwater	07/24/2024 12:35	DEK Bottom Ash Pond & Lined Impoundment
24-0581-02	DEK-MW-18001 MS	Groundwater	07/24/2024 12:35	DEK Bottom Ash Pond & Lined Impoundment
24-0581-03	DEK-MW-18001 MSD	Groundwater	07/24/2024 12:35	DEK Bottom Ash Pond & Lined Impoundment



Report Date:

08/08/24



**Laboratory Services** A CENTURY OF EXCELLENCE

Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** 

Laboratory Project: 24-0581 Collect Date: Field Sample ID: DEK-MW-18001 07/24/2024 Lab Sample ID: 24-0581-01 Collect Time: 12:35 PM

Mercury by EPA 7470A, Total, Aqueou	Aliquot #: 24-0581-01-C01-A01		Analyst: CLE			
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	07/29/2024	AB24-0727-06
Metals by EPA 6020B: CCR Rule Appe	endix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	0581-01-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Arsenic	482		ug/L	1.0	07/30/2024	AB24-0730-05
Barium	152		ug/L	5.0	07/30/2024	AB24-0730-05
Beryllium	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Boron	842		ug/L	20.0	07/30/2024	AB24-0730-05
Cadmium	ND		ug/L	0.2	07/30/2024	AB24-0730-05
Calcium	57400		ug/L	1000.0	07/30/2024	AB24-0730-05
Chromium	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Cobalt	ND		ug/L	6.0	07/30/2024	AB24-0730-05
Copper	1		ug/L	1.0	07/30/2024	AB24-0730-05
Iron	845		ug/L	20.0	07/30/2024	AB24-0730-05
Lead	ND		ug/L	1.0	07/30/2024	AB24-0730-05
Lithium	18		ug/L	10.0	07/30/2024	AB24-0730-05
Magnesium	11800		ug/L	1000.0	07/30/2024	AB24-0730-05
Manganese	141		ug/L	5.0	07/30/2024	AB24-0730-05
Molybdenum	13		ug/L	5.0	07/30/2024	AB24-0730-05
Nickel	2		ug/L	2.0	07/30/2024	AB24-0730-05
Potassium	5530		ug/L	100.0	07/30/2024	AB24-0730-05
Selenium	1		ug/L	1.0	07/30/2024	AB24-0730-05
Silver	ND		ug/L	0.2	07/30/2024	AB24-0730-05
Sodium	131000		ug/L	1000.0	07/30/2024	AB24-0730-05
Thallium	ND		ug/L	2.0	07/30/2024	AB24-0730-05
Vanadium	2		ug/L	2.0	07/30/2024	AB24-0730-05
Zinc	ND		ug/L	10.0	07/30/2024	AB24-0730-05
Anions by EPA 300.0 Aqueous, NO2, NO3				Aliquot #: 24-0581-01-C02-A01		Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	07/25/2024	AB24-0725-06
Nitrite	ND		ug/L	100.0	07/25/2024	AB24-0725-06
Anions by EPA 300.0 CCR Rule Analy	te List, Cl, F,	SO4, Aqu	ieous	Aliquot #: 24-0	0581-01-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	69300		ug/L	1000.0	07/31/2024	AB24-0730-11



#### **Analytical Report**

**Report Date:** 08/08/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** L

Laboratory Project: 24-0581
Collect Date: 07/24/2024
Collect Time: 12:35 PM

Lab Sample ID: 24-0581-01 Matrix: Groundwater

Field Sample ID: DEK-MW-18001

Anions by EPA 300.0 CCR Rule Analy	Aliquot #: 24-0	581-01-C02-A02	Analyst: KDR			
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	07/25/2024	AB24-0730-11
Sulfate	213000		ug/L	1000.0	07/31/2024	AB24-0730-11
Nitrogen-Ammonia by SM4500NH3(h),	Nitrogen-Ammonia by SM4500NH3(h), Groundwater HL				581-01-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	2020		ug/L	25.0	07/27/2024	AB24-0727-01
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	581-01-C04-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	698		mg/L	10.0	07/25/2024	AB24-0725-10
Alkalinity by SM 2320B				Aliquot #: 24-0	581-01-C05-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	163000		ug/L	10000.0	08/01/2024	AB24-0801-03
Alkalinity Bicarbonate	163000		ug/L	10000.0	08/01/2024	AB24-0801-03
Alkalinity Carbonate	ND		ug/L	10000.0	08/01/2024	AB24-0801-03
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	581-01-C07-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	157		ug/L	20.0	07/31/2024	AB24-0729-13



Report Date:

08/08/24



A CENTURY OF EXCELLENCE

Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** Laboratory Project: 24-0581

Field Sample ID: DEK-MW-18001 MS

Collect Date: 07/24/2024 Lab Sample ID: 24-0581-02 Collect Time: 12:35 PM

Matrix: Groundwater

Mercury by EPA 7470A, Tot	Danult	Flac	Ha!te	n.	Analysis Data	Tue aleles
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	98.0		%	0.2	07/29/2024	AB24-0727-0
Metals by EPA 6020B: CCR	Rule Appendix III-IV To	tal Metals	<b>Ехр</b>	Aliquot #: 24-0	581-02-C01-A02	Analyst: El
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	105		%	1.0	07/30/2024	AB24-0730-0
Arsenic	107		%	1.0	07/30/2024	AB24-0730-0
Barium	101		%	5.0	07/30/2024	AB24-0730-0
Beryllium	98		%	1.0	07/30/2024	AB24-0730-0
Boron	108		%	20.0	07/30/2024	AB24-0730-0
Cadmium	101		%	0.2	07/30/2024	AB24-0730-0
Calcium	103		%	1000.0	07/30/2024	AB24-0730-0
Chromium	104		%	1.0	07/30/2024	AB24-0730-0
Cobalt	104		%	6.0	07/30/2024	AB24-0730-0
Copper	104		%	1.0	07/30/2024	AB24-0730-0
Iron	104		%	20.0	07/30/2024	AB24-0730-0
Lead	98		%	1.0	07/30/2024	AB24-0730-0
Lithium	97		%	10.0	07/30/2024	AB24-0730-0
Magnesium	107		%	1000.0	07/30/2024	AB24-0730-0
Manganese	104		%	5.0	07/30/2024	AB24-0730-0
Molybdenum	105		%	5.0	07/30/2024	AB24-0730-0
Nickel	103		%	2.0	07/30/2024	AB24-0730-0
Potassium	108		%	100.0	07/30/2024	AB24-0730-0
Selenium	105		%	1.0	07/30/2024	AB24-0730-0
Silver	97.2		%	0.2	07/30/2024	AB24-0730-0
Sodium	106		%	1000.0	07/30/2024	AB24-0730-0
Thallium	97		%	2.0	07/30/2024	AB24-0730-0
Vanadium	107		%	2.0	07/30/2024	AB24-0730-0
Zinc	106		%	10.0	07/30/2024	AB24-0730-0
Anions by EPA 300.0 Aque	ous, NO2, NO3			Aliquot #: 24-0	581-02-C02-A01	Analyst: KD
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Trackin
Nitrate	92		%	100.0	07/25/2024	AB24-0725-0
Nitrite	101		%	100.0	07/25/2024	AB24-0725-0
Anions by EPA 300.0 CCR F	Rule Analyte List, Cl, F,	SO4, Aqu	eous	Aliquot #: 24-0	581-02-C02-A02	Analyst: KD
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Trackin
Chloride	104		%	1000.0	07/31/2024	AB24-0730-1



#### **Analytical Report**

**Report Date:** 08/08/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** 

Laboratory Project: 2

**24-0581** 07/24/2024

Field Sample ID: **DEK-MW-18001 MS** 

Collect Date: 07/24/2024 Collect Time: 12:35 PM

Lab Sample ID: 24-0581-02 Matrix: Groundwater

Anions by EPA 300.0 CCR Rule Anal	yte List, CI, F,	SO4, Aqu	eous	Aliquot #: 24-0	581-02-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	95		%	1000.0	07/25/2024	AB24-0730-11
Sulfate	103	103 %		1000.0	07/31/2024	AB24-0730-11
Nitrogen-Ammonia by SM4500NH3(h	n), Groundwate	er HL		Aliquot #: 24-0	581-02-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	94		%	25.0	07/27/2024	AB24-0727-01
Alkalinity by SM 2320B				Aliquot #: 24-0	581-02-C04-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	99.0		%	10000.0	08/01/2024	AB24-0801-03
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	581-02-C06-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	98		%	20.0	07/31/2024	AB24-0729-13



Report Date:

08/08/24



A CENTURY OF EXCELLENCE

Sample Site: DEK Bottom Ash Pond & Lined Impoundment Laboratory Project: 24-0581

 Field Sample ID:
 DEK-MW-18001 MSD
 Collect Date:
 07/24/2024

 Lab Sample ID:
 24-0581-03
 Collect Time:
 12:35 PM

Matrix: Groundwater

Mercury by EPA 7470A, Tota	al, Aqueous		Aliquot #: 24-	0581-03-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag Uni	ts RL	Analysis Date	Tracking
Mercury	99.0	%	0.2	07/29/2024	AB24-0727-06
Metals by EPA 6020B: CCR	Rule Appendix III-IV To	tal Metals Exp	Aliquot #: 24-	0581-03-C01-A02	Analyst: EB
Parameter(s)	Result	Flag Uni	-	Analysis Date	Tracking
Antimony	103	%	1.0	07/30/2024	AB24-0730-05
Arsenic	107	%	1.0	07/30/2024	AB24-0730-05
Barium	98	%	5.0	07/30/2024	AB24-0730-05
Beryllium	99	%	1.0	07/30/2024	AB24-0730-05
Boron	105	%	20.0	07/30/2024	AB24-0730-05
Cadmium	100	%	0.2	07/30/2024	AB24-0730-05
Calcium	103	%	1000.0	07/30/2024	AB24-0730-05
Chromium	104	%	1.0	07/30/2024	AB24-0730-05
Cobalt	107	%	6.0	07/30/2024	AB24-0730-05
Copper	102	%	1.0	07/30/2024	AB24-0730-05
Iron	114	%	20.0	07/30/2024	AB24-0730-05
Lead	100	%	1.0	07/30/2024	AB24-0730-05
Lithium	98	%	10.0	07/30/2024	AB24-0730-05
Magnesium	106	%	1000.0	07/30/2024	AB24-0730-05
Manganese	110	%	5.0	07/30/2024	AB24-0730-05
Molybdenum	107	%	5.0	07/30/2024	AB24-0730-05
Nickel	103	%	2.0	07/30/2024	AB24-0730-05
Potassium	105	%	100.0	07/30/2024	AB24-0730-05
Selenium	105	%	1.0	07/30/2024	AB24-0730-05
Silver	95.0	%	0.2	07/30/2024	AB24-0730-05
Sodium	108	%	1000.0	07/30/2024	AB24-0730-05
Thallium	98	%	2.0	07/30/2024	AB24-0730-05
Vanadium	108	%	2.0	07/30/2024	AB24-0730-05
Zinc	104	%	10.0	07/30/2024	AB24-0730-05
Anions by EPA 300.0 Aqueo	ous, NO2, NO3		Aliquot #: 24-	0581-03-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag Uni		Analysis Date	Tracking
Nitrate	93	%	100.0	07/25/2024	AB24-0725-06
Nitrite	101	%	100.0	07/25/2024	AB24-0725-06
Anions by EPA 300.0 CCR R	Rule Analyte List, Cl, F,	SO4, Aqueous	Aliquot #: 24-	0581-03-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag Uni	ts RL	Analysis Date	Tracking
Chloride	103	%	1000.0	07/31/2024	AB24-0730-11



#### **Analytical Report**

Report Date: 08/08/24

24-0581

Laboratory Project:

**Laboratory Services** A CENTURY OF EXCELLENCE

Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** 

Field Sample ID: DEK-MW-18001 MSD

Collect Date: 07/24/2024 Lab Sample ID: 24-0581-03 Collect Time: 12:35 PM

Matrix: Groundwater

Anions by EPA 300.0 CCR Rule A	nalyte List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	581-03-C02-A02	Analyst: KDR		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking		
Fluoride	95		%	1000.0	07/25/2024	AB24-0730-11		
Sulfate	102	102 %		%		1000.0	07/31/2024	AB24-0730-11
Nitrogen-Ammonia by SM4500NH	3(h), Groundwate	r HL		Aliquot #: 24-0	0581-03-C03-A01	Analyst: CLE		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking		
Ammonia	85		%	25.0	07/27/2024	AB24-0727-01		
Alkalinity by SM 2320B				Aliquot #: 24-0	0581-03-C04-A01	Analyst: CLE		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking		
Alkalinity Total	98.0		%	10000.0	08/01/2024	AB24-0801-03		
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	0581-03-C06-A01	Analyst: Merit		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking		
Sulfide	111		%	20.0	07/31/2024	AB24-0729-13		



A CENTURY OF EXCELLENCE

#### **Analytical Report**

**Report Date:** 08/08/24

Data Qualifiers	Exception Summary
	No exceptions occurred.

CONSUMERS ENERGY

#### Chemistry Department

General Standard Operating Procedure

PROC CHEM-1.2.01 PAGE 1 OF 2 REVISION 5 ATTACHMENT A

#### TITLE: SAMPLE LOG-IN - SHIPMENT INSPECTION FORM

			on Date: 7125/24		CIE
Sample Origin/Project Name:	KEK) 1	cw q	3-2024 BAT	P+LI	
Shipment Delivered By: Enter	the type of	shipment carr	ier.		
Inter-Company Mail		FedEx	UPS	USPS	
Tracking Number:			Other/Carry In Owho	m) TRC	
Shipping Containers: Enter the	e type and n	number of ship	ping containers received.		
Cooler (1) Co	ardboard Bo	ox	Custom Case	Envelope/N	Mailer
Loose/Unpackaged Cor	ntainers		Other		
Condition of Shipment: Enter	the as-recei	ved condition	of the shipment container	t.	
Damaged Shipment Ob	served: No	one _	Dented	Leak	cing
Other					
Shipment Security: Enter if an	y of the shi	pping containe	ers were opened before re	ceipt.	
			Sealed _		
				- 3835	_
Enclosed Documents: Enter th					
CoC W	L Remiest		Ala Data Obert	Othor	
CoC Wor	k Kequest_		Air Data Sheet	Other	
CoC wor Temperature of Containers; M	7				
Temperature of Containers: M	Aeasure the	temperature o		rs.	No
Temperature of Containers; M	Measure the ture Range_	temperature o	f several sample containe  C Samples Rece	rs.	No
Temperature of Containers; M As-Received Temperat M&TE # and Expiration	Measure the ture Range_	temperature o 0-3 - 1 - 0 1723/ 6	f several sample containe  C Samples Rece	rs. ived on Ice: Yes_v	No
Femperature of Containers; M  As-Received Temperat  M&TE # and Expiration  Number and Type of Containe	Measure the ture Range_on LS67 ers: Enter t	temperature o 0-3 - 1 - 0 1723/ 6 the type and to	f several sample containe  C Samples Rece  27.25  tal number of sample con	rs. vived on Ice: Yes $ u$ tainers received.	
Temperature of Containers; M  As-Received Temperat  M&TE # and Expiration  Number and Type of Container  Container Type	Measure the ture Range_on LS67 ers: Enter t	temperature o 0-3 - 1 - 0 1723/ 6	f several sample containe  C Samples Rece	rs. ived on Ice: Yes_v	No
Femperature of Containers: MAs-Received Temperat M&TE # and Expiration Number and Type of Container Container Type VOA (40mL or ComL)	Measure the ture Range_on LS67 ers: Enter t	temperature o 0-3 - 1 - 0 1723/ 6 the type and to	f several sample containe  C Samples Rece  27.25  tal number of sample con	rs. vived on Ice: Yes $ u$ tainers received.	
Cemperature of Containers; M  As-Received Temperat  M&TE # and Expiration  Number and Type of Container  Container Type  VOA (40mL or ComL)  Quart/Liter (g/p)	Measure the ture Range_on LS67 ers: Enter t	temperature o 0-3 - 1 - 0 1723/ 6 the type and to	f several sample containe  C Samples Rece  27.25  tal number of sample con	rs. vived on Ice: Yes $ u$ tainers received.	
Femperature of Containers: MAs-Received Temperat M&TE # and Expiration Number and Type of Container Container Type VOA (40mL or 0mL) Quart/Liter (g/p) 9-oz (amber glass jar)	Measure the ture Range_on LS67 ers: Enter t	temperature o 0-3 - 1 - 0 1723/ 6 the type and to	f several sample containe  C Samples Rece  27.25  tal number of sample con	rs. vived on Ice: Yes $ u$ tainers received.	
As-Received Temperat  M&TE # and Expiration  Number and Type of Container  Container Type  VOA (40mL or 00mL)  Quart/Liter ( g / p )  9-oz (amber glass jar)  2-oz (amber glass)	Measure the ture Range_on LS67 ers: Enter t Water	temperature o 0-3 - 1 - 0 1723/ 6 the type and to	f several sample containe  C Samples Rece  27.25  tal number of sample con	rs. vived on Ice: Yes $ u$ tainers received.	
As-Received Temperat  M&TE # and Expiration  Number and Type of Container  Container Type  VOA (40mL or (0mL))  Quart/Liter (g/p)  9-oz (amber glass jar)  2-oz (amber glass)  125 mL (plastic)	Measure the ture Range_on LS67 ers: Enter t	temperature o 0-3 - 1 - 0 1723/ 6 the type and to	f several sample containe  C Samples Rece  27.25  tal number of sample con	rs. vived on Ice: Yes $ u$ tainers received.	
As-Received Temperat  M&TE # and Expiration  Number and Type of Container  Container Type  VOA (40mL or 0mL)  Quart/Liter ( g / p )  9-oz (amber glass jar)  2-oz (amber glass)  125 mL (plastic)  24 mL vial (glass)	Measure the ture Range_on LS67 ers: Enter t Water	temperature o 0-3 - 1 - 0 1723/ 6 the type and to	f several sample containe  C Samples Rece  27.25  tal number of sample con	rs. vived on Ice: Yes $ u$ tainers received.	
As-Received Temperat  M&TE # and Expiration  Number and Type of Container  Container Type  VOA (40mL or ComL)  Quart/Liter (g/p)  9-oz (amber glass jar)  2-oz (amber glass)  125 mL (plastic)  24 mL vial (glass)	Measure the ture Range_on LS67 ers: Enter t Water	temperature o 0-3 - 1 - 0 1723/ 6 the type and to	f several sample containe  C Samples Rece  27.25  tal number of sample con	rs. vived on Ice: Yes $ u$ tainers received.	
As-Received Temperat  M&TE # and Expiration  Number and Type of Container  Container Type  VOA (40mL or 00mL)  Quart/Liter ( g / p )  9-oz (amber glass jar)  2-oz (amber glass)  125 mL (plastic)  24 mL vial (glass)	Measure the ture Range_on LS67 ers: Enter t Water	temperature o 0-3 - 1 - 0 1723/ 6 the type and to	f several sample containe  C Samples Rece  27.25  tal number of sample con	rs. vived on Ice: Yes $ u$ tainers received.	
As-Received Temperat  M&TE # and Expiration  Number and Type of Container  Container Type  VOA (40mL or ComL)  Quart/Liter (g/p)  9-oz (amber glass jar)  2-oz (amber glass)  125 mL (plastic)  24 mL vial (glass)	Measure the ture Range_on LS67 ers: Enter t Water	temperature o  0-3 - 1 - 0  1723/ 6  The type and to	f several sample containe  C Samples Rece  27.25  tal number of sample con	tainers received.  Broken	Leaking

# **CHAIN OF CUSTODY**



### LABORATORY SERVICES

Page ______ [ _____ [

Consumers Energy	CUNSUMERS ENERGY CUMPANY - LA	BUKATUKY
Count on Us*	135 WEST TRAIL ST., JACKSON, MI 49201	• (517) 788-1251

SAMPLING SITE / CUSTOMER: Q3-2024 DEK Bottom Ash Pond & Lined Impound. SAMPLING TEAM:		PROJECT NUMBER:	SAP CC or W	/O#:							A	NAI	YSI	SRI	OUI	ESTE	D	12122222			
		24-0581 REQUESTER: Harold Register				(Attach List if More Space is Needed)							QA REQUIREMENT:								
			TURNAROUND TIME REQUIRED:  □ 24 HR □ 48 HR □ 3 DAYS □ STANDARD ☒ OTHER													□ NPDES  ⊠ TNI					
SENI	D REPORT TO:	Joseph Firlit			email:	phone:	phone:					1								□ ISO 17025	
- 9	СОРУ ТО:	Harold Regis	Harold Register		MATRIX CODES: GW = Groundwater OX = Other			CC	ONT	AIN	ER	S									☐ 10 CFR 50 APP. B
		TRC			WW = Wastewater SL = Sludg W = Water / Aqueous Liquid A = Air		PRESERVATIVE		IVE	als											☐ INTERNAL INFO
	LAB	SAMPLE COLLECTION 🞽		RIX	S = Soil / General Solid WP = Wip	e eral Waste	TOTAL#		3	7 -		Ξ.	Total Metals	suc	Ammonia		Alkalinity	de			□ OTHER
SA	AMPLE ID	DATE	TIME	MATRIX	FIELD SAMPLE ID / LO	CATION	TOT	None	None HNO ₃		HCI MeOH Other		Tot	Anions	Amn	TDS	Alka	Sulfide			REMARKS
2	24-0581-01	7/24/24	1235	GW	DEK-MW-18001		7	4	1	1 1			x	x	x	x	x	x			
	-02	76415	1235	GW	DEK-MW-18001 MS		6	3	ī	1 1			x	х	x		x	x			
	-03	7/24/24	7.56]	GW	DEK-MW-18001 MSD		6	3	1	1 1			x	x	x		x	x			
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RELIN	QUISHED BY:		I	DATE/T	TIME: R	ECEIVED BY:			_	_	Щ		CO	MME	NTS						
	<					X-							-53								
RELIN	QUISHED BY:	1	10:	DATE/I	0710	CEIVED BY:	-	-	_				Rec	eived	on Io	e? E	Yes		No	м&те	#: LS027723
	6																	o _{°C}			e Date: 6-27-25
						24-0581 Page 13 c	of 24														



Report ID: S64477.01(01) Generated on 08/02/2024

Report to

Attention: Emil Blaj

Consumers Energy Company

135 West Trail Street Jackson, MI 49201

Phone: D:517-788-5888 C:517-684-9467 FAX:

Email: emil.blaj@cmsenergy.com

Report produced by

Merit Laboratories, Inc. 2680 East Lansing Drive East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:

John Laverty (johnlaverty@meritlabs.com)

Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S64477.01-S64477.03

Project: 24-0581 PR#24070844 Collected Date(s): 07/24/2024

Submitted Date/Time: 07/25/2024 12:14

Sampled by: Unknown P.O. #: 4400114090

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Sample Summary (Page 5)

Maya Murshak Technical Director

Naya Mushah



#### **General Report Notes**

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples

for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Starred (*) analytes are not NY NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

#### **Report Narrative**

There is no additional narrative for this analytical report



#### **Laboratory Accreditations (For Reference Only)**

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:201	17 #69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

#### **Qualifier Descriptions**

Qualifier	Description
!	Result is outside of stated limit criteria
В	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
Н	Sample submitted and run outside of holding time
1	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
0	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
Т	No correction for total solids
X	Elevated reporting limit due to matrix interference
Υ	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
е	Reported value estimated due to interference
j	Analyte also found in associated method blank
0	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
х	Preserved from bulk sample

#### **Glossary of Abbreviations**

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



**Method Summary** 

Method Version

SM4500-S2 D

Standard Method 4500 S2 D 2011

Report to Consumers Energy Company Project: 24-0581 PR#24070844 **24.05810Page 17 of 24** 



#### Sample Summary (3 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S64477.01	DEK-MW-18001 (24-0581-01)	Groundwater	07/24/24 12:35
S64477.02	DEK-MW-18001 Field MS (24-0581-01)	Groundwater	07/24/24 12:35
S64477.03	DEK-MW-18001 Field MSD (24-0581-01)	Groundwater	07/24/24 12:35



Lab Sample ID: S64477.01

Sample Tag: DEK-MW-18001 (24-0581-01) Collected Date/Time: 07/24/2024 12:35

Matrix: Groundwater COC Reference:

Sample Containers

#	туре	Preservative(s)	Retrigerated?	Arrivai Temp. (C)	i nermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.4	IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 07/31/24 23:22, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.157	0.02		ma/L	1	18496-25-8	



Lab Sample ID: S64477.02

Sample Tag: DEK-MW-18001 Field MS (24-0581-01)

Collected Date/Time: 07/24/2024 12:35

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.4	IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 07/31/24 23:40, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.354	0.02		ma/L	1	18496-25-8	1

1-*Sample Spiked @ 0.200ppm level



Lab Sample ID: S64477.03

Sample Tag: DEK-MW-18001 Field MSD (24-0581-01)

Collected Date/Time: 07/24/2024 12:35

Matrix: Groundwater COC Reference:

Sample Containers

#	туре	Preservative(s)	Retrigerated?	Arrival Temp. (C)	i nermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	5.4	IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 07/31/24 23:43, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.379	0.02		ma/L	1	18496-25-8	1

1-*Sample Spiked @ 0.200ppm level

#### **Merit Laboratories Login Checklist**

Lab Set ID:S64477

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0581 PR#24070844

Submitted: 07/25/2024 12:14 Login User: MMC

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street

Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

tion			Description	Note
le Receiv	ing			
X Yes	No	□ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.4
X Yes	No	□ N/A	Received on ice/ cooling process begun	
Yes	X No	□ N/A	Samples shipped	
Yes	X No	□ N/A	Samples left in 24 hr. drop box	
Yes	No	X N/A	Are there custody seals/tape or is the drop box locked	
of Custo	dy			
X Yes	No	□ N/A	COC adequately filled out	
X Yes	No	N/A	COC signed and relinquished to the lab	
X Yes	No	N/A	Sample tag on bottles match COC	
Yes	X No	N/A	Subcontracting needed? Subcontacted to:	
rvation				
X Yes	No	N/A	Do sample have correct chemical preservation	
X Yes	No	N/A	Completed pH checks on preserved samples? (no VOAs)	
Yes	X No	□ N/A	Did any samples need to be preserved in the lab?	
e Conditio	ns			
X Yes	No	□ N/A	All bottles intact	
X Yes	No	□ N/A	Appropriate analytical bottles are used	
Yes	X No	□ N/A	Merit bottles used	
X Yes	No	□ N/A	Sufficient sample volume received	
Yes	X No	□ N/A	Samples require laboratory filtration	
X Yes	No	□ N/A	Samples submitted within holding time	
Yes	No	X N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	
ective action	on for all	exceptions	is to call the client and to notify the project manager.	
	Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes	ILE RECEIVING  X Yes No Yes X No Yes X No Yes No Yes No Of Custoty  X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No X Yes No		Seceiving

#### **Merit Laboratories Bottle Preservation Check**

Lab Set ID: S64477 Submitted: 07/25/2024 12:14

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0581 PR#24070844

Initial Preservation Check: 07/25/2024 13:31 MMC

Preservation Recheck (E200.8): N/A

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street

Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S64477.01	125mL Plastic NaOH/Zn Acetate	>12			
S64477.02	125mL Plastic NaOH/Zn Acetate	>12			
S64477.03	125mL Plastic NaOH/Zn Acetate	>12			



2680 East Lansing Dr., East Lansing, MI 48823 Phone (517) 332-0167 Fax (517) 332-4034 www.meritlabs.com C.O.C. PAGE # 1 OF 1

REPOR			Laboratorics, inc.	CHAIN	OF	CU	ST	TOD	Y	RE	CO	RE	)						INVO	CETO
CONTACT NAME E	Emil Blaj						CONTACT NAME SAME													
COMPANY Con	sumers E	nergy						COMP	ANY											
ADDRESS 135 V	W. Trail S	treet					-11	ADDR	ESS											
Jackson				STATE MI ZIP		920	1	СПУ										STATE	ZIP CODE	
PHONE NO. 517-	788-5888		FAX NO. 517-788-2533	P.O. NO. 4400114	P.O. NO. 4400114090			PHON	E NO.					E-M	AIL ADDRES	S				
E-MAIL ADDRESS	emil.blaj@	emsen	ergy.com	QUOTE NO.									ANALYS	SIS (AT	TACH LIS	TIFMO	ORE SPA	CE IS REQU	RED)	
PROJECT NO./NAM				SAMPLER(S) - PLEASE F	RINT/SIG	IN NA	ME				N/A	1					1	Certifica	ations	
TURNAROUNI	D TIME REC	QUIRED	□1 DAY □2 DAYS □3 D	AYS STANDARD	Потн	HER .													_	inking Wate
DELIVERABLE	S REQUIRI	ED S	TO X LEVEL II LEVEL III	LEVEL IV EDD	0	THEF	3_						2				11	DoD	□N	PDES
MATRIX (CODE:	GW=GROUN SL=SLUDG				D=SOLIE W=WAS				ontali			Sulfide						Project	Locations	ew York
MERIT LAB NO. FOR LAB USE ONLY	DATE	TIME	SAMPLE IDENTIFICATION-D		MATRIX	# OF BOTTLES	NONE	를 를	H,SO,	NaOH	MeOH	Total	TOIG					Other Special	Instruction	ns
10.77444	07/24/24	1235			GW	1				1		1						preserved	with NaO	H/ZnAcetat
	07/24/24	1235	DEK-MW-18001 Field	MS (24-0581-02)	GW	1				1		1						"		
03	07/24/24	1235	DEK-MW-18001 Field	MSD (24-0581-03)	GW	1				1		1						u.		
																		Please sp	ike MS/MS	D and report
												L						spike co	ncentration	and/or rec
					+		H	-	Н		+	$\vdash$		H		+	+			
											1									
					+		H		H	-	+	H	1		+	+	+			
DCI BIOLIIGUES CO				☐Sampler DATE		DAC.		DELA	IOUIG	JIED.	DV.								DATE	TRAC
RELINQUISHED BY SIGNATURE/ORGA		7 co	hanne Murra	Sampler O-25-14		ME 14	1		ATURE	/ORG	BY: GANIZ	ATION	N						3.00	TIME
RECEIVED BY: SIGNATURE/ORG/		for	hanne Hurra		-	IME 114		-	ATURE		GANIZ	ATION							DATE	TIME
RELINQUISHED BY SIGNATURE/ORG/ RECEIVED BY:	ANIZATION 6	1	0	DATE		IME	+	SEAL					SEAL INTAC	NOD	INITIALS		NOTES:		S.4	
SIGNATURE/ORG/	ANIZATION		PLEASE NOTE: SIGNII	NG ACKNOWI FDGES	ADHER	FNC	JL	) ME	RIT'S	SA	MPL	FAC	YES	NO D	CY ON RE	VERSE	SIDE			Pey. 5.18.



# **Appendix B Field Notes**

# TRC

PROJECT NAME:	CEC Karn LF and Weadock LF: 2024 GW Compliance
PROJECT NUMBER:	553814.0000/553814.0001/553828.0000
PROJECT MANAGER:	Darby Litz
SITE LOCATION:	2742 Weadock Hwy Essexville, MI
DATES OF FIELDWORK:	7-22-2024
PURPOSE OF FIELDWORK:	Site Wide Water Levels
	Javier Jasso
WORK PERFORMED BY:	

SIGNED 8-2-25
DATE

CHECKED BY DATE



#### **EQUIPMENT SUMMARY**

PROJECT NAME: CEC Karn LF and Weadock		Veadock	CAMPI ED MAME:						
PROJECT NO.:	553814.0000/55381	14.0001/5	SAMPLER NAME: Javier Jasso						
WATER LEVEL MEASU	IREMENTS COLLECTED	WITH:							
HER	ON DIPPER-T		PROJECT DEDICATED						
NAME AND MODEL OF IN	STRUMENT		SERIAL NUMBER (IF APPLICABLE)						
PRODUCT LEVEL MEA	SUREMENTS COLLECT	ED WITH	<del>1</del> :						
	NA		NA						
NAME AND MODEL OF IN	STRUMENT		SERIAL NUMBER (IF APPLICABLE)						
<b>ДЕРТН ТО ВОТТОМ О</b>	F WELL MEASUREMEN	TS COLL	ECTED WITH:						
HER	ON DIPPER-T		PROJECT DEDICATED						
NAME AND MODEL OF IN	STRUMENT		SERIAL NUMBER (IF APPLICABLE)						
PURGING METHOD									
			NA						
NAME AND MODEL OF P	JMP OR TYPE OF BAILER		SERIAL NUMBER (IF APPLICABLE)						
SAMPLING METHOD									
BLADDER	PUMP (DEDICATED)		PROJECT DEDICATED						
NAME AND MODEL OF P	JMP OR TYPE OF BAILER	·	SERIAL NUMBER (IF APPLICABLE)						
	NA		NA						
NAME AND MODEL OF FI	LTERATION DEVICE		FILTER TYPE AND SIZE						
DEDICATI	ED TEFLON TUBING		UNITED LOW-FLOW SAMPLING EVENT						
TUBING TYPE			-						
PURGE WATER DISPO	SAL METHOD								
☐ GROUND	□ DRUM □	POTW	□ POLYTANK □ OTHER						
DECONTAMINATION V	VATER SOURCE								
STO	ORE BOUGHT		LABORATORY PROVIDED						
POTABLE WATER SOUR	CE		DI WATER SOURCE						
10	R-2	7-24	affer when 8-2.						
SIGNED		DATE	CHECKED BY DATE						
VISED 04/2019									



PROJECT NAME:	CEC Karn LF: 2023 GW Compliance	DATE: 7(22 34
PROJECT NUMBER:	514404.0000.0000	AUTHOR: Jake Krenz, Javier Jasso, And

ROJECT NUMBER:	514404.00	00.0000		AUTHO	R: Jake Krenz,	Javier Jasso, And
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
OW-09	13.19	тос	10.50	12.77	NA	NM
OW-10	1336	тос	8:31	17.95	NA	NM
OW-11	0431	тос	24.60	29.50	NA	NM
OW-12	6903	TOC	19.00	23.41	NA	NM
OW-13	0896	тос с	ould not	lourk o	USMANDO	on notice
OW-15	0917	TOC	495	15.35	NA	NM
EW-01	はらり	TOC	13.53	DNW	NA	NM
EW-02	1909	TOC	14.95		NA	NM
EW-03	1330	TOC	14.38		NA	NM
EW-04	1231	TOC	1429		NA	NM
EW-05	1238	TOC	1366		NA	NM
EW-06	1249	TOC	10.40	1/	NA	NM
PZ-01	1144	тос	13.67	14,10	NA	NM
PZ-02	1144	тос	1529	23.10	NA	NM
PZ-03	1200	TOC	14,05	19.80	NA	NM
PZ-04	1305	TOC	14.52	20.95	NA	NM
PZ-05	1210	TOC	(4.35	2118	NA	NM
PZ-06	1276	TOC	14.09	20.35	NA:	NM
PZ-07	1533	TOC	14.45	2100	NA	NM
PZ-08	1236	тос	14.20	2054	NA	NM
PZ-09	1240	TOC	15.08	21.le1	NA	NM
PZ-10	1291	тос	10.602	1774	NA	NM
PZ-11	1253	TOC	13.45	18.10	NA	NM
OW-13	1303	Toc	3,47	14.38	NA	NM

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7-31-24

DATE



PROJECT NAME:	CEC Karn LF: 2023 GW Compliance	DATE: -7 (33	124
PROJECT NUMBER:	514404.0000.0000	AUTHOR: AW	/, JJ, JK

			<u> </u>			
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
<b>MW</b> -01	1100	TOC	16.61	24.24	NA	NM
<b>MW</b> -02	1108	TOC	17.19	3038	NA	NM
<b>MW</b> -03	1104	TOC	17.18	30.75	NA	NM
<b>MW</b> -04	((05)	TOC	17.85	33.63	NA	NM
MW-06	1114	TOC	9,39		NA	NM
MW-08	1135	TOC	1825	27.50	NA	NM
<b>MW</b> -10	1154	TOC	16.58	24.65	NA	NM
<b>MW</b> -12	1792	TOC	18.25	23.85	NA	NM
MW-14	1244	TOC	14.05	[9.23	NA	NM
MW-16	1300	TOC	15.41	2173	NA	NM
MW-17	1334	TOC	14.49	24.34	NA	NM
MW-18	1007	TOC	26.94	39.65	NA	NM
<b>M</b> W-19	1013	TOC	16.88	30.00	NA	NM
<b>MW</b> -20	1029	TOC	52.5g	7200	NA	NM
MW-21	1025	тос	51.60	60.58	NA	NM
<b>M</b> W-22	1146	TOC	17-51	29.59	NA	NM
MW-23	1214	тос	14.55	15.10	NA	NM
OW-01	(035	тос	51.20	6400	NA	NM
OW-02	1141	TOC	16.49	2195	NA	NM
OW-03	1149	тос	17.24	28.70	NA	NM
OW-04	1349	тос	9.89	1426	. NA	NM
OW-05	1256	TOC	1289	18.00	NA	NM
OW-06	1326	TOC	22.65	2480	NA	NM
OW-07	1216	тос	15.41	2391	NA	NM
OW-08	1330	TOC	11.30	1796	NA	NM

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

) 7/25/24 SIGNED

DATE

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231-24

DATE



PROJECT NAME:	CEC Karn LF: 2023 GW Compliance	DATE: `7	100/34
PROJECT NUMBER:	514404.0000.0000	AUTHOR:	Jake Krenz, Javier Jasso, And

PROJECT NUMBER:	514404.000	J0.0000		AUTHO	R: Jake Kieliz,	Javier Jasso, And
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
DEK-MW-18001	69:33		9.76	19.74		
DEK-MW-15002	0900		7.56	1686		
DEK-MW-15003	0945		19.45	27.89		
DEK-MW-15004	1004		29.20	41.78	,	
DEK-MW-15005	045E		9.45	77-30		
DEK-MW-15006	0905		7.96	21-53		
DEK-MW-22001	0956		9.2-5	24.15		
DEK-MW-22002	1007		12.08	2685		,
DEK-MW-22003	0948		(2.20	24.40		
DEK-MW-22004	0987		10.55	27.40		
DEK-MW-22005	0953		8.85	20-30		
DEK-MW-22006	0950		9.89	17.10		·
Tw 21-003	1047		17.80	26,20		
Tw 21-008	1049		12.49	2051		
Tw.21-001	1055		12.46	17.59		
Te-21-073	3011		22.49	'36°50		
TW-21-012			20.05	54.80		
Tw. 21 0127	_		20.33	38 ic		
Tw-21-0123	11 4		20.15	27.85		
Tw. 21 0115			21.54	2),600		
Tw-21-0113	161		2131	35.70		
Tw.21-0115	1123		21.50	5835		
Tw-21-010			20.82	28.00		
7w.21-009			21.45	2791		
Tw-21-008		\	13.55	19:00		

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

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PROJECT NAME:	CEC KARN LF 2023 GW COMLPIANCE				DATE: 7 /33 /24		
PROJECT NUMBER:	514404.0000.0000				AUTHOR: J JASSO		
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	BOT	TH TO TOM EET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
Tw 24-007	1305		12.53	18	B	:	
TW-21-005	1310		9.30	_	50		
TW-21-005	1313		10.28		ev		
TW-21-004	1316		1264	lle	ley		
				-			
					*		
					,		
· · · · · · · · · · · · · · · · · · ·							
	1		-			,	-

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR

(E.G., 1.1 + 0.00 T/PVC).

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DATE

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7-31-24

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REVISED 04/2019



PROJECT NAME:	CEC Weadock LF: 2023 GW Compliance	DATE: 7/33/24
PROJECT NUMBER:	514403.0000.0000	AUTHOR: Javier Jasso

WELL LOCATION         TIME         REFERENCE         DEPTH TO WATER (FEET)         DEPTH TO BOTTOM (FEET)         DEPTH TO PRODUCT (FEET)         WATER ELEVATION           JCW-MW-18001         CARA TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC         TOC
JCW-MW-18004 じつらく TOC 11.00 「リーファ NA NM JCW-MW-18005 073℃ TOC 9.[
JCW-MW-18005 の 2 位 TOC 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
JCW-MW-18005 の 2 位 TOC 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
JCW-OW-18001
JCW-OW-18002 6 6 3 4 TOC 11 6 19 19 NA NM  JCW-OW-18003 4 17 TOC 4 7 14 73 18 18 NA NM  JCW-OW-18004 07 (0 TOC 6 70 14 16 7 NA NM  JCW-OW-18006 08 cc TOC 10 70 20 33.44 NA NM  LH-103R 0734 TOC 2095 33.44 NA NM  LH-104 07 17 TOC 8 78 14 00 NA NM  JCW-MW-20 0737 TOC 6 5 14 00 NA NM  MW-50 0 0 7 TOC 1305 19.46 NA NM  MW-51 0 6 10 TOC 1305 19.46 NA NM  MW-52 0 6 4 70 TOC 13.39 19.19 NA NM  MW-53 6 7 TOC 13.39 18.19 NA NM  MW-53R 6 7 TOC 13.99 18.19 NA NM  MW-54R 070 TOC 13.49 17-33 NA NM
JCW-OW-18003 (17) TOC (47) (147) (17) (17) (17) (17) (17) (17) (17) (1
JCW-OW-18004 07(0 TOC 1270 1465 NA NM JCW-OW-18006 08cc TOCC) つの 33.45 NA NM NM LH-103R 073℃ TOC 2095 3344 NA NM LH-104 0717 TOC と7を 14.co NA NM JCW-MW-20 0737 TOC (285 1400 NA NM MW-50 0635 TOC 13.05 19.46 NA NM MW-51 0640 TOC 13.10 2006 NA NM NM MW-52 Cを4く TOC 14.60 19.74 NA NM MW-53 を5 TOC 13.39 18.19 NA NM MW-53R (57) TOC 13.39 18.19 NA NM MW-53R (57) TOC 13.49 18.50 NA NM MM MW-54R 070岁 TOC 13.49 17.33 NA NM
JCW-OW-18006 08cc TOC 73.U NA NM  LH-103R 073を TOC 3095 3344 NA NM  LH-104 0717 TOC 色ラを 14.co NA NM  JCW-MW-20 0737 TOC (であず 14.co NA NM  MW-50 063 で TOC 13.0 号 19.46 NA NM  MW-51 0640 TOC 13.16 20分6 NA NM  MW-52 064℃ TOC 13.16 19.74 NA NM  MW-53
LH-103R
LH-104   いてて   TOC   色元を   以-co   NA   NM   NM   JCW-MW-20   0737   TOC   (金をち   以 の
LH-104   いてて   TOC   色元を   以-co   NA   NM   NM   JCW-MW-20   0737   TOC   (金をち   以 の
MW-50 063 TOC 1305 19.46 NA NM MW-51 0640 TOC 1310 2006 NA NM MW-52 0645 TOC 14.66 1974 NA NM MW-53 653 TOC 13.39 18.16 NA NM MW-53R 657 TOC 13.91 18.80 NA NM MW-54R 0707 TOC 13.49 17.33 NA NM
MW-51 0640 TOC 13.10 2006 NA NM MW-52 0645 TOC 14.66 1974 NA NM MW-53 657 TOC 13.39 18.16 NA NM MW-53R 657 TOC (3.91 18.80 NA NM MW-54R 0707 TOC 13.49 17-33 NA NM
MW-52 CEUX TOC (4.68) 1974 NA NM  MW-53 (65) TOC (3.39 (8.18) NA NM  MW-53R (65) TOC (3.91 (8.80) NA NM  MW-54R 070) TOC (3.49 17-23 NA NM
MW-53 (25) TOC (3.39 (8.18) NA NM  MW-53R (25) TOC (3.91 (8.80 NA NM  MW-54R 070) TOC (3.49 17-23 NA NM
MW-53R (657) TOC (391 18-80 NA NM MW-54R 0707 TOC 13.49 17-23 NA NM
MW-54R 0707 TOC 13.49 17-23 NA NM
MW-54R 0707 TOC 13.49 17-23 NA NM
MW-55 6721 TOC 13.72 1636 NA NM
MW-58 0873 TOC 5.50 18.78 NA NM
OW-51 CCYL TOC COD 17.76 NA NM
OW-53 GESY TOC 7.53 18.60 NA NM
OW-54 070 TOC 7.60 16.48 NA NM
OW-55 0727 TOC 6.53 18.47 NA NM
OW-56 674 TOC 6.00 19.27 NA NM

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

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PROJECT NAM	E: CEC Weadock LF: 20	023 GW Compliance DATE	1132124
PROJECT NUM	IBER: 514403.0000.0000	AUTH	IOR: Javier Jasso

FIGURE INDIVIDENT	014400.000			17.01.110		
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
OW-56R	ወንሂን	TOC	6.00	26.33	NA	NM
OW-57 IN	0759	TOC	564	20.16	NA	NM
OW-57R IN	7.5 (	TOC	5-76	14.60	NA	NM
OW-57 OUT	0744	TOC	998	19.46	NA	NM
OW-57R OUT	0749	TOC	9.34	2020	NA	NM
JCW-MW-15007	055)	TOC	4.18	8,95	NA	NM
JCW-MW-15009	0609	TOC	9.03	13.00	NA	NM
JCW-MW-15010	0014	TOC	17.65	19.57	NA	NM
JCW-MW-15028	6604	TOC	838	25.10	NA	NM
MVV-15002	7830	тос	738	16.80	₩ NA	NM
MW-15008	585	TOC	4,9 %	1740	NA	NM
MVV-15016	0846	тос	478	8.16	NA	NM
MVV-15019	087	тос	5.53	14.67	NA	NM
ow ce 1	0625		824	37.07	***	
scw - mu (503)			14.84	DUN		
300-MU 1500/6			1385	DNM		
Mus leR	6704		14.00	19.67		
Jaumo 15021	0713		1394	Drum		
MW-19	0005		9.54	2083	·	
MW15630	2630	1	5.21	17.17		
Mu 11ce B	0824		500	DNM		
MW 15024	0024		5.93	17.07		
Mu isolb	8037		593	994		
Jumu 15001	0036	,	7.85	DNM		
-						
ļ		<del></del>	1			

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).  $^{\prime}$ 

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DATE

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7-31-24

DATE

SIGNED

REVISED 04/2019



PROJECT NAME:	CEC WEAKOCK BAP LF 2023 GW COMLPIANCE	DATE: 7/22/24
PROJECT NUMBER:	514403.0001.0000	AUTHOR: J JASSO

PROJECT NUMBER.	514403.000	J1.0000		AUTHO	AUTHOR: 3 JASSO				
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION			
JCW=MW 15007	0557		418	895					
JCW-MW-15009	deog		9.03	13.02					
JCW-MW-15010	dol4		17.15	19.57					
JCW-MW-15028	0604		8.38	25.16					
Sau Ma 15003	0610		છ.પો	DUM					
MW-15002	OEIT		<b>7</b> .38	1680					
MW-15008	6817		4.58	17.40					
MW-15016	0640		4.78	क्रि.८७					
MW-15019	O030		5.57	1667					
J <del>CW-MW-1500</del> 3									
MVV-106B	dede		C. C.	41.18					
					•				
					<del></del>				

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

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7-31-24

DATE



PROJECT NAME:	CEC Karn BAP/LI: 2024 GW Compliance
PROJECT NUMBER:	553814.0001.0000
PROJECT MANAGER:	Darby Litz
SITE LOCATION:	2742 Weadock Hwy
	Essexville, MI 48732
DATES OF FIELDWORK:	7/24/24 -10
	Third Quarter 2024 Groundwater Sampling
PURPOSE OF FIELDWORK:	
,	
	J. Jasso, J. Krenz, A. Whaley, K. Krieger
WORK PERFORMED BY:	

SIGNED TIZS 124

CHECKED BY DATE



#### **GENERAL NOTES**

·							
PROJECT NAME:	CEC Karn BAP/LI: 2024 (	GW Comp DATE:	7/24/202	4	TIME ARRIV	^{/ED} :0700	
PROJECT NUMBER	R: 553814.0001.0	000 AUTH	OR: JJ JK 🐠	<b>)</b> кк	TIME LEFT:	1515	
		WEATH	IER		· · · · · ·		
TEMPERATURE: 67	- <b>7₽</b> °F WIND:	5-10 MPH	<u> </u>	VISIBILITY:	Overcas	+	
	WO	RK / SAMPLING	PERFORMED				
Notify Site	Contact of YSI KLI Momiton e water Sami	work an	ea a		D	UP-KLI	
Sample	KLI moniton	ing wells	Me ow-	10, Ou	1-11, DE	2 KMW-15	
and surface	e water same	or KL	PCS		•		
PRO	BLEMS ENCOUNTERED	)	COR	RECTIVE	ACTION TAK	EN	
KLI SCS a	nd SW Ditch	were	No Sampl	<b>e</b> S (0	Hectes	from	
Do			these 10			· 	
NAME	REPRESENTING	COMMUNIC	<del> </del>	T / COMMEI	MTC		
Darby Litz	TRC	PM - Updates		1 / CONIVILI			
Jon Gaeth	Consumers	Site Contact					
						<del>110.23</del>	
		ATION DERIVE	D WASTE SUMMA				
WASTE MATRIX	QUANTITY		COMMENTS				
Groundwater NM Purge to Ground							
	1,	d	1.				
ale 11	7/2	5/24	_/}l		M	7-31-24	
SIGNED	0	DATE	CHECKED BY	,		DATE	



#### **EQUIPMENT SUMMARY**

PROJECT NAME:	CEC Karn BA	NP/LI: 2024 GW		Library A Marin A Milaton K Ki					
PROJECT NO.:	553814.0001	.0000	SAMPLER NAME:	J. Jasso, J. Krenz, A. Whaley, K. Krie					
WATER LEVEL MEASU	REMENTS COLLE	CTED WITH:							
HER	ON DIPPER-T			TRC A2					
NAME AND MODEL OF IN	STRUMENT		SERIAL NUMBE	ER (IF APPLICABLE)					
PRODUCT LEVEL MEA	SUREMENTS COL	LECTED WITH	:						
	NA	1		NA					
NAME AND MODEL OF IN	STRUMENT		SERIAL NUMBE	ER (IF APPLICABLE)					
DEPTH TO BOTTOM O	F WELL MEASURE	EMENTS COLLI	ECTED WITH:						
HER	ON DIPPER-T			TRC A2					
NAME AND MODEL OF IN	STRUMENT		SERIAL NUMBE	ER (IF APPLICABLE)					
PURGING METHOD									
PERIS	STALTIC PUMP		¢	TRC A2					
NAME AND MODEL OF PU	JMP OR TYPE OF BA	AILER	SERIAL NUMBE	ER (IF APPLICABLE)					
SAMPLING METHOD									
PERI	STALTIC PUMP		· · · · · · · · · · · · · · · · · · ·	TRC A2					
NAME AND MODEL OF PU	JMP OR TYPE OF BA	AILER	SERIAL NUMBE	SERIAL NUMBER (IF APPLICABLE)					
GEOTECH	DISPOSABLE FILT	ER		0.45 MICRON					
NAME AND MODEL OF FI	LTERATION DEVICE		FILTER TYPE A	AND SIZE					
DEDICA"	TED POLY TUBING	}	✓ LO	W-FLOW SAMPLING EVENT					
TUBING TYPE			•						
PURGE WATER DISPO	SAL METHOD								
☑ GROUND	DRUM	POTW	POLYTANK	OTHER					
DECONTAMINATION A	ND FIELD BLANK	WATER SOUR	CE						
STO	ORE BOUGHT		LABORATORY PROVIDED						
POTABLE WATER SOURCE	CE		DI WATER SOL	JRCE					
Color Island		7/25/24	$\Lambda$	l % 7-31-24					
SIGNED 2		DATE	CHECKED BY	DATE					
REVISED 04/2019			V						



#### **GENERAL NOTES**

PROJECT NAME:	CEC Karn BAP/LI: 2024	GW Comp DATE:	7-24-24	TIME ARRIVED: 0300
PROJECT NUMBER	: 553814.0001.0	0000 AUTHO	R: JJ JK AW	TIME LEFT: 1515
		WEATH	ED	
TEMPERATURE: 7	<b>8</b> °F WIND:			ILITY:
TEMPERATURE:		8-10 MPH	VISIBI	ILITY: clear
		ORK / SAMPLING		
Sampled M	pnitor my wel	is dei	L-MU-15002,	15005, and 1500l
Samphed M	onitoring nell	ow B Ch	(LI).	
PROF	BLEMS ENCOUNTERE	D	CORRECT	TIVE ACTION TAKEN
*****				
		COMMUNIC	ATION	
NAME	REPRESENTING		SUBJECT / CO	MMENTS .
Darby Litz	TRC	PM - Updates		
Jon Gaeth	Consumers	Site Contact		
	INVESTI	GATION DERIVE	D WASTE SUMMARY	
WASTE MATRIX	QUANTITY		COMMEN	NTS
Groundwater	NM	Purge to Grou	nd	
			_	
1 0 1	7.			/
He	Ky 7-31	1-24	allen 1	Mun 8-2-
SIGNED		DATE	CHECKED BY	DATE

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#### WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	CEC Karn BAP/LI: 2024 GW	/ Compliance	MODEL: YSI Pro DSS	SAMPLER: AW JK, JJ, KK		
PROJECT NO.:	553814.0001.0000		SERIAL #: Office	DATE: 7/24/2024		
PH (	CALIBRATION CHECK		SPECIFIC CONDU	ICTIVITY CALIBRATION CHECK		
pH 7	p <b>⊦∕2y</b> 10		CAL. READING	TEMPERATURE		
(LOT #): 46AO629 (EXP. DATE):50x676 POST-CAL READING / STANDARD	(LOT #): 46B1376 (EXP. DATE): FALL6 POST-CAL. READING / STANDARD	CAL TIME	(LOT#): 46LOZ32 (EXP. DATE) Sec 12 POST-CAL. READING / STANDARD	(°CELSIUS) CAL. RANGE TIME		
7.02 / 7.02	4.05 14.00	WITHIN RANGE	1350 11350	219 WITHIN RANGE D723		
1	1	WITHIN RANGE	1330 1830	21.6 WITHIN RANGE OF OZ		
1	1	WITHIN RANGE	] /	WITHIN		
1	/	WITHIN RANGE	] /	WITHIN		
ORP	CALIBRATION CHECK		D.O. CAL	IBRATION CHECK		
CAL. READING	TEMPERATURE		CAL. READING	TEMPERATURE		
(LOT #): <b>23610046</b> (EXP. DATE): Sulv 128	(°CELSIUS)	CAL TIME		(*CELSIUS) CAL. RANGE TIME		
POST-CAL. READING / STANDARD		NA WITHIN	POST-CAL. READING /SATURATED AIR	(III) watuni		
222.1/2221	22.1	WITHIN RANGE	8.72 8.72	70.6 WITHIN RANGE 732		
/		RANGE		RANGE WITHIN		
		RANGE		☐ RANGE		
1		WITHIN RANGE		WITHIN RANGE		
	ITY CALIBRATION CHEC	CK	, , , , , , , , , , , , , , , , , , ,	COMMENTS		
(LOT #): <b>240647</b> [[	READING (NTU)	-	AUTOCAL SOLUTION (LOT#):	STANDARD SOLUTION (S)		
(EXP. DATE): 2/25	(EXP. DATE): 3(25	CAL. TIME	(EXP. DATE):	LIST LOT NUMBERS AND EXPIRATION DATES UNDER CALIBRATION CHECK		
POST-CAL. READING / STANDARD	POST-CAL, READING / STANDARD		CALIBRATED PARAMETERS	CALIBRATION RANGES (1)		
0.0 0.0	10.0 /10.0	WITHIN RANGE 2737	□ pH	pH: +/- 0.2 S.U.		
	1	WITHIN	COND	COND: +/- 1% OF CAL. STANDARD		
. 1	1	WITHIN RANGE	ORP	ORP: +/- 25 mV		
	1	WITHIN RANGE	D.O.	D.O.: VARIES		
	NOTES		TURB	TURB: +/- 5% OF CAL. STANDARD		
Scharate	Turbidity Men	ter		(1) CALIBRATION RANGES ARE SPECIFIC TO		
Lamoti	re root			THE MODEL OF THE WATER QUALITY METER		
	PROBLEMS ENCOUNTERED		CORRECTIVE ACTIONS			
encounterd	problem w/	unstable	Cleaned Landactivis	by Sensor cend		
conductivity road	ings while san	plina	tightened probe,	recall brated for		
	٠	, <b>7</b>	Conductionty			
	/1 -	.1 -1	10	W 7-31-24		
Uplan wh		1125/24	HAL I	my may		
SIGNED		DATE	CHECKED BY	DATE		

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#### WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	CEC Karn BAP/LI: 2024 GV	V Complian	ce	MODEL: YSI Pro DSS	3 .	SAMPLER:	AW JK	JJ, KK
PROJECT NO.:	553814.0001.0000	SERIAL # Rent	. 1	DATE: 7.2	24-20	1		
DII.	CALIDDATION OUTOK					<u> </u>		<u> </u>
· · · · · · · · · · · · · · · · · · ·	CALIBRATION CHECK	1	T	7		ICTIVITY CALIB		HECK
рН 7 (LOT #): <b>4 6 А 0 6 Э 9</b>	рН 4 / 10 (LOT #): <b>46В 1376</b>			(LOT #): <b>4 G</b>	READING	TEMPERATURE		
	(EXP. DATE): Pe4/26	CAL. RANGE	TIME	1 1	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	(°CELSIUS)	CAL. RANGE	TIME
(EXP. DATE): Tun/26 POST-CAL, READING/STANDARD	POST-CAL, READING / STANDARD	-		(EXP. DATE):	ADING/STANDARD	(CELSIOS)	TOTAL	
7.01 /7.01	4.00 M.00	WITHIN	#57nA		/1315	223	₩ WITHIN	
1.01 / 7.01	1100 11,00	RANGE	0824	1115	11)13	22.3	RANGE	083
<i>I</i> ,	/	RANGE			1		☐ WITHIN RANGE	
/	1	☐ WITHIN RANGE			1		☐ WITHIN RANGE	
1	1	☐ WITHIN RANGE			1		WITHIN RANGE	
ORP	CALIBRATION CHECK	·	1	- <b>4</b>	D.O. CAL	IBRATION CHE	<del></del>	
CAL. READING	TEMPERATURE			CAL.	READING	TEMPERATURE		1. 1.
(LOT#): 14734	(°CELSIUS)	CAL.	TIME				CAL.	ТІВАЕ
(EXP. DATE): 10-8-27	( 5220,00)	RANGE	I HVIL			(°CELSIUS)	RANGE	TIME
POST-CAL, READING / STANDARD				<u> </u>	DING /SATURATED AIR			
227.7/227.3	22.7	WITHIN RANGE	0831	7,72	18.72	20.5	WITHIN RANGE	083
/		☐ WITHIN RANGE			1		☐ WITHIN RANGE	
1		☐ WITHIN RANGE		\	1		☐ WITHIN	
		☐ WITHIN		1	1		RANGE WITHIN	
TURRID	ITY CALIBRATION CHE	RANGE	<u> </u>	] [	<del></del>	COMMENTS	RANGE	l
	READING (NTU)		1	T AUTOCA	L SOLUTION		SOLUTION	<b>(e)</b>
(LOT #): A1907	(LOT#):	CAL.		(LOT#):	L COLOTION			<u> </u>
(EXP. DATE): APR-25	(EXP. DATE):	RANGE	TIME	(EXP. DATE):		LIST LOT NUMBERS UNDER CAL	BRATION CHE	
POST-CAL. READING / STANDARD	POST-CAL. READING / STANDARD			CALIBRATE	D PARAMETERS	CALIBRAT	ION RANGES (	1)
100.0 / 100.0	1	WITHIN RANGE		lq pl	-1	pH: +/- 0.2 S	.U.	
1	1	☐ WITHIN			OND	COND: +/- 1% C	F CAL. STAN	1DARD
1	1	WITHIN	<del> </del>	1	RP	ORP: +/- 25 m	V	
1	<del>                                     </del>	RANGE	1	- I _	.O.		•	
/		RANGE		J		D.O.: VARIES		
	NOTES			_   🗆 TI	URB	TURB: +/- 5% C	OF CAL. STAN	IDARD
						(1) CALIBRATION RA	NGES ARE SP	ECIFIC TO
			,			THE MODEL OF THE		
				<u></u>				
E	PROBLEMS ENCOUNTERED		CORRECT	IVE ACTIONS				
	NAME OF TAXABLE PARTY.					-5	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
				<del>                                     </del>		······································		
1	$\overline{\Omega}$							
	7.	31-24		<u> </u>	h	1.0	<b>^</b>	~ ~
SIGNED	<del>'</del>	DATE		CHECK	(ED BY		<del></del>	<u></u>
1/	U			CHECK	(LD D)		-	DATE
V								
•								

## ♦ TRC

#### **WATER SAMPLE LOG**

PROJEC1	ΓNAME:	CEC F	Karn BAP/LI:		3,123,123					CKED	
PROJEC1	Γ NUMBE	R: 55381	4.0001.0000		BY: AV	(N)	KK DATE: <b>7</b>	24-24	Y: AW	<del>3K</del>	DATE: 2-2-20
SAMPLE	ID: DE	K-MW	- 1500:	2 WELL	DIAMET	ſER: ☑	2" 🗌 4" 🔲	6" 🔲	OTHER		
WELL MAT	ERIAL:	☑ PVC	□ ss □	IRON □	GALVA	NIZED S	STEEL		OTHER		
SAMPLE T	YPE:	☑ GW	□ ww □	Isw □	DI		LEACHATE		OTHER		
PUR	GING	TIME: 0	742	ATE: <b>7-24</b>	-24	S	AMPLE	TIME:	0916	, [	DATE: 7-24-24
PURGE ☑ PUMP PERISTALTIC PUMP METHOD: ☐ BAILER								SU CON	DUCTIV		or umhos/cm
DEPTH TO WATER: 7.70 T/ PVC						TURBI	DITY: 7.5	NTU			
DEPTH TO	ВОТТОМ	MU	T/ PVC			NO				DERATE	☐ VERY
WELL VOL	UME:	NA	LITERS	☐ GALLO	NS	TEMPE		4.8 .	C PEI	ROUS Fe	mg/L
VOLUME I			LITERS	☐ GALLO	NS	COLO	R: <u>Clear</u>	-	OD	OR:	none
COLOR:		leur		DOR: NON	<u> </u>	FILTRA	TE (0.45 um)	☐ YES	ÆĴ,	NO	
		TUR	BIDITY			FILTRA	TE COLOR:		- FIL	TRATE ODO	
NONE			MODERATE	☐ VEF		QC SA	MPLE: MS	S/MSD	X	DUP-	EK-BAP
DISPOSAL	METHOD	☑ GROUI	ND DRUM	1 OTHER		COMM	IENTS:				
TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVIT	Y ORP		D.O. mg/L)	TURBIDITY (NTU)	TEMPEF		WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME
0844	200	7.70	924	-96.5		.86	4.32	16		7.42	(GAL OR L) INITIAL
0349	200	7.34	881	-116.2		.61	4.76	15		7.42	
७४८५	200	7.26	931	-139.5		,19	2.93	15		7,42	
0859	200	7.23	971	-/44,4	-	.09	3.76	· · · · · · · · · · · · · · · · · · ·	0	7.42	3
0904	200	7.22	925	-153.		,09	6.75	15.	******	7.42	Ч
0909	200	7.22	912	-160.		.05	6.15	14.		7.42	5
0914	200	7.22	906	-164.		عن.	7.81	14		7.42	6
0919	200	7,20	901	-167.	- 1	.05	7.58	14.		7.42	7
			with the provide that with the time and below at a consequent								
	***************************************									<u> </u>	
pH: +/-	0.1	COND.: +/-	3 % ORF	P: +/- 10		+/- 0.3	VE READINGS TURB: +/-		Γ <b>HIN TH</b> or =</td <td></td> <td>NG LIMITS:</td>		NG LIMITS:
BOTTLES			ATIVE CODES			HNO3	C - H2SO4	D - N	<del></del>	E- H	
NUMBER	SIZE	TYPE	PRESERVAT	1		NUMB	ER SIZE	TYPE		RESERVAT	
Ž	250 mL	PLASTIC	A			2	125 mL	PLAST		D	□ Y <b>X</b> N
2	125 mL	PLASTIC	A		N		40_mL	VOA		——E	
4	60 mL	VOA	A		X N		<del>1_1</del>	PLAST	<del>IC  </del>	B	N D Y
2	125 mL	PLASTIC	В		X N						□ Y□ N
2	125 mL	PLASTIC	С	Y	<b>∑</b> \$ N						□ Y□ N
SHIPPING	METHOD:	Lab Dr	कि जी	ATE SHIPPE	:D:	7-2	5-24	AIRB	ILL NUM	IBER:	
COC NUME	BER:	<u></u>	s	GIGNATURE:	-	He	B	DATE	SIGNE	D:	7-31-24

### ♦ TRC

PROJECT	NAME:	CEC K	arn BAP/LI: 2				EPARED		CHECKED			
PROJECT	NUMBE	R: 553814	4.0001.0000		BY: AW	, <b>®</b> JJ,	KK DATE: 7-6	<b>24-24</b> BY	Aw		DATE 7-2-24	
SAMPLE	ID: DE	K-mi	w = 1500	<b>S</b> WELL D	DIAMET	ER: 🗹	2" 🗌 4" 🔲	6" 🗌 O	THER			
WELL MAT	ERIAL:	☑ PVC	□ ss □	IRON 🗌	GALVA	NIZED S	STEEL		THER			
SAMPLE T	YPE:	☑ GW	□ ww □	sw 🗆	DI		LEACHATE	□ o	THER			
PURC	SING	TIME: []		ATE: <b>7-24</b>	-24	ļ	AMPLE	<del>'</del> ,	120		DATE: 7.24 24	
PURGE METHOD		PUMP BAILER	PERISTALTIC	PUMP				SU COND			mg/L umhos/cm	
DEPTH TO	WATER:	9.35	T/ PVC			TURBI	DITY: 1.50	NTU				
DEPTH TO	воттом	21.35	T/ PVC			□ №	NE 🗆 SLI	IGHT [	] MO	DERATE	☐ VERY	
WELL VOL				☐ GALLO	NS	TEMPE	RATURE: 1	<u>3.5</u> °c	FEF	ROUS Fe	mg/L	
VOLUME F	REMOVED		LITERS	☐ GALLO	NS	COLO	R: Chear	<u>.                                    </u>	OD	OR:	none	
COLOR:		Clear	0	OR:	<u>re</u>	FILTRA	TE (0.45 um)	☐ YES	<b>Z</b>	NO		
			BIDITY			FILTRA	TE COLOR:	<del></del>	FIL	TRATE OD	OR:	
MONE			MODERATE	☐ VEF		QC SA	MPLE: MS			DUP-		
DISPOSAL	METHOD	☑ GROUI	ND 🗌 DRUM	OTHER	t	COMM	IENTS: FI	B- DEK	- BA	ρ		
TIME	PURGE RATE	PH	CONDUCTIVITY	ORP		D.O.	TURBIDITY	TEMPERA	TURE	WATER LEVEL		
	(ML/MIN)	(SU)	(umhos/cm)	(mV)	(	mg/L)	(NTU)	(°C)		(FEET)		
1138	200	7,45	1234	-28.5	)	,41	1,42	13.7	)	9.55	INITIAL	
1143	200	7.45	1247	-81.5	O	,50	1.52	13.0	•	9,55	7	
1148	200	7.43	1292	-99.1	O	.18	1.35	13.		9.55	5 a	
1153	200	7,41	1314	-105,4		,10	1.36	13.		9.55	3	
1158	200	7.40	1370	-108.		.10	1,46	13.		9.55	4	
1203	200	7.40	1335	-110	7 0	110	1,56	13.	5	9.55	5	
		-										
			,									
	• <del></del>		•									
	Marine transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer transfer trans		##\decomposition							<b></b>		
			TEST IS COM									
pH: +/- 0.1 COND.: +/- 3 % ORP: +/- 10 D.O.: +/- 0.3 TURB: +/- 10 % or = 10 TEMP.: +</td												
BOTTLES FILLED PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F												
NUMBER	SIZE	TYPE	PRESERVAT		ERED	NUMB		TYPE		RESERVA		
	250 mL	PLASTIC	А	□ Y		6	125 mL	PLASTIC		D	□ Y <b>Z</b> N	
2	125 mL	PLASTIC	Α	D Y	<b>X</b> N	<del> </del>	40 ml	VOA				
2	60 mL	VOA	Α	□ Y	X N			PLASTI	-	В	N Y Y	
2	125 mL	PLASTIC	В	□ Y	XXI N						□ Y□ N	
2	125 mL	PLASTIC	С	□ Y	<b>∑</b> N						□ Y□ N	
SHIPPING	METHOD:	tup pu	poff D	ATE SHIPPE	ED:	17-	25-24	AIRBII	L NUN	IBER:		
COC NUMI	BER:		s	IGNATURE:			1/hs	DATE	SIGNE	D:	7-31-24	
							0		-			

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PROJECT	NAME:	CEC K	arn BAP/LI: 20	024 GW C		PREPARED CHECKED					:D
PROJECT	NUMBEI	R: 553814	4.0001.0000	В,	Y: AW	, <b>€</b> k)JJ, k	K DATE: 7-2	. <b>4.24</b> BY:	AW	D.	ATE: 8-2-24
SAMPLE	D: DE	K-MW	- 15006	WELL DIA	MET	ER: 🗾 2	."	6" □ OTH	ER		
WELL MAT	ERIAL:	☑ PVC	SS D	IRON G	ALVA	NIZED ST	EEL	□ отн	ER		
SAMPLE T	YPE:	☑ GW	□ ww □	SW D	l	LI	EACHATE	ОТН	ER		
PURC	SING	TIME: 10	76 DA	TE:7-24-	24		MPLE	<del></del>	54		E: 7-24-24
PURGE METHOD		PUMP BAILER	PERISTALTIC I	PUMP		PH: _	<b>7.49</b> s 172.4 m		OTIVITY:	3 51 mg/L	umhos/cm
DEPTH TO	WATER:	<u>3.75</u>	T/ PVC			TURBID	ITY: 2,00	2 NTU			
DEPTH TO	воттом	21.64	T/ PVC			X NON	E 🗆 SLI	GНТ □	MODERATE		☐ VERY
WELL VOL	UME:	NA I	LITERS	☐ GALLONS	S	TEMPER	RATURE:	4.6 °C	PERROUS F		mg/L
VOLUME F	REMOVED	4	LITERS	☐ GALLON	S	COLOR:	Clear	_	ODOR:		ion e
COLOR:		lear	OD	OR: hone		FILTRAT	E (0.45 um)	YES	<b>∑</b> ¥ NO		
-		TURI	BIDITY	•		FILTRATI	E COLOR:		FILTRATE OI	OOR:	
NONE	☐ SLI	GHT □	MODERATE	☐ VERY	,	QC SAM	1PLE: MS	/MSD	☐ DUP-		
DISPOSAL	. METHOD	☑ GROUN	ND DRUM	OTHER		СОММЕ	NTS:				
TIME	PURGE RATE	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP			TURBIDITY	TEMPERATU	I LEVE	L F	CUMULATIVE PURGE VOLUME
1039	(ML/MIN)		,	(mV) -49,1	1	20	(NTU) 7.78	(°C)	(FEET		(GAL OR L) INITIAL
	200	7.62	1406 1359	-114,7		,48	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	16.3 14.9	8.9		1
1044	200	7.53	1354	-126,1		0.14	2.13	14,6	89		2
1054	200	7,51	1752	-1306		2.10	1,51	14.6	8.91		3
1059	200	7,49	1359	-132.4		2.09		_	8.9		4
103 1	<i>5</i> -0-0	.,,,	1,70,1	-/ /5		7,0.1	2,00	,4,6	0.7		
							***************************************				
			<del></del>		_			***************************************			
			***************************************								
No	OTE: STAE	BILIZATION	TEST IS COMP	LETE WHEN	3 <b>S</b> U	CCESSIV	E READINGS	ARE WITHIN	THE FOLLO	WING	LIMITS:
pH: +/-	0.1	COND.: +/-	3 % ORP:	+/- 10	D.O.:	+/- 0.3	TURB: +/-	<b>10</b> % or	= 10</td <td>TE</td> <td>EMP.: +</td>	TE	EMP.: +
BOTTLES	FILLED	PRESERV	ATIVE CODES	A - NONE	В-	HNO3	C - H2SO4	D - NaOl	1 E-	HCL	F
NUMBER	SIZE	TYPE	PRESERVATI	VE FILTER	RED	NUMBE	R SIZE	TYPE	PRESERV	ATIVE	FILTERED
1	250 mL	PLASTIC	A	□ Y <b>2</b>	ľN		125 mL	PLASTIC	D		□ Y 🗷 N
1	125 mL	PLASTIC	А	□ Y 1 <b>3</b>	N		40 ml	VOA	<u> </u>		<del>- □ + 1 □</del> N
1	60 mL	VOA	Α	□ Y <b>⊠</b>	N		14	PLASTIC	В		N YEAR
ſ	125 mL	PLASTIC	В		N						□ Y□ N
<b>\</b>	125 mL	PLASTIC	С	□ Y □	PΝ		COMMENT OF THE STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET,				□ Y□ N
SHIPPING	METHOD:	Lab Do	off D	ATE SHIPPED	);	7-2	5-24	AIRBILL I	NUMBER:		
COC NUMI	BER:		<del></del>	GNATURE:		ll	In	DATE SIG	GNED:	_7	-31-24
					$\overline{7}$	1	7	- i			

### **⇒**TRC

PROJECT NUMBER: 553814.0001.0000	PROJECT	NAME:	CEC k	arn BAP/LI	2024 0	ew c		PR	EPARED		CHECKE			
WELL MATERIAL:   PVC   SS   IRON   GALVANIZED STEEL   OTHER	PROJECT	NUMBER	R: 55381	4.0001.0000	)	В	Y: AN	Jık, JJ	, KK DATE: <b>7/</b> 2	4/24	BY:	2K-	DATE:	7-71-24
SAMPLE TYPE:   GW   WW   SW   DI	SAMPLE	ID: <i>O</i> い.	-10		ν	VELL DI	AMET	ER: 🗸	2" 4"	6" [	OTHER			
PURGING TIMEO7 \$ DATE: 7/24/24 SAMPLE TIME: 0.72 DATE: 7/24/24 PURGE	WELL MAT	ERIAL:	☑ PVC	□ss [	] IRON	۱	ALVA	NIZED 8	STEEL		OTHER			
PURGE   PUMP	SAMPLE T	YPE:	☑ GW	□ww [	□ sw		1		LEACHATE		OTHER			
METHOD:   BAILER   ORP: -177.9 mV   DO: 0.51 mg/L	PURC	SING	TIME:	55	DATE:	7/24/	24	S	SAMPLE TIME: 0828 DATE: 7/2					124/24
DEPTH TO WATER: \$\frac{10}{1}\$ Try PVC  DEPTH TO BOTTOM: \$\frac{1}{1}\$ \frac{1}{1}\$ \frac{1}{1}\$ PVC  DEPTH TO BOTTOM: \$\frac{1}{1}\$ \frac{1}{1}\$ \frac{1}{1}\$ PVC  DEPTH TO BOTTOM: \$\frac{1}{1}\$ \frac{1}{1}\$ \frac{1}{1}\$ PVC  DEPTH TO BOTTOM: \$\frac{1}{1}\$ \frac{1}{1}\$ \frac{1}{1}\$ PVC  DEPTH TO BOTTOM: \$\frac{1}{1}\$ \frac{1}{1}\$ \frac{1}{1}\$ PVC  DEPTH TO BOTTOM: \$\frac{1}{1}\$ \frac{1}{1}\$ \frac{1}{1}\$ PVC  DEPTH TO BOTTOM: \$\frac{1}{1}\$ \frac{1}{1}\$ \frac{1}{1}\$ PVC  DEPTH TO BOTTOM: \$\frac{1}{1}\$ \frac{1}{1}\$ \frac{1}{1}\$ PVC  TURBIDITY: \$\frac{1}{1}\$ PODOR: \$\frac{1}{1}\$ \frac{1}{1}\$ PVC  DOR: \$\frac{1}{1}\$ PVC  DOR:		·	PUMP	PERISTALT	IC PUMF	•							3	umhos/cm
DEPTH TO BOTTOM:   7.96   T/ PVC												<u>)                                    </u>	g/L	
VOLUME   NA   LITERS   GALLONS   TEMPERATURE   14								1				DEDATE		VEDV
COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   COLOR:   C						ALLON:								
COLOR:   Slighty asay   ODOR   NONE   FILTRATE (0.45 um)   Yes   NO				<del></del>	_=									nig/L
TURBIDITY   FILTRATE COLOR   Class   FILTRATE ODOR   NOME   SLIGHT   MODERATE   VERY   QC SAMPLE:   MS/MSD   DUP-  DISPOSAL METHOD:   GROUND   DRUM   OTHER   COMMENTS (Oxid as )   Science   Suita   Water   Level   RATE   CUMULATIVE   PURGE   PH   CONDUCTIVITY   ORP   D.O.   TURBIDITY   TEMPERATURE   WATER   Level   (GAL OR D)   (IMM)   (MV)					ODOR: _	None			7 3					
DISPOSAL METHOD: GROUND DRUM OTHER COMMENTS (Oct as a science to by in bytos)  TIME PURGE RATE (ML/MIN) (SU) (umhos/cm) (mV) (mg/L) (NTU) TEMPERATURE LEVEL (FEET) (GAL ORD)  7.755 Zeo (2.95 -126,5 1.13 Z9.6 13.8 8.16 INITIAL  ETTOT. With condoctivity scaled stop stop surpling to real; brote address issue to some stop surpling to real; brote address issue to some stop surpling to real; brote address issue to some stop surpling to real; brote address issue to some stop surpling to real; brote address issue to some stop surpling to real; brote address issue to some stop surpling to real; brote address issue to some stop surpling to real; brote address issue to some stop surpling to real; brote address issue to some stop surpling to real; brote address issue to some stop surpling to real; brote address issue to some stop surpling to real; brote address issue to some stop surpling to real; brote address issue to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to some stop surpling to som			<del>-/-&gt;-</del>					FILTRA	TE COLOR:	Clear	<b>[</b> FIL	TRATE ODO	R: N	one
TIME PURGE RATE (ML/MIN) (SU) (umhos/cm) (mV) (mg/L) (NTU) TEMPERATURE LEVEL PURGE VOLUME (GAL ORD)  7.755 Zeo (3.95	NONE	<b>∑</b> s⊔	GНТ 📋	MODERATE		VER	′	QC SA	AMPLE: MS	/MSD		DUP-		
RATE (ML/MIN) (SU) (Umhos/cm) (mV) (mg/L) (NTU) (*C) (FEET) PURGE VOLUME (GAL ORT)  PT 55 Zeo (6.9.5	DISPOSAL	METHOD:	☑ GROU	ND DRU	ІМ 🗌 С	THER		COMM	MENTS: LOCAL A	<u>sb/s</u>	dimen	+ build	در اوں	n botton
(ML/MIN) (SU) (umhos/cm) (mV) (mg/L) (NTU) (°C) (FEET) (GALORD)  2755 200 (6.9.5	TIME		PH	CONDUCTIV	TY	ORP		D.O.	TURBIDITY	TEMF	PERATURE			
From	·		(SU)	(umhos/cm	)	(mV)	1	mg/L)	(NTU)		(°C)	1	1	
100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100	755	760	6.95			26,5	1.	13	29.6	13.	4	8.10	l	NITIAL
NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:   PH: +/- 0.1   COND.: +/- 3%   ORP: +/- 10   D.O.: +/- 0.3   TURB: +/- 10%   OF = 10   TEMP.: +   NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:   PH: +/- 0.1   COND.: +/- 3%   ORP: +/- 10   D.O.: +/- 0.3   TURB: +/- 10%   OF </= 10   TEMP.: +   BOTTLES FILLED   PRESERVATIVE CODES   A - NONE   B - HNO3   C - H2SO4   D - NaOH   E - HCL   F</td <td></td> <td></td> <td>Error.</td> <td>with a</td> <td>onduc</td> <td>a'uity</td> <td></td> <td>nson</td> <td>Stop Sam</td> <td>Plina</td> <td>to r</td> <td>calibrote</td> <td>ladda</td> <td>229</td>			Error.	with a	onduc	a'uity		nson	Stop Sam	Plina	to r	calibrote	ladda	229
NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:   PH: +/- 0.1   COND.: +/- 3%   ORP: +/- 10   D.O.: +/- 0.3   TURB: +/- 10%   Or = 10   TEMP.: +   BOTTLES FILLED   PRESERVATIVE CODES   A - NONE   B - HNO3   C - H2SO4   D - NaOH   E - HCL   F   NUMBER   SIZE   TYPE   PRESERVATIVE   FILTERED   NUMBER   SIZE   TYPE   PRESERVATIVE   FILTERED   TEMP.: +   TYPE   PRESERVATIVE   FILTERED   TEMP.: +   TYPE   PRESERVATIVE   FILTERED   TEMP.: +   TYPE   PRESERVATIVE   FILTERED   TEMP.: +   TYPE   PRESERVATIVE   FILTERED   TYPE   PRESERVATIVE   FILTERED   TYPE   PRESERVATIVE   FILTERED   TYPE   PRESERVATIVE   FILTERED   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TY</td <td>809</td> <td>200</td> <td></td> <td></td> <td>ŧ</td> <td>. /</td> <td>- 1</td> <td>ضر.</td> <td>348</td> <td>14.</td> <td>3</td> <td>P.65</td> <td>1.</td> <td>٥</td>	809	200			ŧ	. /	- 1	ضر.	348	14.	3	P.65	1.	٥
NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:   PH: +/- 0.1   COND.: +/- 3%   ORP: +/- 10   D.O.: +/- 0.3   TURB: +/- 10%   or = 10   TEMP.: +   BOTTLES FILLED   PRESERVATIVE CODES   A - NONE   B - HNO3   C - H2SO4   D - NaOH   E - HCL   F   NUMBER   SIZE   TYPE   PRESERVATIVE   FILTERED   NUMBER   SIZE   TYPE   PRESERVATIVE   FILTERED     1   250 mL   PLASTIC   A   Y   X   N   1   125 mL   PLASTIC   D   Y   X   N       N   Y   X   N                                </td <td>215</td> <td></td> <td>7.05</td> <td>873</td> <td>- 11</td> <td>5.4</td> <td>1</td> <td>00</td> <td>30.3</td> <td>14.</td> <td>3</td> <td>8.25</td> <td>20</td> <td><b>D</b></td>	215		7.05	873	- 11	5.4	1	00	30.3	14.	3	8.25	20	<b>D</b>
NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:  pH: +/- 0.1	1814		7.09	869	-12	20.3	0	.74	20.3	14.	4	5.90	3.6	2
NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:  pH: +/- 0.1	£54		7.11	867	-13	22.4	0	60	20.7	14.	4		4.	<u></u>
pH: +/- 0.1       COND.: +/- 3 %       ORP: +/- 10       D.O.: +/- 0.3       TURB: +/- 10 %       or         TEMP.: +         BOTTLES FILLED       PRESERVATIVE CODES A - NONE       B - HNO3       C - H2SO4       D - NaOH       E - HCL       F         NUMBER       SIZE       TYPE       PRESERVATIVE       FILTERED       NUMBER       SIZE       TYPE       PRESERVATIVE       FILTERED         J       250 mL       PLASTIC       A       Y       Y       N       1       125 mL       PLASTIC       D       Y       Y       N	35	<b>Y</b>	7.12	. •	- 1	22.9	0.	51	14.2	14.	3	1	5.	೦
pH: +/- 0.1       COND.: +/- 3 %       ORP: +/- 10       D.O.: +/- 0.3       TURB: +/- 10 %       or         TEMP.: +         BOTTLES FILLED       PRESERVATIVE CODES A - NONE       B - HNO3       C - H2SO4       D - NaOH       E - HCL       F         NUMBER       SIZE       TYPE       PRESERVATIVE       FILTERED       NUMBER       SIZE       TYPE       PRESERVATIVE       FILTERED         J       250 mL       PLASTIC       A       Y       Y       N       1       125 mL       PLASTIC       D       Y       Y       N														· · · · · · · · · · · · · · · · · · ·
pH: +/- 0.1       COND.: +/- 3%       ORP: +/- 10       D.O.: +/- 0.3       TURB: +/- 10 % or = 10</th TEMP.: +         BOTTLES FILLED       PRESERVATIVE CODES A - NONE       B - HNO3       C - H2SO4       D - NaOH       E - HCL       F         NUMBER       SIZE       TYPE       PRESERVATIVE       FILTERED       NUMBER       SIZE       TYPE       PRESERVATIVE       FILTERED         J       250 mL       PLASTIC       A       Y       Y       N       1       125 mL       PLASTIC       D       Y       Y       N														
pH: +/- 0.1       COND.: +/- 3 %       ORP: +/- 10       D.O.: +/- 0.3       TURB: +/- 10 %       or         TEMP.: +         BOTTLES FILLED       PRESERVATIVE CODES       A - NONE       B - HNO3       C - H2SO4       D - NaOH       E - HCL       F														
BOTTLES FILLED PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F  NUMBER SIZE TYPE PRESERVATIVE FILTERED NUMBER SIZE TYPE PRESERVATIVE FILTERED  1 250 mL PLASTIC A Y X N 1 125 mL PLASTIC D Y X N	N	OTE: STA	BILIZATION	TEST IS CO	MPLETE	WHEN	3 SU	CCESS	IVE READINGS	ARE V	VITHIN TH	E FOLLOWIN	IG LIMIT	S:
NUMBER SIZE TYPE PRESERVATIVE FILTERED NUMBER SIZE TYPE PRESERVATIVE FILTERED  1 250 mL PLASTIC A Y X N 1 125 mL PLASTIC D Y X N	pH: +/-	0.1	COND.: +/-	3 % OF	RP: +/- 1	10	D.O.:	+/- 0.3	TURB: +/-	10 %	or =</td <td>: 10</td> <td>TEMP.:</td> <td>+</td>	: 10	TEMP.:	+
J 250 mL PLASTIC A Y X N 1 125 mL PLASTIC D Y X N	BOTTLES	FILLED	PRESERV	ATIVE CODE	<u>S</u> A - N	ONE	В-	HNO3	C - H2SO4	l D	- NaOH	E- H	CL F-	
J 250 mL PLASTIC A Y X N 1 125 mL PLASTIC D Y X N	NUMBER	SIZE	TYPE	PRESERV	ATIVE	FILTER	RED	NUME	BER SIZE	TY	PE F	PRESERVAT	VE	FILTERED
	1	250 mL	PLASTIC	A			N	1	125 mL	PLA	STIC	D		N X V
1 125 mL PLASTIC A Y X N 40 mL VOA E	1	125 mL	PLASTIC	А			Ŋ		40 mL	V	OA	E		Y-X NAV
7_ 60 mL VOA A □ Y 📈 N 1L PLASTIC B □ Y □ N	て	60 mL	VOA	A					1 L	PLA	STIC	. В		Y 🔲 N
1 125 ml PLASTIC B Y X N 1 125 x Plastic B X Y N	1	125 mL	PLASTIC	В			N	1	125m	Plas	itic.	B	X	Y□N
j 125 mL PLASTIC C □ Y 🔀 N □ Y □ N	]	125 mL	PLASTIC	С			× N							] Y □ N
SHIPPING METHOD: DOP-OFF DATE SHIPPED: 7/25/24 AIRBILL NUMBER:	SHIPPING	METHOD:	D100-01	Fæ	DATE S	HIPPED	):	7/25	12\$	AI	RBILL NUI	MBER:		
COC NUMBER: A. JULIA DATE SIGNED: 7/25/25														

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PROJECT N	NAME:	CEC K	arn BAP/LI:	2024 GW C			ARED			CHECK	ŒD
PROJECT N	NUMBER	: 553814	1.0001.0000	E	BY (AVV)	JIK, JJ, KK	DATE:7/2	4/24	BY: 3	TK.	DATE: 7-31-24
SAMPLE ID	: 100 L	11-6		WELL D	IAMET	ER: 🗸 2"	4"	6" 🔲	OTHER		
WELL MATE	RIAL:	✓ PVC	□ss [	] IRON     (	BALVA	NIZED STE	EL		OTHER		
SAMPLE TYP	PE: {	√ GW	□ ww [	]sw □	OI	LE,	ACHATE		OTHER		
PURGI	NG	TIME: 10	510 '	DATE: 7/24	1/24		/IPLE	TIME:	1048	DA	TE: 17/24/24
PURGE METHOD:	_	PUMP BAILER	PERISTALTI	PUMP	•	PH: <u>9</u>	.27 s			1TY: <u>406.0</u> 83 mg/	
DEPTH TO V		- / / 21	T/ PVC			TURBIDIT		NTU		<u></u>	
DEPTH TO B			T/ PVC	Transluce		NONE		— '''' GHT		DERATE	☐ VERY
WELL VOLUM		NA	LITERS	GALLON ☐		TEMPERA				RROUS Fe	mg/L
VOLUME RE			LITERS	GALLON		COLOR:	Clear		ODO		Vone
COLOR:	Coca		<del>_</del> ,	DOR: NOM		FILTRATE		 YES		NO —	Vestina
002011.	<u></u>	4	BIDITY	,501. <u>  19<b>0</b>1.</u>		FILTRATE				TRATE ODOR	
☐ NONE	SLIC		MODERATE	<b>⊠</b> VER	Υ	QC SAMP		/MSD		DUP-	<u> </u>
DISPOSAL N	METHOD:	✓ GROUN	ID 🗌 DRUI	M OTHER		COMMEN	ITS: F	3 -	KU		
1 11MH 1	PURGE RATE	PH	CONDUCTIVIT	Y ORP		D.O. T	URBIDITY	TEMPE	RATURE	WATER LEVEL	CUMULATIVE PURGE VOLUME
	ML/MIN)	(SU)	(umhos/cm)	(mV)	(	mg/L)	(NTU)	('	°C)	(FEET)	(GAL ORAL)
10R 1	100	820	418.1	11.5	7	,90Z	કુ <del>9</del>	16	,,2	2560	INITIAL
			**********************	TVV							0.5
1028	00	9,11	409.1	-1367	2	401	61_	18	رح	25.50	1.0
		- 1.		Dry							
1039	00	9.32	385.1	-74.C	2	.00 4	18.9	18.	حي.	25.50	1.5
/ (0)				Day	<del></del>						
1048)	00	9.27	406.0	1-30.1	] .	.83	1,7	18.	6	25.50	2.0
		V, 4	ollect	Some	le.	aft	er_	rech	orge		
1 2 2									<u>ر</u>		
1140	Son	ple Co	ollectic	on ec	m	lete					
NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:											
pH: +/- 0.1 COND.: +/- 3 % ORP: +/- 10 D.O.: +/- 0.3 TURB: +/- 10 % or = 10 TEMP.: +</td											
BOTTLES FILLED PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F											
NUMBER	SIZE	TYPE	PRESERVA			NUMBER	SIZE	TYP	E P	RESERVATIV	
1	250 mL	PLASTIC	Α		И 🗶	2	125 mL	PLAS	TIC	D	□ Y <b>X</b> Y N
, –	125 mL	PLASTIC	А	□ Y [	И		40 mL	VO	A	E	□ Y □ N
2	60 mL	VOA	А	□ Y [	<b>X</b> N		1 L	PLAS	TIC	В	☐ Y ☐ N
2	125 mL	PLASTIC	В	□ Y	N						YUN
	125 mL	PLASTIC	С	□ Y [	X N						□ Y □ N
SHIPPING M	ETHOD:	0-40nd	tt	DATE SHIPPE	D:	125 kg	,4	AIR	BILL NUM	1BER:	
<u> </u>				SIGNATURE:		A. when	4	DA	TE SIGNE	D:	7/25/24

### ◆ TRC

PROJECT NAME: CEC Karn BAP/LI: 2024 GW C PREPARED CHECKED											
PROJECT	NUMBE	R: 553814	1.0001.0000	·	BY: AW	, <b>(k)</b> JJ,	KK DATE: 7.	24-24	BY: AW	<u> </u>	DATE:8-2-24
SAMPLE	D: OV	v-12	-	WELL (	DIAMET	ER: 🗹	2" 🗌 4" 🗀	] 6" 🔲	OTHER		
WELL MAT	ERIAL:	☑ PVC	□ ss □	IRON 🗆	GALVA	NIZED S	TEEL		OTHER		
SAMPLE T	PE:	☑ GW	□ ww □	sw 🗆	DI		LEACHATE		OTHER		
PURG	SING	TIME:	45 DA	TE:7.24	1-24		AMPLE	TIME:	10 18		DATE: 7-24-24
PURGE METHOD	_	PUMP BAILER	PERISTALTIC F	PUMP				SU CO		/ITY: <u>139</u> ,09	umhos/cm
DEPTH TO			T/ PVC			TURBI		<b>.0</b> NT			
DEPTH TO						X NOI	NE 🗆 SI	 _IGHT	□ мо	DERATE	☐ VERY
WELL VOL				☐ GALLO	NS	TEMPE	RATURE:	1511	_°C <del>FE</del> I	RROUS Fe	mg/L
VOLUME F	EMOVED	_6_	LITERS	☐ GALLO	NS	COLO	R: Chen		OD	OR:	none
COLOR:		range	OD	OR: <b>^0</b> *	r	FILTRA	TE (0.45 um)	☐ YE	s 🗷	NO	
			BIDITY			FILTRA	TE COLOR:		FIL	TRATE ODC	DR:
□ NONE	SLI	GHT 🔲	MODERATE	🔼 VEI	RY		MPLE: M	S/MSD		DUP-	
DISPOSAL	METHOD	☑ GROU	ND DRUM	OTHER	₹	СОММ	ENTS:				
TIME	PURGE RATE	PH	CONDUCTIVITY	İ		D.O.	TURBIDITY		PERATURE	WATER LEVEL	CUMULATIVE PURGE VOLUME
20113	(ML/MIN)	(SU)	(umhos/cm)	(mV)	1	mg/L)	(NTU)	1	(°C)	(FEET)	(GAL OR L) INITIAL
0948	300	7.09	1236	-75.0		1.09	99,14		16.2	19.01	
<b>୭</b> ୩€ 3	200	7.06	1268			,70	27.32		5.0	19.01	
0958	Jos	7.06	1285	-96.5		,22	23,34		15.1	19.01	
er (003)	200	7.07	1299	-99.9	O	.10	16.97		5.0	19.01	
1008	200	7.06	1330	-101.	6 0	104	8.59	/	5.1	19.01	4
1013	200	7.05	1347	-107	7 0	.04	6.02	(	6,2	19.01	5
1018	200	7.06	1349	-103,	5 0	.04	5,20	1	5.1	19.01	6
NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:  pH: +/- 0.1											
BOTTLES FILLED PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F											
NUMBER	SIZE	TYPE	PRESERVATI	VE FILT	ERED	NUMB	ER SIZE	TY	PE F	PRESERVAT	TIVE FILTERED
i	250 mL	PLASTIC	А	□ Y	M M		125 mL	PLA	STIC	D	□ Y <b>X</b> N
1	125 mL	PLASTIC	Α	□ Y	<b>X</b> N	<u> </u>	40_mL	W	ΘA		<del></del> □ <del> </del> ∀□- ₩
2	60 mL	VOA	А	ΠY	<b>X</b> N		+1-E	PLA	STIC -	В	— □ ¥□ N
1	125 mL	PLASTIC	В	Y	X N						□ Y□ N
,	125 mL	PLASTIC	С	ΠY	D N						□ Y□ N
SHIPPING	METHOD:	Lab Dro	off D	ATE SHIPP	ED:	7-2	5-24	Al	RBILL NU	MBER:	
COC NUME				GNATURE:		Je	9/5	D/	ATE SIGNE	ED:	7-71-24

<b>&lt;&gt;</b>	T	<b>`</b> R	C
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PROJECT	NAME:	CEC K	arn BAP/LI: 2	2024 GW C		PREPARED				CHECKED		
PROJECT	NUMBER	R: 553814	1.0001.0000		BY ÁŴ	<b>)</b> JK, JJ,	KK DATE: 7	24/24B	Y: •3	TK	DATE:7-31-2	4
SAMPLE	D: DE	k- ML	1-1500	3 METT	DIAMET	ER: 🗸	2" 4"	6" 🔲	OTHER			7
WELL MAT		☑ PVC	□ss [	] IRON 🔲	GALVA	NIZED S	STEEL		OTHER			
SAMPLE TY	/PE:	☑ GW	□ww	] sw 🔲	DI		LEACHATE		OTHER			
PURG	SING	TIME: OX	·S& [	DATE: 7/24	124	S	AMPLE	TIME: C	593 ⁷	DA	TE:7/24/24	
PURGE		PUMP	PERISTALTIC	PUMP		PH:		SU CON	DUCTIV		· 1 umhos/cr	n
METHOD	):	BAILER						nV DO:	0	.65 mg/	<b>/</b> L	
DEPTH TO		. 1	T/ PVC			TURBI		NTU				
DEPTH TO	,	, , , , ,	_	an Soucer		NOI	_	IGHT	_	DERATE	U VERY	
WELL VOL		NA U.O	☐ LITERS  ☐ LITERS	GALLO			71	[₽] 17. ७ ∘		RROUS Fe	mg	<u>/</u> _
VOLUME F	REMOVED:	910 PAC		GALLO	JNS	COLO	R: <u>LVC(()</u> TE (0.45 um)	☐ YES		OR: <u> </u>	bne	$\dashv$
COLOR:	<u></u>		BIDITY	DOR			TE COLOR:			TRATE ODOR		
<b>⊠</b> NONE	SLI		MODERATE	□ VE	RY			S/MSD		DUP-		_
	METHOD:	✓ GROUN			R	COMM	IENTS:			<del></del>		_
	PURGE	- Bu	COMPUTATION (IT		·	50	TI IDDIDIDI	TEMPER	\ <b>T</b>   DC	WATER	CUMULATIVE	=
TIME	RATE	PH (SU)	CONDUCTIVIT (umhos/cm)		ļ	D.O.	TURBIDITY	TEMPER		LEVEL	PURGE VOLUM (GAL OR	Е
2790	(ML/MIN)	7.62	ZAZ /	(mV)		mg/L)	(UTN) 3.7\$	) (°(	<u>,</u> フ	(FEET) 19.45	INITIAL	
403	100	785	372 0	-40 9	7 6	90	2.70	1-7	( 	20.67	1.0	
908		7.62	375.C	70,	7 C	.,し プサ <del>ケ</del>	1-9	17,	۷	21.00	20A	1 1241
013		7.68	376.7	_ Cz/	70	, DI	1.42/	17.		21.24	2 AU 7	ritzy
918		777	378C	1-100	2 0	<del>,,,,,</del>	1.34	17.		21.30	2.5	
922		7 (>7	180.0	170	10	.69	0.60	17.		71.30	3.0	
9712		7,89	282.4		00					21.30	3.5	
933	J	7.91	783'S	-127	1 -	•	0.98	17.		21,30	40	
ردر		11/1	30 3, 1	1610		/· ( 2	0.18	1 .,	<u> </u>	0,,30	, . <u> </u>	
NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SLICCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:												
NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:  pH: +/- 0.1 COND.: +/- 3 % ORP: +/- 10 D.O.: +/- 0.3 TURB: +/- 10 % or = 10 TEMP.: +</td												
BOTTLES FILLED PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F												
NUMBER	SIZE	TYPE	PRESERVA		ERED	NUMB	<del></del>	TYPE		PRESERVATIV	<del></del>	$\exists$
	250 mL	PLASTIC	A	ļ,	N (X	2		PLAST		D	□ Y 🔀 N	-
2	125 mL	PLASTIC	A		M K		40 mL	VOA		E		
2	60 mL	VOA	A		N K	<del> </del>	1 L	PLAST		В		
7 2	125 mL	PLASTIC	В		N K	<del> </del>		,				
7	125 mL	PLASTIC	C			<del>                                     </del>		-		annontradas i sentre a translatento e entre translatento e entre translatento e entre entre entre entre entre e		
SHIPPING						11-	· <i>U</i>	ΔIPE	BILL NU	MRER.		$\dashv$
		Duab -		DATE SHIPP		***************************************	0.	=			-11	
COC NUMBER: SIGNATURE: Cardad DATE SIGNED: 7/25/24												

	<b>&lt;&gt;</b>	TR	C
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PROJECT NAME	ROJECT NAME: CEC Karn BAP/LI: 2024 GW C PREPARED CHECKED									
PROJECT NUME	ER: 55381	4.0001.0000	BY:A	<b>ў</b> ік, л.	KKDATE: 7	124/24 BY:	<b>3</b> K	DATE: 7-31-24		
SAMPLE ID: K	L) -PC	ζ̈́	WELL DIAME	TER:	2" 4"	6" OTHE	R NA			
WELL MATERIAL:	J PVcA		IRON GALV	ANIZED S	STEEL	💢 отне	R NA			
SAMPLE TYPE:	J GW A	You M	SW 🗌 DI		LEACHATE	OTHE	R	Type berger and the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the s		
PURGING	TIME:	DA	ATE:		AMPLE	TIME: 120	3 0/	ATE: Tlz 4/z4		
PURGE METHOD:	✓ <u>PUMP</u> .	PERISTALTIC	PUMP ANT IE	PH: ORP:		CONDUC	TIVITY: 711			
DEPTH TO WATE	<del></del>	T/ PVC /		TURBI						
DEPTH TO BOTTO		T/ PVC		☐ NO			MODERATE	☐ VERY		
WELL VOLUME:	NA	LITERS	GALLONS	TEMPE	RATURE:		ERROUS Fe	mg/L		
VOLUME REMOVE		✓ LITERS	GALLONS	COLO				one		
COLOR:		OD.	OR:	FILTRA	ATE (0.45 um)	YES	MO D			
	TUR	BIDITY		FILTRA	TE COLOR:		FILTRATE ODOF	₹:		
□ NOME □	SLIGHT 🗌	MODERATE	VERY	QC SA	MPLE: MS	/MSD	DUP-			
DISPOSAL METHO	DD: GROU	ND 🗌 DRUM	OTHER	COMM	MENTS:					
TIME PURG	I PH	CONDUCTIVITY		D.O.	TURBIDITY	TEMPERATUR	RE WATER LEVEL	CUMULATIVE PURGE VOLUME		
(ML/MI		(umhos/cm)	(mV)	( mg/L)	(NTU)	(°C)	(FEET)	(GAL OR L)		
1157 NA	827	691	5-3-6	2.13	4.86	25,8	· NA	-INITIAL NA		
1200	8.29	701	3.5	5.81	4,56	26.0	- N)	L H		
1203 V	J.29	711	-4.0	5.74	2.25	26.2	<u> </u>	NA AN		
						***				
			,							
NOTE: S	TABILIZATION	TEST IS COM	PLETE WHEN 3 S	UCCESS	IVE READINGS	ARE WITHIN 1	THE FOLLOWIN	G LIMITS:		
pH: +/- <b>0.1</b>	COND.: +/-	3 % ORP:	+/- <b>10</b> D.C	).: <b>+/- 0.3</b>	TURB: +/-	<b>10</b> % or	= 10</td <td>TEMP.: +</td>	TEMP.: +		
BOTTLES FILLE	D PRESERV	ATIVE CODES	A - NONE B	- HNO3	C - H2SO4	D - NaOH	E - H(	CL F-		
NUMBER SIZE		PRESERVATI		NUME	<del></del>	TYPE	PRESERVATI			
1 250 m	L PLASTIC	A			125 mL	PLASTIC	D	□ Y <b>N</b> N		
) 125 m		A			40 mL	VOA	E	□Y□N		
2 60 m		A			1 L	PLASTIC	В			
) 125 m		В			. –					
1 125 m		С					and the description of the art I will be an artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the artifact of the ar	□ Y □ N		
' '		<u> </u>				<u> </u>				
SHIPPING METHO	D: <u>Prop -</u>		******	7125		AIRBILL N				
COC NUMBER:	-	SI	IGNATURE:	(E. w)	had -	DATE SIG	SNED:	7/25/24		

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PROJECT	NAME:	arn BAP/LI: 2	024 GW C		PR	EPARED			CHEC	KED	
PROJECT	NUMBER	t: 553814	.0001.0000		вуÆ	∭JK, JJ	, KK DATE: <b>7</b>	24/24BY	QK	_	DATE:7-31-24
SAMPLE I	D: KLI	-565		WELL	DIAME	TER: 🗸	2"	6" 0	THER _		
WELL MATE		√ PVC	ss 🗆	IRON 🗌	GALV	ANIZED S	STEEL	□ 01	THER		
SAMPLE TY	PE: [	√ GW	□ ww □	sw 🗌	DI		LEACHATE	O1	HER		
PURG	SING	TIME:	D/	ATE:	$\overline{}$	S	AMPLE	TIME:		D/	ATE:
· PURGE METHOD	_		PERISTALTIC	PUMP		***************************************	S		UCTIVIT		dmhos/cm
WETTOD	· <u> </u>	BAILER				ORP:	n	1V DO:		mg	142
DEPTH TO	WATER:		T/PVC				IDITY:		7		
DEPTH TO	BOTTOM:	-	T/ PVC			□ ио				ERATE	☐ VERY
WELL VOLU		NA	LITERS	GALLO			ERATURE:		<del> </del>		mg/L
VOLUME R	EMOVED:		✓ LITERS	∐ GALLO	)NS	COLOR: ODOR:					
COLOR:				OOR:			ATE (0.45 um)	∐ YES	N	10	
			BIDITY				TE COLOR:	******		RATE ODOF	₹:
NONE	SLIC		MODERATE	VE			MPLE: MS	S/MSD		)UP	
DISPOSAL		✓ GROUN	ID    DRUM	OTHE	<u> </u>	ACOMIK	MENTS:				
TIME	PURGE RATE	РН	CONDUCTIVITY	ORP		D.O.	TURBIDITY	TEMPERA	TURE	WATER LEVEL	CUMULATIVE PURGE VOLUME
	(ML/MIN)	(SU)	(umhos/cm)	(mV)		( mg/L)	(NTU)	(°C)		(FEET)	(GAL OR L)
											INITIAL
									$\overline{}$		
										ante que a citar altinum - decido (rin lande habil d'Aro cas article	
		7	777					<u> </u>			
			V					<u> </u>			
				<u> </u>						-	
<b> </b>						<u></u>					
NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLOWING LIMITS:											
pH: +/- 0.1 COND.: +/- 3 % ORP: +/- 10 D.O.: +/- 0.3 TURB: +/- 10 % or = 10 TEMP.: +</td											
BOTTLES FILLED PRESERVATIVE CODES A - NONE B - HNO3 C - H2SO4 D - NaOH E - HCL F											
NUMBER	SIZE	TYPE	PRESERVAT	IVE FILT	ERED	NUME	BER SIZE	TYPE	PR	ESERVATI	VE-FILTERED
	250 mL	PLASTIC	Α	□ Y		1	125 mL	PLASTIC	5	D	□ Y □ N
	125 mL	PLASTIC	Α	ΠY		<u> </u>	40 mL	VOA		E	□ Y □ N
	60 mL	VOA	А			٧	1 L	PLASTIC		В	□ Y □ N
	125 mL	PLASTIC	В	ΠY		N					□ Y □ N
	125 mL	PLASTIC	С	□ Y		V					□ Y □ N
SHIPPING	METHOD:	A1 N	n	ATE SHIPP	FD:	1/1		AIRRII	L NUMB	RER.	
		<u> NA</u>		Probabile Art C Art Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Commit		NA	1				
COC NUMBER: SI				IGNATURE	: <u>.</u>	H.W/	unle_	DATE	SIGNED	': <u> </u>	7125/24

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PROJECT NAME: CEC Weadock B	AP: 2022 GW	PREPARED CHECKED										
PROJECT NUMBER: 464096.0001.000	00 BY:	JJ DATE:/(-)	MBY: 3	DATE: 7-31-24								
SAMPLE ID:DEK-MW-1800	WELL DIAMET	TER: 🗸 2" 📗 4" 🗀	6" OTHER									
WELL MATERIAL: PVC SS	☐ IRON ☐ GALVA	NIZED STEEL	OTHER									
SAMPLE TYPE:	SW DI	LEACHATE	OTHER									
PURGING TIME: 121	DATE: 7/14/124		TIME: D3 (									
PURGE ☐ PUMP PERISTAL METHOD: ☐ BAILER	TIC PUMP	PH: <b>8.1</b> SI ORP: -188 m		TY: (0) ( umhos/cm   10 mg/L								
DEPTH TO WATER: 9.76 T/ PVC		TURBIDITY: 10	NTU									
DEPTH TO BOTTOM: 17 PVC												
WELL VOLUME: NA LITERS	GALLONS	TEMPERATURE:	<u>{₹З</u> °с   отн	IER:								
VOLUME REMOVED: 5	GALLONS	COLOR: CLOY	ODC	DR:								
COLOR: COLOR	ODOR: 3/19n+	FILTRATE (0.45 um)	YES D	NO								
TURBIDITY		FILTRATE COLOR:	FILT	FRATE ODOR:								
□ NONE □ SLIGHT ₱ MODERAT	E VERY	QC SAMPLE: MS/	MSD	DUP-								
DISPOSAL METHOD: GROUND DE	UM OTHER	COMMENTS:										
TIME PURGE PH CONDUCTI	VITY ORP	D.O. TURBIDITY	TEMPERATURE	WATER CUMULATIVE LEVEL PURGE VOLUME								
(ML/MIN) (SU) (umhos/o	m) (mV)	( mg/L) (NTU)	(°C)	(FEET) (GAL OR L)								
120 290 7.79 550	2 -187	185 30	246	9.56 INITIAL								
1217 80.08 104	21 -178 3	235 11	149	9.70 1								
(2)0 8,12 103	Control from the Control of States and the control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control	76 11	146	9.70 2								
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1230 8.14 100		10 10	142	9.70 4								
1735   8.15 102	and the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of th	. lo lo	14.3	9.70 5								
1240-			manning analysis and principles and executions, Physics of Section 1977	9.70 6								
	sar an an an angan sa manan na annan , na manan na anatan na timbo na anna na sa sa an annan											
	r yaya a haranga a kananga andaga ya Makananga Makananga Makananga Makananga Maranga Maranga Maranga Maranga M											
		e. Hari kananni sansanari ori arta ori risuata amerona (majar) (moro oriari) i ameroto arti:		Market con 1904 and the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of the responsibility of th								
NOTE: STABILIZATION TEST IS CO		CCESSIVE READINGS A										
BOTTLES FILLED PRESERVATIVE COL	DES A - NONE B	- HNO3 C - H2SO4	D - NaOH	E- HCL F								
NUMBER SIZE TYPE PRESER		NUMBER SIZE	TYPE PR	RESERVATIVE FILTERED								
G GO VOA A		1 250	DI	A DY N								
		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	Company of the second second second second									
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3 12 PI B	□ Y Q N			L Y L N								
SHIPPING METHOD:	DATE SHIPPED:		AIRBILL NUM	IBER:								
COC NUMBER:	SIGNATURE:		DATE SIGNE	D: 7/25/16								
	<u> </u>			/ <del>/ / / / / / / / / / / / / / / / / / /</del>								

# CHAIN OF CUSTODY

Isumers Energy	

# CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251

of

Page

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	ESTED	(Attach List if More Space is Needed)																,				No M&TE#:
	SREOUR	More Space					1	dinita abř	Znji VIK	× ·	×	×	×	×	×							□ Yes □
	ANAL YSIS REOUESTED	sch List if I					1	sinom		×	×	×	×	×	×					ENTS:		Received on Ice?   Yes   No
:51		(Att				·	(sis	al Me		×	×	× ×	× ×	× ×	×					COMMENTS:		Receive
(517) 788-12		gister				CONTAINERS	PRESERVATIVE	H H	M ⁵ CO HCI HCI HCI HCI HCI	1 1	1 1	1 1	1 1	1 1	1 1							
. 1026	#:	Harold Reg		3R		CON	ļl		TOT	7 4 1	7 4 1	7 4 1	7 4 1	4 1 1	4 1 1							
135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251	SAP CC or WO#:	REQUESTER: Harold Register	Ö:	: ☐ STANDARD ☒ OTHER	phone:	X = Other	SL = Sludge A = Air	WP = Wipe WT = General Waste	/LOCATION											RECEIVED BY:	<b>/</b>	RECEIVED BY:
135 WEST TRAI	PROJECT NUMBER:	24-0580	TURNAROUND TIME REQUIRED:	□ 24 HR □ 48 HR □ 3 DAYS	email:	MATRIX CODES: GW = Groundwater	WW = Wastewater W = Water / Aqueous Liquid	S = Soil / General Solid O = Oil	FIELD SAMPLE ID / LOCATION	DEK-MW-15002	DEK-MW-15005	DEK-MW-15006	DUP-DEK-BAP-01	FB-DEK-BAP	EB-DEK-BAP	=				ME:	70 r ps 0000	ME:
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Consumers Energy

CONSUMERS ENERGY COMPANY – LABORATORY SERVICES 35 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251

of Page

19 0 9 19 some 12st as toha DISSOUR MERES, QA REQUIREMENT: ☐ 10 CFR 50 APP. B ☐ INTERNAL INFO REMARKS □ ISO 17025 □ OTHER □ NPDES INI 🛭 Dry 智 (Attach List if More Space is Needed) ANALYSIS REQUESTED 51272W BIRDZSICI × Sulfide × × × × × × × × Alkalinity × × × × × × LD2 × × × × × × COMMENTS Ammonia × × × × × × × × **snoinA** × × × × × × × × Total Metals × × × × × Other PRESERVATIVE MeOH CONTAINERS HCI HOBN щ ⊷ REQUESTER: Harold Register ^γOS^ζH -HNO³ -_ -None 4 4 4 4 4 4 **TOTAL**# 4 1 ~ _ SAP CC or WO#: RECEIVED BY: FIELD SAMPLE ID/LOCATION ☐ STANDARD phone: A = Air WP = Wipe WT = General Waste SL = Sludge OX = Other TURNAROUND TIME REQUIRED □ 24 HR □ 48 HR □ 3 DAYS MATRIX CODES:

GW = Groundwater

WW = Wastewater

W = Water / Aqueous Liquid

S = Soil / General Solid

O = Oil 24-0582 DEK-MW-15003 PROJECT NUMBER: SW-DITCH DUP-KLI KLI-PCS KLI-SCS EB-KLI OW-12 FB-KLI OW-10 OW-11 email: DATE/TIME: ĞΜ GW Ğ₩ Ğ₩ ĞΨ SW ZΜ ⋈ ≽ ≽ XIATAM 7/24/24 G828 8F0 4401 KS/43/ OSII RELASIL 1/24/24 1993 1203 SAMPLE COLLECTION TIME 7/29/24 1018 Harold Register KRNZ भिर्मिदी Q3-2024 DEK Lined Impoundment Joseph Firlit *४५५५*५ 4512517 Count on Us® DATE SAMPLING SITE / CUSTOMER: TRC ALLIDACE SEND REPORT TO: RELINQUISHED BY: SAMPLING TEAM: 9 -03 9 80-6 -10 9 7 24-0582-01 COPY TO: LAB SAMPLE 1

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# Appendix C Data Quality Reviews

## Laboratory Data Quality Review Groundwater/Surface Water Monitoring Event July 2024 DE Karn Lined Impoundment

Groundwater and surface water samples were collected by TRC for the July 2024 sampling event. Samples were analyzed for total and/or dissolved metals, anions, total dissolved solids, ammonia, and alkalinity by Consumers Energy (CE) Laboratory Services in Jackson, Michigan. The sulfide analyses were subcontracted to Merit Laboratories, Inc. (Merit) in East Lansing, Michigan. The laboratory analytical results were reported in laboratory sample delivery groups (SDGs) 24-0582 and S64475.01(01).

During the July 2024 sampling event, a groundwater sample was collected from each of the following wells:

OW-10

OW-11

OW-12

DEK-MW-15003

During the July 2024 sampling event, the following surface water sample was collected:

KLI-PCS

Each sample was analyzed for one or more of the following constituents:

Analyte Group	Method
Anions (Fluoride, Chloride, Sulfate, Nitrate, Nitrite)	EPA 300.0
Total Dissolved Solids (TDS)	SM 2540C
Total and/or Dissolved Metals	SW-846 6020B
Total and/or Dissolved Mercury	SW-846 7470A
Alkalinity (Bicarbonate, Carbonate, and Total)	SM 2320B
Ammonia	SM 4500 NH3(h)
Sulfide	SM 4500 S2D

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

### **Data Usability Review Procedure**

The analytical data were reviewed using the USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA, 2020). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;

- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

It should be noted that results for method blanks and LCSs were not provided for review by CE Laboratory Services and Merit. Therefore, potential contamination arising from laboratory sample preparation and/or analytical procedures and the accuracy of the analytical method using a clean matrix could not be evaluated for the total and dissolved metals, total and dissolved mercury, anions, alkalinity, TDS, ammonia, and sulfide analyses.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

### **Review Summary**

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

- The reviewed Appendix III, IV, optional Piper diagram analyses, additional Part 115 constituents, and additional geochemistry parameters will be utilized for the purposes of the detection monitoring program.
- Data are usable for the purposes of the detection monitoring program.
- When the data are evaluated through a detection or monitoring statistical program, findings below may be used to support the removal of outliers.

### **QA/QC Sample Summary**

- One field blank (FB-KLI) and one equipment blank (EB-KLI) were collected with this data set. Target analytes were not detected above the RL in these blank samples.
- Laboratory duplicate and MS/MSD analyses were not performed on a sample from this data set.

Samples DUP-KLI and DEK-MW-15003 were submitted as the field duplicate pair with this data set; all criteria were met.

## Laboratory Data Quality Review Groundwater Monitoring Event July 2024 DE Karn Bottom Ash Pond and Lined Impoundment

A groundwater sample was collected by TRC for the July 2024 sampling event. The sample was analyzed for total metals, anions, total dissolved solids, ammonia, and alkalinity by Consumers Energy (CE) Laboratory Services in Jackson, Michigan. The sulfide analysis was subcontracted to Merit Laboratories, Inc. (Merit) in East Lansing, Michigan. The laboratory analytical results were reported in laboratory sample delivery groups (SDGs) 24-0581 and S64477.01(01).

During the July 2024 sampling event, a groundwater sample was collected from the following well:

### DEK-MW-18001

The sample was analyzed for the following constituents:

Analyte Group	Method
Anions (Fluoride, Chloride, Sulfate, Nitrate, Nitrite)	EPA 300.0
Total Dissolved Solids (TDS)	SM 2540C
Total Metals	SW-846 6020B/7470A
Alkalinity (Bicarbonate, Carbonate, and Total)	SM 2320B
Ammonia	SM 4500 NH3(h)
Sulfide	SM 4500 S2D

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

### **Data Usability Review Procedure**

The analytical data were reviewed using the USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA, 2020). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for method blanks, equipment blanks, and field blanks, where applicable. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy of the analytical method using a clean matrix;

- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates, when collected. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

It should be noted that results for method blanks and LCSs were not provided for review by CE Laboratory Services and Merit. Therefore, potential contamination arising from laboratory sample preparation and/or analytical procedures and the accuracy of the analytical method using a clean matrix could not be evaluated for the total metals, anions, ammonia, TDS, alkalinity, and sulfide analyses.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

### **Review Summary**

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

- The reviewed Appendix III, IV, optional Piper Diagram analyses, additional Part 115 constituents, and additional geochemistry parameters will be utilized for the purposes of a detection or assessment monitoring program.
- Data are usable for the purposes of the detection or assessment monitoring program.
- When the data are evaluated through a detection or assessment monitoring statistical program, findings below may be used to support the removal of outliers.

### **QA/QC Sample Summary**

- A field blank was not collected with this data set.
- An equipment blank was not collected with this data set.
- MS and MSD analyses were performed on sample DEK-MW-18001 for total metals, anions, ammonia, total alkalinity, and sulfide. The recoveries were within the acceptance limits. Relative percent differences (RPDs) were not provided by the laboratory for all parameters therefore were not evaluated; further, with the exception of sulfide, MS/MSD concentrations were not provided by the laboratory. However, since all recoveries were within the acceptance limits, there is no impact on data usability due to this issue.
- A field duplicate pair was not collected with this data set.
- Laboratory duplicate analyses were not performed on the sample from this data set.



## **Appendix D Statistical Analysis**

### Appendix D

### Statistical Summary for DE Karn Lined Impoundment Third Quarter 2024

Data from October 2022 to July 2024

	Karn Lined Impoundment Wells												
Constituent	Range, Test, or Limit	OW-11	OW-12										
Boron	Trend	$\downarrow$	0	0	0	0							
Calcium	Trend	0	0	0	0	<b>^</b> *							
Chloride	Trend	0	0	0	0	$\downarrow$							
Fluoride	Trend	O*	O*	O*	0	O*							
Iron	Trend	0	<b>↓</b>	0	0	0							
рН	Trend	0	0	0	0	0							
Sulfate	Trend	0	0	<b>*</b>	0	<u></u> *							
Total Dissolved Solids	Trend	0	<b>↑</b>	0	0	0							

### Notes:

O* = Non-detect

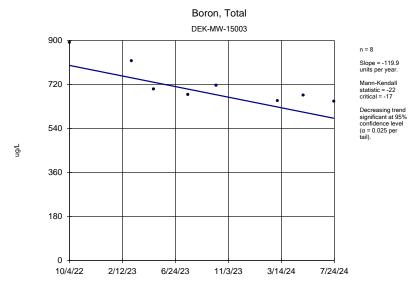
O = No trend

= Upward trend, continuous

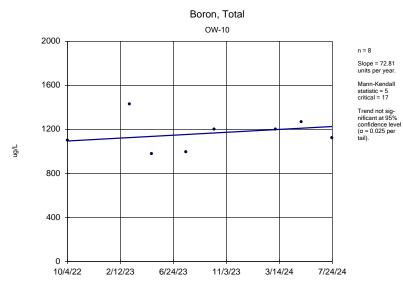
↑* = Upward trend, new

= Upward trend, confirmed

_ * = Downward trend, new

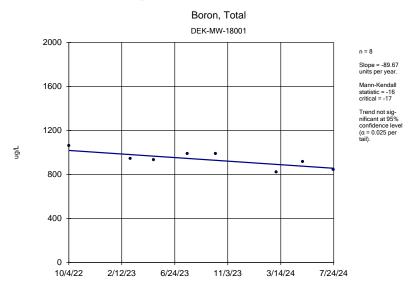


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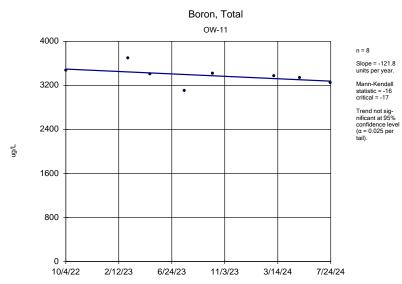


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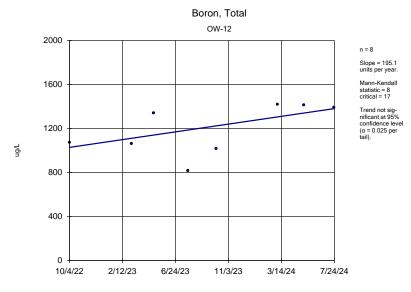


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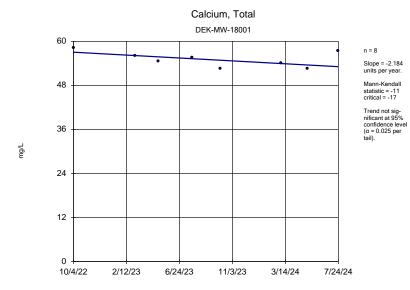


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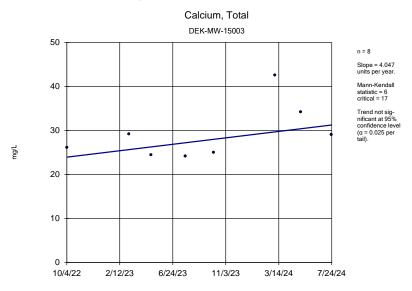


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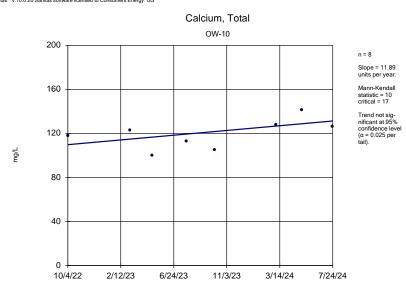
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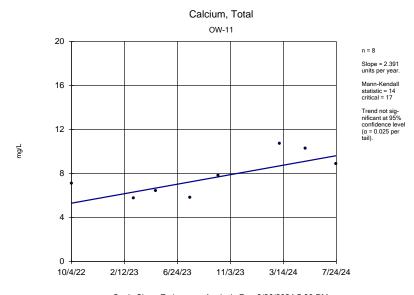


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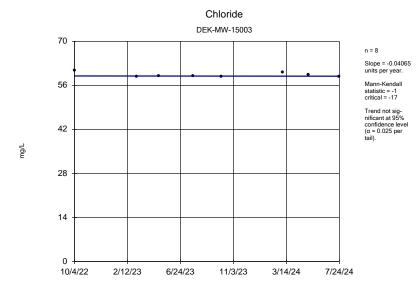
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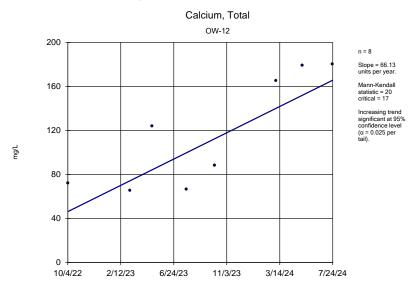
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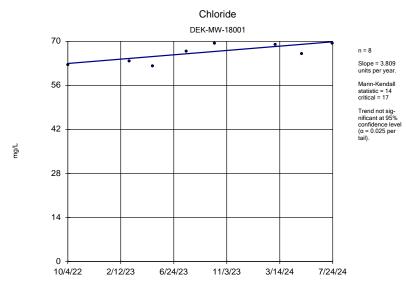


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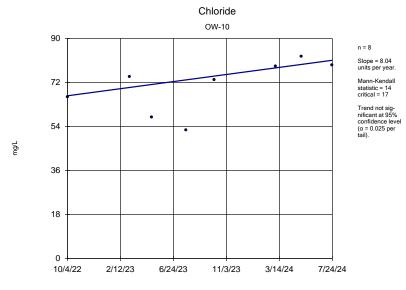


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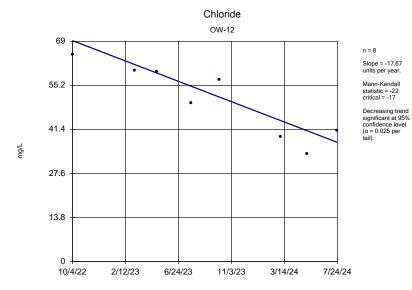
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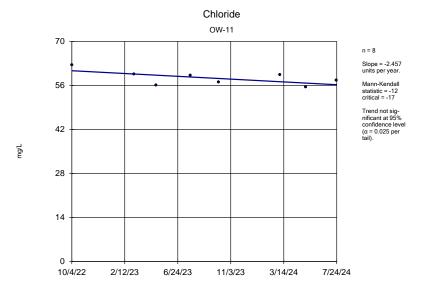
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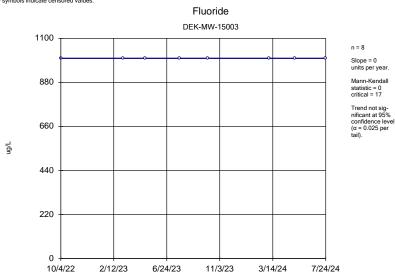


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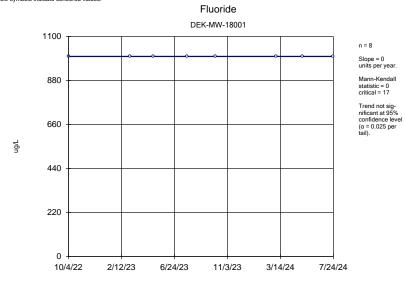
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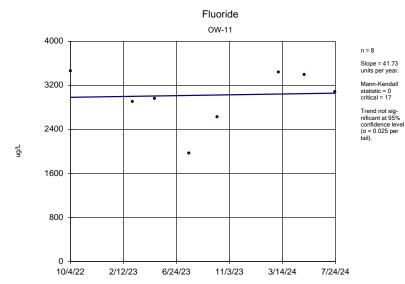
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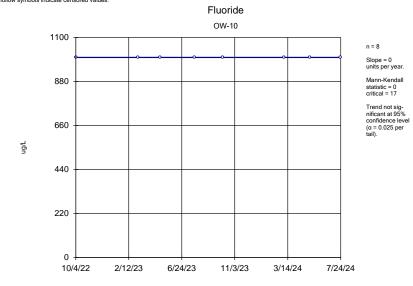
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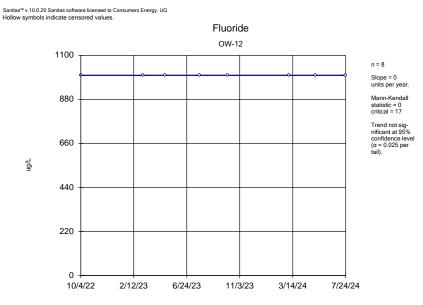
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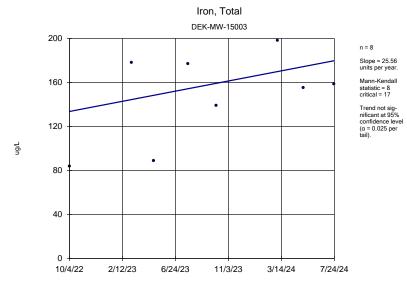


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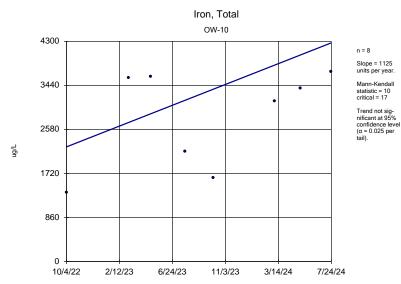
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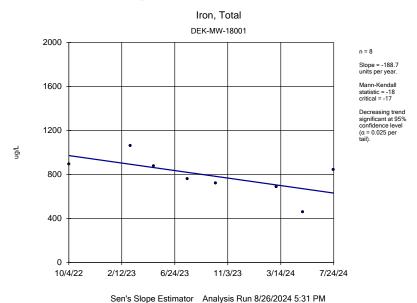
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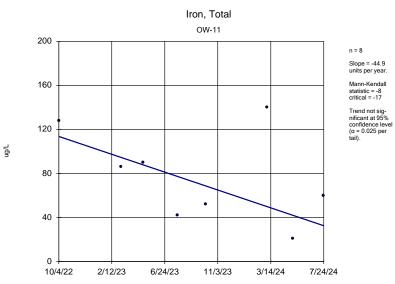


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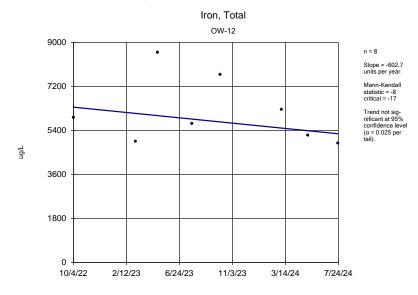
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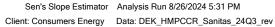
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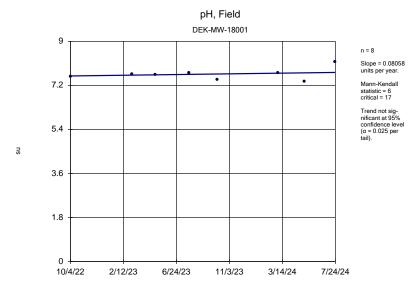


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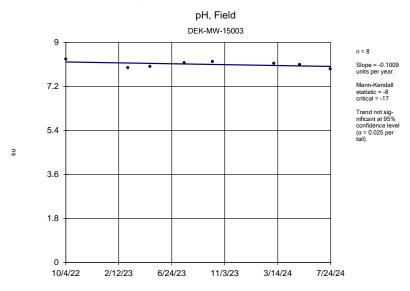
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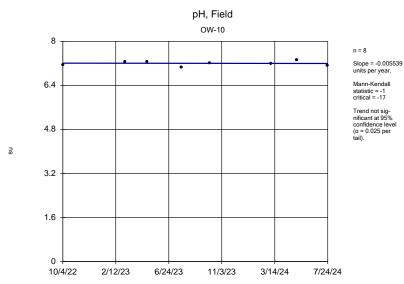




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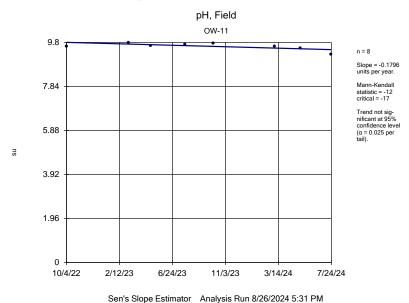


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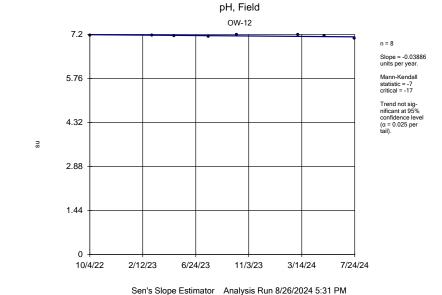


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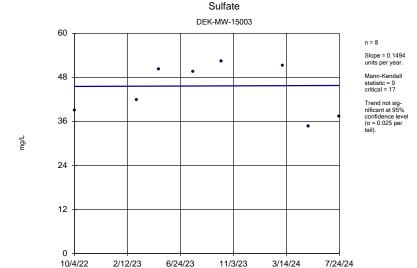
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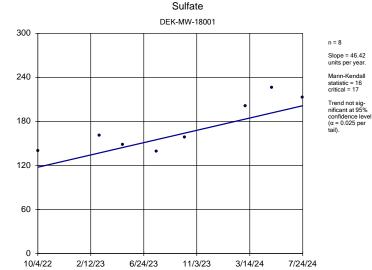


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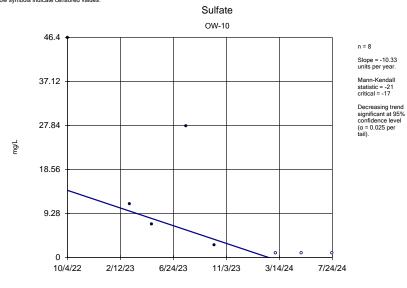
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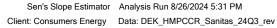


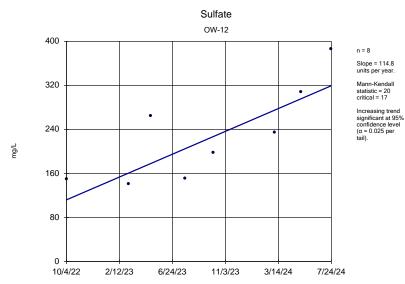


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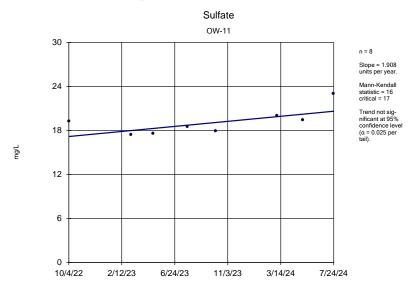




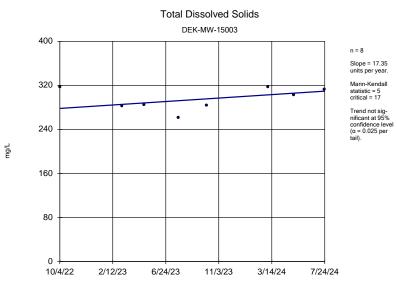


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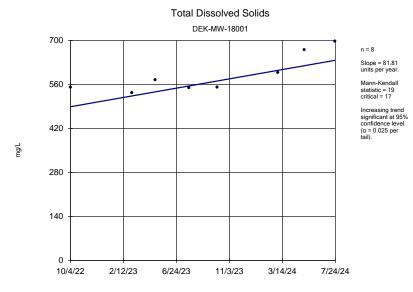


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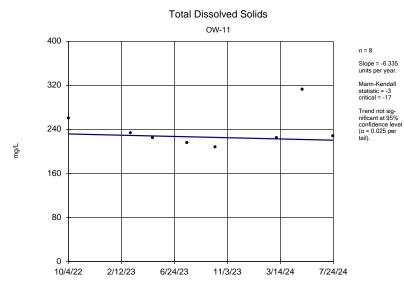


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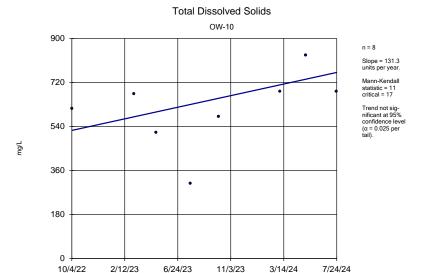


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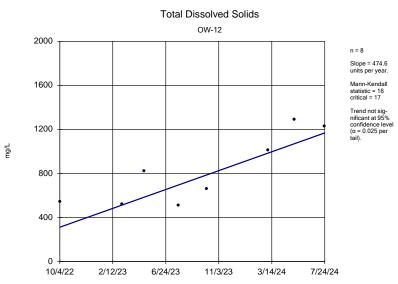


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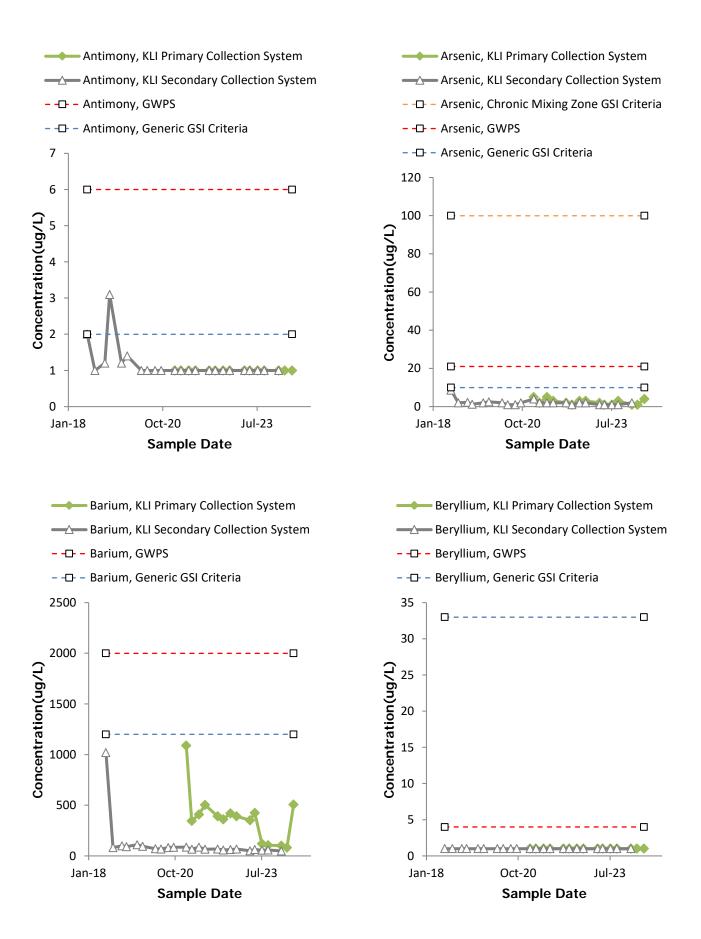


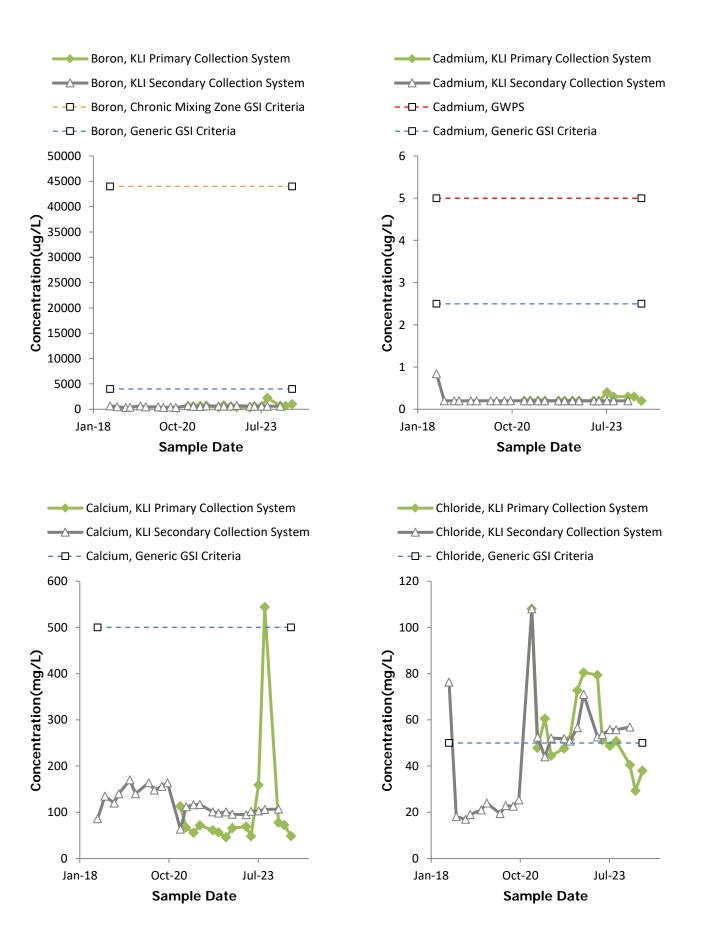
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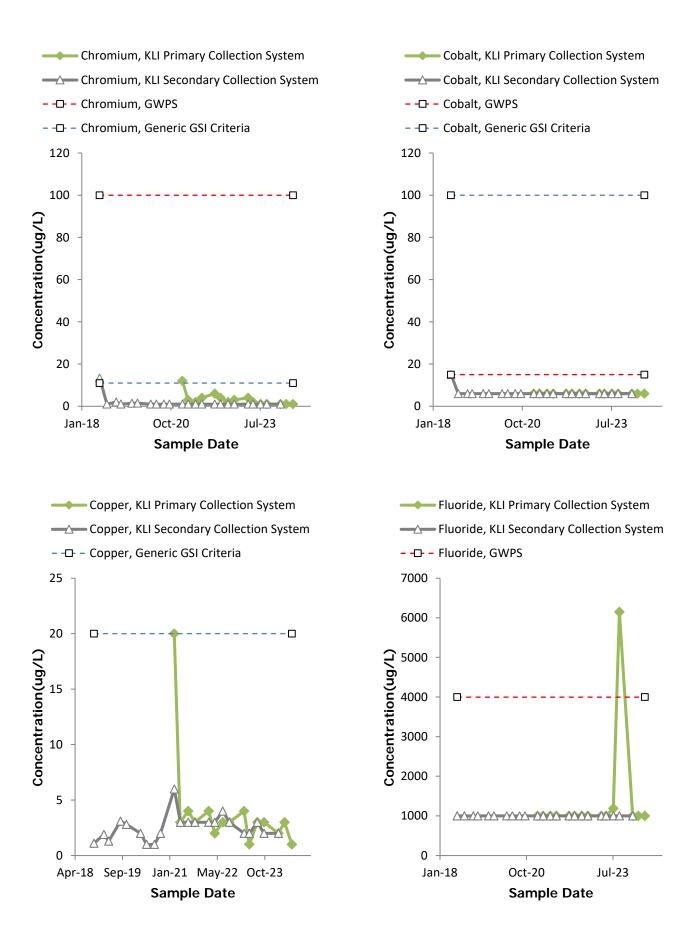
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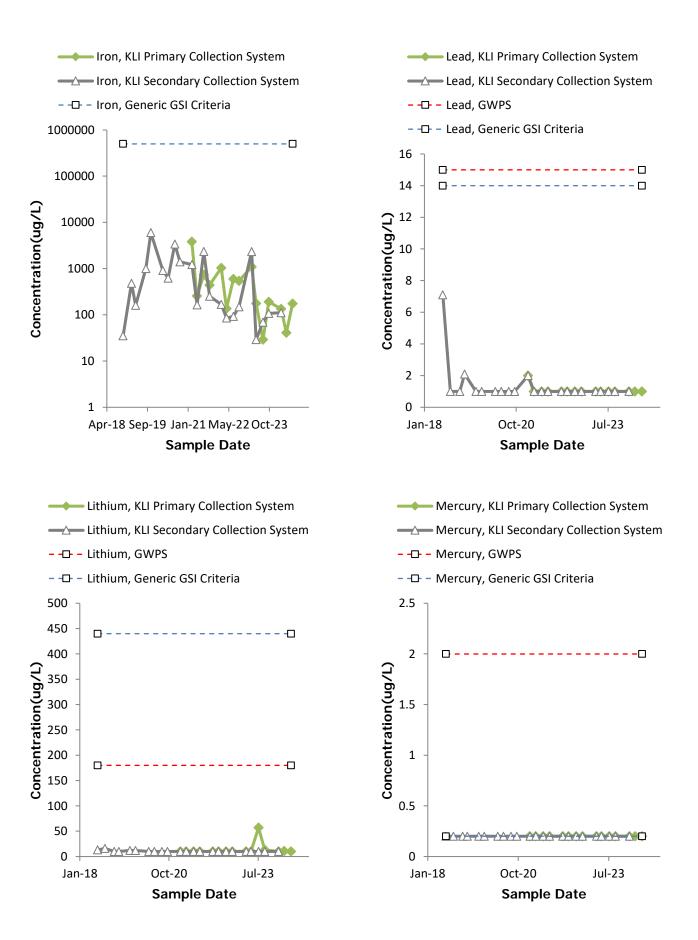


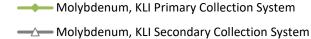
# Appendix E Secondary Leachate Collection System Monitoring



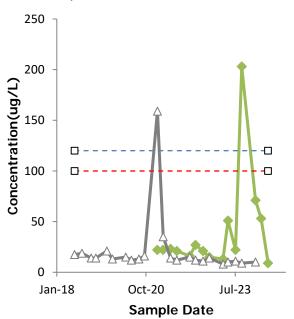


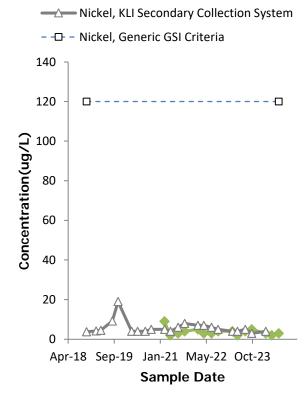






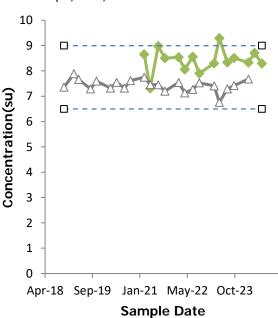
- - □ Molybdenum, GWPS
- - Molybdenum, Generic GSI Criteria

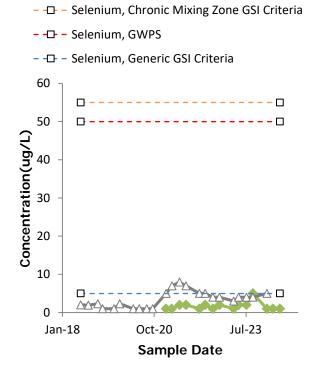




Nickel, KLI Primary Collection System



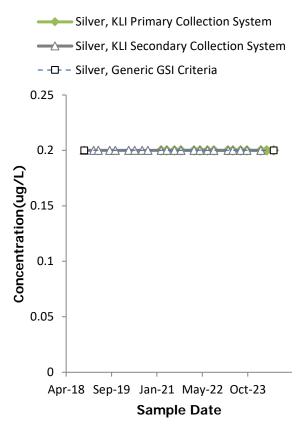


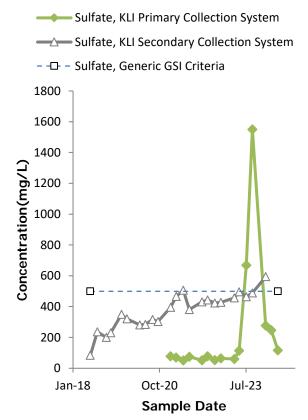


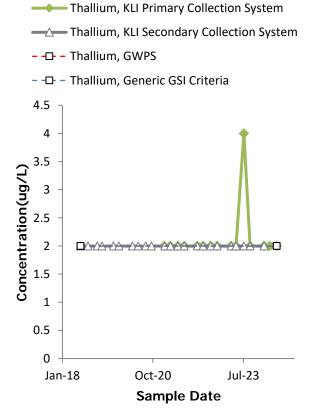
Selenium, KLI Primary Collection System

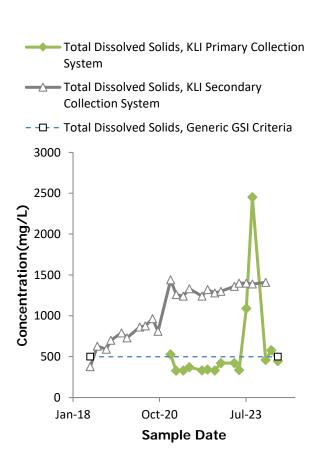
Selenium, KLI Secondary Collection System

#### **Water Quality Time Series**

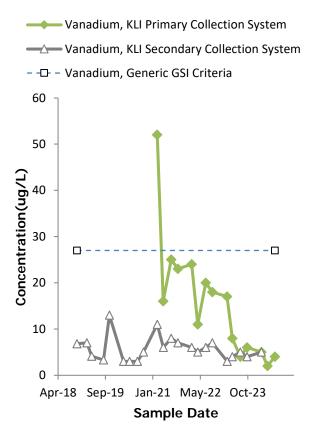


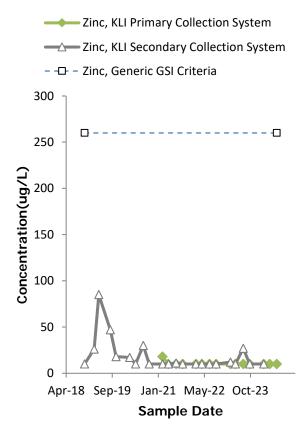






## **Water Quality Time Series**







# **Enclosure 5**

Fourth Quarter 2024 Hydrogeological Monitoring Report, DE Karn Lined Impoundment CCR Unit, Essexville, Michigan. (TRC, January 30, 2025)



# Fourth Quarter 2024 Hydrogeological Monitoring Report

**DE Karn Lined Impoundment CCR Unit** 

**Essexville**, Michigan

January 2025

Darby Litz

Project Manager/Hydrogeologist

# **Prepared For:**

Consumers Energy 1945 W. Parnall Road Jackson, MI 49201

### Prepared By:

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## 1.0 Introduction

Pursuant to the Federal CCR Rule¹, Consumers Energy initiated a detection monitoring program for the Karn Lined Impoundment that went into service on June 7, 2018. After Consumers Energy established the groundwater monitoring system and detection monitoring program pursuant to the requirements and schedule of §257.90 - §257.94, the State of Michigan enacted Public Act No. 640 of 2018 (PA 640) on December 28, 2018, to amend the Natural Resources and Environmental Protection Act, also known as Part 115 of PA 451 of 1994, as amended (a.k.a., Michigan Part 115 Solid Waste Management). The amendments to the solid waste statute amended state groundwater monitoring requirements for coal ash impoundments; therefore, Consumers Energy submitted the *Karn Lined Impoundment Hydrogeological Monitoring Plan* (HMP) to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) to comply with the requirements of Part 115, Rule 299.4905, and the CCR Rule. The HMP was approved by the EGLE on November 13, 2020, and incorporated, by reference, in Solid Waste Disposal Area Operating License No. 9629 issued on December 10, 2020.

## 1.1 Statement of Adherence to Approved Hydrogeological Monitoring Plan

This Fourth Quarter 2024 Karn Lined Impoundment Hydrogeological Monitoring Report (Report) has been prepared by TRC on behalf of Consumers Energy to satisfy quarterly groundwater monitoring requirements during the life of the coal ash impoundment. This Report was prepared in accordance with the items listed in Appendix A (Solid Waste Monitoring Submittal Components) of the May 15, 2015 Michigan Department of Environmental Quality (MDEQ) – Office of Waste Management and Radiological Protection, now the EGLE Materials Management Division (MMD), communication prescribing the format for solid waste disposal facility monitoring submittals as published in OWMRP-115-29, Format for Solid Waste Disposal Facility Monitoring Submittals, dated July 5, 2013. All references herein to the EGLE are inclusive of the MDEQ. Information contained in this report was prepared in adherence to the facility's approved HMP that was approved by the EGLE on November 13, 2020. This HMP is compliant with the requirements set forth in PA 640.

# 1.2 Program Summary

This Report provides results and summarizes the monitoring activities completed in the fourth quarter 2024 at the Karn Lined Impoundment CCR unit located at 2742 Weadock Highway in Essexville, Michigan (Figure 1). Groundwater in the vicinity of the Karn Lined Impoundment has been documented to be affected by the management of CCR prior to the construction of the unit (TRC, 2019). Given that the constituents associated with CCR currently managed at the Karn Lined Impoundment are indistinguishable from the constituents already present in groundwater from past operation of the former Karn Bottom Ash Pond, the compliance monitoring program for the Karn Lined Impoundment CCR unit consists of two parts to evaluate if there are new releases from the unit:

 Monitoring of secondary collection system flow rates and water quality to detect leaks in the liner; and

¹ USEPA final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA) published April 17, 2015, as amended.



2. Groundwater monitoring to determine if there are potential new releases from the Karn Lined Impoundment.

The Karn Lined Impoundment has remained in detection monitoring, based on groundwater compliance monitoring completed in accordance with the HMP, during the active life of the CCR unit (June 2018 through August 2024). Closure of the Karn Lined Impoundment was initiated in August 2024 in accordance with the EGLE-approved *D.E. Karn Generating Facility, Karn Lined Impoundment Closure Plan* (Closure Plan) (Golder, 2018). Consumers Energy also prepared a *Closure Work Plan* (WSP, 2023) that was submitted to EGLE to provides additional details for excavation and confirmation that coal ash has been removed.²

In August and September 2024, the Karn Lined Impoundment was dewatered and hydraulic structures were removed. The remaining CCR, the geosynthetic liner systems, and all areas within the limits of the Karn Lined Impoundment that were in contact with CCR were removed, as documented in the *D.E. Karn Generating Facility, Karn Lined Impoundment Decommissioning Report* (WSP, 2024). Since closure by removal activities were completed in September 2024, this fourth quarter sampling event (October 2024) is the first post-excavation groundwater monitoring sampling event. In accordance with the Closure Plan and § 257.102(c)³: Closure by removal of CCR, groundwater monitoring will be conducted post-CCR removal to document that constituent concentrations throughout the CCR unit do not exceed the groundwater protection standards established per 40 CFR 257.95(h) for two consecutive groundwater monitoring events. The second post-excavation monitoring event is scheduled to occur in the first quarter of 2025.

#### 1.3 Site Overview

The Karn Lined Impoundment CCR unit is located within the DE Karn Power Plant site (Site) located north of the former JC Weadock Power Plant, east of the Saginaw River, south and west of Saginaw Bay (Figure 1). Two coal-fired power generating units (Karn Units 1 & 2) began generating electricity in 1958 and 1959, respectively. Consumers Energy permanently ceased the operation Karn Units 1 & 2 at the Site in May 2023 and has commenced decommissioning activities for both coal-fired generating units. Karn Units 3 & 4, co-located with the coal-fired generating units, are oil- and natural gas-fueled and will continue to operate. Two other areas of coal ash management within the Site are the former Karn Bottom Ash Pond that was closed by removal under the CCR Rule and the Karn Landfill that was certified closed under Part 115 by constructing a final cover system and is currently in post-closure care.

The Karn Lined Impoundment was put into service in June 2018 to replace the former Karn Bottom Ash Pond that directly supported Karn 1&2 power generation operations. The Karn Lined Impoundment served a twofold purpose for treatment pursuant to National Pollutant Discharge Elimination System (NPDES) Permit N0. MI0001678 and as temporary storage for bottom ash prior to removal and disposal in the JC Weadock Solid Waste Disposal Area

² The Federal CCR rule requirements are self-implementing and need to be coordinated with state requirements. Therefore, submittal of the Closure Plan and Closure Work Plan to the EGLE meets both the state and federal requirements.

³ The closure requirements of § 257.102(c) are equivalent to Section 11519(b)(9)(a) of Part 115.



(Weadock Landfill) governed by Solid Waste Disposal Area Operating License No. 9640 issued on March 11, 2021. On July 7, 2023, Consumers Energy submitted a Closure Work Plan for the Karn Lined Impoundment to the EGLE that details a plan for closure by removal of CCR in accordance with 257.102(c) of the self-implementing requirements of the CCR Rule. By reference, performance of this work would also satisfy state requirements pursuant to Section 11519b(9) of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.11501 et seq. EGLE provided written concurrence with the Closure Work Plan on October 25, 2023.

# 1.4 Geology/Hydrogeology

The majority of the Karn Lined Impoundment area is comprised of surficial CCR and sand fill, as described in the HMP. USGS topographic maps and aerial photographs dating back to 1938, in addition to field descriptions of subsurface soil at the Site, indicate that the site was largely developed by reclaiming low-lands through construction of perimeter dikes and subsequent ash filling (AECOM, 2009).

The surficial fill consists of a mixture of varying percentages of ash, sand, and clay-rich fill ranging from 5 to 15 feet thick. Below the surficial fill, native alluvium and lacustrine soils are present at varying depths. Generally, there is a well graded sand unit present to depths of 10 to 30 feet below ground surface (ft bgs) overlying a clay till which is observed at depths ranging from 25 to 75 ft bgs. In general, the alluvium soils (sands) are deeper along the Saginaw River and there are shallower lacustrine deposits (clays, silts and sands deposited in or on the shores of glacial lakes) at other areas. The clay till acts as a hydraulic barrier that separates the shallow groundwater from the underlying sandstone. A sandstone unit, which is part of the Saginaw formation, is generally encountered at 80 to 90 ft bgs.

The Site is bound by several surface water features (Figures 1 and 2): the Saginaw River to the west, Saginaw Bay (Lake Huron) to the north and east, and a discharge channel to the south. In general, shallow groundwater is encountered at a similar or slightly higher elevation relative to the surrounding surface water features. Groundwater flow in the upper aquifer is largely controlled by the surface water elevations of Saginaw River and Saginaw Bay. In the vicinity of the Karn Lined Impoundment, the shallow groundwater flow is generally radial, with a potentiometric high point near DEK-MW-18001, flowing outward toward the surrounding surface water bodies.



# 2.0 Second Collection System Monitoring

Consumers Energy initiated secondary collection system (SCS) flow monitoring to comply with the EGLE-approved HMP in December 2020. The SCS served as a leak detection system and the SCS flow rate data were used to demonstrate compliance with Part 115. During the active life of the unit, Consumers Energy complied with the requirements for unmonitorable units under Rule 437 of the Part 115 Rules. The SCS flow was monitored for the end-of-life CCRs and NPDES decant water that remained in the CCR unit the closure activities commenced in August 2024.

There are no secondary collection system monitoring data to report for the Fourth Quarter 2024, as impoundment closure and removal activities have been completed.



# 3.0 Groundwater Monitoring

## 3.1 Monitoring Well Network

In accordance with §257.91, Consumers Energy developed a groundwater monitoring system for the Karn Lined Impoundment prior to the initial receipt of waste in the CCR unit (TRC, 2019). Given the radial groundwater flow direction and that constituents associated with CCR formerly managed at the Karn Lined Impoundment CCR unit are indistinguishable from the constituents already present in groundwater from past operation of the Karn Bottom Ash Pond, the groundwater monitoring system design incorporates an intrawell statistical approach for detection monitoring as described in the HMP and in accordance with the "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance" (USEPA, 2009). Five monitoring wells that are screened in the uppermost saturated unit were selected for the Karn Lined Impoundment HMP detection monitoring (DEK-MW-15003, DEK-MW-18001, OW-10, OW-11, and OW-12). Monitoring well locations are shown on Figure 2.

Due to the proximity of OW-12 to the Karn Lined Impoundment, the compliance monitoring well was decommissioned to allow for removal of the hydraulic structures and geosynthetic liner systems. The well plugging record for OW-12 is included in Appendix D.

# 3.2 October 2024 Post-Excavation Monitoring Event

In accordance with the HMP, TRC conducted the fourth quarter 2024 monitoring event for the Karn Lined Impoundment on October 3, 2024. As mentioned above, OW-12 was decommissioned and therefore was not sampled. Additionally, due to decreasing water levels following discontinuation of loading to the NPDES discharge ditch, OW-11 did not yield a sufficient volume of water for the required sample analysis.

Groundwater samples collected during the fourth quarter 2024 event were submitted to Consumers Energy Laboratory Services in Jackson, Michigan for analysis of total metals and inorganic indicator constituents. Radium analysis was performed by Eurofins Environment Testing in Earth City, Missouri. Monitoring constituents include:

Section 11511a(3)(c) – Detection Monitoring Constituents	Section 11519b(2) – Assessment Monitoring Constituents					
Boron	Antimony	Fluoride	Thallium			
Calcium	Arsenic	Lead	Vanadium			
Chloride	Barium	Lithium	Zinc			
Fluoride	Beryllium	Mercury	Radium 226/228			
Iron	Cadmium	Molybdenum				
pH	Chromium, total	Nickel				
Sulfate	Cobalt	Selenium				
Total Dissolved Solids (TDS)	Copper	Silver				



Samples were also analyzed for additional constituents including magnesium, sodium, potassium, bicarbonate, carbonate, and total alkalinity to provide further evaluation of groundwater chemistry. Analytical results from this event monitoring event are included in the attached laboratory reports (Appendix A).

Static water level measurements were collected at all locations after equilibration to atmospheric pressure and immediately prior to purging. The depth to water was recorded to the nearest 0.01-ft in accordance with the procedures in the HMP. Groundwater purging and sampling were conducted in accordance with low-flow sampling protocol. Static water elevation data are included in the attached field records (Appendix B).

Monitoring wells were purged with peristaltic pumps utilizing low-flow sampling methodology. Field parameters were stabilized at each monitoring well prior to collecting groundwater samples. Stabilized field parameters for each monitoring well are summarized in Table 2. Field notes are included as Appendix B. The samples were collected in vendor-provided, nitric acid pre-preserved (metals only) and unpreserved sample containers and submitted to the laboratory for analysis. Groundwater sample preparation and analyses were performed in accordance with SW-846 "Test Methods for Evaluation Solid Waste – Chemical / Physical Methods," USEPA (latest revision). TRC followed chain of custody procedures to document the sample handling sequence.

TRC also collected quality assurance/quality control (QA/QC) samples during the groundwater sampling event. The QA/QC samples consisted of a field matrix spike/matrix spike duplicate sample collected at DEK-MW-18001.

#### 3.2.1 Data Quality Review

Data were evaluated for completeness, overall quality and usability, method-specified sample holding times, precision and accuracy, and potential sample contamination. The data were found to be complete and usable for the purposes of the HMP program.

The data quality reviews for the Karn Lined Impoundment network wells are summarized in Appendix C.

#### 3.2.2 Groundwater Flow Rate and Direction

Groundwater elevation data collected during this groundwater monitoring event are provided in Table 1. The data were used to construct the groundwater contour map (Figure 3).

Groundwater elevations measured at the site in October 2024 are generally within the range of 578 to 584 feet above mean sea level (ft NAVD88) and groundwater is typically encountered at equal elevation relative to the surrounding surface water features measured by the NOAA gauging station data or within approximately 6 feet higher, flowing toward the bounding surface water features.

Although the point source discharge of sluiced bottom ash into the former Karn Bottom Ash Pond historically created localized mounding of the potentiometric surface, the Karn Lined Impoundment went into service on June 7, 2018, and continuously collected the process water



and bottom ash that went into the former bottom ash pond. Since the former bottom ash pond is no longer being hydraulically loaded with sluiced ash and has been dewatered by gravity, the characteristic groundwater mound centered within the former surface pool area is no longer present. The groundwater elevation data collected in the vicinity of the former Karn Bottom Ash Pond in October 2024 demonstrate a reduction in groundwater elevation measurements by several feet when compared to the measurements collected prior to June 2018, when active loading was occurring to the bottom ash pond. Groundwater at the Site is locally influenced by incidental infiltration from precipitation over the uncovered acreage and the unlined low volume miscellaneous wastewater conveyance associated with the permitted NPDES discharge system, which is located just north of the former Karn Lined Impoundment.

Monitoring well DEK-MW-15003 had been at or near the local high point of mounded groundwater at the Karn site following the discontinuing of loading to the Karn Bottom Ash Pond. However, in late 2023, the Karn Generating Facility stopped operating and consequently stopped routine discharge to the discharge ditch north of the Karn Lined Impoundment. The conveyance ditch was observed to be dry in October 2024 as wastewater is not being generated due to the cessation of operations of Karn Units 1 & 2. This operational change triggered a decrease in groundwater elevation at DEK-MW-15003 and OW-11 and additional flattening of the mounded groundwater. The groundwater elevation high point has recently shifted to the south, towards DEK-MW-18001, with groundwater generally flowing radially towards the adjacent surface water features from this potentiometric "high", as illustrated in Figure 3.

The average hydraulic gradient observed on September 30, 2024, in the vicinity of the former Karn Bottom Ash Pond and former Karn Lined Impoundment is estimated at 0.0030 ft/ft. The gradients were calculated using the monitoring well pairs DEK-MW-15004/DEK-MW-15005 and OW-11/MW-08, as well as the monitoring well water elevation difference and distance between DEK-MW-18001 and the discharge channel. The discharge channel surface water elevation was taken from the NOAA gauging station data on the same date as the water level measurements. Using the mean hydraulic conductivity of 15 ft/day (ARCADIS, 2016) and an assumed effective porosity of 0.3, the estimated average seepage velocity was calculated to be 0.15 ft/day or 55 ft/year in October 2024 which is reduced relative to previous estimated seepage velocities (e.g., 0.33 ft/day or 120 ft/year in August 2018).

Due to the operational changes of the former bottom ash pond in 2018 and 2019, the completion of the landfill capping activities in 2020, and the cessation of NDPES discharge in 2023, the gradient between the area of the former Karn Bottom Ash Pond and former Karn Lined Impoundment and the surrounding surface water bodies is flattening out as compared to previous quarters and is also attempting to reach a new equilibrium, as expected. The general radial flow direction relative to the former Karn Lined Impoundment is similar to that identified in previous monitoring rounds and continues to demonstrate that the downgradient wells are appropriately positioned to detect the presence of Appendix III/IV parameters that could potentially migrate from the Karn Lined Impoundment.



#### 4.0 Data Evaluation

Although the Karn Lined Impoundment CCR unit has remained in detection monitoring throughout its operation, to certify completion of closure per 257.102(c) and to achieve equivalency for closure pursuant to Section 11519(b)(9)(a) of Part 115, the owner/operator must demonstrate that the groundwater concentrations of Appendix IV constituents do not exceed the groundwater protection standards (GWPS) established for the Karn Lined Impoundment CCR unit per 40 CFR 257.95(h) for two consecutive sampling events. This October 2024 event is the first post-excavation sampling event.

Water quality data are included in the attached laboratory reports (Appendix A). Groundwater analytical data for the most recent quarterly monitoring event is summarized in Table 3 along with the associated Part 201 generic drinking water criteria and the generic GSI criteria. GSI compliance is evaluated through monitoring performed at the Karn Landfill in accordance with the EGLE-approved Consumers Energy's revised Karn Landfill HMP (Hydrogeological Monitoring Plan, Rev. 3, DE Karn Solid Waste Disposal Area) dated December 19, 2017, and in accordance with the October 4, 2024, mixing zone determination.

#### 4.1 Data Discussion

Groundwater quality is generally consistent with previous monitoring events. Groundwater in the vicinity of the Karn Lined Impoundment has been affected by CCR management before commencement of operation, as documented in the HMP. Consumers Energy will formally establish GWPS and compare the GWPS with the Appendix IV groundwater data from the Karn Lined Impoundment CCR unit compliance well network following the second post-excavation groundwater sampling event to be completed in March 2025. As a part of the post-excavation groundwater data evaluation and closure demonstration, the data will be analyzed in the context of the Site hydrogeologic characteristics, and an assessment made as to whether concentrations that exceed GWPS, if identified, are from a possible release from the Karn Lined Impoundment or attributed to another on-site source or sources.

#### 4.2 Alternate Source Demonstration

At this time, Consumers Energy is not asserting an Alternate Source Demonstration (ASD) for any Statistically Significant Increases (SSI) from this reporting period.



### 5.0 Conclusions and Recommendations

Closure of the Karn Lined Impoundment was initiated in August 2024 and completed in September 2024 in accordance with the EGLE-approved *D.E. Karn Generating Facility, Karn Lined Impoundment Closure Plan* (Closure Plan) (Golder, 2018). Consumers Energy will continue the groundwater monitoring program for the Karn Lined Impoundment CCR unit in conformance with the Karn Lined Impoundment HMP to assess post-excavation groundwater conditions in support of closure by removal per 257.102(c) and to achieve equivalency for closure pursuant to Section 11519(b)(9)(a) of Part 115. Although the Karn Lined Impoundment CCR unit has remained in detection monitoring throughout its operation, to certify completion of closure, the owner/operator must demonstrate that the groundwater concentrations of Appendix IV constituents do not exceed the GWPS established for the Karn Lined Impoundment CCR unit per 40 CFR 257.95(h) for two consecutive sampling events.

Consumers Energy will formally establish GWPS and compare the GWPS with the Appendix IV groundwater data from the Karn Lined Impoundment CCR unit compliance well network following the second post-excavation groundwater sampling event to be completed in March 2025. As a part of the post-closure excavation groundwater data evaluation and closure demonstration, the data will be analyzed in the context of the Site hydrogeologic characteristics, and an assessment made as to whether concentrations that exceed GWPS, if identified, are from a possible release from the Karn Lined Impoundment or attributed to another on-site source or sources.



## 6.0 References

- AECOM. 2009. Potential Failure Mode Analysis (PFMA) Report. DE Karn Electric Generation Facility Ash Dike Risk Assessment Essexville, Michigan. Prepared for Consumers Energy Company. October 30.
- Consumers Energy. 2017. Hydrogeological Monitoring Plan, Rev. 3. DE Karn Solid Waste Disposal Area. December 19.
- Golder Associates Inc. 2018. D.E. Karn Generating Facility, Karn Lined Impoundment Closure Plan. June.
- Natural Resource Technology. 2005. Phase II Groundwater Discharge Evaluation at the Consumers Energy DE Kam and JC Weadock Solid Waste Disposal Areas. September.
- TRC. 2019. 2018 Annual Groundwater Report for the DE Karn Power Plant Bottom Ash Pond CCR Unit, Essexville, Michigan. Prepared for Consumers Energy Company. January.
- TRC. 2020. Karn Lined Impoundment Hydrogeological Monitoring Plan for the DE Karn Power Plant Lined Impoundment, Essexville, Michigan. Prepared for Consumers Energy Company. November.
- TRC. 2023. Fourth Quarter 2022 Hydrogeological Monitoring Report for the DE Karn Lined Impoundment CCR Unit, Essexville, Michigan. Prepared for Consumers Energy Company. January.
- USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA facilities, Unified Guidance. Office of Conservation and Recovery. EPA 530/R-09-007.
- WSP. 2023. Closure Work Plan, D.E. Karn Generating Facility Karn Lined Impoundment. June.
- WSP. 2024. D.E. Karn Generating Facility, Karn Lined Impoundment Decommissioning Report. October 30.



# **Tables**

Table 1

# Summary of Groundwater Elevation Data DE Karn Lined Impoundment – Hydrogeological Monitoring Program Essexville, Michigan

	тос		Screen Interval	September 30, 2024		
Well Location	Elevation (ft) Geologic Unit of Screen Interval		Elevation (ft)	Depth to Water	Groundwater Elevation	
				(ft BTOC)	(ft)	
DEK Bottom Ash Pon						
DEK-MW-15002	590.87	Sand	578.3 to 575.3	8.38	582.49	
DEK-MW-15005	589.72	Sand	572.3 to 567.3	10.00	579.72	
DEK-MW-15006	589.24	Sand	573.0 to 568.0	N	IM ⁽¹⁾	
DEK Bottom Ash Pon	d & Karn Lined Im	poundment	•			
DEK-MW-18001	593.47	Sand	579.2 to 574.2	10.18	583.29	
Karn Lined Impoundn	nent					
DEK-MW-15003	602.74	Sand	578.8 to 574.8	19.84	582.90	
OW-10	591.58	Silty Sand and Silty Clay	576.0 to 571.0	8.60	582.98	
OW-11	607.90	Silt/Fly Ash	587.5 to 582.5	25.00	582.90	
OW-12	603.10	Silty Sand	584.2 to 579.2	N	IM ⁽²⁾	
DEK Nature and Exter	nt					
DEK-MW-15004	611.04	Sand	576.6 to 571.6	29.48	581.56	
MW-01	597.02	Sand	573.0 to 570.0	17.34	579.68	
MW-03	597.30	Sand	569.8 to 566.8	17.67	579.63	
MW-06	589.44	Sand and Silty Sand	578.5 to 563.5	9.89	579.55	
MW-08	598.78	Sand and Silty Clay	580.9 to 570.9	18.62	580.16	
MW-10	596.97	Sand	582.5 to 572.5	16.90	580.07	
MW-12	598.60	Sand	583.9 to 573.9	18.71	579.89	
MW-14	594.37	Sand and Silty Clay	584.7 to 574.7	14.50	579.87	
MW-16	595.80	Sand and Sand/Bottom Ash	584.1 to 574.1	16.08	579.72	
MW-22	598.99	Ash/Sand	571.4 to 568.4	17.90	581.09	
MW-23	595.57	Ash/Sand	576.9 to 571.9	14.80	580.77	
DEK Static Water Lev	el					
MW-02	597.34	Sand and Silty Clay	572.5 to 567.5	17.64	579.70	
MW-04	598.01	NR	569.5 to 564.5	18.38	579.63	
MW-17	597.91	Sand	577.0 to 574.0	14.80	583.11	
MW-18	609.22	Silty Sand and Silty Clay	575.8 to 573.8	27.45	581.77	
MW-19	597.28	NR	572.1 to 567.1	17.49	579.79	
MW-20	632.75	Sand	582.3 to 579.3	53.00	579.75	
MW-21	632.91	Sand	587.1 to 584.1	52.10	580.81	
OW-01	631.33	NR	572.5 to 567.5	51.95	579.38	
OW-02	598.01	Fly Ash	579.4 to 576.4	16.80	581.21	
OW-03	597.94	Fly Ash and Sand	573.6 to 568.6	17.60	580.34	
OW-04	590.21	Sand and Bottom/Fly Ash	579.1 to 574.1	10.30	579.91	
OW-05	593.53	Sand	576.9 to 571.9	13.45	580.08	
OW-06	603.95	NR	580.9 to 575.9	22.75	581.20	
OW-07	596.41	Ash	583.3 to 580.3	15.65	580.76	
OW-08	593.93	NR	581.0 to 576.0	11.43	582.50	
OW-09	593.45	NR	585.5 to 580.5	10.73	582.72	
OW-13	588.52	NR	579.5 to 574.5		IM ⁽¹⁾	
OW-15	587.75	NR	572.8 to 567.8	5.33	582.42	

#### Notes:

Survey data from: Rowe Professional Services Company (Nov. 2015) and Consumers Energy Company drawings: SG-21733, Sheet 1, Rev. G (Karn, 11/27/18); and SG=21733, Sheet 2, Rev. C (Weadock, 11/27/18).

Elevation in feet relative to North American Vertical Datum 1988 (NAVD 88).

TOC: Top of well casing.

ft BTOC: Feet below top of well casing.

NM: Not Measured NR: Not Recorded

(2) OW-12 was decommissioned as part of the Karn Lined Impoundment closure activities in September 2024.

⁽¹⁾ Monitoring well was inaccessible due to site activities.

#### Table 2

# Summary of Field Parameters DE Karn Lined Impoundment - Hydrogeological Monitoring Program Essexville, Michigan

Sample Location	Sample Date	Dissolved Oxygen	Oxidation Reduction Potential	рН	Specific Conductivity	Temperature	Turbidity
		(mg/L)	(mV)	(SU)	(umhos/cm)	(°C)	(NTU)
DE Karn Lined Impour	ndment						
DEK-MW-15003	10/3/2024	1.12	-143.1	8.1	359	18.8	0.0
DEK-MW-18001	10/3/2024	1.00	-228.0	8.1	941	13.7	4.3
OW-10	10/3/2024	0.27	-136.8	7.3	808	15.2	12.5

#### Notes:

mg/L -Milligrams per Liter.

mV - Millivolts.

SU - Standard Units.

umhos/cm - Micromhos per centimeter.

°C - Degrees Celsius.

NTU - Nephelometric Turbidity Unit

#### Table 3

# Summary of Groundwater Sampling Results (Analytical) DE Karn Lined Impoundment - Hydrogeological Monitoring Program Essexville, Michigan

					Sample Location:	DEK-MW-15003	DEK-MW-18001	OW-10
					Sample Date:	10/3/2024	10/3/2024	10/3/2024
				MI Non-			Downgradient	
Constituent	Unit	EPA MCL	MI Residential*	Residential*	MI GSI^		Downgradient	
Appendix III ⁽¹⁾								
Boron	ug/L	NC	500	500	4,000	666	953	1,310
Calcium	mg/L	NC	NC	NC	500EE	35	58.5	139
Chloride	mg/L	250**	250 ^E	250 ^E	50	63.6	78.1	87.9
Fluoride	ug/L	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	250**	250 ^E	250 ^E	500EE	37.9	207	< 1
Total Dissolved Solids	mg/L	500**	500 ^E	500 ^E	500	304	624	650
pH, Field	SU	6.5 - 8.5**	6.5 - 8.5 ^E	6.5 - 8.5 ^E	6.5 - 9.0	8.1	8.1	7.3
Appendix IV ⁽¹⁾	•							
Antimony	ug/L	6	6.0	6.0	2.0	< 1	< 1	< 1
Arsenic	ug/L	10	10	10	10	382	495	5
Barium	ug/L	2,000	2,000	2,000	1,200	46	148	339
Beryllium	ug/L	4	4.0	4.0	33	< 1	< 1	< 1
Cadmium	ug/L	5	5.0	5.0	2.5	< 0.2	< 0.2	< 0.2
Chromium	ug/L	100	100	100	11	< 1	< 1	5
Cobalt	ug/L	NC	40	100	100	< 6	< 6	< 6
Fluoride	ug/L	4,000	NC	NC	NC	< 1,000	< 1,000	< 1,000
Lead	ug/L	NC	4.0	4.0	14	< 1	< 1	4
Lithium	ug/L	NC	170	350	440	21	18	34
Mercury	ug/L	2	2.0	2.0	0.20#	< 0.2	< 0.2	< 0.2
Molybdenum	ug/L	NC	73	210	120	22	10	< 5
Radium-226	pCi/L	NC	NC	NC	NC	< 0.117	0.353	0.232
Radium-228	pCi/L	NC	NC	NC	NC	< 0.753	0.774	< 1.21
Radium-226/228	pCi/L	5	NC	NC	NC	< 0.753	1.13	< 1.21
Selenium	ug/L	50	50	50	5.0	2	1	2
Thallium	ug/L	2	2.0	2.0	2.0	< 2	< 2	< 2
Additional MI Part 11	15 ⁽²⁾							
Iron	ug/L	300**	300E	300 ^E	500,000EE	215	763	5,370
Copper	ug/L	1,000**	1,000E	1,000E	20	< 1	< 1	4
Nickel	ug/L	NC	100	100	120	< 2	< 2	8
Silver	ug/L	100**	34	98	0.2	< 0.2	< 0.2	< 0.2
Vanadium	ug/L	NC	4.5	62	27	3	2	15
Zinc	ug/L	5,000**	2,400	5,000 ^E	260	< 10	< 10	17

#### Notes:

ug/L - micrograms per liter; mg/L - milligrams per liter.

pCi/L - picocuries per liter; SU - standard units; pH is a field parameter.

MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.

NC - no criteria; -- - not analyzed.

- * Michigan Part 201 Generic Drinking Water Cleanup Criteria, December 30, 2013, updated October 12, 2023.
- ** Secondary Maximum Contaminant Level (SMCL), EPA Secondary Drinking Water Regulations (SDWR) April, 2012.
- ^ Michigan Part 201 Groundwater Surface Water Interface (GSI) Criteria. Hardness-dependent criteria calculated using hardness of 258 mg CaCO3/L (average of SW-01 [Lake Huron] and SW-02 [Saginaw River] collected in April 2018) per footnote {G} of Michigan Part 201 criteria tables. Chromium GSI criterion based on hexavalent chromium per footnote {H}. GSI criterion is protective for surface water used as a drinking water source as described in footnote {X}. GSI criterion for chloride is 50 mg/L when the discharge is to the Great Lakes or connecting waters per footnote {FF}
- # If detected above 0.20 ug/L, further evaluation of low-level mercury may be necessary to evaluate the GSI pathway per Michigan Part 201 and MDEQ policy and procedure 09-014 dated June 20, 2012.
- E Criterion is the aesthetic drinking water value per footnote {E}.
- $^{\mbox{\scriptsize EE}}$  Criterion is based on the total dissolved solids GSI value per footnote {EE}.
- (1) 40 CFR Part 257 Appendix III Detection Monitoring Constituents and Appendix IV Assessment Monitoring Constituents.
- (2) Per Michigan Part 115 Amendment Public Act No. 640 of 2018 Section 11511a(3)(c) and 11519b(2) additional detection monitoring constituent (iron) and assessment monitoring constituents (copper, nickel, silver, vanadium, and zinc) are reported.

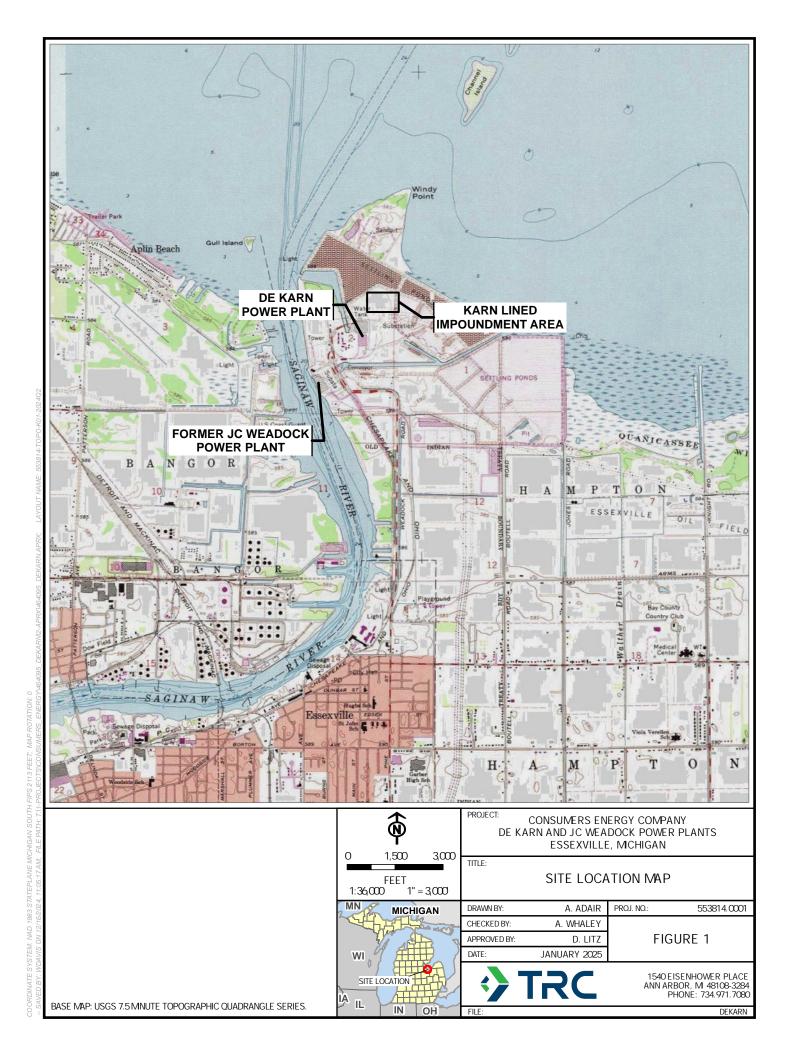
BOLD value indicates an exceedance of one or more of the listed criteria.

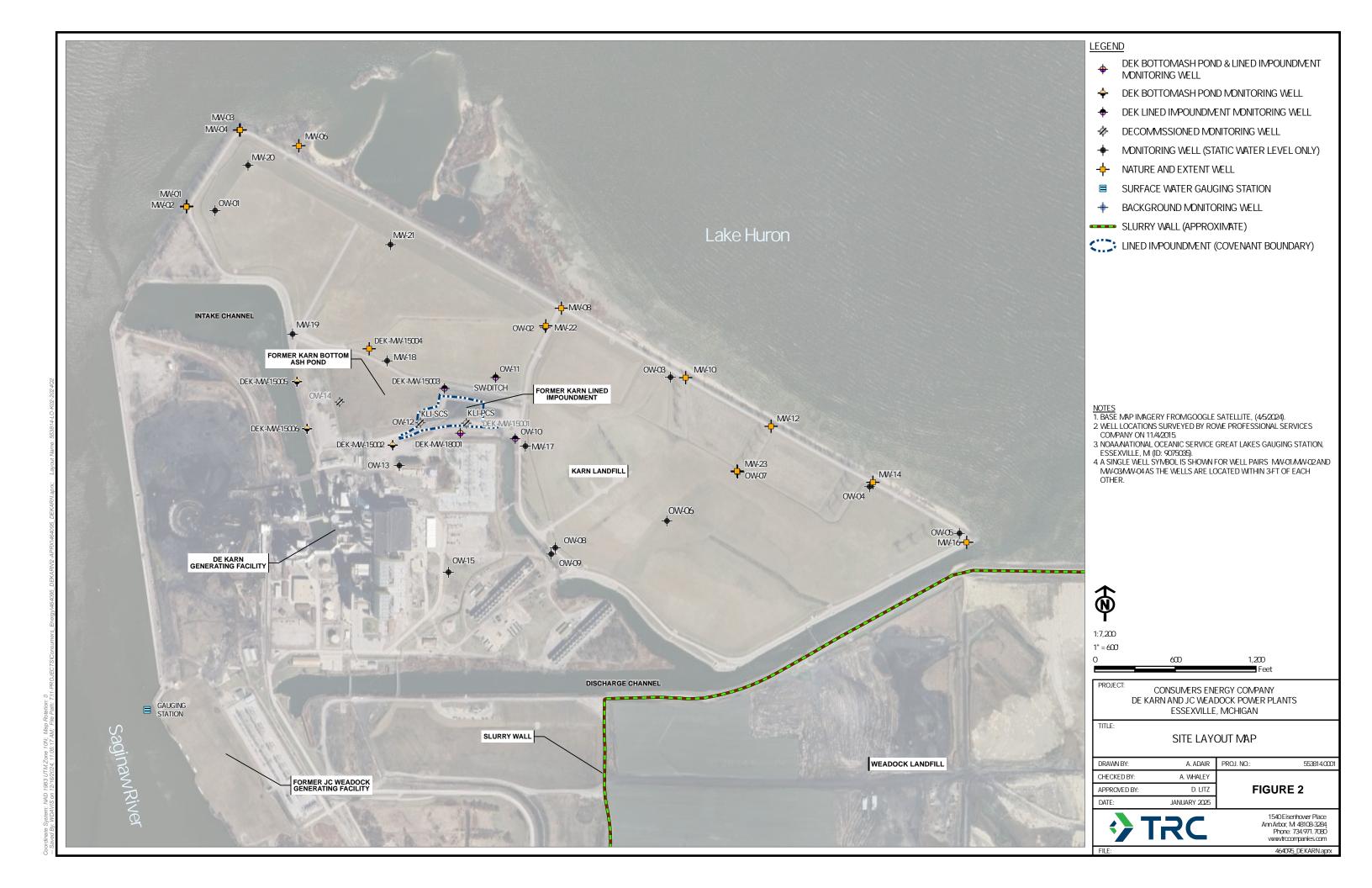
**RED** value indicates an exceedance of the MCL.

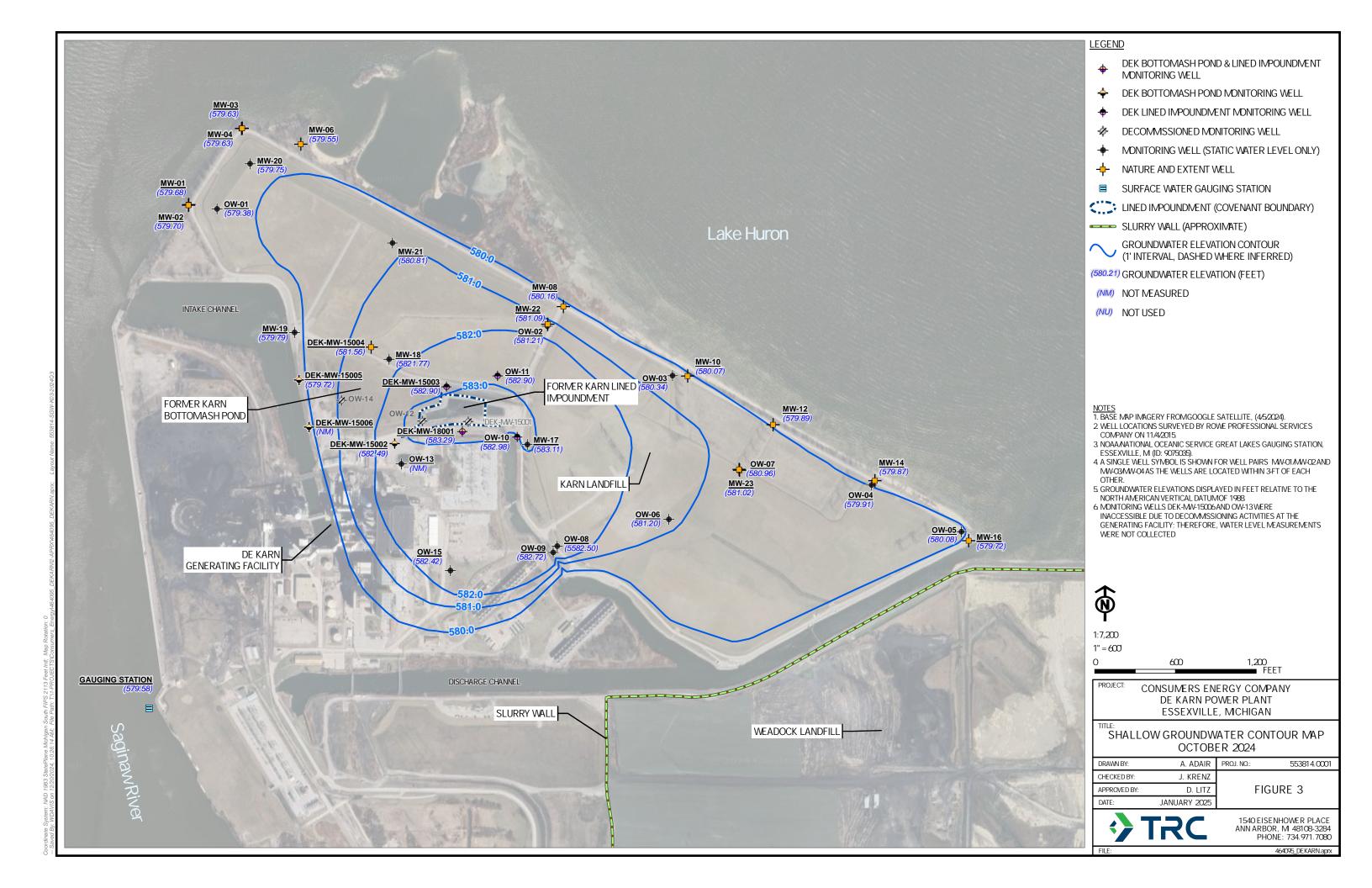
All metals were analyzed as total unless otherwise specified.



# **Figures**









# Appendix A Laboratory Analytical Reports



135 W. Trail St. Jackson, MI 49201 phone 517-788-1251 fax 517-788-2533

To: JJFirlit, Karn/Weadock

From: EBlaj, T-258

Date: October 18, 2024

Subject: RCRA GROUNDWATER MONITORING – KARN LINED IMPOUNDMENT – 2024 Q4

CC: HDRegister, P22-521 Darby Litz, Project Manager

TRC Companies, Inc. 1540 Eisenhower Place Ann Arbor, MI 48108

Chemistry Project: 24-0803

TRC Environmental, Inc. conducted groundwater monitoring at the DE Karn Lined Impoundment area during the week of 10/01/2024 for the 4th Quarter requirement, as specified in the Sampling and Analysis Plan for the site. The samples were received for analysis by the Chemistry department of Laboratory Services on 10/04/2024.

Samples for Total Sulfide have been subcontracted to Merit Laboratories, Inc. and the results are listed under the analyst initials "Merit". Please note that the subcontracted work is not reported under the CE laboratory scope of accreditation.

With the exception noted above, the report that follows presents the results of the requested analytical testing; the results apply only to the samples as received. All samples have been analyzed in accordance with the 2016 TNI Standard and the applicable A2LA accreditation scope for Laboratory Services. Any exceptions to applicable test method criteria and standard compliance are noted in the Case Narrative or flagged with applicable qualifiers in the analytical results section.

Reviewed and approved by:

Emil Blaj Sr. Technical Analyst Project Lead



Testing performed in accordance with the A2LA scope of accredidation specified in the listed certificate. The information contained in this report is the sole property of Consumers Energy. It cannot be reproduced except in full, and with consent from Consumers Energy, or the customer for which this report was issued.

#### **CASE NARRATIVE**

#### I. Sample Receipt

All samples were received within hold time and in good conditions; no anomalies were noted in the attached Sample Log-In Shipment Inspection Form during sample check-in. Identification of all samples included in the work order/project is provided in the sample summary section. All sample preservation and temperature upon receipt was verified by the sample custodian and confirmed to meet method requirements.

#### II. Methodology

Unless otherwise indicated, sample preparation and analysis was performed in accordance with the corresponding test methods from "Methods for the Determination of Inorganic Substances in Environmental Samples (EPA/600/R-93/100); SW-846, "Test Methods for Evaluating Solid Waste – Physical/Chemical Methods", USEPA (latest revisions), and Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WPCF, 22nd Edition, 2012.

#### III. Results/Quality Control

Analytical results for this report are presented by laboratory sample ID, container, & aliquot number. Results for the field blanks, field duplicates, and recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section; all other quality control data is listed in the Quality Control Summary associated with the particular test method, as appropriate. Unless specifically noted in the case narrative, all method quality control requirements have been met. If any results are qualified, the corresponding data flags/qualifiers are listed on the last page of the results section. Any additional information on method performance, when applicable, is presented in this section of the case narrative. When data flags are not needed, the qualifiers text box on the last page is left blank, and a statement confirms that no exceptions occurred.

## **DEFINITIONS / QUALIFIERS**

The following qualifiers and/or acronyms are used in the report, where applicable:

<u>Acronym</u>	<u>Description</u>
RL	Reporting Limit
ND	Result not detected or below Reporting Limit
NT	Non TNI analyte
LCS	Laboratory Control Sample
LRB	Laboratory Reagent Blank (also referred to as Method Blank)
DUP	Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
TDL	Target Detection Limit
SM	Standard Methods Compendium

Qualifier	Description
*	Generic data flag, applicable description added in the corresponding notes section
В	The analyte was detected in the LRB at a level which is significant relative to sample result
D	Reporting limit elevated due to dilution
E	Estimated due to result exceeding the linear range of the analyzer
H	The maximum recommended hold time was exceeded
I	Dilution required due to matrix interference; reporting limit elevated
J	Estimated due to result found above MDL but below PQL (or RL)
K	Reporting limit raised due to matrix interference
M	The precision for duplicate analysis was not met; RPD outside acceptance criteria
N	Non-homogeneous sample made analysis questionable
PI	Possible interference may have affected the accuracy of the laboratory result
Q	Matrix Spike or Matrix Spike Duplicate recovery outside acceptance criteria
R	Result confirmed by new sample preparation and reanalysis
X	Other notation required; comment listed in sample notes and/or case narrative



# **Work Order Sample Summary**

Customer Name: Karn/Weadock Complex

Work Order ID: Q4-2024 Karn Lined Impoundment

Date Received: 10/4/2024 Chemistry Project: 24-0803

Sample #	Field Sample ID	<u>Matrix</u>	Sample Date	<u>Site</u>
24-0803-01	DEK-MW-15003	Groundwater	10/03/2024 15:01	DEK Lined Impoundment
24-0803-02	OW-10	Groundwater	10/03/2024 16:08	DEK Lined Impoundment
24-0803-03	OW-11	Not Collected		DEK Lined Impoundment
24-0803-04	OW-12	Not Collected		DEK Lined Impoundment
24-0803-05	KLI-SCS	Not Collected		DEK Lined Impoundment
24-0803-06	KLI-PCS	Not Collected		DEK Lined Impoundment
24-0803-07	SW-DITCH	Not Collected		DEK Lined Impoundment
24-0803-08	DUP-KLI	Not Collected		DEK Lined Impoundment
24-0803-09	EB-KLI	Not Collected		DEK Lined Impoundment
24-0803-10	FB-KLI	Not Collected		DEK Lined Impoundment



Report Date:

10/18/24



Sample Site:DEK Lined ImpoundmentLaboratory Project:24-0803Field Sample ID:DEK-MW-15003Collect Date:10/03/2024Lab Sample ID:24-0803-01Collect Time:03:01 PM

Matrix: Groundwater

Parameter(c)	Pocult	Floa	Units	RL	Analysis Data	Trockins
Parameter(s)	Result	Flag			Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/05/2024	AB24-1005-01
Metals by EPA 6020B: CCR	Rule Appendix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	803-01-C01-A02	Analyst: EE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/08/2024	AB24-1009-01
Arsenic	382		ug/L	1.0	10/08/2024	AB24-1009-01
Barium	46		ug/L	5.0	10/08/2024	AB24-1009-01
Beryllium	ND		ug/L	1.0	10/08/2024	AB24-1009-01
Boron	666		ug/L	20.0	10/08/2024	AB24-1009-01
Cadmium	ND		ug/L	0.2	10/08/2024	AB24-1009-01
Calcium	35000		ug/L	1000.0	10/08/2024	AB24-1009-01
Chromium	ND		ug/L	1.0	10/08/2024	AB24-1009-01
Cobalt	ND		ug/L	6.0	10/08/2024	AB24-1009-01
Copper	ND		ug/L	1.0	10/08/2024	AB24-1009-01
Iron	215		ug/L	20.0	10/08/2024	AB24-1009-01
Lead	ND		ug/L	1.0	10/08/2024	AB24-1009-01
Lithium	21		ug/L	10.0	10/08/2024	AB24-1009-01
Magnesium	5280		ug/L	1000.0	10/08/2024	AB24-1009-01
Manganese	83		ug/L	5.0	10/08/2024	AB24-1009-01
Molybdenum	22		ug/L	5.0	10/08/2024	AB24-1009-01
Nickel	ND		ug/L	2.0	10/08/2024	AB24-1009-01
Potassium	4570		ug/L	100.0	10/08/2024	AB24-1009-01
Selenium	2		ug/L	1.0	10/08/2024	AB24-1009-01
Silver	ND		ug/L	0.2	10/08/2024	AB24-1009-01
Sodium	56300		ug/L	1000.0	10/08/2024	AB24-1009-01
Thallium	ND		ug/L	2.0	10/08/2024	AB24-1009-01
Vanadium	3		ug/L	2.0	10/08/2024	AB24-1009-01
Zinc	ND		ug/L	10.0	10/08/2024	AB24-1009-01
Anions by EPA 300.0 Aque	ous, NO2, NO3			Aliquot #: 24-0	803-01-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	10/04/2024	AB24-1004-02
Nitrite	ND		ug/L	100.0	10/04/2024	AB24-1004-02
Anions by EPA 300.0 CCR I	Rule Analyte List, Cl, F,	SO4, Aqu	ieous	Aliquot #: 24-0	803-01-C02-A02	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	63600		ug/L	1000.0	10/07/2024	AB24-1007-02



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**Analytical Report** 

Consumers Energy Report Date: 10/18/24 Count on Us®

Sample Site: Laboratory Project: **DEK Lined Impoundment** 24-0803

Field Sample ID: DEK-MW-15003 Collect Date: 10/03/2024 Lab Sample ID: 24-0803-01 Collect Time: 03:01 PM

Matrix: Groundwater

Sulfide

**Laboratory Services** A CENTURY OF EXCELLENCE

Anions by EPA 300.0 CCR Rule An	alyte List, Cl, F,	SO4, Aqı	ieous	Aliquot #: 24-0	803-01-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	10/04/2024	AB24-1007-02
Sulfate	37900		ug/L	1000.0	10/07/2024	AB24-1007-02
Nitrogen-Ammonia by SM4500NH3	(h), Groundwate	r HL		Aliquot #: 24-0	803-01-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	1950		ug/L	25.0	10/09/2024	AB24-1009-03
Total Dissolved Solids by SM 2540	С			Aliquot #: 24-0	803-01-C04-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	304		mg/L	10.0	10/07/2024	AB24-1007-04
Alkalinity by SM 2320B				Aliquot #: 24-0	803-01-C05-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	116000		ug/L	10000.0	10/10/2024	AB24-1010-01
Alkalinity Bicarbonate	116000		ug/L	10000.0	10/10/2024	AB24-1010-01
Alkalinity Carbonate	ND		ug/L	10000.0	10/10/2024	AB24-1010-01
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	803-01-C07-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking

ug/L

10/09/2024

20.0

AB24-1007-12



Report Date:

10/18/24



A CENTURY OF EXCELLENCE

Sample Site: **DEK Lined Impoundment** Laboratory Project: **24-0803** 

 Field Sample ID:
 OW-10
 Collect Date:
 10/03/2024

 Lab Sample ID:
 24-0803-02
 Collect Time:
 04:08 PM

Matrix: Groundwater

Mercury by EPA 7470A, Total,	7.1940040			7 qui 0	803-02-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/05/2024	AB24-1005-01
Metals by EPA 6020B: CCR Ru	le Appendix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	803-02-C01-A02	Analyst: EE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/08/2024	AB24-1009-01
Arsenic	5		ug/L	1.0	10/08/2024	AB24-1009-01
Barium	339		ug/L	5.0	10/08/2024	AB24-1009-01
Beryllium	ND		ug/L	1.0	10/08/2024	AB24-1009-01
Boron	1310		ug/L	20.0	10/08/2024	AB24-1009-01
Cadmium	ND		ug/L	0.2	10/08/2024	AB24-1009-01
Calcium	139000		ug/L	1000.0	10/08/2024	AB24-1009-01
Chromium	5		ug/L	1.0	10/08/2024	AB24-1009-01
Cobalt	ND		ug/L	6.0	10/08/2024	AB24-1009-01
Copper	4		ug/L	1.0	10/08/2024	AB24-1009-01
Iron	5370		ug/L	20.0	10/08/2024	AB24-1009-01
Lead	4		ug/L	1.0	10/08/2024	AB24-1009-01
Lithium	34		ug/L	10.0	10/08/2024	AB24-1009-01
Magnesium	25700		ug/L	1000.0	10/08/2024	AB24-1009-01
Manganese	507		ug/L	5.0	10/08/2024	AB24-1009-01
Molybdenum	ND		ug/L	5.0	10/08/2024	AB24-1009-01
Nickel	8		ug/L	2.0	10/08/2024	AB24-1009-01
Potassium	5610		ug/L	100.0	10/08/2024	AB24-1009-01
Selenium	2		ug/L	1.0	10/08/2024	AB24-1009-01
Silver	ND		ug/L	0.2	10/08/2024	AB24-1009-01
Sodium	70300		ug/L	1000.0	10/08/2024	AB24-1009-01
Thallium	ND		ug/L	2.0	10/08/2024	AB24-1009-01
Vanadium	15		ug/L	2.0	10/08/2024	AB24-1009-01
Zinc	17		ug/L	10.0	10/08/2024	AB24-1009-01
Anions by EPA 300.0 Aqueous	s, NO2, NO3			Aliquot #: 24-0	803-02-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	10/04/2024	AB24-1004-02
Nitrite	ND		ug/L	100.0	10/04/2024	AB24-1004-02
Anions by EPA 300.0 CCR Rule	e Analyte List, CI, F,	SO4, Aqu	ieous	Aliquot #: 24-0	803-02-C02-A02	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	87900		ug/L	1000.0	10/08/2024	AB24-1007-02



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A CENTURY OF EXCELLENCE

Report Date: 10/18/24

Sample Site: Laboratory Project: **DEK Lined Impoundment** 24-0803

Collect Date: Field Sample ID: OW-10 10/03/2024 Lab Sample ID: 24-0803-02 Collect Time: 04:08 PM

Matrix: Groundwater

Anions by EPA 300.0 CCR Rule Analyte List, CI, F, SO4, Aqueous				Aliquot #: 24-0	Analyst: KDR	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	10/04/2024	AB24-1007-02
Sulfate	ND		ug/L	1000.0	10/08/2024	AB24-1007-02
Nitrogen-Ammonia by SM4500NH3(h	), Groundwate	r HL		Aliquot #: 24-0	803-02-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	7190		ug/L	25.0	10/09/2024	AB24-1009-03
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	803-02-C04-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	650		mg/L	10.0	10/07/2024	AB24-1007-04
Alkalinity by SM 2320B				Aliquot #: 24-0	803-02-C05-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	497000		ug/L	10000.0	10/10/2024	AB24-1010-01
Alkalinity Bicarbonate	497000		ug/L	10000.0	10/10/2024	AB24-1010-01
Alkalinity Carbonate	ND		ug/L	10000.0	10/10/2024	AB24-1010-01
Sulfide, Total by SM 4500 S2D	Sulfide, Total by SM 4500 S2D					Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	179		ug/L	20.0	10/09/2024	AB24-1007-12



# **Analytical Report**

**Report Date:** 10/18/24

Data Qualifiers	Exception Summary
	No exceptions occurred.

CONSUMERS ENERGY

# Chemistry Department

General Standard Operating Procedure

PROC CHEM-1.2.01 PAGE 1 OF 2 REVISION 5 ATTACHMENT A

	03	Inspectio	on Date: 10.4.24	Inspection By:	CIE
Sample Origin/Project Name	e: <u>04 - 20</u>	24 DEK	CLI		
Shipment Delivered By: Ent	er the type of	f shipment carri	ier.		
			UPS		
Tracking Number: _		1 2	Other/Carry In (whom	TRC	, (C. )
Shipping Containers: Enter		-	ping containers received.		
Cooler (i) Loose/Unpackaged (			Custom Case Other		
Condition of Shipment: Ent	er the as-rece	eived condition	of the shipment container.		
Damaged Shipment (			Dented		ng
Shipment Security: Enter if	any of the sh	nipping containe	ers were opened before rece	ipt.	
Shipping Containers	Received: C	Opened	Sealed	N/A	
			•		
			osed with the shipment.  Air Data Sheet	Other	
CoC ✓ W	ork Request		Air Data Sheet		
CoC W	ork Request	e temperature of	Air Data Sheet		
CoC W	ork Request  Measure the	e temperature of 0.8 - 3.9	Air Data Sheetf several sample containers °C Samples Receiv		
Temperature of Containers: As-Received Temper	ork Request  Measure the rature Range tion LS • 2	0.8 · 3.9	Air Data Sheetf several sample containers°C Samples Receiv	ed on Ice: Yes	
CoC W  Femperature of Containers:  As-Received Temper  M&TE # and Expira	ork Request  Measure the rature Range tion LS • 2	e temperature of 0.8 · 3.9	Air Data Sheetf several sample containers°C Samples Receiv	ed on Ice: Yes	/ No
CoC W  Temperature of Containers:  As-Received Temper  M&TE # and Expira  Number and Type of Containers:	ork Request  Measure the rature Range  tion LS © 2  iners: Enter  Water	e temperature of 0.8 - 3.9	Air Data Sheetf several sample containers °C Samples Receiv . 27 . 25 tal number of sample containers.	ed on Ice: Yes	
CoC W  Temperature of Containers:  As-Received Temper  M&TE # and Expira  Number and Type of Container Type	ork Request  Measure the rature Range  tion LS © 2  iners: Enter  Water	e temperature of 0.8 - 3.9	Air Data Sheetf several sample containers °C Samples Receiv . 27 . 25 tal number of sample containers.	ed on Ice: Yes	/ No
CoC W  Femperature of Containers:  As-Received Temper  M&TE # and Expira  Number and Type of Container Type  VOA (40mL of 60mL	York Request  Measure the rature Range tion LS • 2 iners: Enter  Water  H	e temperature of 0.8 - 3.9	Air Data Sheetf several sample containers °C Samples Receiv . 27 . 25 tal number of sample containers.	ed on Ice: Yes	/ No
CoC W  Femperature of Containers:  As-Received Temper  M&TE # and Expira  Number and Type of Container Type  VOA (40mL of 60mL  Quart/Liter ( g / p )	York Request  Measure the rature Range tion LS • 2 iners: Enter  Water  H	e temperature of 0.8 - 3.9	Air Data Sheetf several sample containers °C Samples Receiv . 27 . 25 tal number of sample containers.	ed on Ice: Yes	/ No
CoC W  Temperature of Containers:  As-Received Temper  M&TE # and Expira  Number and Type of Container Type  VOA (40mL of 60mL  Quart/Liter (g/p)  9-oz (amber glass jan)	York Request  Measure the rature Range tion LS • 2 iners: Enter  Water  H	e temperature of 0.8 - 3.9	Air Data Sheetf several sample containers °C Samples Receiv . 27 . 25 tal number of sample containers.	ed on Ice: Yes	/ No
CoC W  Temperature of Containers:  As-Received Temper  M&TE # and Expira  Number and Type of Container Type  VOA (40mL of 60mL  Quart/Liter (g/p)  9-oz (amber glass jan  2-oz (amber glass)	York Request  Measure the rature Range tion LS • 2 iners: Enter  Water  H	e temperature of 0.8 - 3.9	Air Data Sheetf several sample containers °C Samples Receiv . 27 . 25 tal number of sample containers.	ed on Ice: Yes	/ No
CoC W  Temperature of Containers:  As-Received Temper  M&TE # and Expira  Number and Type of Container Type  VOA (40mL of 60mL  Quart/Liter (g/p)  9-oz (amber glass jan  2-oz (amber glass)  125 mL (plastic)	York Request  Measure the rature Range tion LS • 2 iners: Enter  Water  H	e temperature of 0.8 - 3.9	Air Data Sheetf several sample containers °C Samples Receiv . 27 . 25 tal number of sample containers.	ed on Ice: Yes	/ No

# **CHAIN OF CUSTODY**



# CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

MS ENERGI COMI AMI – LA	DONATORI SERVICES	Page \ of \
135 WEST TRAIL ST., JACKSON, MI 49201	• (517) 788-1251	1 450 01 1

													-27								
SAMPLING SITE / CUSTOMER:				PROJECT NUMBER:	SAP CC or WO#:							ANALYSIS REQUESTED								OA DEOLUDEMENT.	
Q4-2024 DEK Lined Impoundment					24-0803	REQUESTER: Harold Register									ch Li		QA REQUIREMENT:				
SAMPLING TEAM: AW, ER, JY				TURNAROUND TIME REQUIRED:												-		□ NPDES			
, , ,					□ 24 HR □ 48 HR □ 3 DAYS □ STANDARD ☒ OTHER													⊠ TNI			
SEND REPORT TO: Joseph Firlit		email:	phone:	phone:														□ ISO 17025			
COPY TO:  LAB SAMPLE ID		Harold Register			MATRIX CODES:  GW = Groundwater OX = Other	CONTAINERS														☐ 10 CFR 50 APP. B	
		TRC			WW = Wastewater SL = Sludge W = Water / Aqueous Liquid A = Air		PRESERVATIVE			IVE	tals		ns onia		inity				☐ INTERNAL INFO		
		SAMPLE COLLECTION		XI	S = Soil / General Solid $WP = Wipe$ $O = Oil$ $WT = General Solid$		AL#					ns				le			□ OTHER		
		DATE	TIME	MATRIX	FIELD SAMPLE ID / LOC	CATION PLOS	None	HINO3	H ₂ SO ₄	HCI	MeOF	Total Metals	Anions	Ammonia	TDS	Alkalinity	Sulfide			REMARKS	
	24-0803-01	16/3/24	1501	GW	DEK-MW-15003		7	4	1	1 1			х	x	х	х	x	х			
	-02	10/2/24	1608	GW	OW-10		7	4	1	1 1			x	x	x	х	х	x			
	-03	10/3/24	1256	GW	<del>OW-11 -</del>		7	4	1	1 1			x	x	x	х	x	x			
	-04			GW	OW-12		7	4	1	1 1			x	x	x	х	х	х			
	-05	No.		W	KLI-SCS		7	4	1	1 1			x ·	x	x	х	х	x			
	-06	-		SW	KLI-PCS_		7	4	1	1 1			x	x	х	х	· x	x			
	-06 -07	*-		SW			7	4	1	1 1			x	x	х	х	х	x			
	-08			-GW	DUP-KLI		7	4	1	1 1			x	x	х	x	х	x			
	-09			W	EB-KLI-		4	1	1	1 1			x	x	x			x			
	-10			- W	FB-KLI-		4	1	1	1 1			x	x	x			x			
4														٠,							
RELIN	NATUM NQUISHED BY:	MET	I	DATE/	TIME: RE 0810 RE	ECEIVED BY:	,			•			CC	MMI	ENTS	:	_		,	'	
RELINQUISHED BY: DATE			DATE/	TIME: RECEIVED BY:							Received on Ice? LYes \( \sum \) No M&TE#: LSo 27								_		
													Ter	npera	ture:	0.8-	3.9	_°C	C	Cal. Du	e Date: <u>6-27-25</u>

24-0803 Page 11 of 21



# **Analytical Laboratory Report**

Report ID: S67052.01(01) Generated on 10/10/2024

Report to

Attention: Emil Blaj

Consumers Energy Company

135 West Trail Street Jackson, MI 49201

Phone: D:517-788-5888 C:517-684-9467 FAX:

Email: emil.blaj@cmsenergy.com

Report produced by

Merit Laboratories, Inc. 2680 East Lansing Drive East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions: John Laverty (johnlaverty@meritlabs.com) Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S67052.01-S67052.02

Project: 24-0803 PR#24101038 Collected Date(s): 10/03/2024

Submitted Date/Time: 10/04/2024 14:46

Sampled by: Unknown P.O. #: 4400121437

#### Table of Contents

Cover Page (Page 1)

General Report Notes (Page 2)

Report Narrative (Page 2)

Laboratory Accreditations (Page 3)

Qualifier Descriptions (Page 3)

Glossary of Abbreviations (Page 3)

Method Summary (Page 4)

Sample Summary (Page 5)

Maya Murshak Technical Director

Naya Mushah



#### **General Report Notes**

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples

for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Starred (*) analytes are not NY NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

#### **Report Narrative**

There is no additional narrative for this analytical report



#### **Laboratory Accreditations (For Reference Only)**

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

#### **Qualifier Descriptions**

Description

Qualifier

!	Result is outside of stated limit criteria
В	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
Н	Sample submitted and run outside of holding time
1	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
0	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
Т	No correction for total solids
X	Elevated reporting limit due to matrix interference
Υ	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
е	Reported value estimated due to interference
j	Analyte also found in associated method blank
0	Associated EIS outside of control limits
р	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

#### **Glossary of Abbreviations**

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



**Method Summary** 

Method Version

SM4500-S2 D

Standard Method 4500 S2 D 2011



Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S67052.01	DEK-MW-15003 (24-0803-01)	Groundwater	10/03/24 15:01
S67052.02	OW-10 (24-0803-02)	Groundwater	10/03/24 16:08



Lab Sample ID: S67052.01

Sample Tag: DEK-MW-15003 (24-0803-01) Collected Date/Time: 10/03/2024 15:01

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I hermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	3.1	IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 10/09/24 19:35, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.276	0.02		ma/L	1	18496-25-8	



Lab Sample ID: S67052.02

Sample Tag: OW-10 (24-0803-02) Collected Date/Time: 10/03/2024 16:08

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	3.1	IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 10/09/24 19:37, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.179	0.02		ma/L	1	18496-25-8	

### Merit Laboratories Login Checklist

Lab Set ID:S67052

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0803 PR#24101038

Submitted: 10/04/2024 14:46 Login User: MMC

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street

Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

Selec	tion			Description	Note
Samp	ole Receiv	ving			
01.	X Yes	No	□ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 3.1
02.	X Yes	No	□ N/A	Received on ice/ cooling process begun	
03.	Yes	X No	□ N/A	Samples shipped	
04.	Yes	X No	□ N/A	Samples left in 24 hr. drop box	
05.	Yes	No	X N/A	Are there custody seals/tape or is the drop box locked	
Chaiı	of Custo	ody			
06.	X Yes	No	□ N/A	COC adequately filled out	
07.	X Yes	No	N/A	COC signed and relinquished to the lab	
08.	X Yes	No	□ N/A	Sample tag on bottles match COC	
09.	Yes	X No	N/A	Subcontracting needed? Subcontacted to:	
Prese	ervation				
10.	X Yes	No	N/A	Do sample have correct chemical preservation	
11.	X Yes	No	□ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	Yes	X No	N/A	Did any samples need to be preserved in the lab?	
Bottle	e Conditio	ons			
13.	X Yes	No	□ N/A	All bottles intact	
14.	X Yes	No	□ N/A	Appropriate analytical bottles are used	
15.	Yes	X No	N/A	Merit bottles used	
16.	X Yes	No	N/A	Sufficient sample volume received	
17.	Yes	X No	□ N/A	Samples require laboratory filtration	
18.	<b>X</b> Yes	No	□ N/A	Samples submitted within holding time	
19.	Yes	No	X N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	
•		,			
Corre	ective action	on tor all	exceptions	is to call the client and to notify the project manager.	
Clien	t Review I	Ву:		Date:	

#### **Merit Laboratories Bottle Preservation Check**

Lab Set ID: S67052 Submitted: 10/04/2024 14:46

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0803 PR#24101038

Initial Preservation Check: 10/04/2024 15:44 MMC

Preservation Recheck (E200.8): N/A

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street

Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S67052.01	125mL Plastic NaOH/Zn Acetate	>12			
S67052.02	125mL Plastic NaOH/Zn Acetate	>12			



2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

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C.O.C. PAGE	#	1	OF	1

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# **ANALYTICAL REPORT**

## PREPARED FOR

Attn: Darby Litz TRC Environmental Corporation. 1540 Eisenhower Place Ann Arbor, Michigan 48108-7080

Generated 11/7/2024 10:08:34 AM

## **JOB DESCRIPTION**

Karn/Weadock CCR DEK Lined Impoundment

## **JOB NUMBER**

240-212645-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203



## **Eurofins Cleveland**

### **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 Kris Brooks, Project Manager II Kris.Brooks@et.eurofinsus.com (330)966-9790

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## **Definitions/Glossary**

Client: TRC Environmental Corporation. Job ID: 240-212645-1

Project/Site: Karn/Weadock CCR DEK Lined Impoundment

Most Probable Number

Not Calculated

Negative / Absent

Positive / Present

Presumptive **Quality Control** 

Method Quantitation Limit

Practical Quantitation Limit

Relative Error Ratio (Radiochemistry)

Toxicity Equivalent Factor (Dioxin) Toxicity Equivalent Quotient (Dioxin)

Too Numerous To Count

Reporting Limit or Requested Limit (Radiochemistry)

Relative Percent Difference, a measure of the relative difference between two points

Not Detected at the reporting limit (or MDL or EDL if shown)

#### **Qualifiers**

F	Ċ	а	C	ı

MPN

MQL

NC

ND

NEG POS

PQL

**PRES** 

QC

RER RL

RPD TEF

TEQ TNTC

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
<b>\$</b>	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)

**Eurofins Cleveland** 

11/7/2024

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#### **Case Narrative**

Client: TRC Environmental Corporation.

Project: Karn/Weadock CCR DEK Lined Impoundment

Job ID: 240-212645-1 Eurofins Cleveland

## Job Narrative 240-212645-1

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 10/9/2024 8:00 AM. 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 1.5°C.

#### **Gas Flow Proportional Counter**

Method 903.0: Radium 226 Batch 683235

#### 160-683235

Based upon client request, Ra-226 is reported without the standard 21-day waiting period which ensures short-lived alpha-emitting radium isotopes (e.g. Ra-224) have decayed out. The Ra-226 result should be considered to be potentially high biased. Associated samples have activity below the RL DEK-MW-15003 (240-212645-1), OW-10 (240-212645-2), (LCS 160-683235/2-A), (MB 160-683235/1-A), (240-212644-A-2-A) and (240-212644-B-2-B DU)

#### Method 904.0: Radium-228 prep batch 160-684916

Insufficient sample volume was available to perform a sample duplicate for the following samples: DEK-MW-15003 (240-212645-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

#### Method 904.0: Radium-228 Prep Batch 160-684916:

The detection goal was not met for the following sample due to the reduction of sample size required by the presence of matrix interferences (particulates, yellow discoloration): OW-10 (240-212645-2). Analytical results are reported with the detection limit achieved.

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

#### Rad

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

**Eurofins Cleveland** 

Job ID: 240-212645-1

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### **Method Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Lined Impoundment

Method **Method Description** Laboratory Protocol 903.0 Radium-226 (GFPC) EPA EET SL Radium-228 (GFPC) 904.0 EPA EET SL Ra226_Ra228 Combined Radium-226 and Radium-228 TAL-STL EET SL PrecSep STD Preparation, Precipitate Separation (Standard In-Growth) None EET SL PrecSep_0 Preparation, Precipitate Separation None EET SL

#### Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

#### Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

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Job ID: 240-212645-1

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## **Sample Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Lined Impoundment

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-212645-1	DEK-MW-15003	Water	10/03/24 14:25	10/09/24 08:00
240-212645-2	OW-10	Water	10/03/24 16:08	10/09/24 08:00

Job ID: 240-212645-1

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## **Client Sample Results**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Lined Impoundment

Client Sample ID: DEK-MW-15003

Lab Sample ID: 240-212645-1 Date Collected: 10/03/24 14:25

Matrix: Water

Job ID: 240-212645-1

Date Received: 10/09/24 08:00

Method: EPA 903.0	- Radium-226	(GFPC)								
		. ,	Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0849	U	0.0773	0.0777	1.00	0.117	pCi/L	10/11/24 08:47	10/30/24 08:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.8		30 - 110					10/11/24 08:47	10/30/24 08:17	1

	00.0		00							•
Method: EPA 904.	0 - Radium-228	(GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.439	U	0.464	0.466	1.00	0.753	pCi/L	10/24/24 08:31	11/04/24 14:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		30 - 110					10/24/24 08:31	11/04/24 14:21	1
Y Carrier	79.3		30 - 110					10/24/24 08:31	11/04/24 14:21	1

26_Ka220	- Combined			1-220					
		Count	Total						
		Uncert.	Uncert.						
Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
0.524	U	0.470	0.472	5.00	0.753	pCi/L		11/07/24 08:45	1
	Result	Result Qualifier U	Count Uncert. Result Qualifier (2σ+/-)	Count Total Uncert. Uncert. Result Qualifier (2σ+/-) (2σ+/-)	Count Total Uncert. Uncert. Result Qualifier (2σ+/-) (2σ+/-) RL	Count Total Uncert. Uncert.  Result Qualifier (2σ+/-) (2σ+/-) RL MDC	Count Total Uncert. Uncert. Result Qualifier (2σ+/-) (2σ+/-) RL MDC Unit	Uncert. Uncert.  Result Qualifier (2σ+/-) (2σ+/-) RL MDC Unit Prepared	Count Total Uncert. Uncert.  Result Qualifier (2σ+/-) (2σ+/-) RL MDC Unit Prepared Analyzed

## **Client Sample Results**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Lined Impoundment

Client Sample ID: OW-10 Lab Sample ID: 240-212645-2

Date Collected: 10/03/24 16:08 Matrix: Water
Date Received: 10/09/24 08:00

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.232		0.124	0.126	1.00	0.158	pCi/L	10/11/24 08:47	10/30/24 08:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.6		30 - 110					10/11/24 08:47	10/30/24 08:17	1

		(0)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.909	U G	0.778	0.783	1.00	1.21	pCi/L	10/24/24 08:31	11/04/24 14:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		30 - 110					10/24/24 08:31	11/04/24 14:21	1
Y Carrier	81.9		30 - 110					10/24/24 08:31	11/04/24 14:21	1

Method: TAL-STL Ra2	26_Ra228	- Combined	I Radium-226	and Radiur	n-228					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226	1.14	U	0.788	0.793	5.00	1.21	pCi/L		11/07/24 08:45	1

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Job ID: 240-212645-1

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## **Tracer/Carrier Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Lined Impoundment

Job ID: 240-212645-1

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water Prep Type: Total/NA

			Percent Yield (Acceptance Limits)
		Ва	
Lab Sample ID	Client Sample ID	(30-110)	
240-212645-1	DEK-MW-15003	80.8	
240-212645-2	OW-10	90.6	
LCS 160-683235/2-A	Lab Control Sample	94.7	
MB 160-683235/1-A	Method Blank	94.7	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water Prep Type: Total/NA

				Percent Yield (Acceptance Limits)
		Ва	Υ	
Lab Sample ID	Client Sample ID	(30-110)	(30-110)	
240-212645-1	DEK-MW-15003	84.6	79.3	
240-212645-2	OW-10	86.6	81.9	
LCS 160-684916/2-A	Lab Control Sample	93.9	75.1	
LCSD 160-684916/3-A	Lab Control Sample Dup	93.4	82.2	
MB 160-684916/1-A	Method Blank	96.8	72.5	

Ba = Ba Carrier

Y = Y Carrier

Job ID: 240-212645-1 Project/Site: Karn/Weadock CCR DEK Lined Impoundment

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-683235/1-A

**Matrix: Water** Analysis Batch: 685958

Prep Type: Total/NA **Prep Batch: 683235** Count Total Uncert.

MB MB Uncert. Analyte Result Qualifier  $(2\sigma + / -)$ (2σ+/-) RL MDC Unit Prepared Analyzed Dil Fac Radium-226 0.01640 U 0.0747 0.0747 1.00 0.141 pCi/L 10/11/24 08:47 10/30/24 08:16

MB

Qualifier Limits Prepared Dil Fac Carrier %Yield Analyzed Ba Carrier 94.7 30 - 110 10/11/24 08:47 10/30/24 08:16

Client Sample ID: Lab Control Sample

Client Sample ID: Method Blank

Lab Sample ID: LCS 160-683235/2-A **Matrix: Water** Prep Type: Total/NA Prep Batch: 683235

Analysis Batch: 685958

Total LCS LCS %Rec Spike Uncert. Added Analyte Result Qual  $(2\sigma + / -)$ RL MDC Unit %Rec Limits Radium-226 1.00 9.58 8.915 0.961 0.125 pCi/L 93 75 - 125

LCS LCS Carrier %Yield Qualifier Limits Ba Carrier 94.7 30 - 110

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-684916/1-A Client Sample ID: Method Blank **Matrix: Water** 

Analysis Batch: 686662

Count Total MB MB Uncert. Uncert. (2σ+/-) Analyte Result Qualifier (2σ+/-) RL MDC Unit Prepared Analyzed Dil Fac Radium-228 0.04702 U 0.311 0.311 1.00 10/24/24 08:31 11/04/24 12:17 0.571 pCi/L

Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac Ba Carrier 96.8 30 - 110 10/24/24 08:31 11/04/24 12:17 30 - 110 10/24/24 08:31 Y Carrier 72.5 11/04/24 12:17

Lab Sample ID: LCS 160-684916/2-A Client Sample ID: Lab Control Sample

**Matrix: Water** Prep Type: Total/NA

Analysis Batch: 686662 Prep Batch: 684916 Total

LCS LCS %Rec Spike Uncert. Analyte Added Result Qual  $(2\sigma + / -)$ RL MDC Unit %Rec Limits Radium-228 1.00 8.37 9.504 1.33 0.532 pCi/L 114 75 - 125

LCS LCS Carrier %Yield Qualifier Limits Ba Carrier 93.9 30 - 110 Y Carrier 75.1 30 - 110

MB MB

**Eurofins Cleveland** 

Prep Type: Total/NA

**Prep Batch: 684916** 

## **QC Sample Results**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Lined Impoundment

Job ID: 240-212645-1

### Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCSD 160-684916/3-A

Matrix: Water

Analysis Batch: 686662

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 684916

				Total							
	Spike	LCSD	LCSD	Uncert.					%Rec		RER
Analyte	Added	Result	Qual	(2σ+/-)	RL	MDC	Unit	%Rec	Limits	RER	Limit
Radium-228	8.37	9.529		1.29	1.00	0.530	pCi/L	114	75 - 125	0.01	1

LCSD LCSD

Carrier	%Yield	Qualifier	Limits				
Ba Carrier	93.4		30 - 110				
Y Carrier	82.2		30 - 110				

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## **QC Association Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Lined Impoundment

Job ID: 240-212645-1

#### Rad

#### **Prep Batch: 683235**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method Prep Batch
240-212645-1	DEK-MW-15003	Total/NA	Water	PrecSep STD
240-212645-2	OW-10	Total/NA	Water	PrecSep STD
MB 160-683235/1-A	Method Blank	Total/NA	Water	PrecSep STD
LCS 160-683235/2-A	Lab Control Sample	Total/NA	Water	PrecSep STD

#### **Prep Batch: 684916**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-212645-1	DEK-MW-15003	Total/NA	Water	PrecSep_0	
240-212645-2	OW-10	Total/NA	Water	PrecSep_0	
MB 160-684916/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-684916/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-684916/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

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#### **Lab Chronicle**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Lined Impoundment

Client Sample ID: DEK-MW-15003

Lab Sample ID: 240-212645-1 Date Collected: 10/03/24 14:25

Matrix: Water

Job ID: 240-212645-1

Date Received: 10/09/24 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	PrecSep STD			683235	BCE	EET SL	10/11/24 08:47
Total/NA	Analysis	903.0		1	685958	FLC	EET SL	10/30/24 08:17
Total/NA	Prep	PrecSep_0			684916	BCE	EET SL	10/24/24 08:31
Total/NA	Analysis	904.0		1	686653	SWS	EET SL	11/04/24 14:21
Total/NA	Analysis	Ra226_Ra228		1	686854	FLC	EET SL	11/07/24 08:45

**Client Sample ID: OW-10** Lab Sample ID: 240-212645-2

Date Collected: 10/03/24 16:08 **Matrix: Water** 

Date Received: 10/09/24 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	PrecSep STD			683235	BCE	EET SL	10/11/24 08:47
Total/NA	Analysis	903.0		1	685958	FLC	EET SL	10/30/24 08:17
Total/NA	Prep	PrecSep_0			684916	BCE	EET SL	10/24/24 08:31
Total/NA	Analysis	904.0		1	686653	SWS	EET SL	11/04/24 14:21
Total/NA	Analysis	Ra226_Ra228		1	686854	FLC	EET SL	11/07/24 08:45

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

## **Accreditation/Certification Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Lined Impoundment

Job ID: 240-212645-1

#### **Laboratory: Eurofins St. Louis**

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	<b>Expiration Date</b>		
Alaska (UST)	State	20-001	05-06-25		
ANAB	Dept. of Defense ELAP	L2305	04-06-25		
ANAB	Dept. of Energy	L2305.01	04-08-25		
ANAB	ISO/IEC 17025	L2305	04-06-25		
Arizona	State	AZ0813	12-08-24		
California	Los Angeles County Sanitation Districts	10259	06-30-22 *		
California	State	2886	06-30-25		
Connecticut	State	PH-0241	03-31-25		
Florida	NELAP	E87689	06-30-25		
HI - RadChem Recognition	State	n/a	06-30-25		
Illinois	NELAP	200023	11-30-25		
lowa	State	373	12-01-24		
Kentucky (DW)	State	KY90125	12-31-24		
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-24		
Louisiana	NELAP	04080	06-30-22 *		
Louisiana (All)	NELAP	04080	06-30-25		
Louisiana (DW)	State	LA011	12-31-24		
Maryland	State	310	09-30-25		
Massachusetts	State	M-MO054	06-30-25		
Missouri	State	780	06-30-25		
Nevada	State	MO00054	07-31-25		
New Jersey	NELAP	MO002	06-30-25		
New Mexico	State	MO00054	06-30-25		
New York	NELAP	11616	03-31-25		
North Carolina (DW)	State	29700	07-31-25		
North Dakota	State	R-207	12-31-24		
Oregon	NELAP	4157	09-01-25		
Pennsylvania	NELAP	68-00540	02-28-25		
South Carolina	State	85002001	06-30-25		
Texas	NELAP	T104704193	07-31-25		
US Fish & Wildlife	US Federal Programs	058448	07-31-25		
USDA	US Federal Programs	P330-17-00028	05-18-26		
Utah	NELAP	MO00054	07-31-25		
Virginia	NELAP	460230	06-14-25		
Washington	State	C592	08-30-25		
West Virginia DEP	State	381	10-31-25		

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 $^{^{\}star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

**Eurofins Cleveland** 

#### **Eurofins Cleveland**

180 S. Van Buren Avenue

Barberton, OH 44203 Phone: 330-497-9396 Fax: 330-497-077

MICHIGAN WICHIGAN	Chain of	Custody	Record
N A DITTOR .			

S. Caronina		eurofin	IS
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Environment Testing

Prione: 330-497-9396 Fax: 330-497-0772	Sampler: TD	11/		Lab F			+				Carrie	r Trackir	g No(s):			COC No:		
Client Information Client Contact:	Phone: ER	AK		Brod E-Ma	oks, K	(ris M				Chata	of Origin				240-124394-2905 Page:	4.1		
Jacob Krenz	Phone:					ks@e	et.eur	ofinsus.c	com		State	or Origin	N	11_		Page 1 of 1		
Company: TRC Environmental Corporation.			PWSID:						Analy	sis Re	eques	ted				Job #:		
Address: 1540 Eisenhower Place	Due Date Request	stron	land													Preservation Code: D - HNO3	s:	
City: Ann Arbor	TAT Requested (da		1111.01		ш	1												
State, Zip:	Standard			Ш	ш.		1											
MI, 48108-7080 Phone:	Compliance Project: A Yes A No				ш													
734-971-7080(Tel) 734-971-9022(Fax)	PO #: 215951			9	Н													
Email: JKrenz@trccompanies.com	wo #: 553814.0001				2 5	(ON									5			
Project Name: Karn/Weadock CCR DEK Lined Impoundment	Project #: 24024154				Si S	<b>=</b>	ا ا								containers			
Site:	SSOW#:				mple	Perform MS/MSD (Yes or	904.0 - Standard Target List									Other:		
			Т		eg p	Razz	ard T					-			er of			
			Sample Type	Matrix (w-water.	iltere	THE INC.	Stand								Total Number			
		Sample	(C=comp,	3=solid, O=waste/oil,	eld F	Perform	0.0				1				otal	0		
Sample Identification	Sample Date	Time	G=grab) i	ion Code:		X D								11 14	X	Special Inst	ructions/No	te:
DEK-MW-15003	10/3/24	1425	6	Water	NA	// >	χX											
OW-10	10/3/24	1608	5	Water	N A	úχ	X											
OW-11	10/3/24	1356	6	Water	ľ													
OW-12				Water	$\sqcap$		T											
DUP-KLI				Water	П	1												
EB-KLI				Water	П							7			1			
				Water	П									3.	I			
				Water	П										1			
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													. ,		1			
					П													
Possible Hazard Identification	ΙΧΊ				s	$\overline{}$								s are r		ed longer than 1 n		
Deliverable Descripted J. H. H. B. C. C	on B 🛣 Unkn	own — F	Radiological		-Is			n To Cli			Disposents:	al By L	ab	_=	Arch	ive For	_ Months	
Deliverable Requested: I, II, III, IV, Other (specify) TRC E  Empty Kit Relinquished by:	DD	Date:			Time							Method o	of Shipm	ent:	-			
Relinquished by: 01 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Doto/Time:		c 1/4	Company T			ceived	by. MA		<u> </u>			Date/		201	102	Company	
Relinquished by: 00 4 7		1/24 1	<b>⊃4</b>	Соправу	<u>, υ</u>	Re	ceived	96 K 1 1	CCA.	LOA	R			18/0	24/ 24	2118	Company	<u>c</u>
Relinquished by:	Date/Time: /24	1100		Company EET#	1			MML	2 2 H	LUN			Date/		1.	The sun	Company	
	Date/Time:		[	Company		Ke	ceived	υу.					Date	inne.				
Custody Seals Intact: Custody Seal No.:  Δ Yes Δ No						Co	oler Te	mperature	(s) °C an	d Other	Remarks	:						

VOA Sample Preservation - Date/Time VOAs Frozen
Sample(s)were further preserved in the laboratory Time preservedPreservative(s) added/Lot number(s):
20. SAMPLE PRESERVATION
Sample(s) were received with bubble >6 mm in diameter (Notify PM)
PLE CONDITIONwere received after the recon
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES [1] additional next page   Samples processed by:
Concerning
Contacted PM Date by via Verbal Voice Mail Other
Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No Was a LL Hg or Me Hg trip blank present? Yes No
13 Were an preserved sample(s) at the correct pH upon receipt?  14 Were VOAs on the COC?  15 Were air bubbles >6 mm in any VOA vials?  16 Larger than this Ves No. NA  17 Yes No. NA  18 Yes No. NA
If yes, Questions 13-17 have been checked at the originating laboratory
11 Sufficient quantity received to perform indicated analyses?  12. Are these work share samples and all listed on the COC?  Yes No
ntamers (Y <b>N</b> )a
Did all bottles arrive in good condition (Unbroken)?  Could all bottle labels (ID/Date/Time) be reconciled with the COC?
Were the custody papers relinquished & signed in the appropriate place?  Was/were the person(s) who collected the samples clearly identified on the COC?  Yes
TE YES
NA NA
IR GUN # (CF O,) °C) Observed Cooler
e Ice Dry Ice Water None
Packing material used: Bubble Wrap Foam Plastic Bag None Other
Drop-off Date/Time Storage Location
ypount, Chent Drop Off Eurofins Courier Othe
5000
land Sample Receipt Form/Narrative Login #
THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.

Page 17 of 20

Temperature readings  Client Sample ID  DEK-MW-15003  DEK-MW-15003	<u>Lab ID</u> 240-212645-A-1 240-212645-B-1	Container Type  Plastic 1 liter - Nitric Acid  Plastic 1 liter - Nitric Acid	Container Preservation Preservation pH Temp Added Lot Number <2
Client Sample ID	Lab ID	Container Type	pH Temp Added Lot Numbe
DEK-MW-15003	240-212645-A-1	Plastic 1 liter - Nitric Acid	\$   
DEK-MW-15003	240-212645-B-1	Plastic 1 liter - Nitric Acid	<2
OW-10	240-212645-A-2	Plastic 1 liter - Nitrıc Acid	Δ
OW-10	240-212645-B-2	Plastic 1 liter - Nitric Acid	\$

Page 18 of 20 11/7/2024

Page 1 of 1

13 14

TVA protocol - Ra-226+228 action limit at 5.0 pC/l/L. TVA protocol - Ra-226+228 action limit at 5.0 pC/l/L. Company Note: Since taboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract taboratories. 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 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. Special Instructions/Note: Months Company Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Mon Preservation Codes: COC No: 240-191846.1 Job # 240-212645-1 Page Page 1 of 1 Received by Odbingta BCT 10 2021 Total Number of containers O. CH Date/Time Method of Shipment arner Tracking No(s) State of Origin Michigan **Analysis Requested** Cooler Temperature(s) °C and Other Remarks: Special Instructions/QC Requirements: Accreditations Required (See note) Kris. Brooks@et.eurofinsus.com × 38226R8228_GFPC Received by: 04.0/PrecSep_0 Standard Target List × × Lab PM: Brooks, Kris M School Standard Target List × MS/MSD (Yes or No) me E-Mail: Company Company Matrix Water Water Preservation Code Company (C=comp, G=grab) Sample Type ග O 650 Primary Deliverable Rank: 2 Eastern 16:08 Sample Eastern Due Date Requested: 11/7/2024 TAT Requested (days): Date: かべ Sample Date 10/3/24 10/3/24 Project # 24024154 Date/Time: Date/Time hone # Od * OM Client Information (Sub Contract Lab) Deliverable Requested: I, II, III, IV, Other (specify) Project Name: Karn/Weadock CCR Groundwater Monitoring Sample Identification - Client ID (Lab ID) Celinquished by JESSICA RIGDO Custody Seal No. 314-298-8566(Tel) 314-298-8757(Fax) DEK-MW-15003 (240-212645-1) Possible Hazard Identification estAmerica Laboratories, Inc. Empty Kit Relinquished by 13715 Rider Trail North, Custody Seals Intact: Δ Yes Δ No OW-10 (240-212645-2) Shipping/Receiving State, Zip. MO, 63045 Jnconfirmed finquished by: elinquished by: Earth City mail

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**Environment Testing** 

🔅 eurofins

Chain of Custody Record

Phone: 330-497-9396 Fax: 330-497-0772

Barberton, OH 44203

**Eurofins Cleveland** 180 S. Van Buren Avenue

### **Login Sample Receipt Checklist**

Client: TRC Environmental Corporation.

Job Number: 240-212645-1

Login Number: 212645
List Source: Eurofins St. Louis
List Number: 2
List Creation: 10/10/24 11:26 AM

Creator: Worthington, Sierra M

Creator: Worthington, Sierra M		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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.	N/A	
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?	N/A	
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	

11/7/2024

**Eurofins Cleveland** 

Residual Chlorine Checked.

N/A



135 W. Trail St. Jackson, MI 49201 phone 517-788-1251 fax 517-788-2533

To: JJFirlit, Karn/Weadock

From: EBlaj, T-258

Date: October 18, 2024

Subject: RCRA GROUNDWATER MONITORING – KARN BAP & LINED IMP. WELLS – 2024 Q4

CC: HDRegister, P22-521 Darby Litz, Project Manager

TRC Companies, Inc. 1540 Eisenhower Place Ann Arbor, MI 48108

Chemistry Project: 24-0802

TRC Environmental, Inc. conducted groundwater monitoring at the DEKarn Bottom Ash Pond and Lined Impoundment Wells area during the week of 10/01/2024, for the 4th Quarter requirement, as specified in the Sampling and Analysis Plan for the site. The samples were received for analysis by the Chemistry department of Laboratory Services on 10/04/2024.

Samples for Total Sulfide have been subcontracted to Merit Laboratories, Inc. and the results are listed under the analyst initials "Merit". Please note that the subcontracted work is not reported under the CE laboratory scope of accreditation.

With the exception noted above, the report that follows presents the results of the requested analytical testing; the results apply only to the samples, as received. All samples have been analyzed in accordance with the 2016 TNI Standard and the applicable A2LA accreditation scope for Laboratory Services. Any exceptions to applicable test method criteria and standard compliance are noted in the Case Narrative or flagged with applicable qualifiers in the analytical results section.

Reviewed and approved by:

Emil Blaj Sr. Technical Analyst Project Lead



Testing performed in accordance with the A2LA scope of accredidation specified in the listed certificate.

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#### **CASE NARRATIVE**

#### I. Sample Receipt

All samples were received within hold time and in good conditions; no anomalies were noted on the attached Sample Log-In Shipment Inspection Form during sample check-in. Identification of all samples included in the work order/project is provided in the sample summary section. All sample preservation and temperature upon receipt was verified by the sample custodian and confirmed to meet method requirements.

#### II. Methodology

Unless otherwise indicated, sample preparation and analysis was performed in accordance with the corresponding test methods from "Methods for the Determination of Inorganic Substances in Environmental Samples (EPA/600/R-93/100); SW-846, "Test Methods for Evaluating Solid Waste – Physical/Chemical Methods", USEPA (latest revisions), and Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WPCF, 22nd Edition, 2012.

#### III. Results/Quality Control

Analytical results for this report are presented by laboratory sample ID, container, & aliquot number. Results for the field blanks, field duplicates, and recoveries of the field matrix spike & matrix spike duplicate samples are included in the results section; all other quality control data is listed in the Quality Control Summary associated with the particular test method, as appropriate. Unless specifically noted in the case narrative, all method quality control requirements have been met. If any results are qualified, the corresponding data flags/qualifiers are listed on the last page of the results section. Any additional information on method performance, when applicable, is presented in this section of the case narrative. When data flags are not needed, the qualifiers text box on the last page is left blank, and a statement confirms that no exceptions occurred.

#### **DEFINITIONS / QUALIFIERS**

The following qualifiers and/or acronyms are used in the report, where applicable:

<u>Acronym</u>	<u>Description</u>
RL	Reporting Limit
ND	Result not detected or below Reporting Limit
NT	Non TNI analyte
LCS	Laboratory Control Sample
LRB	Laboratory Reagent Blank (also referred to as Method Blank)
DUP	Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
TDL	Target Detection Limit
SM	Standard Methods Compendium

Qualifier	<u>Description</u>
*	Generic data flag, applicable description added in the corresponding notes section
В	The analyte was detected in the LRB at a level which is significant relative to sample result
D	Reporting limit elevated due to dilution
E	Estimated due to result exceeding the linear range of the analyzer
H	The maximum recommended hold time was exceeded
I	Dilution required due to matrix interference; reporting limit elevated
J	Estimated due to result found above MDL but below PQL (or RL)
K	Reporting limit raised due to matrix interference
M	The precision for duplicate analysis was not met; RPD outside acceptance criteria
N	Non-homogeneous sample made analysis questionable
PI	Possible interference may have affected the accuracy of the laboratory result
Q	Matrix Spike or Matrix Spike Duplicate recovery outside acceptance criteria
R	Result confirmed by new sample preparation and reanalysis
X	Other notation required; comment listed in sample notes and/or case narrative



### **Work Order Sample Summary**

Customer Name: Karn/Weadock Complex

Work Order ID: Q4-2024 Karn Bottom Ash Pond & Lined Impoundment

**Date Received:** 10/3/2024 **Chemistry Project:** 24-0802

Sample #	Field Sample ID	<u>Matrix</u>	Sample Date	<u>Site</u>
24-0802-01	DEK-MW-18001	Groundwater	10/03/2024 08:37	DEK Bottom Ash Pond & Lined Impoundment
24-0802-02	DEK-MW-18001 MS	Groundwater	10/03/2024 08:37	DEK Bottom Ash Pond & Lined Impoundment
24-0802-03	DEK-MW-18001 MSD	Groundwater	10/03/2024 08:37	DEK Bottom Ash Pond & Lined Impoundment





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Field Sample ID: DEK-MW-18001

Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** 

Laboratory Project: 24-0802
Collect Date: 10/03/2024
Collect Time: 08:37 AM

Report Date:

10/18/24

Lab Sample ID: 24-0802-01 Matrix: Groundwater

Mercury by EPA 7470A, Total,	71940040			7 mquot #1 = 1 0	802-01-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	ND		ug/L	0.2	10/05/2024	AB24-1005-01
Metals by EPA 6020B: CCR Ru	ıle Appendix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	802-01-C01-A02	Analyst: EE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	ND		ug/L	1.0	10/08/2024	AB24-1009-01
Arsenic	495		ug/L	1.0	10/08/2024	AB24-1009-01
Barium	148		ug/L	5.0	10/08/2024	AB24-1009-01
Beryllium	ND		ug/L	1.0	10/08/2024	AB24-1009-01
Boron	953		ug/L	20.0	10/08/2024	AB24-1009-01
Cadmium	ND		ug/L	0.2	10/08/2024	AB24-1009-01
Calcium	58500		ug/L	1000.0	10/08/2024	AB24-1009-01
Chromium	ND		ug/L	1.0	10/08/2024	AB24-1009-01
Cobalt	ND		ug/L	6.0	10/08/2024	AB24-1009-01
Copper	ND		ug/L	1.0	10/08/2024	AB24-1009-01
Iron	763		ug/L	20.0	10/08/2024	AB24-1009-01
Lead	ND		ug/L	1.0	10/08/2024	AB24-1009-01
Lithium	18		ug/L	10.0	10/08/2024	AB24-1009-01
Magnesium	11600		ug/L	1000.0	10/08/2024	AB24-1009-01
Manganese	144		ug/L	5.0	10/08/2024	AB24-1009-01
Molybdenum	10		ug/L	5.0	10/08/2024	AB24-1009-01
Nickel	ND		ug/L	2.0	10/08/2024	AB24-1009-01
Potassium	6590		ug/L	100.0	10/08/2024	AB24-1009-01
Selenium	1		ug/L	1.0	10/08/2024	AB24-1009-01
Silver	ND		ug/L	0.2	10/08/2024	AB24-1009-01
Sodium	130000		ug/L	1000.0	10/08/2024	AB24-1009-01
Thallium	ND		ug/L	2.0	10/08/2024	AB24-1009-01
Vanadium	2		ug/L	2.0	10/08/2024	AB24-1009-01
Zinc	ND		ug/L	10.0	10/08/2024	AB24-1009-01
Anions by EPA 300.0 Aqueous	s, NO2, NO3			Aliquot #: 24-0	802-01-C02-A01	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	ND		ug/L	100.0	10/04/2024	AB24-1004-02
Nitrite	ND		ug/L	100.0	10/04/2024	AB24-1004-02
Anions by EPA 300.0 CCR Rul	e Analyte List, Cl, F,	SO4, Aqu	ieous	Aliquot #: 24-0	802-01-C02-A02	Analyst: KDF
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	78100		ug/L	1000.0	10/07/2024	AB24-1007-02



### **Analytical Report**

**Report Date:** 10/18/24

Laboratory Services

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Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** Laboratory Project: **24-0802** 

 Field Sample ID:
 DEK-MW-18001
 Collect Date:
 10/03/2024

 Lab Sample ID:
 24-0802-01
 Collect Time:
 08:37 AM

Matrix: Groundwater

Anions by EPA 300.0 CCR Rule Analy	yte List, CI, F,	SO4, Aqu	ieous	Aliquot #: 24-0	802-01-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	ND		ug/L	1000.0	10/04/2024	AB24-1007-02
Sulfate	207000		ug/L	1000.0	10/07/2024	AB24-1007-02
Nitrogen-Ammonia by SM4500NH3(h	), Groundwate	er HL		Aliquot #: 24-0	802-01-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	2020		ug/L	25.0	10/09/2024	AB24-1009-03
Total Dissolved Solids by SM 2540C				Aliquot #: 24-0	802-01-C04-A01	Analyst: LMO
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Total Dissolved Solids	624		mg/L	10.0	10/04/2024	AB24-1004-01
Alkalinity by SM 2320B				Aliquot #: 24-0	802-01-C05-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	175000		ug/L	10000.0	10/10/2024	AB24-1010-01
Alkalinity Bicarbonate	175000		ug/L	10000.0	10/10/2024	AB24-1010-01
Alkalinity Carbonate	ND		ug/L	10000.0	10/10/2024	AB24-1010-01
Sulfide, Total by SM 4500 S2D			Aliquot #: 24-0	802-01-C07-A01	Analyst: Merit	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	167		ug/L	20.0	10/09/2024	AB24-1007-12



Report Date:

10/18/24

24-0802



Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** Laboratory Project:

 Field Sample ID:
 DEK-MW-18001 MS
 Collect Date:
 10/03/2024

 Lab Sample ID:
 24-0802-02
 Collect Time:
 08:37 AM

Matrix: Groundwater

Mercury by EPA 7470A, Total, Aqueo	us			Aliquot #: 24-0	802-02-C01-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Mercury	97.0		%	0.2	10/05/2024	AB24-1005-01
Metals by EPA 6020B: CCR Rule App	endix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	)802-02-C01-A02	Analyst: EB
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Antimony	103		%	1.0	10/08/2024	AB24-1009-01
Arsenic	99		%	1.0	10/08/2024	AB24-1009-01
Barium	105		%	5.0	10/08/2024	AB24-1009-01
Beryllium	95		%	1.0	10/08/2024	AB24-1009-01
Boron	110		%	20.0	10/08/2024	AB24-1009-01
Cadmium	99.9		%	0.2	10/08/2024	AB24-1009-01
Calcium	101		%	1000.0	10/08/2024	AB24-1009-01
Chromium	100		%	1.0	10/08/2024	AB24-1009-01
Cobalt	98		%	6.0	10/08/2024	AB24-1009-01
Copper	85		%	1.0	10/08/2024	AB24-1009-01
Iron	113		%	20.0	10/08/2024	AB24-1009-01
Lead	101		%	1.0	10/08/2024	AB24-1009-01
Lithium	94		%	10.0	10/08/2024	AB24-1009-01
Magnesium	102		%	1000.0	10/08/2024	AB24-1009-01
Manganese	102		%	5.0	10/08/2024	AB24-1009-01
Molybdenum	112		%	5.0	10/08/2024	AB24-1009-01
Nickel	92		%	2.0	10/08/2024	AB24-1009-01
Potassium	101		%	100.0	10/08/2024	AB24-1009-01
Selenium	111		%	1.0	10/08/2024	AB24-1009-01
Silver	100		%	0.2	10/08/2024	AB24-1009-01
Sodium	103		%	1000.0	10/08/2024	AB24-1009-01
Thallium	100		%	2.0	10/08/2024	AB24-1009-01
Vanadium	101		%	2.0	10/08/2024	AB24-1009-01
Zinc	90		%	10.0	10/08/2024	AB24-1009-01
Anions by EPA 300.0 Aqueous, NO2,	NO3			Aliquot #: 24-0	802-02-C02-A01	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Nitrate	99		%	100.0	10/04/2024	AB24-1004-02
Nitrite	100		%	100.0	10/04/2024	AB24-1004-02
Anions by EPA 300.0 CCR Rule Analy	yte List, Cl, F,	SO4, Aqı	ieous	Aliquot #: 24-0	802-02-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Chloride	104		%	1000.0	10/07/2024	AB24-1007-02



### **Analytical Report**

**Report Date:** 10/18/24

Laboratory Services
A CENTURY OF EXCELLENCE

Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** 

Laboratory Project: **24-0802**Collect Date: 10/03/2024

Field Sample ID: **DEK-MW-18001 MS** 

Collect Time: 08:37 AM

Lab Sample ID: 24-0802-02 Matrix: Groundwater

Anions by EPA 300.0 CCR Rule Analy	yte List, CI, F,	SO4, Aqu	eous	Aliquot #: 24-0	802-02-C02-A02	Analyst: KDR
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	93		%	1000.0	10/04/2024	AB24-1007-02
Sulfate	107		%	1000.0	10/07/2024	AB24-1007-02
Nitrogen-Ammonia by SM4500NH3(h	), Groundwate	er HL		Aliquot #: 24-0	802-02-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	91		%	25.0	10/09/2024	AB24-1009-03
Alkalinity by SM 2320B				Aliquot #: 24-0	802-02-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	98.4		%	10000.0	10/10/2024	AB24-1010-01
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	802-02-C06-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	96		%	20.0	10/09/2024	AB24-1007-12



Report Date:

10/18/24



A CENTURY OF EXCELLENCE

Sample Site: **DEK Bottom Ash Pond & Lined Impoundment** Laboratory Project: **24-0802** 

 Field Sample ID:
 DEK-MW-18001 MSD
 Collect Date:
 10/03/2024

 Lab Sample ID:
 24-0802-03
 Collect Time:
 08:37 AM

Matrix: Groundwater

Mercury by EPA 7470A, Total, Aqueo	ous		Aliquot #: 24-0	802-03-C01-A01	Analyst: CLE		
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Mercury	98.0		%	0.2	10/05/2024	AB24-1005-01	
Metals by EPA 6020B: CCR Rule App	oendix III-IV To	tal Metals	s Ехр	Aliquot #: 24-0	0802-03-C01-A02	Analyst: EB	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Antimony	101		%	1.0	10/08/2024	AB24-1009-01	
Arsenic	105		%	1.0	10/08/2024	AB24-1009-01	
Barium	101		%	5.0	10/08/2024	AB24-1009-01	
Beryllium	96		%	1.0	10/08/2024	AB24-1009-01	
Boron	109		%	20.0	10/08/2024	AB24-1009-01	
Cadmium	97.6		%	0.2	10/08/2024	AB24-1009-01	
Calcium	100		%	1000.0	10/08/2024	AB24-1009-01	
Chromium	101		%	1.0	10/08/2024	AB24-1009-01	
Cobalt	100		%	6.0	10/08/2024	AB24-1009-01	
Copper	91		%	1.0	10/08/2024	AB24-1009-01	
Iron	96		%	20.0	10/08/2024	AB24-1009-01	
Lead	101		%	1.0	10/08/2024	AB24-1009-01	
Lithium	94		%	10.0	10/08/2024	AB24-1009-01	
Magnesium	103		%	1000.0	10/08/2024	AB24-1009-01	
Manganese	98		%	5.0	10/08/2024	AB24-1009-01	
Molybdenum	111		%	5.0	10/08/2024	AB24-1009-01	
Nickel	94		%	2.0	10/08/2024	AB24-1009-01	
Potassium	101		%	100.0	10/08/2024	AB24-1009-01	
Selenium	112		%	1.0	10/08/2024	AB24-1009-01	
Silver	97.8		%	0.2	10/08/2024	AB24-1009-01	
Sodium	105		%	1000.0	10/08/2024	AB24-1009-01	
Thallium	100		%	2.0	10/08/2024	AB24-1009-01	
Vanadium	102		%	2.0	10/08/2024	AB24-1009-01	
Zinc	96		%	10.0	10/08/2024	AB24-1009-01	
Anions by EPA 300.0 Aqueous, NO2	, NO3			Aliquot #: 24-0	802-03-C02-A01	Analyst: KDR	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Nitrate	94		%	100.0	10/04/2024	AB24-1004-02	
Nitrite	98		%	100.0	10/04/2024	AB24-1004-02	
Anions by EPA 300.0 CCR Rule Anal	yte List, Cl, F,	SO4, Aqı	leous	Aliquot #: 24-0	802-03-C02-A02	Analyst: KDR	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking	
Chloride	104		%	1000.0	10/07/2024	AB24-1007-02	



### **Analytical Report**

Report Date: 10/18/24

**Laboratory Services** 

A CENTURY OF EXCELLENCE

**DEK Bottom Ash Pond & Lined Impoundment** Laboratory Project: Sample Site: 24-0802

Field Sample ID: DEK-MW-18001 MSD

Collect Date: 10/03/2024 Lab Sample ID: 24-0802-03 Collect Time: 08:37 AM

Matrix: Groundwater

Anions by EPA 300.0 CCR Rule Ana	lyte List, CI, F,	SO4, Aqı	ieous	Aliquot #: 24-0	Analyst: KDR	
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Fluoride	93		%	1000.0	10/04/2024	AB24-1007-02
Sulfate	106		%	1000.0	10/07/2024	AB24-1007-02
Nitrogen-Ammonia by SM4500NH3(h	n), Groundwate	er HL		Aliquot #: 24-0	802-03-C03-A01	Analyst: CLE
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Ammonia	91		%	25.0	10/09/2024	AB24-1009-03
Alkalinity by SM 2320B				Aliquot #: 24-0	802-03-C04-A01	Analyst: DLS
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Alkalinity Total	97.9		%	10000.0	10/10/2024	AB24-1010-01
Sulfide, Total by SM 4500 S2D				Aliquot #: 24-0	802-03-C06-A01	Analyst: Merit
Parameter(s)	Result	Flag	Units	RL	Analysis Date	Tracking
Sulfide	94		%	20.0	10/09/2024	AB24-1007-12



### **Analytical Report**

**Report Date:** 10/18/24

Data Qualifiers	Exception Summary
	No exceptions occurred.

CONSUMERS **ENERGY** 

### Chemistry Department

### General Standard Operating Procedure

PROC CHEM-1.2.01 PAGE 1 OF 2 **REVISION 5** ATTACHMENT A

•	102	Inspectio	n Date: 10-03-24	Inspection By:	EB
Sample Origin/Project Name	: <u>Q4-</u>	2024 DE	K BAP+LI		
Shipment Delivered By: Ente	er the type of	shipment carri	er.		
Inter-Company Mail_		FedEx	UPS	USPS	
Tracking Number:			Other/Carry In (whon	1) TRC	
Shipping Containers: Enter t					
Cooler	Cardboard Bo	ox	Custom Case	Envelope/Ma	niler
Loose/Unpackaged Co			Other		
Condition of Shipment: Ente	er the as-recei	ved condition	of the shipment container.		
Damaged Shipment O	Observed: No	one	Dented	_ Leakii	ng
				_	
Shipment Security: Enter if a	any of the shi	nning containe	rs were opened before rece	eint.	
•	·		Sealed	•	
					_
Enclosed Documents: Enter t	• •		•		
CoC Wo	ork Request _		Air Data Sheet	_ Other	
Temperature of Containers:	Measure the	temperature of	several sample containers		
As-Received Tempera	ature Range_	4.9-5.8	°C Samples Receiv	ved on Ice: Yes	/ No
M&TE # and Expirati					
				!	
•		L - 4			
Number and Type of Contain			_		
Number and Type of Contain	<u>Water</u>	he type and tot <u>Soil</u>	al number of sample conta	Broken	<u>Leaking</u>
Number and Type of Contain <u>Container Type</u> VOA (40mL or <b>O</b> nL)	<u>Water</u>		_		<u>Leaking</u>
Number and Type of Contain <u>Container Type</u> VOA (40mL or Opcl)  Quart/Liter ( g / p )	Water 		_		<u>Leaking</u>
Number and Type of Contain  Container Type  VOA (40mL or Opt.)  Quart/Liter (g/p)  9-oz (amber glass jar)	Water 		_		<u>Leaking</u>
Number and Type of Contain  Container Type  VOA (40mL or Opt)  Quart/Liter (g/p)  9-oz (amber glass)	<u>Water</u>		_		Leaking
Number and Type of Contain  Container Type  VOA (40mL or Opt.)  Quart/Liter ( g / p )  9-oz (amber glass jar)  2-oz (amber glass)  125 mL (plastic)	<u>Water</u>		_		Leaking
Number and Type of Contain  Container Type  VOA (40mL or Opt)  Quart/Liter ( g / p )  9-oz (amber glass jar)  2-oz (amber glass)  125 mL (plastic)  24 mL vial (glass)	<u>Water</u>		_		Leaking
Number and Type of Contain  Container Type  VOA (40mL or Opt.)  Quart/Liter ( g / p )  9-oz (amber glass jar)  2-oz (amber glass)  125 mL (plastic)	<u>Water</u>		_		Leakin

## **CHAIN OF CUSTODY**



### CONSUMERS ENERGY COMPANY – LABORATORY SERVICES

135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251

	B		a	
Page	V	of	1	
age _		01 _		

SAMPLING SITE / CUSTOMER: PROJECT NUMBER:  Q4-2024 DEK Bottom Ash Pond & Lined Impound.  24-0802		SAP CC or W	SAP CC or WO#:					ANALYSIS REQUESTED						QA REQUIREMENT:												
		24-0802 REQUESTER: Harold		old Register					(Attach List if More Space is Needed)																	
SAMPLING TEAM: TURNAROUND TIME REQUIRED:																		□ NPDES								
□ 24 HR □ 48 HR □ 3 DAYS □ STAN					TANDARD 🛮 O	THER_														⊠ TNI						
SEND REPORT TO	: Joseph Firl	it		email:	phone:															□ ISO 17025						
COPY TO:	Harold Reg	ister		MATRIX CODES:  GW = Groundwater OX = Othe	r	CONTAINERS																				☐ 10 CFR 50 APP. B
*	TRC	TRC		WW = Wastewater SL = Slud W = Water / Aqueous Liquid A = Air			PRESERVATIVE		PRESERVATIVE			als								☐ INTERNAL INFO						
LAB	SAMPLE CC	LLECTION	X	S = Soil / General Solid WP = Wi	pe neral Waste	AL#						Met	ns	onia		inity	<u>e</u>			□ OTHER						
SAMPLE ID	DATE	TIME	MATRIX	FIELD SAMPLE ID / LO		TOTAL	None	HINO3	H ₂ SO ₄	HCI	MeOH	Total Metals	Anions	Ammonia	TDS	Alkalinity	Sulfide			REMARKS						
24-0802-01	10/3/24	0837	GW	DEK-MW-18001		7	4	1	1 1			х	х	x	х	х	х									
-02	(( 11	0837	GW	DEK-MW-18001 MS		6	3	1	1 1			х	х	х		x	x									
-03	1111	0837	GW	DEK-MW-18001 MSD		6	3	1	1 1			х	х	х		х	х									
						-			+																	
						+		-	+	-																
		-				-			$\perp$	-																
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								T																		
RELINQUISHED BY	:		DATE/	TIME:	RECEIVED BY:	Λ	1					CO	MME	NTS:												
		106	بداه	(340	5	7//	/,-	5	V	9																
RELINQUISHED BY	:		DATE/		RECEIVED BY:	100	1	_	_			Rec	eived	on Ic	ce? 🖸	Yes		lo l	M&TE	#: LS 0271 23 e Date: 06-27-24 EG 100						
												Ten	nperat	ure: _	4.9	-2.	<b>8</b> °C	(	Cal. Du	e Date: 06-27-24						



Report ID: S67051.01(01) Generated on 10/10/2024

Report to

Attention: Emil Blaj

Consumers Energy Company

135 West Trail Street Jackson, MI 49201

Phone: D:517-788-5888 C:517-684-9467 FAX:

Email: emil.blaj@cmsenergy.com

Report produced by

Merit Laboratories, Inc. 2680 East Lansing Drive East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions: John Laverty (johnlaverty@meritlabs.com) Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S67051.01-S67051.03

Project: 24-0802 PR#24101038 Collected Date(s): 10/03/2024

Submitted Date/Time: 10/04/2024 14:46

Sampled by: Unknown P.O. #: 4400121437

#### Table of Contents

Cover Page (Page 1)

General Report Notes (Page 2)

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Method Summary (Page 4)

Sample Summary (Page 5)

Maya Murshak Technical Director

Naya Mushah



#### **General Report Notes**

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples

for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Starred (*) analytes are not NY NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

#### **Report Narrative**

There is no additional narrative for this analytical report



### **Laboratory Accreditations (For Reference Only)**

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2	2017 #69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

#### **Qualifier Descriptions**

Description

Qualifier

	·
!	Result is outside of stated limit criteria
В	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
Н	Sample submitted and run outside of holding time
1	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
М	Result reported to MDL not RDL
0	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
Χ	Elevated reporting limit due to matrix interference
Υ	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
е	Reported value estimated due to interference
j	Analyte also found in associated method blank
0	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
X	Preserved from bulk sample

#### **Glossary of Abbreviations**

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



**Method Summary** 

Method Version

SM4500-S2 D

Standard Method 4500 S2 D 2011



### Sample Summary (3 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S67051.01	DEK-MW-18001 (24-0802-01)	Groundwater	10/03/24 08:37
S67051.02	DEK-MW-18001 Field MS (24-0802-02)	Groundwater	10/03/24 08:37
S67051.03	DEK-MW-18001 Field MSD (24-0802-03)	Groundwater	10/03/24 08:37



Lab Sample ID: S67051.01

Sample Tag: DEK-MW-18001 (24-0802-01) Collected Date/Time: 10/03/2024 08:37

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	I hermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	3.1	IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 10/09/24 18:52, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.167	0.02		ma/L	1	18496-25-8	



Lab Sample ID: S67051.02

Sample Tag: DEK-MW-18001 Field MS (24-0802-02)

Collected Date/Time: 10/03/2024 08:37

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	3.1	IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 10/09/24 19:11, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.360	0.02		ma/L	1	18496-25-8	1

1-*Sample Spiked @ 0.200ppm level



Lab Sample ID: S67051.03

Sample Tag: DEK-MW-18001 Field MSD (24-0802-03)

Collected Date/Time: 10/03/2024 08:37

Matrix: Groundwater COC Reference:

Sample Containers

#	Туре	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	NaOH/Zn Acetate	Yes	3.1	IR

#### Inorganics

Method: SM4500-S2 D, Run Date: 10/09/24 19:09, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Sulfide	0.356	0.02		mg/L	1	18496-25-8	1

1-*Sample Spiked @ 0.200ppm level

### Merit Laboratories Login Checklist

Lab Set ID:S67051

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0802 PR#24101038

Submitted: 10/04/2024 14:46 Login User: MMC

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

Selection	Description Note	
Sample Receiving		
01. X Yes No N/	A Samples are received at 4C +/- 2C Thermometer # IR 3.1	
02. X Yes No N/	A Received on ice/ cooling process begun	
03. Yes X No N/	'A Samples shipped	
04. Yes X No N/	'A Samples left in 24 hr. drop box	
05. Yes No X N/	A Are there custody seals/tape or is the drop box locked	
Chain of Custody		
06. X Yes No N/	A COC adequately filled out	
07. X Yes No N/	A COC signed and relinquished to the lab	
08. X Yes No N/	A Sample tag on bottles match COC	
09. Yes X No N/	A Subcontracting needed? Subcontacted to:	
Preservation		
10. X Yes No N/	A Do sample have correct chemical preservation	
11. X Yes No N/	A Completed pH checks on preserved samples? (no VOAs)	
12. Yes X No N/	A Did any samples need to be preserved in the lab?	
<b>Bottle Conditions</b>		
13. <b>X</b> Yes No N/	A All bottles intact	
14. X Yes No N/	A Appropriate analytical bottles are used	
15. Yes X No N/	A Merit bottles used	
16. X Yes No N/	A Sufficient sample volume received	
17. Yes <b>X</b> No N/	A Samples require laboratory filtration	
18. X Yes No N/	A Samples submitted within holding time	
19. Yes No X N/	A Do water VOC, TOX, DO or Alkalinity bottles contain	
Corrective action for all exception	ions is to call the client and to notify the project manager.	
Client Review By:	Date:	

#### **Merit Laboratories Bottle Preservation Check**

Lab Set ID: S67051 Submitted: 10/04/2024 14:46

Client: CONSUMERS (Consumers Energy Company)

Project: 24-0802 PR#24101038

Initial Preservation Check: 10/04/2024 15:42 MMC

Preservation Recheck (E200.8): N/A

Attention: Emil Blaj

Address: Consumers Energy Company 135 West Trail Street

Jackson, MI 49201

Phone: D:517-788-5888 FAX: Email: emil.blaj@cmsenergy.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S67051.01	125mL Plastic NaOH/Zn Acetate	>12			
S67051.02	125mL Plastic NaOH/Zn Acetate	>12			
S67051.03	125mL Plastic NaOH/Zn Acetate	>12			



2680 East Lansing Dr., East Lansing, MI 48823 Phone (517) 332-0167 Fax (517) 332-4034 www.meritlabs.com

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J.O.C.	PAGE	Ħ		OF	1

REPOR		`	Laboratories, Inc.	CHA	IN O	F CI	JS	TO	DY	RE	CC	ORI	D						INV	OIC	ЕТО
CONTACT NAME E	Emil Blaj							CON	TACT	NAME	:							×S.A	ME		
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# **ANALYTICAL REPORT**

### PREPARED FOR

Attn: Darby Litz TRC Environmental Corporation. 1540 Eisenhower Place Ann Arbor, Michigan 48108-7080

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### **JOB DESCRIPTION**

Karn/Weadock CCR DEK Bottom Ash Pond

### **JOB NUMBER**

240-212372-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203

### **Eurofins Cleveland**

### **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 Kris Brooks, Project Manager II Kris.Brooks@et.eurofinsus.com (330)966-9790

## **Table of Contents**

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### **Definitions/Glossary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

Job ID: 240-212372-1

#### **Qualifiers**

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 Qualifier
 Qualifier Description

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 Result is less than the sample detection limit.

### **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

### **Case Narrative**

Client: TRC Environmental Corporation.

Project: Karn/Weadock CCR DEK Bottom Ash Pond

Job ID: 240-212372-1 Eurofins Cleveland

### Job Narrative 240-212372-1

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 sample was received on 10/4/2024 8:00 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.9°C, 1.1°C and 1.5°C.

#### **Gas Flow Proportional Counter**

Method 903.0: Radium 226 Batch 682572

#### 160-682572

Based upon client request, Ra-226 is reported without the standard 21-day waiting period which ensures short-lived alpha-emitting radium isotopes (e.g. Ra-224) have decayed out. The Ra-226 result should be considered to be potentially high biased. Associated samples have activity below the RL DEK-MW-18001 (240-212372-1), (240-212371-A-8-A) and (240-212371-B-8-C DU)

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

#### Rad

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

**Eurofins Cleveland** 

Job ID: 240-212372-1

Page 5 of 19 10/30/2024

### **Method Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep STD	Preparation, Precipitate Separation (Standard In-Growth)	None	EET SL
PrecSep 0	Preparation, Precipitate Separation	None	EET SL

#### Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

### Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Job ID: 240-212372-1

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### **Sample Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-212372-1	DEK-MW-18001	Water	10/03/24 08:37	10/04/24 08:00

Job ID: 240-212372-1

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### **Client Sample Results**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

Client Sample ID: DEK-MW-18001

Lab Sample ID: 240-212372-1 Date Collected: 10/03/24 08:37

Matrix: Water Date Received: 10/04/24 08:00

			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.353		0.119	0.123	1.00	0.115	pCi/L	10/08/24 08:27	10/25/24 09:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.6		30 - 110					10/08/24 08:27	10/25/24 09:24	1

Method: EPA 904.0	) - Radium-228	(GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.774		0.420	0.426	1.00	0.599	pCi/L	10/08/24 08:29	10/17/24 14:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.6		30 - 110					10/08/24 08:29	10/17/24 14:10	1
Y Carrier	79.6		30 - 110					10/08/24 08:29	10/17/24 14:10	1

Method: TAL-STL Ra	226_Ra228	- Combined	I Radium-226	and Radiun	n-228					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.13		0.437	0.443	5.00	0.599	pCi/L		10/30/24 15:56	1

Job ID: 240-212372-1

### **Tracer/Carrier Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

Job ID: 240-212372-1

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water Prep Type: Total/NA

_		Percent Yield (Acceptance Limits)					
		Ва					
Lab Sample ID	Client Sample ID	(30-110)					
240-212372-1	DEK-MW-18001	87.6					
LCS 160-682572/2-A	Lab Control Sample	92.5					
MB 160-682572/1-A	Method Blank	87.6					
Tracer/Carrier Legend							
Ba = Ba Carrier							

Method: 904.0 - Radium-228 (GFPC)

Y = Y Carrier

Matrix: Water Prep Type: Total/NA

				Percent Yield (Acceptance Limits)
		Ва	Υ	
Lab Sample ID	Client Sample ID	(30-110)	(30-110)	
240-212372-1	DEK-MW-18001	87.6	79.6	
LCS 160-682573/2-A	Lab Control Sample	92.5	81.9	
MB 160-682573/1-A	Method Blank	87.6	78.5	
Tracer/Carrier Legend				
Ba = Ba Carrier				

**Eurofins Cleveland** 

Count

Uncert.

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-682572/1-A

**Matrix: Water** 

Analysis Batch: 685116

Client Sample ID: Method Blank

Prep Type: Total/NA

Job ID: 240-212372-1

**Prep Batch: 682572** 

Analyte Result Qualifier (2σ+/-) (2σ+/-) RL MDC Unit Prepared Analyzed Dil Fac Radium-226 0.01844 U 0.0601 0.0602 1.00 0.115 pCi/L 10/08/24 08:27 10/25/24 09:24

Total

Uncert.

MВ

MB MB

Qualifier Limits Prepared Dil Fac Carrier %Yield Analyzed Ba Carrier 87.6 30 - 110

10/08/24 08:27 10/25/24 09:24

Lab Sample ID: LCS 160-682572/2-A

**Matrix: Water** 

Analysis Batch: 685116

Total

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 682572

LCS LCS %Rec Spike Uncert. Added Analyte Result Qual  $(2\sigma + / -)$ RL MDC Unit %Rec Limits Radium-226 1.00 9.58 10.06 1.06 0.123 pCi/L 105 75 - 125

LCS LCS

Carrier %Yield Qualifier Limits Ba Carrier 92.5 30 - 110

> MB MB

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-682573/1-A

**Matrix: Water** 

Analysis Batch: 683951

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 682573

			Count	Total						
	MB	MB	Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.05134	U	0.294	0.294	1.00	0.542	pCi/L	10/08/24 08:29	10/17/24 14:12	1

Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac Ba Carrier 87.6 30 - 110 10/08/24 08:29 10/17/24 14:12 30 - 110 10/08/24 08:29 10/17/24 14:12 Y Carrier 78.5

Lab Sample ID: LCS 160-682573/2-A

**Matrix: Water** 

Analysis Batch: 683951

Client Sample ID: Lab Control Sample

Prep Batch: 682573

Total LCS LCS %Rec Spike Uncert. Analyte Added Result Qual  $(2\sigma + / -)$ RL MDC Unit %Rec Limits Radium-228 1.00 8.42 10.09 1.36 0.548 pCi/L 120 75 - 125

LCS LCS

Carrier %Yield Qualifier Limits Ba Carrier 92.5 30 - 110 Y Carrier 81.9 30 - 110

**Eurofins Cleveland** 

Prep Type: Total/NA

### **QC Association Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

### Job ID: 240-212372-1

### Rad

### Prep Batch: 682572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-212372-1	DEK-MW-18001	Total/NA	Water	PrecSep STD	
MB 160-682572/1-A	Method Blank	Total/NA	Water	PrecSep STD	
LCS 160-682572/2-A	Lab Control Sample	Total/NA	Water	PrecSep STD	

### **Prep Batch: 682573**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-212372-1	DEK-MW-18001	Total/NA	Water	PrecSep_0	· <del></del> -
MB 160-682573/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-682573/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

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### **Lab Chronicle**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

Client Sample ID: DEK-MW-18001 Lab Sample ID: 240-212372-1

Date Collected: 10/03/24 08:37

Matrix: Water

Date Received: 10/03/24 08:37

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	PrecSep STD			682572	BCE	EET SL	10/08/24 08:27
Total/NA	Analysis	903.0		1	685112	SWS	EET SL	10/25/24 09:24
Total/NA	Prep	PrecSep_0			682573	BCE	EET SL	10/08/24 08:29
Total/NA	Analysis	904.0		1	683952	FLC	EET SL	10/17/24 14:10
Total/NA	Analysis	Ra226_Ra228		1	686003	FLC	EET SL	10/30/24 15:56

#### Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Job ID: 240-212372-1

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### **Accreditation/Certification Summary**

Client: TRC Environmental Corporation.

Project/Site: Karn/Weadock CCR DEK Bottom Ash Pond

### **Laboratory: Eurofins St. Louis**

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date	
Alaska (UST)	State	20-001	05-06-25	
ANAB	Dept. of Defense ELAP	L2305	04-06-25	
ANAB	Dept. of Energy	L2305.01	04-08-25	
ANAB	ISO/IEC 17025	L2305	04-06-25	
Arizona	State	AZ0813	12-08-24	
California	Los Angeles County Sanitation Districts	10259	06-30-22 *	
California	State	2886	06-30-25	
Connecticut	State	PH-0241	03-31-25	
Florida	NELAP	E87689	06-30-25	
HI - RadChem Recognition	State	n/a	06-30-25	
Illinois	NELAP	200023	11-30-25	
lowa	State	373	12-01-24	
Kansas	NELAP	E-10236	10-31-24	
Kentucky (DW)	State	KY90125	12-31-24	
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-24	
Louisiana	NELAP	04080	06-30-22 *	
Louisiana (All)	NELAP	04080	06-30-25	
Louisiana (DW)	State	LA011	12-31-24	
Maryland	State	310	09-30-25	
Massachusetts	State	M-MO054	06-30-25	
Missouri	State	780	06-30-25	
Nevada	State	MO00054	07-31-25	
New Jersey	NELAP	MO002	06-30-25	
New Mexico	State	MO00054	06-30-25	
New York	NELAP	11616	03-31-25	
North Carolina (DW)	State	29700	07-31-25	
North Dakota	State	R-207	12-31-24	
Oregon	NELAP	4157	09-01-25	
Pennsylvania	NELAP	68-00540	02-28-25	
South Carolina	State	85002001	06-30-25	
Texas	NELAP	T104704193	07-31-25	
US Fish & Wildlife	US Federal Programs	058448	07-31-25	
USDA	US Federal Programs	P330-17-00028	05-18-26	
Utah	NELAP	MO00054	07-31-25	
Virginia	NELAP	460230	06-14-25	
Washington	State	C592	08-30-25	
West Virginia DEP	State	381	10-31-25	

Job ID: 240-212372-1

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 $^{^{\}star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

**Eurofins Cleveland** 

#### **Eurofins Cleveland**

180 S. Van Buren Avenue

**Chain of Custody Record** Barberton, OH 44203



eurofins

Environment Testing

Phone: 330-497-9396 Fax: 330-497-0772											4	30						•
Client Information	Sampler:	JK	1550		PM: oks, K	(ris N	1				Car	rier Tracki	ng No(s):			COC No: 240-124393-290	53.1	
Client Contact: Jacob Krenz	Phone:	043	310	E-M Kris		ks@e	et.euro	finsus.c	com		Sta	te of Origin	1:			Page: Page 1 of 1		
Company: TRC Environmental Corporation.			PWSID:						Analy	/sis F	Reque	sted				Job #:		
Address: 1540 Eisenhower Place	Due Date Request	ted:														Preservation Cod D - HNO3	es:	
City: Ann Arbor	TAT Requested (d	ays):			ш	ı								,				
State, Zip: MI, 48108-7080	Compliance Proje	ct: A Yes	ΔNo		ш	ı												
Phone: 734-971-7080(Tel) 734-971-9022(Fax)	PO #: 215951					1												
Email: JKrenz@trccompanies.com	WO #: 553814.0001				- 02 - 03 - 03	Q									S			
Project Name: Kam/Weadock CCR DEK Bottom Ash Pond & I	Project #: 24024154				e (Yes	lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se lo se	t List								containers			
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Custody Seals Intact: Custody Seal No.:  Δ Yes Δ No						Co	oler Ter	mperatur	é(s) °C a	ind Othe	r Remai	ks:						

	VOA Sample Preservation - Date/Time VOAs Frozen.
	Sample(s)
	20. SAMPLE PRESERVATION
	Sample(s)were received with bubble >6 mm in diameter (Notify PM)
	19 SAMPLE CONDITION  were received after the recommended holding time had expired  sample(s)  were received in a broken container
	18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES
	Concerning
	Contacted PM Date by via Verbal Voice Mail Other
	Were air bubbles >6 mm in any VOA vials? Larger than this. Yes
	13 Were all preserved sample(s) at the correct pH upon receipt?  14 Were VOAs on the COC?  Yes NO
	If yes, Questions 13-17 have been checked at the originating laboratory
	Sufficient quantity received to perform indicated analyses?
	9 For each sample, does the COC specify preservatives (IN), # of contamers(YN), and sample type of grab/comp(YN)?  10 Were correct bottle(s) used for the test(s) indicated?  (ZB) No
	<ul> <li>7 Did all bottles arrive in good condition (Unbroken)?</li> <li>8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?</li> </ul>
	Was/were the person(s) who collected the samples clearly identified on the COC?
	Did custody papers accompany the sample(s)?  Were the custody papers relinquished & signed in the appropriate place?  Yes No
	Yes (N)
	-Were tamper/custody seals in the bottle(s) or bottle kits (LLLng/Meng)?  -Were tamper/custody seals intact and uncompromised?
	IR GUN # // (CF 0'// °C) Observed Cooler Temp°
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	Receipt After-hours Drop-off Date/Time  Storage Location
	-4-24 hK-h-
	Client TAC LAV COD Site Name Cooler unpacked by
	Barthering Psciling

Page 15 of 19

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Coler Description         IR Gun #         Observed Corrected Corrected (Circle)         Corrected Temp °C         Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well ce Well	Wet Ice Blue Ice Dry Ice Water None			IR GUN #:			Client	23
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Color Description         IR Gun # (Circle)         Observed Temp °C         Corrected Temp °C         Wellce Wellce           Client box Other Client box Other Client box Other Client box Other Client box Other Client box Other Client box Other Client box Other Client box Other R GUN #:	Wet Ice Blue Ice On Water None	AND THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPER		IR GUN #			Client	23
Coler Description         IR Gun #         Observed Temp °C         Corrected Temp °C         Wefice Wefice Temp °C           Client Box Other Roun #:         IR Gun #:         Image: Client Sox Other Roun #:         Image: Client Sox Other Roun #:         Wefice Wefice Roun #:         Wefice Wefice Roun #:         Wefice Wefice Roun #:         Wefice Wefice Wefice Roun #:         Wefice Wefice Wefice Roun #:         Wefice Wefice Wefice Roun #:         Wefice Wefice Wefice Roun #:         Wefice Wefice Wefice Roun #:         Wefice Wefice Wefice Roun #:         Wefice Wefice Wefice Roun #:         Wefice Wefice Wefice Roun #:         Wefice Wefice Wefice Roun #:         Wefice Wefice Wefice Roun #:         Wefice Wefice Wefice Roun #:         Wefice Wefice Wefice Roun #:         Wefice Wefice Wefice Roun #:         Wefice Wefice Roun #:         Wefice Wefice Roun #:         Wefice Wefice Roun #:         Wefice Wefice Roun #:         Wefice Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:         Wefice Roun #:	Wet ice Blue ice Dr	AMERICAN DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACT		IR GUN #:			Client	23
Coler Description         IR Gun # (Circle)         Observed Temp °C         Corrected Temp °C         Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice Wefice W	Wet Ice Blue Ice Dr Water None	NAMES OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A		IR GUN #:			Client	ñ
Coler Description         IR Gun # (Circle)         Observed Temp °C         Corrected Temp °C           Client box Other         IR GUN #:	Wet Ice Blue Ice Dr Water None			IR GUN #:			Client	2
Coler Description (Circle)         IR Gun # (Circle)         Observed Temp °C         Corrected Temp °C         Wefice Wefice           Client & box Other         IR GUN 4:	Wet Ice Blue Ice Dr Water None	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		IR GUN #:			Cllent	23
Coler Description (Circle)         IR Gun # (Circle)         Observed Temp °C         Corrected Temp °C <td>Wet ice Blue ice Dr Water None</td> <td>The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the 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	Coolant (Circle)	Corrected Temp °C	Observed Temp °C	IR Gun # (Circle)	ption	)escri ircle)	ooler [ C	Ç

**Login Container Summary Report** 

240-212372

10/30/2024

10/4/2024

Cooler Temperature(s) °C and Other Remarks:

**Eurofins Cleveland** 

180 S. Van Buren Avenue Barberton, OH 44203 Phone: 330-497-9396 Fax: 330-497-0772	Cha	in of	hain of Custody Record	dy R	ecor	ō								*	💸 eurofins	-	Environment Testing	
	Sampler			Lab PM				1			arrier Tra	Carrier Tracking No(s)	(8)	<u>8</u>	COC No.			_
Client Information (Sub Contract Lab)				Brook	Brooks, Kris M									24	240-191635.1			
Shipping/Receiving	Thone			E-Mail Kris B	E-Mail: Kris.Brooks@et.eurofinsus.com	et.eu	rofinsu	S.COM		0, =	State of Origin	igin:		g y	Page:			
Company: TestAmerica Laboratories, Inc.					Accreditations Required (See note)	ions Re	quired (	See note		1				9	Job #:			
Address: 13715 Rider Trail North	Due Date Requested:								1:	1.				7 4	240-212372-1 Preservation Codes	codes:		
City	TAT Requested (days):					H		Ana	ysis_	8	Analysis Requested	E	-					_
Earth City State, Zip																		
- 1	PO#					15								100				
314-298-8566(Tel) 314-298-8757(Fax)					7.0						_							
Email:	WO#				(0)													
Project Name Karn/Weadock CCR Groundwater Monitoring	Project #: 24024154				£ 10. 20									nonis				
Site:	**MOSS				N) as										Other:			
		Sample (C=	Sample N Type (C=comp, o-	Matrix (wewster, 8=solid, O=wasta/oil,	S benefit?, bit Sife arroth	2_qe2ɔerq\0.i	226Ra228_GF							o nedrasili la				
Sample Identification - Client ID (Lab ID)	Sample Date Tir	4	- 4	BT=Tissue, A=Air)	_	-			_		4			101	Specia	Special Instructions/Note:	s/Note:	_
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DET-MW-18001 (240-212372-1)	10/3/24 08:37 Easter	08:37 Eastern	9	Water		×	×	-						5.5	TVA protocol -	TVA protocol - Ra-226+228 action limit at	ction limit at	
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Note: Since laboratory acceditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratory or other instructions will be provided. Any changes to laboratory or other instructions will be provided. Any changes to accreditation shall 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 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	ont Testing North Central, LLC patron for analysis/tests/matrix tentral, LLC attention immediate	places the ow being analyze ity. If all requ	nership of me id, the sample ested accredii	thod, analyt s must be s ations are c	e & accre hipped ba urrent to o	ditation ck to th	complia e Eurofir turn the	nce upor is Enviro	our sub nment T	contrac esting N Sustody	laborato orth Cen	ries. This ral, LLC I to said co	sample st aboratory mpliance t	ipment is fo v other instr v Eurofins Er	warded unde uctions will be	chain-of-custo provided. Any sting North Cer	dy. If the changes to trai, LLC.	
Possible Hazard Identification					Sam	ole Dis	sposal	(A fee	may	be as	bessed	if samo	les are	etained !	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)	1 month		
Unconfirmed						] Retui	Return To Client	lient	,	ις Π	Disposal Bv Lab	vLab	Ш	Archive For	For	Months		
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank:	ank: 2			Speci	al Inst	ruction	Special Instructions/QC Requirements	Require	ments								
Empty Kit Relinquished by:	Date:			ľ	Time:						Meth	Method of Shipment:	ment:					
Relinquished by MALISSA LOAR	Date	2	Company	any	<u>~</u>	Received by	Jerra		9	#	W. Jecthinston	3	Date/Time:	7 0	0830	Company	H.	
Relinquished by:	Dath/Lime		Company	any	æ	Received by	ρλ					Dat	Date/Time:		)	Company		

inquished by.

Custody Seal No.:

Custody Seals Intact:

### **Login Sample Receipt Checklist**

Client: TRC Environmental Corporation. Job Number: 240-212372-1

Login Number: 212372 List Source: Eurofins St. Louis List Number: 2 List Creation: 10/07/24 12:24 PM

Creator: Forrest Chevenne I

Creator: Forrest, Cheyenne L		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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.	N/A	
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	
s the Field Sampler's name present on COC?	N/A	
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	



# **Appendix B Field Notes**

# TRC

PROJECT NAME:	CEC Karn LF/BAP/KLI: 2024 GW Compliance
PROJECT NUMBER:	553814.0000/553814.0001
PROJECT MANAGER:	Darby Litz
SITE LOCATION:	2742 Weadock Hwy Essexville, MI 48732
DATES OF FIELDWORK:	9/30/24/70
PURPOSE OF FIELDWORK:	Karn Sitewide Water Levels
WORK PERFORMED BY:	J. Jasso

SIGNED DATE

CHECKED BY DATE

PAGE 2 OF \$6.7



PROJECT NAME:	CEC Weadock	c LF: 2023 GW Co	SAMPLER NAME:	Javier Jasso
PROJECT NO.:	514403.0000	.0000	SAMELIN WAVIL.	Javier Jasso
WATER LEVEL MEAS	JREMENTS COLLE	CTED WITH:		
	RON DIPPER-T			TRC A2
NAME AND MODEL OF IN	NSTRUMENT		SERIAL NUMBER	(IF APPLICABLE)
PRODUCT LEVEL MEA	ASUREMENTS CO	LLECTED WITH	<b>:</b>	
	NA			NA
NAME AND MODEL OF I	NSTRUMENT		SERIAL NUMBER	(IF APPLICABLE)
DEPTH TO BOTTOM O	OF WELL MEASUR	EMENTS COLL	ECTED WITH:	
HE	RON DIPPER-T			TRC A2
NAME AND MODEL OF	NSTRUMENT		SERIAL NUMBER	R (IF APPLICABLE)
PURGING METHOD				
PER	RISTALTIC PUMP			TRC A2
NAME AND MODEL OF F	PUMP OR TYPE OF E	BAILER	SERIAL NUMBER	R (IF APPLICABLE)
SAMPLING METHOD				
PEF	RISTALTIC PUMP			TRC A2
NAME AND MODEL OF	PUMP OR TYPE OF E	BAILER	SERIAL NUMBE	R (IF APPLICABLE)
GEOTEC	H DISPOSABLE FIL	TER.		0.45 MICRON
NAME AND MODEL OF	FILTERATION DEVIC	E	FILTER TYPE AI	ND SIZE
DEDIC	ATED POLY TUBIN	IG	✓ LOV	V-FLOW SAMPLING EVENT
TUBING TYPE			_	
PURGE WATER DISF	POSAL METHOD			
☑ GROUND	☐ DRUM	POTW	POLYTANK	OTHER
DECONTAMINATION	I AND FIELD BLAN	IK WATER SOU	RCE	
S	STORE BOUGHT			LABORATORY PROVIDED
POTABLE WATER SOL	JRCE .		DI WATER SOL	JRCE (2)
SIGNED	<u> </u>	6/4/24 DATE	CHECKED BY	10-8- DATE
REVISED 04/2019	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s			



### **WATER LEVEL DATA**

PROJECT NAME:	CEC Karn/Weadock: 2024 GW Compliance	DATE: 9(30/14
PROJECT NUMBER:	553814.0001	AUTHOR: AW, JJ, JK

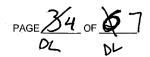
11002011101112211	735	074.0001		7.01110		
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
<b>MW</b> -01	1649	тос	17.34	24.24	NA	NM
MW-02	1650	TOC	1764	36.38	NA	NM
MW-03	1055	тос	17.47	30.75	NA	NM
MW-04	1056	TOC	16.38	33 60	NA	NM
MW-06	1115	тос	9.89	24.31	NA	NM
MW-08	1134	TOC	18.62	27.50	, NA	NM
MW-10	1157	TOC	16.90	2488	NA	NM.
MW-12	199 <	тос	18:71	24.10	NA	NM
MW-14	1742	TOC	1450	19.00	NA	NM
<b>M</b> W-16	1300	тос	14.08	21.35	NA	NM
MW-17	1343	тос	14.60	24.34	NA	NM
MW-18	6690	тос	27.45	3961	NA	NM
<b>M</b> W-19	09 59	тос	17.49	30.00	NA	NM
MW-20	1613	тос	53.00	7200	NA	NM
MW-21	1005	тос	52.10	60.00	NA	NM
MW-22	1138	тос	17.90	29.59	NA	NM
MW-23	1218	TOC	14.80	15.10	NA	NM
OW-01	ISHE	тос	3/595	A400	NA	NM
OW-02	1140	TOC	16.80	21.95	NA	NM
OW-03	1150	тос	17.60	28.70	NA	NM
OW-04	1246	тос	10.30	1626	NA	NM
OW-05	1258	тос	13.45	18.00	NA	NM
OW-06	13.76	тос	2275	2480	NA	NM
OW-07	12.20	тос	15.65	23.91	NA	NM
OW-08	1330	тос	11.43	17.90	NA	NM

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

SIGNED DATE

CHECKED TO THE CHECKED

DATE





NM; OW-12 has been decommissioned (DL - 12/5/2024)

### **WATER LEVEL DATA**

PROJECT NAME:	CEC Karn/Weadock: 2024 GW Compliance	DATE:	9/30/24
PROJECT NUMBER:	553814.0001	AUTHOR:	Jake Krenz, Javier Jasso, And

						<del> </del>
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION
OW-09	133 D	тос	10-73	12.75	NA	NM
OW-10	1345	TOC	6.60	17.95	NA	NM
OW-11	1350	тос	25.00	2550	NA	NM
→OW-12	<del>0914</del>	тос	25.00	25.44	NA	NM
OW-13	NM	TOC	NM	NM	NA	NM
OW-15	0°160	TOC	5.33	15.25	NA	NM
EW-01	1157	тос	13.98	DYM	NA	NM
EW-02	1204	TOC	15.37		NA	NM
EW-03	1214	тос	14.61		NA	NM
EW-04	1231	тос	1460		NA	NM
EW-05	1238	тос	14.10		NA	NM
EW-06	12.46	тос	1095	V	NA	NM
PZ-01	1144	тос	Dry	14.10	NA	NM
PZ-02	1144	тос	15.70	23.10	NA	NM
PZ-03	1901	тос	15.25	19.60	NA	NM
PZ-04	1207	TOC	1490	2095	NA	NM
PZ-05	1910	тос	14.75	21.18	NA	NM
PZ-06	1228	тос	1532	20.33	NA	NM
PZ-07	133	тос	1490	21.00	NA	NM
PZ-08	1236	тос	1464	2054	NA	NM
PZ-09	1244	тос	15.36	21.41	NA	NM
PZ-10	1258	TOC	11.23	17.74	NA	NM
PZ-11	1254	TOC	12.93	18.10	NA	NM

ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

a) 10/4/20

CHECKE

DATE



### **WATER LEVEL DATA**

DDO IECT NAME.	CEC 1/2 == 1	Mondonia 2024 (	NA Compliance		DATE:	<i>c</i> 1			
(1,20 ls.)									
PROJECT NUMBER:	5538	14.000			AUTHO	₹: Ј	Jasso		
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPTI BOTT (FEE	гом	PRO	TH TO DUCT ET)		ATER /ATION
DEK-MW-18001	6909	TEC	10.18	196	26	٨	/Α	N	M
DEK-MW-15002	0908	\	8.38	154	76 L				
DEK-MW-15003	0917		19.84	27.	90				
DEK-MW-15004	3970		29.46	41.8	25				
DEK-MW-15005	0930		10.00	22	30				
DEK-MW-15006	NM		NW	NΛ	$\wedge$				
DEK-MW-22001	0937		10.67	24	18				
DEK-MW-22002	6934		12.50	26	90	-1			
DEK-MW-22003	0938		12.75	24	,44				
DEK-MW-22004	0436		1118	22.	45				
DEK-MW-22005	0943		9.74		,				
DEK-MW-22006	०९५१		1057	19.1	10				
TUMAN #5002 003	1033		1831	2ie.					
TUMV-1240000)	1035		13.00	30	1				
TUDAL 606	1044		1293	17	59				
TUMBUHSON 13	1056		23,00	34	5'3				
Tw-21-0625	1103		20.59	2)	१				
Tu-21 012 I	. 1		20:75	360	43				
Tw 216125	1105		20.57	54	70				
Tw 21-0115	1130		99.00	27.	.Coc				
Tw 21-011I			21.78	35	270				
Tu. 21-6115			23.03	52	٠,3 ۲				
Tu-21-010			21.10	28					
Tu-21.000			32.00	27	.91				
TW-21.008			14.16		.Ex		V		V

	ALL WATER LEVELS MUST II	NCLUDE REFER	RENCE POINT AND TAPE COR	RRECTION FACTOR	1
-17			+ 0.00 T/PVC).		
9/10/	4/1		El-h	2-WJ	10-8-24
SIGNED	-64	DATE	CHECKED	A	DATE
SIGIVED		DAIL	SHEORE		Ditte



### **WATER LEVEL DATA**

PROJECT NAME:	CEC KARN LF 2023 GW COMLPIANCE DATE: 9						
PROJECT NUMBER:	514404.000	14404.0000.0000 AUTHOR: J JASSO					
WELL LOCATION	TIME	REFERENCE	DEPTH TO WATER (FEET)	DEPTH TO BOTTOM (FEET)	DEPTH TO PRODUCT (FEET)	WATER ELEVATION	
Tu-21-007	1310	TOC	13.05	18.80	NA	NM	
Tu-21-006	131)	TOC	10.00	13.50			
TW 21-005	1314	TOU	10.88	14.60			
700-21-004	1319	Toc	13.31	16-ley	$\bigvee$	V	
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<u> </u>					A5 WALES		
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ALL WATER LEVELS MUST INCLUDE REFERENCE POINT AND TAPE CORRECTION FACTOR (E.G., 1.1 + 0.00 T/PVC).

10/4/21 SIGNED DATE

CHECKED

DATE

DATE

REVISE 04/2019



PROJECT NAME:	CEC Karn LF: 2024 GV	V Complia	DATE: 9-30	-24	TIME ARRIVED: 615
PROJECT NUMBER:	553814.0000	0.000	AUTHOR: JJ		TIME LEFT: 1330
	guenasa et I. den en de	Epocara de la Cara		ed dan je sad, podladanskih dana	
			WEATHER		
TEMPERATURE:	4 °F WIND:	5-1	o MPH	VISIBILIT	TY: <u>clear</u>
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		C	OMMUNICATION		
NAME	REPRESENTING			SUBJECT / COMM	MENTS
Darby Litz	TRC		Jpdates		
Jon Gaeth	Consumers	Site (	Contact		
			·		
	A CONTRACTOR OF THE SECOND STREET	rigatioi	N DERIVED WASTE	SUMMARY	
WASTE MATRIX	QUANTITY			COMMENT	S
Groundwater	NM	To G	round		
	-			····	

REVISED 04/2019

SIGNED



PROJECT NAME:	CEC Karn BAP/LI: 2024 GW Compliance
PROJECT NUMBER:	553814.0001.0000
PROJECT MANAGER:	Darby Litz
SITE LOCATION:	2742 Weadock Hwy Essexville, MI 48732
DATES OF FIELDWORK:	10/3/2024 FOR
PURPOSE OF FIELDWORK:	Fourth Quarter 2024 Groundwater Sampling
WORK PERFORMED BY:	J. Jasso, J. Krenz, E. Rinehart

SIGNED DATE

CHECKED BY

10/8/24

DATE



PROJECT NAME:	CEC Karn BAP/LI: 2024	GW Comp DATE:	10/3/26	TIME ARRIVED: 672					
PROJECT NUMBER	553814.0001.	0000 AUTH	OR: (JJ) JK AW	TIME LEFT:					
WEATHER									
TEMPERATURE: (	O °F WIND:		VISIBILITY	COUR CR					
11	W	ORK / SAMPLING	PERFORMED						
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msD, mu	18, Dyp #	ol, FIB *0							
		*							
PROI	BLEMS ENCOUNTERE	ED	CORRECTIVE	ACTION TAKEN					
		0.011111111							
NAME	REPRESENTING	COMMUNIC	SUBJECT / COMME	MTS					
Darby Litz	TRC	PM - Updates	GOBOLOT / GOINIVIL	INTO					
Jon Gaeth	Consumers	Site Contact							
INVESTIGATION DERIVED WASTE SUMMARY									
WASTE MATRIX	QUANTITY		COMMENTS						
Groundwater	NM	Purge to Ground							
	£	4'							
Market 200/kit 2000	10 (4/)	<u>U</u>	il M	10/8/21					
SIGNED	ne. *	DATE	CHECKED BY	DATE					

REVISED 04/2019



PROJECT NAME:	CEC Karn LF: 2024 GW Co	mplian DATE:	10/3/24	TIME ARRIVED: 7.20
PROJECT NUMBER:	553814.0000.000	00 AUTHO	R: <del>JK, JJ, ER</del> - AK	TIME LEFT: 2053
		WEATHE		
TEMPERATURE: うえ	/74 °F WIND: 1		VISIBIL	ITV: Clasic
TEIMI EIGHTOILE. JA	<del></del>			TIY: CW3C
0		K / SAMPLING		
Arrive on site	@ 7:20, meet	with te	am to discuss	sorder of sampling
57017 30MB11	ud [H-10] m	Elrich, =	sampt 219pili	zing LH-102 individ
sample ow-	10, 0w-11	5 - 0	براه م ماله .	data to Elvic
CO1004 4001	1200CCC 9949	705 C	wens, sent	Days to FILC
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ON-11 200 gc	100062 abbit	s ub of	CAILLY PM 1	to discuss what,
not collected	y, Vidde sampl , insufficient wat	er (DI)		mples - discarded
,			1 L bottle De	)
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<del>.</del>	· · · · · · · · · · · · · · · · · · ·	COMMUNIC	ATION	
NAME	REPRESENTING		SUBJECT / COM	MENTS
Darby Litz	TRC P	M/Updates		
Jon Gaeth	Consumers S	ite Contact		
		***************************************		
	INVESTIGA	TION DERIVED	WASTE SUMMARY	
WASTE MATRIX	QUANTITY		COMMEN	TS
Groundwater	NM T	o Ground		
a	in lar in			11111
MANU TOOK!	A 10/8/15	4		10-8
SIGNED		DATE	CHECKED BY	DATE



	CEC Karn BAP/LI: 2024	GW Comp DA	TE: /	0-3.24	TIME ARRIVED: 7/>
PROJECT NUMBER:	553814.0001.0	0000 AU	THOR:	JJ JK KK	TIME LEFT: 3 2053
		\a/E	ATUED	<del> </del>	
	10.1		ATHER		01
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	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	ORK / SAMPL		and the second second	
Sumpk	OW-2, ( 160-1500s, DE) Com de h	16-7,	DEF	L-MW-15	1005, OD-11
DEK-N	W-15003 DEI	K.Mw-	15006	DEK-HU	-15002
Collected	· Com dunt	Br	wells		
		· ·			
M-MAN-IN					
PROE	LEMS ENCOUNTERE	D		CORREC	TIVE ACTION TAKEN
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wh					
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W dv	REPRESENTING		UNICATI		
NAME			JNICATI	ON	
NAME Darby Litz	REPRESENTING	сомми	<b>JNICATI</b>	ON	
NAME Darby Litz	REPRESENTING TRC	COMMI PM - Upda	<b>JNICATI</b>	ON	
NAME Darby Litz	REPRESENTING TRC	COMMI PM - Upda	<b>JNICATI</b>	ON	
NAME Darby Litz	REPRESENTING TRC Consumers	PM - Upda Site Conta	<b>UNICATI</b> ates	ON SUBJECT / CC	
NAME Darby Litz Jon Gaeth	REPRESENTING TRC Consumers	PM - Upda Site Conta	<b>UNICATI</b> ates	ON SUBJECT / CO	DMMENTS
NAME Darby Litz Jon Gaeth  WASTE MATRIX	REPRESENTING TRC Consumers	PM - Upda Site Conta	UNICATI ates ct	ON SUBJECT / CC	DMMENTS
NAME Darby Litz Jon Gaeth  WASTE MATRIX	REPRESENTING TRC Consumers INVESTI	PM - Upda Site Conta	UNICATI ates ct	ON SUBJECT / CO	DMMENTS
NAME Darby Litz Jon Gaeth	REPRESENTING TRC Consumers INVESTI	PM - Upda Site Conta	UNICATI ates ct	ON SUBJECT / CO	DMMENTS
NAME Darby Litz Jon Gaeth  WASTE MATRIX	REPRESENTING TRC Consumers INVESTI	PM - Upda Site Conta	UNICATI ates ct	ON SUBJECT / CO	DMMENTS
NAME Darby Litz Jon Gaeth  WASTE MATRIX	REPRESENTING TRC Consumers INVESTI	PM - Upda Site Conta	UNICATI ates ct	ON SUBJECT / CO	DMMENTS
NAME Darby Litz Jon Gaeth  WASTE MATRIX	REPRESENTING TRC Consumers  INVESTI QUANTITY NM	PM - Upda Site Conta	UNICATI ates ct	ON SUBJECT / CO	DMMENTS

# **\$TRC**

### WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	CEC Weadock LF: 2024 GV	V Complian	ice	MODEL C D	SS	SAMPLER;	JJ
PROJECT NO.:	553828.0000.0000			SERIAL#: A	V/	DATE: (0/3/	54
PH (	CALIBRATION CHECK			SP	ECIFIC CONDU	CTIVITY CALIBE	RATION CHECK
(LOT #): 365018 (EXP. DATE): 605	pH 4 / 10 (LOT #): (L(U))   3   C (EXP. DATE): L(f) C POST-CAL. READING / STANDARD	CAL. RANGE	TIME	(LOT #): (( (EXP. DATE):	READING  GE 0784  SO S  READING/STANDARD	TEMPERATURE	CAL RANGE TIME
70170	uce / yee	WITHIN RANGE		136	6/136	23	WITHIN CONTRACTOR
<u>'</u>	,	RANGE WITHIN			,	:	RANGE
1	,	RANGE WITHIN			,	<del></del>	RANGE
ORP	CALIBRATION CHECK	RANGE		J	D.O. CAL	IBRATION CHE	RANGE CK
CAL. READING (LOT #): 73 / 164 3 (17) (EXP. DATE): 913 W POST-CAL. READING / STANDARD	TEMPERATURE (*CELSIUS)	CAL. RANGE	TIME		READING	TEMPERATURE	CAL RANGE TIME
<u> </u>	73	WITHIN RANGE WITHIN RANGE WITHIN RANGE		83	( । <b>८३</b> । । ।	23	WITHIN RANGE WITHIN RANGE WITHIN RANGE
1		WITHIN			1		WITHIN
TURBID	ITY CALIBRATION CHEC					COMMENTS	
(LOT #): 1/2007 (EXP. DATE): LLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLL	READING (NTU) (LOT #): (EXP. DATE): POST-CAL. READING / STANDARD	CAL RANGE	TIME	(LOT #): (EXP. DATE)	CAL SOLUTION  : TED PARAMETERS	LIST LOT NUMBERS A UNDER CALII	O SOLUTION (S)  AND EXPIRATION DATE  BRATION CHECK  ON RANGES (1)
/ / .	/	WITHIN		·	pH	pH: +/- 0.2 S.	
Les / Lee	1	RANGE WITHIN RANGE WITHIN RANGE	asi		COND ORP		F CAL. STANDARD
/	/	WITHIN		]   _	D.O.	D.O.: VARIES	
	NOTES				TURB	(1) CALIBRATION RA	F CAL. STANDARD  NGES ARE SPECIFIC 1  WATER QUALITY MET
	PROBLEMS ENCOUNTERED				CORRECT	IVE ACTIONS	
SIGNED	) 1d4/20	DATE	_	CHEC	CKED BY	PD.	10-8 DATE

# ? TRC

### WATER QUALITY METER CALIBRATION LOG

F	PROJECT NAME:	CEC Karn BAP/LI: 2024 GW	/ Compliand	ce	MODEL:	Susatro	rll	SAMPL	ER:	JK, JJ,Œ[	<u>}_</u>	
F	PROJECT NO.:	553814.0001.0000			SERIAL#	lasitu	,	DATE:	9/30	124 -	10/3/	24
-	PH (	CALIBRATION CHECK				SPEC	CIFIC CONDU	CTIVIT	Y CALIBR	RATION C	HECK	
	pH 7  LOT #): 412 0 0 3 7 0  EXP. DATE): Apr (16  POST-CAL READING / STANDARD	pHØ/10 (LOT #): <b>3&amp;10691</b> (EXP. DATE): Sep / 25 POST-CAL. READING/STANDARD	CAL. RANGE	TIME		(LOT #): <b>46</b> E	EADING 0784 Lw/25 Ding/standard		ERATURE	CAL. RANGE	TIME	
<u> </u>		4.0 / 4.0	WITHIN	9:05	9-50		1 1260	10	1.8	WITHIN RANGE	9:15	
10-1+	7.02/7.02	4.0 / 4.0	WITHIN	8:45	10-1	1260	11260	19.	3	WITHIN	8.55	
0-2	7.62 7.00	40 140	WITHIN	1510	K-10-1		4			WITHIN		e d
10-5	7.06 / 7.06	4.0 / 4.0	WITHIN RANGE	750	10-5	1070	11070	11.	85	WITHIN RANGE		
. • J		CALIBRATION CHECK	· · · · · · · · · · · · · · · · · · ·	I	_			IBRAT	ION CHEC	K		•
,	CAL. READING (LOT #)? TLK (00 140 (EXP. DATE): 2027/10/11 POST-CAL. READING / STANDARD	TEMPERATURE (*CELSIUS)	CAL. RANGE	TIME			READING	(°C	ERATURE	CAL. RANGE	TIME	
4150	2.29 / 7.29	20.39	WITHIN		a 50	9.08	19.08	+	83	WITHIN		1
10-1	231 / 231	19.93	WITHIN		ાજે-ા	9.03	19.00	18.	98	WITHIN	000	*
(0		10.0	Ø WITHIN	217	EKTON				7.2	WITHIN		EN
	240 /240	12.42	✓ RANGE		10.0	10.5	110.5	11	Y &	WITHIN	011	1
10-3		DITY CALIBRATION CHE	RANGE CK	100	]0-3	10.5	,,,,,	COM	WENTS	RANGE	P - V	]
i		READING (NTU)	1		7	AUTOCA	L SOLUTION	V	STANDARD	SOLUTION	(S)	1
	(LOT #): A3067 (EXP. DATE): A00-/25	(LOT #): (EXP. DATE):	CAL. RANGE	TIME		(LOT #): (EXP. DATE):		LIST LC	T NUMBERS A			3
	POST-CAL READING / STANDARD	POST-CAL. READING / STANDARD	+	ļ.		CALIBRATE	D PARAMETERS		CALIBRATI	ON RANGES	(1)	1
91-70	(3) / (3)	1	WITHIN			☐ pH	1	pH:	+/- 0.2 S.	U.		
104	100 / W	1	WITHIN RANGE	6:51	Ī,		DND	COND	+/- 1% 0	F CAL. STA	NDARD	
104			RANGE		Eh	□ or	RP	ORP:	+/- 25 m\	/		
10-3	(00 / 69)	/	WITHIN			□ D.	O.	D.O.:	VARIES			
10-5		NOTES	1 70 1101	-1000	_	П т	JRB	TURB:	+/- 5% O	F CAL, STA	NDARD	
10-1	LaMOTTE, 202		0/0	8:15	-			(1) CAL	BRATION RA	NGES ARE S	PECIFIC TO	
10-3	10/00,0		-,-	9.9 8					DDEL OF THE			
•				W.100.71		<u> </u>						_
		PROBLEMS ENCOUNTERED					CORREC	TIVE ACT	ONS			
	<u> </u>				-							7
		1										
	SIGNED M	1/30/	DATE			CHECK	SED BY W	You	h	101	6/24 DATE	<u> </u>
6	(/// J/ // //	10-3	-24									



### WATER QUALITY METER CALIBRATION LOG

PROJECT NAME:	CEC Karn BAP/LI: 2024 GW	Compliand	ce	MODEL: 451 Pro DS	SAMPLER:	JK, JS	2/AV
PROJECT NO.:	553814.0001.0000			SERIAL#:	DATE: LO	3-24 1	0/3/
PH C	CALIBRATION CHECK			SPECIFIC	CONDUCTIVITY CAL		
рН 7 (LOT #): ЦС <b>ДО 7-7</b> (С	PH4/10 (LOT #): 4(5) 13 17 (EXP. DATE): ARRAGE POST-CAL READING / STANDARD	CAL. RANGE	TIME	CAL. READII (LOT #): 4 (LE O 7) (EXP. DATE): MAY POST-CAL. READING / S	NG TEMPERATURE (*CELSIUS)		TIME
7.05/7.05	4.0 /4.0	X WITHIN RANGE	0756	1063 / 10	063 12.8	WITHIN RANGE	0758
1	1	☐ WITHIN RANGE				☐ WITHIN RANGE	
1	-1	☐ WITHIN RANGE		/		☐ WITHIN RANGE	
1	. 1	WITHIN RANGE		/		☐ WITHIN RANGE	İ
ORP	CALIBRATION CHECK	1	<u> </u>		D.O. CALIBRATION CI	IECK	
CAL. READING	TEMPERATURE			CAL. READI	ING TEMPERATU	RE	
(LOT #):2 3 G10 OC) 46 (EXP. DATE): 2028 /07/04	(°CELSIUS)	CAL. RANGE	TIME		(°CELSIUS)	CAL RANGE	TIME
POST-CAL, READING / STANDARD		F=3		POST-CAL. READING /SA		La MUTHIN	
241.31241.3	12.5		0802	10.41	10.4 12:4	WITHIN RANGE	+
1		RANGE	<u> </u>	,		RANGE	
		RANGE				RANGE	
/		WITHIN RANGE				RANGE	
TURBID	ITY CALIBRATION CHEC	CK		_	COMMENTS		
	READING (NTU)		i	AUTOCAL SOL	UTION  STAND	ARD SOLUTION	I (S)
(LOT #): 24004711 (EXP. DATE): 2/25	(LOT#): 232502120 (EXP. DATE) \$1/14	CAL. RANGE	TIME	(LOT #): (EXP. DATE):		RS AND EXPIRAT CALIBRATION CHI	
POST-CAL. READING / STANDARD	POST-CAL READING / STANDARD	1		CALIBRATED PARA	AMETERS CALIB	RATION RANGES	(1)
0.0 / 0.0	10.397 10.0	WITHIN	0815	□ рН	pH: +/- 0	2 S.U.	
1	10.01	☐ WITHIN		☐ COND	COND: +/- 1	% OF CAL. STA	NDARD
1	1	☐ WITHIN		☐ ORP	ORP: +/- 2	5 mV	
1	1	WITHIN RANGE		D.O.	D.O.: VAR	IES	
<u> </u>	NOTES	•	-1	☐ TURB	TURB: +/- 5	% OF CAL. STA	NDARD
				]		N RANGES ARE S THE WATER QUA	
	PROBLEMS ENCOUNTERED				CORRECTIVE ACTIONS		· · · · · · · · · · · · · · · · · · ·
allen Fat	10/3	(24 DATE		CHECKED BY	M	10	-8-8 DATE



	Cain HAPILI 706						
PROJECT NAME:	CEC Weadock LF: 2923 GW C	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s					
PROJECT NO.:	514403,0000,0000 (DL)	CANTILLETTY WILL					
WATER LEVEL MEASU	IREMENTS COLLECTED WITH:						
	RON DIPPER-T	TRC A2					
NAME AND MODEL OF IN		SERIAL NUMBER (IF APPLICABLE)					
PRODUCT LEVEL MEA	SUREMENTS COLLECTED WIT	H:					
	NA	NA NA					
NAME AND MODEL OF IN	ISTRUMENT	SERIAL NUMBER (IF APPLICABLE)					
DEPTH TO BOTTOM O	F WELL MEASUREMENTS COL	LECTED WITH:					
	RON DIPPER-T	TRC A2					
NAME AND MODEL OF IN		SERIAL NUMBER (IF APPLICABLE)					
PURGING METHOD							
	ISTALTIC PUMP	TRC A2					
NAME AND MODEL OF F	PUMP OR TYPE OF BAILER	SERIAL NUMBER (IF APPLICABLE)					
SAMPLING METHOD							
PER	ISTALTIC PUMP	TRC A2					
NAME AND MODEL OF F	PUMP OR TYPE OF BAILER	SERIAL NUMBER (IF APPLICABLE)					
GEOTECH	I DISPOSABLE FILTER	0.45 MICRON					
NAME AND MODEL OF I		FILTER TYPE AND SIZE					
		TI LOW ELOW CAMPLING SVENT					
TUBING TYPE	ATED POLY TUBING	LOW-FLOW SAMPLING EVENT					
PURGE WATER DISP	OSAL METHOD						
✓ GROUND	☐ DRUM ☐ POTW	POLYTANK OTHER					
DECONTAMINATION	AND FIELD BLANK WATER SO	URCE					
S	TORE BOUGHT	LABORATORY PROVIDED					
POTABLE WATER SOL		DI WATER SOURCE					
Constitution of the second	16/4/24	10-8-24					
SIGNED	DATE	CHECKED BY DATE					
REVISED 04/2019	under the second second second second second second second second second second second second second second se						



PROJECT NAME: CEC Karn BAP/L: 2024	GW SAMPLER NAME: J. Jasso, J. Krenz, E. Rinehart
PROJECT NO.: 553814.0000	SAIVIT-LER TYAIVIL. J. JASSU, J. RIETZ, E. RIITETIAN
WATER LEVEL MEASUREMENTS COLLECTED WIT	H:
HERON DIPPER-T	TRC A2
NAME AND MODEL OF INSTRUMENT	SERIAL NUMBER (IF APPLICABLE)
PRODUCT LEVEL MEASUREMENTS COLLECTED V	VITH:
NA	NA
NAME AND MODEL OF INSTRUMENT	SERIAL NUMBER (IF APPLICABLE)
DEPTH TO BOTTOM OF WELL MEASUREMENTS C	OLLECTED WITH:
HERON DIPPER-T	TRC A2
NAME AND MODEL OF INSTRUMENT	SERIAL NUMBER (IF APPLICABLE)
PURGING METHOD	
PERISTALTIC PUMP	TRC A2
NAME AND MODEL OF PUMP OR TYPE OF BAILER	SERIAL NUMBER (IF APPLICABLE)
SAMPLING METHOD	
PERISTALTIC PUMP	TRC A2
NAME AND MODEL OF PUMP OR TYPE OF BAILER	SERIAL NUMBER (IF APPLICABLE)
GEOTECH DISPOSABLE FILTER	0.45 MICRON
NAME AND MODEL OF FILTERATION DEVICE	FILTER TYPE AND SIZE
DEDICATED POLY TUBING	☑ LOW-FLOW SAMPLING EVENT
TUBING TYPE	
PURGE WATER DISPOSAL METHOD	
☑ GROUND ☐ DRUM ☐ POT	W DOLYTANK DOTHER
DECONTAMINATION AND FIELD BLANK WATER S	OURCE
STORE BOUGHT	LABORATORY PROVIDED
POTABLE WATER SOURCE	DI WATER SOURCE
Sha A M 9/30/	24 MMM VOLK 1018124
SIGNED CAT	E CHECKED BY DATE



PROJECT NAME: CEC Kain 3	APILL GW	SAMPLER NAME:	J. Jasso, J. Krenz, E. Rinehan, A. Kast				
PROJECT NO.: 553814.00							
WATER LEVEL MEASUREMENTS	COLLECTED WITH:						
HERON DIPPER	R-T		TRC A2				
NAME AND MODEL OF INSTRUMENT		SERIAL NUMBER (IF APPLICABLE)					
PRODUCT LEVEL MEASUREMEN	TS COLLECTED WITH	<del>1</del> :					
NA		·	NA				
NAME AND MODEL OF INSTRUMENT		SERIAL NUMBE	R (IF APPLICABLE)				
DEPTH TO BOTTOM OF WELL ME	ASUREMENTS COLL	ECTED WITH:					
HERON DIPPER	R-T		TRC A2				
NAME AND MODEL OF INSTRUMENT		SERIAL NUMBE	R (IF APPLICABLE)				
PURGING METHOD							
PERISTALTIC PU	JMP		TRC A2				
NAME AND MODEL OF PUMP OR TYP	E OF BAILER	SERIAL NUMBE	R (IF APPLICABLE)				
SAMPLING METHOD							
PERISTALTIC PU	JMP	TRC A2					
NAME AND MODEL OF PUMP OR TYP	E OF BAILER	SERIAL NUMBER (IF APPLICABLE)					
GEOTECH DISPOSABI	_E FILTER	0.45 MICRON					
NAME AND MODEL OF FILTERATION	DEVICE	FILTER TYPE A	ND SIZE				
DEDICATED POLY	rubing	✓ LOV	V-FLOW SAMPLING EVENT				
TUBING TYPE		<u>.                                    </u>					
PURGE WATER DISPOSAL METH	OD						
☑ GROUND ☐ DRUM	I POTW	DOLYTANK	OTHER				
DECONTAMINATION AND FIELD I	BLANK WATER SOUP	RCE					
STORE BOUG	нт		LABORATORY PROVIDED				
POTABLE WATER SOURCE		DI WATER SOU	RCE				
SIGNED YEAT	10/24/2	CHÈCKED BY	10-24-24 DATE				

# ○ STRC

PROJECT	NAME:	CEC K	arn RAP/WS	P: Additiona	PR	EPARED	-	CHE	ECKED
PROJECT	NUMBER	R: 553814	1.0002.0000	BY:	AW, JJ, JK,	ER DATE(C	() ( BY:	ER	DATE: 10-8-24
SAMPLE	D:DFK.	- Mle	18001	WELL DIAM	/IETER: 🗸	2"	6" OTH	IER	
WELL MAT		☑ PVC	ss [	IRON 🗌 GAI	VANIZED S	STEEL	□ от⊦	IER	
SAMPLE T	YPE:	☑ GW	□ ww □	SW 🗌 DI		LEACHATE	□ от⊦	IER	
PURG	SING	TIME & &	0 2 D	ATELULZ 124		AMPLE	TIME: O'V		DATE: 1013/34
PURGE METHOD	٠	PUMP BAILER	PERISTALTIC	PUMP		<u> ら.パナ</u> s <u>- ファゼ</u> m		1.60	mg/L umhos/cm
DEPTH TO	WATER:	1018	T/ PVC		TURBI	4 -	NTU		
DEPTH TO	воттом:	19.68	T/ PVC		ДДио		GНТ □	MODERATE	☐ VERY
WELL VOL	UME:	NA	LITERS	GALLONS	TEMPE		<u>}`)</u> ℃	FERROUS Fe	: mg/L
VOLUME F	REMOVED:	<u> </u>	LITERS	GALLONS	COLO	r clea	<u> </u>	ODOR:	VOV_
COLOR:		109/	or	DOR: 100 N	FILTRA	TE (0.45 um)	YES	Ø NO	
	_		BIDITY			TE COLOR:		FILTRATE OD	OR:
NONE	SLI		MODERATE	VERY		MPLE: A MS	/MSD	DUP-	
DISPOSAL	METHOD:	☑ GROUN	ID DRUM	I ∐ OTHER	COMM	IENTS:			
TIME	PURGE RATE	PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMPERATU	JRE WATER	
	(ML/MIN)	(SU)	(umhos/cm)	(mV)	( mg/L)	(NTU)	(°C)	(FEET	
6000	200	$g_{\mathcal{F}}$	1249	-114	lo	13	13.5	- 10.14	INITIAL
0007		ઇ.1ઇ	957	-179	1.97	4.1	13.6	1030	'   1
0817		8.K	945	- 191	1, 39	4.4	13.6	1030	a
0817		6.13	444	- 205	1.21	4.3	13.6	1030	3
4630		8.13	943	. 318	Llo	4.3	134	1070	ų į
063J		8 13	947	206	1.09	4.3	13.7	1030	,
6837		812	941	778	1.00	4.3	13,5	1030	9
<i>(</i> 837		8 12	941	-378	1.00	4.3	13.7	1030	7
09-7-1									J
	***************************************	***************************************							
<u> </u>	NOTE: STA	BII IZATION	LTEST IS CON	/PLETE WHEN 3	SUCCESS	IVE READINGS	L ARE WITHIN	THE FOLLOW	MING LIMITS:
pH: +/-		COND.: +/-			i.O.: +/- <b>0.3</b>			= 10</td <td>TEMP.: +/-</td>	TEMP.: +/-
BOTTLES	FILLED	PRESERV	ATIVE CODES	A - NONE	B - HNO3	C - H2SO4	D - NaOl	H E-	HCL F
NUMBER	SIZE	TYPE	PRESERVAT	TIVE FILTERE		ER SIZE	TYPE	PRESERVA	ATIVE FILTERED
r	250 mL	PLASTIC	Α		м 3	125 mL	PLASTIC	D	
3	125 mL	PLASTIC	Α		N	40 mL	VOA	E	□ Y @ N
W	60 mL	VOA	Α		N 2	1L	PI	B	
3	125 mL	PLASTIC	В		N				☐ Y ☐ N
ß	125 mL	PLASTIC	С		N				☐ Y ☐ N
SHIPPING	METHOD:	Feder		ATE SHIPPED:	10/3/	2024	AIRBILL	NUMBER:	
COC NUMI	BER:		S	GIGNATURE:			DATE SI	GNED: / /	14111
									1

# ◆ TRC

										_
PROJECT	Γ NAME:	CEC K	(arn LF: 2024	GW Comp	PR	EPARED		CHECK	KED	]
PROJECT	T NUMBE	R: 55381	4.0000.0000	BY:	JK, JJ, 🛭	DATE:/0/3	ZY BY.W	that with	DATE: W16/24	]
SAMPLE	ID: DE	K-ML	0 - 15005	WELL DIAM	IETER: 🗸	2"	6"  OTH	ER		ĺ
WELL MAT	ΓERIAL:	☑ PVC	□ ss □	IRON  GAL	VANIZED	STEEL	□ отн	ER		
SAMPLE T	YPE:	☑ GW	□ ww □	SW □ DI		LEACHATE	□ отн	ER		
PUR	GING	TIME: //	113 DA	TE: 10/3	S	SAMPLE	TIME: //	46 DA	TE: 10-3-24	]
PURGE			PERISTALTIC I	PUMP (	***************	7.62 S		TIVITY: /361.	umhos/cm	-
METHO	ᆜ	BAILER				<u>-//3.9</u> m		<b>0.95</b> mg/	L	
	O WATER:				TURB	IDITY: 0,4		MODERATE	C VEDV	
	о воттом							MODERATE	☐ VERY	
VELL VOL				GALLONS		ERATURE: /		FERROUS Fe	mg/L	-
	REMOVED		· ·	GALLONS		OR: <u>C/e</u>			<u></u>	4
COLOR:	<u>Cre</u>	ia,		OR: <b>//6</b>		ATE (0.45 um)	☐ YES			DUR-
NONE	□ 811		BIDITY MODERATE	☐ VERY		ATE COLOR: AMPLE: ☐ MS	 S/MSD	FILTRATE ODOR:	14-1349-01 ^E , Linse)	KOEK-B
			ND DRUM			MENTS: 115	<u></u>	1,0	0. \	101
3101 0071		- OROGI	- Drow	- OTTIER	TOOIVIII	145.	ito jurb			
TIME	PURGE RATE	PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMPERATU	RE WATER LEVEL	CUMULATIVE PURGE VOLUME	"id: UM
	(ML/MIN)	(SU)	(umhos/cm)	(mV)	( mg/L)	(NTU)	(°C)	(FEET)	(GAL OR L)	" " Wald 2"
113	200	7.69	1326.3		7.3	6.93	16.88		INITIAL	factions analysis
116		7.7	1345.	The second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of the second contract of	1.06	1.92	14.8	10.74	0.6	(1-)
119	·	7.7	1359.7	-88.0	1.01	9.04	14.7	10.76	1.7	
122		7.7	1368.7	-99.4	1.0	12.84	14.71	10.71	1.8	
125		7.69	1364.5	-106.0	0.99	23,61	14.72	10.70	2.4	
1128		7.68	1347.5	109.5	0.98	31.46	14.23	16.74	3.0	犬
1131		7.69	1367.9	- 86.9	1.03	0,6	14.95	10.74	3.6	
11 34	1 1	7.67	1321.6	-103.6	0.97	1.85	14.82	10.74	4.7	
1137		7.65	1318.4	-109.2	0.96	5.31	14.72		4.8	
1140	V	1 -		-111.5	0.96	8.38	14.7		5.4	
	NOTE: STA							THE FOLLOWIN	G LIMITS:	<b>-</b>
pH: +/-		COND.: +/-			.O.: +/- <b>0.3</b>				TEMP.: +/-	
		PRESERV	ATIVE CODES	A - NONE	B - HNO3	C - H2SO4	D - NaOH	E . HC	L F	7
NUMBER	1	TYPE	PRESERVATI	ı	- I		TYPE	PRESERVATIV		1
<del></del>	250 mL	PLASTIC	A		NOT		PLASTIC	D	DY DN	1
<u> </u>	125 mL	PLASTIC	A		N	40 mL	VOA	E	Y	
x	60 mL	VOA	A		N 2	- 16	Plastic	O	O Y D N	-
4	125 mL	PLASTIC	В		N		1,05,0		DY DN	~
K	125 mL	PLASTIC	С		N		4.114.4	er forst dans dans i den kreen er spreiden i den enkreer gemeine spreiden er som	D Y D N	
SHIPPING	METHOD:	Dran - 10	F 6- D/	ATE SHIPPED:	10-4	-24	AIRBILL I	NUMBER: -		Ī
OC NUM				GNATURE:	6/	2 m	DATE SIG	SNED:	10-1-24	
					1/0-1	- 11- 4/	_ 1 0.0		J 100	1



# * TRC WATER SAMPLE LOG (CONTINUED FROM PREVIOUS PAGE)

PROJECT NAME:	CEC Karn BAP/LI: 2024 GW Co		PREPARED	CHECKED
PROJECT NUMBER:	553814.0001.0000	BY:	JK, JJ, ER DATE: 10/5/24	BY: WALL DATE: 10/6/7

SAMPLE	AMPLE ID: /DE/K-MW-15005		-MW-15005								
TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. ( mg/L)	TURBIDITY (NTU)	TEMPERATURE	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)		
1143	200	7.63	1374.9	-11Z.y		0.65			6. O	LM - w	
1146	200	7.62	1	-113.9		0.45			6.6		
i X								and the second term of the second terms of	And devices the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the contr		
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SIGNATURE: January 1887

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COLOR:	Gr	cy .		DDOR:		FILTRAT	E (0.45 um)	☐ YES	; 🗆	NO		
			FILTRATE	E COLOR:	THE SPECK S. LEWIS CO. CO., T. CO., CO., CO., CO., CO., CO., CO., CO.	Fil	TRATE OF	OOR:				
Z NONE	☐ SL	IGHT 🗌	MODERATE	☐ VEI	RY	QC SAM	IPLE: 🗌 MS	/MSD		DUP-		
DISPOSA	L METHOD	☑ GROU	ND 🗌 DRUI	VI ☐ OTHER	₹	COMME	NTS:	E	after	rech	~90	
TIME	PURGE RATE	PH	CONDUCTIVIT	Y ORP		D.O.	TURBIDITY	TEMPE	RATURE	WATER		
	(ML/MIN)	(SU)	(umhos/cm)	(mV)	(	mg/L)	(NTU)	('	°C)	(FEET		
13 66	>101	8.3	388.38	202	4	1.16 /	1109.3	Z6.	28	25.0	) INITIAL	
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L	075 074		TEOT 10 001									
pH: +/-		COND.: +/-		P: +/- 10		+/- 0.3	TURB: +/-		or =</td <td></td> <td>WING LIMITS: TEMP.: +</td>		WING LIMITS: TEMP.: +	
BOTTLE	S FILLED	PRESERV	ATIVE CODE	S A - NONE	В-	- HNO3	C - H2SO4	D -	NaOH	E -	HCL F	
NUMBER	SIZE	TYPE	PRESERVA	TIVE FILTI	ERED	NUMBE	R SIZE	TYP	E F	PRESERVA	ATIVE FILTERED	
	250 mL	PLASTIC	А	□ Y	ПΝ		125 mL	PLAS	TIC	D	□ Y□ N	
and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	125 mL	PLASTIC	А	□ Y	□ и		40 mL	۷O	A	E	□ Y□ N	
	60 mL	VOA	А	ΠY	□ N		1 L	PLAS	TIC	В	□ Y□ N	
	125 mL	PLASTIC	В	□ Y	□N					o mod night, met van a delevel met a personen ne	□ Y□ N	
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COC NUMBER: SIGNATURE:										10-3-29		

# ◆ TRC

PROJECT NAME: CEC N	(arn BAP/LI: 20	024 GW C	PR	EPARED		CHECKED				
PROJECT NUMBER: 55381	4.0001.0000	BY:	: JK, JJ, 🗲	DATE: 10-	324 BY: (	Laber Hoat	DATE: 1016/24			
SAMPLE ID: DEK-M	W-1500;									
WELL MATERIAL:  PVC	□ ss □	IRON 🗌 GA	LVANIZED S	STEEL	□ от⊦	IER				
SAMPLE TYPE: ☑ GW	□ ww □	SW 🗆 DI		LEACHATE	□ от⊦	IER				
PURGING TIME: /	125 DA	TE: 10-3-2	y S	AMPLE TIME: /501 DATE: /0/3/24						
,	PERISTALTIC I	PUMP	***************************************			CTIVITY: 358	9( umhos/cm			
METHOD: BAILER			ORP:	<u>-143.1</u> m	V DO:	<u>1.12</u> m	g/L			
DEPTH TO WATER: 19.78		<u>.</u>		DITY: O.O	_					
DEPTH TO BOTTOM <b>Z.S.</b> O					N. T. office and the second section of the State Control of the second	MODERATE	tina serimenti in elektronische esterologiane el deliciti (deliciti deliciti).			
		GALLONS		TEMPERATURE: /8.71 °C FERROUS Femg/L						
		GALLONS		? Clur			N.			
COLOR: Light about	7	OR: <u>// / / / / / / / / / / / / / / / / / </u>		TE (0.45 um)	∐ YES	☑ NO				
TUR	BIDITY			TE COLOR:	(NACD	FILTRATE ODO	R:			
DISPOSAL METHOD GROU		☐ VERY		MPLE: MS		DUP-				
	AD [] DKOW	U OTHER	COMIN	ENIS: Keco	lle cited		le stubilization			
TIME PURGE PH	CONDUCTIVITY	ORP	D.O.	TURBIDITY	TEMPERATU	JRE WATER LEVEL	CUMULATIVE PURGE VOLUME			
	(umhos/cm)	(mV)	( mg/L)	(NTU)	(°C)	(FEET)	(GAL OR L)			
1425 200 8.15	328.74	114.3	2.81	90.76	21.55	11.78	INITIAL			
1428 100 8.42	303.76	~21.4	1.67	0.0	14.39	21.65	0.6			
1431 8.47	328.17	-97.4	1.33	0.0	18.75	21.83				
1434 8.33	324.6	-121.5	1.28	0.0	18.72	21.91	\$1.2			
1427 8.14	332.11	-108.7	1.49	13.02	19.56	21.53	1.5			
1440 8.02	342.65	-81.3	4.86	21.9	20.5	1 21.49	2.8			
1443 8.0	344.18	-101.3	1. 2	0.6	19.09	21.52	2.1			
14 46 7.99	344.22	-105.8	1.2	0.0	11.07	21.65	2.4			
14 49 \ 1 8.01	347.22	-114.0	1.16	0.0	11.0		2.7			
1452 8.04	349.41	-124.1	1.15	0.0	18.94	21.72	3. 0			
NOTE: STABILIZATION	TEST IS COMP	LETE WHEN 3	SUCCESSI			THE FOLLOWI				
pH: +/- <b>0.1</b> COND.: +/-	3 % ORP:	+/- <b>10</b> D	0.O.: +/- <b>0.3</b>	TURB: +/-	<b>10</b> % or	= 10</td <td>TEMP.: +</td>	TEMP.: +			
BOTTLES FILLED PRESERV	ATIVE CODES	A - NONE	B - HNO3	C - H2SO4	D - NaOl	H E- H	CL F			
NUMBER SIZE TYPE	PRESERVATI	/E FILTERE	D NUMB	ER SIZE	TYPE	PRESERVATI	VE FILTERED			
250 mL PLASTIC	А		N I	125 mL	PLASTIC	D	D Y Z N			
l 125 mL PLASTIC	A		N	40 mL	VOA	Е	□ Y□ N			
2 60 mL VOA	А		N 2	1 L	PLASTIC	В				
, 125 mL PLASTIC	В		N		Martine Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of th	To have not the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the st	□ Y□ N			
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# TRC WATER SAMPLE LOG (CONTINUED FROM PREVIOUS PAGE)

PROJECT NAME:	CEC Karn BAP/LI: 2024 GW Co		PREPARED	CHECKED
PROJECT NUMBER:	553814.0001.0000	BY:	JK, J. ER DATE10 - 3 - 24	BY: OWN WAST DATE: 10/6/24

SAMPLEID: DEK-14W-15003

TIME	PURGE RATE (ML/MIN)	PH (SU)	CONDUCTIVITY (umhos/cm)	ORP (mV)	D.O. ( mg/L)	TURBIDITY (NTU)	TEMPERATURE (°C)	WATER LEVEL (FEET)	CUMULATIVE PURGE VOLUME (GAL OR L)
1455	100	\$.06	352.21	-174.8	1.14	0.0	18.95	-	3.3
1458		8.06	355.21	-139.4	1.13	0.0	18.93		3.6
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1602	7,31				13,5						
1605	7.32		-136.7								
1608	7.31		-136.8			15.z					
							THE FOLLOWIN				
	COND.: +/-			0.O.: +/- <b>0.3</b>				TEMP.: +/-			
BOTTLES FILLED	PRESERV	ATIVE CODES	A - NONE	B - HNO3	C - H2SO4	D - NaOH	E - HC	L F			
NUMBER SIZE	TYPE	PRESERVAT	IVE FILTERE	D NUMB	ER SIZE	TYPE	PRESERVATIV	E FILTERED			
1 250 mL	PLASTIC	А		N )	125 mL	PLASTIC	D	D Y Ø N			
( 125 mL	PLASTIC	А	D Y D	N	40 mL	VOA	E	D Y D N			
<b>2</b> 60 mL	VOA	А	DYZ	N Z	1 L	PLASTIC	B	O Y D N			
( 125 mL	PLASTIC	В		N			en en artikolomi, en proportik da suurdanse assandenden see	D Y D N			
125 mL	PLASTIC	С		N				DY DN			
SHIPPING METHOD:	Dropp	ed off D	ATE SHIPPED:	10/4/	 	AIRBILL NU	IMBER:				
COC NUMBER:	******		IGNATURE:	Melan	of Thank	DATE SIGN		17/24			

# ◆ TRC

PROJECT	NAME:	CEC K	 (arn BAP/LI: 2		PREPARED CHECKED									
PROJECT	NUMBEI	R: 553814	4.0001.0000	E	3Y: , <b>J</b>	K, JJ, ER	DATE: /C	/3	BY: ON HOST DATE: 1061W					
SAMPLE	ID: 101	E/K -1	14W-15	OO WELL D	IAMET	ER: 🗹 2	"							
WELL MAT	ERIAL:	☑ PVC	□ ss □	IRON 🗌 (	GALVA	NIZED ST	EEL		OTHER			Philodological programs controlled	White head the same	
SAMPLE T	YPE:	☑ GW	□ ww □	SW 🗆 t	DI .		EACHATE		OTHER					
PURG	SING	TIME: 16	07 D	ATE: 16/3	/24	SA	MPLE	TIME:	1631		ATE:/	)/3/	ZY	
PURGE METHOD	٠		PERISTALTIC	PUMP	•					ITY: <u>/3/6</u>	. 4	umhos		
		BAILER	71 010					nV DO		. <u>97</u> m	g/L	A		
DEPTH TO WATER: <b>9.53</b> T/ PVC DEPTH TO BOTTOM <b>IVM</b> T/ PVC						TURBIDI	TY: <u>1.37</u> = 🗆 SL		_	DERATE		VERY		
			T/ PVC		ue.				·					
WELL VOLUME: NA LITERS GALLON						TEMPERATURE: //.q// °C FERROUS Fe							mg/L	
VOLUME REMOVED 4.8 ☑ LITERS ☐ GALLON COLOR: C/2~ ODOR: 0						COLOR: Clear ODOR: ZU®  FILTRATE (0.45 um) ☐ YES ☑ NO								
COLOR.				OOR. <u>10 5</u>							n.	Prophine and Secretary Secretary Sec	*********	
☑ NONE	Пзп		BIDITY MODERATE	□ VER	· ·	OC SAM	PLE: M	S/MSD		TRATE ODO DUP-	R:		_	
			ND DRUM			COMME			<u> </u>					
	PURGE	<u> </u>				<u> </u>		1		WATER	T cur	MULATI		
TIME	RATE	PH	CONDUCTIVITY	ORP		D.O.	TURBIDITY	1	ERATURE	LEVEL		GE VOLU		
	(ML/MIN)	(SU)	(umhos/cm)	(mV)	-	mg/L)	(NTU)	1 .	(°C)	(FEET)	1	AL OR I		
1607	200	7.74	1230.6	35.5			2.86		83	9.53		INITIAL	****	
1610		7.68	1381.9	-14.0	ı	.01	11.48	14.	92	9.69	0	. 6		
1613		7.65	1371.5	-113.6	0	.96	14.85	14.	84	9.69	1.	Z		
1616		7.61	1571.5	-119.5	Ø	.94	35.92	14.	85	9.69	1.	8		
1619	•	7.57	1404.3	-122.5	O	.44	49.75	14.	85	9.69	7.	4	/	
16 22		7.51	1358.3	-114.9	l.	05	0.0	15.	02	9.64	3.	0	over Pilotoka e vice v Alve	
1825		7.6	1370.3	-124.3	0	.94	6.0	14.	18	9.60	9.	6	*********	
1828		7.63	1369.9	-129.4	0	.93	O. O	15	. 0		Ħ	. 2	a and any first the same	
1631		7.64	1366.4	-132.9	(	7.92	1.37	14	.44		4.	۶		
1634	_		•								-5	-4		
		BILIZATION	TEST IS COM	PLETE WHE	N 3 SU	CCESSIV	E READING	S ARE V	VITHIN TH	E FOLLOWI				
pH: +/-	0.1	COND.: +/-	3 % ORP	: +/- 10	D.O.:	+/- 0.3	TURB: +/	- 10 %	or =</td <td>10</td> <td>TEMP.</td> <td>; +</td> <td></td>	10	TEMP.	; +		
BOTTLES	FILLED	PRESERV	ATIVE CODES	A - NONE	В-	HNO3	C - H2SO	4 D-	NaOH	E- H	ICL F			
NUMBER	SIZE	TYPE	PRESERVAT	IVE FILTE	RED	NUMBE	R SIZE	TY	PE F	RESERVAT	IVE	FILTER	ED	
1	250 mL	PLASTIC	A		Z N	1	125 mL	PLA	STIC	D		ΥØ	N	
(	125 mL	PLASTIC	Α	□ Y Å	ZÍ N	Maring 1917	40 mL	V	)A	E		Υ□	N	
2	60 mL	VOA	A	□ Y ,	ZΝ	Z	1 L	PLA	STIC	В		YZ	N	
1	125 mL	PLASTIC	В		ŹΝ	· · · · · · · · · · · · · · · · · · ·	Special Section (Section Section		ringe kingensjork meg urbekeri mellen søke hvis vite om en		Y	N		
	125 mL	PLASTIC	С		ZΝ					OCCUPATION CONTRACTOR CONTRACTOR		Y□	N	
SHIPPING	METHOD:	Den -	088 D	ATE SHIPPE	:D: //	2-4-2	d	AIF	RBILL NUN	/BER:		<del></del>	<u> </u>	
SHIPPING METHOD: Drop - of & DATE SHIPPED: 10  COC NUMBER: SIGNATURE:						101	in	DATE CIONED						
L TOO NOW	J_1\.			IONATORE.	<u> </u>	my/	- [7]		DATE SIGNED: 10-3-24					

# ◆ TRC

PROJECT NAME: CEC Karn BAP/LI: 2024 GW C							PREPARED CHECKED							
PROJECT	NUMBER	R: 553814	4.0001.0000	)		BY:	J۴	K, JJ, El	R DATE:	3/24	BY: <b>∭</b>	Jul Va	DATE	10/8/24
SAMPLE	ID: DE	EK-M	W~1500	02 M	VELL I	DIAM	ETE	ER: 🔽	2"	<del></del>				
WELL MAT								NIZED S			OTHER			
SAMPLE T	YPE:	☑ GW		∃sw		DI			LEACHATE		OTHER	₹		
PURC	SING	TIME: /7	144	DATE:/	19/2/	24			AMPLE	TIME:	180	72	DATE:	0/3/24
PURGE ☑ PUMP PERISTALTIC PUMP ( METHOD: ☐ BAILER							-			SU CO nV DO:		IVITY: <b>52</b> 2.99	<b>Z. Z 3</b> mg/L	umhos/cm
DEPTH TO WATER: 8.66 T/ PVC									DITY: 6.63		J	madam-rakistas ku semininti tahu kuniku un j	man <del>gamada ada (da gama b</del> urada da sibu)	- mile mile mile in the manage in the statement of the desired and the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the statement of the sta
DEPTH TO ВОТТОМ <u>/5.76</u> T/ PVC								~	NE Z SL			ODERATE		VERY
WELL VOLUME: NA LITERS GALL									RATURE: 4		°C FI	ERROUS Fe		mg/L
VOLUME REMOVED <u>76</u> ☐ LITERS ☐ GALL							_	COLO	R: Clear				slog L	
COLOR: Clary ODOR: N								_ FILTRATE (0.45 um)						
TURBIDITY								FILTRATE COLOR: FILTRATE ODOR: CO. SAMPLE: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: M. MS/MSD. FILTRATE ODOR: MS/MSD. FILTRATE ODOR: M						
NONE ☐ SLIGHT ☐ MODERATE ☐ V  DISPOSAL METHOD☑ GROUND ☐ DRUM ☐ OTHE								QC SAMPLE: MS/MSD DUP- DE/K-BAP-01  COMMENTS: & Duplicate for radium only OD						
DISPOSAL	METHOD	☑ GROUI	ND DRU	ЈМ 🗆 С	THEF	₹		COMM	ENTS: 40	aplicul	e for	<u>radiu</u>	m onl	Y (B)
TIME	PURGE RATE	PH	CONDUCTIV	ITY	ORP			D.O.	TURBIDITY	ТЕМРЕ	RATURE	WATE		MULATIVE GE VOLUME
	(ML/MIN)	(SU)	(umhos/cm	)	(mV)		()	mg/L)	(NTU)	(	°C)	(FEET		GAL OR L)
1744	2003	7.64	675.3	2 -1	6.1	'	1	.45	0.0	17.	δz	8.66	•	INITIAL
1747	1	7.63	696.43	-7	8.3		1	.09	0.0	16.		8.68	C	.6
1750		7.59	793.5	9 -11	0. 1		l	.03	0.0	16.	13	8.70	/.	2
1753		7.52	800.43	1		1	1.	DΙ	0.6	15.8				. 8
17 56		7.47	801.44					00	0.35	15.			1	. લ
17 59	`\'/	7.45	711.46		31.1	1		0	5.27	15.				.6
1862	<b>-</b> V	7.43	822.23			1		.99	6.63	15.6		1981 Marin - 1885 Marin 1985 Marin 1985 April 1985 April 1985 April 1985 April 1985 April 1985 April 1985 April		. 6
1802	<b>V</b>	1,43	826.03	)	, (				6. 6 3	13.6				hite produce del moderno e e fen medicar delle emoto, bendere le m
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	en han handard didn't coll fi de dal de normal didn't lan							***************************************				and and the second second second second second second second second second second second second second second		tina nomi sertionistische tette die nervindra meté seun.
Li	OTE: STAE	RII IZATION	TEST IS CO	MDI ETE	= \\/\	=N 3 '	SH	CCESS	IVE READING	SAREW	/ITHIN T	HE FOLLO	WING LIM	ITS:
pH: +/-		COND.: +/-		RP: +/- 1				+/- 0.3			or <		TEMP	
·	<del></del>	r												
BOTTLES			ATIVE CODE				_	HNO3	C - H2SO	T	NaOH		HCL F	
NUMBER	SIZE	TYPE	PRESERV	ATIVE	_ 1	EREI		NUMB		TYF		PRESERVA	ATIVE	FILTERED
	250 mL	PLASTIC	A		] Y		N	1	125 mL	PLAS		D	A 5,	] Y 🗆 N
	125 mL	PLASTIC	Α	L	]  Y		N		40 mL	VO		E		] Y 🔲 N
Z	60 mL	VOA	A		] Y	빝	N	1.4	1 L	PLAS	STIC	В	<u>_</u>	] Y 🗆 N
1	125 mL	PLASTIC	В		] Y		N			<u> </u>		and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t		] Y 🗆 N
125 mL PLASTIC C Y						$\Box$	N				A. C. C. C. C. C. C. C. C. C. C. C. C. C.		F	] Y 🗆 N
SHIPPING METHOD: Desp-of DATE SHIPP						ED:	_ /	0-1/-	24	AIR	BILL NU	JMBER:		
COC NUM														
1000 HOW	BER:		-	SIGNAT	rure:	. ,	1	21	110	DA	TE SIGN	NED:	10/2	/24

14/24 (2) 102

# CHAIN OF CUSTODY

QA REQUIREMENT: ☐ 10 CFR 50 APP. B ☐ INTERNAL INFO REMARKS  $_{\text{of}}$ ☐ ISO 17025 □ OTHER □ NPDES INI. Cal. Due Date: M&TE#: (Attach List if More Space is Needed) ANALYSIS REQUESTED Received on Ice? 

No ပွ Sulfide × × × × × × Alkalinity × × CONSUMERS ENERGY COMPANY - LABORATORY SERVICES × × LDS × × × × COMMENTS: sinommA Temperature: × × × × × × **snoinA** × × × × × × Total Metals × × × × × × 135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251 Other. PRESERVATIVE MeOH CONTAINERS HCI NaOH REQUESTER: Harold Register ^bOS²H _ HMO³ Ţ None 4 4 4 4 1 # TVLOT ~ 7 4 4 SAP CC or WO#: RECEIVED BY: RECEIVED BY: ☐ STANDARD FIELD SAMPLE ID / LOCATION phone: A = Air WP = Wipe WT = General Waste SL = Sludge OX = OtherTURNAROUND TIME REQUIRED ☐ 48 HR ☐ 3 DAYS W = Water / Aqueous Liquid S = Soil / General Solid O = Oil DUP-DEK-BAP-01 DEK-MW-15002 **DEK-MW-15005** DEK-MW-15006 080 GW = Groundwater WW = Wastewater FB-DEK-BAP EB-DEK-BAP PROJECT NUMBER: MATRIX CODES: he/h/01 ☐ 24 HR email: DATE/TIME: DATE/TIME: ĞW GW ĞΨ ĞΨ **MATRIX** ≥ ≽ 78/ 1807 1607 TIME SAMPLE COLLECTION 95/1 9))) Q4-2024 DEK Bottom Ash Pond Wells SAMPLING TEAM: AL ER, TH Harold Register )17/E/01 Joseph Firlit 2/2/01 12/E/01 12/2/01 DATE h2/c/p/ SAMPLING SITE / CUSTOMER: HAY WHALD Consumers Energy TRC SEND REPORT TO: RELINQUISHED BY: RELINQUISHED BY: 9 -05 90-9 SAMPLE ID 24-0801-01 -03 COPY TO:

416	C 124
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Cal. Due Date:

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Temperature:

M&TE#:

Received on Ice?  $\square$  Yes  $\square$  No

DATE/TIME:

# CHAIN OF CUSTODY

Consumers Energy

CONSUMERS ENERGY COMPANY - LABORATORY SERVICES

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135 WEST TRAIL ST., JACKSON, MI 49201	SAP CC or WO#:	REQUESTER: Harold Register	ED:	(S ☐ STANDARD 🗵 OTHER	phone:	OX = Other	SL = Sludge A = Air	WP = Wipe WT = General Waste	D/LOCATION			·							RECEIVED BY:
135 WEST TRA	PROJECT NUMBER:	24-0802	TURNAROUND TIME REQUIRED:	□ 24 HR □ 48 HR □ 3 DAYS	email:	MATRIX CODES: GW = Groundwater		S = Soil / General Solid O = Oil	FIELD SAMPLE ID / LOCATION	DEK-MW-18001	DEK-MW-18001 MS	DEK-MW-18001 MSD							DATE/TIME:
		md.						RIX	TAM	GW	ВW	GW							DATE/TIME:
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Count on Us®	STOMER:	1 Ash Pond & L			Joseph Firlit	Harold Register	TRC	SAMPLE COLLECTION	DATE	(ज्येत्रिय	נל 11	11 11							
Q	SAMPLING SITE / CUSTOMER.	Q4-2024 DEK Bottom Ash Pond & Lined Impound	SAMPLING TEAM:		SEND REPORT TO:	COPY TO:		LAB	SAMPLEID	24-0802-01	-02	-03							RELINQUISHED BY:

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CONSUMERS ENERGY COMPANY – LABORATORY SERVICES 135 WEST TRAIL ST., JACKSON, MI 49201 • (517) 788-1251

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2425 QA REQUIREMENT: □ 10 CFR 50 APP. B ☐ INTERNAL INFO REMARKS ☐ ISO 17025 □ OTHER □ NPDES INI 🛭 (Attach List if More Space is Needed) ANALYSIS REQUESTED Sulfide × × × × × × × × × × Alkalinity × × × × × × LDS × × × × × × × × COMMENTS: Ammonia × × × × × × × × × × **enoinA** × × × × × × × × × × Total Metals × × × × × × × × × × MeOH Other PRESERVATIVE CONTAINERS HCI NaOH -REQUESTER: Harold Register [†]OS^zH _ -Н -- $\vdash$ НИО³ ---Моле 4 -4 4 4 4 4 4 # TATOT _ / _ ~ 4 SAP CC or WO#: RECEIVED BY: FIELD SAMPLE ID / LOCATION ☐ STANDARD phone: A = Air WP = Wipe WT = General WasteSL = Sludge DX = Other TURNAROUND TIME REQUIRED ☐ 3 DAYS W = Water / Aqueous Liquid S = Soil / General Solid O = Oil 24-0803 0180 46/11/01 DEK-MW-15003 GW = Groundwater WW = Wastewater □ 48 HR PROJECT NUMBER: SW-DITCH DUP-KLI MATRIX CODES: KLI-SCS KLI-PCS 11180 OW-10 OW-12 EB-KLI FB-KLI □ 24 HR email: DATE/TIME: ĞΨ ĞΨ GW ĞΨ SW SW ĞΜ MATRIX ≽ ≽ ≥ 4556 1608 150 SAMPLE COLLECTION SAMPLING TEAM: AN, ER, JV Harold Register 10/2/24 Q4-2024 DEK Lined Impoundment Joseph Firlit 45/8/98 10/3/24 DATE SAMPLING SITE / CUSTOMER: TRC SEND REPORT TO: RELINQUISHED BY: WANTED OF -00 9 -05 SAMPLE ID 9 80 60--10 ç 24-0803-01 COPY TO:

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**Eurofins Cleveland** 

180 S. Van Buren Avenue

**Chain of Custody Record** 

Environment Testing 🕏 eurofins

שע CEETA Special Instructions/Note: Ver: 05/06/2024 Months Company Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Mont Special Instructions/QC Requirements: COC No: 240-124392-29052.1 Page: Page 1 of 1 Job #: Preservation Codes: D - HNO3 62% Total Number of containers Date/Time: (C)/8/24 Date/Time: Date/Time: Method of Shipment: 4 State of Origin: **Analysis Requested** Cooler Temperature(s) °C and Other Remarks: Received by. My The Win-E-Mail: Kris. Brooks@et.eurofinsus.com Received by: Lab PM: Brooks, Kris M Company Water Matrix (w-water, S-solid, O-waste/oli, Water Water Water Water Water Company Company Radiological Sample
Type
(C=comp,
G=grab) Stanlala Date/Time: 10/4/24 1547 Ð D 9 9 P PWSID: 1 magga 10/3/24 1802 Sample 2091 10/3/24 1602 94)1 Date: Unknown Sampler: TAT Requested (days): Due Date Requested: Sample Date 10/2/50 WO #: 553814.0001 h2 ( -/01 10/2/24 Project #: 24024154 SSOW#: Date/Time: Date/Time: Po#: 215951 Poison B Skin Irritant Plammable Skin Irritant Deliverable Requested: I, II, III, IV, Other (specify) Custody Seal No.: Project Name: Karn/Weadock CCR DEK Bottom Ash Pond Barberton, OH 44203 Phone: 330-497-9396 Fax: 330-497-0772 734-971-7080(Tel) 734-971-9022(Fax) Company: TRC Environmental Corporation. Possible Hazard Identification Relinquished by: (LLMM) Krenz@trccompanies.com Empty Kit Relinquished by: Custody Seals Intact:

Δ Yes Δ No 1540 Eisenhower Place Client Information Sample Identification DUP-DEK-BAP-01 DEK-MW-15005 DEK-MW-15006 DEK-MW-15002 State, Zip: MI, 48108-7080 EB-DEK-BAP elinquished by: Relinquished by: lacob Krenz Client Contact: Ann Arbor

**Chain of Custody Record** 

**Eurofins Cleveland** 

180 S. Van Buren Avenue

Environment Testing

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Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Month COC No: 240-124393-29053.1 Preservation Codes: D - HNO3 Page: Page 1 of 1 Job #: Other: Carrier Tracking No(s): State of Origin: **Analysis Requested** Lab PM:
Brooks, Kris M
E-Mait:
Kris. Brooks@et.eurofinsus.com Matrix (W=water, S=solid, O=wasts/oll, Water Water Sample
Type
(C=comp,
G=grab) Radiological JAU: 4 1 14550 و 336 PWSID: Compliance Project: A Yes A No Sample Time 1013/13 CEFT Poison B Huknown 2002 2007 FAT Requested (days): Due Date Requested: Sample Date WO #: 553814.0001 Project #: 24024154 SSOW#: Po#: 215951 Skin Irritant Project Name: Kam/Weadock CCR DEK Bottom Ash Pond & I Barberton, OH 44203 Phone: 330-497-9396 Fax: 330-497-0772 734-971-7080(Tel) 734-971-9022(Fax) Possible Hazard Identification Sompany: TRC Environmental Corporation. JKrenz@trccompanies.com 1540 Eisenhower Place Client Information Sample Identification Ann Arbor State, Zip: MI, 48108-7080 DEK-MW-18001 Jacob Krenz

43 124 Dr Ver: 05/06/2024 Company Date/Lime: Date/Time: Cooler Temperature(s) °C and Other Remarks: Received by: Received by: Received by: Time: Company Company Company 357 Date/Time; jo/56/4 Date/Time: Date/Time: Custody Seal No.: Empty Kit Relinquished by: Custody Seals Intact: Δ Yes Δ No pershed by: elinquished by:

Aethod of Shipment:

Special Instructions/QC Requirements:

Deliverable Requested: I, II, III, IV, Other (specify)

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton, OH 44203
Phone: 330-497-9396 Fax: 330-497-0772

**Chain of Custody Record** 

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Client Information	Sampler: ER, AK	Lab PM: Brooks, Kris M		Carrier Tracking No(s):	240-124394-29054.1
Client Contact: Jacob Krenz	Phone:	E-Mail: Kris.Brooks	E-Mail: Kris. Brooks@et.eurofinsus.com	State of Origin: $\mathcal{M}$	Page 1 of 1
Company: TRC Environmental Comoration	PWSID:		Analysis Requested	uested	Job #:
Address: 1540 Fisenhrwer Place	Due Date Requested:				Preservation Codes: D - HNO3
City. Ann Arbor	TAT Requested (days):				
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Δ Yes Δ NO					Ver: 05/06/2024



# Appendix C Data Quality Reviews

# Laboratory Data Quality Review Groundwater Monitoring Event October 2024 DE Karn Lined Impoundment

Groundwater samples were collected by TRC for the October 2024 sampling event. Samples were analyzed for total metals, anions, total dissolved solids, ammonia, and alkalinity by Consumers Energy (CE) Laboratory Services in Jackson, Michigan. The sulfide analyses were subcontracted to Merit Laboratories, Inc. (Merit) in East Lansing, Michigan. The laboratory analytical results were reported in laboratory sample delivery groups (SDGs) 24-0803 and S67052.01(01).

During the October 2024 sampling event, a groundwater sample was collected from each of the following wells:

OW-10DEK-MW-15003

Each sample was analyzed for one or more of the following constituents:

Analyte Group	Method
Anions (Fluoride, Chloride, Sulfate, Nitrate, Nitrite)	EPA 300.0
Total Dissolved Solids (TDS)	SM 2540C
Total Metals	SW-846 6020B
Total Mercury	SW-846 7470A
Alkalinity (Bicarbonate, Carbonate, and Total)	SM 2320B
Ammonia	SM 4500 NH3(h)
Sulfide	SM 4500 S2D

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

### **Data Usability Review Procedure**

The analytical data were reviewed using the USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA, 2020). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for method blanks, equipment blanks, and field blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;

- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

It should be noted that results for method blanks and LCSs were not provided for review by CE Laboratory Services and Merit. Therefore, potential contamination arising from laboratory sample preparation and/or analytical procedures and the accuracy of the analytical method using a clean matrix could not be evaluated for the total metals, total mercury, anions, alkalinity, TDS, ammonia, and sulfide analyses.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

### **Review Summary**

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

- The reviewed Appendix III, IV, optional Piper diagram analyses, additional Part 115 constituents, and additional geochemistry parameters will be utilized for the purposes of the detection monitoring program.
- Data are usable for the purposes of the detection monitoring program.
- When the data are evaluated through a detection or monitoring statistical program, findings below may be used to support the removal of outliers.

### **QA/QC Sample Summary**

- No field blanks or equipment blanks were collected with this data set.
- Laboratory duplicate and MS/MSD analyses were not performed on a sample from this data set.
- No field duplicates were submitted with this data set.
- The nondetect RL for sulfate (1,000 μg/L) in sample OW-10 was below the RL specified in the bottle request for this event (2,000 μg/L). There is no adverse impact on data usability since the reported RL is lower than the requested RL.

## Laboratory Data Quality Review Groundwater and Surface water Monitoring Event October 2024 DE Karn Lined Impoundment

Groundwater samples were collected by TRC for the October 2024 sampling event. Samples were analyzed for radium by Eurofins - St. Louis, in Earth City, Missouri. The laboratory analytical results were reported in laboratory sample delivery group (SDG) 240-212645-1.

During the October 2024 sampling event, a groundwater sample was collected from each of the following wells:

OW-10DEK-MW-15003

Each sample was analyzed for the following constituents:

Analyte Group	Method
Radium (Ra-226, Ra-228, Combined Ra-226 & Ra-228)	EPA 903.0, EPA 904.0

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

### **Data Usability Review Procedure**

The analytical data were reviewed using the Department of Energy Evaluation of Radiochemical Data Usability (USDOE, 1997). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for method blanks, equipment blanks, and field blanks, where applicable. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for carriers, where applicable, for radiochemistry only. Carriers are used to assess the chemical yield for the preparation and/or instrument efficiency;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and

Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

### **Review Summary**

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

- The reviewed constituents will be utilized for the purposes of an assessment monitoring program.
- Data are usable for the purposes of the assessment monitoring program.
- When the data are evaluated through an assessment monitoring statistical program, findings below may be used to support the removal of outliers.

#### **QA/QC Sample Summary**

- All samples in this data set were reported without a 21-day waiting for radium-226 period to ensure that short-lived alpha-emitting radium isotopes (e.g. Ra-224) decayed out. The positive radium-226 result reflects the total alpha radium such that the radium-226 (where detected) and associated combined radium results should be considered potentially biased high, as summarized in the attached table. It should be noted that these results were below the MCL for combined Radium 226/228 (5.0 picocuries per liter); therefore, the data are deemed usable as reported.
- Target analytes were not detected in the method blanks.
- LCS recoveries for all target analytes were within laboratory control limits.
- MS/MSD, laboratory duplicate, and field duplicate analyses were not performed on the samples from this data set.
- Carrier recoveries were within 40-110%.

#### Attachment A

Summary of Data Non-Conformances for Groundwater Analytical Data
DE Karn Lined Impoundment
Essexville, Michigan

Samples	Collection Date	Analyte	Non-Conformance/Issue
OW-10	10/3/2024	Raniiim=//n	Result is potentially biased high due to not undergoing 21-day waiting period prior to analysis. The result is well below the applicable screening criteria and is therefore deemed usable as reported.

## Laboratory Data Quality Review Groundwater Monitoring Event October 2024 DE Karn Bottom Ash Pond and Lined Impoundment

A groundwater sample was collected by TRC for the October 2024 sampling event. The sample was analyzed for total metals, anions, total dissolved solids, ammonia, and alkalinity by Consumers Energy (CE) Laboratory Services in Jackson, Michigan. The sulfide analysis was subcontracted to Merit Laboratories, Inc. (Merit) in East Lansing, Michigan. The laboratory analytical results were reported in laboratory sample delivery groups (SDGs) 24-0802 and S67051.01(01).

During the October 2024 sampling event, a groundwater sample was collected from the following well:

#### DEK-MW-18001

The sample was analyzed for the following constituents:

Analyte Group	Method
Anions (Fluoride, Chloride, Sulfate, Nitrate, Nitrite)	EPA 300.0
Total Dissolved Solids (TDS)	SM 2540C
Total Metals	SW-846 6020B/7470A
Alkalinity (Bicarbonate, Carbonate, and Total)	SM 2320B
Ammonia	SM 4500 NH3(h)
Sulfide	SM 4500 S2D

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

## **Data Usability Review Procedure**

The analytical data were reviewed using the USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA, 2020). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for method blanks, equipment blanks, and field blanks, where applicable. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy of the analytical method using a clean matrix;

- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates, when collected. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

It should be noted that results for method blanks and LCSs were not provided for review by CE Laboratory Services and Merit. Therefore, potential contamination arising from laboratory sample preparation and/or analytical procedures and the accuracy of the analytical method using a clean matrix could not be evaluated for the total metals, anions, ammonia, TDS, alkalinity, and sulfide analyses.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

### **Review Summary**

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

- The reviewed Appendix III, IV, optional Piper Diagram analyses, additional Part 115 constituents, and additional geochemistry parameters will be utilized for the purposes of a detection or assessment monitoring program.
- Data are usable for the purposes of the detection or assessment monitoring program.
- When the data are evaluated through a detection or assessment monitoring statistical program, findings below may be used to support the removal of outliers.

## **QA/QC Sample Summary**

- A field blank was not collected with this data set.
- An equipment blank was not collected with this data set.
- MS and MSD analyses were performed on sample DEK-MW-18001 for total metals, anions, ammonia, total alkalinity, and sulfide. The recoveries were within the acceptance limits. Relative percent differences (RPDs) were not provided by the laboratory for all parameters therefore were not evaluated; further, with the exception of sulfide, MS/MSD concentrations were not provided by the laboratory. However, since all recoveries were within the acceptance limits, there is no impact on data usability due to this issue.
- A field duplicate pair was not collected with this data set.
- Laboratory duplicate analyses were not performed on the sample from this data set.

# Laboratory Data Quality Review Groundwater Monitoring Event October 2024 DE Karn Bottom Ash Pond and Lined Impoundment

Groundwater samples were collected by TRC for the October 2024 sampling event. Samples were analyzed for radium by Eurofins - St. Louis, in Earth City, Missouri. The laboratory analytical results were reported in laboratory sample delivery group (SDG) 240-212372-1.

During the October 2024 sampling event, a groundwater sample was collected from the following well:

■ DEK-MW-18001

Each sample was analyzed for the following constituents:

Analyte Group	Method
Radium (Ra-226, Ra-228, Combined Ra-226 & Ra-228)	EPA 903.0, EPA 904.0

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

### **Data Usability Review Procedure**

The analytical data were reviewed using the Department of Energy Evaluation of Radiochemical Data Usability (USDOE, 1997). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for method blanks, equipment blanks, and field blanks, where applicable. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Field and equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCSs and/or LCSDs are used to assess the accuracy of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for carriers, where applicable, for radiochemistry only. Carriers are used to assess the chemical yield for the preparation and/or instrument efficiency;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;

- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

### **Review Summary**

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation, are noted below.

- The reviewed constituents will be utilized for the purposes of an assessment monitoring program.
- Data are usable for the purposes of the assessment monitoring program.
- When the data are evaluated through an assessment monitoring statistical program, findings below may be used to support the removal of outliers.

### **QA/QC Sample Summary**

- All samples in this data set were reported without a 21-day waiting for radium-226 period to ensure that short-lived alpha-emitting radium isotopes (e.g. Ra-224) decayed out. The positive radium-226 result reflects the total alpha radium such that the radium-226 (where detected) and associated combined radium results should be considered potentially biased high, as summarized in the attached table. It should be noted that these results were below the MCL for combined Radium 226/228 (5.0 picocuries per liter); therefore, the data are deemed usable as reported.
- Target analytes were not detected in the method blanks.
- No equipment or field blank was collected.
- LCS/LCSD percent recoveries (%Rs) and relative percent differences for all target analytes were within laboratory control limits.
- MS/MSD and laboratory duplicate analyses were not performed on the sample from this data set.
- A field duplicate pair was not collected.
- Carrier recoveries were within 40-110%.

#### Attachment A

Summary of Data Non-Conformances for Groundwater Analytical Data DE Karn Bottom Ash Pond and Lined Impoundment Essexville, Michigan

Sample	Collection Date	Analyte	Non-Conformance/Issue
DEK-MW-18001	10/3/2024		Result is potentially biased high due to not undergoing 21-day waiting period prior to analysis. The result is well below the applicable screening criteria and is therefore deemed usable as reported.



# Appendix D OW-12 Well Plugging Record

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#### MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY WATER BUREAU

## ABANDONED WELL PLUGGING RECORD

Permit No.	

WSSN & Source ID/Well No. 0W - 12 Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor. Tax No. Longitude N 43° 38′ 48.82″ 50' 20.51" Hamston W83 Town No. Range No. Section | Well Street Address, City/ZIP Fraction Distance & Direction from Road 14N 56 SE 1/4 NG 1/4 2742 Wendock Huy Intersection Consumers Energy Company West of Former Well Owner 1945 W. Address Essexville 48732 City/ZIP Jackson Owner Address Same as Well Address? Yes X No Indonwent Drilling ☐ Unknown 🕱 Rotary ☐ Cable Tool Casing Pulled Method □ Other_ Note: Cutting casing off 4 feet below grade is recommended. ☐ Household ☐ Type I Public Well Use Date of Well ☐ Type II Public ☐ Type III Public ☐ Industrial ☐ Public Water Connection ☐ Well in Disrepair Plugging Reason For Abandoning Well ☐ Irrigation 🕱 Test Well 🗆 Heat Pump Well No Longer Needed □ Dry Hole □ Uncompleted Well 09 /13 / 2024 D Other_ □ Other_ Abandonment Method 🖸 Pumped Through Grout Pipe 🐹 Poured From Surface Measured Well Depth 23, 9 Poured Through Grout Pipe Other _ ☐ Drift Well **Well Construction Type** Pumping Equipment Removed 

Yes 
No Date Well ☐ Rock Well X Dry Hole ☐ Unknown Constructed Equipment Removed 

Bremer Check Valve 

Drawdown Seal 05/19 / 2010 | Other -□ Drop Pipe □ Electrical Wiring □ Packer □ Pitless Adapter Spool Flowing Well - Yes A No □ Unknown ☐ Check Valve ☐ Pump Cylinder ☐ Pump Rods ☐ Stones/Debris ☐ Steel-black ☐ Steel-galvanized ※ Plastic ☐ Submersible Pump ☐ Turbine Pump Bowls ☐ Unknown Obstruction ☐ Clay Tile Crock ☐ Other ☐ Obstruction Driven to Bottom ☐ Other _ Diameter 2 in. to 23.9 ft. depth Note: Plugging well from bottom up to ground surface is required. __ ft. depth __ in. to ___ Diameter_ Quantity Units Plugging Material (Enter the layers from top to bottom.) To From 8 Bags ☐ Yards ☐ Bentonite Chips/Pellets ☐ Bentonite Slurry ☐ Clean Soil Fill Concrete | Neat Cement | Other Granulated Bentande ☐ Other __ □ Bags □ Yards ☐ Bentonite Chips/Pellets ☐ Bentonite Slurry ☐ Clean Soil Fill □ Concrete □ Neat Cement A Other Removed during Demo ☐ Other _ ☐ Bags ☐ Yards ☐ Bentonite Chips/Pellets ☐ Bentonite Slurry ☐ Clean Soil Fill ☐ Other _ ft. ☐ Concrete ☐ Neat Cement ☐ Other □ Bags □ Yards ☐ Bentonite Chips/Pellets ☐ Bentonite Slurry ☐ Clean Soil Fill ☐ Other ft. ☐ Concrete ☐ Neat Cement ☐ Other ☐ Bags ☐ Yards ☐ Bentonite Chips/Pellets ☐ Bentonite Slurry ☐ Clean Soil Fill ☐ Other _ ft. ft. ☐ Concrete ☐ Neat Cement ☐ Other. ☐ Bags ☐ Yards □ Bentonite Chips/Pellets □ Bentonite Slurry □ Clean Soil Fill Other __ ft. ft. ☐ Concrete ☐ Neat Cement ☐ Other _ □ Bags □ Yards ☐ Bentonite Chips/Pellets ☐ Bentonite Slurry ☐ Clean Soil Fill ☐ Other __ ft. ☐ Concrete ☐ Neat Cement ☐ Other _ ☐ Bags ☐ Yards ☐ Bentonite Chips/Pellets ☐ Bentonite Slurry ☐ Clean Soil Fill □ Other. □ Concrete □ Neat Cement □ Other ☐ Bags ☐ Yards ☐ Bentonite Chips/Pellets ☐ Bentonite Slurry ☐ Clean Soil Fill ☐ Other. □ Concrete □ Neat Cement □ Other. This well was plugged under my supervision and this report is true to the best of my General Remarks Monitoring Well was abandened during the decommissioning of the Karn Lined Impoundment. knowledge and belief. WSP Registration No. Registered Business Name

IMPORTANT: FILE WITH DEED

EQP 2044 (Rev. 2/06)



## **Enclosure 6**

Alternate Source Demonstration: March 2024 Detection Monitoring Sampling Event, Karn Lined Impoundment Coal Combustion Residuals (CCR) Unit, Essexville, Michigan. (TRC, July 30, 2024)



A CMS Energy Company

Date: July 30, 2024

To: Operating Record

From: Harold D. Register, Jr., P.E.

RE: Alternate Source Demonstration Professional Engineer Certification, §257.94(e)2

DE Karn Lined Impoundment CCR Unit

Professional Engineer Certification Statement [40 CFR 257.94(e)2]

I hereby certify that the alternative source demonstration presented within this July 30, 2024 letter report has been prepared to meet the requirements of Title 40 CFR §257.94(e) 2 of the Federal CCR Rule. This document is accurate and has been prepared in accordance with good engineering practices, including the consideration of applicable industry standards, and with the requirements of Title 40 CFR §257.94(e) 2.

Signature

July 30, 2024

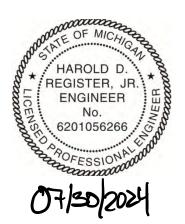
**Date of Certification** 

Harold D. Register, Jr., P.E.

Name

6201056266

Professional Engineer Certification Number



#### **ENCLOSURES**

TRC (July 2024). <u>Alternate Source Demonstration: March 2024 Detection Monitoring Sampling Event Karn Lined Impoundment Coal Combustion Residuals (CCR) Unit, Essexville, Michigan</u>



July 30, 2024

Harold D. Register, Jr., P.E. Risk Management – Environmental Quality & Sustainability Consumers Energy 1945 W. Parnall Road Jackson, MI 49201

Subject: Alternate Source Demonstration: March 2024 Detection Monitoring Sampling Event

Karn Lined Impoundment Coal Combustion Residuals (CCR) Unit, Essexville, Michigan

Dear Mr. Register:

TRC was retained by Consumers Energy to conduct routine groundwater monitoring activities at the DE Karn Lined Impoundment coal combustion residual (CCR) unit, located in Essexville, Michigan (the Site). Routine groundwater monitoring at the DE Karn Lined Impoundment CCR unit is conducted in accordance with the Michigan Department of Environment, Great Lakes, and Energy (EGLE)-approved Karn Lined Impoundment Hydrogeological Monitoring Plan (HMP),¹ which was written to comply with the requirements of the State of Michigan's Part 115, Rule 299.4905 and the United States Environmental Protection Agency (USEPA) final rule for the regulation and management of CCR under the Resource Conservation and Recovery Act (RCRA), as amended (the CCR Rule) (USEPA, April 2015). The detection monitoring indicator parameters are evaluated quarterly to identify potential statistically significant increases (SSIs) above background levels. Per the HMP and the CCR Rule, an SSI occurs when a statistically significant increasing trend is observed over two consecutive sampling events.

As detailed in *Fourth Quarter 2023 Hydrogeologic Monitoring Report*, ² an initial statistically significant trend was observed for sulfate at DEK-MW-15003 as of the October 2023 detection monitoring event. Subsequently, the statistical evaluation of the March 2024 sulfate data at DEK-MW-15003 also showed a statistically significant increasing trend, ³ indicating an SSI over background for:

#### ■ Sulfate at DEK-MW-15003

All other detection monitoring indicator parameters indicated stable or decreasing trends, i.e., no additional increasing trends or SSIs are currently observed within the Karn Lined Impoundment monitoring well network.

In accordance with §257.94(3)(2), Consumers Energy may demonstrate that a source other than the

¹ TRC. 2020. Karn Lined Impoundment Hydrogeological Monitoring Plan. Prepared for Consumers Energy Company. August.

² TRC. 2024. Fourth Quarter 2023 Hydrogeologic Monitoring Report – DE Karn Lined Impoundment. Prepared for Consumers Energy Company. January 30.

³ TRC. 2024. First Quarter 2024 Hydrogeologic Monitoring Report – DE Karn Lined Impoundment. Prepared for Consumers Energy Company. July 30.

CCR unit caused the SSI or that the SSI resulted from an error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. This Alternate Source Demonstration (ASD) has been prepared to address the SSI identified in the March 2024 detection monitoring event. The results of this ASD show that the sulfate SSI at DEK-MW-15003 is attributable to other onsite sources and is not due to a release from the Karn Lined Impoundment.

#### **Background**

The Karn Lined Impoundment is located within the DE Karn Power Plant site (Site) located north of the former JC Weadock Power Plant, east of the Saginaw River, south and west of Saginaw Bay. Two coal-fired power generating units (Karn Units 1 & 2) began generating electricity in 1958 and 1959, respectively. Consumers Energy permanently ceased the operation of Karn Units 1 & 2 in May 2023 and has commenced decommissioning activities for both coal-fired generating units. Karn Units 3 & 4, co-located with the coal-fired generating units, are oil- and natural gas-fueled and will continue to operate. Two other areas of coal ash management within the Site are the former Karn Bottom Ash Pond that was closed by removal under the CCR Rule and the Karn Landfill that was certified closed by constructing a final cover system and is currently in post-closure care under P115.

#### **CCR Unit Description**

The Karn Lined Impoundment was put into service in June 2018 to replace the former Karn Bottom Ash Pond that directly supported Karn Units 1 & 2 power generation operations. The Karn Lined Impoundment serves a twofold purpose for treatment pursuant to National Pollutant Discharge Elimination System (NPDES) Permit N0. MI0001678 and as a temporary storage for bottom ash prior to removal and disposal in the JC Weadock Solid Waste Disposal Area (Weadock Landfill) governed by Solid Waste Disposal Area Operating License No. 9640 issued on March 11, 2021. On July 7, 2023, Consumers Energy submitted a Closure Work Plan for the Karn Lined Impoundment to the EGLE that details a process for closure by removal of CCR in accordance with 257.102(c) of the self-implementing requirements of the CCR Rule. By reference, performance of this work would also satisfy state requirements pursuant to Section 11519b(9) of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.11501 et seq. EGLE provided written concurrence with the Closure Work Plan on October 25, 2023.

#### Geology/Hydrogeology

Most of the Karn Lined Impoundment area is comprised of surficial CCR and sand fill, as described in the HMP. USGS topographic maps and aerial photographs dating back to 1938, in addition to field descriptions of subsurface soil at the Site, indicate that the Site was largely developed by reclaiming low-lands through the construction of perimeter dikes and subsequent ash filling.⁴

The surficial fill consists of a mixture of varying percentages of ash, sand, and clay-rich fill ranging from 5 to 15 feet thick. Below the surficial fill, native alluvium and lacustrine soils are present at varying depths. Generally, there is a well graded sand unit present to depths of 10 to 30 feet below ground surface (ft bgs) overlying a clay till which is observed at depths ranging from 25 to 75 ft bgs. In general,

⁴ AECOM. 2009. Potential Failure Mode Analysis (PFMA) Report. DE Karn Electric Generation Facility Ash Dike Risk Assessment Essexville, Michigan. Prepared for Consumers Energy Company. October 30.



the alluvium soils (sands) are deeper along the Saginaw River and there are shallower lacustrine deposits (clays, silts, and sands deposited in or on the shores of glacial lakes) at other areas. The clay till acts as a hydraulic barrier that separates the shallow groundwater from the underlying sandstone. A sandstone unit, which is part of the Saginaw formation, is generally encountered at 80 to 90 ft bgs.

The Site is bounded by several surface water features (Figures 1 and 2): the Saginaw River to the west, Saginaw Bay (Lake Huron) to the north and east, and a discharge channel to the south. In general, shallow groundwater is encountered at a similar or slightly higher elevation relative to the surrounding surface water features. Groundwater flow in the upper aquifer is largely controlled by the surface water elevations of Saginaw River and Saginaw Bay. Near the Karn Lined Impoundment, the shallow groundwater flow is generally radial, with a potentiometric high point near OW-12, flowing outward toward the surrounding surface water bodies.

#### Monitoring Well Network

In accordance with §257.91, Consumers Energy developed a groundwater monitoring system for the Karn Lined Impoundment prior to the initial receipt of waste in the CCR unit.⁵ Given the radial groundwater flow direction and that constituents associated with CCR currently managed at the Karn Lined Impoundment are indistinguishable from the constituents already present in groundwater from past operation of the Karn Bottom Ash Pond, the groundwater monitoring system design incorporates an intrawell statistical approach for detection monitoring, as described in the HMP and in accordance with the "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance" (USEPA, 2009). The detection monitoring well network for the Karn Lined Impoundment CCR Unit currently consists of five monitoring wells (DEK-MW-15003, DEK-MW-18001, OW-10, OW-11, and OW-12) that are screened in the uppermost aquifer.

#### Alternate Source Demonstration: Sulfate at DEK-MW-15003

As discussed above, the statistical evaluation of the March 2024 detection monitoring indicator parameters showed a confirmed increasing trend, indicating an SSI over background for sulfate at DEK-MW-15003. All other detection monitoring constituents indicated stable or decreasing trends, i.e., no additional increasing trends or SSIs are currently observed within the Karn Lined Impoundment monitoring well network. There are several lines of evidence to demonstrate that the increase in sulfate at DEK-MW-15003 is attributable to other sources onsite and is not related to the operation of the Karn Lined Impoundment, as outlined further below.

#### Karn Lined Impoundment Unit Construction

The liner system for the Karn Lined Impoundment was designed as a double composite liner system, with the primary and secondary composite liners each consisting of 60-mil high-density polyethylene (HDPE) geomembrane (GM) overlaying a 236-mil geosynthetic clay liner (GCL). The secondary collection system (SCS) serves as a leak detection system, and the SCS flow rate data is used to demonstrate compliance under Michigan's Natural Resources and Environmental Protection Act, also known as Part 115 of PA 451 of 1994, as amended (a.k.a., Michigan Part 115 Solid Waste

⁵ TRC. 2018. Groundwater Monitoring System Summary Report – Consumers Energy, DE Karn Lined Impoundment (KLI). Prepared for Consumers Energy Company. June.



Management). The flow rate is calculated each time the SCS is evacuated. Since early 2021, the SCS flow rate has been below the state-established response action flow of 25 gallons per acre per day (GPAD) and the action flow rate of 5 GPAD, indicating that the liner is not leaking. Consumers Energy continues to document this information in their operating record.

The double composite liner system construction of the Karn Lined Impoundment and the SCS flow rate monitoring for leak detection are operating as designed and indicate that wet ash dewatering liquids managed within the unit have not migrated past the liner system and affected groundwater quality. Attachment A contains figures that illustrate the Karn Lined Impoundment as-built construction.

#### **Pre-Existing Groundwater Conditions**

The footprint of the Karn Lined Impoundment is immediately adjacent to the pre-existing Karn Bottom Ash Pond. As reported in the 2017 Annual Groundwater Monitoring Report: DE Karn Bottom Ash Pond CCR Unit,⁶ potential SSIs over background limits were noted for boron, fluoride, pH, and sulfate in one or more downgradient wells during September 2017. Although the CCR material associated with the operation of the Karn Bottom Ash Pond has been removed;⁷ the groundwater in the vicinity of the Karn Lined Impoundment is documented to have been affected by CCR due to the pre-existing Karn Bottom Ash Pond. DEK-MW-15003 was one of the downgradient compliance wells for the Karn Bottom Ash Pond that continues to be monitored and evaluated with regards to both the Karn Bottom Ash Pond and Karn Lined Impoundment.

Additionally, as noted in the Geology/Hydrogeology section, the site development included reclaiming low-lands with ash fill. The soil boring log for DEK-MW-15003 documents the presence of ash from depths of 7 to 19.5 ft bgs (Attachment B). Ash fill present in this area of the Site provides an additional influence on groundwater quality that is unrelated to the operation of the Karn Lined Impoundment as the presence of ash fill pre-dates construction and operation of the impoundment.

Although a statistically significant increasing trend has been identified for two consecutive quarters (Q4 2023 and Q1 2024) for sulfate at DEK-MW-15003,8 current concentrations are similar to historical results, including groundwater data collected prior to closure of the Karn Bottom Ash Pond and construction of the Karn Lined Impoundment. Welch's t-test was performed on the sulfate concentrations from DEK-MW-15003 to compare the recent data (July 2022-May 2024) to the historical data (2015-July 2022). The t-test results are included as Attachment B and indicate that there is no statistical difference in the current and historical means at all tested significance levels (alpha values). The "background" median of 45.8 milligrams per liter (mg/L) is effectively the same as the "current" median of 45.65 mg/L. Furthermore, the sulfate concentrations are consistent with or lower than concentrations elsewhere in the Karn Bottom Ash Pond and Lined Impoundment well networks. The

⁸ The 8 most recent data points are evaluated following each detection monitoring event to determine whether a statistically significant trend is present.



⁶ TRC. 2018. Annual Groundwater Monitoring Report – DE Karn Power Plant Bottom Ash Pond CCR Unit. January.

⁷ Consumers Energy. 2019. D.E. Karn Generating Facility Bottom Ash Pond CCR Removal Documentation Report. October 30.

magnitude of the sulfate concentrations currently observed at DEK-MW-15003, as well as the overall historical range of concentrations, are much smaller than the magnitude and range of sulfate concentrations observed at other nearby wells, as evidenced by the Box and Whisker Plots included in Attachment B.

#### Regional Groundwater Quality Changes

In addition to increasing at DEK-MW-15003, sulfate concentrations are also increasing in several wells in the vicinity of the Karn Bottom Ash Pond (e.g., DEK-MW-15004, DEK-MW-18001, and OW-12), over the same time period, whereas sulfate concentrations at OW-11 are declining, as illustrated by the time series plots in Attachment C: Charts 1 & 2. Groundwater quality is continuing to change after hydraulic loading to the Karn Bottom Ash Pond ceased in June 2018, when groundwater was diverted to the Karn Lined Impoundment. Changes in groundwater elevations have resulted in variability in the groundwater flow direction, as well as changes in redox conditions, both of which affect contaminant transport and contribute to changes in groundwater quality.

Groundwater elevation changes and the resulting changes in groundwater flow direction are illustrated in the groundwater contour maps included in Attachment C. The "high" elevation of mounded groundwater relative to the Karn Bottom Ash Pond has historically been observed near DEK-MW-15003. Although historically the point source discharge of sluiced bottom ash into the Karn Bottom Ash Pond created localized mounding of the potentiometric surface, the Karn Lined Impoundment went into service on June 7, 2018, and has been continuously collecting the process water and bottom ash that previously went into the former bottom ash pond. Since the former bottom ash pond is no longer being hydraulically loaded with sluiced ash and has been dewatered by gravity, the characteristic groundwater mound centered within the pooled area is no longer present. The groundwater elevation data collected from the groundwater monitoring system of the former bottom ash pond in 2024 demonstrate a reduction in groundwater elevation measurements by several feet when compared to groundwater elevations measured prior to June 2018.

Monitoring well DEK-MW-15003 had been at or near the local high point of mounded groundwater at the Karn site following the discontinuing of loading to the Karn Bottom Ash Pond. However, in late 2023, the DE Karn Power Plant stopped operating and consequently stopped routine discharge to the discharge ditch north of the Karn Lined Impoundment.⁹ This operational change triggered a decrease in groundwater elevation at DEK-MW-15003 and additional flattening of the mounded groundwater, as shown in the groundwater elevation time series plot in Attachment C: Chart 1.

Post-closure changes in groundwater quality are also evident from the field data measurement collected during groundwater sampling events, specifically in measured dissolved oxygen, oxidation reduction potential (ORP), and pH. Field data time-series plots show increased variability following the dewatering and excavation activities at the Karn Bottom Ash Pond (Appendix C: Charts 3 & 4). The overall range of dissolved oxygen measured after the closure activities has increased and shows more variability of measurements within a single well, in addition to more variability between wells. ORP has generally decreased (i.e., more negative and a greater potential for reducing conditions) since July

⁹ Discharge to this ditch was completed under authorization of the National Pollutant Discharge Elimination System (NPDES) permit.



X:\WPAAM\PJT2\553814\0001\ASD\L553814.1 ASD.DOCX

2019 at DEK-MW-15003 as well as within other wells in the area. The decrease in ORP and dissolved oxygen at DEK-MW-15003 generally correlates with the time where the increase in sulfate concentrations have been observed (October 2021 – March 2024). This relationship between sulfate and field ORP is further demonstrated during the recent May 2024 event, where ORP increases compared to prior events and sulfate concentrations decrease. Groundwater elevations at DEK-MW-15003 are further decreasing in this area of the Site following the discontinuation of discharge to the NPDES conveyance ditch located just north of the Karn Lined Impoundment in late 2023. The statistical evaluation of the May 2024 detection monitoring event shows that sulfate concentrations are no longer exhibiting an increasing trend and instead show no trend.¹⁰

The measured pH as OW-11 has increased since July 2019 and the pH at DEK-MW-15003 has been fluctuating since the nearby closure activities were completed. We continue to observe variability in the groundwater quality as a result of both groundwater flow direction changes and redox condition changes following closure activities. These regional groundwater quality changes will continue to be monitored.

#### **Conclusions and Recommendations**

Based on the multiple lines of evidence presented above, the sulfate SSI at DEK-MW-15003 first observed in the October 2023 sampling event and confirmed following the March 2024 sampling event is not attributed to the Karn Lined Impoundment. The information provided in this technical memorandum serves as the ASD for the Karn Lined Impoundment. This ASD was prepared in accordance with 40 CFR 257.94(e)(2) of the CCR Rule and the 2020 HMP and demonstrates that the sulfate SSI at DEK-MW-15003 determined based on the May 2024 detection monitoring event are due to pre-existing groundwater conditions and regional changes in geochemistry. Although there is a confirmed increasing trend of one indicator parameter at one compliance groundwater well, the construction of the Karn Lined Impoundment unit and the measured SCS flow rates demonstrate that there has not been a release from the unit. Therefore, based on the information provided in this ASD, Consumers Energy will continue detection monitoring in accordance with 40 CFR 257.94 at the Karn Lined Impoundment CCR unit.

Sincerely,

TRC

Darby Litz, P.G.

Project Manager/Sr. Hydrogeologist

Kristin Lowery Project Engineer

¹⁰ TRC. 2024. First Quarter 2024 Hydrogeologic Monitoring Report – DE Karn Lined Impoundment. Prepared for Consumers Energy Company. July 30.



#### Attachments

**Figures** 

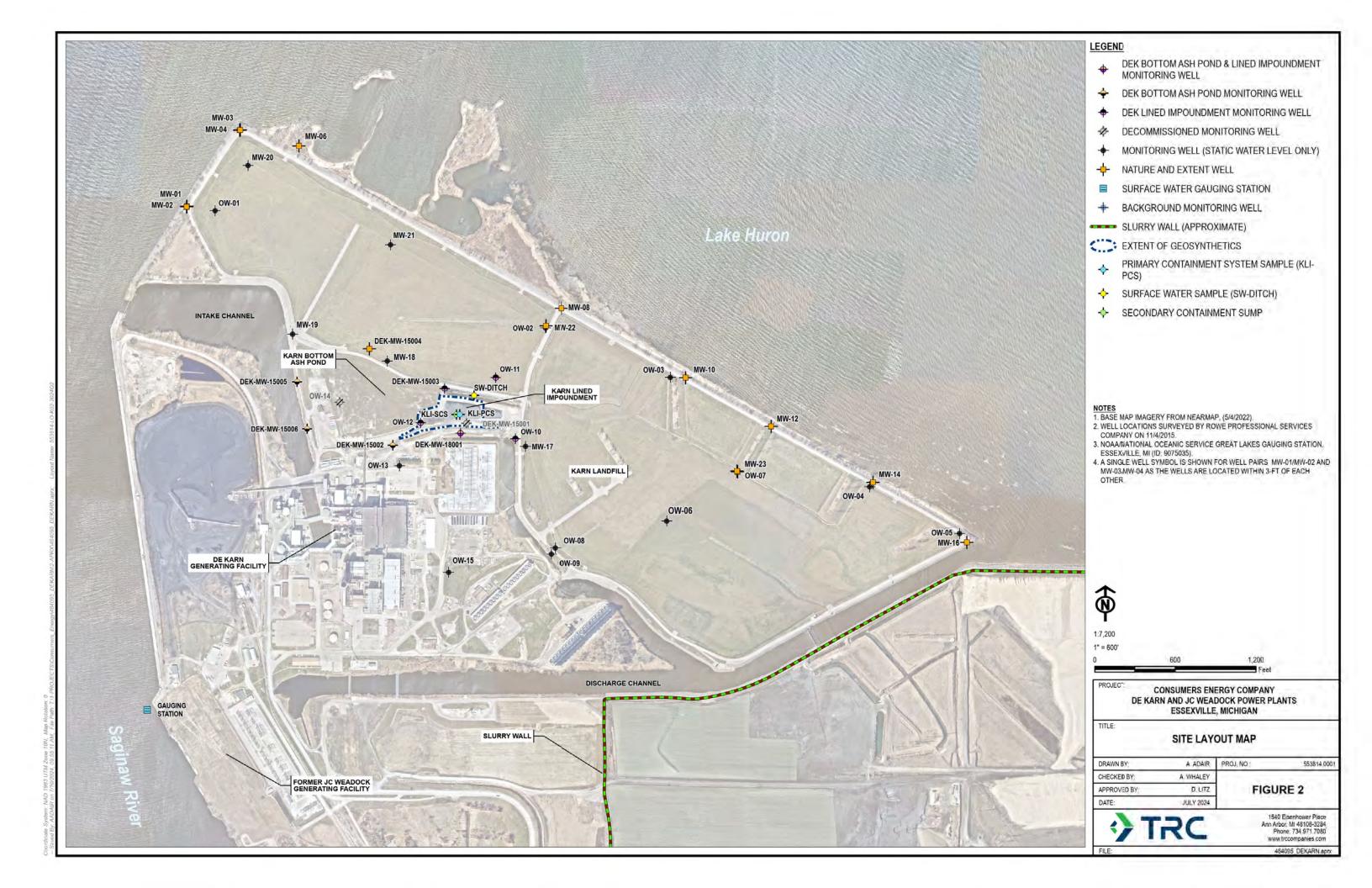
Attachment A Karn Lined Impoundment Unit Construction Attachment B Pre-Existing Groundwater Conditions Attachment C Regional Groundwater Quality Changes

cc: Sarah B. Holmstrom, TRC Graham Crockford, TRC



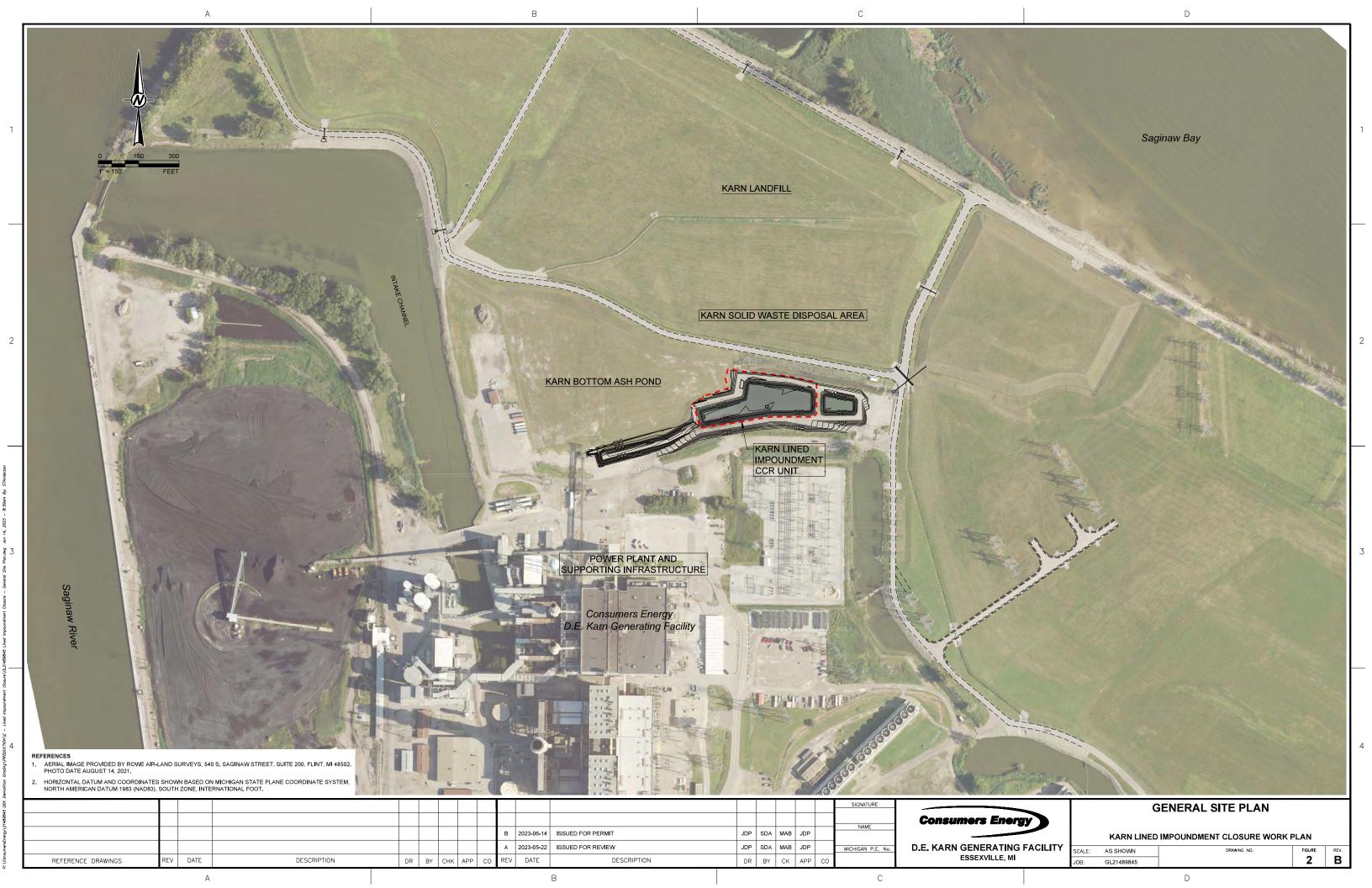
## **Figures**

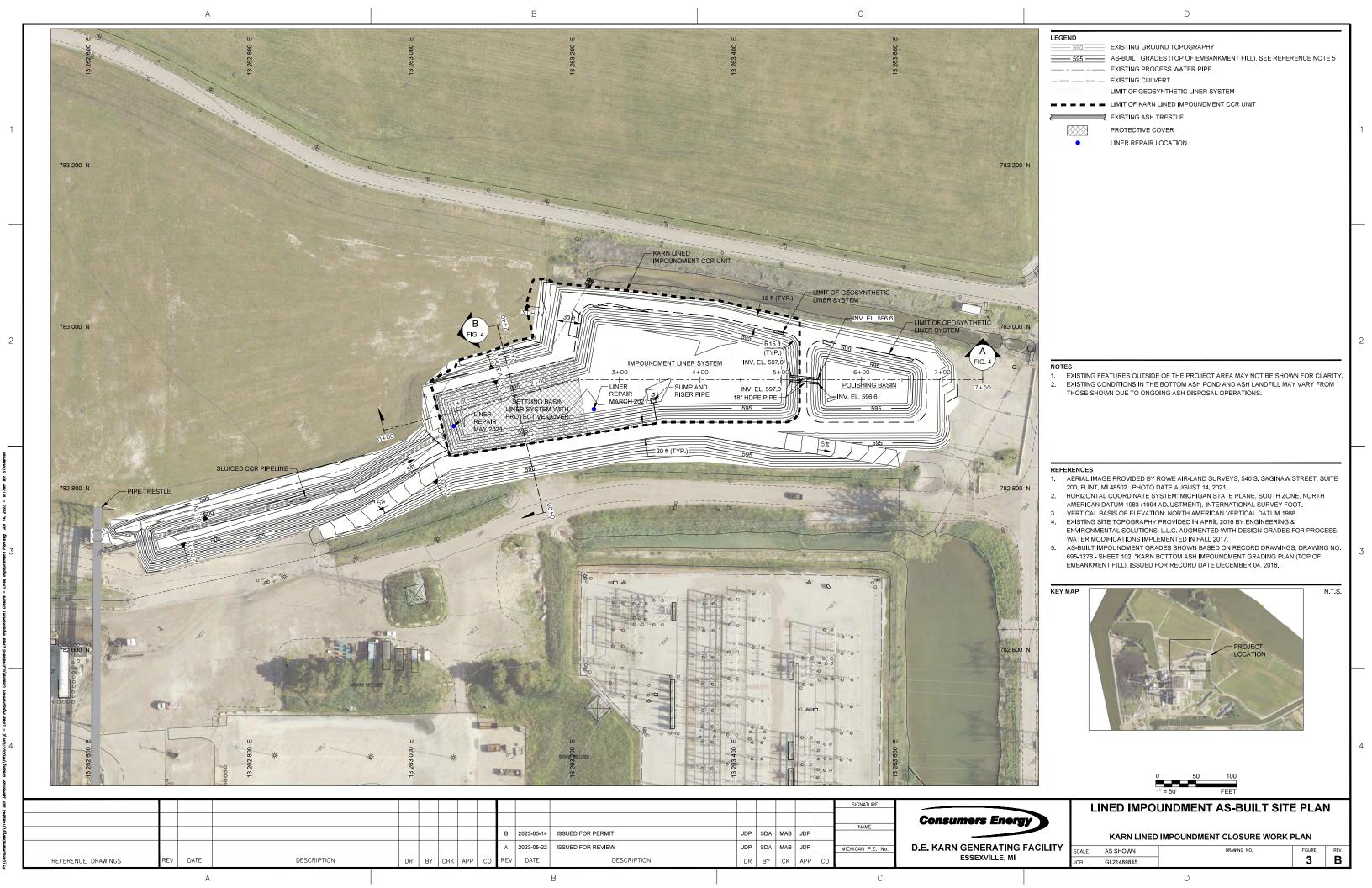


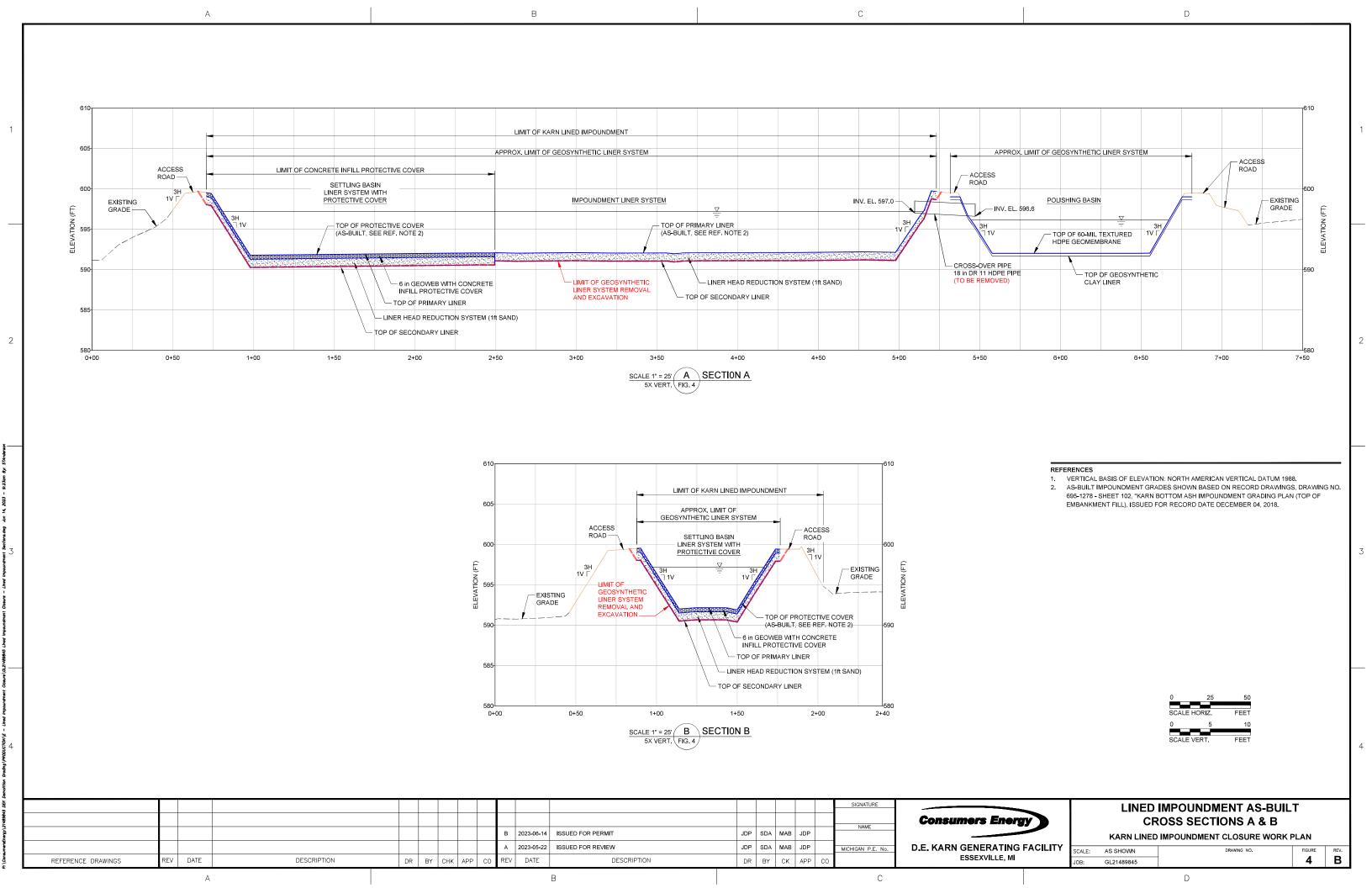


# Attachment A Karn Lined Impoundment Unit Construction









# Attachment B Pre-Existing Groundwater Conditions



Date Start: 10/12/15 **Date Finish:** 10/12/15

**Drilling Company:** Stock Drilling Driller's Name: Austin Goldsmith Drilling Method: Hydrovac/Sonic Sampling Method: Continuous

Rig Type: Sonic

Water Level Start (ft. bgs.): 7.0 Water Level Finish (ft. btoc.): 12.08 Northing: 783112.8 Easting: 13263202.1 Casing Elevation: 602.79

Borehole Depth (ft. bgs.): 29.0 Surface Elevation: 599.9

Descriptions By: L. Rogers

Well/Boring ID: DEK MW-15003

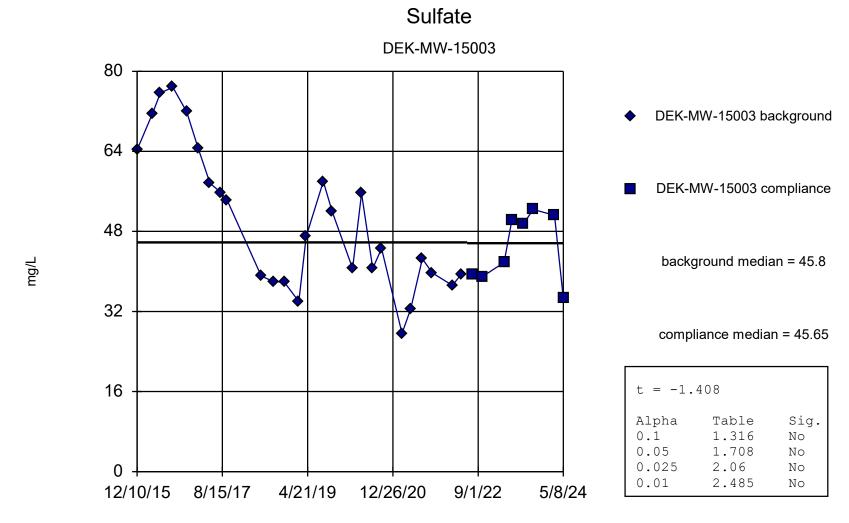
Client: Consumers Energy

**Location:** DE Karn Facility 2742 Weadook Highway Essexville, MI 48732

Weather Conditions: 60 F Windy

DEPTH (feet bgs.)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)	Well/Boring Construction		
-	-										Elevation .79 (ft. e msl)	
- - - - -	- - - - 595 -	1	0.0- 7.0'	0.0	NA			(0.0 - 7.0') Hydrovac; no lithology recorded.		Conci 1.5' b	rete (0.0- gs)	
-	-	2	7.0- 9.0'	2.0	NA	X	×	(7.0 - 8.0') Fly ASH; wet; black (10YR 2/1). NOTE: Fill material. (8.0 - 9.5') PEAT and ASH; little roots; little organics; wet; black (10YR 2/1).				
- 10 - - - - 15 -	590 -	3	9.0- 19.0'	7.5	NA	X	× × × × × × × × × ×	(9.5 - 19.5') ASH, mix of bottom and fly; wet; black (10YR 2/1). NOTE: Fill material.  NOTE: Trace clay from 16.0' to 19.5' bgs.		Casin 21.0'	onite s (1.5-	
- 20 - - - - 25 -	580 - - - - 575 - -	4	19.0-29.0'	10.3	NA	X		(19.5 - 21.0') SAND, very fine to fine; little silt and clay; trace medium sand; well sorted; moist to wet; dark olive gray (5Y 3/2).  (21.0 - 25.0') SAND, very fine to medium; trace coarse sand; trace silt; well sorted; moist to wet; dark gray (10YR 4/1).  (25.0 - 29.0') CLAY, medium to low plasticity; little granule to large cobbles, subrounded to subangular; trace silt; dry; stiff to very stiff; brown (10YR 4/7). NOTE: Till.	-	WP00 29.0' 2" PV Well 3	Pack K&E ( (20.0- bgs) C 10 Slot Screen (25.0' bgs)	
- 30	570 -							End of boring 29.0' bgs.		,,,,,,,,,		
ARCADIS On substructy for natural and built assets					S for buil	o <mark>lgn &amp; Co</mark> natural a It assets	risultancy and	Remarks: bgs = below ground surface btoc = below to  Hydrovac to 7.0' bgs.  Groundwater encountered at 7.0' bgs during drilli  Water level at development was 12.08' btoc.  No odor or staining observed.  Groundwater elevation measured on December 8 above mean sea level.	ng.			

Data File: DEK MW-15003.dat Date: 2/5/2016 Created/Edited by: C. Jeffers Page: 1 of 1

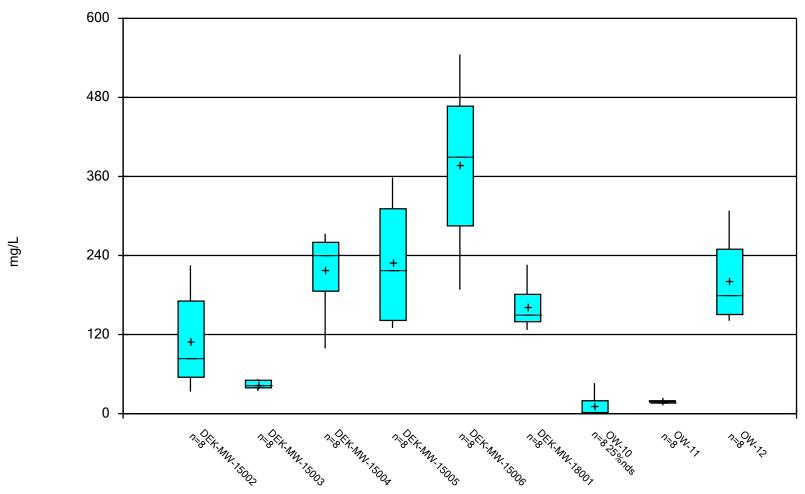


Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9288, critical = 0.92.

Welch's t-test Analysis Run 6/26/2024 12:47 PM

Client: Consumers Energy Data: DEK_HMPCCR_Sanitas_24Q2

Sulfate
8 Most Recent Events (July 2022 - May 2024)



Box & Whiskers Plot Analysis Run 7/22/2024 12:51 AM

Client: Consumers Energy Data: DEK_HMPCCR_Sanitas_24Q2

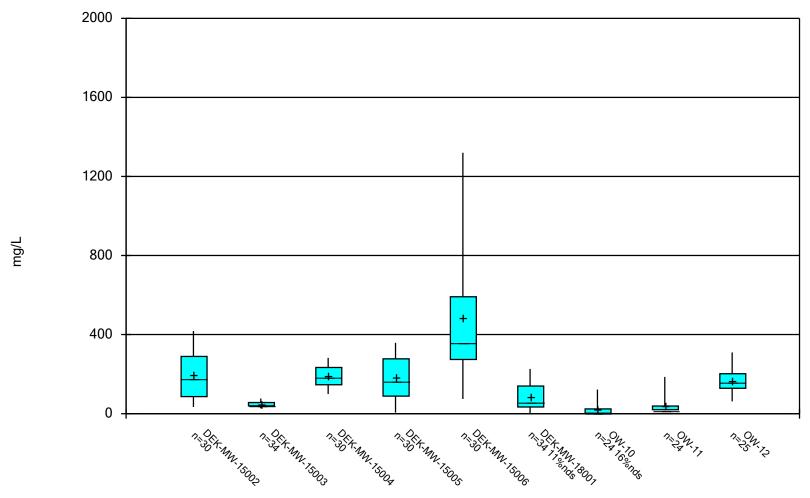
## **Box & Whiskers Plot**

Constituent: Sulfate (mg/L) Analysis Run 7/22/2024 12:52 AM Client: Consumers Energy Data: DEK_HMPCCR_Sanitas_24Q2

	DEK-MW-15002	DEK-MW-15003	DEK-MW-15004	DEK-MW-15005	DEK-MW-15006	DEK-MW-18001	OW-10	OW-11	OW-12
7/26/2022	93.3	39.3		130 (D)	188	127	2.67	19.9	169.5 (D)
7/27/2022			245.5 (D)						
10/4/2022	33.45 (D)	39		130	254	140	46.4	19.3	150 (D)
10/6/2022			98.9						
3/7/2023			267	153	316	161			
3/8/2023	158 (D)	41.8					11.3	17.4	141 (D)
5/2/2023	225	50.2		189 (D)	385		7.035 (D)	17.6	265
5/3/2023			273			148			
7/25/2023			253						
7/26/2023	183.5 (D)	49.5		251	401	139	27.7 (D)	18.5	151
10/3/2023			241						
10/4/2023	50.2 (D)	52.4				158	2.66	17.9	197.5 (D)
10/5/2023				290	446				
3/4/2024						201			
3/5/2024	80.1	51.2 (D)			487		<1	20	234
3/6/2024				332 (D)					
3/11/2024			198						
5/8/2024		34.6 (D)				226	<1	19.4	
5/9/2024	60.45 (D)		174	358	545				308
Median	86.7	45.65	243.3	220	393	153	4.853	18.9	183.5
LowerQ.	55.33	39.15	186	141.5	285	139.5	1.58	17.75	150.5
UpperQ.	170.8	50.7	260	311	466.5	181	19.5	19.65	249.5
Min	33.45	34.6	98.9	130	188	127	0.5	17.4	141
Max	225	52.4	273	358	545	226	46.4	20	308
Mean	110.5	44.75	218.8	229.1	377.8	162.5	12.35	18.75	202

Sulfate

December 2015 - May 2024



Box & Whiskers Plot Analysis Run 7/22/2024 12:50 AM

Client: Consumers Energy Data: DEK_HMPCCR_Sanitas_24Q2

## **Box & Whiskers Plot**

Constituent: Sulfate (mg/L) Analysis Run 7/22/2024 12:53 AM

Client: Consumers Energy Data: DEK_HMPCCR_Sanitas_24Q2

		DEK-MW-15002	DEK-MW-15003	DEK-MW-15004	DEK-MW-15005	DEK-MW-15006	DEK-MW-18001	OW-10	OW-11	OW-12
12/1	10/2015	275	64.3	213	223	1320	72.4			
3/30	0/2016	418	71.6	188	251	1130	53.3			
5/25	5/2016					917				
5/26	6/2016	291	75.7	184	269		64.9			
8/24	4/2016	384	76.8	198	355	1160	37.4			
12/1	1/2016	326	71.9	215	329	886	52.7			
2/23	3/2017	289	64.5	211	281	636	53.4			
5/18	8/2017	299	57.6	220	263	513	59.9			
8/3/	/2017	256		259.5 (D)	300	547	66.3			
8/4/	/2017		55.8							
9/18	8/2017	290	54.3		273	886	36.2			
9/19	9/2017			282 (D)						
4/19	9/2018									62.3 (D)
5/23	3/2018	263	39.1	177 (D)			30.6			
5/24	4/2018				182	401				
8/16	6/2018		38					10.3	185.5 (D)	91.8
	7/2018						<2			
	5/2018	77.2				342.5 (D)				
	6/2018		37.8	168	160	. ,	<2	<2	118	
	7/2018									114
	8/2019		34				<2 (D)	4.1		
	9/2019						, ,		81	77
	/2019									69
	0/2019						<2	8.2 (D)		
	1/2019	45	47	150	140 (D)	320		` ,	72	
	3/2019		58		. ,			9		
	4/2019						20		58	230 (D)
	15/2019	150	52	160	5.1 (D)	74	31	31		310 (D)
	16/2019				` '				52	. ,
	/2020						25.9			
	1/2020		40.6 (D)					20.6	24.9	
	2/2020		, ,							177
	3/2020	367			18.9 (D)	316				
	4/2020		55.6	125	, ,		51.1	9.71 (D)	25.7	169
	/2020	289	40.6		66.1 (D)		66.6	,		192
	/2020			123	,	286		45.05 (D)	24.4 (D)	
	6/2020	140.5 (D)	44.6				91.9	, ,	,	
	7/2020	,		136	102	296				
10/8	8/2020							11.6 (D)	25.9	153
	/2021	191						, ,		
	/2021		27.6	144	75.65 (D)	281	115	2.37 (D)	25.4	165
	/2021	216	32.5	143	50.5 (D)	324	121	,		
	/2021				,			<1	25.6	140 (D)
	7/2021		42.5				112	122	25.8	117.5 (D)
	8/2021	134.5 (D)		148	44.6	268				(=)
	4/2021	58.3		143	57.2	202.5 (D)				
	7/2021		39.7	-		- ( )	118	70.2	23.9	173
	8/2022		37.2					3.51	y- <del>-</del>	149 (D)
	/2022	99.15 (D)	- <del>-</del>		116	172	193	- <del>-</del> -	22	· \-/
	4/2022	(-)		226		_	, <del>-</del>		•	
	/2022	172	39.45 (D)		151	170.5 (D)	187	2.32	20.7	206
	/2022	· / =	-5 (2)	220 (D)		5.5 (2)			_2.,	
0,4				(_)						

## **Box & Whiskers Plot**

Constituent: Sulfate (mg/L) Analysis Run 7/22/2024 12:53 AM

Client: Consumers Energy Data: DEK_HMPCCR_Sanitas_24Q2

	DEK-MW-15002	DEK-MW-15003	DEK-MW-15004	DEK-MW-15005	DEK-MW-15006	DEK-MW-18001	OW-10	OW-11	OW-12
7/26/2022	93.3	39.3		130 (D)	188	127	2.67	19.9	169.5 (D)
7/27/2022			245.5 (D)						
10/4/2022	33.45 (D)	39		130	254	140	46.4	19.3	150 (D)
10/6/2022			98.9						
3/7/2023			267	153	316	161			
3/8/2023	158 (D)	41.8					11.3	17.4	141 (D)
5/2/2023	225	50.2		189 (D)	385		7.035 (D)	17.6	265
5/3/2023			273			148			
7/25/2023			253						
7/26/2023	183.5 (D)	49.5		251	401	139	27.7 (D)	18.5	151
10/3/2023			241						
10/4/2023	50.2 (D)	52.4				158	2.66	17.9	197.5 (D)
10/5/2023				290	446				
3/4/2024						201			
3/5/2024	80.1	51.2 (D)			487		<1	20	234
3/6/2024				332 (D)					
3/11/2024			198						
5/8/2024		34.6 (D)				226	<1	19.4	
5/9/2024	60.45 (D)		174	358	545				308
Median	187.3	45.8	193	171	363.8	66.45	8.6	24.65	165
LowerQ.	86.7	39.05	146	88.83	274.5	33.6	2.515	19.65	128.8
UpperQ.	289.5	56.7	233.5	277	591.5	139.5	24.15	38.95	201.8
Min	33.45	27.6	98.9	5.1	74	1	0.5	17.4	62.3
Max	418	76.8	282	358	1320	226	122	185.5	310
Mean	197.2	48.73	192.8	184.9	482.4	87.16	18.76	40.03	168.5

## Attachment C Regional Groundwater Quality Changes



Chart 1: Sulfate Concentrations versus Groundwater Elevations at DEK-MW-15003

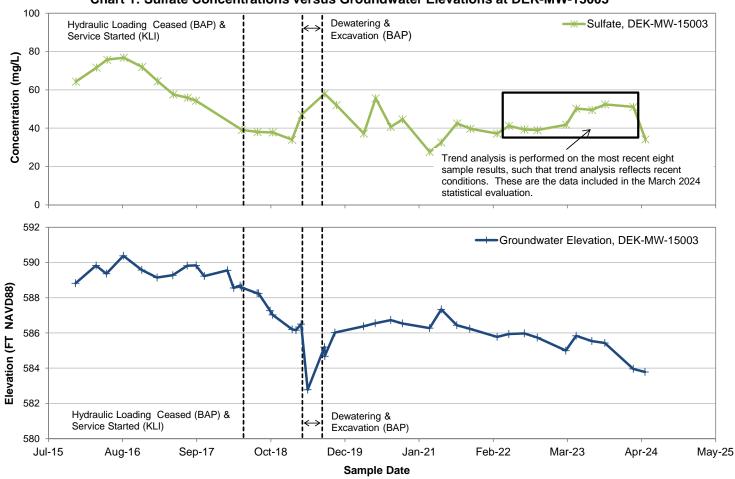
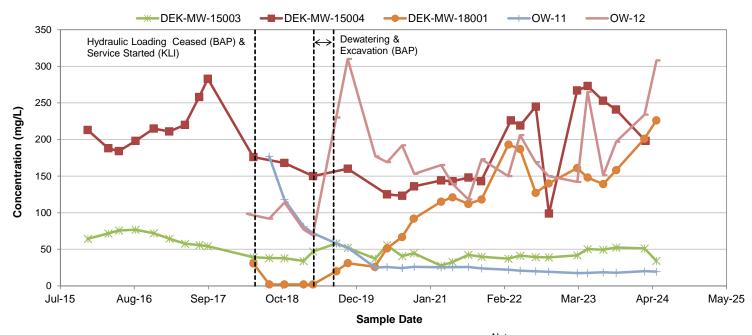
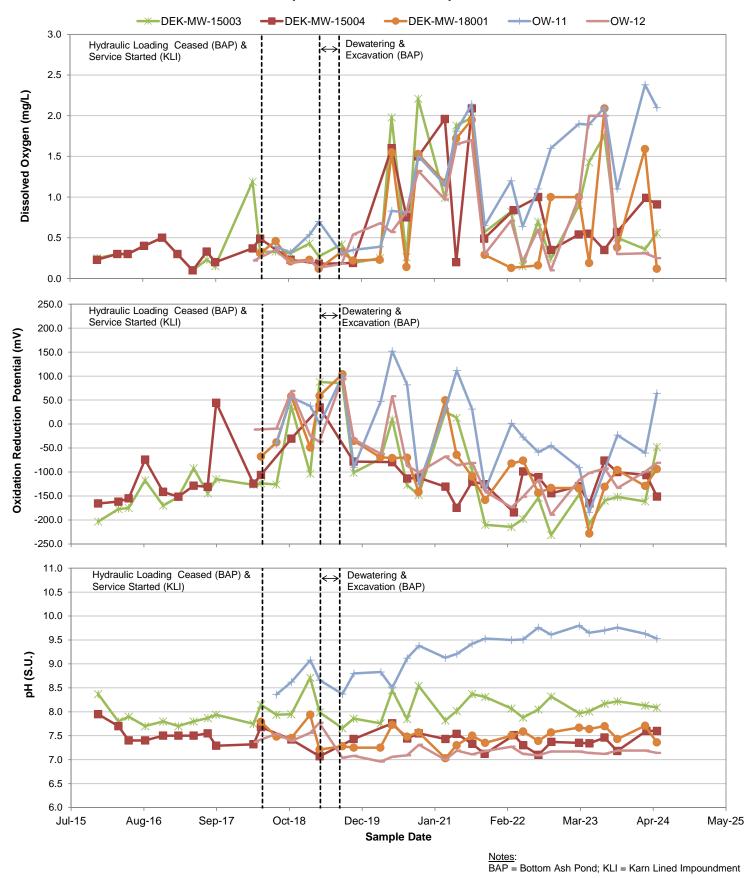


Chart 2: Sulfate Concentrations in Karn Lined Impoundment Area Wells



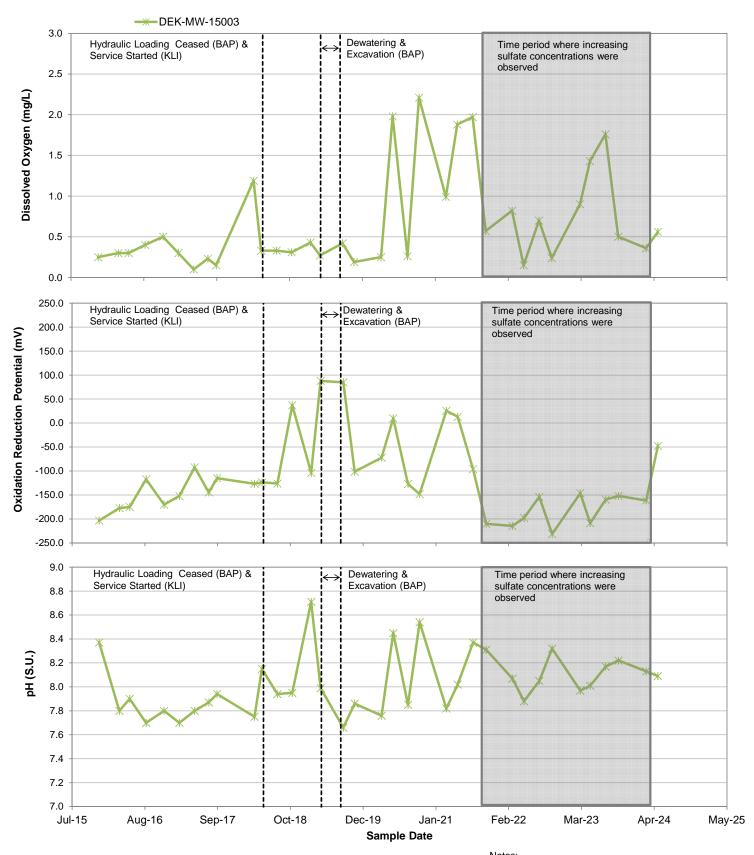
Notes: BAP = Bottom Ash Pond; KLI = Karn Lined Impoundment

Chart 3: Field Data Comparison in Karn Lined Impoundment Area Wells



Page 1 of 1

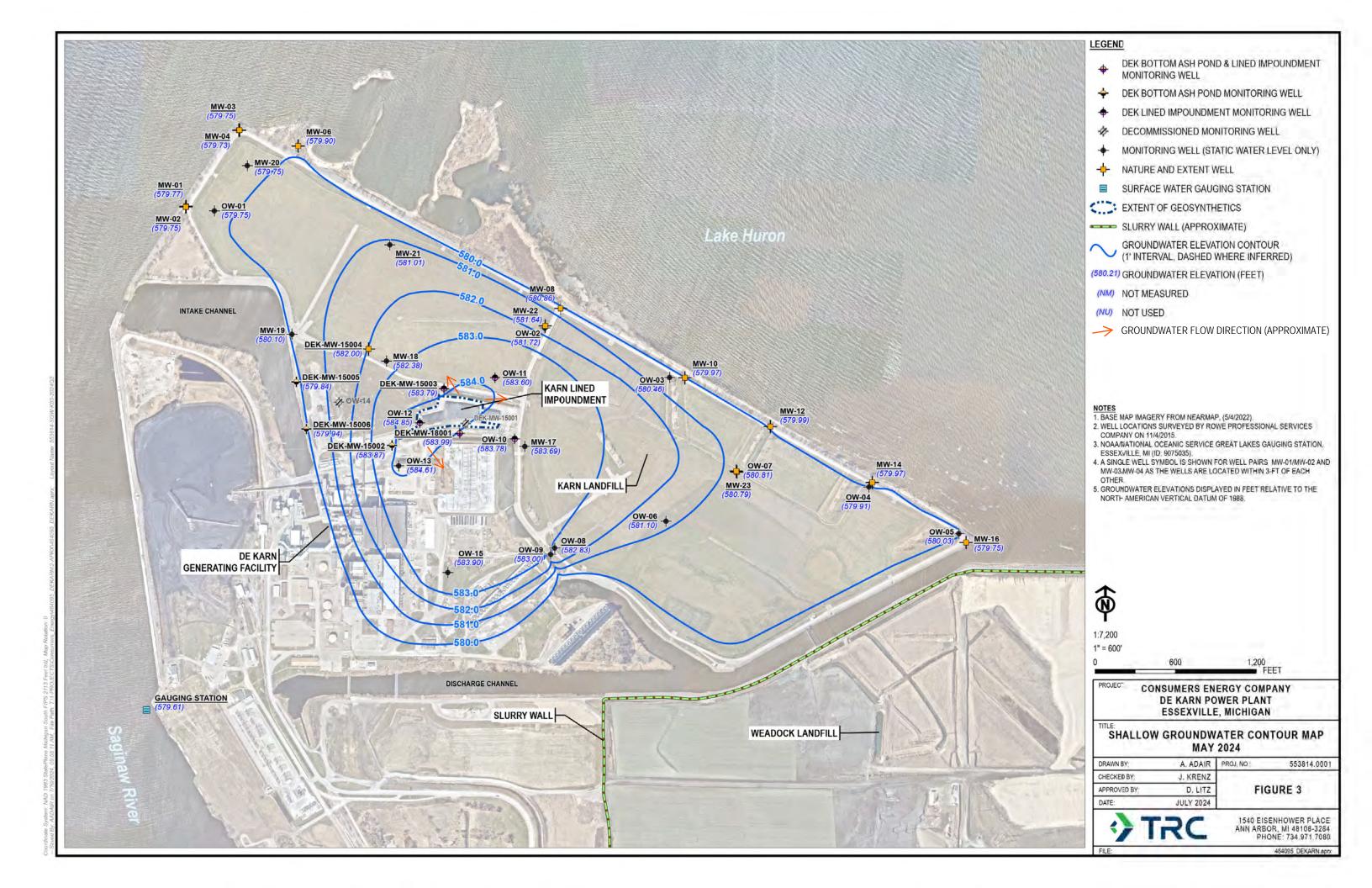
Chart 4: Field Data Comparison in DEK-MW-15003



 $\frac{\text{Notes:}}{\text{BAP} = \text{Bottom Ash Pond; KLI} = \text{Karn Lined Impoundment}}$ 









## **Enclosure 7**

Alternate Source Demonstration: July 2024 Detection
Monitoring Sampling Event, Karn Lined Impoundment Coal
Combustion Residuals (CCR) Unit, Essexville, Michigan. (TRC;
January 28, 2025)



A CMS Energy Company

Date: January 28, 2025

To: Operating Record

From: Harold D. Register, Jr., P.E

RE: Alternate Source Demonstration Professional Engineer Certification, §257.94(e)2

DE Karn Lined Impoundment CCR Unit

Professional Engineer Certification Statement [40 CFR 257.94(e)2]

I hereby certify that the alternative source demonstration presented within this January 28, 2025 letter report has been prepared to meet the requirements of Title 40 CFR §257.94(e)2 of the Federal CCR Rule. This document is accurate and has been prepared in accordance with good engineering practices, including the consideration of applicable industry standards, and with the requirements of Title 40 CFR §257.94(e)2.

Signature

January 28, 2025

**Date of Certification** 

Harold D. Register, Jr., P.E.

Name

6201056266

Professional Engineer Certification Number



## **ENCLOSURES**

TRC (January 2025). <u>Alternate Source Demonstration: July 2024 Detection Monitoring Sampling Event Karn Lined Impoundment Coal Combustion Residuals (CCR) Unit, Essexville, Michigan</u>



January 28, 2025

Harold D. Register, Jr., P.E. Risk Management – Environmental Quality & Sustainability Consumers Energy 1945 W. Parnall Road Jackson, MI 49201

Subject: Alternate Source Demonstration: July 2024 Detection Monitoring Sampling Event

Karn Lined Impoundment Coal Combustion Residuals (CCR) Unit, Essexville, Michigan

Dear Mr. Register:

TRC was retained by Consumers Energy to conduct routine groundwater monitoring activities at the DE Karn Lined Impoundment coal combustion residual (CCR) unit, located in Essexville, Michigan (the Site). Routine groundwater monitoring at the DE Karn Lined Impoundment CCR unit is conducted in accordance with the Michigan Department of Environment, Great Lakes, and Energy (EGLE)-approved Karn Lined Impoundment Hydrogeological Monitoring Plan (HMP),¹ which was written to comply with the requirements of the State of Michigan's Part 115, Rule 299.4905 and the United States Environmental Protection Agency (USEPA) final rule for the regulation and management of CCR under the Resource Conservation and Recovery Act (RCRA), as amended (the CCR Rule) (USEPA, April 2015). The detection monitoring indicator parameters are evaluated quarterly to identify potential statistically significant increases (SSIs) above background levels. Per the HMP and the CCR Rule, an SSI occurs when a statistically significant increasing trend is observed over two consecutive sampling events.

As detailed in *Second Quarter 2024 Hydrogeologic Monitoring Report*, ² an initial statistically significant increasing trend was observed for total dissolved solids (TDS) at DEK-MW-18001 as of the May 2024 detection monitoring event. Subsequently, the statistical evaluation of the July 2024 TDS data at DEK-MW-18001 also showed a statistically significant increasing trend, ³ indicating an SSI over background for:

#### ■ TDS at DEK-MW-18001

All other detection monitoring indicator parameters indicated stable or decreasing trends, i.e., no additional confirmed increasing trends or SSIs are currently observed within the Karn Lined Impoundment monitoring well network.

¹ TRC. 2020. Karn Lined Impoundment Hydrogeological Monitoring Plan. Prepared for Consumers Energy Company. August.

² TRC. 2024. Second Quarter 2024 Hydrogeologic Monitoring Report – DE Karn Lined Impoundment. Prepared for Consumers Energy Company. July 30.

³ TRC. 2024. Third Quarter 2024 Hydrogeologic Monitoring Report – DE Karn Lined Impoundment. Prepared for Consumers Energy Company. October 30.

In accordance with §257.94(e)(2), Consumers Energy may demonstrate that a source other than the CCR unit caused the SSI or that the SSI resulted from an error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. This Alternate Source Demonstration (ASD) has been prepared to address the SSI identified in the July 2024 detection monitoring event. The results of this ASD show that the TDS SSI at DEK-MW-18001 is attributable to other onsite sources and is not due to a release from the Karn Lined Impoundment.

## Background

The Karn Lined Impoundment is located within the DE Karn Power Plant site (Site) located north of the former JC Weadock Power Plant, east of the Saginaw River, south and west of Saginaw Bay. Two coal-fired power generating units (Karn Units 1 & 2) began generating electricity in 1958 and 1959, respectively. Consumers Energy permanently ceased the operation of Karn Units 1 & 2 in May 2023 and has commenced decommissioning activities for both coal-fired generating units. Karn Units 3 & 4, co-located with the coal-fired generating units, are oil- and natural gas-fueled and will continue to operate. Two other areas of coal ash management within the Site are the former Karn Bottom Ash Pond that was closed by removal under the CCR Rule and the Karn Landfill that was certified closed by constructing a final cover system and is currently in post-closure care under P115.

## CCR Unit Description

The Karn Lined Impoundment was put into service in June 2018 to replace the former Karn Bottom Ash Pond that directly supported Karn Units 1 & 2 power generation operations. The Karn Lined Impoundment serves a twofold purpose for treatment pursuant to National Pollutant Discharge Elimination System (NPDES) Permit N0. MI0001678 and as a temporary storage for bottom ash prior to removal and disposal in the JC Weadock Solid Waste Disposal Area (Weadock Landfill) governed by Solid Waste Disposal Area Operating License No. 9640 issued on March 11, 2021. On July 7, 2023, Consumers Energy submitted a Closure Work Plan for the Karn Lined Impoundment to the EGLE that details a process for closure by removal of CCR in accordance with 257.102(c) of the self-implementing requirements of the CCR Rule. By reference, performance of this work would also satisfy state requirements pursuant to Section 11519b(9) of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.11501 et seq. EGLE provided written concurrence with the Closure Work Plan on October 25, 2023. In August and September 2024, the Karn Lined Impoundment was dewatered and hydraulic structures were removed. The remaining CCR, the geosynthetic liner systems, and all areas within the limits of the Karn Lined Impoundment that were in contact with CCR were removed.

## Geology/Hydrogeology

Most of the Karn Lined Impoundment area is comprised of surficial CCR and sand fill, as described in the HMP. USGS topographic maps and aerial photographs dating back to 1938, in addition to field descriptions of subsurface soil at the Site, indicate that the Site was largely developed by reclaiming low-lands through the construction of perimeter dikes and subsequent ash filling.⁴

⁴ AECOM. 2009. Potential Failure Mode Analysis (PFMA) Report. DE Karn Electric Generation Facility Ash Dike Risk Assessment Essexville, Michigan. Prepared for Consumers Energy Company. October 30.



The surficial fill consists of a mixture of varying percentages of ash, sand, and clay-rich fill ranging from 5 to 15 feet thick. Below the surficial fill, native alluvium and lacustrine soils are present at varying depths. Generally, there is a well graded sand unit present to depths of 10 to 30 feet below ground surface (ft bgs) overlying a clay till which is observed at depths ranging from 25 to 75 ft bgs. In general, the alluvium soils (sands) are deeper along the Saginaw River and there are shallower lacustrine deposits (clays, silts, and sands deposited in or on the shores of glacial lakes) at other areas. The clay till acts as a hydraulic barrier that separates the shallow groundwater from the underlying sandstone. A sandstone unit, which is part of the Saginaw formation, is generally encountered at 80 to 90 ft bgs.

The Site is bounded by several surface water features (Figures 1 and 2): the Saginaw River to the west, Saginaw Bay (Lake Huron) to the north and east, and a discharge channel to the south. In general, shallow groundwater is encountered at a similar or slightly higher elevation relative to the surrounding surface water features. Groundwater flow in the upper aquifer is largely controlled by the surface water elevations of Saginaw River and Saginaw Bay. Near the Karn Lined Impoundment, the shallow groundwater flow is generally radial, with a current potentiometric high point near OW-12, flowing outward toward the surrounding surface water bodies.

## Monitoring Well Network

In accordance with §257.91, Consumers Energy developed a groundwater monitoring system for the Karn Lined Impoundment prior to the initial receipt of waste in the CCR unit.⁵ Given the radial groundwater flow direction and that constituents associated with CCR currently managed at the Karn Lined Impoundment are indistinguishable from the constituents already present in groundwater from past operation of the Karn Bottom Ash Pond, the groundwater monitoring system design incorporates an intrawell statistical approach for detection monitoring, as described in the HMP and in accordance with the "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance" (USEPA, 2009). The detection monitoring well network for the Karn Lined Impoundment CCR Unit consists of five monitoring wells (DEK-MW-15003, DEK-MW-18001, OW-10, OW-11, and OW-12) that are screened in the uppermost aquifer. Note that DEK-MW-18001 was installed in 2018 to replace one of the downgradient compliance wells for the Karn Bottom Ash Pond, DEK-MW-15001, that was decommissioned due to Karn Lined Impoundment construction. DEK-MW-18001 continues to be monitored and evaluated with regards to both the Karn Bottom Ash Pond and Karn Lined Impoundment.

### Alternate Source Demonstration: Total Dissolved Solids at DEK-MW-18001

As discussed above, the statistical evaluation of the July 2024 detection monitoring indicator parameters showed a confirmed increasing trend for TDS at DEK-MW-18001, indicating an SSI over background. All other detection monitoring constituents indicated stable or decreasing trends, i.e., no additional increasing trends or SSIs are currently observed within the Karn Lined Impoundment monitoring well network. There are several lines of evidence to demonstrate that the increase in TDS at DEK-MW-18001 is attributable to other sources onsite and is not related to the operation of the Karn Lined Impoundment, as outlined further below.

⁵ TRC. 2018. Groundwater Monitoring System Summary Report – Consumers Energy, DE Karn Lined Impoundment (KLI). Prepared for Consumers Energy Company. June.



## Karn Lined Impoundment Unit Construction

The liner system for the Karn Lined Impoundment was designed as a double composite liner system, with the primary and secondary composite liners each consisting of 60-mil high-density polyethylene (HDPE) geomembrane (GM) overlaying a 236-mil geosynthetic clay liner (GCL). This liner system was constructed consistent with the liner design requirements of §257.70 and §257.72.6 The secondary collection system (SCS) serves as a leak detection system, and the SCS flow rate data is used to demonstrate compliance under Michigan's Natural Resources and Environmental Protection Act, also known as Part 115 of PA 451 of 1994, as amended (a.k.a., Michigan Part 115 Solid Waste Management). The flow rate is calculated each time the SCS is evacuated. Since early 2021, the SCS flow rate has been below the state-established response action flow of 25 gallons per acre per day (GPAD) and the action flow rate of 5 GPAD, indicating that the liner is not leaking. Consumers Energy continues to document this information in their operating record.

The double composite liner system construction of the Karn Lined Impoundment and the SCS flow rate monitoring for leak detection are operating as designed and indicate that wet ash dewatering liquids managed within the unit have not migrated past the liner system and affected groundwater quality. Attachment A contains figures that illustrate the Karn Lined Impoundment as-built construction.

## **Pre-Existing Groundwater Conditions**

The footprint of the Karn Lined Impoundment is immediately adjacent to the pre-existing Karn Bottom Ash Pond. As reported in the 2017 Annual Groundwater Monitoring Report: DE Karn Bottom Ash Pond CCR Unit,⁷ potential SSIs over background limits were noted for boron, fluoride, pH, and sulfate in one or more downgradient wells during the September 2017 detection monitoring event. Although the CCR material associated with the operation of the Karn Bottom Ash Pond has been removed;⁸ the groundwater in the vicinity of the Karn Lined Impoundment is documented to have been affected by CCR prior to the existence of the Karn Lined Impoundment due to the pre-existing Karn Bottom Ash Pond.

Additionally, as noted in the Geology/Hydrogeology section, the site development included reclaiming low-lands with ash fill. Although the soil boring log for DEK-MW-18001 did not note ash, the presence of ash is documented in the boring logs for the other Karn Lined Impoundment and Karn Bottom Ash Pond monitoring wells, including decommissioned monitoring well DEK-MW-15001 located approximately 80 ft northeast of DEK-MW-18001 (Attachment B). Ash fill present in this area of the Site provides an additional influence on groundwater quality that is unrelated to the operation of the Karn Lined Impoundment as the presence of ash fill pre-dates construction and operation of the impoundment.

⁸ Consumers Energy. 2019. D.E. Karn Generating Facility Bottom Ash Pond CCR Removal Documentation Report. October 30.



⁶ Golder Associates, Inc. 2018. D. E. Karn Generating Facility Bottom Ash Lined Impoundment Liner System Design Certification Report. April.

⁷ TRC. 2018. Annual Groundwater Monitoring Report – DE Karn Power Plant Bottom Ash Pond CCR Unit. January.

The magnitude of the TDS concentrations currently observed at DEK-MW-18001 are lower than the concentrations observed in the unaffected background wells from the Karn Bottom Ash Pond certified well network (Figure 2), as evidenced by the Box and Whisker Plots included in Attachment B. Additionally, TDS concentrations at DEK-MW-18001 are consistent with concentrations at monitoring well DEK-MW-15001 which reflects conditions prior to the construction of the Karn Lined Impoundment (Attachment C, Chart 2).

## Challenges with Total Dissolved Solids as an Indicator Parameter

TDS is a detection monitoring constituent listed in Appendix III to Part 257 as a CCR indicator parameter. Although TDS can be used to assess groundwater quality, TDS concentrations reflect the total amount of dissolved substances in water and are strongly influenced by common ions, including calcium, chloride, iron, magnesium, potassium, sodium, and sulfate. Since changes in TDS are not necessarily tied to a single constituent, the lack of specificity can make determining a specific source causing changes in TDS a challenge. The expression of TDS concentration is also highly variable temporally and spatially given the influence by rainfall events and the influence of the geologic medium that precipitation, surface runoff, and/or groundwater come into contact with along the flow path.

TDS at DEK-MW-18001 was the only confirmed statistically significant increase in a detection monitoring constituent identified in statistical evaluation the July 2024 groundwater data. A confirmed increasing trend of TDS provides a *potential indication* that a release may be coming from the monitored unit. When this indicator trend is evaluated with other co-monitored conditions and parameters at the Karn Lined Impoundment which do not indicate statistical increases, the increasing trend for TDS observed at a single well does not demonstrate a new release from operation of the Karn Lined Impoundment has occurred.

## Regional Groundwater Quality Changes: Sulfate

Sulfate concentrations, one of the common ions that contribute to overall TDS, are increasing in several wells in the vicinity of the Karn Bottom Ash Pond and Lined Impoundment (e.g., DEK-MW-18001, DEK-MW-15003, DEK-MW-15004, and OW-12), following the CCR removal and pond closure activities at the Karn Bottom Ash Pond, as discussed in detail in the *Alternate Source Demonstration: March 2024 Detection Monitoring Sampling Event*⁹. Visual increases can be observed for sulfate over the past 2 years that mirror the trend in TDS at DEK-MW-18001 (Attachment C, Charts 1 & 2). Changes in groundwater elevations have resulted in variability in the groundwater flow direction, as well as changes in redox conditions, both of which affect contaminant transport and contribute to changes in groundwater quality for redox sensitive conditions, such as sulfate. As a result, these changes affect the concentrations of TDS. Field data and constituent concentration variability are observed in the groundwater quality as a result of both groundwater flow direction changes and redox condition changes following closure activities. These regional groundwater quality changes will continue to be monitored.

⁹ TRC. 2024. Alternate Source Demonstration: March 2024 Detection Monitoring Sampling Event Karn Lined Impoundment Coal Combustion Residuals (CCR) Unit, Essexville, Michigan. July 30



### **Conclusions and Recommendations**

Based on the multiple lines of evidence presented above, the TDS SSI at DEK-MW-18001 first observed in the May 2024 sampling event and confirmed following the July 2024 sampling event is not attributed to the Karn Lined Impoundment. The information provided in this technical memorandum serves as the ASD for the Karn Lined Impoundment. This ASD was prepared in accordance with 40 CFR 257.94(e)(2) of the CCR Rule and the 2020 HMP and demonstrates that the TDS SSI at DEK-MW-18001 determined based on the July 2024 detection monitoring event are due to pre-existing groundwater conditions and regional changes in geochemistry. Although there is a confirmed increasing trend of one indicator parameter at one compliance groundwater well, the construction of the Karn Lined Impoundment unit and the measured SCS flow rates demonstrate that there has not been a release from the unit. Therefore, based on the information provided in this ASD, Consumers Energy will not trigger the initiation of assessment monitoring in accordance with 40 CFR 257.95 at the Karn Lined Impoundment CCR unit. As discussed above, closure by removal activities at the Karn Lined Impoundment have been completed and the unit post-excavation groundwater monitoring has commenced.

Sincerely,

**TRC** 

Darby Litz/P.G.

Project Manager/Sr. Hydrogeologist

Kristin Lowery Project Engineer

**Attachments** 

Figures

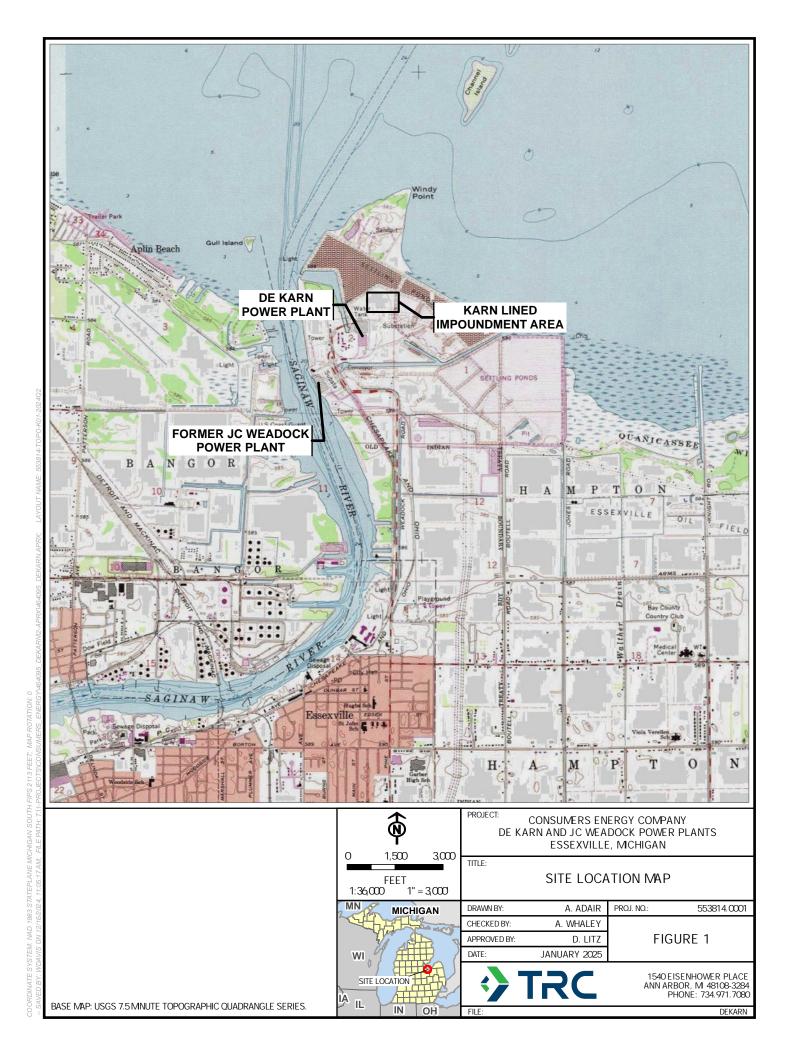
Attachment A Karn Lined Impoundment Unit Construction
Attachment B Pre-Existing Groundwater Conditions
Attachment C Total Dissolved Solids and Sulfate Time-Series Charts

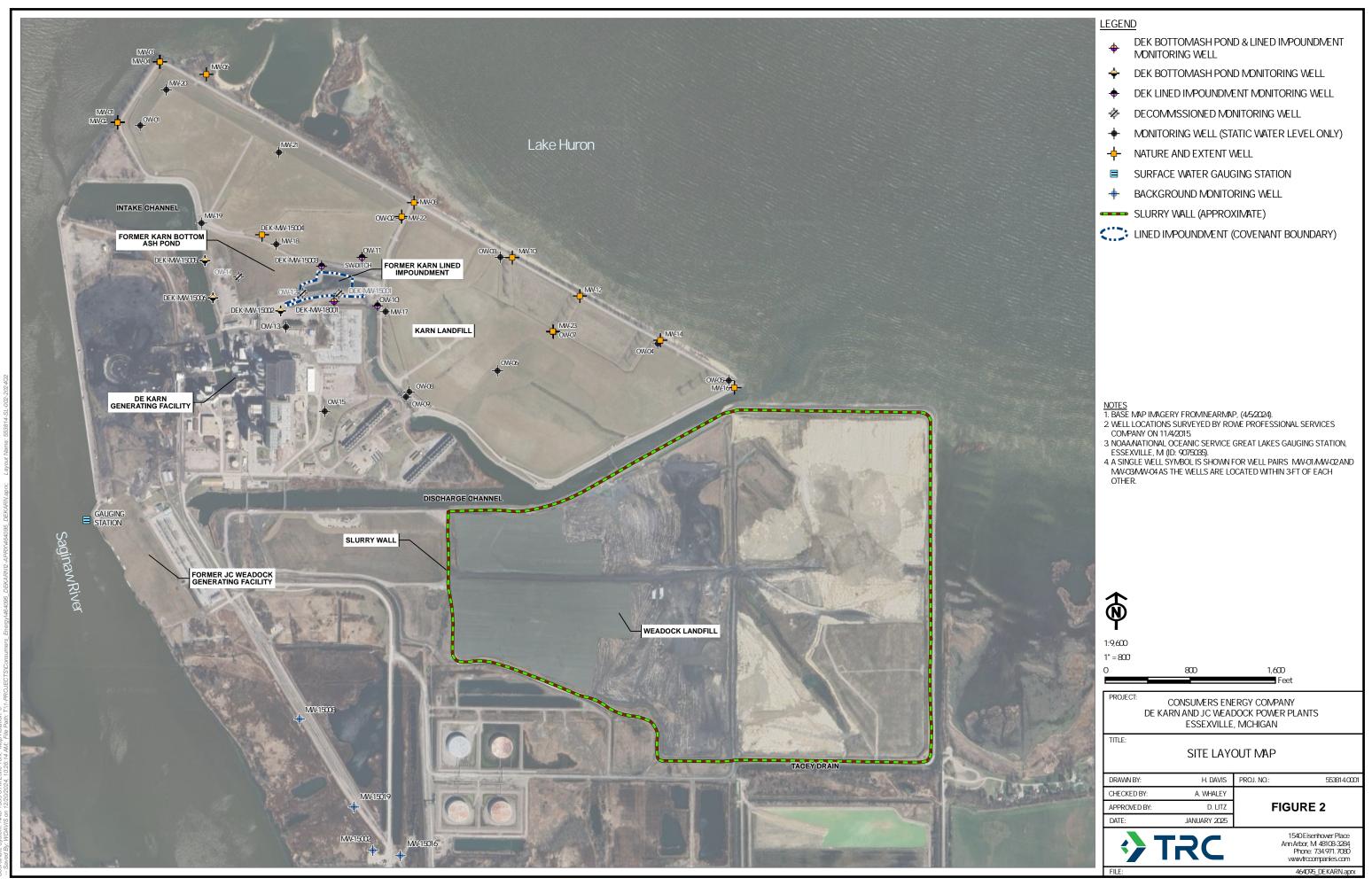
cc: Sarah B. Holmstrom, TRC Graham Crockford, TRC



# **Figures**



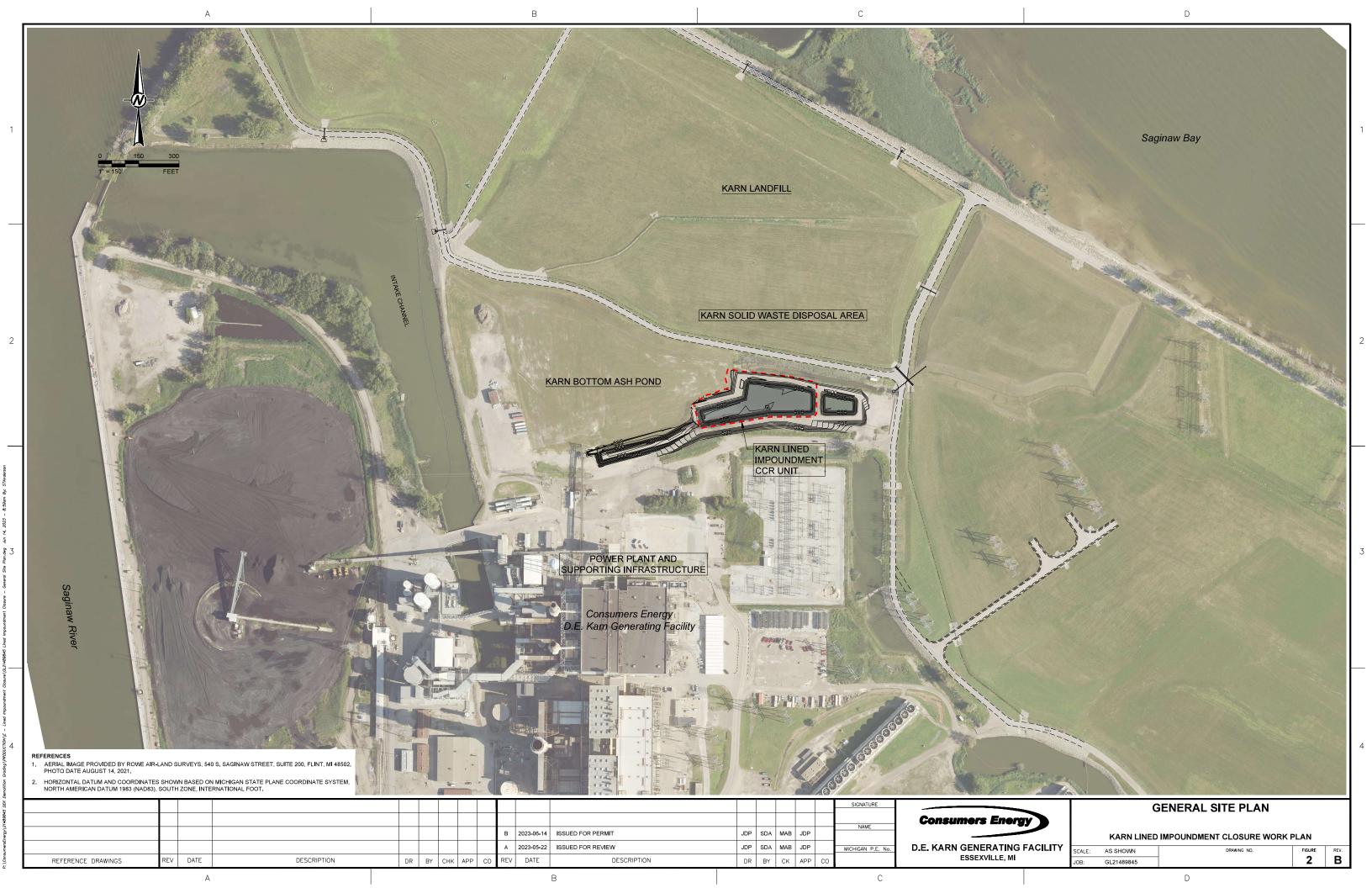


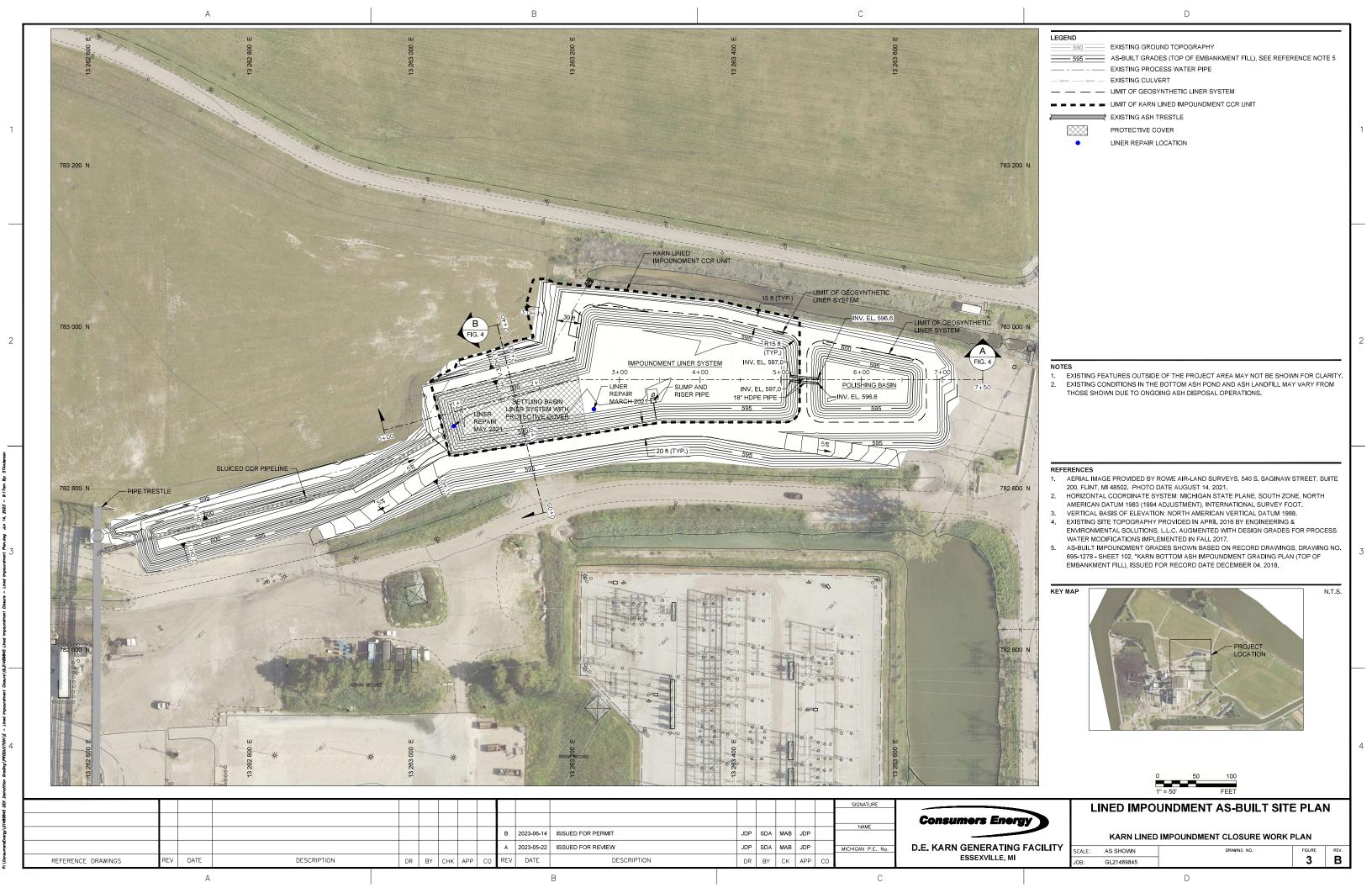


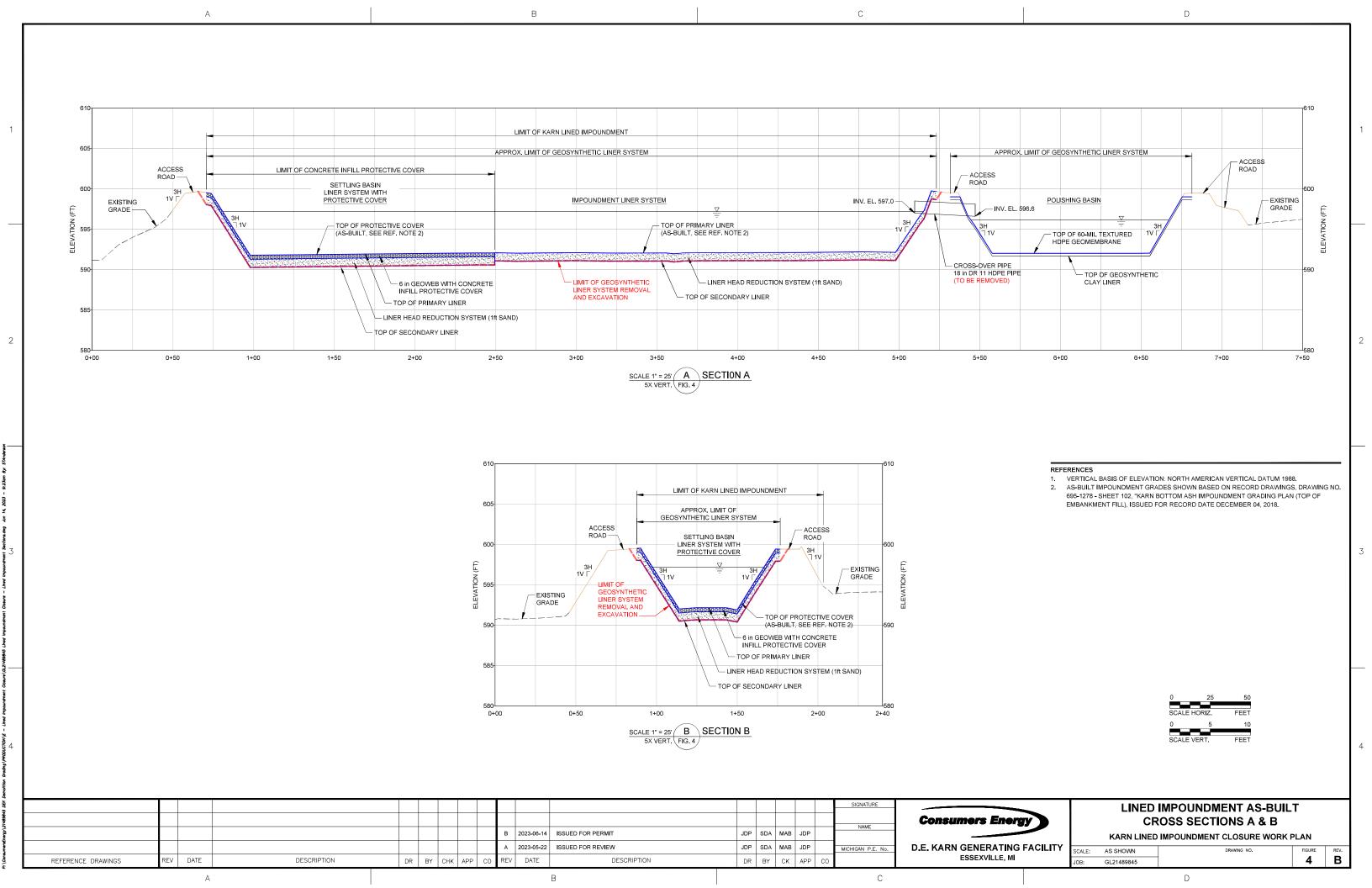
Coordinate Statem: MAD 1089 LITM Zone 10M: Ms

# Attachment A Karn Lined Impoundment Unit Construction









# Attachment B Pre-Existing Groundwater Conditions



Date Start: 10/09/15 **Date Finish:** 10/09/15

**Drilling Company:** Stock Drilling Driller's Name: Austin Goldsmith Drilling Method: Hydrovac/Sonic Sampling Method: Continuous

Rig Type: Sonic

Water Level Start (ft. bgs.): 11.0 Water Level Finish (ft. btoc.): 8.78 Northing: 782854 Easting: 13263363.7 Casing Elevation: 594.64

Borehole Depth (ft. bgs.): 19.0 Surface Elevation: 592.1

Descriptions By: L. Rogers

Well/Boring ID: DEK MW-15001

Client: Consumers Energy

Location: DE Karn Facility 2742 Weadock Highway Essexville, MI 48732

Weather Conditions: 57 F Sunny

DEPTH (feet bgs.)	ELEVATION	Sample Run Number Sample/Int/Type Recovery (feet) PID Headspace (ppm) Analytical Sample Geologic Column			Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)	Well/Boring Construction			
-	595 <b>-</b>											TOC Elevation = 594.64 (ft. above msl)
- - - -	590 -	1	0.0- 6.0'	0.0	NA			(0.0 - 6.0') Hydrovac; no lithology recorded.				Concrete (0.0- 1.5' bgs)
-	- 585 - -	2	6.0- 9.0'	3.0	NA		× × × ×	(6.0 - 9.0') ASH; wet; black (10YR 2/1). NOTE: Fill material.			†	2" PVC Well Casing (-3.0- 16.0' bgs)
- 10 1	580 -	3	9.0-	9.6	NA		× × ×	(9.0 - 11.0') CLAY, medium plasticity; little fine sand to very large pebbles, subrounded to subangular; moist to wet; soft; brown (10YR 5/3).  (11.0 - 12.5') ASH; wet; soft; black (10YR 2/1).  (12.5 - 17.0') SAND, very fine to fine; little medium sand; trace ash; well sorted; wet; very dark grayish brown (10YR 3/2).		34- 24- 24-	4 4 4	Pellets (1.5- 15.5' bgs)
- 15 - -	- 575 -		19.0'					NOTE: Trace shell fragments at 15.0' bgs.  NOTE: Lose trace ash at 15.5' bgs.  (17.0 - 19.0') CLAY, medium to low plasticity; trace silt; trace fine to medium sand; trace granule to large pebbles, subrounded to subangular; dry; stiff to very stiff; dark grayish brown (10YR 4/2).  End of boring 19.0' bgs.		886		Sand Pack K&E WP00 (15.5- 19.0' bgs) 2" PVC 10 Slot Well Screen (16.0-17.0' bgs)
— 20 -	-											
ARCADIS Design & Consultancy for natural and built assets						ign & Co natural a t assets	nsultancy nd	Remarks: bgs = below ground surface btoc = below to  Hydrovac to 6.0' bgs.  Groundwater encountered at 11.0' bgs during dri  Water level at development was 8.78' btoc.  No odor or staining observed.  Groundwater elevation measured on December 8 above mean sea level.	lling	j.	85.97 feet	

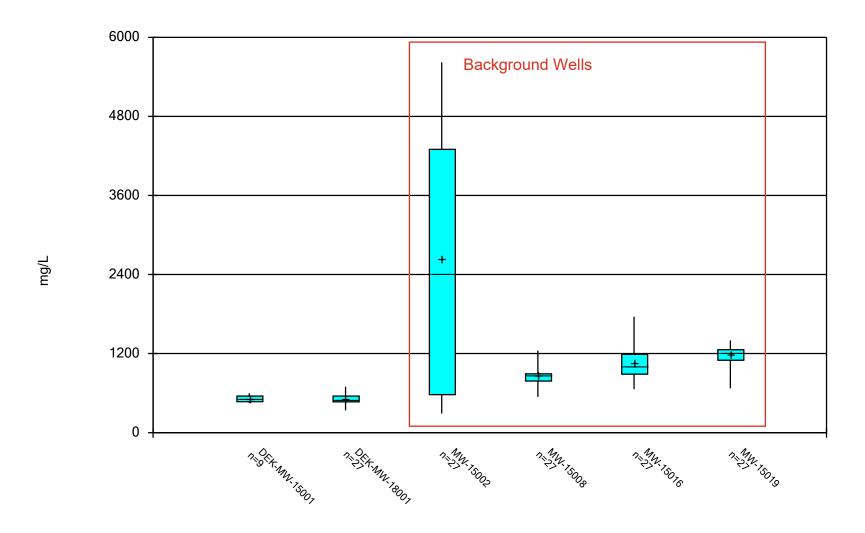
Data File: DEK MW-15001.dat Date: 2/5/2016 Created/Edited by: C. Jeffers Page: 1 of 1

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	2 SS	100	4	2-	<b>SAND</b> mostly medium sand, yellowish brown (10YR 5/6), dry, loose.							SP	<i>2.                                    </i>			
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0804.000			6	-	SAND r	mostly fine			brown (10YR 6/			SP	//			
J TRC_CORP.GDT 290804.0000 1/22/19	3 55	CLAY WITH SAND mostly clay, few to little fine to medium sand, trace fine gravel, low plasticity, yellowish brown (10YR 5/4), stiff, moist.  SAND mostly fine to medium sand, dark yellowish brown (10YR 4/4), moist, loose.										SP				
SMENT.GF			4	-	sand, tra	ace fine gr			ttle fine to mediu llowish brown (10		CL					
C.FLUORIDEASSES	4 \$\$	80	3	6-	SAND r (10YR 3 CLAY n plasticity	3/6), moist mostly clay y, gray (10	, loose. /, trace fin )YR 5/1), i	e sand, trace noist, mediu		ium		SP				
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TRC Environmental Corporation 1540 Eisenhower Place Ann Arbor, MI 48108 734-971-7080 Fax 734-971-9022 Firm: Signature:

SAM		TI	R	WELL CONSTRUCTION LOG	WELL NO. DEK-MW-18001  Page 2 of 2						
AND TYPE	RECOVERY (%)	BLOW COUNTS	DEPTH IN FEET	LITHOLOGIC DESCRIPTION	NSCS	GRAPHIC LOG	WELL DIAGRAM	COMMENTS			
SS SS AN AN AN AN AN AN AN AN AN AN AN AN AN	70	5 9 7 6	11-	Change to mostly fine sand, trace ash at 11.0 feet.	3	o o	<b>N</b>				
7 SS	60	6 9 7 5	13-	Change to mostly medium sand, saturated, trace shell fragments, no ash at 13.0 feet.	SP						
9 55	75	9 7 5	15—	<b>CLAY</b> mostly clay, trace to few sand, trace gravel, low plasticity, gray (10YR 5/1), moist, very stiff.							
		12	- - - - - - - - - - - - - - - - - - -	End of boring at 18.0 feet below ground surface.	CL						
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			22-								

Box & Whiskers Plot



Constituent: Total Dissolved Solids Analysis Run 1/27/2025 10:29 AM

Client: Consumers Energy Data: DEK Background KLI

## **Box & Whiskers Plot**

Constituent: Total Dissolved Solids (mg/L) Analysis Run 1/28/2025 3:14 PM

Client: Consumers Energy Data: DEK Background KLI

10/0/0015	DEK-MW-15001	DEK-MW-18001	MW-15002	MW-15008	MW-15016	MW-15019
12/8/2015			2400	960	670	1400
12/9/2015				860		1400
12/10/2015	600 (D)		.===			
3/28/2016			1700			
3/29/2016				720	1000	1100
3/30/2016	470 (D)					
5/23/2016			4500			
5/24/2016				880	900	1300
5/26/2016	510 (D)					
8/22/2016			1300		920	
8/23/2016				730		1300
8/24/2016	480 (D)					
11/30/2016			980	790	840	1100
12/1/2016	470 (D)					
2/22/2017			3100	760	1700	1200
2/23/2017	450 (D)					
5/16/2017						1100
5/17/2017			4300	840	1100	
5/18/2017	510 (D)					
8/1/2017			4600		1090	
8/2/2017				866		1250
8/3/2017	516 (D)					
9/18/2017	594 (D)					
9/19/2017			4280	848	756	1200
5/22/2018			3810	744	1230	1100 (D)
5/23/2018		434 (D)				
8/17/2018		356 (D)				
11/6/2018		340 (D)				
11/8/2018			1230	882	791 (D)	1080
2/18/2019		355 (D)				
4/8/2019			4700	875 (D)		1200
4/9/2019					970	
4/10/2019		360 (D)				
8/14/2019		480 (D)				
10/15/2019		500 (D)		890		
10/16/2019			700		1000 (D)	1000
3/9/2020		458 (D)				
5/14/2020		484 (D)		1100 (D)		
5/15/2020			577		922	1190
8/3/2020		498 (D)				
10/6/2020		476 (D)				
10/13/2020			466	866 (D)	1150	1180
3/2/2021		495 (D)				
5/3/2021		486 (D)	5360 (D)	822	979	1160
7/27/2021		467 (D)	, ,			
10/6/2021				810		
10/7/2021		494 (D)	290		1140	1175 (D)
3/1/2022		589 (D)				• •
5/2/2022		🗸 /	4240	784.5 (D)		1200
5/3/2022		555 (D)	-	-	1390	
7/26/2022		532 (D)				
10/4/2022		551 (D)		893 (D)		1190
		(-/		\-/		

## **Box & Whiskers Plot**

Constituent: Total Dissolved Solids (mg/L) Analysis Run 1/28/2025 3:14 PM

Client: Consumers Energy Data: DEK Background KLI

	DEK-MW-15001	DEK-MW-18001	MW-15002	MW-15008	MW-15016	MW-15019
10/5/2022			4210		1760	
3/7/2023		534 (D)	572.5 (D)	743	673	1200
5/1/2023			351	877		1170 (D)
5/2/2023					889	
5/3/2023		575 (D)				
7/24/2023				542.5 (D)		671
7/26/2023		548 (D)	2100		660	
10/2/2023				1190 (D)		1400
10/4/2023		551 (D)	5430		1340	
3/4/2024		598 (D)				
3/5/2024			3300	1020 (D)	1090	1220
5/8/2024		670 (D)	358	1245 (D)	1190	1340
7/24/2024		698 (D)	422	1039 (D)	1170	1310
10/2/2024				1020 (D)		1260
10/3/2024		624 (D)	5620		1300	
Median	510	498	2400	866	1000	1200
LowerQ.	470	467	577	784.5	889	1100
UpperQ.	555	555	4300	893	1190	1260
Min	450	340	290	542.5	660	671
Max	600	698	5620	1245	1760	1400
Mean	511.1	507.7	2626	875.4	1060	1185

# Attachment C Regional Groundwater Quality Changes



Chart 1: Sulfate Concentrations at DEK-MW-15001 and DEK-MW-18001

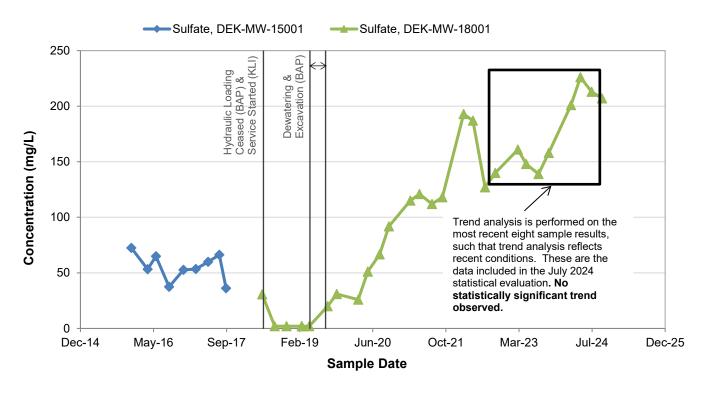
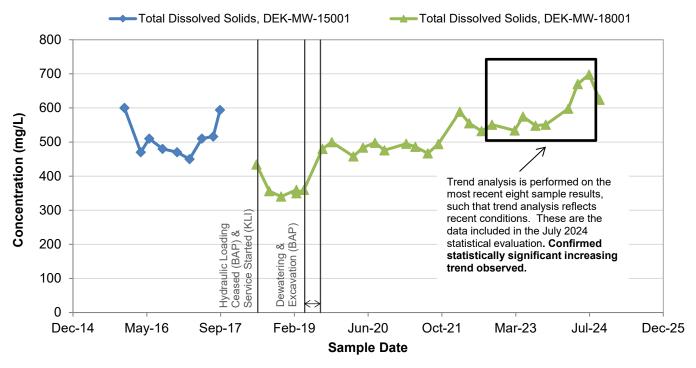


Chart 2: TDS Concentrations at DEK-MW-15001 and DEK-MW-18001



Notes:

BAP = Bottom Ash Pond; KLI = Karn Lined Impoundment



## **Enclosure 8**

D.E. Karn Generating Facility, Karn Lined Impoundment Decommissioning Report, (WSP USA, Inc., October 30, 2024)



December 20, 2024

#### TRANSMITTAL VIA EMAIL 12/20/2024

Mr. Mike Quigg and Ms. Lori Babcock Michigan Department of Environment, Great Lakes, and Energy Materials Management Division Bay City District Office 401 Ketchum St, Suite B Bay City, Michigan 48708

## TRANSMITTAL OF D.E. KARN GENERATING FACILITY; KARN LINED IMPOUNDMENT DECOMMISSIONING REPORT, ESSEXVILLE, MICHIGAN; WASTE DATA SYSTEM NUMBER 392503

Dear Mr. Quigg and Ms. Babcock,

Please find the enclosed the decommissioning report for the DE Karn Lined Impoundment that commenced after a Notice of Intent to Initiate Closure was provided on July 21, 2023. This report documents the field work conducted to remove the remaining coal combustion residuals (CCRs) located within the Karn Impoundment, examination and removal of the liner system, and the statistically-derived three lines of evidence approach that decontamination had been achieved by testing the sand layer above the primary composite liner. Also included is a monitoring well decommissioning log for monitoring well OW-12 that was located within the limits of decommissioning. Consumers Energy is currently evaluating options for a replacement well, along with other wells that will better characterization groundwater quality within the area of the former lined impoundment.

Due to the presence of historically-placed bottom ash to improve the ground surface for load-bearing applications within the area inclusive of the former Karn Lined Impoundment, the media immediately underlying the secondary composite liner system was unable to be evaluated for verification that all CCRs had been removed. However, with the work documented in this report, removal of CCRs and decontamination of the unit and any releases that were documented to be from this unit were addressed as part of the overall decommissioning activities that proceeded from July 2024 to September 2024. In order to document the decontamination performance standard for the unit has been validated including any releases documented from the unit also remediated, a minimum of two additional groundwater sampling events must be completed to verify that the Groundwater Protection Standard (GWPS) had been attained.

The first of those two sampling events was completed in October during the 4th Quarter 2024 sampling event and will be reported by the end of January 2025. The second sampling event will be conducted in March 2026 representing the first quarter sampling event. The results from

"Karn Lined Impoundment Decommissioning Report" December 20, 2024 Page 2



this event will be reported by the end of April 2026 accompanied by a formal recommendation to conclude whether criteria for clean closure has been achieved. Consequently, a recommendation will also be presented regarding the status of submitting a renewal solid waste operating license before the Karn Lined Impoundment License expires on December 10, 2025.

Consumers Energy requests review and approval at this time of the decommissioning report documenting field work completed, and quality measures undertaken to verify that Coal Combustion Residuals managed in the Karn Lined Impoundment have been removed. Once the data is collected for the remaining performance measures, Consumers Energy will submit a Closure by Removal certification with the appropriate qualifiers for review and approval.

We appreciate your prompt review of this document!! Don't hesitate to follow-up with any clarifying questions!

Sincerely,

Harold D. Register, Jr., P.E.

Harold D. Registe

Sr. Principal Environmental Engineer Environmental Risk Management

Phone: (517) 788-2982

Email: harold.registerjr@cmsenergy.com

cc: Mr. Joe Firlit, Consumers Energy

Mr. Chris Pickelmann, Consumers Energy

Mr. Steve Thumma, WSP

Mr. John Puls, WSP Ms. Darby Litz, TRC

Enclosures (2)



### **REPORT**

# D.E. Karn Generating Facility

Karn Lined Impoundment Decommissioning Report

Submitted to:

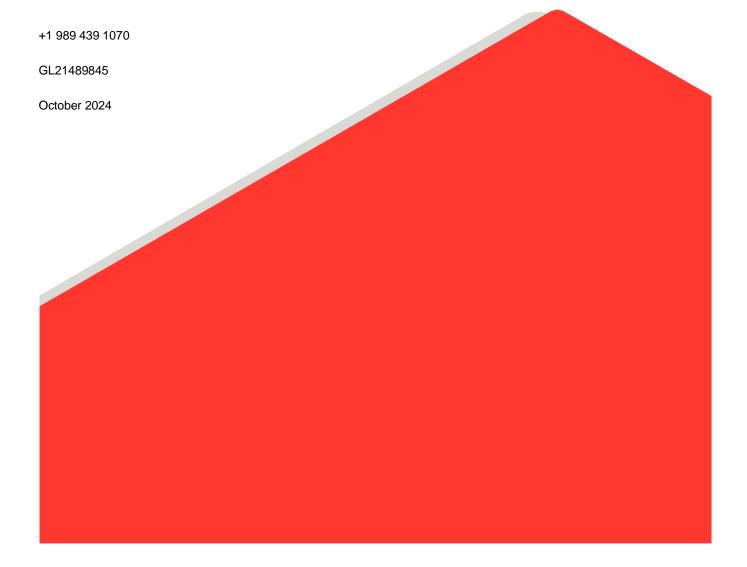
## **Consumers Energy Company**

1945 W. Parnall Road Jackson, Michigan USA 49201

Submitted by:

## WSP USA Inc.

4775 Two Mile Road, Suite A Bay City, Michigan, USA 48706



October 2024 GL21489845

## **CERTIFICATION**

### **Professional Engineer Certification Statement**

I hereby certify, after having reviewed the attached documentation and being familiar with the *Consumers Energy D.E. Karn Generating Facility Karn Lined Impoundment Closure Work Plan* dated June 16, 2023 (Work Plan) submitted to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) on July 7, 2023, that this CCR Removal Documentation Report (Report) is accurate. The work documented herein was completed in general accordance with the requirements of the Work Plan, with the exception of applying the lines of evidence documenting CCR removal at the primary sand drainage layer as further detailed in this Report.

WSP USA Inc.

Serie	
Signature	·
10/30/2024	
Date of Report Certification	
John Puls	_
Name	
6201055778	



**Professional Engineer Certification Number** 

WSD

October 2024 GL21489845



October 2024 GL21489845

## **Executive Summary**

This Coal Combustion Residuals (CCR) Removal Documentation Report (Report) has been prepared to document the removal of CCR to decommission the D.E. Karn Lined Impoundment (Karn Lined Impoundment) at the Consumers Energy Company (CEC) D.E. Karn Generating Facility, located in Essexville, Michigan. CEC submitted the *Consumers Energy D.E. Karn Generating Facility Karn Lined Impoundment Closure Work Plan* (Work Plan) dated June 16, 2023, to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) on July 7, 2023. The Work Plan outlined the extent of the impoundment and the necessary steps to meet the performance objectives of removing the CCR from the site. This Report verifies the CCR removal from the Karn Lined Impoundment as regulated waste under Part 115, Solid Waste Management of the *Natural Resources and Environmental Protection Act*, 1994 PA 451, as amended.

The removal and documentation procedures adhered to those outlined in the Work Plan, with one exception. CCR removal was excavated and certified at the sand drainage layer (below the primary liner) instead of beneath the secondary liner, as initially prescribed. However, CCR removal below the secondary liner was certified specifically for the embankment fill side slopes of the Karn Lined Impoundment. This Report is submitted to EGLE as final certification that all CCR associated with the operation of the Karn Lined Impoundment has been removed. The boundary for removal certification is delineated in **Figure 2**, *CCR Removal Documentation - Excavation Surface*.

The multiple lines of evidence approach outlined in the Work Plan, which verifies CCR removal, provides a reliable method for measuring concentrations of CCR based on physical sample properties. This approach utilizes the visible contrast between the CCR and the underlying sand drainage layer and embankment fill sand.

The following information was gathered to confirm that the CCR removal objective was achieved:

- First Line of Evidence Comparison of the excavation surface to known elevations of CCR from the engineering construction records.
  - O Appendix A, DE Karn Bottom Ash Surface Impoundment Issued for Record Drawings (Record Drawings), provides the drawings used to establish the proposed excavation surface. Figure 2, CCR Removal Documentation Excavation Surface, documents the final excavation surface. Notably, the top of the primary sand layer was generally found at an elevation of 593.0 (NAVD88), rather than the anticipated elevation of 592.0 (NAVD88), suggesting the sand drainage layer was likely installed at a greater thickness than the 1-foot documented in the Record Drawings.
- Second Line of Evidence Photographic documentation, including periodic photographs of the CCR removal process and photographs of excavated areas at random grid nodes.
  - Appendix B, Daily Field Reports, and Appendix C, Karn Lined Impoundment Grid Node Photographic Documentation Log, provide photographic records of CCR removal. Photographed grid node locations are shown in Figure 4, CCR Removal Documentation - Confirmation Grid Nodes.



3. **Third Line of Evidence** – Microscopic quantification of CCR content at random grid nodes to confirm removal.

 Table 1, Karn Lined Impoundment Microscopy Results, documents the confirmation of CCR removal. The sampled grid node locations are also illustrated in Figure 4, CCR Removal Documentation – Confirmation Grid Nodes.



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MJ2 Consulting CCR Removal Microscopy Memorandum



Appendix D

# 1.0 INTRODUCTION

# 1.1 Purpose

Consumers Energy Company (CEC) identified the Karn Lined Impoundment, located at its D.E. Karn Generating Facility in Essexville, Michigan (currently being decommissioned), as an "existing CCR surface impoundment" under the Coal Combustion Residual (CCR) Resource Conservation and Recovery Act (RCRA) Rule (40 CFR 257 Subpart D), referred to as the "CCR RCRA Rule." The impoundment was still receiving and storing CCR as of the effective date of the rule on October 19, 2015 (see Figure 1, *Site Overview*) based on being put into service in June 2018 according to CEC.

CEC submitted the *Consumers Energy D.E. Karn Generating Facility Karn Lined Impoundment Closure Work Plan* (Work Plan), dated June 16, 2023, to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) on July 7, 2023. The Work Plan sought approval for CEC's strategy to close the Karn Lined Impoundment by removing CCR. The Work Plan included the following elements:

- Plans for CCR removal
- Multiple lines of evidence to document the CCR removal, including an objective removal standard to address potential long-term sources of groundwater impacts
- Schedule for work implementation
- Performance monitoring following CCR removal, in accordance with the CCR RCRA Rule

This Report has been prepared to document and certify the removal of CCR from the Karn Lined Impoundment, with the following exception to the Work Plan:

The Work Plan specified removal grades at the elevation of the secondary liner system, as indicated in the Record Drawings. However, this Report applies the multiple lines of evidence for CCR removal to the top of the primary sand drainage layer due to the historical placement of CCR present below the secondary liner on the Karn Lined Impoundment floor, which is not associated with the construction or operation of the Karn Lined Impoundment. CCR removal below the secondary liner was certified per the Work Plan specifically for the embankment fill side slopes of the Karn Lined Impoundment where historical CCR was not present. A final remedy for the historically placed CCR will be developed in conformance with the self-implementing schedule for Coal Combustion Residual Management Units (CCRMUs) in the Legacy Impoundment and CCRMU rule published in May 2024.

#### 2.0 CCR REMOVAL AND DOCUMENTATION

The removal and documentation procedures were carried out as outlined in the Work Plan, with the exception noted in Section 1.0. The Work Plan proposed that CCR removal would be verified using an objective standard of at least 90 percent CCR removal. This means that after CCR excavation, the remaining material left in place on the exposed surface (the primary sand layer) would consist of no more than 10 percent CCR particles by weight. The 90 percent removal criterion is based on chemical analyses demonstrating that this standard is protective of groundwater for non-residential drinking water and groundwater/surface water interface (GSI) protection criteria.

Due to the discovery of historically placed CCR beneath the secondary liner on the Karn Lined Impoundment floor, CEC applied the 90 percent removal criterion to the primary sand layer, which was subsequently removed and disposed of at the J.C. Weadock Landfill. The primary sand layer is present as the first, continuous media



layer between the CCR management and the underlying synthetic liner system that can be evaluated against the three lines of evidence approach to demonstrate that CCR removal, including any CCR that could have migrated into the media has been removed to at least the 90% removal criterion. However, CCR removal below the secondary liner was certified specifically for the embankment fill side slopes of the Karn Lined Impoundment where historically placed CCR was not present.

During excavation, CCR removal was observed and documented using the following three lines of evidence:

- **First line of evidence**: Comparison of the excavation surface to known elevations of CCR from the engineering construction records.
- **Second line of evidence**: Photographic documentation, including periodic photographs of the CCR removal process and photographs of excavated areas at random grid nodes.
- Third line of evidence: Microscopic quantification of CCR content at random grid nodes to confirm removal.

# 2.1 Narrative Description of CCR Removal

From August 2024 through September 2024, Fisher Contracting Co. was hired by CEC to perform excavation activities aimed at removing CCR from the Karn Lined Impoundment. Documentation was developed through field observations by WSP USA Inc. (WSP) to establish multiple lines of evidence, confirming the successful removal of CCR as described previously. The following tasks were carried out during the CCR removal and documentation process:

- The Karn Lined Impoundment was dewatered by actively pumping decant water into a water truck, which was then used for dust control along haul routes within the J.C. Weadock Landfill.
- CCR was excavated using a rubber-edged bucket until the primary 60-mil HDPE geomembrane liner was exposed. The primary liner was cleaned by hand using shovels to minimize potential damage and then cut into sections. Any damage observed to the 60-mil HDPE geomembrane liner during excavation was immediately patched and leistered with geomembrane. The primary geosynthetic clay liner (GCL) and primary geocomposite were also removed and hauled to the J.C. Weadock Landfill for disposal.
- A 50-foot grid, containing a total of 52 grid nodes, was established across the Karn Lined Impoundment limits as shown in Figure 3.
- Photographic documentation of the general CCR removal operation was conducted.
- Photographs of excavated areas were taken of the primary sand layer and embankment fill at no fewer than 50 percent of the grid nodes.
- Quantitative microscopy analysis was conducted on at least 25 percent of the grid nodes (i.e., 50 percent of the photographed grid nodes) to confirm CCR removal on the primary sand layer and embankment fill.
- The primary sand layer and the underlying 60-mil HDPE secondary liner were removed and hauled to the J.C. Weadock Landfill for disposal.
- Existing inflow and outflow piping was removed from the Karn Lined Impoundment and disposed of off-site.



# 2.2 Documentation of Excavation Grades – First Line of Evidence

The first line of evidence to assess CCR removal was the confirmation that excavations reached the elevation established as the base of the CCR, based on existing information. The proposed CCR excavation limits were determined using the elevation of the top of the primary liner along the impoundment floor and to the bottom of the secondary liner along the embankment side slopes as indicated in the Record Drawings.

During excavation, visual inspections were performed to check for any presence of CCR. Excavation continued until the targeted depth was reached, defined by the top of the primary 60-mil HDPE geomembrane liner. No visible CCR was observed within the primary sand layer following the removal of the primary liner system on the impoundment floor, and no CCR was visible beneath the secondary liner system on the embankment slopes.

# 2.3 Photographic Documentation – Second Line of Evidence

In alignment with EGLE guidance, Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria (S3TM), a 50-foot grid with a total of 52 nodes was established across the Karn Lined Impoundment to assess CCR removal. This grid is shown in **Figure 3**, **CCR Removal Documentation – Sample Grid Nodes**. Confirmation by visual assessment and photographic documentation was completed for at least 50 percent of the grid nodes, which were randomly selected using a number generator. **Figure 4**, **CCR Removal Documentation – Confirmation Grid Nodes** illustrates the 28 grid nodes chosen for photographic documentation.

Each selected grid node was visually inspected to confirm whether residual CCR was present on the exposed primary sand layer or embankment fill along the side slopes. When no visible CCR was observed, photographs were taken to document the CCR removal at these selected grid nodes. The photographic procedure was standardized to ensure consistency and included the following elements:

- Photographs were taken during construction to document the general CCR removal process.
- A photograph of a representative area measuring one square foot was taken at each randomly selected grid node to show the primary sand layer and embankment fill.
- Photographs were captured from a standardized height to ensure consistent framing and detail across all images.

The photographs documenting the general CCR removal process are included in **Appendix B**, **Daily Field Reports**. The photographic documentation of the selected grid nodes is included in **Appendix C**, **Karn Lined Impoundment Grid Node Photographic Documentation Log**.

# 2.4 Microscopy – Third Line of Evidence

In accordance with the Work Plan, microscopic quantification of CCR content was employed to confirm that the CCR removal objective was achieved. Microscopy analysis was conducted on 50% of the photographic documentation nodes to provide an additional line of evidence for the effectiveness of CCR removal. The results of the microscopy confirmation for each sampled grid node are summarized in **Table 1**.

Additionally, a summary memo prepared by MJ2 Consulting detailing the findings of the microscopical examination of the Karn Lined Impoundment CCR removal samples is provided in **Appendix D**, **MJ2 Consulting Microscopical Examination of Karn Lined Impoundment CCR Removal Samples - October 25, 2024**.

# 3.0 SUMMARY

CCR removal and documentation procedures were implemented as described in the Work Plan submitted to EGLE on July 7, 2023, with the exception noted in this Report. The multiple lines of evidence indicate that all residuals associated with the treatment and storage of CCR within the Karn Lined Impoundment have been successfully removed at the D.E. Karn Generating Facility.

The multiple lines of evidence approach provided a predictable and reliable means to objectively measure concentrations of CCR based on physical sample properties, confirming that the exposed primary sand and embankment fill layers contained no visually identifiable CCR and documented at least 90 percent CCR removal when tested using microscopic methods.

During excavation operations, CCR removal was documented based on the following three lines of evidence:

- First line of evidence Comparison of the excavation surface to known elevations of CCR from the engineering construction records.
- Second line of evidence photographic documentation including periodic photographs of CCR removal progression and photographs of excavated areas of the primary sand and embankment fill layers at random grid nodes.
- Third line of evidence quantitative microscopy analysis at random grid nodes to confirm CCR removal.

This Report is submitted to EGLE as final certification that all residuals associated with the treatment and storage of CCRs within the Karn Lined Impoundment have been removed. The boundary for removal certification is delineated in **Figure 2**, **CCR Removal Documentation - Excavation Surface**.

#### 4.0 STANDARD OF CARE

WSP has prepared this Report in a manner consistent with the level of care and skill ordinarily exercised by members of the engineering and science professions currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this Report. No other warranty, expressed or implied, is made.



# Signature Page

WSP USA Inc.

Stephen Thumma, P.E. *Lead Consultant* 

John Puls, P.E. Assistant Vice President

SET/JDP/set

 $https://wsponlinenam-my.sharepoint.com/personal/brenda_bunyon_wsp_com/documents/documents/l/2024-october_karn lined impoundment cqa report_final draft.docx$ 



# **Tables**

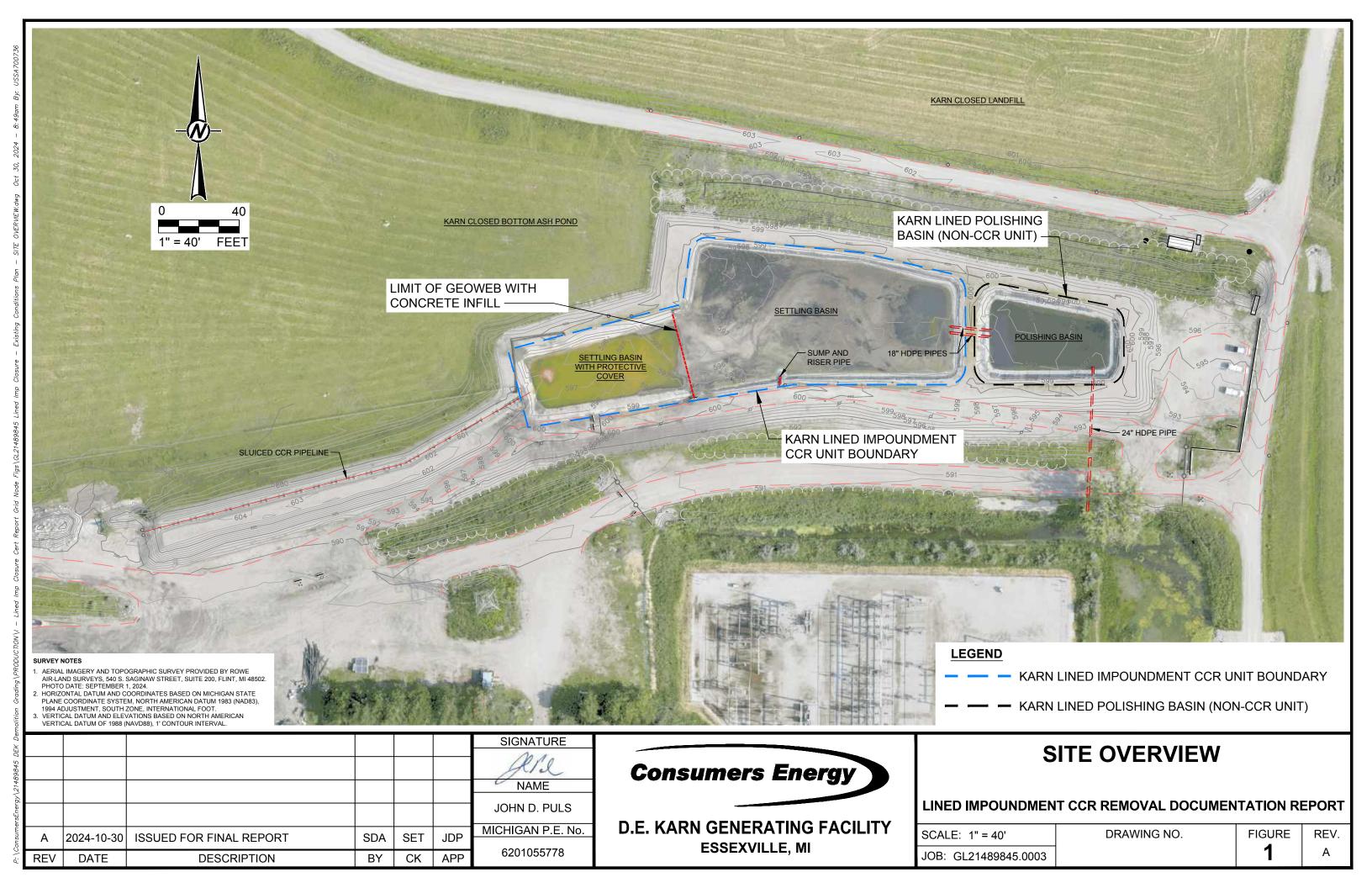


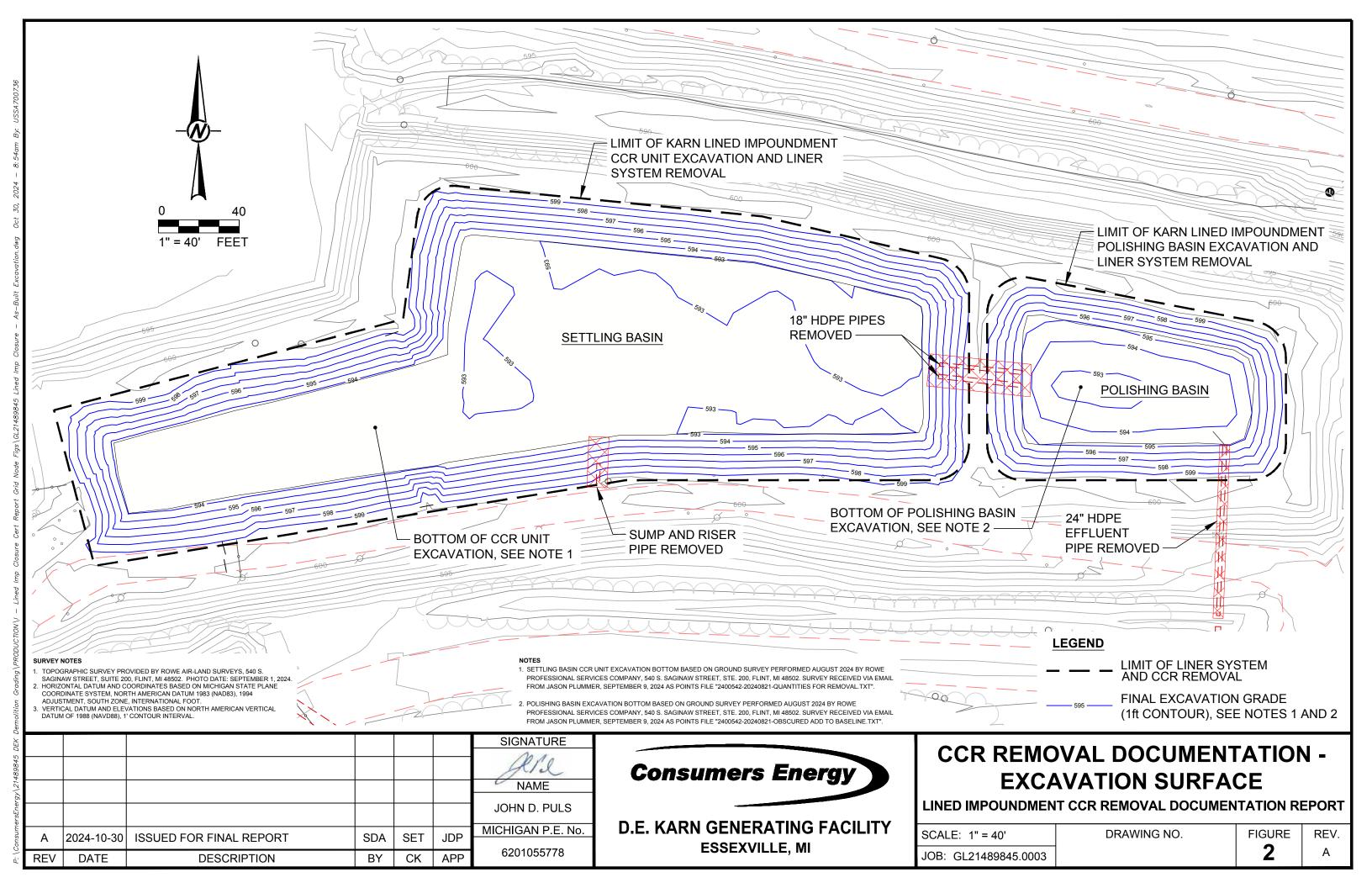


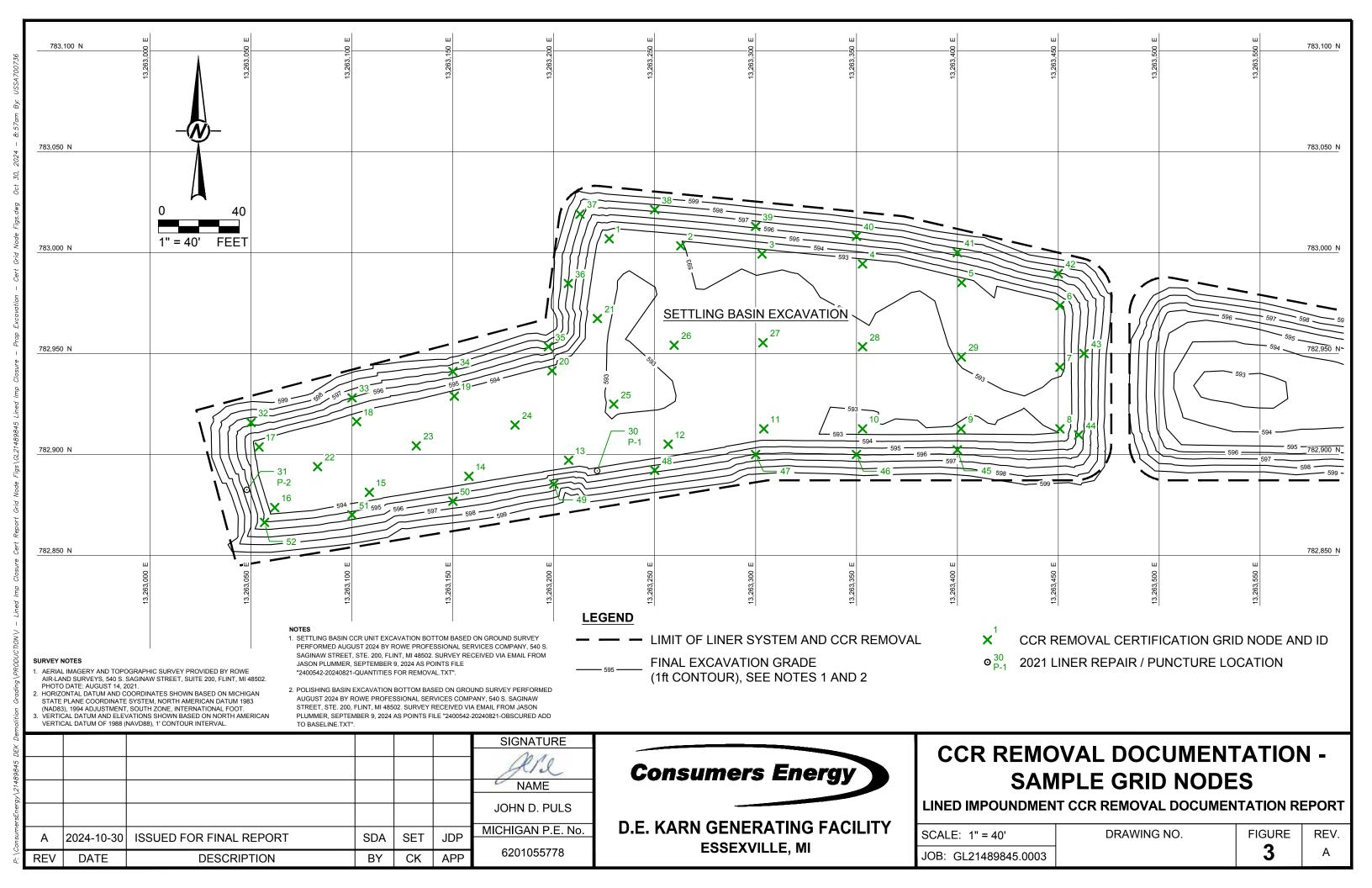
Table 1. Lined Impoundment Microscopy Results						
					Microscopic	Pass/ Fail
					Estimation of	(less than
Grid Node	Northing	Easting	Date Sampled	Soil Description	CCR (%)	10%)
K-1	783006.90	13263227.43	9/3/2024	2NS Sand	0.5%	Pass
K-3	782999.36	13263303.23	9/3/2024	2NS Sand	0.5%	Pass
K-7	782943.23	13263450.81	9/3/2024	2NS Sand	0.5%	Pass
K-18	782916.30	13263102.30	9/3/2024	2NS Sand	0.5%	Pass
K-22	782893.99	13263082.93	9/3/2024	2NS Sand	0.5%	Pass
K-24	782914.61	13263180.78	9/3/2024	2NS Sand	0.5%	Pass
K-27	782955.35	13263303.66	9/3/2024	2NS Sand	0.5%	Pass
K-29	782948.31	13263401.96	9/3/2024	2NS Sand	0.5%	Pass
K-30	782891.91	13263221.47	9/3/2024	Class II Sand	0.5%	Pass
K-31	782882.45	13263047.79	9/3/2024	Class II Sand	0.5%	Pass
K-34	782941.10	13263150.00	9/9/2024	Class II Sand	0.5%	Pass
K-39	783012.99	13263300.00	9/9/2024	Class II Sand	0.5%	Pass
K-44	782909.69	13263460.10	9/9/2024	Class II Sand	1.5%	Pass
K-47	782900.00	13263300.00	9/9/2024	Class II Sand	1.0%	Pass
K-50	782876.85	13263150.00	9/11/2024	Class II Sand	0.5%	Pass
K-51	782870.13	13263100.00	9/11/2024	Class II Sand	0.5%	Pass

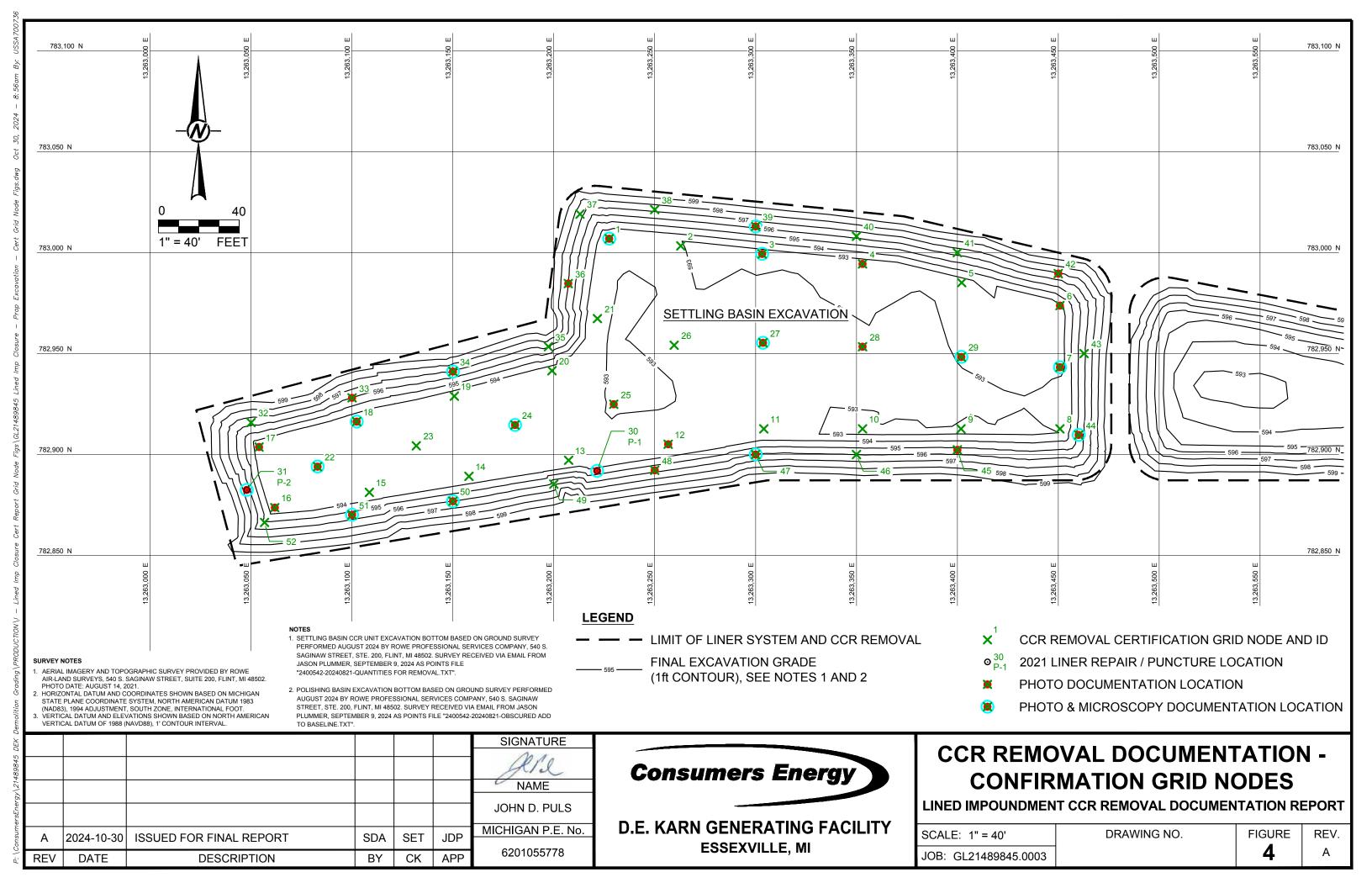
# **Figures**







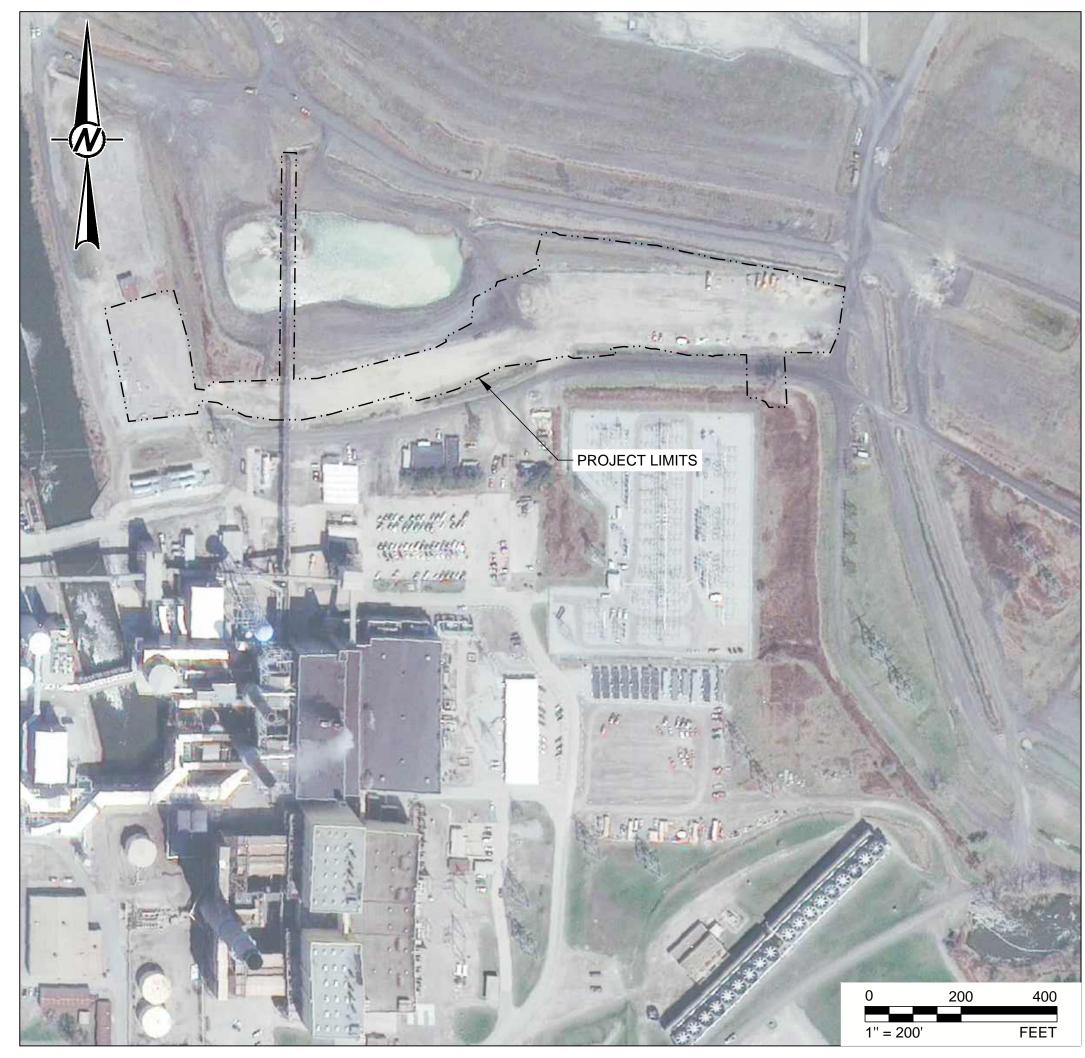




# **APPENDIX A**

DE Karn Bottom Ash Surface Impoundment Issued for Record Drawings

# CONSUMERS ENERGY COMPANY DE KARN GENERATING PLANT BOTTOM ASH SURFACE IMPOUNDMENT



Prepared for:

# Consumers Energy

Consumers Energy Company DE Karn Generating Plant 2742 N. Weadock Hwy. Essexville, MI 48732

Prepared by:



	SHEET LIST						
SHEET NUMBER	SHEET TITLE	REV.					
<u>GENERAL</u>							
1278-093	COVER SHEET	0					
1278-094	GENERAL NOTES	0					
1278-095	EXISTING CONDITIONS	0					
1278-096	PROJECT OVERVIEW	0					
1278-097	DEMOLITION	0					
1278-098	TRAFFIC CONTROL	0					
	CIVIL AND PIPING						
1278-099	GENERAL CIVIL AND PIPING NOTES	0					
1278-100	EROSION CONTROL	0					
1278-101	EXCAVATION PLAN	0					
1278-102	GRADING PLAN (TOP OF EMBANKMENT FILL)	0					
1278-103	GRADING SECTIONS	0					
1278-104	BOTTOM ASH PIPELINE EXTENSIONS PLAN AND PROFILE	0					
1278-105	CIVIL AND PIPING SECTIONS AND DETAILS (1 OF 4)	0					
1278-106	CIVIL AND PIPING SECTIONS AND DETAILS (2 OF 4)	0					
1278-107	CIVIL AND PIPING SECTIONS AND DETAILS (3 OF 4)	0					
1278-107A	CIVIL AND PIPING SECTIONS AND DETAILS (4 OF 4)	0					

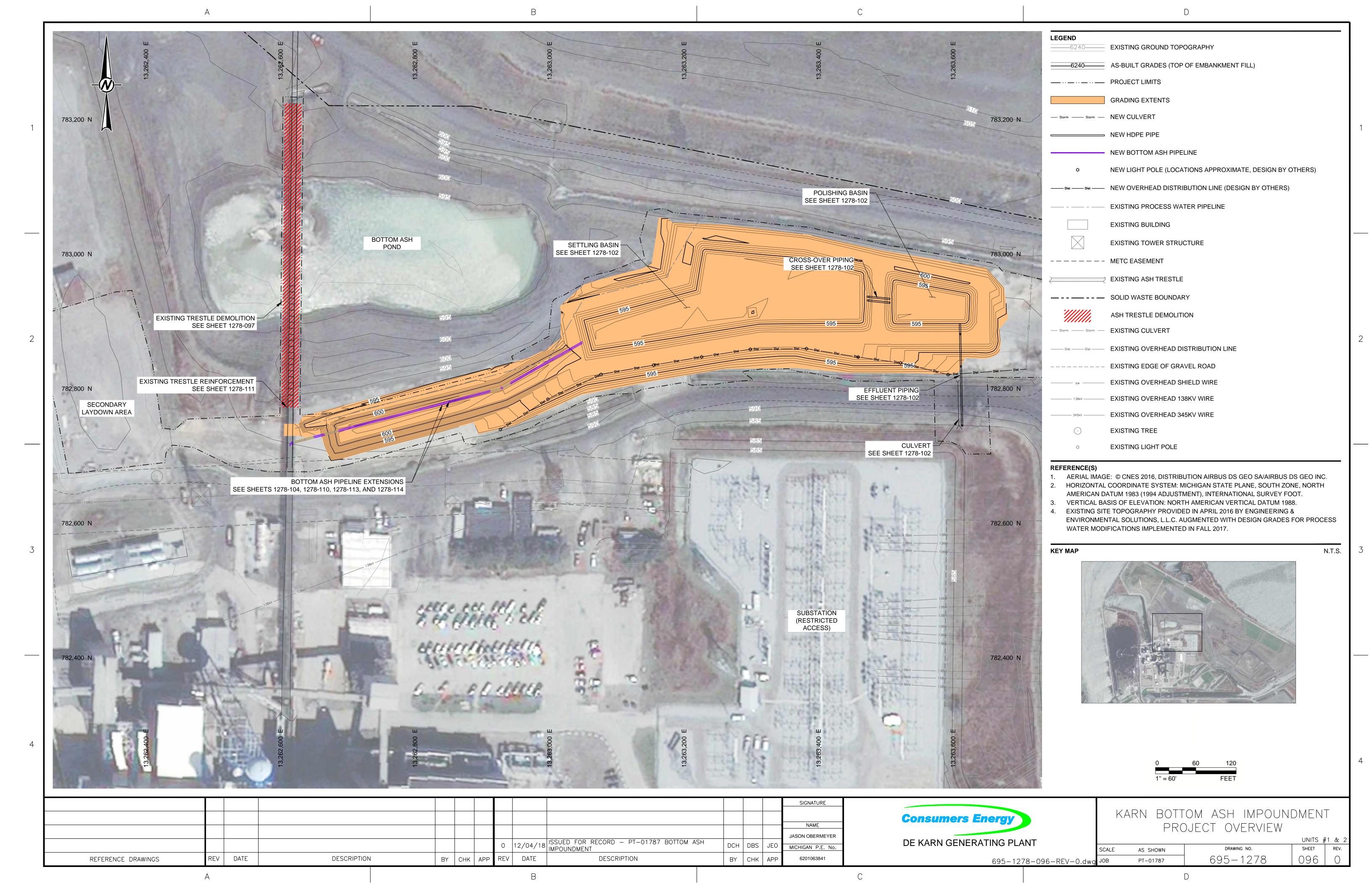
SHEET LIST							
SHEET NUMBER SHEET TITLE							
<u>STRUCTURAL</u>							
1278-108	GENERAL STRUCTURAL NOTES	0					
1278-108A	GENERAL STRUCTURAL NOTES AND ABBREVIATIONS	0					
1278-109	TYPICAL STRUCTURAL FOUNDATION SECTIONS AND DETAILS	0					
1278-110	FOUNDATION LOCATION PLAN	0					
1278-111	EXISTING TRESTLE REINFORCEMENT FOUNDATION PLAN AND ELEVATIONS	0					
1278-111A	EXISTING TRESTLE REINFORCEMENT FOUNDATION SECTIONS AND DETAILS	0					
1278-112	STRUCTURAL FOUNDATION PLANS	0					
1278-112A	STRUCTURAL FOUNDATION PLANS	0					
1278-113	STRUCTURAL PLAN	0					
1278-114	STRUCTURAL ELEVATIONS	0					
1278-115	STRUCTURAL STEEL DETAILS	0					
<u>PROCESS</u>							
1278-116	PROCESS FLOW DIAGRAM	0					
1278-117	PIPING & INSTRUMENTATION DIAGRAM	0					

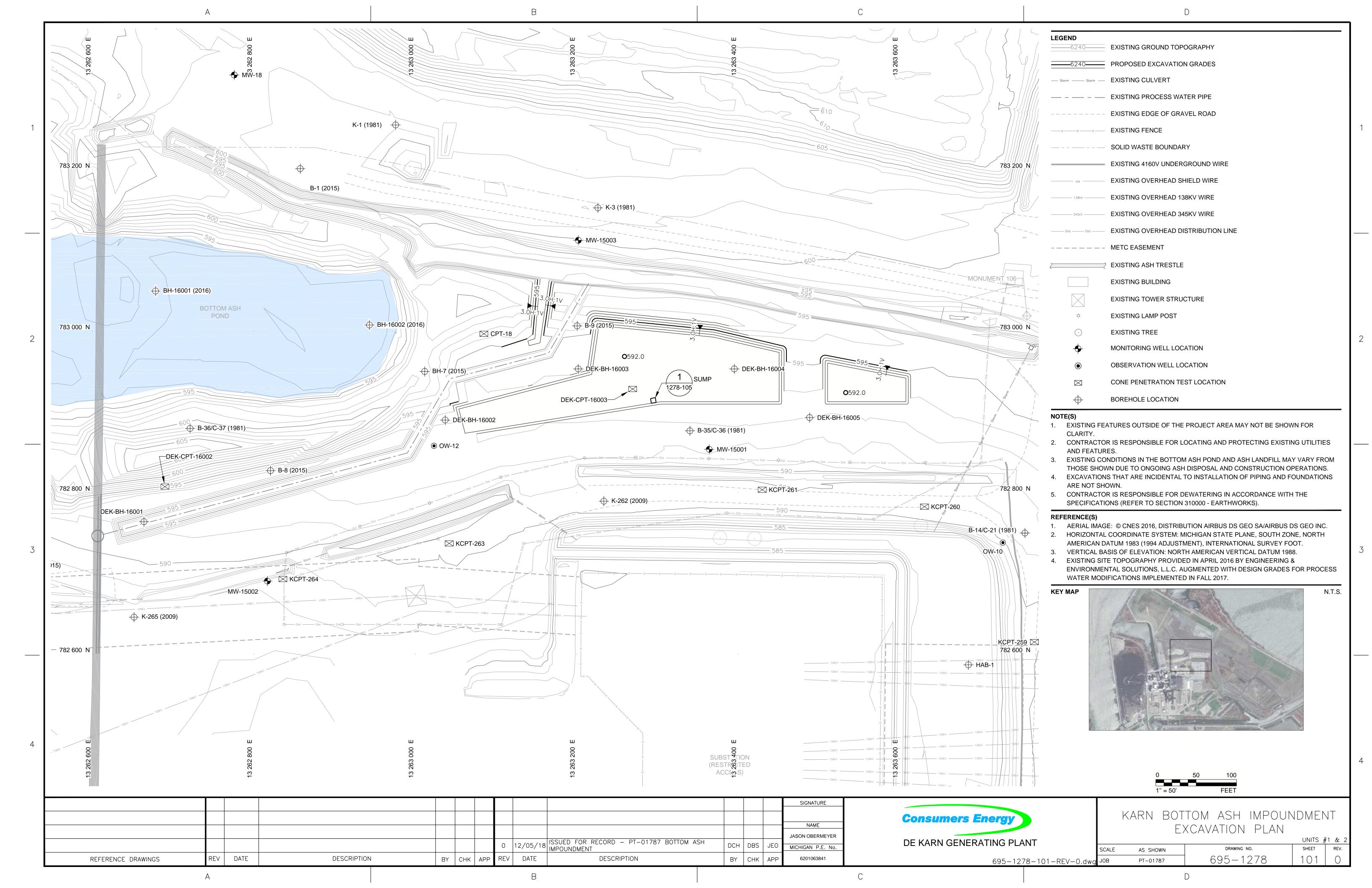
REFERENCE: AERIAL IMAGE: © CNES 2016, DISTRIBUTION AIRBUS DS GEO SA/AIRBUS DS GEO INC.

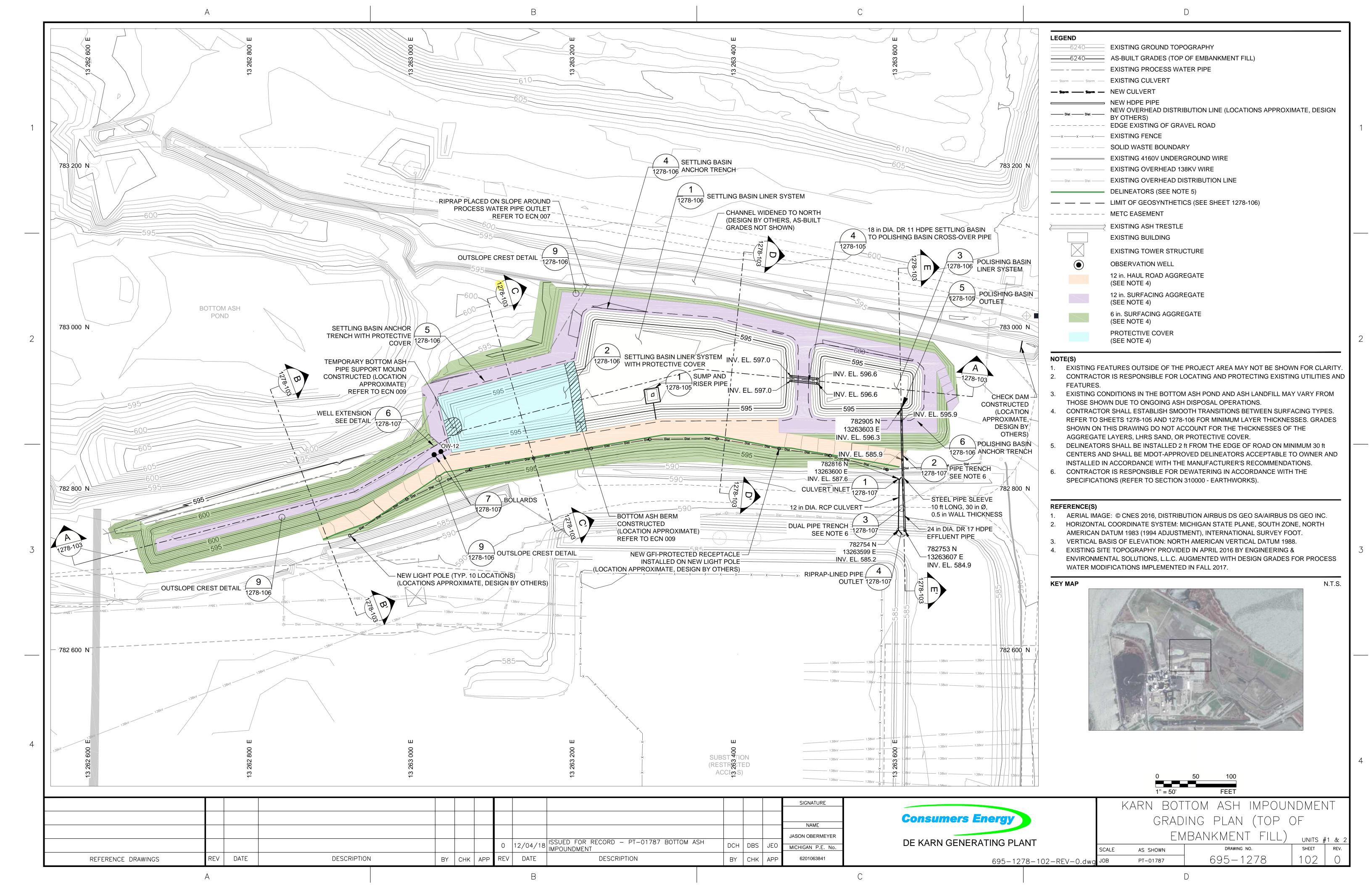
		ı						1	1	1			
													SIGNATURE
													NAME
													JASON OBERMEYER
							0	11/16/18	ISSUED FOR RECORD - PT-01787 BOTTOM ASH IMPOUNDMENT	DCH	DBS	JEO	MICHIGAN P.E. No.
REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	BY	СНК	APP	REV		DESCRIPTION	BY	СНК	APP	6201063841

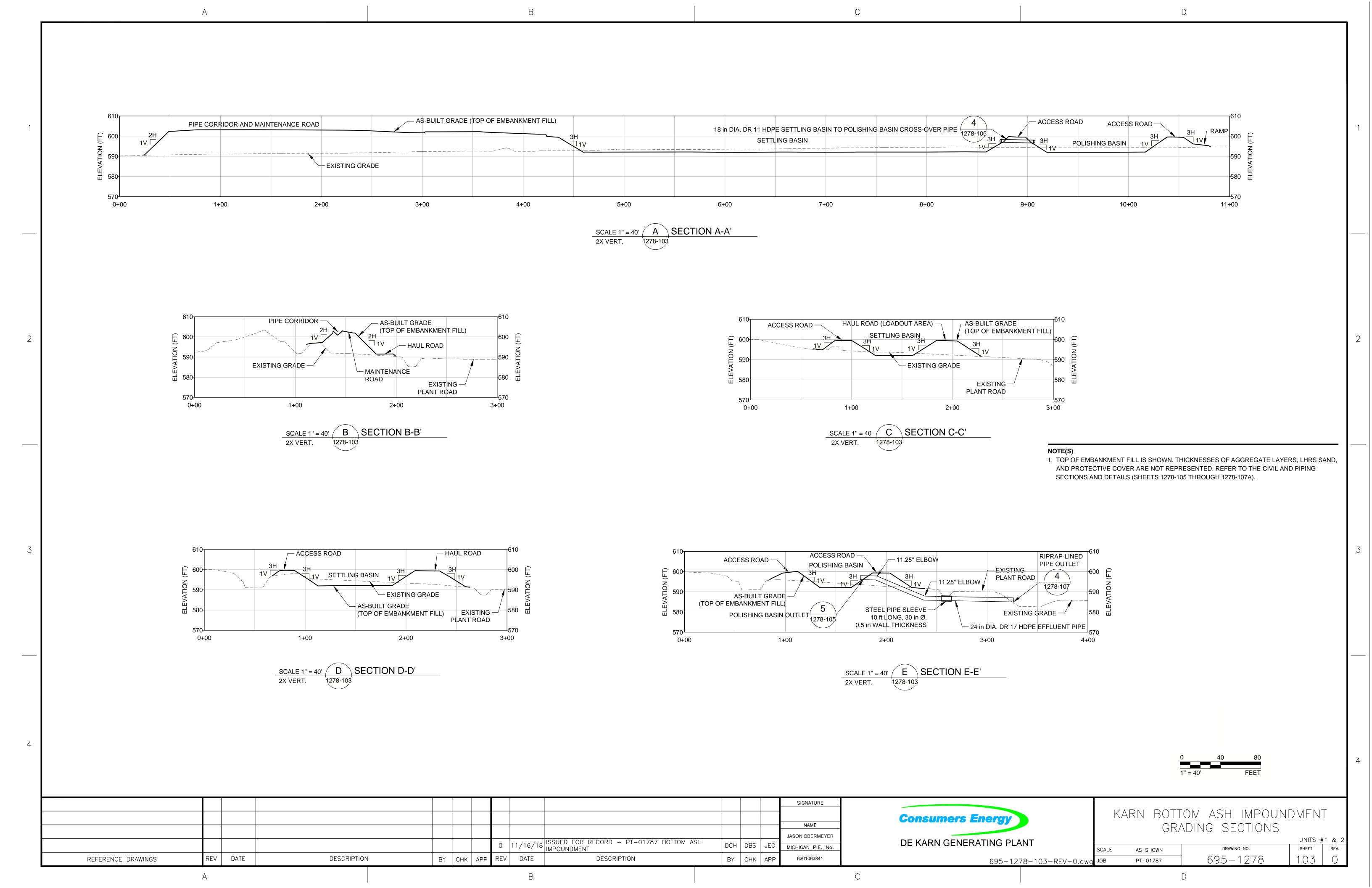
**Consumers Energy** 

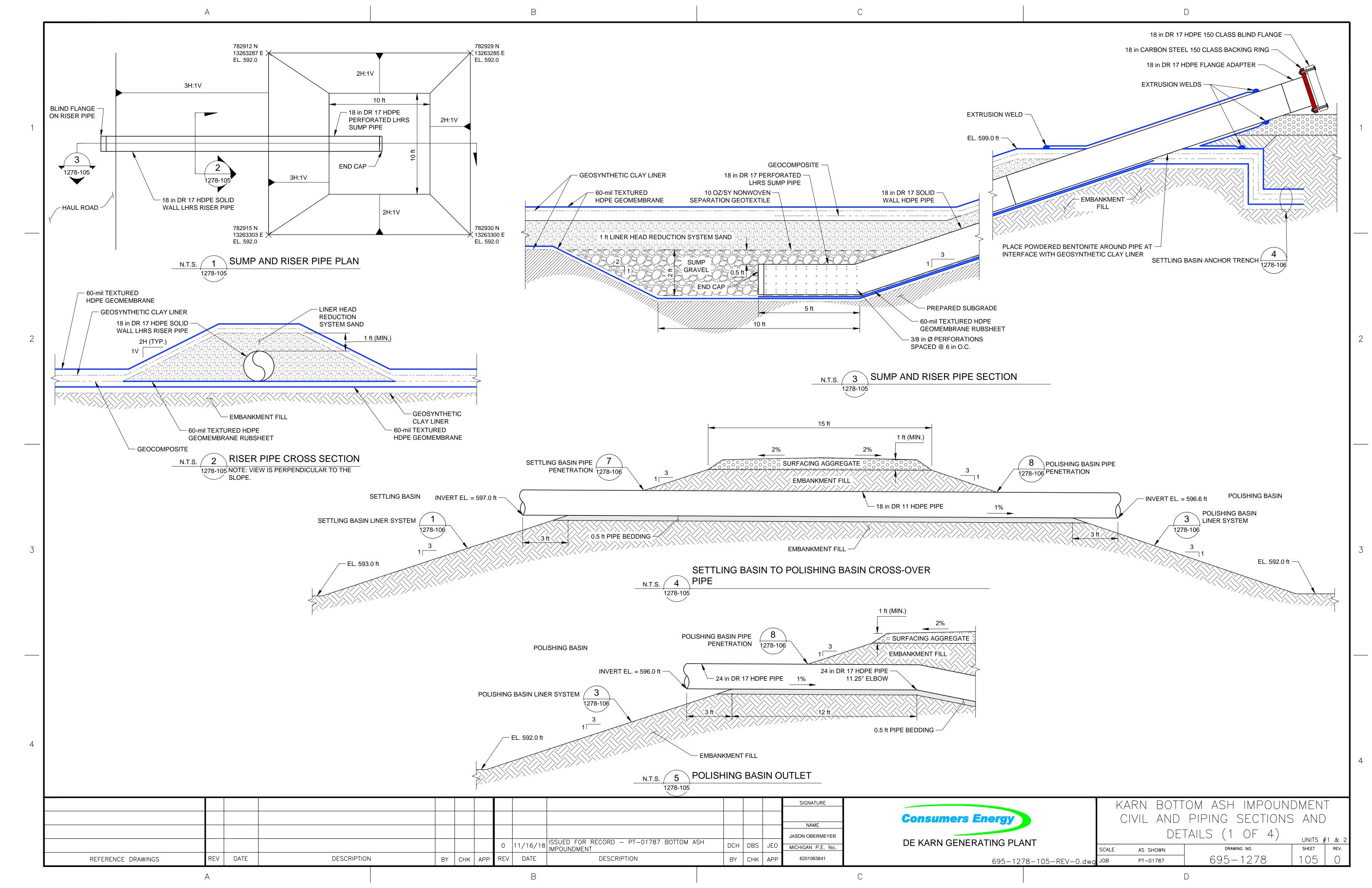
KARN BOTTOM ASH IMPOUNDMENT COVER SHEET UNITS #1 & 2 DE KARN GENERATING PLANT SHEET REV. AS SHOWN 093 0 695-1278 695-1278-093-REV-0.dwg ^{JOB} PT-01787

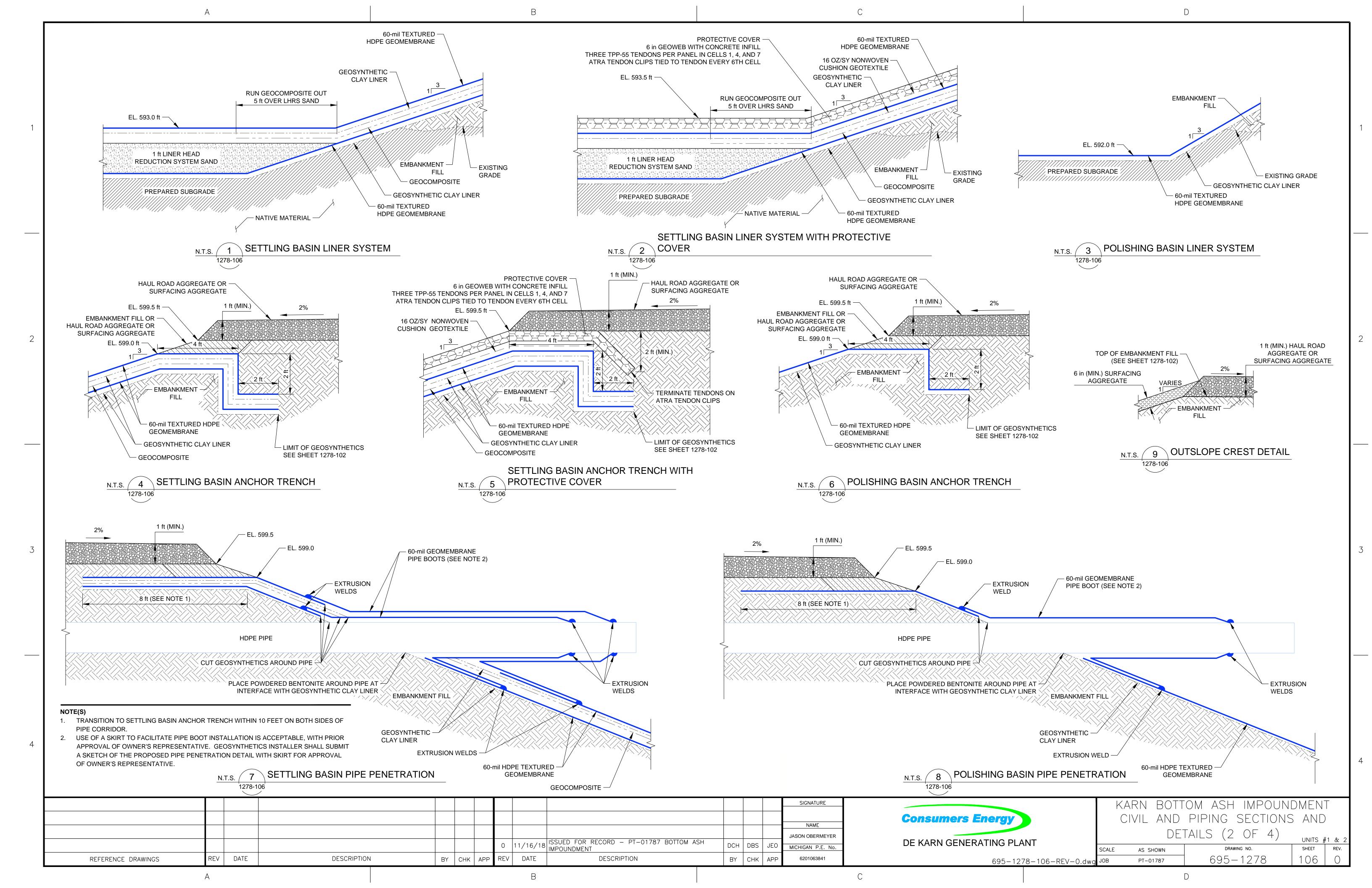


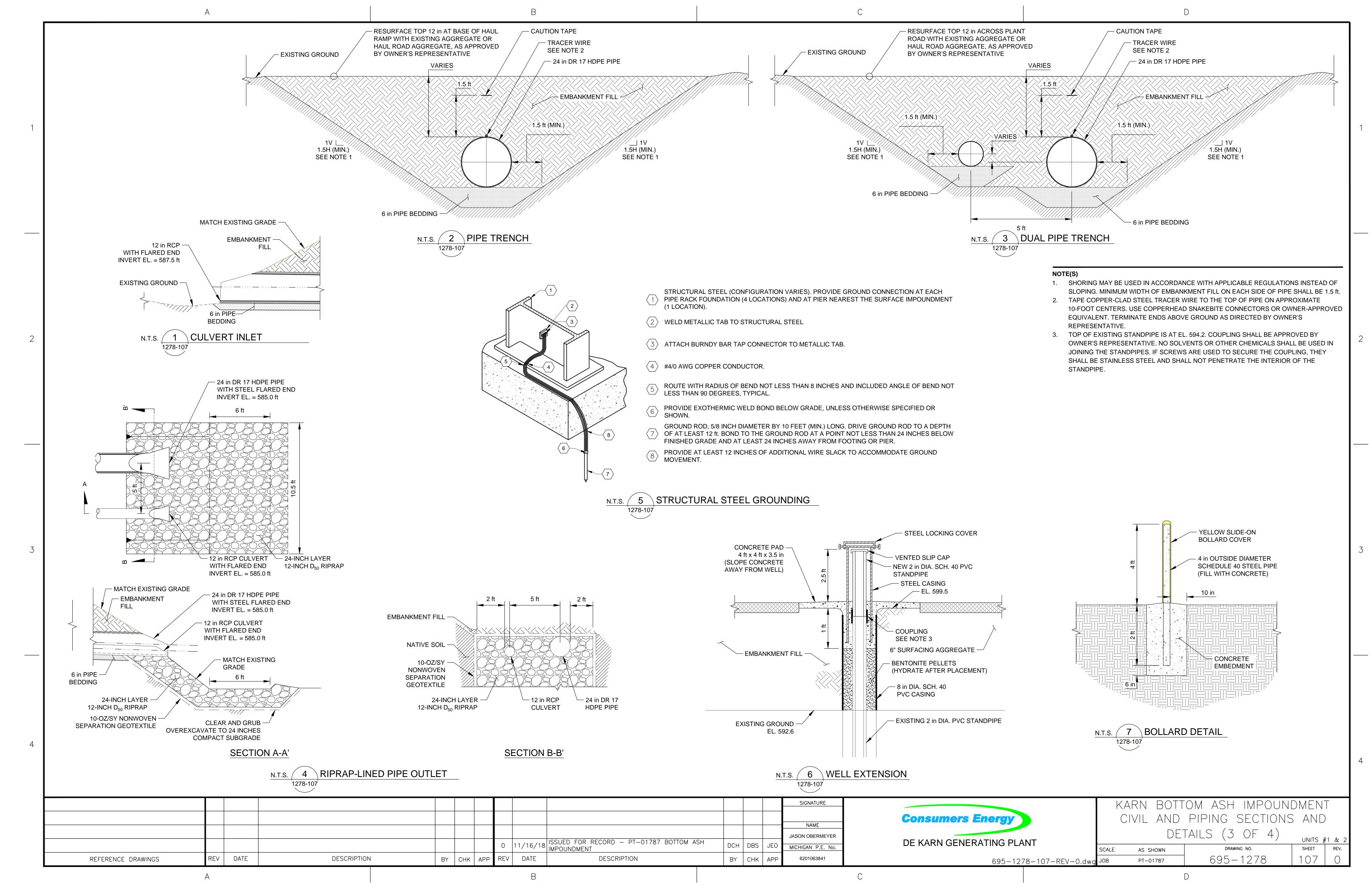












**APPENDIX B** 

Daily Field Reports





Date:	August 05, 2024			<b>On Site:</b> 0700		Off Site: 1600	
Project:	Lined Impo	oundment Demo	lition				
Location: Essexville, MI				Job No.:	GL21489845		
Owner:	Consumers	Energy Compai	Contractor:	Fisher	Contracting (Fisher)		
Low Temp:	69 °F	High Temp:	75 °F	<b>Wind:</b> 0 - 10 MPH NE		MPH NE	
Cloud Cover:		Mostly Cloudy		Precipitation	None.		

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personal (5 people)	Various Personal
Jason O'Dell (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

# 1.0 EQUIPMENT ON SITE

- (1) John Deere 345LC Excavator (not used)
- (1) Komat'Su 61PXi Dozer (not used)
- (1) John Deere 700 Dozer (not used)
- (1) Ingersoll Rand Pro Pac Series 100 Compactor (not used)
- (1) Hyundai HL757 Front End Loader (not used)
- (1) Water Truck AT40 8,000 gallons (not used)
- (2) CAT Offroad Truck 740 GC (not used)

#### 2.0 CONSTRUCTION ACTIVITIES

- Fisher completed their orientation and mobilizing of equipment to their lay down area located on the south side of the Lined Impoundment.
- Fisher used an excavator to remove the 10 light poles located on the south side of the Lined Impoundment.
- Fisher used a frontend loader to unload a pump and other miscellaneous equipment.
- Fisher installed a dewatering pump in the west end of the settling basin.

Signature: Stephen Thumma, P.E.

Project: GL21489845 Date: August 05, 2024

# 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

■ Fisher used a dozer to assist with the installation of the silt fence along the south edge of the Project Site.

# 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

# 5.0 MEETINGS AND DISCUSSIONS

■ None

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

# 7.0 PROBLEMS AND RESOLUTIONS

■ None.

#### 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845

Date: August 05, 2024

# 9.0 PHOTOGRAPHS



Photo 1: Power/Light poles Fisher removed from the south side of the Lined Impoundment.



Date:	August 07, 2024			<b>On Site:</b> 0700		Off Site: 1600
Project:	Lined Impo	oundment Demo	lition			
Location:	Essexville,	MI		Job No.:	GL21489845	
Owner:	Consumers Energy Company			Contractor:	Fisher	Contracting (Fisher)
Low Temp:	56 °F	High Temp:	77 °F	Wind: 0 - 10 MPH N to E		MPH N to E
Cloud Cover:		Partly Cloudy		Precipitation	None.	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personal (6 people)	Various Personal
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) John Deere 345LC Excavator (used)
- (1) Komat'Su 61PXi Dozer (used)
- (1) John Deere 700 Dozer (not used)
- (1) Ingersoll Rand Pro Pac Series 100 Compactor (not used)
- (1) Hyundai HL757 Front End Loader (not used)
- (1) Water Truck AT40 8,000 gallons (not used)
- (2) CAT Offroad Truck 740 GC (not used)

#### 2.0 CONSTRUCTION ACTIVITIES

■ Fisher started cutting the bolts on the pipe brackets on the concrete pedestals west of the Lined Impoundment.

# 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

■ Fisher started dewatering the west end of the settling basin. They used the water for dust control within the J.C. Weadock Landfill.

# 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

# 5.0 MEETINGS AND DISCUSSIONS

■ None

Signature:	Stephen Thumma, P.E.	
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Page 1 of 3

Project: GL21489845

Date: August 07, 2024

# 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

# 7.0 PROBLEMS AND RESOLUTIONS

■ None.

# 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845

Date: August 07, 2024

# 9.0 PHOTOGRAPHS

N/A





Date:	te: August 08, 2024			<b>On Site:</b> 0700		<b>Off Site:</b> 1730	
Project:	Lined Impo	oundment Demo					
Location:	MI		<b>Job No.:</b> GL21489845		89845		
Owner:	Consumers	Energy Compa	Contractor:	Fisher Contracting (Fisher)			
Low Temp:	58 °F	High Temp:	84 °F	Wind:	0 - 5 N	1PH Calm	
Cloud Cover:		Mostly Sunny		Precipitation	None.		

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personal (6 people)	Various Personal
Jon Giffel/Joe Kusmierz (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) John Deere 345LC Excavator (used)
- (1) Komat'Su 61PXi Dozer (used)
- (1) John Deere 700 Dozer (not used)
- (1) Ingersoll Rand Pro Pac Series 100 Compactor (not used)
- (1) Hyundai HL757 Front End Loader (used)
- (1) Water Truck AT40 8,000 gallons (used)
- (2) CAT Offroad Truck 740 GC (used)

#### 2.0 CONSTRUCTION ACTIVITIES

■ Fisher finished cutting the bolts on the pipe brackets on the concrete pedestals west of the Lined Impoundment.

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher finished dewatering the west end of the settling basin and started dewatering the Polishing Basin. They used the water for dust control within the J.C. Weadock Landfill.
- Fisher started building access points in the settling basin using sand from the west end of the impoundment.

Signaturo	Stephen Thumma, P. F	=
Signature:	Stephen Inumma, P.I	

Project: GL21489845

Date: August 08, 2024

# 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

# 5.0 MEETINGS AND DISCUSSIONS

■ Rowe is scheduled for Monday, August 12th to survey the west end of the settling basin and the polishing basin.

# 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

# 7.0 PROBLEMS AND RESOLUTIONS

■ None.

# 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845 Date: August 08, 2024

# 9.0 PHOTOGRAPHS



Photo 1: Fisher installing sand fingers into the Settling Basin for access.

Project: GL21489845

Date: August 08, 2024



Photo 2: Fisher pumping ponded water out of the Polishing Basin.



Date:	August 09, 2024			<b>On Site:</b> 0700		Off Site: 1700	
Project:	Lined Impoundment Demolition						
Location:	Essexville, MI			Job No.:	GL21489845		
Owner:	Consumers Energy Company			Contractor:	Fisher Contracting (Fisher)		
Low Temp:	63 °F	High Temp:	78 °F	Wind:	5 - 15 MPH W gusts to 20		
Cloud Cover:		Partly Cloudy		Precipitation	None.		

Personnel on Site/Company	Responsibility		
Stephen Thumma (WSP)	CQA		
Fisher Personal (6 people)	Various Personal		
Joe Kusmierz (Consumers Energy)	Construction Manager		
Terry Foley (Fisher)	Supervisor		

# 1.0 EQUIPMENT ON SITE

- (1) John Deere 345LC Excavator (used)
- (1) Komat'Su 61PXi Dozer (used)
- (1) John Deere 700 Dozer (not used)
- (1) Ingersoll Rand Pro Pac Series 100 Compactor (not used)
- (1) Hyundai HL757 Front End Loader (used)
- (1) Water Truck AT40 8,000 gallons (used)
- (2) CAT Offroad Truck 740 GC (used)

# 2.0 CONSTRUCTION ACTIVITIES

■ None.

# 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher continued dewatering the Polishing Basin. They used the water for dust control within the J.C. Weadock Landfill.
- Fisher continued building sand access points in the Settling Basin using sand from the west end of the impoundment.

# 4.0 FIELD LAB TESTING ACTIVITIES

Project: GL21489845 Date: August 09, 2024

# 5.0 MEETINGS AND DISCUSSIONS

■ None

# 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

# 7.0 PROBLEMS AND RESOLUTIONS

■ None.

# 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845 Date: August 09, 2024

# 9.0 PHOTOGRAPHS

N/A





Date:	August 12, 2024		<b>On Site:</b> 0700		<b>Off Site:</b> 1730	
Project:	Lined Impo	oundment Demo	lition			
Location:	Essexville, MI			Job No.:	GL214	89845
Owner:	Consumers Energy Company		Contractor:	Fisher Contracting (Fisher)		
Low Temp:	Temp:53 °FHigh Temp:80 °F		Wind:	0 - 10 MPH variable Westerly		
Cloud Cover:		Mostly Sunny		Precipitation	None.	

Personnel on Site/Company	Responsibility		
Stephen Thumma (WSP)	CQA		
Fisher Personal (6 people)	Various Personal		
Jason O'Dell (Consumers Energy)	Construction Manager		
Terry Foley (Fisher)	Supervisor		

#### 1.0 EQUIPMENT ON SITE

- (1) John Deere 345LC Excavator (used)
- (1) Komat'Su 61PXi Dozer (used)
- (1) John Deere 700 Dozer (not used)
- (1) Ingersoll Rand Pro Pac Series 100 Compactor (not used)
- (1) Hyundai HL757 Front End Loader (used)
- (1) Water Truck AT40 8,000 gallons (used)
- (2) CAT Offroad Truck 740 GC (used)

#### 2.0 CONSTRUCTION ACTIVITIES

- Fisher used the water truck and clean water to wet the haul roads for dust control.
- Fisher continued dewatering the Polishing Basin. They used the water for dust control within the J.C. Weadock Landfill.
- Fisher finished building sand access points in the Settling Basin using sand from the west end of the impoundment.

# 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

■ Fisher used an excavator to remove materials from the northwest corner of the Settling Basin. They hauled the excavated material to a depression near the north/south road in the Weadock Landfill.

#### 4.0 FIELD LAB TESTING ACTIVITIES

|--|

Project: GL21489845

Date: August 12, 2024

# 5.0 MEETINGS AND DISCUSSIONS

■ None.

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

# 7.0 PROBLEMS AND RESOLUTIONS

■ Fisher damaged the geomembrane on the west edge of the northwest corner of the Settling Basin. They cleaned the liner and leistered a patch over the penetration.

# 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845

Date: August 12, 2024



Photo 1: Fisher excavating material from the Settling Basin.



Photo 2: Fisher placing excavated material in the JCW Landfill.



Date:	August 13, 2024		On Site: 0700		<b>Off Site:</b> 1730	
Project:	Lined Impo	oundment Demo	lition			
Location:	Essexville, MI			Job No.:	GL21489845	
Owner:	Consumers Energy Company		Contractor:	Fisher Contracting (Fisher)		
Low Temp:	59 °F	High Temp: 81 °F		Wind:	0 - 5 MPH NE	
Cloud Cover:		Sunny		Precipitation	None.	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personal (9 people)	Various Personal
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) John Deere 345LC Excavator (used)
- (1) Komat'Su 61PXi Dozer (used)
- (1) John Deere 700 Dozer (not used)
- (1) Ingersoll Rand Pro Pac Series 100 Compactor (not used)
- (1) Hyundai HL757 Front End Loader (used)
- (1) Water Truck AT40 8,000 gallons (used)
- (2) CAT Offroad Truck 740 GC (used)
- (1) Elgin Crosswind Streetsweeper (used)

#### 2.0 CONSTRUCTION ACTIVITIES

■ Fisher pumped water from the Settling Basin and the Polishing Basin into the water truck to wet the haul roads for dust control within the Weadock Landfill.

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

■ Fisher used an excavator to remove materials from the north edge of the Settling Basin. They hauled the excavated material to a depression near the north/south road in the Weadock Landfill.

#### 4.0 FIELD LAB TESTING ACTIVITIES

None.

Signature: Stephen Thumma, P.E.

Project: GL21489845

Date: August 13, 2024

# 5.0 MEETINGS AND DISCUSSIONS

■ None.

# 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

# 7.0 PROBLEMS AND RESOLUTIONS

■ None.

# 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845

Date: August 13, 2024



Photo 1: Fisher excavating material from the Settling Basin and loading trucks.



Photo 2: Fisher applying water for dust control within the J.C Weadock Landfill.



Date:	August 14, 2024		<b>On Site:</b> 0700		<b>Off Site:</b> 1730	
Project:	Lined Impo	oundment Demo	lition			
Location:	Essexville, MI			Job No.:	GL214	89845
Owner:	Consumers Energy Company		Contractor:	Fisher Contracting (Fisher)		
Low Temp:	59 °F	High Temp: 81 °F		Wind:	0 - 5 MPH W	
Cloud Cover:		Sunny		Precipitation	None.	

Personnel on Site/Company	Responsibility		
Stephen Thumma (WSP)	CQA		
Fisher Personal (9 people)	Various Personal		
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager		
Terry Foley (Fisher)	Supervisor		

#### 1.0 EQUIPMENT ON SITE

- (1) John Deere 345LC Excavator (used)
- (1) Komat'Su 61PXi Dozer (used)
- (1) John Deere 700 Dozer (not used)
- (1) Ingersoll Rand Pro Pac Series 100 Compactor (not used)
- (1) Hyundai HL757 Front End Loader (used)
- (1) Water Truck AT40 8,000 gallons (used)
- (2) CAT Offroad Truck 740 GC (used)
- (1) CAT Offroad Truck 730 (used)
- (1) Elgin Crosswind Streetsweeper (used)

# 2.0 CONSTRUCTION ACTIVITIES

■ Fisher pumped water from the Settling Basin and the Polishing Basin into the water truck to wet the haul roads for dust control within the Weadock Landfill.

# 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

■ Fisher used an excavator to remove materials from the north edge of the Settling Basin. Fisher is working their way back and forth from the north edge to the south edge of the impoundment. Fisher used 3 off-road trucks to haul the excavated material to a depression near the north/south road in the Weadock Landfill.

<b>Signature:</b> Stephen Thumma, P.E.	
----------------------------------------	--

Project: GL21489845 Date: August 14, 2024

#### 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

#### 5.0 MEETINGS AND DISCUSSIONS

■ None.

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

# 7.0 PROBLEMS AND RESOLUTIONS

■ Fisher had several small holes from a cinder on the bottom about a third of the way down (from the west end) the north edge of the Settling Basin. They covered it with sand as soon as they discovered it and then proceed to leister a patch to the geomembrane.

# 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845

Date: August 14, 2024



Photo 1: The repair of the perforations through the primary geomembrane.



Photo 2: Progress on removal of the ash from the Settling Basin.



Date:	August 15, 2024		On Site: 0700		<b>Off Site:</b> 1730	
Project:	Lined Impo	oundment Demo	lition			
Location:	Essexville, MI			Job No.:	GL214	89845
Owner:	Consumers Energy Company		Contractor:	Fisher Contracting (Fisher)		
Low Temp:	p: 59 °F High Temp: 81 °F		Wind:	0 - 5 MPH S		
Cloud Cover:		Partly Cloudy		Precipitation	None.	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personal (9 people)	Various Personal
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Deere 345LC Excavator (used)
- (1) Komat'su 61PXi Dozer (used)
- (2) CAT 740 Off-Road Truck (used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Water Truck TA40 8,000 gallons (used)
- (1) Elgin Streetsweeper LOR39 (used)

#### 2.0 CONSTRUCTION ACTIVITIES

■ Fisher pumped water from the Settling Basin and the Polishing Basin into the water truck to wet the haul roads for dust control within the Weadock Landfill.

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

■ Fisher used an excavator to remove materials from the north edge of the Settling Basin. Fisher is working their way back and forth from the north edge to the south edge of the impoundment. Fisher used 3 off-road trucks to haul the excavated material to a depression near the north/south road in the Weadock Landfill.

<b>Signature:</b> Signature:	tephen Thumma,	P.E.
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Project: GL21489845

Date: August 15, 2024

# 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

# 5.0 MEETINGS AND DISCUSSIONS

■ None.

# 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

# 7.0 PROBLEMS AND RESOLUTIONS

■ N/A

# 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845

Date: August 15, 2024



Photo 1: Fisher's progress on ash removal from the Settling Basin.



Date:	August 16, 2024			On Site: 0700		<b>Off Site:</b> 1730
Project:	Lined Impoundment Demolition					
Location:	Essexville, MI			Job No.:	GL21489845	
Owner:	Consumers Energy Company			Contractor:	Fisher Contracting (Fisher)	
Low Temp:	66 °F	6 °F High Temp: 76 °F		Wind:	0 - 5 MPH S	
Cloud Cover:		Overcast		Precipitation	Rain 1030 – 1330 0.5"	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personal (9 people)	Various Personal
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Deere 345LC Excavator (used)
- (1) Komatsu 61PXi Dozer (used)
- (2) CAT 740 Off-Road Truck (used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Water Truck TA40 8,000 gallons (used)
- (1) Elgin Streetsweeper LOR39 (used)

#### 2.0 CONSTRUCTION ACTIVITIES

- Fisher used the street sweeper to clean the roads on the haul route.
- Fisher pumped water from the Settling Basin and the Polishing Basin into the water truck to wet the haul roads for dust control within the Weadock Landfill.

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

■ Fisher used an excavator to remove materials from the north edge of the Settling Basin. Fisher is working their way back and forth from the north edge to the south edge of the impoundment. Fisher used 3 off-road trucks to haul the excavated material to a depression near the north/south road in the Weadock Landfill.

Signature: Stephen Thumma, P.E.	
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Project: GL21489845

Date: August 16, 2024

# 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

#### 5.0 MEETINGS AND DISCUSSIONS

■ None.

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

# 7.0 PROBLEMS AND RESOLUTIONS

- Fisher had a tear in the floor of the excavation near the middle on the west end of the Settling Basin and fixed the breach with a leistered geomembrane patch.
- At 1615 the excavator broke down and they will not have the part until Monday. Fisher is not working tomorrow.

#### 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845

Date: August 16, 2024



Photo 1: Fisher starts mixing sand in with the ash in the concrete-lined portion of the Settling Basin.



Photo 2: Fisher completes a repair to the primary geomembrane liner system in the Settling Basin.



Date:	August 19, 2024			<b>On Site:</b> 0700		<b>Off Site:</b> 1730
Project:	Lined Impo	oundment Demo	lition			
Location:	Essexville, MI			Job No.:	GL214	89845
Owner:	Consumers Energy Company			Contractor:	Fisher Contracting (Fisher)	
Low Temp:	57 °F	F High Temp: 67 °F		Wind:	10 - 20 MPH N gust to 26	
Cloud Cover: Partly to Mostly Cloudy		ly Cloudy	Precipitation	None.		

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personal (9 people)	Various Personal
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Deere 345LC Excavator (not used)
- (1) Hyundai 380L Excavator (used)
- (1) Komat'su 61PXi Dozer (used)
- (2) CAT 740 Off-Road Truck (used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Water Truck TA40 8,000 gallons (used)
- (1) Elgin Streetsweeper LOR39 (used)

# 2.0 CONSTRUCTION ACTIVITIES

- Fisher pumped water from the Settling Basin and the Polishing Basin into the water truck to wet the haul roads for dust control within the Weadock Landfill.
- Fisher used the street sweeper to clean the roads on the haul route.

# 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

■ Fisher used an excavator to remove materials from the west end of the Settling Basin on the protective concrete geoweb cover. Fisher used a dozer to push material to be loaded out from the

Signature: Stephen Thumma, P.E.	
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Project: GL21489845

Date: August 19, 2024

Settling Basin. Fisher used 3 off-road trucks to haul the excavated material to a depression near the north/south road in the Weadock Landfill.

# 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

# 5.0 MEETINGS AND DISCUSSIONS

■ None.

# 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

# 7.0 PROBLEMS AND RESOLUTIONS

■ None.

# 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845

Date: August 19, 2024



Photo 1: Fisher is mixing sand into the ash in the concrete-lined portion of the Settling Basin.



Photo 2: Fisher removing ash from the west end of the Settling Basin.



Date:	August 20, 2024			<b>On Site:</b> 0700		<b>Off Site:</b> 1730
Project:	Lined Impo	oundment Demo	olition			
Location:	Essexville, MI			Job No.:	GL214	89845
Owner:	Consumers Energy Company			Contractor:	Fisher Contracting (Fisher)	
Low Temp:	51 °F	High Temp: 70 °F		Wind:	6 - 12 MPH N gust to 25	
Cloud Cover: Partly Cloudy		Precipitation	None.			

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personal (9 people)	Various Personal
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Deere 345LC Excavator (used)
- (1) Hyundai 380L Excavator (used)
- (1) Komat'su 61PXi Dozer (used)
- (2) CAT 740 Off-Road Truck (used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Water Truck TA40 8,000 gallons (used)
- (1) Elgin Streetsweeper LOR39 (used)

# 2.0 CONSTRUCTION ACTIVITIES

- Fisher pumped water from the Settling Basin and the Polishing Basin into the water truck to wet the haul roads for dust control within the Weadock Landfill.
- Fisher used the street sweeper to clean the roads on the haul route.

# 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

■ Fisher used an excavator to remove materials from the west end of the concrete-lined portion of the Settling Basin. Fisher used a dozer to push material to be loaded out from the concrete-lined

Signature: Stephen Thumma, P.E.
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Project: GL21489845

Date: August 20, 2024

end of the Settling Basin. Fisher used 3 off-road trucks to haul the excavated material to a depression near the north/south road in the Weadock Landfill.

# 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

# 5.0 MEETINGS AND DISCUSSIONS

■ None.

# 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

# 7.0 PROBLEMS AND RESOLUTIONS

■ None.

# 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845

Date: August 20, 2024



Photo 1: Fisher's progress on ash removal from the Settling Basin.



Photo 2: Fisher removing ash from the concrete-lined portion of the Settling Basin.



Date:	August 21,	August 21, 2024				<b>Off Site:</b> 1730
Project:	Lined Impo	oundment Demo	olition			
Location:	Essexville, MI			Job No.:	GL214	89845
Owner:	Consumers Energy Company			Contractor:	Fisher Contracting (Fisher)	
Low Temp:	48 °F	High Temp: 74 °F		Wind:	5 - 13 MPH variable	
Cloud Cover: Sunny			Precipitation	None.		

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (9 people)	Various Personnel
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Deere 345LC Excavator (used)
- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (used)
- (2) CAT 740 Off-Road Truck (used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (not used)
- (1) Water Truck TA40 8,000 gallons (used)
- (1) Elgin Streetsweeper LOR39 (used)

# 2.0 CONSTRUCTION ACTIVITIES

- Fisher pumped water from the Settling Basin and the Polishing Basin into the water truck to wet the haul roads for dust control within the Weadock Landfill.
- Fisher used the street sweeper to clean the roads on the haul route.

# 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher used an excavator to remove materials from the central and east end of the Settling Basin.
- Fisher used a dozer to mix sand and ash material in the concrete-lined portion of the Settling Basin.

Signature: Stephen Thumma, P.E.

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Project: GL21489845

Date: August 21, 2024

■ Fisher used 3 off-road trucks to haul the excavated material to a depression near the north/south road in the Weadock Landfill.

#### 4.0 FIELD LAB TESTING ACTIVITIES

■ Rowe was on-site today to survey the ash levels at the bottom of the Settling Basin. They also collected points from the exposed primary geomembrane in the Settling Basin and collected some extra shots from the south ditch and in the vicinity of the discharge to the pond to the south.

# 5.0 MEETINGS AND DISCUSSIONS

■ None.

# 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

# 7.0 PROBLEMS AND RESOLUTIONS

■ None.

# 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845

Date: August 21, 2024



Photo 1: Fisher cleaning the ash/sand mix in the concrete-lined portion of the Settling Basin.

Project: GL21489845 Date: August 21, 2024



Photo 2: Fisher loading out ash/sand mix above the primary liner of the Settling Basin.



Date:	August 22,	ugust 22, 2024				<b>Off Site:</b> 1730
Project:	Lined Impo	oundment Demo	lition			
Location:	Essexville, MI			Job No.:	GL214	89845
Owner:	Consumers Energy Company			Contractor:	Fisher Contracting (Fisher)	
Low Temp:	51 °F	High Temp: 78 °F		Wind:	0 - 10 MPH S to W	
Cloud Cover: Su		Sunny		Precipitation	None.	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (9 people)	Various Personnel
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager
Badger Personnel (3 people)	Various Personnel
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Deere 345LC Excavator (used)
- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (used)
- (2) CAT 740 Off-Road Truck (used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (not used)
- (1) Water Truck TA40 8,000 gallons (used)
- (1) Elgin Streetsweeper LOR39 (used)
- (2) Vacuum Trucks (used)

#### 2.0 CONSTRUCTION ACTIVITIES

- Fisher pumped water from the Settling Basin and the Polishing Basin into the water truck to wet the haul roads for dust control within the Weadock Landfill.
- Badger had two vac trucks on-site today to remove water/ash from the Polishing Basin. Badger dumped the water/ash mix in a depression west of the north/south haul road of the Weadock Landfill.
- Fisher used the street sweeper to clean the roads on the haul route.

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Project: GL21489845

Date: August 22, 2024

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher used an excavator to remove materials from the concrete-lined portion of the Settling Basin and worked their way east along the south side of the Settling Basin. The concrete-lined portion of the Settling Basin has all the ash removed.
- Fisher used an excavator to start removing the concrete on the northeast corner of the concrete-lined area of the Settling Basin.
- Fisher used 3 off-road trucks to haul the excavated material to a depression near the north/south road in the Weadock Landfill.

#### 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

#### 5.0 MEETINGS AND DISCUSSIONS

■ None.

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

#### 7.0 PROBLEMS AND RESOLUTIONS

■ When Fisher removed the concrete liner at the west end of the Settling Basin portions of the geomembrane were torn due to the concrete and fabric "sticking" to the geomembrane. This activity was discontinued, and the area was cleaned of debris and covered with Visqueen to protect it from precipitation. The top of the Visqueen was placed in an anchor trench to minimize water flowing under it. The edges of the Visqueen were anchored down to minimize infiltration under the Visqueen. No additional geoweb, concrete, and geomembrane will be removed from this area until it's prepared for visual photographic documentation and microscopy samples to be taken.

#### 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

None.

Project: GL21489845

Date: August 22, 2024



Photo 1: Badger cleaning the ash and water from the Polishing Basin.



Photo 2: Fisher's progress on the Settling Basin.



Date:	August 23, 2024		<b>On Site:</b> 0700		Off Site: 1200	
Project:	Lined Impo	Lined Impoundment Demolition				
Location:	Essexville, MI Job No.: GL21489845			89845		
Owner:	Consumers Energy Company		Contractor:	Fisher Contracting (Fisher)		
Low Temp:	55 °F	High Temp:	76 °F	Wind:	5 - 10	MPH SW
Cloud Cover:		Partly Cloudy		Precipitation	None.	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (8 people)	Various Personnel
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager
Badger Personnel (2 people)	Various Personnel
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Deere 345LC Excavator (used)
- (1) Hyundai HX 380L Excavator (not used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (used)
- (2) CAT 740 Off-Road Truck (1 used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Water Truck TA40 8,000 gallons (not used)
- (1) Elgin Streetsweeper LOR39 (used)

#### 2.0 CONSTRUCTION ACTIVITIES

- Fisher brought the water truck from a local borrow to wet the haul roads for dust control.
- Badger had one vac trucks on-site today to removed water/ash from the Polishing Basin. Badger disposed the water/ash mix in a depression west of the north/south haul road within the Weadock Landfill. The Polishing Basin has all of the ash and associated water removed.

Signature: Stephen Thumma, P.E.
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Project: GL21489845 Date: August 23, 2024

- Fisher used the street sweeper to clean the roads on the haul route.
- Fisher also pumped water from the Settling Basin to two 250-gallon poly tanks staged on the edge of the Settling Basin.

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher used an excavator to remove materials from the east end of the Settling Basin.
- Fisher used 2 off-road trucks to haul the excavated material to a depression near the north/south road in the Weadock Landfill.

# 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

#### 5.0 MEETINGS AND DISCUSSIONS

■ None.

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

#### 7.0 PROBLEMS AND RESOLUTIONS

■ None.

#### 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

Project: GL21489845

Date: August 23, 2024



Photo 1: Polishing Basin after Badger finished cleaning and dewatering it.



Photo 2: Fisher's progress exposing the primary geomembrane on the Settling Basin.



Date:	August 26, 2024		<b>On Site:</b> 0700		Off Site: 1500	
Project:	Lined Impo	Lined Impoundment Demolition				
Location:	Essexville, MI			Job No.:	GL21489845	
Owner:	Consumers Energy Company		Contractor:	Fisher Contracting (Fisher)		
Low Temp:	70 °F	High Temp:	92 °F	Wind:	5 - 10	MPH S to SW
Cloud Cover:		Mostly Cloudy		Precipitation	None.	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (8 people)	Various Personnel
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Deere 345LC Excavator (used)
- (1) Hyundai HX 380L Excavator (not used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (used)
- (2) CAT 740 Off-Road Truck (2 used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (used)
- (1) Hitachi HL757 TM-7A Front End Loader (not used)
- (1) Water Truck TA40 8,000 gallons (not used)
- (1) Elgin Streetsweeper LOR39 (used)

#### 2.0 CONSTRUCTION ACTIVITIES

- Fisher brought the water truck from a local borrow to wet the haul roads for dust control.
- Fisher started cutting up liner in the Polishing Basin today.
- Fisher used the street sweeper to clean the roads on the haul route.
- Fisher also pumped water from the Settling Basin to two 250-gallon poly tanks staged on the edge of the Settling Basin.

<b>Signature:</b> Stephen Thumma, P.E.	
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Project: GL21489845 Date: August 26, 2024

■ Fisher cut some of the embankment sand and started placing it into the east end of the north ditch. They rolled the lifts as they filled.

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher used an excavator to remove materials from the east end of the Settling Basin. They finished removing ash from the Settling Basin.
- Fisher used 3 off-road trucks to haul the excavated material to a depression near the north/south road in the Weadock Landfill.

#### 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

#### 5.0 MEETINGS AND DISCUSSIONS

Rowe will be on-site on Wednesday to finish surveying the Settling Basin and to place the sampling points for verification sampling.

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

#### 7.0 PROBLEMS AND RESOLUTIONS

■ Fisher had three nicks in the south face of the primary geomembrane liner of the Settling Basin. They repaired them with leistered geomembrane patches and sandbags to keep the water out of the breaches.

#### 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

Project: GL21489845 Date: August 26, 2024



Photo 1: Fisher started removing the geomembrane liner from the Polishing Basin.



Date:	August 28,	2024 <b>On Site</b> : 0700			Off Site: 1500	
Project:	Lined Impo	oundment Demo	olition			
Location:	Essexville,	MI <b>Job No.:</b> GL21489845			89845	
Owner:	Consumers Energy Company		Contractor:	Fisher Contracting (Fisher)		
Low Temp:	69 °F	High Temp:	72 °F	<b>Wind:</b> 5 - 15 MPH NE		MPH NE
Cloud Cover:		Cloudy		Precipitation	None. (1.12" rain previous day)	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (8 people)	Various Personnel
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager
Steve Fournier (Rowe)	Survey
Terry Foley (Fisher)	Supervisor

# 1.0 EQUIPMENT ON SITE

- (1) Deere 345LC Excavator (used)
- (1) Hyundai HX 380L Excavator (not used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (used)
- (2) CAT 740 Off-Road Truck (1 used)
- (1) CAT 730 Off-Road Truck (not used)
- (1) Pro Pac Series 100 Compactor (used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Water Truck TA40 8,000 gallons (not used)
- (1) Elgin Streetsweeper LOR39 (used)

# 2.0 CONSTRUCTION ACTIVITIES

- Fisher continued cutting up geomembrane liner in the Polishing Basin today.
- Fisher started removing the GCL from under the geomembrane liner in the Polishing Basin today.
- Fisher used the street sweeper to clean the roads on the haul route.

Signatura	Stephen Thumma, P.F.	
Signature:	Stephen Inumma, P.E.	

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Project: GL21489845

Date: August 28, 2024

- Fisher also pumped water from the Settling Basin to the water truck to wet the haul roads in the landfill.
- Fisher continued cutting the embankment sand and placing it into the east end of the north ditch. They rolled the lifts as they filled.

## 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher used an excavator to remove materials from the east end of the Settling Basin. They finished cleaning the upper edge of the Settling Basin.
- Fisher used 1 off-road truck to haul the excavated material to a depression near the north/south road in the Weadock Landfill.

#### 4.0 FIELD LAB TESTING ACTIVITIES

■ Rowe was on-site to finish surveying the Settling Basin and to locate the sampling points for verification sampling next Tuesday.

#### 5.0 MEETINGS AND DISCUSSIONS

■ None.

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

#### 7.0 PROBLEMS AND RESOLUTIONS

■ None.

#### 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

Project: GL21489845

Date: August 28, 2024



Photo 1: Fisher removing geomembrane liner and GCL from the Polishing Basin.



Photo 2: Fisher loading geomembrane liner and GCL for disposal in the JCW Landfill.



Date:	August 29, 2024			<b>On Site:</b> 0700		Off Site: 1500
Project:	Lined Impoundment Demolition					
Location:	Essexville, MI			Job No.:	GL21489845	
Owner:	Consumers Energy Company			Contractor:	Fisher Contracting (Fisher)	
Low Temp:	63 °F	High Temp: 73 °F		Wind:	0 - 10 MPH E	
Cloud Cover:		Cloudy		Precipitation	None.	

Personnel on Site/Company	Responsibility		
Stephen Thumma (WSP)	CQA		
Fisher Personnel (9 people)	Various Personnel		
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager		
Terry Foley (Fisher)	Supervisor		

#### 1.0 EQUIPMENT ON SITE

- (1) Deere 345LC Excavator (used)
- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (used)
- (2) CAT 740 Off-Road Truck (2 used)
- (1) CAT 730 Off-Road Truck (not used)
- (1) Pro Pac Series 100 Compactor (used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Water Truck TA40 8,000 gallons (not used)
- (1) Elgin Streetsweeper LOR39 (used)

#### 2.0 CONSTRUCTION ACTIVITIES

- Fisher finished cutting up liner in the Polishing Basin today except for a small portion that needs to stay on the east end by the crossovers.
- Fisher finished removing the GCL from under the geomembrane liner in the Polishing Basin.
- Fisher also pumped water from the Settling Basin to the water truck to wet the haul roads in the Weadock Landfill.

Signature: Stephen Thumma, P.E.
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Project: GL21489845 Date: August 29, 2024

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher used an excavator to remove the geomembrane liner and GCL from the Polishing Basin. The geomembrane liner and GCL were disposed of in the Weadock Landfill.
- Fisher continued cutting of the embankment sand from the Polishing Basin. They placed this sand into the north ditch and kept filling to the west. They rolled the lifts as they filled.
- Fisher used 2 off-road trucks to haul the excavated sand material to the north ditch.

## 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

## 5.0 MEETINGS AND DISCUSSIONS

■ None.

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

## 7.0 PROBLEMS AND RESOLUTIONS

■ None.

## 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845

Date: August 29, 2024



Photo 1: The Settling Basin was cleaned of ash and dewatered.



Photo 2: The Polishing Basin with most of the geomembrane liner and GCL removed.



Date:	August 30, 2024			<b>On Site:</b> 0700		Off Site: 1500
Project:	Lined Impoundment Demolition					
Location:	Essexville, MI			Job No.:	GL21489845	
Owner:	Consumers Energy Company		Contractor:	Fisher Contracting (Fisher)		
Low Temp:	65 °F	High Temp:	84 °F	Wind:	5 - 15 MPH S	
Cloud Cover:		Partly Cloudy		Precipitation	None.	

Personnel on Site/Company	Responsibility		
Stephen Thumma (WSP)	CQA		
Fisher Personnel (9 people)	Various Personnel		
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager		
Terry Foley (Fisher)	Supervisor		

#### 1.0 EQUIPMENT ON SITE

- (1) Deere 345LC Excavator (used)
- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (used)
- (2) CAT 740 Off-Road Truck (2 used)
- (1) CAT 730 Off-Road Truck (not used)
- (1) Pro Pac Series 100 Compactor (used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Water Truck TA40 8,000 gallons (not used)
- (1) Elgin Streetsweeper LOR39 (used)

#### 2.0 CONSTRUCTION ACTIVITIES

■ Fisher cut approximately 40 feet of discharge pipe from the Polishing Basin.

## 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

■ Fisher continued placing excavated embankment sand into the north ditch and kept filling to the west. They rolled the lifts as they filled.

**Signature:** Stephen Thumma, P.E.

Project: GL21489845

Date: August 30, 2024

■ Fisher used 2 off-road trucks to haul the excavated sand material to the north ditch.

## 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

## 5.0 MEETINGS AND DISCUSSIONS

■ None.

## 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

## 7.0 PROBLEMS AND RESOLUTIONS

■ None.

## 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845

Date: August 30, 2024



Photo 1: Fisher excavating excess berm material from the west end of the Lined Impoundment.



Date:	September 03, 2024			<b>On Site:</b> 0700		Off Site: 1400
Project:	Lined Impo	Lined Impoundment Demolition				
Location:	Essexville, MI			Job No.:	GL21489845	
Owner:	Consumers Energy Company			Contractor:	Fisher Contracting (Fisher)	
Low Temp:	49 °F High Temp: 73 °F		Wind:	3 - 12 MPH SW		
Cloud Cover:		Partly Cloudy		Precipitation	None.	

Personnel on Site/Company	Responsibility		
Stephen Thumma (WSP)	CQA		
Fisher Personnel (4 people)	Various Personnel		
Jon Giffel (Consumers Energy)	Construction Manager		
Terry Foley (Fisher)	Supervisor		

#### 1.0 EQUIPMENT ON SITE

- (1) Deere 345LC Excavator (not used)
- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (not used)
- (1) Deere 700 Dozer (not used)
- (2) CAT 740 Off-Road Truck (not used)
- (1) CAT 730 Off-Road Truck (not used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Water Truck TA40 8,000 gallons (not used)
- (1) Elgin Streetsweeper LOR39 (not used)

#### 2.0 CONSTRUCTION ACTIVITIES

■ N/A, see Earthworks section.

## 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

Fisher opened up three locations in the concrete-lined area and 7 locations in the non-concrete-lined area for WSP to complete their closure sampling. The openings in the non-concrete-lined area were patched with geomembrane and leistered until microscopy results will be obtained.

Signature:	Stephen Thumma, P.E.	
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Project: GL21489845

Date: September 3, 2024

#### 4.0 FIELD LAB TESTING ACTIVITIES

■ WSP completed 10 photos and collected 10 sand samples for closure of the lined impoundment. The samples were submitted to MJ2 Consulting in Chicago, IL for analysis by microscopy. Results are anticipated either late Thursday or Friday. The samples were collected from nodes K-1. K-3, K-7, K-18, K-22, K-24, K-27, K-29, K-30 and K-31.

## 5.0 MEETINGS AND DISCUSSIONS

■ None.

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

#### 7.0 PROBLEMS AND RESOLUTIONS

■ None.

#### 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

Project: GL21489845 Date: September 3, 2024

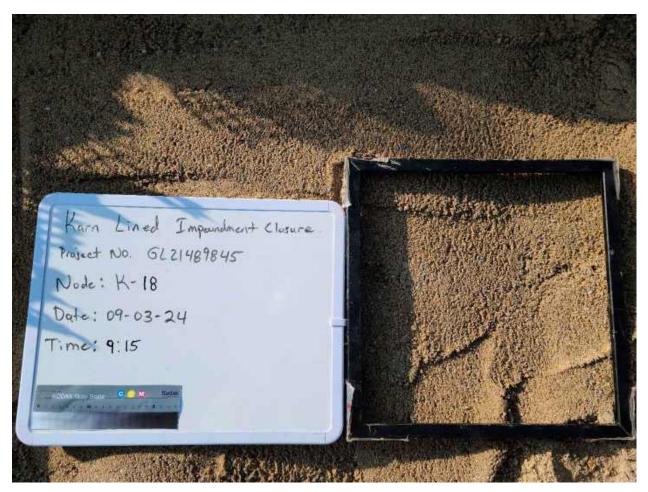


Photo 1: Typical photo documentation from the non-concrete-lined portion of the Settling Basin.

Project: GL21489845

Date: September 3, 2024



Photo 2: Typical photo documentation from the concrete-lined portion of the Settling Basin.



Date:	September 06, 2024			<b>On Site:</b> 0700		Off Site: 1500
Project:	Lined Impoundment Demolition					
Location:	Essexville, MI			Job No.:	GL21489845	
Owner:	Consumers Energy Company		Contractor:	Fisher Contracting (Fisher)		
Low Temp:	60 °F	High Temp: 63 °F		Wind:	10 - 20 MPH NW gusts to 23	
Cloud Cover:		Cloudy		Precipitation	None.	

Personnel on Site/Company	Responsibility		
Stephen Thumma (WSP)	CQA		
Fisher Personnel (4 people)	Various Personnel		
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager		
Terry Foley (Fisher)	Supervisor		

#### 1.0 EQUIPMENT ON SITE

- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (not used)
- (1) Deere 700 Dozer (not used)
- (2) CAT 740 Off-Road Truck (not used)
- (1) CAT 730 Off-Road Truck (not used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Elgin Streetsweeper LOR39 (not used)

#### 2.0 CONSTRUCTION ACTIVITIES

- Fisher removed the effluent pipe from the Polishing Basin to the pond to the south. They cut the pipe up into manageable pieces.
- Fisher started cutting up the geomembrane liner on the north and east slopes of the Settling Basin. They started stacking it at the bottom of the Settling Basin and secured it with sandbags for the weekend.

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

■ Fisher continued to remove the concrete liner at the west end of the Settling Basin.

Signature:	Stephen Thumma, P.E.	
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Project: GL21489845

Date: September 6, 2024

## 4.0 FIELD LAB TESTING ACTIVITIES

■ WSP received the results on the 10 sand samples collected on Tuesday, September 3, 2024. The results reported for all 10 samples were <1% ash by MJ2 Consulting in Chicago, IL.

## 5.0 MEETINGS AND DISCUSSIONS

■ None.

## 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

## 7.0 PROBLEMS AND RESOLUTIONS

■ None.

## 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845 Date: September 6, 2024

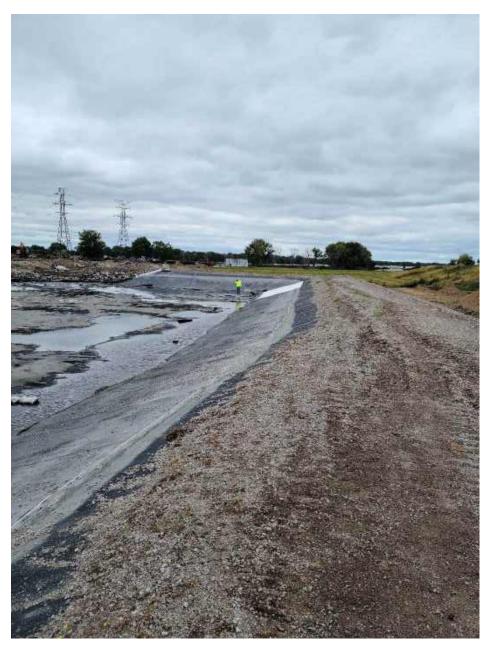


Photo 1: Fisher started removing the geomembrane liner from the Settling Basin.

Project: GL21489845 Date: September 6, 2024



Photo 2: Fisher removed the discharge piping from the Polishing Basin.



Date:	September 09, 2024			<b>On Site:</b> 0700		Off Site: 1700	
Project:	Lined Impo	Lined Impoundment Demolition					
Location:	Essexville, MI			Job No.:	GL21489845		
Owner:	Consumers Energy Company			Contractor:	Fisher Contracting (Fisher)		
Low Temp:	58 °F	High Temp:	72 °F	Wind:	d: 10 - 20 MPH SW gusts to		
Cloud Cover:		Mostly Cloudy		Precipitation	None.		

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (7 people)	Various Personnel
Jason O'Dell/Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (not used)
- (2) CAT 740 Off-Road Truck (1 used)
- (1) CAT 730 Off-Road Truck (not used)
- (1) Pro Pac Series 100 Compactor (used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Elgin Streetsweeper LOR39 (not used)

## 2.0 CONSTRUCTION ACTIVITIES

- Fisher continued cutting up the primary liner/GCL on the north and east slopes of the Settling Basin. They also started removing the geocomposite and secondary geomembrane liner from the Settling Basin.
- Fisher hauled geomembrane liner, GCL and geocomposite to the Weadock Landfill.

## 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

■ Fisher continued to remove the concrete liner in the west end of the Settling Basin.

Signature:	Stephen Thumma, P.E.	
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Project: GL21489845 Date: September 9, 2024

## 4.0 FIELD LAB TESTING ACTIVITIES

■ WSP collected 4 sand samples (K-34, K-39, K-44 and K-47) and photographed 16 nodes to document closure. The 16 nodes photographed today included K-4, K-6, K-12, K-16, K-17, K-25, K-28, K-33, K-34, K-36, K-39, K-42, K-44, K-45, K-47, and K-48).

## 5.0 MEETINGS AND DISCUSSIONS

■ None.

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

#### 7.0 PROBLEMS AND RESOLUTIONS

■ None.

#### 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES



Project: GL21489845 Date: September 9, 2024



Photo 1: Fisher removing the concrete geoweb liner over the west end of the Settling Basin.



Date:	September	ember 10, 2024 <b>On Site</b> : 0700		<b>Off Site:</b> 1700		
Project:	Lined Impo	Lined Impoundment Demolition				
Location:	Essexville,	MI		<b>Job No.:</b> GL21489845		
Owner:	Consumers Energy Company		Contractor:	Fisher Contracting (Fisher)		
Low Temp:	51 °F	High Temp:	81 °F	Wind: 0 - 10 N		MPH SE
Cloud Cover:		Partly Cloudy		Precipitation	None.	(early morning fog)

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (8 people)	Various Personnel
Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (used)
- (2) CAT 740 Off-Road Truck (2 used)
- (1) CAT 730 Off-Road Truck (not used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Elgin Streetsweeper LOR39 (not used)

#### 2.0 CONSTRUCTION ACTIVITIES

- Fisher continued cutting up the primary geomembrane liner/GCL on the slopes of the Settling Basin.
- Fisher also started removing the primary and secondary liner from the Settling Basin floor.
- Fisher hauled concrete geoweb, geomembrane liner, GCL and geocomposite to the Weadock Landfill.

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

■ Fisher continued to remove the concrete liner in the west end of the Settling Basin. They have removed most of the concrete liner from the west end of the basin.

Signature: Stephen Thumma, P.E.
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Project: GL21489845

Date: September 10, 2024

■ Fisher also started cutting through the north berm to allow off-road trucks into the Settling Basin for loading purposes.

## 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

## 5.0 MEETINGS AND DISCUSSIONS

■ None.

## 6.0 SAFETY MEETING

Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

## 7.0 PROBLEMS AND RESOLUTIONS

■ None.

## 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

Project: GL21489845

Date: September 10, 2024



Photo 1: The removal of the primary and secondary liner systems from the Settling Basin.



Photo 2: Fisher grading the concrete and liner/GCL fill in the JCW Landfill.



Date:	te: September 11, 2024 On Site: 0700			<b>Off Site:</b> 1700		
Project:	Lined Impoundment Demolition					
Location:	Essexville,	MI	<b>Job No.:</b> GL21489845			89845
Owner:	Consumers Energy Company		Contractor:	Fisher Contracting (Fisher)		
Low Temp:	59 °F	High Temp:	83 °F	Wind: 0 - 10 N		MPH S
Cloud Cover:		Partly Cloudy		Precipitation	itation None.	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (9 people)	Various Personnel
Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (used)
- (2) CAT 740 Off-Road Truck (2 used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Elgin Streetsweeper LOR39 (not used)

#### 2.0 CONSTRUCTION ACTIVITIES

- Fisher continued cutting/removing the primary geomembrane liner/GCL/geocomposite on the walls of the Settling Basin. Most of the geomembrane liner/GCL/geocomposite has been removed from the Settling Basin.
- Fisher also continued removing the primary and secondary liner from the Settling Basin floor.
- Fisher hauled concrete geoweb, liner, GCL and geogrid to the Weadock Landfill. Most of these materials have been hauled to the Weadock Landfill.

Signature:	Stephen Thumma, P.E.	
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Date: September 11, 2024

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher continued to remove the concrete liner in the west end of the Settling Basin. They have finished removing the concrete liner from the west end of the Settling Basin.
- Fisher also hauled sand from the floor and berms of the Settling Basin to the Weadock Landfill.

## 4.0 FIELD LAB TESTING ACTIVITIES

■ WSP collected the last two microscopy samples (K-50/K-51) from the south wall of the liner portion of the Settling Basin. These samples were shipped out to MJ2 for analysis.

## 5.0 MEETINGS AND DISCUSSIONS

■ None.

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

## 7.0 PROBLEMS AND RESOLUTIONS

■ None.

## 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

Project: GL21489845

Date: September 11, 2024



Photo 1: Fisher loading out excess berm materials.



Photo 2: The primary and secondary liner systems have been removed from the Settling Basin.



Date:	September 12, 2024		On Site: 0700		<b>Off Site:</b> 1700	
Project:	Lined Impo	Lined Impoundment Demolition				
Location:	Essexville, MI Job No.: GL21489845			89845		
Owner:	Consumers Energy Company		Contractor:	Fisher Contracting (Fisher)		
Low Temp:	57 °F	High Temp:	83 °F	Wind: 0 - 5 MPH SW		1PH SW
Cloud Cover:		Partly Cloudy		Precipitation	None.	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (7 people)	Various Personnel
Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (used)
- (2) CAT 740 Off-Road Truck (2 used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Elgin Streetsweeper LOR39 (not used)

#### 2.0 CONSTRUCTION ACTIVITIES

- Fisher finished removing the primary geomembrane liner/GCL/geocomposite on the walls of the Settling Basin.
- Fisher also finished removing the primary and secondary liner from the Settling Basin floor.
- Fisher finished hauling the liner, geocomposite, and GCL to the Weadock Landfill.

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher also hauled sand from the floor and berms of the Settling Basin to the Weadock Landfill.
- Fisher continued fine grading on the northern portion of the restoration area.

Signature:	Stephen Thumma, P.E.	
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Project: GL21489845

Date: September 12, 2024

## 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

## 5.0 MEETINGS AND DISCUSSIONS

■ None.

## 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

## 7.0 PROBLEMS AND RESOLUTIONS

■ None.

## 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

Project: GL21489845

Date: September 12, 2024



Photo 1: Fisher covering the concrete, liner, and GCL in the JCW Landfill.



Photo 2: Fisher grading the Settling Basin after the liner systems have been removed.



Date:	September	13, 2024		<b>On Site:</b> 0700		<b>Off Site:</b> 1700
Project:	Lined Impo	Impoundment Demolition				
Location:	Essexville,	MI		<b>Job No.:</b> GL21489845		
Owner:	Consumers Energy Company		Contractor:	Fisher Contracting (Fisher)		
Low Temp:	57 °F	High Temp:	78 °F	Wind: 5 - 15 N		MPH E to NE
Cloud Cover:		Sunny		Precipitation	None.	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (9 people)	Various Personnel
Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (used)
- (2) CAT 740 Off-Road Truck (2 used)
- (2) Dump Truck (2 used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Elgin Streetsweeper LOR39 (not used)

## 2.0 CONSTRUCTION ACTIVITIES

■ Fisher decommissioned monitoring well OW-12 located on the west end of the Settling Basin. The well as cut off just below the ground surface and was filled with granulated bentonite. The well was covered with sand after decommissioning.

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher hauled embankment sand to the Weadock Landfill.
- Fisher placed sand in the Weadock Landfill with a dozer.

Signature:	Stephen Thumma, P.E.	
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Project: GL21489845

Date: September 13, 2024

■ Fisher continued fine grading on the northern portion of the restoration area.

## 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

## 5.0 MEETINGS AND DISCUSSIONS

■ None.

## 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

## 7.0 PROBLEMS AND RESOLUTIONS

■ None.

## 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

Project: GL21489845

Date: September 13, 2024



Photo 1: Fisher excavating the excess berm materials for disposal at the JCW Landfill.



Photo 2: The remaining OW-12 casing was backfilled with granular bentonite.



Date:	September	r 16, 2024		<b>On Site:</b> 0700		Off Site: 1700
Project:	Lined Impo	oundment Demo	olition			
Location:	Essexville,	MI		Job No.:	GL214	89845
Owner:	Consumers	Energy Compa	ny	Contractor:	Fisher	Contracting (Fisher)
Low Temp:	55 °F	High Temp:	86 °F	Wind:	0 - 10	MPH SE
Cloud Cover:		Sunny		Precipitation	None.	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (8 people)	Various Personnel
Jason Odell/Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (used)
- (2) CAT 740 Off-Road Truck (2 used)
- (2) Dump Truck (2 used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Elgin Streetsweeper LOR39 (not used)

## 2.0 CONSTRUCTION ACTIVITIES

■ Fisher used 6 on-road trucks to haul topsoil from the Monitor Township site to the restoration area.

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher hauled embankment sand to the Weadock Landfill.
- Fisher placed sand in the Weadock Landfill with a dozer.
- Fisher started placing topsoil from the Monitor Township site on the northern portion of the restoration.

<b>Signature:</b> Stephen Thumma, P.E.	
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Project: GL21489845

Date: September 16, 2024

## 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

## 5.0 MEETINGS AND DISCUSSIONS

■ None.

## 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

## 7.0 PROBLEMS AND RESOLUTIONS

■ None.

## 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

Project: GL21489845 Date: September 16, 2024



Photo 1: Fisher excavating excess berm material for disposal at the JCW Landfill.



Photo 2: Fisher placing topsoil over the northern portion of the restoration.



Date:	September	r 17, 2024		<b>On Site:</b> 0700		Off Site: 1700
Project:	Lined Impo	oundment Demo	lition			
Location:	Essexville,	MI		Job No.:	GL214	89845
Owner:	Consumers	Energy Compa	ny	Contractor:	Fisher	Contracting (Fisher)
Low Temp:	57 °F	High Temp:	83 °F	Wind:	0 - 15	MPH SE
Cloud Cover:		Sunny		Precipitation	None.	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (8 people)	Various Personnel
Jason Odell/Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (used)
- (2) CAT 740 Off-Road Truck (2 used)
- (2) Dump Truck (2 used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Elgin Streetsweeper LOR39 (not used)

## 2.0 CONSTRUCTION ACTIVITIES

■ Fisher used 6 on-road trucks to haul topsoil from the Monitor Township site to the restoration area.

## 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher hauled embankment sand to the Weadock Landfill.
- Fisher placed sand in the Weadock Landfill with a dozer.
- Fisher started placing topsoil from the Monitor Township site on the northern portion of the restoration.

Signature: Stephen Thumma, P.E.
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Project: GL21489845

Date: September 17, 2024

## 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

## 5.0 MEETINGS AND DISCUSSIONS

■ None.

## 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

## 7.0 PROBLEMS AND RESOLUTIONS

■ None.

## 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

Project: GL21489845 Date: September 17, 2024

# 9.0 PHOTOGRAPHS



Photo 1: Fisher excavating excess berm material for disposal at the JCW Landfill.



Photo 2: Fisher placing topsoil on the restoration.



Date:	September 18, 2024			<b>On Site:</b> 0700		<b>Off Site:</b> 1700
Project:	Lined Impo	oundment Demo	lition			
Location:	Essexville, MI			Job No.:	GL21489845	
Owner:	Consumers Energy Company		Contractor:	Fisher	Contracting (Fisher)	
Low Temp:	57 °F	High Temp:	81 °F	Wind:	0 - 10 MPH E	
Cloud Cover:		Partly Cloudy		Precipitation	None.	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (9 people)	Various Personnel
Jason Odell/Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (used)
- (2) CAT 740 Off-Road Truck (2 used)
- (2) Dump Truck (2 used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Elgin Streetsweeper LOR39 (not used)

#### 2.0 CONSTRUCTION ACTIVITIES

- Fisher used 6 on-road trucks to haul topsoil from the Monitor Township site to the restoration area.
- Fisher used the water truck for dust control on the haul roads.

# 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher hauled embankment sand to the Weadock Landfill.
- Fisher placed sand in the Weadock Landfill with a dozer.

Signature:	Stephen Thumma, P.E.	
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Project: GL21489845

Date: September 18, 2024

■ Fisher started placing topsoil from the Monitor Township site on the south and west portions of the restoration.

#### 4.0 FIELD LAB TESTING ACTIVITIES

■ Rowe was on-site today to complete the base survey and to start the survey of the topsoil.

#### 5.0 MEETINGS AND DISCUSSIONS

■ None.

#### 6.0 SAFETY MEETING

Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

#### 7.0 PROBLEMS AND RESOLUTIONS

■ None.

#### 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

■ None.

Project: GL21489845

Date: September 18, 2024

# 9.0 PHOTOGRAPHS



Photo 1: Fisher loading out the last of the berm material.

Project: GL21489845 Date: September 18, 2024



Photo 2: Fisher covering the placed ash located adjacent to the north/south road in the Weadock Landfill.



Date:	September 19, 2024			<b>On Site:</b> 0700		<b>Off Site:</b> 1700
Project:	Lined Impoundment Demolition					
Location:	Essexville, MI			Job No.:	GL21489845	
Owner:	Consumers Energy Company		Contractor:	Fisher	Contracting (Fisher)	
Low Temp:	56 °F	High Temp:	80 °F	Wind:	0 - 5 MPH ESE to ENE	
Cloud Cover:		Partly Cloudy		Precipitation	None.	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (5 people)	Various Personnel
Jason Odell/Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (used)
- (2) CAT 740 Off-Road Truck (2 used)
- (2) Dump Truck (2 used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Elgin Streetsweeper LOR39 (not used)

#### 2.0 CONSTRUCTION ACTIVITIES

- Fisher used 3 on-road trucks to haul one round of topsoil from the Monitor Township site to the restoration area.
- Fisher hauled off-site some of the concrete pedestals from the pipe support system.

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

■ Fisher placed seed and fertilizer on the northern portion of the restoration. Fisher prepared the southeast quarter of the restoration for planting tomorrow.

Signature:	Stephen Thumma, P.E.	

Page 1 of 3

Project: GL21489845 Date: September 19, 2024

- Fisher finished placing sand in the Weadock Landfill with a dozer.
- Fisher continued placing topsoil from the Monitor Township site on the south and west portions of the restoration.

#### 4.0 FIELD LAB TESTING ACTIVITIES

■ Rowe was on-site today to complete the base survey and to start the survey of the topsoil.

#### 5.0 MEETINGS AND DISCUSSIONS

■ None.

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

#### 7.0 PROBLEMS AND RESOLUTIONS

■ None.

#### 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

■ None.

Project: GL21489845 Date: September 19, 2024

# 9.0 PHOTOGRAPHS



Photo 1: Fisher finishing the topsoil placement on the west end of the restoration.



Photo 2: Fisher spreading fertilizer on the north side of the restoration.



Date:	September 20, 2024			<b>On Site:</b> 0700		Off Site: 1500
Project:	Lined Impoundment Demolition					
Location:	Essexville, MI			Job No.:	GL21489845	
Owner:	Consumers Energy Company			Contractor:	Fisher	Contracting (Fisher)
Low Temp:	62 °F	High Temp:	84 °F	Wind:	5 - 10 MPH S	
Cloud Cover:		Partly Cloudy		Precipitation	None.	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (5 people)	Various Personnel
Jason Odell/Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Hyundai HX 380L Excavator (used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (used)
- (2) CAT 740 Off-Road Truck (2 used)
- (2) Dump Truck (2 used)
- (1) CAT 730 Off-Road Truck (used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Elgin Streetsweeper LOR39 (not used)

#### 2.0 CONSTRUCTION ACTIVITIES

■ Fisher hauled off-site the remaining piping from the impoundment closure.

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher placed seed and fertilizer on the remaining portion of the restoration.
- Fisher finished placing topsoil on the western end and cleaned up the south edge of the restoration with a dozer.
- Fisher placed and crimped straw on the northern portion of the restoration.

Signature: Stephen Thumma, P.E.
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Project: GL21489845

Date: September 20, 2024

#### 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

#### 5.0 MEETINGS AND DISCUSSIONS

■ None.

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

#### 7.0 PROBLEMS AND RESOLUTIONS

■ None.

#### 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

■ None.

Project: GL21489845 Date: September 20, 2024

# 9.0 PHOTOGRAPHS



Photo 1: Fisher placing straw mulch in the north end of the restoration.



Photo 2: Fisher crimping in the straw mulch in the east end of the restoration.



Date:	September 23, 2024			<b>On Site:</b> 0700		Off Site: 1400
Project:	Lined Impo	oundment Demo	lition			
Location:	Essexville, MI			Job No.:	GL21489845	
Owner:	Consumers Energy Company		ny	Contractor:	Fisher	Contracting (Fisher)
Low Temp:	56 °F	High Temp:	65 °F	Wind:	Wind: 10 - 15 MPH N	
Cloud Cover:		Cloudy		Precipitation	None.	

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Fisher Personnel (5 people)	Various Personnel
Jason Odell/Jon Giffel (Consumers Energy)	Construction Manager
Terry Foley (Fisher)	Supervisor

#### 1.0 EQUIPMENT ON SITE

- (1) Hyundai HX 380L Excavator (not used)
- (1) Komat'su D61PXi Dozer (used)
- (1) Deere 700 Dozer (not used)
- (2) CAT 740 Off-Road Truck (not used)
- (2) Dump Truck (not used)
- (1) CAT 730 Off-Road Truck (not used)
- (1) Pro Pac Series 100 Compactor (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Elgin Streetsweeper LOR39 (not used)

#### 2.0 CONSTRUCTION ACTIVITIES

- Fisher reinstalled the silt fence on the south edge of the restoration.
- Fisher restored the concrete barricades near the road on the east end of the project.
- Fisher hauled off-site the remaining concrete from the pipe support system.
- Fisher moved their equipment between the cooling towers for demobilization.

Signature:	Stephen Thumma, P.E.	
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Page 1 of 3

Project: GL21489845 Date: September 23, 2024

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

- Fisher cut the east end of the restoration with a dozer to blend it with the adjoining existing gravel surface.
- Fisher finished placing and crimping straw on the south and west portions of the restoration.

#### 4.0 FIELD LAB TESTING ACTIVITIES

■ None.

#### 5.0 MEETINGS AND DISCUSSIONS

■ None.

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Fisher. Discussed the daily activities and went over potential jobsite hazards for the day.

#### 7.0 PROBLEMS AND RESOLUTIONS

■ None.

#### 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

■ None.

Project: GL21489845 Date: September 23, 2024

# 9.0 PHOTOGRAPHS



Photo 1: Photo of the restoration from the west end looking east.



Photo 2: Photo of the restoration from the east end looking west.



Date:	September 24, 2024			<b>On Site:</b> 0700		<b>Off Site:</b> 1700	
Project:	Lined Impoundment Demolition						
Location:	Essexville, MI			Job No.:	GL21489845		
Owner:	Consumers Energy Company			Contractor:	Fisher Contracting (Fisher)		
Low Temp:	58 °F	High Temp:	72 °F	Wind:	0 - 5 MPH NNE		
Cloud Cover:		Mostly Cloudy		Precipitation	Rain from 8 to 11 AM. (0.10")		

Personnel on Site/Company	Responsibility
Stephen Thumma (WSP)	CQA
Steve Fournier (Rowe)	Survey
Jason Odell/Jon Giffel (Consumers Energy)	Construction Manager

#### 1.0 EQUIPMENT ON SITE

- (1) Deere 700 Dozer (not used)
- (1) Hitachi HL757 TM-7A Front End Loader (used)
- (1) Elgin Streetsweeper LOR39 (not used)

#### 2.0 CONSTRUCTION ACTIVITIES

■ Fisher removed their job trailer in the morning.

#### 3.0 EARTHWORKS MONITORING AND FIELD-TESTING ACTIVITIES

■ None.

#### 4.0 FIELD LAB TESTING ACTIVITIES

■ Rowe completed the topsoil survey on the restoration.

#### 5.0 MEETINGS AND DISCUSSIONS

■ None.

#### 6.0 SAFETY MEETING

■ Attended daily safety meeting with Rowe. Discussed the daily activities and went over potential jobsite hazards for the day.

#### 7.0 PROBLEMS AND RESOLUTIONS

■ None.

Signature: Stephen Thumma, P.E.

Project: GL21489845 Date: September 24, 2024

# 8.0 SUMMARY OF INCIDENTS/ACCIDENTS/H&S ISSUES

■ None.

#### 9.0 PHOTOGRAPHS

No photographs were taken today.

October 2024 GL21489845

**APPENDIX C** 

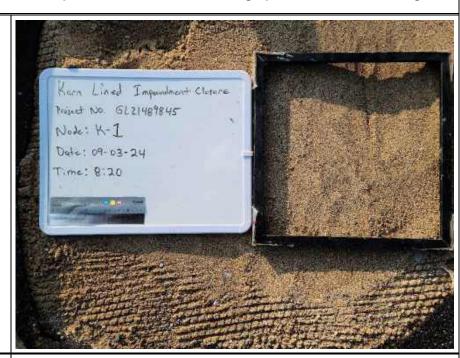
Karn Lined Impoundment Grid Node Photographic Documentation Log



#### **PHOTO 1**

Node Number: K-1 Microscopy Result: 0.5

percent CCR



#### **PHOTO 2**

Node Number: K-3 Microscopy Result: 0.5

percent CCR





#### **PHOTO 3**

Node Number: K-4 Microscopy Result: N/A



#### **PHOTO 4**

Node Number: K-6 Microscopy Result: N/A



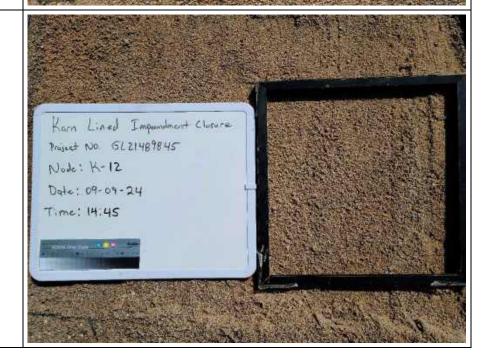


# Know Lined Impaintment Clusure Project No. GLZ1489845 Node: K-7 Date: 09-03-24 Time: 8:55

#### **PHOTO 5**

Node Number: K-7 Microscopy Result: 0.5

percent CCR



#### **PHOTO 6**

Node Number: K-12 Microscopy Result: N/A





#### **PHOTO 7**

Node Number: K-16 Microscopy Result: N/A



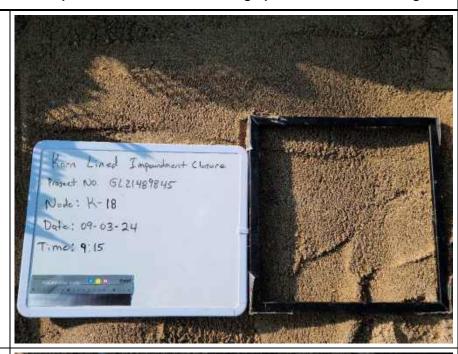
#### **PHOTO 8**

Node Number: K-17 Microscopy Result: N/A



#### **PHOTO 9**

Node Number: K-18 Microscopy Result: 0.5 percent CCR



#### **PHOTO 10**

Node Number: K-22 Microscopy Result: 0.5

percent CCR





# **PHOTO 11**

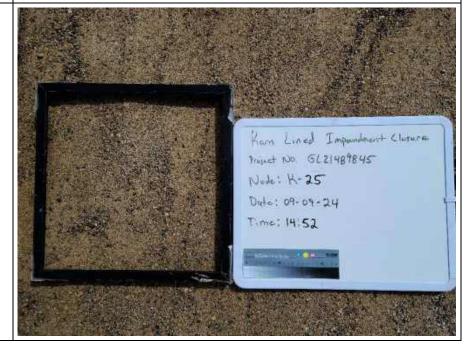
Node Number: K-24 Microscopy Result: 0.5

percent CCR



#### **PHOTO 12**

Node Number: K-25 Microscopy Result: N/A





# **PHOTO 13**

Node Number: K-27 Microscopy Result: 0.5

percent CCR



#### **PHOTO 14**

Node Number: K-28 Microscopy Result: N/A





# **PHOTO 15**

Node Number: K-29 Microscopy Result: 0.5

percent CCR



#### **PHOTO 16**

Node Number: K-30 Microscopy Result: 0.5

percent CCR





# Karn Lined Impendment Clesure Project No. 6621489845 Node: K-31 Date: 09-03-24 Time: 9:55

#### **PHOTO 17**

Node Number: K-31 Microscopy Result: 0.5

percent CCR



#### **PHOTO 18**

Node Number: K-33 Microscopy Result: N/A



#### **PHOTO 19**

Node Number: K-34 Microscopy Result: 0.5

percent CCR



#### **PHOTO 20**

Node Number: K-36 Microscopy Result: N/A





#### **PHOTO 21**

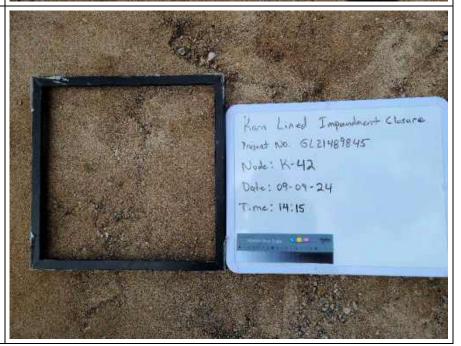
Node Number: K-39 Microscopy Result: 0.5

percent CCR



#### **PHOTO 22**

Node Number: K-42 Microscopy Result: N/A





#### **PHOTO 23**

Node Number: K-44 Microscopy Result: 1.5 percent CCR



# **PHOTO 24**

Node Number: K-45 Microscopy Result: N/A

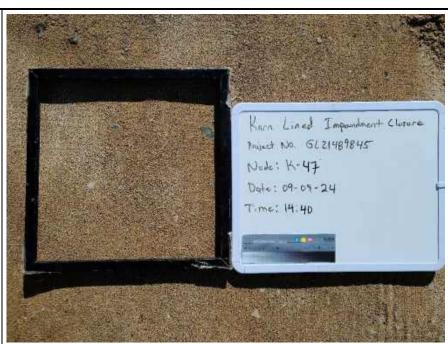




#### **PHOTO 25**

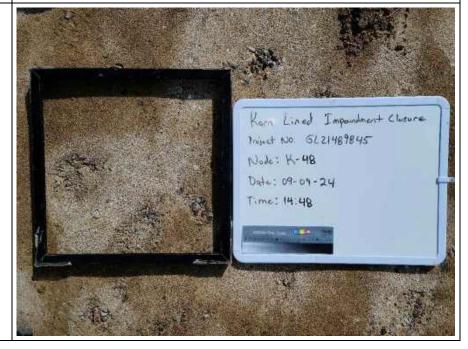
Node Number: K-47 Microscopy Result: 1.0

percent CCR



#### **PHOTO 26**

Node Number: K-48 Microscopy Result: N/A





#### **PHOTO 27**

Node Number: K-50 Microscopy Result: 0.5 percent CCR



# **PHOTO 28**

Node Number: K-51 Microscopy Result: 0.5 percent CCR



October 2024 GL21489845

#### **APPENDIX D**

MJ2 Consulting CCR Removal Microscopy Memorandum



October 25, 2024

Mr. Stephen Thumma, PE WSP USA Inc. 4775 Two Mile Road, Suite A Bay City, Michigan 48706 Email: stephen.thumma@wsp.com

Phone: 989-439-1070 Cell: 989-652-5425

Laboratory Examination of Soil Samples from Consumers Energy Company (CEC) DE Karn Demolition Grading Project, Essexville, Michigan MJ2 No. 2024.0119.1

Dear Mr. Thumma,

MJ2 Consulting, PLLC (MJ2) has examined 16 sand samples from the above-referenced site using visual microscopical analysis to determine the quantity of coal ash within the samples. The threshold value for ash content on this project is 10%. None of the examined samples exceed this value. The samples and examination are further described below. Representative images are presented in the attached figures.

#### Methodology

#### **Reference Standards**

Two samples of clean sand, identified as "2NS" and "Class II", and a sample of ash were provided to MJ2 by WSP. The materials were individually oven-dried and sieved to pass a No. 16 mesh. Particles initially retained on the No. 16 mesh were crushed using a mortar and pestle and re-sieved. The dried and sieved materials (Figures 1 to 4) were used to prepare reference standards with varying but known ash contents (determined as % ash by total mass). One set of reference standards was prepared for each sand type (Figures 5 to 8).

#### **Microscopical Examination**

A total of 16 samples from the site were submitted, as listed in Table 1 on the following page. The sand type represented by each sample was indicated by WSP. Sub-samples of the submitted materials were oven-dried and sieved. Particles initially retained on the No. 16 mesh were crushed using a mortar and pestle and re-sieved.

Optical microscopy of the processed specimens was performed using a stereomicroscope at magnifications up to 45X. The amount of ash in each specimen was visually determined in at least ten fields of view by comparison to the corresponding reference standard set (Figures 9 to 16).

#### **Examination Results**

Results of the microscopical examination are presented in Table 1 below. Considering the small amounts of ash observed in the samples, and the ash contents of the prepared reference standards, the visually determined values have an accuracy of ±0.5%.

Table 1 – Sample information and examination results

Sample ID	Sand Type	Determined Ash Content	Date Sampled	Date Received
K-1	2NS	0.5%	9/3/2024	9/4/2024
K-3	2NS	0.5%	9/3/2024	9/4/2024
K-7	2NS	0.5%	9/3/2024	9/4/2024
K-18	2NS	0.5%	9/3/2024	9/4/2024
K-22	2NS	0.5%	9/3/2024	9/4/2024
K-24	2NS	0.5%	9/3/2024	9/4/2024
K-27	2NS	0.5%	9/3/2024	9/4/2024
K-29	2NS	0.5%	9/3/2024	9/4/2024
K-30	Class II	0.5%	9/3/2024	9/4/2024
K-31	Class II	0.5%	9/3/2024	9/4/2024
K-34	Class II	0.5%	9/11/2024	9/12/2024
K-39	Class II	0.5%	9/11/2024	9/12/2024
K-44	Class II	1.5%	9/11/2024	9/12/2024
K-47	Class II	1.0%	9/11/2024	9/12/2024
K-50	Class II	0.5%	9/11/2024	9/12/2024
K-51	Class II	0.5%	9/11/2024	9/12/2024

#### Closing

The observations and interpretations presented in this report are based on the performed examination of the submitted samples and information available at the time of the examination. MJ2 reserves the right to modify interpretations if further testing is performed on the samples, additional materials are provided, or other relevant information becomes available at a later date.

The samples will be retained for 60 days and then disposed. If you wish to have the samples returned, please contact me at your earliest convenience to make arrangements.

MJ2 appreciates the opportunity to be of service to you. If you have any questions, please feel free to contact me by phone or email.

Sincerely,

MJ2 Consulting, PLLC

Victoria Jennings Senior Petrographer

Vicki@MJ2consulting.com

Cell: 773-659-9711

Attachments: Figures



Figure 1 – Provided reference materials, processed and sieved to pass a No. 16 mesh.



Figure 2 – Magnified views of processed 2NS reference sand.



Figure 3 – Magnified views of processed Class II reference sand.

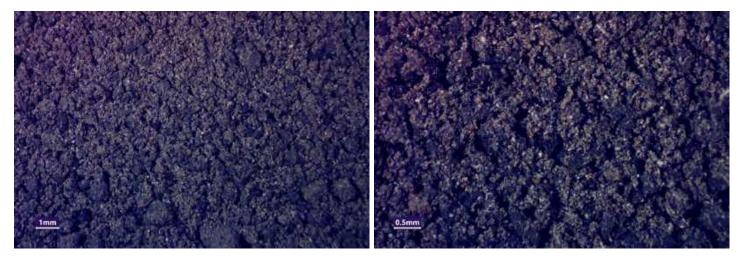


Figure 4 – Magnified views of processed Ash reference sample.

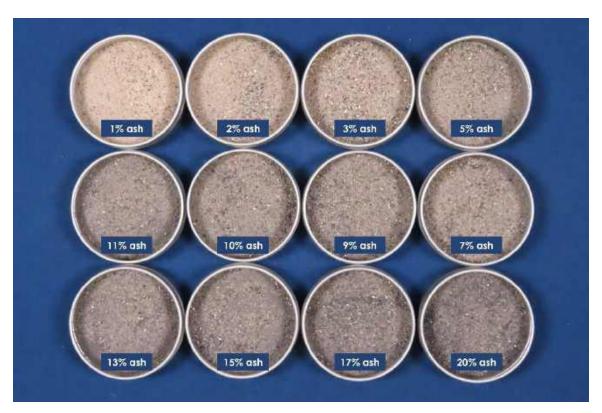


Figure 5 – Prepared reference standards for 2NS sand type.

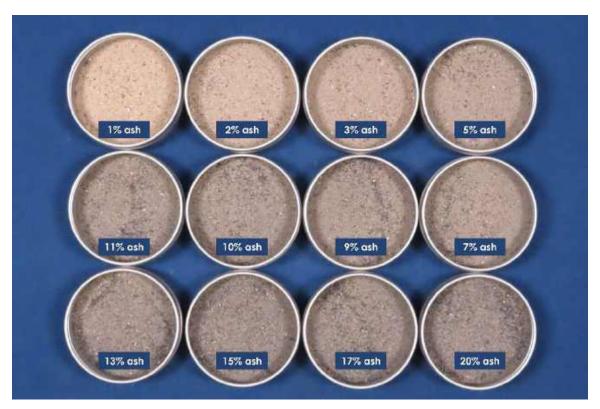


Figure 6 – Prepared reference standards for Class II sand type.

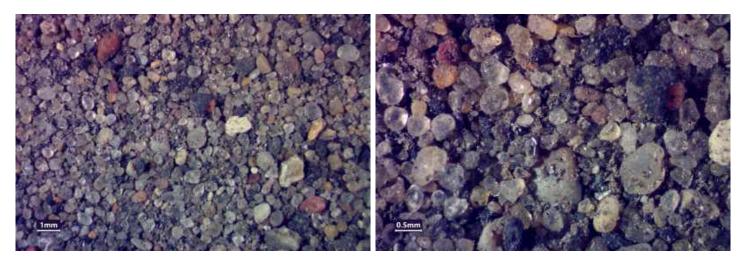


Figure 7 – Magnified views of 10% ash reference standard (threshold ash content) for 2NS sand type.

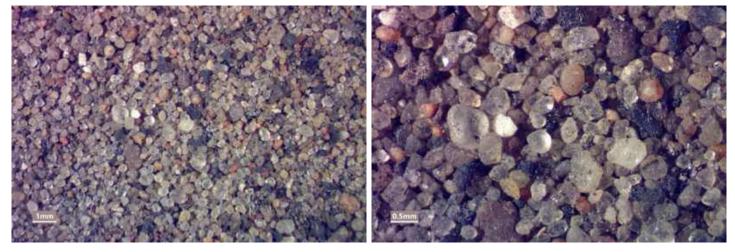


Figure 8 – Magnified views of 10% ash reference standard (threshold ash content) for Class II sand type.



Figure 9 – Comparison of processed 2NS sand type samples to select reference standards (middle row).



Figure 10 – Comparison of processed Class II sand type samples to select reference standards (middle row).



Figure 11 – Magnified views of processed sample K-7, representative of 2NS sand type.



Figure 12 – Magnified views of processed sample K-24, also representative of 2NS sand type.

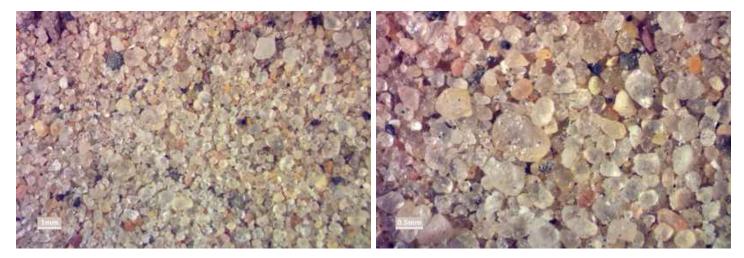


Figure 13 – Magnified views of 1% ash reference standard for 2NS sand type, for comparison.



Figure 14 – Magnified views of processed sample K-31, representative of Class II sand type.

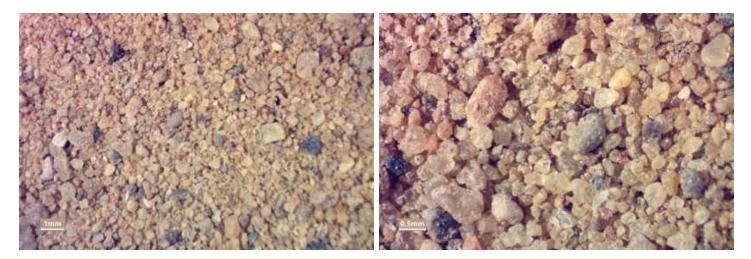


Figure 15 – Magnified views of processed sample K-44, also representative of Class II sand type.



Figure 16 – Magnified views of 1% ash reference standard for Class II sand type, for comparison.

